



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Report No. 50-389/81-07

Licensee: Florida Power and Light Company  
9250 West Flagler Street  
Miami, FL 33101

Facility Name: St. Lucie

Docket No. 50-389

License No. CPPR-144

Inspection at St. Lucie Site near Fort Pierce, Florida

Inspector: B. R. Crowley 6/4/81  
B. R. Crowley Date Signed

Approved by: A. R. Herdt 6/4/81  
A. R. Herdt, Section Chief Date Signed  
Engineering Inspection Branch  
Engineering and Technical Inspection Division

SUMMARY

Inspection on May 12-15, 1981

Areas Inspected

This routine, unannounced inspection involved 26 inspector-hours on site in the areas of licensee identified items, reactor coolant pressure boundary piping, preservice inspection (PSI) and reactor vessel internals.

Results

Of the four areas inspected, no violations or deviations were identified in three areas; one violation was found in one area (Failure to follow ultrasonic inspection procedure for PSI - Paragraph 10.C).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*B. J. Escue, Site Manager
- \*W. M. Hayward, Supervising QA Engineer
- D. R. Cooper, Supervising QA Engineer
- \*W. F. Jackson, Welding Superintendent
- \*G. E. Crowell, Site Engineering Supervisor
- \*G. J. Boissy, Startup Superintendent
- \*E. R. Tilley, Construction Test Superintendent
- \*E. O. Poarch, Services Superintendent
- \*E. Sherman, QA Engineer
- \*J. W. Adams, QA Engineer
- \*J. L. Parker, Project QC Supervisor
- \*P. W. Heycock, PSI Coordinator - Power Resources
- F. T. Carr, Specialist - Power Resources
- W. M. Gaines, Power Plant Engineering
- G. Gotch, Specialist - Power Resources

#### Other Organizations

- M. Carucci, QC Superintendent, Combustion Engineering, Inc.
- B. Allbee, PSI Project Engineer, Combustion Engineering, Inc.
- \*R. W. Zaist, Project Superintendent, EBASCO Services, Inc.
- \*R. A. Garramore, Senior Resident Engineer, EBASCO Service, Inc.
- R. G. Beckham, Weld Test Supervisor, EBASCO Services, Inc.
- E. L. Thomas, Vice President, Lambert-MacGill-Thomas, Inc.

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 15, 1981 with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

(Open) Inspector Followup Item 389/81-07-05, "Revision to procedure for overall control of PSI" - Paragraph 8.b(1).

(Open) Inspector Followup Item 389/81-07-06, "Documentation of licensee approval of PSI contractor's program plan and QA manual" - Paragraph 8.b(2).

(Open) Violation 389/81-07-07, "Failure to follow ultrasonic procedure for PSI" - Paragraph 10.c.

(Open) Unresolved Item 389/81-07-08, "Welder not qualified to WPS specified on weld traveler" - Paragraph 7.b.(2)(a).

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 7.b.(2)(a).

### 5. Independent Inspection Effort

The inspector conducted a general inspection of the reactor building and auxiliary building to observe construction progress and construction activities such as welding, welding material control, housekeeping and storage.

Within the areas inspected, no violations or deviations were identified.

### 6. Licensee Identified Items (LII)

Prior to this inspection, the licensee identified the following items considered reportable under 10 CFR 50.55(e):

- a. (Closed) Item 389/80-12-01, Reactor coolant pump casing - Variations in nozzle weld preps. On September 15, 1980, Florida Power and Light Company notified IE:RII of a potential 50.55(e) item concerning variations in the nozzle weld preps on the reactor coolant pump casings. On November 17, 1980, the licensee reported that the condition had been evaluated and determined not reportable. This item pertained to machining not shown on the drawing where the weld prep intersects the as-cast surface on the outside diameter of the casing nozzles. The decision that the item was not reportable was based on the fact that the design requirements would have been met whether or not corrective actions were taken. The decision to take corrective action was based on the fact that less welding would be required to obtain the required weld contour if the weld preps were blended into the as-cast surface. The inspector has no further questions on this item.

