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

Report Nos.: 50-335/93-07 and 50-389/93-07

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: March 5 - April 3, 1993.

Inspectors: K. D. Landis 4/29/93
for S. A. Elrod, Senior Resident Inspector Date Signed

K D Landis 4/29/93
for M. A. Scott, Resident Inspector Date Signed

Approved by: K W Landis 4/30/93
K. D. Landis, Chief Date Signed
Reactor Projects Section 2B
Division of Reactor Projects

## SUMMARY

Scope: This routine resident inspection was conducted onsite in the areas of plant operations review, surveillance observations, maintenance observations, outage activities, fire protection review, preparation for refueling, onsite followup of events, and followup of regional requests. Backshift inspection was performed on March 7, 24, 25, 26, 27, 28, 29, and 31, and April 1 and 3.

Results: Plant operations area:

Operations performed well during the Unit 1 shutdown for refueling and Unit 1 integrated safeguards test, which overlapped the Unit 2 startup from an extended forced outage. Diverse dual plant evolutions were coordinated very effectively.

Surveillance area:

A number of important surveillances were performed in a professional manner.

Maintenance area:

Maintenance work was performed in a well controlled manner with good in-process feedback, particularly of SOV 09-4 and PORV V-1475 for Unit 2.

Engineering area:

Engineering supported the operating staff on the PORV failure root cause issues and SOV 09-4 EQ upgrade.

In the areas inspected, violations or deviations were not identified.

## REPORT DETAILS

1. Persons Contacted

Licensee Employees

D. Sager, St. Lucie Plant Vice President
* G. Boissy, Plant General Manager
J. Barrow, Fire/Safety Coordinator
* J. Breen, Licensing Engineer
H. Buchanan, Health Physics Supervisor
* C. Burton, Operations Manager
R. Church, Independent Safety Engineering Group Chairman
* L. Clark, Electrical Maintenance Engineer
* R. Dawson, Maintenance Manager
W. Dean, Electrical Maintenance Department Head
* J. Dyer, Plant Quality Control Manager
* R. Englmeier, Site Quality Manager
H. Fagley, Construction Services Manager
R. Frechette, Chemistry Supervisor
J. Holt, Plant Licensing Engineer
L. McLaughlin, Licensing Manager
* G. Madden, Plant Licensing Engineer
* A. Menocal, Mechanical Maintenance Department Head
* L. Rogers, Instrumentation & Control Department Head
J. Scarola, Site Engineering Manager
C. Scott, Outage Manager
* B. Sculthorpe, Reliability Supervisor
J. Spodick, Operations Training Supervisor
* D. West, Technical Manager
* J. West, Operations Supervisor
* W. White, Security Supervisor
D. Wolf, Site Engineering Supervisor
* E. Wunderlich, Reactor Engineering Supervisor

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

NRC Personnel

I. Selin, Chairman, Nuclear Regulatory Commission
L. Reyes, Deputy Administrator, Region II
* M. Sinkule, Chief, Reactor Projects Branch 2, Region II
K. Landis, Chief, Reactor Projects Section 2B, Region II
* S. Elrod, Senior Resident Inspector
W. Kleinsorge, Reactor Inspector, Region II
* M. Scott, Resident Inspector
T. Shedlosky, Technical Assistant

* Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Plant Status and Activities

Unit 1 began the inspection period at power. The plant was shut down on March 29 for a refueling outage after 181 days of continuous power operation.

Unit 2 began the inspection period shut down for 2A1 RCP repairs and subsequently remained shut down for pressurizer steam space instrument nozzle replacement. On March 31 the unit was taken critical and was put in power generation service on April 1. Unit 2 ended the inspection period in Day 3 of operation since the startup on March 31.

During this period, a special inspection was conducted on March 10-17 by W. Kleinsorge to review ASME Code aspects of the Unit 2 pressurizer nozzle repair. The inspection results were reported in IR 335,389/93-08.

On March 22, Dr. Selin, Chairman of the Nuclear Regulatory Commission, visited the site accompanied by his Technical Assistant, T. Shedlosky; L. Reyes, Deputy Administrator, Region II; and K. Landis, Chief, Reactor Projects Section 2B, Region II. The Chairman's activities included touring both units, informal licensee presentations, and a press conference.

