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

Report Nos.: 50-335/87-10 and 50-389/87-09

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: April 5 - May 2, 1987

Inspectors: _____ for 5/22/87
R. V. Crlenjak, Senior Resident Inspector Date Signed

_____ for 5/22/87
H. B. Bibb, Resident Inspector Date Signed

Approved by: Bruce A. Wilson 5/29/87
B. Wilson, 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 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, two violations were identified (paragraph 9). One unresolved item was identified (paragraph 9).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*K. Harris, St. Lucie Vice President
*G. J. Boissy, Plant Manager
*R. Sipos, Services Manager
*J. H. Barrow, Operations Superintendent
T. A. Dillard, Maintenance Superintendent
*J. B. Harper, QA Superintendent
L. W. Pearce, Operations Supervisor
*R. J. Frechette, Chemistry Supervisor
*C. F. Leppla, 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
*C. L. Burton, Reliability and Support Supervisor
J. Barrow, Fire Prevention Coordinator
R. E. Dawson, 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 May 11, 1987, 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 - Units 1 and 2) UNR 335, 389/85-28-02, Uncertainties In Time Performance of 24 Hour Surveillance: Ambiguities in recording the time of performance on several copies of OP-2-3200020 (Primary System Manual Calorimetric), performed in October, 1985 were previously reported (IE Report 335, 389/85-28). The inspector reviewed 80 copies of similarly completed procedures for Units 1 and 2. No discrepancies were noted. This item is considered closed.

4. Unresolved Items (UNR)

An UNR is a matter which more information is required to determine whether it is acceptable or may involve a violation or deviation. One UNR is addressed in paragraph 9 (UNR 389/87-09-01).

5. 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 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 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 of the accessible areas of the Units 1 and 2 emergency diesel generators 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: Units 1 and 2 high and low pressure safety injection, chemistry and volume control, and auxiliary feedwater.

6. 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. The inspectors performed an in-depth review of the following safety-related tagouts (clearances):

1-4-217 1A Boric Acid Makeup (BAM) Pump - reset impeller
1-4-215 1B Charging Pump - planned maintenance (PM)
1-4-212 1A BAM Pump - inservice test
1-3-181 1A BAM Pump - install pump

7. Technical Specification (TS) 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 were reviewed on selected occurrences as they happened.

8. 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; LCO's were met, activites 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/reviewed portions of the following maintenance activities:

PWO	
4624	Semi-Annual Calibration of Fluke Digital Voltmeter
5053	Unit 1 "A" CVCS [Chemical and Volume Control System] Heat Tracing Cabinet - Loss of Cabinet Power
62-299	Repair Leak on Unit 2 Instrument Air Dryer Heater
62-2008	2C Changing Pump -PM
62-2036	2C Auxiliary Feedwater Pump - PM

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

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 LER's are considered closed:

335/87-09 - Technical Specification (TS) Radiation Monitors Inoperable

On April 12, 1987, the 1A emergency core cooling system (ECCS) emergency exhaust fan radiation monitor was discovered to have failed. Efforts to effect repairs were unsuccessful during the following 72 hours. The

licensee decided that the ECCS area was a more critical area to monitor than was the fuel handling building (FHB) area. On April 15, to satisfy the requirements of Unit 1 TS 3.3.3.1.b, the licensee installed temporary ducting to allow the FHB exhaust radiation monitor to sample the ECCS area, leaving the FHB area exhaust unmonitored. The FHB exhaust ventilation fan was on at this time and remained on for the next five days. The FHB exhaust should have been secured or periodically sampled in accordance with Unit 1 TS 3.3.3.10.b. On April 20, 1987, a chemistry technician noted that the FHB ventilation fans were still running. Additionally, he knew that TS required samples were not being taken on the FHB exhaust and immediately informed operations. Operations personnel secured all FHB fans at 8:00 a.m., on April 20, 1987. Repairs were completed and the 1A ECCS emergency exhaust fan radiation monitor was returned to service at 4:00 p.m., on April 20, 1987.

With regards to the above events the following plant procedures were reviewed by the inspector:

a. Administrative Procedure (AP) 0010432, Nuclear Plant Work Orders, which states: "All modifications, preventive and corrective maintenance performed by Florida Power and Light maintenance personnel and maintenance directed work by contractors and vendors at St. Lucie Plant shall be authorized through the Nuclear Plant Work Order." A work order was not issued to perform the shifting of the FHB radiation monitor suction to the ECCS emergency radiation monitor suction.

b. Administrative Procedure (AP) 0010124, Control and Use of Jumpers and Disconnected Leads which states: "To ensure control of all jumpers, disconnected leads and temporary piping in safety related circuits and systems, one of the following methods shall be used:.

   (1) Control by procedure - The documentation in a procedure shall be used when the procedure specifies the alteration and restoration of a circuit or system.

   (2) Control by the Jumper/Lifted Lead Request Log - When an alteration is not controlled by an approved procedure (i.e., troubleshooting electronic equipment or temporary modifications to permit interim operation) and is unattended (not hand held), it shall be recorded in the Jumper/Lifted Lead Log and a Temporary Circuit Alteration Tag attached. This shall be accomplished as outlined in Section 8.0 of this procedure.

   (3) Hand Held - As long as <u>continuous physical contact</u> is maintained with the disconnected lead or jumper (hand held) the controls in steps 1 and 2 above are not required."

