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

Report Nos.: 50-335/84-16 and 50-389/84-18

Licensee: Florida Power and Light Company
9250 West Flagler Street
Miami, FL 33101

Docket Nos.: 50-335 and 50-389

License Nos.: DPR-67 and NPF-16

Facility Name: St. Lucie 1 and 2

Inspection Dates: May 14-15, and 17-19, 1984

Inspection at St. Lucie site near Ft. Pierce, Florida

Inspector: for K. E. Davenport Frank Jape 6/1/84
Date Signed

Approved by: F. Jape, Section Chief
Engineering Branch
Division of Reactor Safety
Frank Jape 6/1/84
Date Signed

SUMMARY

Areas Inspected

This routine unannounced inspection involved 25 inspector-hours on site in the areas of Nuclear Operators (NO) procedure storage, operator training - reactor startups, and power ascension testing.

Results

Of the three areas inspected, no violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

   Licensee Employees

   C. Wethy, Plant Manager
   *K. J. Wiecek, Nuclear Plant Supervisor
   C. A. Pell, Reactor Engineering Supervisor
   M. S. Dryden, Plant Engineer II
   E. J. Wunderlich, Plant Engineer I
   J. L. Langford, Associate Plant Engineer

   Other licensee employees contacted included one technician and three operators.

   Other Organization

   G. R. Correll, Exxon Nuclear Company, Inc.

   NRC Resident Inspector

   C. Feierabend

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on May 17, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings without significant comment.

3. Licensee Action on Previous Enforcement Matters

   Not inspected.

4. Unresolved Items

   Unresolved items were not identified during this inspection.

5. IFI 389/83-43-02 (Closed) Placement of Procedures at NO/NTO Stations (92706)

   The question of whether NO/NTO procedures were to be stored at the NO/NTO stations was resolved in that applicable copies are located at the NO/NTO stations. The procedures are used as information only copies and for training purposes. Controlled copies are retrieved from the control room when used for valve lineups and operating equipment.

   No violations or deviations were identified within the areas identified.

6. Operator Training - Reactor Startups (92706)

The requirement of NUREG-0094, NRC Operator Licensing Guide Appendix F, in which the applicant manipulates the controls of the reactor facility during five significant reactivity changes was witnessed by the inspector. Seven trainees with two SROs present, performed procedure OP-1-0030122 Rev. 23, Reactor Startup, to bring the reactor from a hot standby mode to a start-up mode of operation. Reactivity changes were made by the applicants by withdrawing control element assemblies, CEAs, to critical and by controlling steam generator level. Each applicant manipulated the controls for five reactivity changes.

No violations or deviations were identified within the areas inspected.

7. Power Ascension Program 25% - Power Plateau Testing Unit 1 (61702)

Operating Procedure 1-0010133 Rev. 3, Reactor Engineering Power Ascension Program, was performed as a mechanism to progress from low power to full power while verifying that the plant was being operated within the licensed power distribution.

Portions of the performance of procedure 1-0010133 were witnessed and the results were verified by the inspector as follows:

a. 25% Power Plauteau - May 16-17, 1984

(1) OP-1-3200020, Primary System Manual Calorimetric. The calculated core power was determined to be 23.478% from data recorded on 5/16/84 at 4:00 p.m. The corresponding digital data processing system, DDPS, calorimetric value was found to be 24.58%. As per OP 1200051 Rev. 9, Nuclear and Delta T Power Calibration, the DDPS value was utilized in the calibration since the two power values did not differ by more than 2% power.

At 12:30 a.m. on 5/17/84, a manual calorimetric determined reactor power to be 24.25% and the DDPS calorimetric power was 24.29%. Again the DDPS value was used in OP 1200051 since the power value did not differ by more than 2%.

(2) OP 1-3200058, Surveillance Requirements for Total Planar Radial Peaking Factor, F_{xy}^{T}. The INPAX computer code with input from an incore "snapshot," was utilized to produce the planar radial peaking factor, Fxy, which was found to be 1.687. The azimuthal power tilt (Tg) was determined, from procedure OP 1-3200053, utilizing INPAX, to be 0.0159 which met the TS requirement by being ≤ 0.03, F_{xy}^{T} was determined to be 1.714 using the following equation:

$$F_{xy}^{T} = Fxy\ (1 + Tq\ meas).$$

This value exceeded the TS limit of 1.70 thus limiting power to 96% rated power per TS action 3.22 table 3.2-3.

(3) The preliminary adjustment of incore alarm setpoints was performed per OP 3200050. The manual setpoint was found to be within 0.5 of the INPAX calculations, as required.

b. 50% Power Plateau - May 19-20

(1) OP 1-3200020 Primary System Manual Calorimetric. The calculated core power was determined to be 46.46% from data recorded on 5/19/84 at 1:20 a.m. The corresponding DDPS calorimetric was 48.21%. As per OP 1200051 Rev. 9, the DDPS value was utilized in the calibration procedure.

(2) OP 1-3200058, Surveillance Requirement for Total Planar Radial Peaking Factor, F_{xy}^{T}. The INPAX computer code, with input from an incore "snapshot" was utilized to produce Fxy, which was found to be 1.6394. Tq was determined from OP 1-3200053 utilizing INPAX to be 0.0106 which met the TS requirement of being $\leq$ 0.03. F_{xy}^{T} was determined from the non-load following mode equation F_{xy}^{T} = Fxy (1 + Tq meas). to be 1.650 meeting the TS requirement by being less than 1.70.

(3) The calculation and adjustment of incore detection alarm setpoint, procedure 3200050 Rev. 6, determined from a random sample that the manual setpoints were within 0.5 of the INPAX computer code calculations, as required.

(4) OP 1200023, Rev. 6, Calculation of Internal Axial Shape Index (ASI_I). The corrected ASI_I for use in the calibration of linear excore detectors was determined to be -0.0450 from the computer code INPAX with input from a "snapshot." A second "snapshot" was made and simultaneous readings were taken from reactor protection system, power ratio, and voltage indications. These were found to be A = -0.473, B = -0.432 C = -0.472 and D = -0.422 (RPS Units). The ASI power ratio calculator, PRC, was determined to be -0.045 (ASI Units). INPAX was then utilized to process the second "snapshot" and to determine the ASI which was found to be -0.457. The excore calibration was acceptable in that the difference between the ASI_I from the incore detectors and the ASI_I from each RPS and the PRC ASI was within ±0.02 ASI units or ± 0.2 RPS units.

No violations or deviations were identified.