



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

Report Nos: 50-335/88-27 and 50-389/88-27

Licensee: Florida Power & Light Co
 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: October 2 - November 5, 1988

Inspectors: W. K. Paetz for 11/30/88
 G. L. Paulk, Senior Resident Inspector Date Signed

W. K. Paetz for 11/30/88
 H. E. Bibb, Resident Inspector Date Signed

Approved By: R. V. Crlenjak 11/30/88
 R. V. Crlenjak, Section Chief Date Signed
 Division of Reactor Projects

SUMMARY

Scope: This inspection involved on site activities in the areas of Technical Specification 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, and surveillance activities.

Results: Of the areas inspected, no violations or deviations were identified. Two inspector followup items (IFIs) were identified. They include an IFI related to procedure inconsistencies between the Alternate Shutdown and Control Room abandonment procedures as noted in paragraph 4.a, and an IFI related to a High Pressure Safety Injection (HPSI) line displacement problem during a water hammer as noted in paragraph 4.b. One licensee identified violation (LIV) was identified. The LIV involved a failure to meet the requirements of Technical Specification (TS) 4.3.1.1.1 as noted in paragraph 6.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- J. Barrow, Fire Prevention Coordinator
- *J. Barrow, Operations Superintendent
- *G. Boissy, Plant Manager
- *H. Buchanan, Health Physics Supervisor
- C. Burton, Operations Supervisor
- R. Dawson, Assistant Plant Superintendent - Electrical
- *T. Dillard, Maintenance Superintendent
- R. Frechette, Chemistry Supervisor
- J. Harper, QA Supervisor
- K. Harris, St. Lucie Site Vice President
- *C. Leppla, I & C Supervisor
- N. Roos, Quality Control Supervisor
- B. Sculthorpe, Reliability and Support Supervisor
- R. Sipos, Service Manager
- *D. West, Technical Staff Supervisor
- W. White, Security Supervisor
- *C. Wilson, Assistant Plant Superintendent - Mechanical
- *E. Wunderlich, Reactor Engineering Supervisor

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

*Attended exit interview

2. Plant Tours (Units 1 and 2) (71707 and 71710)

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 materials and debris were disposed of expeditiously. During tours, the inspectors looked for the existence of 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 frequency of plant tours and control room visits by site management was noted to be adequate.

The inspectors routinely conducted partial walkdowns of Emergency Core Cooling Systems (ECCS). Valve and 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 plant to verify that system lineups were in accordance with licensee requirements for operability and equipment material conditions were satisfactory.

No violations or deviations were identified.

3. Plant Operations Review (Units 1 and 2) (71707)

The inspectors, periodically during the inspection interval, 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, control room staffing, control room access and operator performance and response actions were observed and evaluated. The inspectors conducted random off-hour 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. Control room annunciators status was verified. The inspectors performed an in-depth review of the following safety-related tagouts (clearances):

Unit 1

<u>Clearance No.</u>	<u>Description</u>
1-7-42	Main Steam/Solenoid Valve - Backup Air System - Remove
1-10-9	1A High Pressure Safety Injection Pump Motor - Annual PM
1-10-10	1A Low Pressure Safety Injection Pump - Annual PM

Unit 2

2-10-12	2B Fuel Pool Cooling Pump - PM
2-10-11	2B Primary Water Pump - PM
2-10-26	2A Auxiliary Feedwater Pump - PM

No violations or deviations were identified.



4. Technical Specification Compliance (Units 1 and 2) (71707)

During this reporting interval, the inspectors verified compliance with limiting conditions for operations (LCOs) and results of selected surveillance tests. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. The licensee's compliance with LCO action statements were reviewed on selected occurrences as they happened. The inspectors verified plant procedures were adequate, complete, and of the correct revision. Instrumentation and recorder traces were observed for abnormalities.

a. Off-Normal Procedures Review

The inspector reviewed and walked down the licensee's procedures related to control room abandonment and alternate shutdown capability. The related procedures are the Control Room Inaccessibility (CRI) Off-Normal Operating Procedure 0030135 and the Alternate Shutdown Off-Normal Operating Procedure 0030134.

The Alternate Shutdown procedure is designed to accomplish the following functions after a fire in the Cable Spread Room or in the Control Room, making the Control Room uninhabitable, during a period when off-site power may or may not be available.

- (1) Achieve and maintain subcritical conditions in the reactor.
- (2) Maintain reactor coolant inventory.
- (3) Control reactor coolant system (RCS) pressure.
- (4) Achieve and maintain hot standby.
- (5) Achieve cold shutdown within 72 hours.
- (6) Maintain cold shutdown thereafter.