- b. (Open) Item 389/81-07-01, Structural member welded to containment vessel. On April 16, 1981, Florida Power and Light Company notified IE:RII of a 50.55(e) item concerning a structural member welded to the containment vessel contrary to ASME requirements. Investigation is in progress. A written report is due May 16, 1981.
- c. (Open) Item 389/81-07-02, Structural member welded to containment pad. On April 16, 1981, Florida Power and Light Company notified IE:RII of a 50.55(e) item concerning a structural member welded to a containment pad without required 4" clearance from edge of pad. Investigation is in progress. A written report is due May 16, 1981.
- d. (Open) Item 389/81-07-03, Lamination in 304 stainless pipe. On April 21, 1981, Florida Power and Light Company notified IE:RII of a 50.55(e) item concerning a lamination in a 24" diameter 304 stainless steel spool piece. Investigation is in progress. A written report is due May 21, 1981.
- e. (Open) Item 389/81-07-04, Low pressure safety injection system valves, Target Rock valves - design deficiency. On November 24, 1980, Florida Power and Light Company notified IE:RII of a potential 50.55(e) item concerning a design deficiency in Target Rock safety injection valves. An interim report was issued on December 23, 1980. The final construction deficiency report was submitted on January 26, 1981. The report has been reviewed and determined to be acceptable by RII. All affected valves are being returned to the valve manufacturer for inspection, rework, modification and testing. This item remains open pending completion of corrective action.

7. Reactor Coolant Pressure Boundary Piping - Observation of Work and Work Activities

The inspector observed non-welding and welding work activities for reactor coolant pressure boundary piping. The applicable code for installation of reactor coolant pressure boundary piping is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB, 1977 Edition with Addenda through S77.

a. Observation of Non-Welding Activities

Observation of specific work activities were conducted to determine conformance, where applicable, with the following: inspection and/or work procedures, recordkeeping requirements, installation specification requirements, specified material, and qualified inspection personnel.

<u>Piping Component</u>	<u>Activity</u>	<u>Procedure</u>
Surge line RC108 (Assys. 751-106 and 771-1609)	Handling and Protection during Installation	SQP-47, Rev. 3

b. Observation of Welding Activities

The inspector examined welding activities for reactor coolant pressure boundary piping as described below to determine whether applicable code and procedure requirements were being met.

(1) Welding

The inspector observed in-process welding on FW002 on line RC 0151 and FW 005 on line SI 0148 to determine whether:

- (a) Work is conducted in accordance with a document which coordinates and sequences operations, references procedure, establishes hold points, and provides for production and inspection approval.
- (b) Weld identification and location are as specified.
- (c) Procedures, drawings, and other instructions are at the work station and readily available.
- (d) WPS assignment is in accordance with applicable code requirements.
- (e) Welding technique and sequence are specified and adhered to.
- (f) Welding filler materials are the specified type and traceable to certifications.
- (g) Alignment of parts is as specified.
- (h) Preheat and interpass temperatures are in accordance with procedures.
- (i) Electrodes are used in positions and with electrical characteristics specified.
- (j) Shielding gas is in accordance with the welding procedure.
- (k) Welding equipment is in good condition.
- (l) Interpass cleaning is in accordance with applicable procedures.
- (m) Temporary attachments are removed in accordance with applicable procedures.
- (n) Welding personnel are qualified.

(o) Weld history records are adequate.

(2) Welder Qualification

(a) The inspector reviewed the welder qualification records for welders FDX and FDU as applicable to the two welds listed in paragraph 7.b.(1) above. During this review, the inspector found that records for welder FDX, who was assigned to field weld 002, did not indicate qualification to the applicable WPS. Further investigation revealed that on April 22, 1981, the WPS for field weld 002 had been changed from WPS 006 to WPS 050. On May 12, 1981 and May 13, 1981, welder FDX withdrew welding material for field weld 002 to WPS 006. Welder FDX was qualified to WPS 006 but not to WPS 050. Review of WPS 006 welding variables indicate that WPS 006 appears to be qualified for field weld 002. The reason for the change from WPS 006 to WPS 050 and the full significance of this matter could not be determined prior to the conclusion of the inspection. The licensee stated that this matter will be examined to determine all details of the problem. This matter is considered an unresolved item and is identified as item number 389/81-07-08, "Welder not qualified to WPS specified on weld traveler".

