



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

Report Nos.: 50-335/85-36 and 50-389/85-36

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

Docket Nos.: 50-335 and 50-389

License Nos.: DPR-67 and NPF-16

Facility Name: St. Lucie 1 and 2

Inspection Conducted: December 10, 1985 - January 13, 1986

Inspectors:

S. G. Grier for
R. V. Crlenjak, Senior Resident Inspector

2/7/86
Date Signed

S. G. Grier for
H. E. Bibb, Resident Inspector

2/7/86
Date Signed

Approved by:

S. A. Elrod
S. A. Elrod, Section Chief
Division of Reactor Projects

2/7/86
Date Signed

SUMMARY

Scope: This inspection involved 224 inspector-hours on site in the areas of Technical Specification (TS) compliance, operator performance, overall plant operations, quality assurance practices, station and corporate management practices, corrective and preventive maintenance activities, site security procedures, radiation control activities, surveillance activities, and Inspection and Enforcement Information Notice review.

Results: In the areas inspected, one violation was identified (paragraph 6).

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

K. N. Harris, St. Lucie Site Vice President
*D. A. Sager, Plant Manager
*J. H. Barrow, Operations Superintendent
*T. A. Dillard, Maintenance Superintendent
*L. W. Pearce, Operations Supervisor
R. J. Frechette, Chemistry Supervisor
C. F. Leppla, Instrumentation and Control (I&C) Supervisor
P. L. Fincher, Training Supervisor
*C. A. Pell, Technical Staff Supervisor (Acting)
E. J. Wunderlich, Reactor Engineering Supervisor (Acting)
H. F. Buchanan, Health Physics Supervisor
G. Longerhouser, Security Supervisor
J. Barrow, Fire Prevention Coordinator
J. Scarola, Assistant Plant Superintendent - Electrical
C. Wilson, Assistant Plant Superintendent - Mechanical
*N. G. Roos, Quality Control Supervisor

Other licensee employees contacted included technicians, operators, mechanics, security force members, and office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 10, 1986, with those persons indicated in paragraph 1 above.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved Item (UNR) 335/85-26-02 - Too Few Shutdown Cooling Loops in Operation. The inspectors have completed a review of the shutdown cooling requirements when in mode 5 (cold shutdown) with the reactor coolant loops drained. This item is resolved as a violation and is addressed in paragraph 6. This UNR is considered closed.

(Closed) UNR 335/85-26-01 - Failure of Reactor Vessel Internals Lifting Rig. This item has been determined to be a violation and is addressed in Inspection Report 50-335/85-29. This UNR is considered closed.

4. Plant Tours (Units 1 and 2)

The inspectors conducted plant tours periodically during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, operations personnel were aware of plant conditions, and plant housekeeping efforts were adequate. The inspectors also determined that appropriate radiation controls were properly established, critical clean areas were being controlled in accordance with procedures, excess equipment or material was stored properly and combustible material and debris were disposed of expeditiously. During tours, the inspectors looked for unusual fluid leaks, piping vibrations, pipe hanger and seismic restraint settings, various valve and breaker positions, equipment caution and danger tags, component positions, adequacy of fire fighting equipment, and instrument calibration dates. Some tours were conducted on backshifts.

The inspectors routinely conducted partial walkdowns of Emergency Core Cooling Systems (ECCS). Valve, breaker/switch lineups and equipment conditions were randomly verified both locally and in the control room. During the inspection period, the inspectors conducted a complete walkdown in the accessible areas of the Unit 1 High Pressure Safety Injection System and the Unit 2 Component Cooling Water (CCW), Diesel Generator and AC/DC Systems to verify that the lineups were in accordance with licensee requirements for operability and that equipment material conditions were satisfactory. Additionally, flowpath verifications were performed on the following systems:

- High Pressure and Low Pressure Safety Injection (HPSI and LPSI)
- Coolant Charging
- Diesel Generator Fuel Supply and Air Starting
- Plant Firewater Supply

5. Plant Operations Review (Units 1 and 2)

Periodically during the inspection interval, the inspectors reviewed shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room logs and auxiliary logs, operating orders, standing orders, jumper logs and equipment tagout records. The inspectors routinely observed operator alertness and demeanor during plant tours. During routine operations, operator performance and response actions were observed and evaluated. The inspectors conducted random off-hours inspections during the reporting interval to assure that operations and security remained at an acceptable level. Shift turnovers were observed to verify that they were conducted in accordance with approved licensee procedures.

6. Technical Specification Compliance (Units 1 and 2)

During this reporting interval, the inspectors verified compliance with limiting conditions for operation (LCOs) and the results of selected surveillance tests. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, and switch positions, and by the review of completed logs and records. The licensee's compliance with LCO action statements was reviewed on selected occurrences as they happened.

On October 28, 1985, it was noted that the Unit 1 Train "B" of CCW was out of service for repairs. The Train "B" CCW heat exchanger end bells (intake cooling water side) were removed and the heat exchanger was isolated; other Train "B" CCW components, including valves, piping, and seismic supports were also undergoing maintenance. The inspector did not specifically evaluate these other components and their effects on Train "B" operation. However, with the heat exchanger out of service, CCW Train "B" was not capable of rejecting heat to the intake cooling water system. Unit 1 was shutdown in mode 5, with the reactor coolant loops partially drained.