The CRI procedure provides instructions for placing the plant in a safe condition when operations cannot safely be conducted from the control room. The reactor and turbine are manually tripped prior to leaving the control room, if possible, or locally from the reactor trip switchgear and the turbine front standard. A heat sink is provided by automatic steam dump to the condenser and/or to atmosphere. Level is maintained in the steam generators by manual control of auxiliary feedwater (AFW) valves with flow furnished by the AFW pumps. Pressurizer level and pressure are maintained by manual control of pressurizer heaters, auxiliary spray valves, and letdown valves, and are monitored at the hot shutdown panel. Isolation switches located in the Reactor Auxiliary Building

electrical equipment room, Turbine Building switchgear room, Diesel Generator rooms, and Reactor Auxiliary Building are manually selected to the isolate position to prevent inadvertent operation of vital equipment due to possible electrical malfunction in the unattended control room. The procedure concludes with the plant in a hot standby condition.

The two procedures perform identical functions up to the plant stabilization phase of hot standby. The inspector, therefore, concentrated on the similar parts of the procedures to note the different formats used in doing basically the same equipment operations. Discussions with some of the operations staff indicated some confusion on exactly which procedure would be used for control room abandonment (i.e., smoke in control room). The procedure's recommended usage appears vague in the stated procedure purpose section.

Additionally, the following types of procedural inconsistencies were noted:

- (1) Differing requirements existed for procedure check-offs in the immediate operator action section of the procedure.
- (2) Differing communication station manning requirements (i.e., sound-powered phones) were listed in the procedures.
- (3) Differing specificity on isolation switch order sequence and check-off requirements was noted between the procedures.
- (4) CAUTION statements were listed out of format order for human engineering requirements (i.e., step 5.9.1.c of 0030134 and step 5.2.1.A.5 of 0030135).
- (5) Some equipment lineup verifications were different (i.e., charging pump suction path verification required for 0030134; not required for 0030135).
- (6) Procedure ordering of steps was inconsistent for major functions (i.e., power panel 480V MCC1B5, #301 keys for ANPS, tripping reactor coolant pumps, close PORV block valves).

The above listed inconsistencies are only a sample of items noted by the inspector. For ease of operator usage during emergency off-normal conditions, the procedure formats should be verified. Therefore, this item will be left open for licensee evaluation and correction. (IFI 335,389/88-27-01)



b. HPSI System Walkdown

The inspector reviewed the as-built configuration of pipe hangers and supports for the High Pressure Safety Injection (HPSI) system for Unit 1. The following support drawings were reviewed:

8770-G-125 Series	Large Bore Piping Isometric for Safety Injection
S1- 871-550	Support Drawing
S1- 871-78	Support Drawing
S1- 871-955	Support Drawing
S1- 871-37	Support Drawing
S1- 871-38	Support Drawing
S1- H-159	Support Drawing

Drawings and sketches were readily available from the Document Control Section.

In general, the system walkdown indicated the design drawings accurately reflected the as-built configuration. A minor deficiency was noted as listed below:

Several pipe support hangers on the cross-connect line between the HPSI and charging system (line I-2-51-141) were not properly attached to the piping. The licensee took action to correct this deficiency when notified. The most probable cause of the misplaced hangers was attributed to movement during a water hammer event on system startup. The inspector requested the licensee to verify design adequacy for this piping arrangement on Unit 1. A line vent is used on this piping section for Unit 2 to prevent such line displacement during water hammers. No such vent is installed on Unit 1.

The remaining support drawings reviewed accurately reflected the as-built configuration. The above noted concern will be listed as an inspector follow-up item pending licensee evaluation. (IFI 335/88-27-02)

5. Maintenance Observation (62703)

Station maintenance activities of 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: limiting conditions for operations were met; activities were accomplished using approved procedures; functional tests 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 portions of the following maintenance activities:

Unit 1

<u>PWO No.</u>	<u>Description</u>
1705	1A Low Pressure Safety Injection Pump - PM
1709	1A High Pressure Safety Injection Pump - PM
2356	Measuring and Test Equipment - PM

Unit 2

2124	2A Emergency Diesel Generator - PM
2215	2A & 2B Safeguards Room Sump Pumps - PM
2221	2A High Pressure Safety Injection Pump - PM
4039	Unit 2 Intake Area Electrical Equipment Inspection
2653	Quench Tank Rupture Disc Replacement

- Facility Housekeeping Improvements

The licensee has instituted a significant housekeeping and plant preservation program to enhance operational safety, working conditions for plant maintenance, and ALARA considerations. Scheduled weekly plant management inspections in accordance with Administrative Procedure No. 0010722 have been beneficial in placing respective plant section managers in the forefront of self-identification of potential problem areas.

The goal of these inspections is to generate a culture at all levels of the plant staff to enhance overall performance in plant cleanliness, safety, maintenance, regulatory concerns, security requirements and plant operations.

A long-term commitment to this inspection process and continuing housekeeping awareness should provide an incentive toward meeting this goal. The recently completed "model-room project" in the Unit 1

HPSI room and the preservation of the ground elevation of the Unit 1 main passages have provided a positive housekeeping appearance for visitors and licensee personnel.

No violations or deviations were identified.