(b) The following welder qualification activities were observed:

(1) In-process of welding test assemblies for qualification

<u>Welder</u>	<u>Procedure</u>	<u>Application</u>
13-518	WPS 24	Carbon Steel Pipe
BDM	WPS 15	Carbon Steel Plate
13-517	WPS 43	Stainless Steel Pipe
13-638	WPS 24	Carbon Steel Pipe
13-519	WPS 24	Carbon Steel Pipe
6-560	WPS 5	Carbon Steel Plate

(2) Review of RT film

<u>Welder</u>	<u>Procedure</u>	<u>Application</u>
13-230	WPS 5	Carbon Steel Plate
9-517	WPS 15	Carbon Steel Plate
13-991	WPS 43	Stainless Steel Pipe
13-518	WPS 24	Carbon Steel Pipe
10-519	WPS 15	Carbon Steel Plate
10-517	WPS 15	Carbon Steel Plate
7-560	WPS 5	Carbon Steel Plate

Within the area inspected, no violations or deviations were identified.

## 8. Preservice Inspection - Review of Program

The inspector reviewed the licensee's preservice inspection (PSI) program as described below to determine whether regulatory requirements were being met. The PSI is being performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition with Addenda through S78 as modified by 10 CFR 50.55a.(g). FP&L - Power Resources has overall responsibility for the PSI, is coordinating the PSI, and has contracted Combustion Engineering-In-Service Inspection Power Systems Group (CE) for the inspection. CE is responsible for the PSI program and procedures. The actual inspection work has been sub-contracted to Lambert-McGill-Thomas, Inc. (LMT) who will perform inspections in accordance with the CE program and procedures.

a. The inspector reviewed the following documents in the areas of program approval, organizational structure and QA audit requirements:

- (1) CE Document PPB-ISI-001, Revision 0, "Pre-service Inspection Program Plan for Florida Power and Light St. Lucie, Unit 2"
- (2) CE "Development Department Quality Assurance Program Description" Original Issue
- (3) CE Document 0000-ESS-155, Revision 2, "Quality Assurance Program for Inservice Activities"
- (4) FP&L QA 2.9, Revision 3, "Qualification of QA Audit, QC Inspection, and Construction Test Personnel"
- (5) FP&L QP 18.2, Revision 7, "Scheduling of Quality Assurance Department Audit Activities"
- (6) FP&L QP 18.1, Revision 4, "Conduct of Quality Assurance Department Quality Audits"
- (7) FP&L QP 10.5, Revision 0, "Preoperational (Baseline) Examination"

b. During the above review, the inspector noted the following two problems:

- (1) The overall procedure for control of PSI (QP10.5) was written around the Unit 1 organization and does not adequately describe the organization interfaces (i.e., CE-FP&L-LMT) for Unit 2. The licensee was in the process of revising this QP and issuing an administrative procedure to cover this area. This will be identified as inspector followup item 389/81-07-05, "Revision to procedure for overall control of PSI," for review on a future inspection.



- (2) The CE program plan and QA program had not been approved by letter from FP&L. The inspector did note that the documents had been reviewed and conditionally approved in minutes of meetings between FP&L and CE. The licensee stated that official letter of approval will be issued. This item is identified as inspector followup item 389/81-07-06, "Documentation of licensee approval of PSI contractors program plan and QA manual".

Within the areas inspected, no violations or deviations were identified.

#### 9. Preservice Inspection - Review of Procedures

The inspector reviewed the PSI procedures listed below to determine whether the procedures were consistent with regulatory requirements. See paragraph 8. above for the applicable code.