3. Review of Plant Operations (71707)

a. Plant Tours

The inspectors periodically conducted plant tours 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 ESF, ECCS, and support systems. Valve, breaker, and switch lineups as well as equipment conditions were randomly verified both locally and in the control room. The following accessible-area ESF system and area walkdowns were made to verify that system lineups were in accordance with licensee requirements for operability and equipment material conditions were satisfactory:

- Unit 2 Pressurizer,

- Unit 2 SITs,

- Unit 1 Containment Spray,

- Unit 2 Containment Penetrations, and

- Unit 2 AFW.

During the inspection period, the inspector made tours of the Unit 2 pressurizer space and the containment. These tours assessed the adequacy of work control for the pressurizer steam space nozzle replacements discussed elsewhere in this report. In most instances the pressurizer areas were found to be acceptable. An exception to this is discussed in paragraph 5.e.

On March 30, the inspector walked down the Unit 2 containment during Mode 3 operations as the unit was being prepared for higher modes of plant operation. The inspector and licensee personnel identified a number of minor repair items. The most significant problems found were:

- The inspector observed oil leakage from the 2B1 RCP upper motor bearing oil reservoir. Two bracket screw holes, for a removed zero [shaft] speed sensor that had never been used at this site, penetrated the reservoir wall and had provided the leak path. Though the holes left by the removed screws were above the normal oil fill level, the oil in the reservoir expanded from the heat input as the RCP motor ran. When the leakage was found, approximately one pint of this oil had run out onto the top of the motor and had begun dribbling down the motor face. The real risk from the oil leak was its potential as a fire hazard. Due to the limited volume of oil available and the limited material to be consumed, the risk was small.

  Licensee review of circumstances leading to the open screw holes showed that the technicians involved in removing the sensor did replace the screws when they removed the bracket. There was a lot of internal work on this motor throughout the outage period and the licensee was unable to determine the circumstances.

  The licensee repaired the leak by installing new screws with RTV sealant. They also verified that the screw holes were sealed on other pumps and wrote NCR 2-529 to initiate engineering evaluation of the other installations.

- The 2A2 RCP mechanical seal was found leaking water past the vapor seal - approximately one drop per second. The vapor seal, the fourth stage of the seal package, can withstand full RCS pressure. There was continuous, controlled, bleed off through all seal stages and the controlled bleed indication was within normal limits. The TS leakage limit for unidentified

leakage is one gallon per minute or less and the ASME Code does not set specific leakage limits for pump mechanical seals. This condition had been previously evaluated as satisfactory by both operations and mechanical maintenance, and the pump seal vendor provided an evaluation that a limited vapor seal leak rate was acceptable.

- The remainder of the minor packing leaks and maintenance items were addressed by the licensee.

The inspector had no further questions in this area.

b. Plant Operations Review

The inspectors periodically 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. They observed and evaluated control room staffing, control room access, and operator performance during routine operations. The inspectors conducted random off-hours inspections to ensure that operations and security performance remained at acceptable levels. Shift turnovers were observed to verify that they were conducted in accordance with approved licensee procedures. Control room annunciator status was verified. Except as noted below, no deficiencies were observed.

(1) During this inspection period, the inspectors reviewed the following tagouts (clearances): . . .

- Unit 2 - 2-93-03-071 2A AFW Pump,
- Unit 2 - 2-93-03-145 2A CCW Heat Exchanger,
- Unit 1 - 1-92-12-124 1A BAM Pump, and
- Unit 1 - 1-93-03-125 1C Containment Fan Cooler Motor.

During this inspection period, the licensee implemented a new program for issuing clearances. This program included a separate group of operations personnel to run the program and new computer software for clearance generation. Previous clearance control had been a manual operation and run by each unit's ANPS [SRO] in the respective control rooms. The above clearances exhibited no noticeable problems. The inspectors will continue to monitor this new and evolving system during routine inspections.

(2) At the beginning of this inspection period, the licensee was returning Unit 2 to appropriate conditions for plant operation. After suffering pump shaft problems reported in IR 93-05, the

repaired but untested 2A1 RCP was readied for operation with special test instrumentation.

