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

APR 21 1980

Report No. 50-302/80-17

Licensee: Florida Power Corporation
3201 34th Street, South
St. Petersburg, FL 33733

Facility Name: Crystal River, Unit No. 3

License No. DPR-72

Docket No. 50-302

Inspection at Crystal River site near Crystal River, Florida

Inspector: Nicky Economos 4/18/80
N. Economos Date Signed

Approved by: A R Herdt 4/18/80
A. R. Herdt, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on March 19-21 and 25-28, 1980

Areas Inspected

This routine, unannounced inspection involved 43 inspector-hours on site in the areas of Inservice Inspection (ISI) - program review, procedure review, work observation and data evaluation; IE Bulletin 79-17; UT inspection of steam turbine discs; once thru steam generator (OSTG) tube to tube sheet weld repair program.

Results

No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

D. C. Poole, Nuclear Plant Manager
*G. R. Westafer, Maintenance Superintendent
J. Cooper, QA/QC Compliance Manager
*K. F. Lancaster, Compliance Supervisor
S. W. Johnson, Maintenance Staff Engineer
J. Mack, Inservice Inspection Specialist
D. M. Gianeskis, Senior Turbine Engineer
*J. L. Bufe', Compliance Auditor

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

Other Organizations

Babcock & Wilcox (B&W)

C. E. Thompson, ISI Coordinator
M. G. Hacker, Level II UT Examiner
K. Prince, Service Engineer
J. Bushkill, Technical Supervisor

Westinghouse Electric Corporation (W)

J. A. Reno, Level II UT, Power Generation Service Division (PSGD)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 25, 1980 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Cracking in Low Pressure Turbine Discs

a. At the time of this inspection W was performing an ultrasonic inspection on the low pressure (LP) turbine discs. The inspection was being

performed coincident with IE Information Notice No. 79-37 recommendations. The examination was being conducted under W Power Generation Service Division (PGSD) process specification, "Ultrasonic Inspection of Shrunk-on LP Turbine Discs at Keyways, Bore Surfaces and Hub face". Areas of interest included inlet and outlet keyways, disc bore surfaces and hub faces. Scanning was both tangential and radial with refracted longitudinal and shear waves. Radial scanning was used to verify the presence of apparent indications and to provide an approximation of their depth.

The inspector reviewed the aforementioned specification and discussed same with the W Level II UT examiner also reviewed personnel qualifications, and equipment certifications/calibration records. The inspector observed the UT examination of number 4 LP turbine disc and reviewed the data for discs 1, 2 and 3. Discussions with the licensee's representative revealed that the examination produced no recordable indications.

Within the areas examined, no items of noncompliance or deviations were identified.

6. IE Bulletin No. 79-17, Pipe Cracks in Stagnant Borated Water Systems at Power Plants

Surface and volumetric examination of selected welds for evidence of intergranular stress corrosion cracking (ISCC) in stagnant borated water engineered safeguard pipe systems was being performed by Babcock & Wilcox (B&W) Company under contract with FPC.

The ultrasonic examination procedure used for this program was developed and demonstrated using weld specimens with ISCC indications in the HAZ. The procedures used to perform surface and visual examinations were those used for the inservice inspection program which comply with the ASME Code Section V and XI (74S75). The procedures under discussion are listed below:

ISI-129 Rev. 1 Ultrasonic Examination UT of the Heat Affected Zone of Welds for SCC in Stainless Steel Piping

ISI-240 Rev. 6 Penetrant Examination of Welds and Base Materials

ISI-350 Rev. 11 Visual Examination of Welds and Surface Conditions

The aforementioned procedures had been approved by B&W's Level III examiner and were included in the Crystal River 3 (CR 3), 1980, ISI manual. Weld selection was made from the following systems: decay heat (DH), makeups and purification (MU), reactor building spray (BS). Program coordination

was provided by CR 3 ISI Engineering while QA surveillance of field activities was provided by CR 3 compliance and the contractor (B&W). Welds selected for observation during volumetric examination were as follows:

Weld No.	Size	Type	Description	Condition
BS-4	0.365" x 10"	Ell to Pipe	BS/Suction A	NRI
BS-2C	0.365" x 10"	Ell to Pipe	BS/Suction A	NRI
BS-6B	0.365" x 10"	Ell to Pipe	BS/Suction B	NRI
BS-8	0.365" x 10"	Ell to Pipe	Suction B	NRI
DH-99H	0.365" x 10"	P/R	"A" cooler inlet	NRI
DH-100F	0.365" x 10"	L/P	"A" cooler discharge	NRI
DH-101E	0.365" x 10"	P/T	"A"	NRI
DH-109H	0.365" x 10"	P/R	"B" cooler inlet	NRI
DH-110F	0.365" x 10"	E/P	"B" cooler discharge	NRI
DH-104A	0.365" x 10"	P/T	"A"	NRI
DH-67B	0.322 x 8"	E/P	Crosstie discharge	NRI
DH-69B	0.322 x 8"	T/P	Crosstie discharge	NRI Limited

NRI = No recordable indications

Within this area the inspector reviewed personnel qualifications, calibration records and quality certifications for equipment and materials.

