UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

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Report Nos.: 50-325/92-45 and 50-324/92-45

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324 License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection Conducted: December 8-11 and December 16-18, 1992

Inspector: _____ 1/6/93
J. J. Lenahan Date signed

Approved by: _____ 1/6/93
J. J. Blake, Chief Date Signed
Materials Processes Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of evaluation of concrete masonry walls, review of short term structural integrity issues, the hotside/coldside walkdown program, followup on design/construction concerns, and licensee action on previous inspection findings.

Results:

In the areas inspected, violations or deviations were not identified. The coldside walkdowns performed in the control room were thorough and comprehensive. The walkdowns are continuing in other areas. The licensee will assess the results of the walkdowns to develop their overall program in accordance with commitments made to NRC. Reductions in the onsite engineering staff may affect completion dates for some engineering design work - Paragraph 3.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Brown, Unit 2 Plant Manager
***S. Callis, Licensing Engineer
T. Eason, QC Supervisor
***S. Floyd, Manager, Regulatory Compliance
R. Godley, Manager, NRC Compliance
L. Grzeck, Project Engineer, Misc. Steel, Nuclear Engineering Department
R. Knott, Principal Engineer, NED
***J. Leininger, Onsite Manager, NED
**R. Morgan, Site Manager, Brunswick
R. Tripp, Civil Engineer, NED
S. Vann, Misc. Steel Project Manager, NED

Other licensee employees contacted during this inspection included engineers, technicians, and administrative personnel.

Other Organizations

**R. Bizzak, Civil/Structural Engineer, TENERA
**T. Gallagher, Project Manager, Bechtel
**C. Mortgat, Civil/Structural Engineer, TENERA

NRC Resident Inspector(s)

R. [illegible] Senior Resident Inspector
P. By[illegible] esident Inspector
***D. Nelson, Resident Inspector

*Attended December 11 exit interview
**Attended December 18 exit interview
***Attended both exit interviews

2. Review of Masonry Walls Classifications

In the short term corrective actions specified in item C8 of Enclosure 3 to CP&L letter dated July 23, 1992, Serial: NLS 92-150, Subject: Reply to Inspection Report Nos: 50-325/92-12 and 50-324/92-12, the licensee committed to perform a review of IE Bulletin 80-11, Masonry Wall Design, prior to restart of the plant. This review was performed to address masonry wall functions and classification. The inspector reviewed the results of the classifications for the masonry block walls in the control, diesel generator, and Unit 1 and 2 reactor buildings. This review disclosed that all masonry block walls in the control and diesel generator buildings are now classified as safety-related. During the original IE Bulletin 80-11 analysis, several walls in these buildings had been classified as non-safety related. The reasons for revising the safety classifications of walls originally classified as non-safety

related include change in design function, specifically control room habitability which required reclassification of six walls on the west perimeter of the control room, installation of safety-related equipment on or in proximity to masonry walls originally classified as non-safety related walls, and tornado design considerations. Tornado loads were not considered to be acting on internal walls in the original IEB 80-11 analysis. IEB 80-11 did not require control room habitability to be evaluated, and since the six walls on the west perimeter of the control room were not in the proximity of safety related equipment, these walls were not included in the IEB 80-11 analysis.

Review of the classification of walls in the reactor building disclosed that classification of 11 walls in Unit 1, and 12 walls in Unit 2, were changed from non-safety related to safety related due to the fact that they are in the proximity of safety - related equipment. A total of 68 walls, 30 in Unit 1 and 38 in Unit 2, are still classified as non-safety related. The inspector examined wall numbers 4, 5A, 17A, and 17B which are still classified as non-safety related in Units 1 and 2 and verified that no safety related equipment was in proximity of these walls. The inspector concluded that these walls are properly classified as non-safety related. The inspector will examine other walls in the reactor buildings to ascertain their classification as non-safety related is correct in a future inspection. The licensee completed design calculations for all walls classified as safety-related using updated design criteria for tornado and seismic loads. Modifications were issued to upgrade walls which did not meet design criteria. The modification were issued under plant modification numbers PM 91-011, 91-041, and 92-059. The inspector examined some of the completed modifications during inspections documented in NRC Inspection Report numbers 50-325, 324/92-14 and 92-40. The inspector will examine modifications currently in progress in a future inspection.

