



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

Report Nos: 50-335/89-04 AND 50-389/89-04

Licensee: Florida Power & 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: January 29, 1989 - March 10, 1989

Inspectors: William K. Poertner for
 G. L. Paulk, Senior Resident Inspector

4/7/89
 Date Signed

William K. Poertner for
 M. A. Scott, Resident Inspector

4/7/89
 Date Signed

Approved By: [Signature]
 R. V. Crlenjak, Section Chief
 Division of Reactor Projects

4/11/89
 Date Signed

SUMMARY

Scope: This inspection involved on site activities 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, and surveillance activities.

Results: Of the areas inspected a licensee identified violation (LIV) and two inspector followup items (IFI) were identified as follows:

Failure to follow cleanliness control procedure, LIV 335,389/89-04-01 (paragraph 9)

Instrument air water incursion, IFI 335,389/89-04-02 (paragraph 9)

Corrosion and instrumentation of ICW and salt water safety-related systems, IFI 335,389/89-04-03 (paragraph 7)

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *Harris, K., St. Lucie Site Vice President
- *Boissy, G., Plant Manager
- *Barrow, J., Operations Superintendent
- *Barrow, J., Fire Prevention Coordinator
- *Brain, S., Independent Safety Evaluation Group
- *Buchanan, H., Health Physics Supervisor
- *Burton, C., Operations Supervisor
- *Crider, C., Outage Supervisor
- *Culpepper, D., Site Juno Engineering Manager
- *Dawson, R., Maintenance Superintendent
- Diehl, R., Nuclear Watch Engineer
- *Frechette, R., Chemistry Supervisor
- *Harper, J., QA Supervisor
- *Leppla, C., I & C Supervisor
- *McLaughlin, L., Plant licensing Supervisor
- Mendoza, V., System Engineer
- *Rogers, L., Electrical Maintenance Supervisor
- *Roos, N., Quality Control Supervisor
- *Vogan, T., Juno Engineering Corporate Supervisor
- *West, D., Technical Staff Supervisor
- *Wilson, C., Mechanical Maintenance
- *Wunderlich, E., Reactor Engineering Supervisor
- Wood, C., Nuclear Plant Supervisor

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

*Attended exit interview

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

Unit 1 began and ended the inspection period at power. The unit ended the inspection period in day 170 of power operation since its return from an outage. Unit 2 began the inspection period at power. The unit ended the inspection period in a maintenance and refueling outage that began on February 1, 1989.

During the inspection interval, the inspectors conducted plant tours periodically 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 ECCS systems. Valve, breaker/switch lineups and equipment conditions were randomly verified both locally and in the control room.

The inspectors observed Unit 2 defueling from the control room and containment. Three watch standers were located in a separate room off of the main Unit 2 control room to track fuel movement and three to five personnel were associated with actual fuel manipulation in the containment and in the fuel building. The inspectors observed a portion of the last one-third of the fuel being removed and transported to the spent fuel pool.

The inspector attended a Change Review Team (CRT) meeting on February 22, 1989. The CRT evaluates proposed modifications to the plants. The team provides expertise and feedback on proposed changes. The CRT operated in accordance with Administrative Procedure 0005744, Rev 3, Change Review Team. The CRT has been chartered since 1984. Department heads or their representatives were present to discuss changes to the plant prior to implementation.

Within this area, 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-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. Control room annunciator status was verified. The inspectors performed an in-depth review of the following tagouts (clearances):

Unit 2

Number 2-3-74

2A2 4160 Volt Switchgear

Number 2-3-62

ICW "A" Header Isolation, MV-21-3

Within this area, 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 (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 for selected occurrences as they happened. The inspectors verified that plant procedures were adequate, complete, and the correct revision. Instrumentation and recorder traces were observed for abnormalities.

Within this area, no violations or deviations were identified.

5. Maintenance Observation (62703)

Station maintenance activities involving 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 inspectors observed portions of the following maintenance activities:

2A HPSI (high pressure safety injection) pump: A crew in appropriate radiological dress was changing out a hanger strut on the pump's discharge piping

2B CCW (Component Cooling Water) Strainer: The inspector observed a contractor replace the rubber coating inside one of the isolation valves at the 2B strainer.

The inspectors reviewed the following Plant Work Orders:

<u>Number</u>	<u>Unit</u>	<u>Title</u>
8301/62	2	2B Diesel Generator Inspection
8425/62	2	Reactor Containment Building Telescoping Jib Crane (1-Ton)

Within this area, no violations or deviations were identified.

6. 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, access control and badging, and procedure adherence.

