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

Report No. 50-389/81-25

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

Facility Name: St. Lucie Unit 2

Docket No. 50-389

License No. CPPR-144

Inspection at St. Lucie site near Ft. Pierce, FL

Inspector: W. P. Kleinsorge — Date Signed: Jan 7, 1982

Approved by: A. R. Herdt, Section Chief
Engineering Inspection Branch
Engineering and Technical Inspection Division — Date Signed: 1/7/82

SUMMARY

Inspection on December 14-17, 1981

Areas Inspected

This routine, unannounced inspection involved 29 inspector-hours on site in the areas of licensee action on previous findings, containment penetrations, safety related piping and licensee identified items.

Results

Of the four areas inspected, no violations or deviations were identified in one area; three violations were found in three areas (Violation - "Failure to Test Welder Qualification Test Assemblies in Accordance With ASME Section IX" - paragraph 3.b; Violation - "Failure to Provide Changes of Drawings to the Location of Fabrication" - paragraph 6.b.(1); Violation - "Failure to Follow Visual Inspection Procedure" - paragraph 7.c.(1)(a)). No deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*B. J. Escue, Site Manager
*D. R. Cooper, Supervisor, QA Engineer
*J. L. Parker, Project QC Supervisor
*G. Crowell, Engineering Site Supervisor
*T. F. Skiba, Welding Engineer
*E. W. Sherman, QA Engineer

Other licensee employees contacted included construction craftsmen, technicians, and office personnel.

Other Organizations

*R. W. Zaist, Project Superintendent, EBASCO Services, Inc.
*T. J. Behres, Document Control, EBASCO Services, Inc.

NRC Resident Inspector

S. A. Elrod

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 17, 1981 with those persons indicated in paragraph 1 above. The inspector described the areas inspected and the findings identified below. There were no dissenting comments received from the licensee.

Violation 389/81-25-01: "Failure to Test Welder Qualification Test Assemblies in Accordance With ASME Section IX" - paragraph 3.b

Violation 389/81-25-02: "Failure to Provide Changes of Drawings to The Location of Fabrication" - paragraph 6.b.(1)

Violation 389/81-25-03: "Failure to Follow Visual Inspection Procedure" - paragraph 7.c.(1)(a)

Unresolved Item 389/81-25-04: "Orifice Fillet Weld Leg Size" - paragraph 7.c.(1)(b)

Inspector Follow-up Item 389/81-25-05: "Inspection Requirements for Electrical Penetration Weld Joint No. 3" - paragraph 6.b.(2)

Unresolved Item 389/81-25-06: "Marking" - paragraph 5.b

Unresolved Item 389/81-25-07: "PM Requirements" - paragraph 3.a.(1)(b)

Licensee Identified Item 389/81-25-08: "Motor Housing for Drive Mechanisms Received Without Dye Penetrant Check" - paragraph 8.a

Licensee Identified Item 389/81-25-09: "Primary System Weld Indication" - paragraph 8.b

Licensee Identified Item 389/81-25-10: "Reactor Coolant Piping Crack"- paragraph 8.c

3. Licensee Action on Previous Inspection Findings

a. (Open) Violation 389/81-05-01: "Inadequate Measures to Control Preservation of Safety Related Materials and Equipment"

(1) The above item in part cited that the electric motor for the waste gas compressor 2A was not heated as required. During this inspection, the inspector noted approximately 30 motors on safety related equipment that were not heated as required by the construction group preventative maintenance program. Storage for two of the above motors (Distillate Pump Motors for Rad Waste) was the responsibility of the cognizant construction group. The remainder had been turned over to the test and startup group. The construction group preventative maintenance representative indicated that construction could not work on equipment without a representative of test and startup in attendance. A representative of test and startup indicated that preventative maintenance is the responsibility of construction until turn over to the operations group. FP&L letter L-81-378 dated August 31, 1981 indicated that full compliance had been achieved in this area. The above indicates the following:

(a) The licensee is in continued violation of 10 CFR 50 Appendix B Criterion XIII as evidenced by the storage condition of the distillate pump motors.

