



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

Report Nos.: 50-335/86-20 and 50-389/86-19

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: August 5 - September 8, 1986

Inspectors:

R. W. Chlenjak
 R. W. Chlenjak, Senior Resident Inspector

10/9/86
 Date Signed

H. E. Bibb
 H. E. Bibb, Resident Inspector

10/9/86
 Date Signed

Approved by:

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

10/9/86
 Date Signed

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, one violation was identified, paragraph 3.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

K. Harris, St. Lucie 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, Instrument and Controls (I&C) Supervisor
C. A. Pell, Technical Staff Supervisor
*E. J. Wunderlich, Reactor Engineering Supervisor
H. F. Buchanan, Health Physics Supervisor
G. Longhouser, 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 September 16, 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

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 inspectors routinely conducted partial walkdowns of emergency core cooling (ECCS) systems. Valve, breaker and 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 2 chemical and volume control system (CVCS) and intake cooling water system and unit 1 diesel generators (EDG) and CVCS to verify that the lineups were in accordance with licensee requirements for operability and equipment material conditions were satisfactory. Additionally, flowpath verifications were performed on the following systems: Unit 1 and 2 high pressure and low pressure safety injection systems, component cooling water systems and AC electrical distribution systems.

During a routine plant tour on August 21, 1986, the inspector noted a portion of aluminum scaffolding rigged at one end to a cable tray. The scaffold had been in use by painting contractors engaged in painting the unit 2 turbine deck support structure. A maintenance supervisor was notified and the scaffold was removed immediately. The cable tray, L2321 NA, contained approximately 80 cables associated with plant equipment including: feedwater heater temperatures, instrument air pressure indication at the reactor/turbine generator gageboard, turbine first stage pressure (T-ref), condensate dissolved oxygen analyzer, feedwater flow (FT-9011), feedwater regulating 15% valve control (LCV-9005), feedwater regulating valve control (FCV-9011), and CVCS annunciator reflash circuits. The licensee is establishing a procedure for controlling the installation of scaffolding near critical plant equipment.

On August 22, 1986, while making a routine tour of the unit 2 cable spreading room and conducting a check of various safety related electrical breaker positions, the inspector noted that breaker 2-41378, containment elevator fan power supply, was in the shut (energized) position. Instructions posted on the breaker front require that the breaker be open while at power in accordance with Regulatory Guide 1.63, Electric Penetration Assemblies in Containment Structures for Light-Water-Cooled Nuclear Power Plants. Additionally, operating procedure (OP) 2-0030121, Reactor Plant Heat-Up-Cold to Hot Standby, Appendix C, item 9, requires that the breaker position be verified open when the equipment is not in use to ensure compliance with Regulatory Guide 1.63. This is a violation (389/86-19-01).

On several occasions during the inspection period, while conducting routine plant tours, the inspector noted that the unit 1 auxiliary feedwater (AFW) pump 1B discharge pipe was "warm" to the touch, indicating possible



backleakage from the steam generators. Although the pipe was not "hot" to the touch, which would be an indication of severe backleakage and result in possible pump cavitation on starting, the inspector notified the appropriate plant personnel. The licensee checked the 1B AFW pump discharge pipe and found the temperature to be 90.4 °F versus the 1A pump at 86.2°F. The 1B AFW pump was run in an attempt to reseal the check valves. The run was moderately successful - the header pressure was 85 psig prior to the run and 40 psig after the run. The operations staff verifies, once per shift, that all AFW discharge lines are not "hot" to the touch. In the inspector's judgement, the small amount of backleakage and the resulting relatively low water temperature would not have jeopardized the performance of the AFW pump. The licensee has issued plant work orders to inspect the suspect valves.

4. Plant Operations Review (Units 1 and 2)

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, 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.

5. Technical Specification Compliance (Units 1 and 2)

During this reporting interval, the inspectors verified compliance with limiting conditions for operations (LCO's) 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 was reviewed on selected occurrences as they happened.