Violations or deviations were not identified.

3. Walkdown Inspection Program Units 1 and 2 (62700)

In short term corrective action items E1 and E2 of Enclosure 3 to the July 23, 1992 letter, referenced above, the licensee committed to performed walkdown inspection and address any deficiencies in accordance with site procedure PN-30, Integrated Recovery Methodology. Procedure PN-30 is used to prioritize work items and determine which work must be completed prior to startup. Item E1 addresses the hotside walkdowns which were designated as the walkdowns performed in areas which are inaccessible (due to high radiation levels) when the units are at power. Item E2 addresses the coldside walkdowns which were designated as the walkdowns performed in the areas of the plant which are accessible during plant operation. The inspector examined the results of the hotside/coldside walkdowns during inspections documented in NRC Inspection Report number 50-325, 324/92-20, 92-23 and 92-27. The inspector identified discrepancies and areas of concern regarding the overall walkdown program. These were documented in Report number 50-325, 324/92-27, which requested the licensee to provide additional

information regarding actions they plan to take to improve the results of the hotside/coldside walkdowns. The licensee committed to submit this response in January, 1993.

In Enclosure 2 to a letter dated November 30, 1992, Serial BSEP 92-0046, Subject: Brunswick Startup Plan, the licensees summarized their current plans for the hotside/coldside walkdown inspections which they plan to complete prior to the startup of Unit 2. The plans include re-inspection of the hotside areas, including the torus and dry well, and inspection of the control room overhead area which was not previously reported. Re-inspection of additional coldside area is under consideration depending on results of inspections in the hotside areas. The licensee will provide additional information to NRC regarding the walkdown inspections during a January 6, 1993, meeting in the NRC Region II office.

During the current inspection, the inspector reviewed procedure number OSP-92-076, Special Plant Walkdown Procedure, Revision 1, dated November 25, 1992. The procedure was developed to control the performance of the additional walkdown inspections currently being conducted at the site. The procedure specifies precautions and limitations, instructions for conducting the inspections, inspection criteria, reporting and followup on observed deficiencies, and instructions for performing operability reviews. The procedure specifies that the walkdowns are to be performed by multi-disciplined teams, consisting of civil, electrical, and mechanical personnel. The inspector concluded that this procedure was adequate to control performance of the walkdown inspections.

The inspector also reviewed Engineering Evaluation Report (EER) number 92-0290, Engineering Direction for Conduit Support Maintenance Items. This EER was written to provide instructions to correct minor deficiencies associated with conduit supports identified during the walkdowns. Example of minor deficiencies include loose or missing anchor bolts, broken, damaged, loose, or missing conduit clamps, damaged supports, defective welds, abandoned hangers, and loose support connections. These items are to be corrected using existing maintenance or installation procedures.

The inspector walked down the control room overhead area and reviewed the results of the licensee's in-progress walkdown inspections which were being conducted in this area. The inspector noted that the licensee's inspection teams had conducted thorough in-depth inspections in this area; numerous deficiencies had been identified. A problem with housekeeping had also been identified; the licensee inspection personnel removed several trash bags full of debris, trash, and abandoned hardware such as an used pieces of conduit, unistruct supports, threaded rods, piece of scaffold, etc. which had been abandoned in this area over the past several years. A large number of conduilet covers were found that had been removed during previous maintenance or modification activities. These were replaced by craft personnel under the existing minor corrective maintenance procedures. The walkdown inspections in the

control room overhead area had been completed by the end of this inspection period; through December 16th, 1171 deficiencies had been identified. These included 487 which were documented on trouble tickets, 293 which involved conduit support and will be corrected under EER 92-0290, and 331 other deficiencies classified as minor maintenance items. Potential operability concerns were identified for two of the trouble tickets, while 94 of the trouble tickets were classified as indeterminant regarding operability, requiring further engineering evaluation. A total of 295 engineering work requests (EWR) were initiated to address various items on the trouble tickets.