Technical Specification 3.4.1.4.2 requires that two shutdown cooling loops be operable when in mode 5 with the reactor coolant loops not filled. Each loop of shutdown cooling contains one heat exchanger which is cooled by its respective train of CCW. The CCW system removes this heat and rejects it to the intake cooling water system. With the CCW Train "B" heat exchanger inoperable, the respective loop of shutdown cooling was also inoperable. The failure to maintain two operable loops of shutdown cooling while in mode 5 is a violation (335/85-36-01). This position was confirmed by consultation with NRC Region II and the Office of Nuclear Reactor Regulation. The Technical Specification was intended to address not only shutdown cooling itself, but also the support heat removal systems including CCW and intake cooling water.

The licensee performed an extensive review prior to arriving at the conclusion that removing one train of CCW under these plant conditions was permissible under the Unit 1 TS. Therefore, it is the licensee's position that both loops of shutdown cooling were operable, as required by the TS. Additionally, the licensee points out that Unit 1 TS 3.7.3.1, requires two operable loops of CCW only while in modes 1 through 4 - not in mode 5.

7. Maintenance Observation

Station maintenance activities on selected safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with requirements. The following items were considered during this review: LCOs were met, activities were accomplished using approved procedures, functional testing and/or calibrations were performed prior to returning components or systems to service, quality control records were maintained, activities were accomplished by qualified personnel, parts and materials used were properly certified, and radiological controls were



implemented as required. Work requests were reviewed to determine the status of outstanding jobs and to assure that priority was assigned to safety-related equipment. The inspectors observed maintenance activities on the following components:

Unit 1

1A Charging Pump
1B Diesel Generator Air Compressor
1A Chemical/Volume Control System Ion Exchanger

Unit 2

Main Generator Exciter Turbine Cooling Water Leak

8. Inspection and Enforcement Information Notice (IEIN) Review

The inspectors completed a review of IEIN 85-94, which covers the potential for disabling ECCS due to the failure or loss of pump minimum flow paths. At St. Lucie, none of the ECCS pump minimum flow paths penetrate containment, therefore, no possibility exists for loss of the minimum flow path during a containment isolation. The inspectors also reviewed the design and positioning of the remotely operated valves located in the minimum flow paths. Unit 1 was found to have one common flow path for the two LPSI pumps and the three HPSI pumps. Two motor operated valves (MOV's), in series, provide automatic isolation of the minimum flow line on a containment sump recirculation actuation signal (RAS). The two MOV's are normally open with control power de-energized, fail "as is" on a loss of power and can be controlled remotely from the control room. Unit 2 has two separate minimum flow paths, one for each train of ECCS consisting of a LPSI pump and a HPSI pump. Each minimum flow path contains two isolation valves, one MOV and one solenoid-operated valve. The MOV fails "as is" and the solenoid-operated valve fails shut on a loss of electrical power. A single failure of a solenoid-operated valve would result in a loss of the minimum flow path for only one train of ECCS. In summary, a single failure of a power supply would not affect more than one train of ECCS for either unit provided the proper valve lineups are maintained. The inspectors were continuing to review this area.

The inspectors have reviewed the licensee's actions in response to IEINs 85-82, 83, and 84. With regard to IEIN 85-82, the licensee has determined that the subject General Electric (GE) differential relays are installed on both Units 1 and 2 Emergency Diesel Generators. Plant change/modifications (PCMs) 187-184 and 188-284 have been issued to replace the existing GE differential relays with GE type IJD relays. The work has not been completed as of this report. IEIN 85-83 is currently under review by the licensee. However, it has been determined that none of the subject GE test

blocks are installed in the plant's I&C systems. IEIN 85-84 is also currently under review by the licensee. Their initial review indicates that the installed main steam isolation valve (MSIV) air accumulators are of sufficient volume to ensure MSIV closure under low flow/no flow conditions.

9. Physical Protection (Units 1 and 2)

The inspectors verified by observation and interviews during the reporting interval that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included the organization of the security force, the establishment and maintenance of gates, doors, and isolation zones in the proper conditions, that access control and badging was proper, and procedures were followed.

10. Surveillance Observations

During the inspection period, the inspectors verified plant operations in compliance with selected TS requirements. Typical of these were confirmation of compliance with the TS for reactor coolant chemistry, refueling water tank, containment pressure, control room ventilation, and AC and DC electrical sources. The inspectors verified that testing was performed in accordance with adequate procedures, test instrumentation was calibrated, LCOs were met, removal and restoration of the affected components were accomplished, test results met requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspectors observed all aspects of the following surveillances:

Unit 2

- 2-0110057 - Periodic Surveillance of DNB (Departure from Nucleate Boiling) Margin
- 2-1400052 - Engineered Safeguards Channel Functional Test

The indicated portions of the following surveillance test were also observed:

Unit 1

- AP 1-0010125 - Schedule of Periodic Tests, Checks, and Calibrations
 - Data Sheet 6 - Control Room Emergency Ventilation
 - Data Sheet 7 - Containment Isolation Valves Quarterly Cycling
 - Data Sheet 12 - 1A Boric Acid Pump - Monthly Code Run