6. Review of Nonroutine Events Reported by the Licensee (Units 1 and 2) (90712)

The following Licensee Event Reports (LER's) were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events which were reported immediately were also reviewed as they occurred to determine that technical specifications were being met and that the public health and safety were of upmost consideration. The following LERs are considered closed:

Unit 1

<u>LER No.</u>	<u>Description</u>
88-07	Missed surveillance due to personnel error
88-08	Reactor trip on low steam generator level due to inadvertent closure of main feedwater regulating valve

LER 88-07 addresses a violation of TS 4.3.1.1.1 due to personnel error. However, because the NRC wants to encourage and support licensee initiative for self-identification and resolution of problems, the five tests delineated in 10 CFR 2, Appendix C, were applied. Discussions between the resident inspectors and regional management were held and it was determined this violation meets the criteria of 10 CFR 2, Appendix C, therefore, no notice of violation will be issued.

LER 88-08 addresses a reactor trip from 100% power on September 20, 1988. Instrumentation & Control (I&C) personnel were working on the 'B' Steam Generator Feed Regulating System (SG FRS) in an effort to minimize water level swings of 4 percent narrow range indication in the 'B' Steam Generator (SG). A power supply wire lead, which was not shown on the vendor wiring diagram being used, was inadvertently lifted when I&C correctly removed another lead on the same terminal lug connection. Removal of the power supply lead deenergized the 'B' FRS control circuit, and caused the valve to shut. The loss of half of the normal main feedwater supply caused SG water level to rapidly decrease. The unit was tripped on low SG level by the Reactor Protective System and the Reactor Operator. Corrective actions were to upgrade the administrative procedure used, install a double lug terminal connection in the FRS circuitry to preclude accidental lead lifting, and to evaluate and repair the root cause of SG level swings before resuming power operations.



Non-routine plant events were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events which were reported immediately were also reviewed as they occurred to determine that technical specifications were being met and that the public health and safety were of utmost consideration.

No violations or deviations were identified.

7. Physical Protection (Units 1 and 2) (71881)

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, proper access control and badging, and adherence to procedures.

No violations or deviations were identified.

8. Surveillance Observations (61726)

During the inspection period, the inspectors verified plant operations in compliance with selected technical specifications (TS) requirements. Typical of these was 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, limiting conditions for operations 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 the following surveillances:

- a. Ultimate Heat Sink Barrier Valve Operation - OP 0360050
- b. Remote Shutdown Monitoring Periodic Check - OP 1-0030151

9. Licensee Action on Previous Enforcement Matters (93702)

Closed (Unit 1 and 2), Violation 88-21-01 - Failure to Have Thermometers and Hydrometers Under M&TE Program Control. The licensee stated that the hydrometers and thermometers were omitted from the Electrical Maintenance Measuring and Test Equipment (M&TE) Program due to the belief by electrical maintenance personnel that after initial calibration, further controls were not required for this type of test equipment.

The licensee checked the subject hydrometers and thermometers against standards having National Bureau of Standards (NBS) traceability and found the equipment acceptable. The hydrometers and thermometers were entered into the M&TE program.



The Electrical Maintenance Department M&TE Program was reviewed by the licensee to determine if other equipment might not be properly calibrated. No other equipment was identified.

The inspector verified program implementation and had no further concerns.

10. Off-Site Review Committee Audit (40701)

During the inspection period, the inspector conducted a portion of the subject inspection module. The purpose of the inspection is to determine if the functions of the off-site review committee (Company Nuclear Review Board - CNRB) are being performed in accordance with regulatory requirements. Technical Specification 6.5.2 provides a detailed description of the CNRB's duties and responsibilities. A review of Tech Spec 6.5.2.2, Committee Composition, indicated a need for revision due to recent organizational changes in the corporate structure. These changes had been submitted to the NRC for review and approval.

The previous two years of CNRB meeting minutes were reviewed to verify and evaluate compliance with review requirements and commitments. Three sets of minutes indicated an improper number of voting alternate members, but a self audit noted and corrected this in all subsequent meetings. The minutes indicated that the licensee was meeting their commitments for review outlined in Technical Specification 6.5.2.7.

Time did not permit attendance at a CNRB meeting during this inspection period, and this will be accomplished during a future inspection.

11. Bulletins (92703)

Closed (Units 1 & 2) Bulletin BU-88-01, Defects in Westinghouse Circuit Breakers. By letter L-88-114, dated March 16, 1988, the licensee stated that the subject breakers are not used at the St. Lucie Site in any Class 1E applications.

Closed (Units 1 & 2) Bulletin BU-87-01, Thinning of Pipe Walls at Nuclear Power Plants. The subject bulletin, issued on July 9, 1987, requested licensees to submit information concerning their programs for monitoring the thickness of pipe walls in high-energy single-phase and two-phase carbon steel piping systems. FP&L responded via letter L-87-376, dated September 10, 1987, which addressed St. Lucie 1 and 2. The NRC responded via letter dated March 22, 1988 and, while neither approving or disapproving FP&L's program, stated that no further action was required at this time.

12. Exit Interview (30703)

The inspection scope and findings were summarized on November 4, 1988, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee.