On August 28, 1986, with the unit at 100 percent power, an operator noted a leak originating from the unit 1 charging pump suction line, which penetrates the refueling water tank (RWT). The line is a three inch diameter aluminum pipe, about one foot long and is lagged for freeze protection. Later that evening, the lagging was removed and after the pipe was verified to be leaking "through wall" and non-isolable from the RWT, a temporary soft patch was clamped over the leak. Prior to applying the soft patch, a tentative engineering judgement was made that the pipe was structurally sound. The licensee's plans were to conduct a formal inspection and engineering evaluation the following day when the appropriate engineering staffs were available.

The line is designated as seismic class I and is safety-related in that it is a boration flow path. Technical Specification (TS) 3.1.2.2 requires at least two of three boration flow paths be available during mode 1 operation. The corrosion problems described above rendered one flowpath inoperable. However, two other flowpaths, one from each of two boric acid makeup (BAM) tanks, were available. Additionally, TS 3.5.4 requires that the RWT be operable, specifically, with a minimum contained volume of 401,800 gallons. The ability to ensure adherence with TS 3.5.4 was questioned because of the degradation/corrosion associated with the pipe which could not be isolated from the RWT. The NRC Region II office was informed on the morning of August 29. Concurrently, the licensee removed the temporary patch and a small tapered wooden plug was driven into the approximately .250 inch diameter hole. The pipe was then thoroughly cleaned and inspected. After cleaning, several other small areas of localized surface corrosion were noted. Ultrasonic testing was also conducted to determine pipe wall thickness. An engineering analysis was then performed which concluded that the pipe had sufficient structural strength to withstand a design basis event. The NRC agreed that it was permissible for the plant to remain at power. Weld repairs were effected and the section of aluminum pipe was returned to service on September 5.

6. Maintenance Observation

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 status of outstanding jobs and to assure the priority was assigned to safety-related equipment.

The inspector reviewed the licensee's follow-up on problems encountered with Byron Jackson reactor coolant pump (RCP) anti-reverse rotation device (ARRD) pins (references (1) licensee special report to NRC Region II, letter L-86-266, dated July 8, 1986, (2) Inspection and Enforcement (IE) Inspection Report (IR) 50-335, 389/85-21, dated October 9, 1985 and (3) IE IR 50-335, 389/85-31, dated January 7, 1986). As stated in reference (1), the ARRD pins are accessed by way of a removable access plug in the stationary ratchet ring. The top of the plug is machined so as to be flush with the surface of the stationary ratchet. The misalignment of the access plug is believed to be the cause of the premature pin wear. With the access plug misaligned, sharp edges are exposed, and as the pin tip traverses the access plug, it is damaged. Eventually, the tip damage is sufficient to allow metal contact between the pin and the ratchet. The resulting tip mushrooming causes the pin to stick in it's retaining ring.



The licensee has made the appropriate procedural changes and altered the inspection requirements to ensure proper access plug installation, i.e., assurance that the removable access plug is precisely aligned with the stationary ratchet's sloping face. The licensee plans inspections of both units 1 and 2 ARRD pins during the next scheduled refueling outages.

In response to Potential Generic Item 85-14, which addressed missing lock welds on certain Anchor Darling valves at the V. C. Summer Nuclear Station, the inspector, along with the licensee, performed a review of the maintenance records associated with the referenced type of valves. The licensee identified eleven of the subject valves in unit 1, of which four were installed in safety related systems. The remaining seven are installed in radioactive waste systems. The four safety-related valves were disassembled and inspected during the unit 1 refueling outage in the latter part of 1985. The following deficiencies were identified and corrected by the licensee:

- (1) 1B BAM Pump Discharge Check Valve (V-2443)
 - welded flapper (disc) nut pin
 - welded set screws on flapper (disc) hinge pin
- (2) 1A BAM Pump Discharge Check Valve (V-2444)
 - welded flapper (disc) nut pin
 - welded set screws on flapper (disc) hinge pin
- (3) Emergency Borate Line Check Valve (V-2177)
 - welded set screws on flapper (disc) hinge pin
 - flapper (disc) nut keeper pin was partially out of nut, repositioned and welded
- (4) Gravity Feed to Charging Pump Suction (V-2190)
 - flapper (disc) nut and keeper pin missing, installed new nut and pin and tack welded
 - welded set screws on flapper (disc) hinge pin