CE Procedure 13172-ISI-020, Revision 2A, "Manual Ultrasonic Examination Procedure for Primary Piping Welds Including Branch Connections and Pipe to Ferritic Nozzle Welds"

CE Procedure 13172-ISI-029, Revision 2. "Generic Manual Ultrasonic Examination Procedure"

CE Procedure 0000-ESS-117, Revision 3, "Ultrasonic Instrument Linearity Ventilation"

The procedures were reviewed in the areas of procedure approval; qualification of NDE personnel; and technical content relative to type of apparatus, extent of coverage including beam angles and scanning technique, calibration requirements, search units, DAC curves, reference level for monitoring discontinuities, method of demonstrating penetration, levels for evaluation and recording indications, and acceptance standards.

Within the areas inspected, no violations or deviations were identified.

#### 10. Preservice Inspection - Observation of Work and Work Activities

The inspector observed the PSI activities described below to determine whether these activities were being performed in accordance with regulatory requirements and licensee procedures. See paragraph 8. above for the applicable code.

- a. Personnel qualification records for one Level III, two Level II and two Level I NDE examiners were reviewed.



- b. In-process ultrasonic (UT) inspection including calibration on applicable calibration blocks, was observed to the extent indicated for the following welds:

<u>Component</u>	<u>Weld</u>	<u>Examination</u>
Loop B Reactor Coolant Cold Leg (Zone 11)	121-801-771	45° Angle Beam
Loop B Reactor Coolant Cold Leg (Zone 10)	121-109-742-B	45° Angle Beam
Loop A Reactor Coolant Cold Leg (Zone 12)	112-1407-771A	60° Angle Beam

The inspections were compared with applicable procedure in the following areas:

- (1) Availability of and compliance with approved NDE procedures
- (2) Use of knowledgeable NDE personnel
- (3) Use of NDE personnel qualified to the proper level
- (4) Recording of inspection results
- (5) Type of apparatus used
- (6) Extent of coverage of weldment
- (7) Calibration requirements
- (8) Search Units
- (9) Beam Angles
- (10) DAC Curves
- (11) Reference level for monitoring discontinuities
- (12) Method for demonstration penetration
- (13) Limits for evaluating and recording indications
- (14) Recording significant indications
- (15) Acceptance limits

- c. During observation of the UT inspection of weld 112-1407-771A, the inspector noted that the examiner was scanning the base material up to the edge of the weld and not scanning the weld surface when scanning perpendicular to the weld. Paragraph 5.2.3 of the applicable procedure, 13172-ISI-20, requires that, "Each weld and the volume of metal for  $\frac{1}{2}T$  on each side of the (WRV) shall be ultrasonically examined using a 0° longitudinal beam applied in one direction and 45° and 60° shear wave angle beam techniques applied in two directions toward the weld and ...." This failure to follow procedure is considered violation of Criterion V of 10 CFR 50, Appendix B as implemented by FP&L Topical Report FPLTQAR 1-76A, Section TQR 5.0 and is identified as item 389/81-07-07, "Failure to follow ultrasonic inspection procedure for PSI".

Within the areas inspected, no violations except as noted in paragraph 10.c. or deviations were identified.

# 11. Reactor Vessel Internal - Review of Quality Records

The inspector reviewed the BIGGE Power Constructor's QA records for handling the reactor vessel internals during moving from storage to the containment.

The records consist of: (1) procedure hold points, (2) "on-site surveillance QA verification checklist" and (3) "BIGGE on-site QA check points". The applicable procedures were:

COP 5-19, Revision 2, "Loadout, Transport and Placement of the Core Shroud/Support Structure Inside the Containment"

Placement of the Core Shroud/Support Structure Inside the Containment"

COP 5-23, Revision 0, "Loadout, Transport and Placement of the Core Barrel Inside Containment"

Within the areas inspected, no violations or deviations were identified.