UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-324/80-24 and 50-325/80-27

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

Facility Name: Brunswick Unit 1 and 2

Docket Nos. 50-324 and 50-325

License Nos. DPR-62 and DPR-71

Inspection at Brunswick Site near Southport, North Carolina

Inspector: Bobby 2 Moon 8/5/80
B. T. Moon Date

Approved by: C M Upright for 8/6/80
D. R. Quick, Section Chief, NSS1 Date

SUMMARY

Inspection on June 21-24, 1980

Areas Inspected

This routine, announced inspection involved 34 inspector-hours on site in the areas of periodic testing of diesel generator units used as onsite electric power systems, licensee actions on previously identified items, and review of diesel generator testing requirements at IE headquarters' request.

Results

Of the three areas inspected, no items of noncompliance or deviations were identified in two areas; one item of noncompliance was found in one area [(Deficiency - Failure to provide complete test requirements and instructions - Paragraph 6.b (324/80-24-01, 50-325/80-27-01)].

DETAILS

1. Persons Contacted

Licensee Employees

*A. C. Tollison, Jr., General Manager
*R. M. Poulk, Regulatory Specialist
*R. Creech, I & C Foreman
*D. Moore, Engineering Technician
*A. Bishop, Project Engineer
*M. D. Macon, Plant Engineer
*G. C. Bishop, I & C Maintenance Engineer

Other licensee employees contacted included office personnel and operators.

NRC Resident Inspector

*J. E. Ouzts

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 24, 1980 with those persons indicated in paragraph 1 above. Two of the inspection items which related to the performance of the diesel generator test, were left unresolved at the exit interview pending further in-office review. One of these items concerned a procedural inadequacy. The procedure did not include the FSAR requirements for the test. This item was subsequently determined to be an item of noncompliance and the licensee was informed of the decision on July 16, 1980. The other item concerned loading the diesel generator with nonessential loads during the test. The licensee made a commitment to demonstrate the design lockout feature in a future test. See paragraph 6.b. and 6.c. for further details.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Actions on Previously Identified Items

a. (Closed) Inspector Followup Item (324/79-33-02, 325/79-34-02) concerned the missing sign-offs and skipping procedural steps in PT's during the test turnover due to lack of coordination between crafts. The inspector

reviewed a number of PT's including PT 4.1.6 PC, "Containment Radiation Monitor Channel Calibration", and concluded that sign-off of steps was brought up-to-date. The coordination problem between RC&T and I&C was addressed in the action item dated February 20, 1980, which clarified that steps must be performed in sequence. All L&C Technicians were instructed on the procedure. The importance of following procedures step-by-step was discussed in the Tail-Gate Safety Meeting for the week ending February 15, 1980.

b. (Open) Inspector Followup Item (324/325/79-15-01): Diesel generator startup failure. The licensee did not report the failure to NRC because they are, at the present time, not committed to the Regulatory Guide 1.108. During the inspection it was established that the failure was due to a misalignment of a battery power switch to a depleted source. This occurred during the cold shutdown of the unit. The licensee's controls for the switch, during the unit operation, will be reviewed during a future inspection.

6. Periodic Testing of Diesel Generator Units used as Onsite Electric Power Systems.

a. General Obersvation

The inspector reviewed the licensee's procedures PT 12.1.1A and PT 12.1.2 entitled "Diesel Generator Loading Test". These procedures describe the tests to be performed to verify that the emergency buses de-energize and shed loads, and that the diesel generator system starts and assumes ECCS loads under a simulated loss of off-site power concurrent with an ECCS test signal. The procedures, including annotations, were approved by qualified management personnel. Check-off lists are provided for documenting initial conditions, testing procedures, and test data. Test requirements from the Technical Specifications as well as the Final Safety Analysis Report (FSAR) were incorporated into the procedure with the exception of problems discussed in Paragraph 6.b. and 6.c. below. The inspector witnessed and/or reviewed portions of the test conducted during the period of June 21 and 22, 1980 to verify that (1) minimum crew requirements are met, (2) test prerequisites were completed, (3) special equipment was installed and calibrated, and (4) changes to the procedure were documented and approved. The tests are conducted in individual sections to demonstrate the operability of the various systems arrangements of emergency busses, diesel generators, and ECCS components. Problems identified during this review are described in the following paragraphs.

