



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

Report No. 50-389/79-07

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

Facility Name: St. Lucie Unit 2

Docket No. 50-389

License No. CPPR-144

Inspection at St. Lucie Unit 2 near Hutchinson Island, Florida

Inspector: T. E. Conlon for 6/14/79
N. Economos Date Signed

Approved by T. E. Conlon 6/14/79
T. E. Conlon, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on May 15-18, 1979

Areas Inspected

This routine, unannounced inspection involved 25 inspector-hours onsite in the areas of reactor coolant loop piping and other safety-related piping - welding procedure specifications and quality assurance procedures review; welder performance qualification procedure and record review; welder qualification and training facilities; control of preheat practices.

Results

Of the five areas inspected, no apparent items of noncompliance or deviations were identified in two areas; two apparent items of noncompliance were found in three areas (Deficiency - Documentation of Specific Variables Used to Qualify Weld Procedure Specifications, paragraph 6; Infraction - Failure to Follow Radiographic Procedure and Code Requirements for welder Qualifications, paragraph 5.c. No apparent deviations were found in the areas inspected.

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DETAILS

1. Persons Contacted

Licensee Employees

B. J. Escue, Site Manager
*J. D. Kirk, Assistant Site Manager
*W. J. Taylor, Project Superintendent
*W. M. Hayward, QA Supervisor
*W. F. Jackson, Welding Superintendent
J. R. Behris, QC Supervisor
*J. W. Adams, QA Engineer (Mechanical)
*B. M. Parks, QA Engineer

Other licensee employees contacted included construction craftsmen and technicians.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 18, 1979, with those persons indicated in Paragraph 1 above. The inspector identified the areas inspected which included weld procedure specifications and qualification records; welder performance qualifications; welder training and qualification facilities; control of weld joint preheat. Two items of noncompliance were discussed in detail. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

(Closed) 389/78-11-01 Inadequate procedure for control of heat treatment. Construction Site Procedure (CSP) - 41, "Control of Heat Treatment" has been revised and is now identified as SQP-42. With regards to the applicable code edition covering heat treatment of welds, the revised procedure requires that, "The proper code edition and addenda of the applicable codes shall apply" and that, "the postweld heat treat (PHT) procedure must have been prequalified through the PQR and approved by the welding superintendent". Section IX 1977 Edition of the ASME Code with Summer 78 addenda was indicated as applicable on WPSs involving thermal treatment.

The inspector stated that this action was sufficient to close the question concerning the applicable code edition. The inspector stated however, that the question concerning control of preheat had not been adequately addressed and would therefore be identified as unresolved item 389/79-07-04. This matter is discussed in paragraph 5.d of this report.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items identified during this inspection are discussed in paragraphs 5.b and 5.d.

5. Independent Inspection Effort

a. Welder Training and Qualification Facilities

An inspection of the welder qualification shop was conducted in order to observe the craft working on performance tests and to discuss with those taking tests specifics of this activity. At this time the inspector witnessed efforts to qualify procedure WPS-71C to be used on certain primary coolant welds.

b. Review of Welder Performance Qualification Procedures

The licensee has revised the current welder/welder operator qualification procedure CSP-6, which is now superseded by site quality procedure (SQP), SQP-10. A review of this procedure for technical content and adequacy, disclosed that it was lacking specific information with respect to supervision, indoctrination, training (formal/informal) and related documentation of welders/welder operators.

In discussing this matter with the licensee's cognizant representative the inspector noted that requirements for establishing a documented comprehensive training and testing program for welding personnel was contained in sections QP 9.1 and QP 2.5 of the site QA manual. The licensee's representatives stated that although the training program was not documented in a formal procedure, such a program did exist and was being implemented. However the licensee agreed to look further into this matter and the inspector stated that this would be identified as unresolved item 389/79-07-03 until RII has the opportunity to review the licensee's documented program in this area.

c. Welder Performance Qualification Record Review

Randomly selected welder performance qualification test records were reviewed in order to ascertain whether they (records) were complete, accurate and consistent with code requirements. The qualification records selected were as follows:

<u>Welder Stencil No.</u>	<u>WPS Weld Coupon</u>	<u>Test Method</u>
PD	106	Mechanical (bend)
PQS	5	Radiography
PSI	89	Radiography
PSS	24	Radiography
PQK	43F(Fillet)	Fracture Only
*13-512	15	Radiograph

*The radiograph of this weld test was reviewed by the inspector.

Within the areas the inspector noted the following:

- 1) Radiography of welders qualification tests was performed in accordance with procedure QI-9.3 revision 1, which references Section V of the ASME Code. Acceptance standards for these radiographs are as specified in Section IX of the ASME Code 1977 Edition thru S78 addenda. As a result of the film review and discussion with NDE personnel, the inspector noted that certain code and procedural requirements for the identification of radiographs were not being followed. Instead, each radiograph was given a generic type number e.g. 1, 2, 3 etc which corresponded with that on a log maintained by the radiographer. The inspector stated that this method of film identification was not consistent with procedural and/or code requirements. The matter was discussed at length with the licensee's representative who agreed to provide a more definitive identification method.

Also, the inspector noted that even though the "Radiographic Test and Interpretation Report" (reader sheet) had provisions (blanks) for listing the type of acceptable/rejectable indications that were found in the weld test; the reader sheets were not being marked except for a notation indicating whether or not the welder has passed the test. Moreover, this notation appeared on the welder's PQR form without any specific reference to the reader sheet which was kept in a separate file by the welding superintendent. Also the inspector noted that QA did not appear to have any control over this phase of the welder qualification program as evidenced by the fact that they did not review welder test radiographs, reader sheets nor did they do any surveillance and/or audits in this area. Instead quality control (QC) and construction appear to have sole control over this phase of the program, e.g., QC approves the NDE results and construction certifies the welder's qualifications.