During the inspection, the inspector was informed that the number of contract engineers assigned to the Nuclear Engineering Department (NED) will be reduced by 20 percent by January 1, 1993. Similar reductions in contract personnel are being implemented in other departments. The inspector questioned licensee engineering management personnel regarding the impact of these reductions on the evaluation of the walkdown deficiencies, in consideration that walkdowns are continuing in other areas, and more issues will be identified. The inspector also expressed concern regarding the failure of NED to complete and closeout any of their assigned short term corrective actions listed in Enclosure 3 to the above referenced July 23, 1992 letter.

During the current inspection, walkdowns were initiated in the following Unit 2 area: Feedwater pump room 2A, Feedwater heater Room 2A, RWCU pump room 2A and RWCU pump room 2B. The inspector observed the walkdowns in the 2A feedwater pump and heater rooms. These inspections were still progress at the end of the inspection. Approximately 100 deficiencies had been identified in these areas, resulting in 60 trouble tickets, 22 EWRS, and seven others which are in determinant regarding operability. Forty of the items are covered under minor maintenance. The inspector will continue to review the walkdown inspection program and results in future inspections.

Violation or deviations were not identified.

4. Scram Discharge Volume Piping - Units 1 and 2 (62700)

In August, 1992, during inspection of portions of the scram discharge volume (SDV) piping systems, supports were found to be missing from the instrument volume lines in both units. On the Unit 1 piping, one support was found missing (actually it was installed on the wrong pipe), while another support was the incorrect one (support was lateral support only while drawing called for a lateral/vertical support). The problem was documented as Adverse Condition Report (ACR) numbers N 92-0112 and B 92-661. Licensee engineers were able to short term qualify this piping under Design Guide II.20 for operability. Inspection of the same piping on Unit 2 disclosed two missing supports. The concrete anchors for the supports were in place, but the two supports were missing. This piping could not be qualified for operability with two missing supports. This problem was documented in ACR B-92-674. This was reported to NRC under Licensee Event Report number 92-006 for Docket 50-324 (Unit 2) in

a thirty day report attached to a letter dated September 19, 1992, Serial BSEP - 92-0019. The licensee issued work requests WR/JO 92-AWEG1 and 92 - AWKQ1 to reinstall these supports. The Unit 1 supports were installed under emergent structural repair Plant modification 91-011.

The inspector walked down the piping system and examined the licensee's corrective action to repair/reinstall the missing supports. Details for the Unit 1 support are shown on the following:

- Sketch number SK-91011-C-1340, Sheet 1 of 1, for modification of support number 1-BSEP-12I. This modification was to change the existing support from a lateral support only to a combination lateral/vertical support.

- Sketch number SK-91011-C-1339 for installation of new support number 1-BSEP-12P.

- Drawing number 1-FP-61161 for removal of the support which was installed incorrectly on line C-C11-54-2-608.

The Unit 2 supports were reinstalled per the installation designs issued under Plant Modification 79-124. These were drawing numbers 2-FP-0609, Sheet 841, for support number 2-BSEP-12-G and 2-FP-0609, Sheet 843, for support number 2-BSEP-12-I. During the walkdown inspection, the inspector verified that the supports were installed in accordance with the design requirements. No discrepancies were noted.

Additional corrective actions to closeout the ACRs included reinspection of portions of the Control Rod Drive (CRD) Scram discharge headers, drains, and insert and withdrawal lines. The inspector reviewed the results of the reinspection program. On Unit 1, 179 of 289 total supports were inspected; forty-six issues were identified. On Unit 2, 206 of 313 supports were inspected, with 102 issues identified. The majority of the issues were minor, e.g., clearance problems, identifying a conduit attached to one of the CRD supports, loose pipe clamps, or minor damage to miscellaneous hardware. However, two significant issues were identified on the Unit 2 CRD piping. One of these involved another missing support, and the other involved a large electrical conduit being in contact with and supported on the small bore CRD insert/withdrawal piping. The licensee is in the process of evaluating and/or correcting all 148 issues. In addition, the reinspection program will be expanded to include all remaining supports on the CRD system. The inspector will examine the results of these additional reinspections and review some of the corrective actions in a future inspection.

Violations or deviations were not identified.