(b) The preventative maintenance (PM) requirements for safety related motors which have been turned over to the test and startup group appears to be undefined. The licensee indicated that they would look into the matter further. The inspector stated that the above would be unresolved item 389/81-25-07: "PM Requirements".

(2) In addition, the above item cited 15 examples of scaffolding and/or rigging supported from installed safety related piping.

FP&L letter L-81-378 dated August 31, 1981 indicated that scaffolding would not be erected on pipe smaller than (4) four inches in diameter. The above letter further stated that full compliance in the above area had been achieved. During this inspection the inspector noted several examples of scaffolding supported by pipe less than four (4) inches in diameter. Therefore, the licensee is still in violation of 10 CFR 50 Appendix B Criterion XIII as evidenced by the above.

The licensee committed to provide a supplemental response to items A2 and A3 of FP&L letters dated June 29, July 14, and August 31, 1981, to the Region II office by December 28, 1981.

This item will remain open pending the receipt of the supplemental response and subsequent examination in this area.

b. (Closed) Unresolved Item 389/81-16-03: "Bend Specimen Removal Order". This item concerned the removal of bend specimens from welder qualification test assemblies without marking. This inspector determined that the absence of marking makes it impossible to determine the order of removal of specimens from the test assembly. The preceeding is in conflict with ASME B&PV Code Section IX, 1980 Edition with Addenda through Winter 1980 paragraph nos. QW-463.2(d), QW-452.3 and QW-302, which require that bend specimens be removed in a specific order from specified locations. Therefore, at the time this item was identified, the licensee was not qualifying welders for nuclear power plant fabrication in accordance with the ASME B&PV Code. Failure to establish measures to assure special processes including welding is controlled and accomplished by qualified personnel in accordance with applicable codes is in violation of 10 CFR 50 Appendix B, Criterion IX. This item will be closed as an unresolved item and opened as violation 389/81-25-01: "Failure to Test Welder Qualification Test Assemblies in Accordance With ASME Section IX".

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 nos. 3.a.(1)(b), 5.b. and 7.c.(1)(b).

5. Independent Inspection Effort

a. Construction Activities

The inspector conducted a general inspection of the reactor building, auxiliary building and stainless steel pipe fabrication shop to observe construction activities such as welding, welding filler material control, material controls, housekeeping and storage.

b. Markings

With regard to the inspection above the inspector noted numerous examples of extraneous markings on installed stainless steel tanks and piping. The inspector stated there was no reasonable assurance that the extraneous markings were produced with the approved marking materials. The licensee indicated that they would look further into the matter. The inspector stated that the above would be an unresolved item, identified 389/81-25-06: "Marking."

Within the areas examined no violations or deviations were identified.

6. Containment Penetrations

The inspector observed nonwelding and welding work activities for containment penetrations. The electrical penetrations were fabricated in accordance with the ASME B&PV Code, Section III, 1971 Edition with addenda through Summer 1973. The piping penetrations were fabricated in accordance with ASME B&PV Code, Section III, 1971 Edition with addenda through Winter 1973.

a. Observation of Work

The inspector observed field welding activities by inspection of weld joints and review of records associated with containment penetrations. Observation of the below listed penetrations were made to determine whether the requirements of applicable specifications, standards, work procedures, testing procedures and inspection (QC) procedures were being met, in the following areas:

- Method of assembly of components is consistent with design drawings and work specifications.
- Measures exist and are in force to protect installed components from construction debris, physical damage, and hostile environments.
- Installation activities and other activities, such as testing, are being conducted with reference to specified procedures.
- Nondestructive examination is being performed in accordance with work specifications, and examination personnel are qualified for the work they are performing.
- Inspection (QC) activities are being performed as required by established procedures and by properly qualified personnel.

Penetration No.	Type
D-1	Electrical
E-1	Electrical
P6	Piping
P51	Piping

b. Review of Quality Records

The inspector reviewed pertinent work and quality records for the below listed containment penetrations to determine whether records exist to confirm that quality requirements have been met and whether the records reflect work accomplishment consistent with NRC requirements and FSAR commitments in the areas of materials and components, receipt inspection, and installation and testing.