- 2) The review of the welder performance qualification records disclosed that, welder PQR was required to take a fillet weld test for WPS-43F on a one half-inch pipe with a 0.109 inch wall thickness. Paragraph QW-303.6, Section IX of the ASME Code states that welders who make fillet welds on a pipe or tube less than 2.875 inch outside diameter must pass the pipe fillet weld test per QW-452.4 which requires both macro and fracture test to be performed. The inspector noted however, that the qualification records showed results for the fracture test only and the macro tests portion of the test had been omitted and marked "N/A". The inspector discussed this matter with the licensee's representative who stated that the welder had previously taken an open butt test on WPS-43 which qualified him for fillet welds under this WPS and that the fillet weld test was a site imposed requirement. However the inspector stated that their decision to require the welder to

take the fillet weld test on a one-half inch pipe size invokes the test requirements prescribed by QW-452.4 which are fracture and macro tests. The inspector stated that in this case, the code contains no provisions for selecting or taking exceptions to one of the two tests listed in table QW-452.4. Consequently, failure to perform both tests appeared to be contrary to code requirements.

These findings were discussed with the licensee who concurred and agreed to take the necessary corrective action to rectify this problem. These findings represent two (2) examples of failure to follow code and/or procedural requirements, which is in noncompliance with Criterion V of Appendix B, to 10 CFR 50. This apparent noncompliance was assigned item number 389/79-07-01.

d. Control on Preheat and Interpass Temperatures

As stated in paragraph 3 above the inspector reviewed procedure SQP-42 "Control of Heat Treatment" and discussed its contents with the licensee representative.

With regards to preheat methods, controls and interpass temperature checks. The inspector noted that the aforementioned procedure did not address these areas. The inspector stated that such areas as (1) frequency of interpass temperature checks and methods to be used, (2) application of preheat (3) control and maintenance during interrupted welding needed to be addressed either in the new procedure or elsewhere. The licensee agreed to look into this matter further. The inspector stated that this would be identified as unresolved item 389/79-07-04.

6. Reactor Coolant Loop Piping - Welding Procedure Specification and Quality Assurance Procedures

The licensee's "Quality Procedures" and QP 2.4 "Preparation and Revision of Quality Instructions", establish methods to be followed for the approval, development, distribution and control of quality procedures (QP)s and quality instructions (QI)s. QP 9.1 "Control of Special Processes for Construction", delineates the requirement for the control of special processes which include welding, heat treatment and NDE during plant construction. In addition, this document assigns specific areas of responsibility at the various levels of site management with regards to the aforementioned special processes. Requirements control, qualification and documentation of weld procedure specification (WPS) and other special processes are established thru procedure ASP-6 Rev. 0 "Control of Special Processes". Section IX of the ASME Code 1977 Edition with Summer 1978 addenda controls the qualification of WPS applicable to reactor coolant loop (RC) piping.

Four randomly selected WPS involving shielded metal arc, (SMAW) and gas tungsten arc (GTA) processes, or a combination of both, were selected for review. These were identified as follows:

<u>WPS</u>	<u>Process(es)</u>	<u>Performance Quality Records (PQR)</u>
WPS-6 Rev 1	GTA/SMAW	88-4.2-6
WPS-24	GTA/SMAW	11-2.4-24-1
WPS-50	GTA/SMAW	88-4.2-50
WPS-68	GTA	18-.75-68

Each of the above WPS(s) and their supporting PQR's were reviewed to ascertain whether essential, supplementary and/or nonessential variables including thermal treatment were consistent with code requirements; whether WPSs were properly qualified and their supporting PQRs were accurate and retrievable; whether all required mechanical tests had been performed and the results met minimum requirements; whether the PQRs had been reviewed and certified by appropriate personnel and, whether any revisions and/or changes to nonessential variables were noted.

Within the areas, the inspector noted that in certain instances the recorded information concerning essential/nonessential variables on the PQRs was not consistent with paragraph QW-201.2 of ASME section IX. This requires that specific facts involved in qualifying a WPS be recorded on a PQR. The inspector stated that in several instances PQRs did not show variables as specific quantities but rather as ranges, e.g., volts, amps, preheat temperature and, in other cases some variables (nonessential) were omitted. These included amps/volts QW-404.6, shield gas flow QW-408.3, preheat QW-406.1 and .2, shield gas cup size QW-410.3, joint design and the thickness of weld metal deposited by each process when a combination of processes were involved QW-201.2, and 3. In discussing this matter, the licensee's representative stated that in the case where variables were given in terms of ranges on the PQR, both ends of the range had been used for the qualification of the procedure and that records were available for varification purposes. The inspector stated that since the PQR is the supporting document for qualification of the WPS, it should contain all the specific details used in the WPS qualification as stated in the code. This would preclude the need to retrieve supporting records whose retrievability could not be assured over the time span these records must be retained. The licensee's representative agreed to take appropriate corrective action on the matter.

Failure to include all pertinent information in the qualification records of WPSs is in nonconformance with Criterion XVII of Appendix B, to 10 CFR 50. This apparent noncompliance was assigned item number 389/79-07-02.

7. Other Safety Related Piping, Welding Procedure Specifications and Quality Assurance Procedures

The procedure review and inspection results of paragraph 6 above also apply to safety-related pipe welding in that safety related piping will be welded under the same control procedures as the procedures used for reactor coolant pressure boundary piping. The welding code referenced in paragraph 6 applies, except that subsections NC and ND are applicable in lieu of subsection NB.