   These procedures were not implemented and as a result, the temporary alteration/jumper was not properly documented and controlled.

c. Operating Procedure (OP) 0010129 - Equipment Out of Service - Class 1, Which states: "Figure 1 shall be filled out at any time a Class 1 piece of equipment is removed from service." Inspector's note: Figure 1 referred to above, is the log sheet portion of the Equipment Out of Service Log. And, "the Assistant Nuclear Plant Supervisor is responsible for maintaining the Equipment Out of Service Log."

This procedure was not properly implemented in that the out of service equipment was not logged.

The above described items a., b., and c. are examples of failure to follow/implement procedures and together are considered to be a violation (335/87-10-01). .

Additionally, the inspector reviewed the following Unit 1 TS:

TS 3.3.3.10, Table 3.3-13 Action 3 states that effluent releases can continue for up to 30 days with the FHB exhaust radiation monitor out of service if grab samples are taken once per eight hours and analyzed within 24 hours. The TS was not followed in that grab samples were not taken on a shiftly bases during the five days that the FHB exhaust ventilation fan was operating unmonitored. This is a violation (335/87-10-2).

The following events were reported immediately by the licensee and reviewed by the inspector:

On April 22, 1987, at 1:35 p.m. Unit 2 tripped from 100% power due to a turbine trip caused by personnel error while performing routine electrical maintenance. Electrical maintenance personnel were performing routine circulation water pump (CWP) ammeter calibrations. The ammeter calibrations consisted of shorting out the leads to the appropriate ammeter by utilizing a jumper across the associated terminals in reactor turbine gauge board (RTGB), section 202. The meters are them removed from the RTGB for calibration. The electricians had jumpered the 2A2 CWP meter at terminal block (TB) No. 5, points 57 and 58 in RTGB, section 202. They then jumpered the 2B2 CWP meter at TB No. 5, points 82 and 83 in RTGB, section 202. For the 2B1 CWP meter, the drawing indicated that they should jumper TB No. 29 points 92 and 93, RTGB, section 202. At this point the electricians jumpered across TB No.29, however, they had unknowingly crossed into RTGB, section 201. This action resulted in shorting the control switch for the feeder breaker to the 480 volt 2A1 load center (LC) and at 1:35 p.m. the station service transformer 2A1 4160 KV breaker tripped. This resulted in the loss of a large number of non-safety related equipment in the plant, however, this should not have resulted in a turbine trip/reactor trip. A turbine/reactor trip was experienced.

Subsequent investigation revealed that the loss of LC 2A1 resulted in the deenergization of two control element drive mechanism (CEDM) bus undervoltage (UV) relays. This made up, contrary to design, the turbine

trip on reactor trip logic, causing a turbine trip, The cause of the CEDM bus UV relay deenergization was a set of rolled/reversed leads in CEDM cabinet 2. The original plant design had the lead in the rolled configuration, however this had caused two earlier reactor trips. Consequently a plant change/modification (PC/M) was implemented in 1983 to change the leads. They were functionally tested to the new confirguration in 1984. A review, by the licensee, of associated work documents revealed that no changes were authorized subsequent to the PC/M referred above. The licensee is currently investigating this event to determine how the leads were rolled. Until the investigation is completed and reviewed by the inspector this item is unresolved (UNR, 389/87-09-01).

On April 9, 1987, with Unit 2 at 100 percent power, Instrument and Control (I&C) personnel were performing the monthly surveillance test of the engineered safety features actuation system. During the testing, it was noted that one annunciator did not illuminate. After completion of the test, I&C personnel commenced trouble shooting to determine the cause of the annunciator failure. A jumper was placed on the wrong terminal, main steam isolation signal actuation pushbutton, causing the closure of the main steam and feedwater isolation valves. This resulted in an automatic reactor trip due to low steam generator level.

With regards to plant response two pieces of plant equipment did not respond as expected during the event. The steam driven auxiliary feedwater pump (AFW) tripped on overspeed and one main steam safety valve (MSSV) remained partially open for approximately eight minutes. The two electric driven AFW pumps functioned properly and the steam driven AFW pump was restarted without problem. The licensee investigated the cause of the pump trip and could not determine the cause. The pump trip was determined to be an isolated event. In reference to the partially open MSSV, operations personnel reduced steam generator pressure to allow the valve to reclose. This was also an isolated event, however, the licensee is continuing to determine the cause for the valve sticking.

The trip described above is one of several which have occurred over the past few months which involve personnel error and is possibly indicative of a trend in this area. The licensee is pursing these problems and is taking corrective actions in an attempt to reverse the negative trend. The inspectors are monitoring these actions.

10. Physical Protection (Units 1 and 2)

The inspectors verified by observation and interviews during the reporting interval that measures taken the 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.

11. Surveillance Observations

During the inspection period, the inspectors verified operations in compliance with selected technical specifications (TS) requirements. Typical of these were confirmation of compliance with the TS for reactor coolant chemistry, refueling water tank (level, temperature and chemistry), 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 portions of the following surveillance(s):

I&C 1-1220050 R.13 - Linear Power Range Safety Channel Quarterly Calibration

AP 1-00110125 - Schedule of Periodic Tests, Checks and Calibrations
- Check Sheets 1,2,3,4,5, and 6,Data Sheets 3,4,5,21,22, and 26