Penetration No.	Type
D-1	Electrical
P6	Piping
P51	Piping

(1) With regard to the inspection above on December 17, 1981, the inspector noted the Conax drawing for electrical penetration D-1 idnetified by EBASCO No. 2998-488 revision 5 marked "Proceed with Fabrication: dated 4/10/79 was not available at the site. The latest revision to the above drawing available at the site was revision 3 dated 7/28/75. Therefore, the latest revision of a drawing was not available at the location where partial fabrica tion was being performed. Failure to establish adequate measures to control the issuance of drawings including changes to assure that drawings are distributed and used at the location where the activity affecting quality is accomplished, is in violation of 10 CFR 50 Appendix B, Criterion VI. This violation will be identified as 389/81-25-02: "Failure to Provide Changes of Drawings to The Location of Fabrication".

(2) With regard to the inspection above the inspector noted that all Field Welds No. 3 on EBASCO drawing SK-2998-FG-15.7 are indicated by AWS weld symbol on the referenced Conax drawings as full penetration V-bevel joints. The licensee has only inspected these welds with surface inspection methods.

At the time of this inspection it could not be determined whether surface inspection only is consistent with IE Bulletin 80-08 and the ASME Code. The licensee indicated that the above matter is under evaluation at EBASCO. The inspector indicated that the above matter would be identified as inspector follow-up item 389/81-25-05: "Inspection Requirements for Electrical Penetration Weld Joint No. 3".

Within the areas examined, no violations or deviations were identified except as described in paragraph no. 6.b.(1).

7. Safety Related Piping

The inspector observed welding work activities for safety related piping as described below to determine whether applicable code and procedure requirements were being met. The applicable code for safety related piping is the ASME B&PV code, Section III, Subsections NC and ND, 1977 Edition with addenda through Summer 1977.

The inspector observed in-process welding activities of safety related piping field welds as described below to determine whether applicable code and procedure requirements were being met.

a. Welding

The below listed welds were examined in process to determine work conducted in accordance with traveler; welder identification and location; welding procedure; WPS assignment; welding technique and sequence; materials identity; weld geometry; fitup; temporary attachments; gas purging; preheat; electrical characteristics; shielding gas; welding equipment condition; interpass temperature; interpass cleaning; process control systems; identity of welders; qualification of inspection personnel; and weld history records.

Joint Number	Size	System
SI-0409 FW-902	6" X 0.280"	Safety Injection
SI-0409 FW-001	6" X 0.280"	Safety Injection
SI-0409 FW-002	6" X 0.280"	Safety Injection
SI-0129 FW-002	6" X 0.719"	Safety Injection
SI-0113 FW-905	6" X 0.719"	Safety Injection

b. Welding Filler Material Control

The inspector reviewed the FP&L program for control of welding materials to determine whether materials are being purchased, accepted, stored and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined.

- Purchasing procedures, receiving, storing, distributing and handling procedures, material identification, and inspection of welding material issuing stations.

c. Visual Inspection of Welds

The inspector visually examined completed and accepted safety related welds as described below to determine whether applicable code and procedure requirements were being met.

(1) The below listed welds were examined relative to the following: location, length, size and shape; weld surface finish and appearance, including inside diameter of pipe welds when accessible; transitions between different wall thickness; weld reinforcement -- height and appearance; joint configuration of permanent attachments and structural supports; removal of temporary attachments; arc strikes and weld spatter; finish-grinding or machining of weld surface -- surface finish and absence of wall thinning; surface defects -- cracks, laps, and lack of penetration, lack of fusion, porosity, slag, oxide film and undercut exceeding prescribed limits.