At approximately 8:15 a.m., February 7, 1989, the licensee discovered that the rubber gaskets (seals) of all six reactor coolant system (RCS) nozzle dams for the "A" steam generator had been cut, or punctured. The dams are used to block the RCS hot and cold legs during steam generator inspections. The damage was discovered prior to installation of the nozzle dams. A Region II Physical Security Inspector and a Resident Inspector were dispatched from Turkey Point to the St. Lucie Nuclear Plant to ascertain the extent of damage and review the licensee's investigative actions to establish responsibility for the vandalism.

Discussion with licensee management and investigative personnel and observation of the damaged seals during the period of February 7-8, 1989, revealed the following.

Testing was completed on 12 nozzle dam seals, 6 of which were to be installed on steam generator "A", and 6 to be installed on steam generator "B", and the seals were moved into the Blowdown Building on February 1, 1989. The seals were removed from boxes and transported by hand into Unit 2 containment on February 5, 1989, where they remained stored in plastic bags near "A" steam generator. On the night of February 5-6, the 6 seals for "B" steam generator were moved to a location near "B" steam generator, which was described as a rather obscure location.

The damage was discovered at 8:15 a.m., February 7, 1989, upon attempting to test the seals prior to installing the nozzle dams.

The damage, consisting of cuts and punctures appeared to have been inflicted by a razor knife and a scrape-all. Examination of the plastic bags indicated that the damage was inflicted while the seals were still in plastic bags. Photographs of the damaged seals and the instruments believed to have been used to inflict the damage were obtained.

The security computer history files reflect a total of 4,000 plus transactions in and out of containment through two security manned access portals (a normal night shift of personnel working in containment is 40) during the period of 12:01 a.m., February 5, 1989 to 08:57 a.m., on February 7, 1989.

Further review determined that the damaged seals were removed from containment at 8:00 p.m., February 7, 1989, and new seals were installed on the nozzle dams on the morning of February 8, 1989.

The FBI office in Ft. Pierce, Florida was notified of the event and responded to the site. Florida Power and Light Company Corporate Security investigators assumed investigative responsibility.

Immediate actions by the licensee management included walkdowns of containment and other Unit 2 areas, and dissemination of a memo to all employees informing of the event and soliciting information. No other damage was identified during the walkdowns.

Unprepared rotor bar slot cell insulation staged for installation and machining on the Unit 2 turbine generator was found damaged on March 4, 1989. Four cells were found to be knife cut (stabbing type penetrations) by persons unknown. The damaged material would have been inspected prior to rotor installation. Since the item was not safety related, the licensee did not make a report to the NRC; the site did notify the resident inspector and informally discussed the event with the NRC Region II office. The site has taken compensatory measures.

7. Surveillance Observations (61726)

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, 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 or reviewed the following surveillances:

- The inspector observed performance of surveillance OP 1-0110050, Control Element Assembly (CEA) Periodic Exercise on the Unit 1 CEA's. Operations personnel had walked through the procedure and preplanned for such contingencies as a rod drop.
- The inspector reviewed the circumstances surrounding a surveillance that could not be performed to verify Intake Cooling Water Pump (ICW) 1A was operable. Surveillance AP 1-0010125A, Sheet 19, Intake Cooling Water, utilizes flow element (FE) FE-21-9A and the instrument had failed high. Licensee personnel found that the carbon steel instrument lines had corroded due to salt water. Removal of the lines indicated that the lines were severely corroded and plugged by an unknown substance. Instrument and control personnel believe that the plugged lines caused the FE to fail high. Approximately two surveillances previously, the test and its instrumentation were changed; the test went from a dead head test to a flow test. The two previous tests had demonstrated problems with the FE. The corroded "1A" lines were replaced; the material which led to the plugging was removed and the pipe protective lining was replaced (plugging deposition is thought to have been induced by the protective lining degradation). The "1B" FE was checked for blockage

(ICW flow varied) and it was satisfactory. Because of exterior corrosion, the "1B" lines are currently being replaced. Unit 2 instrument lines are scheduled for replacement this outage due to this occurrence. This item will be identified as an inspector followup item 50-335, 389/89-04-03, Corrosion and Instrumentation of ICW and Salt Water Safety Related Systems. Nonconformance report 1-257 (March 1988) addresses loss of instrument line evaluations.

Within this area, no violations or deviations were identified.

8. Licensee Action on Outstanding Item List Items (92702)

(Closed) Unresolved Item 335,389/88-07-01, Safety Evaluations for Select Jumpers/Lifted Leads.