5. Short Term Structural Integrity (STSI) 37200

STSI items are those identified by licensee personnel, which after evaluation by NED, are determined to be operable, although they do not

meet the design criteria established by the FSAR. The operability reviews are performed in accordance with Design Guide II.20, Civil/Structural Operability Review. This design guide has been reviewed and accepted by the NRC Office of Nuclear Reactor Regulation (NRR). An SER was issued by NRC on October 8, 1992 to document this position. The inspector reviewed the status of items currently classified as STSI at the site. The latest STSI list is documented in a report issued by NED in a site memorandum dated November 17, 1992, Subject: Brunswick Nuclear Project Short Term Structural Integrity List. The list contains 62 items currently classified as STSI. Review of the list disclosed that several of the items on the list are currently being repaired under the emergent structural repair modification. The licensee is in the process of issuing drawings to complete repairs of other items on the list prior to startup. For example, drawings to correct item number 169, which covers supports for the fuel oil piping which are attached to non-Q platforms and block walls in the tank building, will be issued in late December, 1992. The licensee plans to implement this modification prior to startup. Several of the items involve pipe support discrepancies identified under the DTOP program, which is discussed in paragraph 7, below.

Violations or deviations were not identified.

6. Design/Construction Concern (37700)

a. Concern: During a review of a list of "projects in working", the inspector questioned item number 12 on the list: NCR on Calc 87-108-1. No seismic design done on control room IE Q-list conduit support, (i.e. use of Existing Rod Hanger Supports). The "Projects in Working" list was prepared when the onsite QA group was disbanded and replaced by the Corporate Nuclear Assessment Department (NAD)

b. Discussion: The inspector reviewed calculation number 87-108-1, Reactor Building Air Temperature Monitoring. This modification covered installation of several new supports for this system. Discussions with licensee engineers disclosed that new supports were installed because of the difficulty in qualifying existing supports for attachment of new conduits. The site general practice is to install new supports for new conduit modification/installation work instead of attaching to old existing supports. A silver band is attached to new supports to identify them. Review of the calculation package disclosed that QA engineers may have questioned the seismic qualification of rod hangers. These supports were qualified using the proprietary computer analysis titled "EZ-Hang", and thus have been seismically analyzed.

Violations or deviations were not identified.

7. Action on Previous Insnection Findings

(Open) Inspector Follow-up Item 325,324/92-14-02, Complete Evaluation and Repairs to Pipe Supports and Closeout of NCR S-86-021. Nonconformance Report number S-86-021 was identified due to discrepancies between the installed pipe supports and the as-built drawings for safety related piping system. The as-built drawings were completed as part of IEB 79-14, Seismic Analysis for As-Built Safety Related Piping Systems. The licensee has initiated the Design Turnover Project (DTOP) Phase II to walkdown and re-analyze the safety related piping systems and correct the as-built drawings to disposition NCR S-86-021. DTOP had been reviewed by NRC Region II inspectors in 1987 through 1990 as part of the close out of IEB 79-14. The licensee originally proposed a date of December 1991 to close out the DTOP design work. Based on this proposed schedule, IEB 79-14 was closed by NRC; however, budget cuts and reduction in staffing extended the completion date to December 1992. IFI 325,324/92-14-02 was identified by the inspector to track timely closeout of the DTOP Program and to followup on completion of repairs/modifications to pipe supports as a result of DTOP design work. During the current inspection, the inspector reviewed the schedule for completion of the DTOP design work with the responsible CP&L principal engineer. The current schedule calls for completion of design work in July 1993. The inspector questioned the impact of the NED staff reduction discussed in paragraph 3, above, on DTOP. The discussion disclosed that six positions have been eliminated from the DTOP group. This reduction in force has not been factored into the DTOP schedule. The inspector expressed concern to licensee management regarding further delay in closeout of DTOP and completing the associated modifications. Licensee management stated that they would review the impact of the proposed staff cuts on the DTOP program schedule. Licensee management stated that the intent was to closeout DTOP in 1993 and to complete all required modifications in 1994. IFI 325,324/92-1402 will remain open pending further review by NRC.

8. Exit Interview

The inspection scope and result were summarized on December 11 and 18, 1992, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.