Weld No.	System
CS-0006-FW-003	Containment Spray
CS-0006-FW-002	Containment Spray
CS-0006-FW-903	Containment Spray
CS-0006-FW-009	Containment Spray
SI-0422-FW-008	Safety Injection
SI-0512-FW-004	Safety Injection
SI-0156-FW-901	Safety Injection
SI-0224-FW-005	Safety Injection
SI-0224-FW-009	Safety Injection
SI-0224-FW-008	Safety Injection
SI-0506-FW-002	Safety Injection

(a) With regard to the inspection above the inspector, on December 16, 1981, noted the offset across inspected and accepted weld joint No. CS-0006-FW-002 (Valve to pipe weld) was steaper than 3 to 1 taper. The above is contrary to the ASME B&PV Code Section III paragraph NC-4232.1 and FP&L Procedure QI-9.1, Revision 4, "Visual Inspection of Welds" Technique 1, paragraph 1.2.3.2, which requires the offset over the width of a finished weld between materials of different thickness be faired to at least a 3 to 1 taper. Therefore, the inspector of record failed to follow the inspection procedure. Upon notification by the inspector, the licensee rejected the joint above on General Inspection Report No. M-81-5791. Failure to follow procedure for activities affecting quality is in violation of 10 CFR 50 Appendix B, Criterion V. This violation will be identified as 389/81-25-03: "Failure to Follow Visual Inspection Procedure".

(b) With regard to the inspection above the inspector on December 16, 1981 noted the following relative to weld joints CS-0036-FW-9 and SI-0224-FW-9:

1 The above joints are socket type fillet welds connecting a 2-inch Schedule 160 (0.344-inch nominal wall thickness) pipe to an orifice with drawing specified wall thickness of 0.262 to 0.294-inch.

2 The full fitting height fillet weld legs are considerably smaller than the code required 0.374".

At the time of this inspection, the following could not be determined:

1 Whether orifice wall thickness 0.262" to 0.294" and fillet weld leg size of less than 1.09T in a piping system of 0.344-inch nominal wall thickness are consistent with design considerations and code requirements.

2 Whether the above evaluation was made by a properly qualified and authorized individual prior to acceptance of the weld joints in question.

The inspector discussed the above with the licensee. The licensee documented the above in General Inspection Report No. M-81-5790, and indicated that they would look further into the matter. The inspector stated that the above would be identified as unresolved item 389/81-25-04: "Orifice Fillet Weld Leg Size".

(2) Quality records for the below listed welds were examined relative to the following: records covering visual and dimensional inspections indicate that the specified inspections were completed; the records reflect adequate quality; history records are adequate.

Weld No.	System
CS-0006-FW-003	Containment Spray
CS-0006-FW-002	Containment Spray
CS-0006-FW-903	Containment Spray
SI-0422-FW-008	Safety Injection
SI-0156-FW-901	Safety Injection
SI-0224-FW-008	Safety Injection

Within the areas examined, no violations or deviations were identified except as described in paragraph no. 7.c.(1)(a).

8. Licensee Identified Items

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

a. (Open) 389/81-25-08: "Motor Housings for Drive Mechanisms Received Without Dye Penetrant Check"

Combustion Engineering has supplied the subject items which were not dye penetrant checked as required by Code. These items are to be returned for rework. (Reported November 24, 1980, phone conversation, FP&L letter L-80-416 dated December 23, 1980)

b. (Open) Item 389/81-25-09: "Primary System Weld Indication"

Baseline ultrasonic inspection of a primary system pipe weld adjacent to a reactor coolant pump revealed an unacceptable indication in accordance with Section XI requirements. Previously, the weld had been examined by radiography in accordance with Section III and accepted. (Reported June 25, 1981, phone conversation, FP&L letter L-81-317 dated July 24, 1981)

c. (Open) Item 389/81-25-10: "Reactor Coolant Piping Crack"

During a penetrant test (PT), an eighteen inch linear crack indication was found in a piece of installed reactor coolant piping (304 ss, 3/4 inch diameter, Schedule 160, 0.219 inch wall thickness). The piping was received from B. F. Shaw Company. The licensee is investigating. (Reported September 10, 1981, phone conversation FP&L letter L-81-443 dated October 8, 1981)