On March 2, during plant preparation, while in Mode 5 at 200 psig and 100 degrees F, the licensee discovered a slight leakage coming from beneath the mirror insulation on the Unit 2 pressurizer. The licensee removed the pressurizer's mirror insulation and found four of four instrument-nozzle-to-pressurizer-steam-space welded joints leaking. Three showed visible external moisture evidence and one had discernible flow. These nozzles had internal welds so one could not immediately determine whether the boundary failure was in the weld, the pressurizer cladding, or the nozzle. These Inconel 600 nozzles had been installed by ABB/CE in the 1987-88 time frame to correct for possibly faulty heat treatment of the original nozzles. Six other nozzles or RTD temperature wells of the same material heat, also installed by ABB/CE in the 1987-88 era, had external vice internal welds and significantly lower operating temperatures, being located on the pressurizer below the liquid level or on the RCS hot and cold leg piping. The six other nozzles did not exhibit leakage. Licensee contacts with others indicated that repeat failures of Inconel 600 nozzle installations have occurred at other sites. The equivalent Unit 1 Nozzles were of yet a different heat of Inconel 600. Subsequent to this NRC inspection period, the Unit 1 nozzles were inspected and found not to leak.

As a result of the pressurizer condition, the licensee established a 24-hour-a-day project organization team to manage the pressurizer inspection, analysis, and repair project. The team included elements from Mechanical Maintenance, Construction Services, Engineering, and ABB/CE. Full time support included the Health Physics, Quality Control, and Operations functions. The mechanical maintenance shop, as the project leader and contract administrator, contracted with ABB/CE for diagnosis and repair as a possible warranty issue. Engineering separately engaged B&W, who had both experience in the same repair and a hot laboratory, as a consultant.

Dye penetrant examination found axial cracks in all four nozzles extending about 3/4 to 1 inch down the nozzle bore and extending about 1/2 to 3/4 inch into the weld. One nozzle had one crack, two nozzles had two cracks each, and one nozzle had three cracks. The three-crack nozzle was the one initially found with water flowing out. Eddy current reports supported the dye penetrant disclosure of axial cracks but no circumferential cracks. FPL and ABB/CE concluded that the cracking was Primary Water Stress Corrosion Cracking (PWSCC) of the Inconel 600 nozzle material. This material, Heat 54318, had been especially selected by ABB/CE several years ago for replacement nozzles to correct an earlier heat-related manufacturing problem.

The licensee decided to manually grind the internal welds, extract the four nozzles, and replace them with Inconel 690 nozzles provided by ABB/CE who performed all repair work with FPL concurrence. FPL closely evaluated all actions and findings to separately determine root cause, prudent repair actions, and generic applicability.

FPL had initially believed that repairs would take about two weeks. The actual repair took approximately three weeks. Detail weld inspection activities are discussed in IR 335,389/93-08 and in report paragraph 5. The final nozzle repair NDE was accepted on March 26.

(3) On March 11, the licensee reduced Unit 1 reactor power to 80 percent to clean the 1A2 water box, returning to full power on March 12. No Xenon control problems were seen at this low RCS boron level (approximately 57 pcm). The licensee had calculated that, if boron worth were below 43 pcm, that fuel worth would not overcome built-in Xenon levels and a return to power would be impractical. The inspector monitored both the power reduction and the return to power.

(4) On March 28, at 8:45 pm, the licensee began a Unit 1 shutdown for its refueling outage. Procedures in effect for the shutdown were:

- OP 3200021, Rev 17, Axial Shape Index Control,
- OP 1-0030123, Rev 25, Reactor Operation Guidelines During Steady State and Scheduled Load Changes,
- OP 1-0620020, Rev 23, Circulation Water System - Normal Operations, and
- OP 1-0030125, Rev 26, Turbine Shutdown - Full Load to Zero Load.

The pre-shutdown briefing, the shutdown of the main turbine [March 29, 12:27 a.m.], and the reactor shutdown [March 29, 1:33 a.m.] went smoothly without incident. The operations manager and operations supervisor were present for the evolution as well as the NRC inspector.

During the evolution, six non-licensed operators in training to be licensed RCOs were rotated through the various RTGB positions. This was done with licensed personnel in close attention. The trainees performed RCO duties under instruction and were properly instructed in deportment at the board. This infrequent [occurring once every 18 months] training opportunity did not interfere with the shutdown and was well controlled. The trainees were very positive about the experience.

During the turbine shutdown, a shift change was made at around 11:00 pm on March 28. Previously, in 1989, a licensee shift change during a shutdown resulted in a unit trip. This present shift change evolution was much more controlled and had minimal impact on the shutdown. The on-coming crew was briefed in an adjacent space. Then the on-coming crew was quietly updated by the operating crew as they stood their post at the board positions. The off-going shift crew then quietly exited the control room.