As a result of NRC inspection 88-07, Florida Power & Light performed a review of all jumpers and lifted leads for both St Lucie Units. The inspector conducted a review of selected lifted leads/jumpers. The jumpers reviewed involved the following modifications:

- A. Tubing Bypass for Waste Gas Analyzer Pumps P1 and P2 (Unit 1)
- B. Volume Control Tank Vent Valve Bypass (Unit 1)
- C. Reactor Protection System Cabinet "C" Cold Leg Temperature (Unit 1)
- D. Reactor Coolant Pump 1A2 Lower Cavity Temperature (Unit 1)
- E. Volume Control Tank Vent Valve Bypass (Unit 2)
- F. Battery Charger Ammeter (Unit 2)
- G. Reactor Protection System Cold Leg Temperature (Unit 2)
- H. Reactor Coolant System Hot Leg Temperature (Unit 2)
- I. Boron Dilution Alarm (Unit 2)
- J. Regenerative Heat Exchanger Outlet Temperature (Unit 2)

Ebasco evaluated the jumper installations listed above and concluded that for these modifications the decision to provide jumpers or lifted leads did not affect plant safety.

The inspector reviewed the safety analysis developed to evaluate each modification package. None of the modifications involved an unreviewed safety question. The inspector had no further concerns.

Within this area, no violations or deviations were identified.

9. Outage (71707)

The inspector observed the following overhaul activities during the on-going Unit 2 outage:

- During routine blowdown of the Unit 2 instrument air system, larger than normal amounts of moisture was noted. The licensee believes that the moisture came from a clogged dryer on a temporary air supply system. The licensee employee who noted the blowdown discussed it at an afternoon turnover meeting on March 1. Operations began corrective blowdowns that evening. The contractor providing the temporary air compressors took informal corrective action on the dryer. The system engineer provided support in problem identification. As of the evening of March 3, operations was still investigating potential moisture hideout points in the system. The moisture was thought by the licensee to have only entered the low, initial part of the secondary side of the system. On March 6, 1989, additional moisture was found in the secondary side of the system. As of March 9, 1989, the licensee had instituted a regular systematic blowdown schedule and committed to evaluate the system prior to restart. Instrumentation moisture issues will be carried as an Inspector Followup Item, 335,389/89-04-02. As done previously with Unit 1, new compressors and dryers are being installed on Unit 2. These should maintain a moisture free system in the future.

The 2B1 Reactor Coolant Pump (RCP) was weld repaired this outage. Eleven depressions in the lower pump casing half (0.015 inch maximum) were weld repaired and machined. At least one of the depressions had caused a gasket leak. Prior to casing reassembly, the inspector was present with a site QC inspector for verification of pump internal cleanliness. Machining chips and possibly other debris were found in the casing and in the reactor coolant system (RCS) piping elbow below the pump. Using a wet vacuum system and TV cameras, the licensee spent approximately six hours regaining cleanliness control. The loss of cleanliness violated procedure QI 13-2, Cleanliness Control Methods, and ANSI N45.2.1-1980 which is evoked by the site's approved Quality Assurance program. The failure to follow the QI was in the area of in-process controls. Machining chips got past a known, poorly fitting, cleanliness plug and the chips were not cleaned up prior to performance of the next several evolutions in the pump casing. Also, debris and loose material were present around the pump when the main cleanliness cover was removed from the pump casing half for the QC visual inspection.

Beyond regaining cleanliness in the pump, the licensee has committed to amend QI 13-2 to more clearly address in-process controls and change the RCP procedure to address cleanliness cover fit requirements and QI 13-2 in-process requirements. This violation meets the criteria specified in Section V of the NRC enforcement policy for licensee identified violations and will not be cited (LIV 335,389/89-04-01).

The inspector observed a portion of hole location verification on the "A" steam generator (SG) prior to plugging work. Combustion Engineering (CE) was using remote controlled cameras and a mechanical arm to verify tube location and plugging. The licensee's Quality Control (QC) personnel were present along with CE's QC for cross verification purposes. CE's employees were at the lower SG manway entry, supporting tool changes and testing of the arm. The work appeared professional and orderly.

Within this area, no violations or deviations were identified.

10. Exit Interview (30703)

The inspection scope and findings were summarized on March 10, 1989, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection. Dissenting comments were not received from the licensee.

Results: Of the areas inspected a licensee identified violation (LIV) and two IFIs were identified as follows:

Failure to follow cleanliness control procedure, LIV 335,389/89-04-01 (paragraph 9)

Instrument air water incursion, IFI 335,389/89-04-02 (paragraph 9)

Corrosion and instrumentation of ICW and salt water safety related systems, IFI 335,389/89-04-03 (paragraph 7)