



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

Report Nos.: 50-250/91-15 and 50-251/91-15

Licensee: Florida Power and Light Company
 9250 West Flagler Street
 Miami, FL 33102

Docket Nos.: 50-250 and 50-251

License Nos.: DPR-31 and DPR-41

Facility Name: Turkey Point 3 and 4

Inspection Conducted: April 29 - May 9, 1991

Inspector: *for Frank Jape* 6/10/91
 P. A. Taylor Date Signed

Approved by: *Frank Jape* 6/10/91
 F. Jape, Chief Date Signed
 Test Program Section
 Engineering Branch
 Division of Reactor Safety

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of reviewing the licensee startup organization, administrative controls used for the conduct of the preoperational test program, test procedure review and the witnessing of functional and reliability tests of the 4B emergency diesel generator (EDG).

Results:

In the areas inspected, violations or deviations were not identified.

The lack of identifying the initial conditions required prior to performing the 4B reliability tests was identified as a procedural weakness (Paragraph 2C).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. Arias, Jr., Technical Assistant to Site Vice President
- *W. Bladow, Quality Manager
- *J. Broadwater, Startup Supervisor
- *R. Daly, Outage Manager
- *S. Hale, Engineering Project Manager
- R. Hornek, Startup Engineer
- L. Huenniger, Startup Superintendent
- *V. Kaminskas, Operations Superintendent
- R. Kundalkar, Site Engineering Project Manager
- *J. Knorr, Regulatory Compliance
- G. Morrow, Startup Engineer
- L. Pearce, Plant Manager

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

Other Organizations

P. Dillion, Engineer, EBASCO

NRC Resident Inspectors

- *R. Butcher
- *L. Trocine

*Attended exit interview

2. Preoperational Test Program Review (72701)

a. General

The licensee has initiated the emergency power system (EPS) enhancement project, which separates emergency power, such that Unit 4 will have two new emergency diesel generators (EDG) and the two existing EDG will be assigned to Unit 3. In addition to the new diesel generators, extensive modifications to existing 4160V switchgear, 480V load centers, Unit 3 EDG, motor control centers, and installation of emergency load sequencers are required for both units to provide the necessary electrical separation, load shedding and emergency load sequencing. The EPS enhancement project improves the response capability during a design basis accident (DBA) with the increased Kw load capacity provided by the new EDGs and the assignment of the two existing EDG to Unit 3.

NRC staff approval of the EPS enhancement project and preoperational test plan is documented in Safety Evaluation Report (SER) dated December 28, 1991.

b. Startup Organization and Administrative Controls

The licensee is using construction services and on-site contractors to install the modifications to electrical systems necessary to implement the EPS enhancement project. Once the modifications and maintenance work is completed on an electrical system, inspections and system walkdowns are performed. Construction Services, Startup and Quality Control personnel are used to conduct the system inspection and walkdown. Incomplete items identified are then documented on a "punch list." The Startup Organization accepting systems, sub-systems or components for performing construction checkout tests and preoperational tests are based on the completion of construction and a review of punch list items. The final turnover of a system back to the plant operations organization is by the startup organization.

The inspector held discussions with the startup group managers, startup engineers and reviewed the below Administrative Site Procedures (ASP) and Startup Field Procedures. The inspector concluded as a result of these reviews that startup personnel have an indepth knowledge of the preoperational test program administrative control along with a firm understanding of their duties and responsibilities. The inspector verified that the administrative controls reviewed incorporate the guidelines and requirements of FPL Topical Quality Assurance Report 1-76A and the QA program.

- ASP-2, Preparation of Site Procedures
- ASP-11, Construction Turnover
- ASP-19, Construction Work Permits and Safety Tagging
- ASP-21, Startup Acceptance of Systems
- SFP-1, Startup Organization
- SFP-2, Startup Test Control - General Guidelines
- SFP-7, Certification of Startup Test Personnel
- SFP-16, Startup Blue Tag - Clearance Guidelines

c. Witnessing of 4B EDG Preoperational Test

The inspector reviewed approved Preoperational Test Procedure 0804.099, Revision 0, dated April 26, 1991, EDG 4B System Preoperational Test Phase II. The procedure was reviewed to verify that it was consistent with requirements and commitments specified in Regulatory Guide 1.9, Selection, Design and Qualification of Diesel Generator Units, Revision 2, December 1979, Regulatory Guide 1.108, Periodic Testing of Diesel Generator Units, Revision 1, August 1977 and Plant Change/Modification PC/M 87-263.



Test Procedure 0804.099, Section 9.6 requires performing reliability testing of the 4B EDG. Regulatory Guide 1.108 requires that 35 consecutive valid tests with no failure be completed prior to declaring the 4B EDG reliable. PC/M 87-263 Section 12.6.3 specified that all EDG starts are from at least standby temperature conditions for water and lube oil. The inspector requested that these initial conditions be added to the test procedure. The inspector was informed that standby temperature conditions would be obtained automatically between reliability tests as the diesel is equipped with shutdown circuitry that provides a 20 minute cooldown at idle speed before the diesel circuitry automatically stops the diesel. The starting and loading of the 4B EDG for other functional tests in test procedure 0804.099 showed that lube oil temperatures were above 160°F following EDG shutdown as described above. This temperature exceeds the standby temperature conditions of 85°F - 145°F, which the licensee stated was provided by the EDG vendor.

A conference call between NRR, NRC Region II and Turkey Point management was held on May 8-9, 1991, to discuss the standby temperature conditions necessary to meet the intent of Regulatory Guide 1.9 and Regulatory Guide 1.108. The results of these discussions establishes that each reliability valid test should be performed at standby temperature conditions of the lube oil keepwarm system. The standby temperature conditions agreed to are: 15 valid tests from a lube oil temperature of 120±10°F and 20 valid tests from a lube oil temperature of 85°F to 145°F. The licensee issued appropriate changes to PC/M 87-263 and test Procedure 0804.099 and incorporate the above requirements into these documents.

The inspector observed portions of test Procedure 0804.099 associated with demonstration of proper operation of alarms, interlocks, protective relays, EDG controls used for starting, synchronizing, and shutting down EDG-4B from the local control panels as well as from the main control room. The inspector noted that test personnel were well prepared for conducting the tests and were timely in correcting those discrepancies that were identified during the test. Discrepancies observed were wiring errors or rolled leads. Specific retest were designed and completed as the testing was being performed. In addition, the inspector verified that test procedure requirements were being followed, test equipment was calibrated, and test jumpers were being installed and removed under separate verification signature.

Within the areas inspected, no violations or deviations were identified.



3. Exit Interview

The inspection scope and results were summarized on May 9, 1991, 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.