(5) On March 30, when Unit 2 had heated up to 500 degrees F and 1700 psig, Unit 2 operations personnel started the 2A1 RCP for the third time since its rebuild. Operations and maintenance reliability personnel were present at the pump and controls to monitor the pump performance at this close-to-normal operating condition. All indications were satisfactory. The NRC inspector observed the discreet vibration analysis and data gathering and, later the same day, observed the RCP operating from its various inspection platforms. This rebuilt pump and motor was the smoothest running of the four RCPs.

(6) On March 30, the Unit 2 operations staff performed a 102 percent of operating pressure hydrostatic test of the new pressurizer welds. Several minor valve packing leaks were identified for correction, but the recent RCS replacement welds did not leak. The NRC inspector was present during the pressurizer inspection with the plant QC personnel who were validating the hydrostatic test.

(7) On March 31 with the Unit 1 reactor shut down, an inadvertent start of the 1B EDG occurred. Test equipment for the upcoming safeguards test had been installed and electricians were checking it out. By procedure, unused contacts on undervoltage relay 27Z were used as a timing initiator for a strip chart recorder. An electrician checking the strip chart recorder mechanically agitated the relay to open the unused contacts - and also opened the active contacts, starting the EDG. The licensee made a four hour report and was following up with an LER.

(8) On March 31, the inspector observed the startup of the Unit 2 reactor. Unit 2 entered Mode 2 [at 6:23 p.m.] in preparation for power operation. At 7:12 p.m., after 78 days of outage, the unit went critical with the assistant operations supervisor present as reactivity manager. The evolution went extremely well. The reactor went critical within ten CEA steps of the ECP. Three trainees were present to participate in the startup.

The following procedures were in effect for this reactor startup:

- OP 2-0030122, Rev 35, Reactor Startup, and

- OP 0030126, Rev 13, Estimated Critical Condition and Inverse Count Rate Ratio.

(9) On April 1, the inspector observed the startup of Unit 2 turbine generator per OP 2-0030124, Rev 58, Turbine Startup - Zero to Full Load. At 1:44 a.m., Unit 2 entered operating Mode 1. At 1:47 a.m., the main turbine was latched and tested. Power escalation was delayed while Unit 1 performed safeguards and loss of offsite power testing because the condensate polishing unit, used during startup of either unit, is powered from Unit 1 non-vital power. The 15% feed regulating valves controlled SG level well during this wait. At 8:14 a.m., the generator output was put on the grid. Unit 2 power was increased slowly to meet fuel conditioning guidelines in OP 2-0030123, Rev 17, Reactor Operating Guidelines during Steady State and Scheduled Load Changes. Unit 2 did not reach full power until April 5.

(10) On April 1, the licensee conducted an integrated safeguards test of the Unit 1 safety-related equipment. The applicable procedure was 1-0400050, Rev 30, Periodic Integrated Test of the Engineered Safety Features. The test tested ECCS in conjunction with LOOP, ECCS alone, and LOOP alone. This test requires a large amount of data be expeditiously collected from a number of locations, requiring experienced data takers such as qualified operators. The test coordination and conduct were excellent. The test was successful in that the major events occurred as planned (i.e., the EDGs starting and feeding the emergency busses). Detailed results were evaluated over the next several days. Items requiring further licensee review included:

- Most load sequence timers are evaluated from sequence of events recorder data. The train B EDG output breaker closing did not print on the sequence of events recorder, so the licensee plans to verify train B item timing during the refueling outage.

- 1C CCW pump failed to start either automatically or locally.

- 1C Charging pump failed to start automatically but did start manually from the control room.

- HVS 1C was out of service, will be tested later.

- HVS 2B did not restart after LOOP.

- HVS 3B did not restart after LOOP.

The NRC inspector plans routine follow up of the troubleshooting on these failures during the next monthly inspection.

(11) On April 2, the licensee performed a visual inspection of the Unit 1 Pressurizer steam space nozzles. Plant conditions were 83 psig and 150 Degrees F. No leakage or indications of leakage were found.

c. Technical Specification Compliance

Licensee compliance with selected TS LCOs was verified. This included the review of selected surveillance test results. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, and switch positions, and by review of completed logs and records. Instrumentation and recorder traces were observed for abnormalities. The licensee's compliance with LCO action statements was reviewed on selected occurrences as they happened. The inspectors verified that related plant procedures in use were adequate, complete, and included the most recent revisions.

d. Physical Protection

The inspectors verified by observation during routine activities that security program plans were being implemented as evidenced by: proper display of picture badges; searching of packages and personnel at the plant entrance; and vital area portals being locked and alarmed.