b. Automatic Diesel Generator Loading

During the review of test procedure, PT 12.1.2, dated April 9, 1980, the inspector found that certain design loads identified in Section 8.11.6 of the FSAR were not included to be tested. These loads are applied to a typical diesel generator under accident conditions with

the order and start time specified in Table 8.11.6. they amount to more that 10% of the total design load, as follows:

Activity	Elapsed Time (sec)	KVA or HP
Start ten (10) MOV Motors (*)	10	50
Start ten (10) MOV Motors (+)	15	50
Start one (1) Fire Pump	20	250
Total		350

NOTES: (*) Occurs simultaneously with the start of one(1) RHR Pump Motor

(+) Occurs simultaneously with the start of one (1) Core Spray Pump Motor

When this matter was discussed with performance and engineering personnel prior to the test, the licensee issued a temporary procedure change, by initiating an Operating Manual Revision Form dated, June 21, 1980, to add the fire pump load described above. The MOV's relevant to the test were, however, not identified in time for this test. Failure to incorporate the FSAR requirements to test the complete engineered safety feature loadings was identified as an example of an inadequate procedure. This was identified by telephone conversation with the licensee, on July 16, 1980, as noncompliance with the requirements of Technical Specification 6.8.1 and ANSI N18.7 (1972), which require that adequate procedures be established covering surveillance and test activities of safety related equipment (324/80-24-01, 325/80-27-01). Further, the licensee was informed that NRC has no objection to their proposed test method of using equivalent loads for the MOV's, as long as the sequential loading capability of the diesel generators is demonstrated. The licensee agreed to initiate a permanent revision to the procedure to include the fire-pump and MOV's (equivalent load) prior to the forthcoming test on Unit 1. This item will be reinspected during a future inspection and the licensee's response to the notice of violation is not necessary at this time.

c. Lockout of Nonessential Loads

During the review of test data the inspector found that the licensee had deleted the requirement to test Reactor Building Closed Cooling Water (RBCCW) Pumps 2A, 2B, and 2C. This was done because under present test conditions RBCCW Pumps 2A and 2C did not load shed (trip) properly during Section A of the test. Tripping these pumps under a loss of off-site power concurrent with an ECCS signal was part of the system design such that only essential ESF loads are applied to the diesel generators. This lockout utilizes two relay contacts, one of which de-activates upon a loss of off-site power detected at the

switch gear yard. It was revealed from a discussion with the licensee that the test personnel did not account for the simulation of this relay contact and, concluded that these pumps should not have been included in the test. The inspector stated that the pumps should be included in the test in order to demonstrate the lockout feature of the pumps during the sequential loading , which ensures freeing the diesels of non-design loads under accident conditions. The inspector also cautioned the licensee about the possibility of similar problems existing in other systems. The licensee agreed to test the RBCCW pump lockout feature prior to the forthcoming startup. The licensee also agreed to perform an evaluation and identify any similar problems found, by August 1, 1980. This item was identified as an unresolved item until July 16, 1980, at which time, during a telephone conversation, the licensee made a commitment to provide corrective actions including procedure revisions for future testing by September 30, 1980 for both units. This item is an inspector followup item (50-324/80-24-02, 50-325/80-27-02).

d. Loss of Offsite Power for Both Units

The inspector requested information from the licensee to clarify NRC concerns over testing the diesels under simultaneous loss of offsite power for both units. The licensee supplied an analysis on "Shared Diesel Generator Systems Evaluation" and this item is under review (50-324/80-24-03).

7. Review of Diesel Generator Testing Requirements

The inspector reviewed the licensee's current technical specifications at IE headquarters' request to verify that the requirement for diesel generator load sequencer testing is up to date with the current "Standard Technical Specifications for GE BWR Reactors". The three specific required cases for load sequence testing are: (i) the loss of offsite power without a safety injection signal, (ii) the loss of offsite power with a safety injection signal, and (iii) the actuation of an engineered safety features signal without a loss of offsite power. The inspector found that only item (ii) above is included in the licensee's current technical specification. This was discussed with the licensee at the exit interview and he stated that he will look into the possibility of incorporating the other two items into the technical specifications. However, he will not commit to it voluntarily at this time (50-324/80-24-04, 50-325/80-27-03).