No items of noncompliance or deviations were identified.

7. OTSG "B" Inspection and Repair

A task force of B&W representatives were onsite in order to inspect and repair OTSG "B". The repair involves certain tube to tube sheet welds on the upper tube sheet that were damaged from the failure of a fixed burnable poison and assembly discussed in report Nos. RII:78-05 and 78-06. Preliminary results from a bubble test conducted at this time indicated that there were approximately 21 to 23 tubes that showed evidence of leaking. The leaking tubes/welds were observed with the aid of a television camera and the information was recorded on video tape for further analysis. In a telephone conversation on April 1, 1980, the licensee's ISI representative stated that the leak rate and other factors made it difficult to ascertain whether the leaking (bubbles) from approximately seven (7) of the aforementioned tubes was coming from the weld or the tubes themselves. The licensee's decision was to eddy-current test all the leakers in order to verify tube-wall integrity before proceeding with the repairs. The repair work will be performed under a master services agreement between B&W and the licensee who has procured M. P. R. Associates of Washington, DC to serve as their consultants for this project. The controlling document(s) are: (a) Repair Welding, Contract NO. NSS-7; and, (b) Field Construction Procedure No. CPR-3-10. The work will be performed under the requirements of ASME Sections XI, III and IX, 1974 Edition as applicable. Welders will be qualified to the latest addenda of ASME Section IX. It is anticipated that the welding will involve the semiautomatic TIG process. The B&W Quality Assurance

Manual with revisions applicable to CR-3 has been invoked and will be inforced during this work effort. QC inspection will be performed by B&W personnel. Leak testing will be performed before and after weld repair - no other NDE is anticipated. Welding and/or QC procedures which will be used to perform this work were reviewed and are listed below:

- 9-WP-200 R/O General Procedure for Gas Tungsten Arc Welding (GTAW)
- 9-WP-201 R/I General Procedure for Automatic GTAW fo the OSTG
- 9-WG-107 R/I Storage Handling and Issuing of Welding Filler Metal
- 9-WG-111 R/I Welder and Welding Operator Qualification for tube to tube sheet welds
- 9-WG-109 R/I Visual Examination of Welds on Commercial Nuclear Components
- WIN-221-5 R/O Welding Instruction Sheet
- WIN-221-6 R/O Welding Instruction Sheet

At the time of this inspection welders were being trained on a OTSG tube sheet mockup. Welder qualification tests were scheduled for the week of April 1, 1980.

Within the areas inspected no items of noncompliance or deviations were identified.

8. Inservice Inspection - Observation of Work and Work Activities

The components scheduled for examination during this outage are listed in the B&W inspection plan (outage # 3) March, 1980. They include portions of the reactor pressure vessel (closure studs and nuts), portions of the pressurizer and certain appurtenances, heat-exchangers, pressure boundary and other Class 2 piping and certain hangers. The code governing these examinations is ASME Section XI (74S75). During the preservice inspection of Class 2 systems, certain ultrasonic indications were identified in the main steam (MS), feedwater (FW), and emergency feedwater (EF) welds. This findings was documented in Report No. RII:76-22. At that time the licensee committed to monitor the structural integrity of the subject systems through nondestructive examinations (RT), and ultrasonically examine a portion of certain main steam welds (no. MS-17A, MS-4, and MS-18) during three (3) consecutive inservice inspections with a minimum of 9 months operation between examinations. This inspection constituted the third augmented ISI for these welds.

The inspector observed the examination of weld MS-17A in order to ascertain whether the examination was consistant with approved UT procedure ISI-120 R/8 and the requirements of the applicable code. Attributes of specific interest included inspection apparatus and related instrument calibration,

system calibration personnel, material and instrument certifications, DAC construction, scanning technique and coverage, documentation and evaluation of recordable indications. Recorded data was subsequently reviewed for completeness and accuracy. There were no significant changes to the indications found during the preservice inspection of this weld.

Within these areas no items of noncompliance or deviations were identified.

9. Eddy-Current (EC) Examination of OSTG "B"

ISI activities during this refueling outage (3rd) included the EC examination of OTSG "B". B&W was responsible for data acquisition and analyses. The controlling document for this work effort was approved procedure ISI-401 Rev. 11 which references R. G. 1.83 Rev. 1 Tube selection was made by the licensee in accordance with CR-3 T. C. 4.4.5.1 requirements which translates to a sample of the tubes in OSTG "B". Within these areas the inspector reviewed procedure ISI-401 Rev. 11 for technical adequacy and compliance with applicable code requirements. Also the inspector reviewed NDE personnel qualifications, equipment and system calibration records and material certifications for calibration standard DB 49006. Examination will be performed at 400 KHZ ± 5.

Within the areas inspected no items of noncompliance or deviations were identified.