During the Unit 2 startup, and the Unit 1 Shutdown, operator performance was excellent. Operations support of the ABB/CE repairs to the Unit 2 pressurizer was good.

4. Surveillance Observations (61726)

Various plant operations were verified to comply with selected TS requirements. Typical of these were confirmation of TS compliance for reactor coolant chemistry, RWT conditions, 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 properly, 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 following surveillance tests were observed:

a. Unit 2 OP 2-2200050, Rev 3, 2A Emergency Diesel Generator Periodic Test and General Operating Instructions.

b. Unit 1 I&C 1-1400050, Rev 40, Reactor Protection System - Monthly Functional Test.

c. Unit 1 I&C 1-070051, Rev 13, Auxiliary Feedwater Actuation System Monthly Functional Test.

d. Unit 1 OP 1-0030150, Rev 58, Secondary Plant Operational Checks and Tests [sections 8.3, Testing the Main Turbine Thrust Bearing Trip, 8.4, Low Main Turbine Bearing Oil Pressure Trip, and 8.5, Testing of Main Turbine Low Vacuum Trip].

e. Unit 1 OP 1-0110050, Rev 28, Control Element Assembly Periodic Exercise. During the test performance, CEA 14 timer module failed. Utilizing NPWO 0184/63, I&C replaced the module without jeopardizing plant conditions. Testing was then satisfactorily completed.

f. Unit 1 OP 1-1300054, Rev 16, RAB Fluid Systems Periodic Leak Test [1A Containment Spray Pump].

g. 2B AFW Pump cold shutdown pump and valve test. This test per OP 2-0700050, Rev 29, Data Sheet F, same title, included full flow and performance tests of pump discharge check valves with the pump discharges cross connected.

h. 1C AFW Pump cold shutdown pump and valve test per OP 1-0700050, Rev 39, Data Sheet D, same title. This test was intended to include full flow and performance tests of pump discharge check valves. The pump failed the surveillance by going to full speed and not being controllable from the control room. Troubleshooting per NPWO 0206/63 determined that the speed signal did arrive from the control room and that the problem was local to the turbine and controller. The pump was declared out of service for repair during the refueling outage and the unit entered a 72-hour LCO that would be ended when the cooldown in progress was completed.

The inspector observed light rust and mildew in the local control box B-103-B. There was also a green wire grounded to a conveniently placed screw head without a terminal lug. These were discussed with the system engineer at the time - the wire was determined to be a cable shield.

i. Fast Dead Bus Transfer Test per MP-1-0950181.

j. Unit 1 OP 1-0310020, Rev 37, Appendix H, 1A Component Cooling Water Performance Test. This data, associated with NRC GL 89-13, Service Water Problems Affecting Safety Related Equipment, was being taken during plant shutdown to obtain an adequate heat load for the test. Important elements observed included: initial conditions, data taking and recording, instrument calibrations, and system component manipulation by the operators. The system engineer used care in recording data and test steps were well coordinated with control

room operators. The data runs gave consistent results. The inspector had no further questions.

The above tests were performed professionally with good results. When involved, interactive participating groups cooperated well.

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: LCOs 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 ensure that priority was assigned to safety-related equipment. Portions of the following maintenance activities were observed:

a. NPWO 6566/62 - Tested Unit 2 V-1475 [PORV] for leak tightness

With the inspectors present, under the above NPWO, mechanical maintenance tested the PORV on a test bench using air both with the solenoid pilot operator attached to the main valve and with the solenoid pilot operator removed. With the solenoid in place on the main valve, the main valve leaked air grossly. At approximately 1100 psig, the test bench could not keep up with the air loss. With the solenoid out of the internal system of the main valve porting, the main valve was leak tight. While installed in the unit, V-1475 had leaked 0.55 gpm (water) at low pressures (200 psig) in Mode 5.

b. NPWO 1138/64 - Tested Unit 2 V-1475 solenoid operator for leak tightness

This NPWO tested the PORV's solenoid operator. The operator was not leak tight during testing and failed the test. The solenoid was replaced with a new one. The new one passed its test, was reinstalled, and satisfactorily tested with the main PORV valve.