In June 1986, the licensee again disassembled the four above listed valves in order to reinspect lock welds, which had not been inspected previously in the hinge-support-to-bonnet and the capscrew-to-hinge-support. All lock welds were satisfactory. The licensee indicated that the seven non-safety-related valves will be inspected and repaired on an "as fails" basis. The licensee's position on repairing the non-safety-related valves on an "as fail" basis will be an inspection followup item pending further NRC review. (335/86-20-01)

7. Review of Nonroutine Events Reported by the Licensee (Unit 1)

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 utmost consideration. The following LER's are considered closed:



Unit 1

LER 86-06 "Containment High Radiation Monitor Alarm Setpoints Too High". On July 18, 1986, it was noted by the licensee that the alarm setpoints for the containment high range radiation monitor (CHRRM) were above that allowed by TS. During a review of the calibration procedure for these monitors, the I&C supervisor noted that the numerical value for the alarm setpoint was not stated in the procedure. The procedure merely stated that the trip potentiometer should be adjusted to the "desired setpoint". The limit specified in TS table 3.3-6 is 10 Roentgens per hour (R/hr). The monitors were actually set to 10E5 R/hr. The CHRRM's are used for post-accident monitoring of containment radiation and are not associated with any automatic function. The alarm function is provided to alert operators of increasing radiation levels. The CHRRM alarm setpoints were immediately adjusted to the required value following the discovery of the error. It appears that the out-of-spec condition had existed from August 1983, when the lower alarm setpoint was initially required by TS 3.3.3.1. This is considered a violation of unit 1 technical specifications. However, since it was identified by the licensee, considered severity level IV or V, reported, if required, corrected within a reasonable length of time, and was not a violation which could be expected to have been prevented by the licensee's previous corrective actions, in accordance with 10 CFR 2, Appendix C, IV.A, a Notice of Violation will not be issued.

LER 86-07 "Personnel Error results in auto start of Diesel Generator." On August 4, 1986, at 6:46 p.m., with unit 1 at 100% power, the 1A3 4160 volt vital AC board was lost for 10 minutes. The loss was due to an inadvertent actuation of a differential current relay. As an electrician was racking a circuit breaker into the 1A3 board, the breaker made contact with screws at the back of the differential current protective relay, causing it to actuate. The bus tripped and the EDG started, however, it did not pick up the 1A3 bus loads because of the differential current relay, "lockout", actuation. An operator was immediately dispatched from the control room to reset the relay located in the electrical equipment room. Upon resetting, the EDG picked up the 1A3 loads and normal bus power was restored. The 1A3 bus is the power supply for the "A" train safety related and non-safety related emergency loads.

During the vital power loss, several control room instruments/controls were lost. Most significant, was the loss of letdown flow due to automatic isolation and the loss of normal pressurizer spray. Subsequently, pressurizer (PZR) level and pressure increased. The maximum PZR level reached was 80%, normal is 65%, before letdown was restored. Auxiliary spray was initiated to control PZR level. Power remained at 100% throughout the power loss. A post-transient review determined that the unit did not experience an unusual or unexpected transient, nor were any critical non-redundant instruments or controls lost.

8. 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.

9. 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, RWT, 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, LCO's 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.

10. Information Notice Review

The inspector has reviewed the initial response of the licensee to IE Information Notice (IEN) 86-65, "Malfunctions, of ITT Barton Model 580 Series Indicating Switches During Requalification Testing." The licensee has determined that the subject switches are installed on site. The I&C Department is currently evaluating specific applications. Results will be documented through the licensee's Operating Experience Program. The inspector will complete the review of IEN 86-65 after the licensee's actions have been completed.