Corporate Engineering supported the above testing and also the testing of the second PORV and its solenoid. The solenoid for V-1475 was destructively disassembled for evaluation of the reason for the solenoid leakage. The valve had been installed for 1-1/2 fuel cycles. The engineering group was to issue a report after the inspection period.

c. NPWO 5878/65 HVS 1C 2L/309 relay upgrade [PCM 123-191M].

d. NPWO 8013/63 RPS RTD time response testing.

Attempted testing of RTD TE 1122HB indicated that the test equipment had failed. This test will be reperformed at a later time during Mode 3 following test equipment repair. Three other RTDs had been satisfactorily tested prior to the test equipment failure.

e. ABB/CE Procedure 9392-QP-93-009, Rev 0, Pressurizer Upper Instrument Nozzle Repair.

During the in-process grinding of the nozzle welds, the spent rotary files were placed on the cleanliness float that protected the lower pressurizer internals from debris. The float was maintained in place expanded against the interior wall of the vessel by a constant air pressure source. The source was temporarily interrupted and the float collapsed. When the float collapsed, the files dropped onto plates in the lower reaches of the pressurizer. Due to the construction of the pressurizer, it was not possible for the files to enter the main RCS piping. This loss was documented on ABB/CE NCR 2001935-3 (dated March 11). After weld completion, all four of the files were retrieved and the NCR was closed (March 26). The licensee generated a report IHE 93-022 and supplement one) for documentation of the event. The inspector reviewed the video tapes of the final cleanness inspection and was satisfied.

The inspector observed the satisfactory final penetrant tests of the Unit 2 pressurizer steam space nozzles. With plant QC present, an ABB/CE NDE inspector performed the test. All four nozzles were found satisfactory.

f. Unit 2 startup was delayed for a day because SOV 09-4, in the 2C AFW pump discharge line to the 2B SG, appeared to be shorted out due to rain or packing leakage entering the coil connection area. The valve is located in the weather near the 2C AFW Pump. The valve operator points up and would tend to collect rain or leakage. A single O-ring seals the cover. The valve's EQ qualification does not necessarily qualify it for long term exposure to the weather. The engineering division contacted the vendor and obtained authorization to change gasket material for several O-rings and apply RTV sealant to the joints, especially the one pointing up. The valve was returned to service prior to the end of the TS action statement period.

All observed work was performed in a satisfactory manner. When problems occurred they were properly documented. The licensee was highly proactive in determining the problems with the PORVs. The lack of aggressiveness in maintaining pressurizer cleanness resulted in extra work in a radiological environment.

6. Outage Activities (62703)

The inspector observed outage activity during the ongoing Unit 2 forced outage and observed preparation for the upcoming Unit 1 regular refueling outage. These activities are discussed elsewhere in this report.

7. Fire Protection Review (64704)

During the course of their normal tours, the inspectors routinely examined facets of the Fire Protection Program and observed recent [March 24] fire training. The inspectors reviewed transient fire loads, flammable materials storage, housekeeping, control of hazardous chemicals, surveillance program activities, fire barriers, and fire brigade qualifications.

During actual requalification training of nonlicensed operators in a recently constructed "burn" building, the inspectors were present. The inspectors observed two sets of operators enter the burn building and extinguish a staged fire. The operators in Scott air packs spent time in the building prior to extinguishing the fire. Once the fire was put out, the operators used their fire hose spray to entrain smoke and ventilate the building. The four operators had two instructors present - an excellent pupil to teacher ratio. The instructor dialog was excellent.

Observed site conditions were good from a fire load and house keeping perspective. The operator training was good. Five fire watches on welding jobs observed in the plant were alert and the welding controls were well thought out.

8. Preparation for Refueling (Unit 1- 60705)

The inspectors observed the licensee's receipt and storage of new fuel, provided by the SIEMENS Corporation, for Unit 1 per OP 1610020, Rev 10, Receipt and Handling of New Fuel and CEAs. This procedure and its revisions have been used since 1988 for receiving fuel. It contained well considered limits and precautions. The sketches of the Unit 1 and Unit 2 equipment were excellent. The procedures were in place at the worksite. Activities and records reviewed included storage and posting of new fuel containers on road trailers 845109 and 845019 parked within the RCA; unloading of the trailers; security activities at the fuel building; opening and inspection of the shipping containers for radiological or physical problems; and transfer of fuel assemblies to the inspection racks. Fuel assembly transfers observed included assemblies R15, R21, R23, R24, R71, and R72. The unloading was performed by operators in coordination with a reactor engineer, a health physics technician, and a representative from the fuel vendor. Unloading activities were generally very well coordinated. The new fuel was unloaded in a manner befitting its importance.

The inspector observed that fuel container 6234 had small piles of sandblast grit on the lower braces when the strongback cradling the fuel was raised to vertical prior to actually transferring the fuel assemblies. This had not been recorded by the reactor engineer upon initial inspection. Since sandblast grit had the potential to damage the fuel during shipment, the licensee was asked to resolve why it was there and why its presence was not recorded during inspection. Licensee-vendor review found that the container had been sandblasted and painted by the fuel vendor. Grit became trapped under some L-shaped side brackets

welded to the side of the strongback and was released when the side brackets were flexed when bolted tight following loading the fuel assemblies. The initial inspection was performed with the fuel assemblies horizontal such that the grit would not be visible. The grit remained out of sight until the rack was raised, but the reactor engineer was upstairs when the rack was raised. The condition was subsequently recorded. The licensee did find similar grit in several other recently-painted containers. The fuel was evaluated by the vendor and found satisfactory. The inspector had no further questions.

9. Onsite Followup of Events (Units 1 and 2)(93702)

Nonroutine plant events were reviewed to determine the need for further or continued NRC response, to determine whether corrective actions appeared appropriate, and to determine that TS were being met and that the public health and safety received primary consideration. Potential generic impact and trend detection were also considered.

10. Followup of Headquarters and Regional Requests (Units 1 and 2) (92701)

During this period the inspectors followed up on regional requests for a status of control room drawings. The request involved legibility, accuracy, and correction backlog. The inspectors found the control room drawings to be adequate.

11. Exit Interview

The inspection scope and findings were summarized on April 13, 1993, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary material is not contained in this report. Dissenting comments were not received from the licensee.

12. Abbreviations, Acronyms, and Initialisms

| | |
|---|---|
| ABB | ASEA Brown Boveri (company) |
| AFW | Auxiliary Feedwater (system) |
| ANPS | Assistant Nuclear Plant Supervisor |
| ASME Code | American Society of Mechanical Engineers Boiler and Pressure Vessel Code |
| BAM | Boric Acid Makeup (tank etc.) |
| CCW | Component Cooling Water |
| CE | Combustion Engineering (company) |
| CEA | Control Element Assembly |
| CFR | Code of Federal Regulations |
| DPR | Demonstration Power Reactor (A type of operating license) |
| ECCS | Emergency Core Cooling System |
| ECP | Estimated Critical Position |
| EDG | Emergency Diesel Generator |
| EQ | Environmentally Qualified |
| ESF | Engineered Safety Feature |
| F | Fahrenheit |

| | |
|---|---|
| FPL | The Florida Power & Light Company |
| GL | [NRC] Generic Letter |
| gpm | Gallon(s) Per Minute (flow rate) |
| HVS | Heating and Ventilating Supply (fan, system, etc.) |
| IHE | In-House-Event Report |
| IR | [NRC] Inspection Report |
| LCO | TS Limiting Condition for Operation |
| LER | Licensee Event Report |
| LOOP | Loss of Offsite Power |
| NCR | Non Conformance Report |
| NDE | Non Destructive Examination |
| NPF | Nuclear Production Facility (a type of operating license) |
| NPWO | Nuclear Plant Work Order |
| NRC | Nuclear Regulatory Commission |
| OP | Operating Procedure |
| PC/M | Plant Change/Modification |
| PCM | PerCent Milli (0.00001) |
| PORV | Power Operated Relief Valve |
| psig | Pounds per square inch (gage) |
| PWSCC | Primary Water Stress Corrosion Cracking |
| QC | Quality Control |
| RAB | Reactor Auxiliary Building |
| RCO | Reactor Control Operator |
| RCP | Reactor Coolant Pump |
| RCS | Reactor Coolant System |
| RPS | Reactor Protection System |
| RTD | Resistive Temperature Detector |
| RTGB | Reactor Turbine Generator Board |
| RTV | A type of silicone rubber |
| RWT | Refueling Water Tank |
| SG | Steam Generator |
| SOV | Solenoid Operated Valve |
| SRO | Senior Reactor [licensed] Operator |
| TE | Temperature Element |
| TS | Technical Specification(s) |