



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

Report Nos.: 50-321/84-14 and 50-366/84-14

Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Docket Nos.: 50-321 and 50-366

License Nos.: DPR-57 and NPF-5

Facility Name: Hatch 1 and 2

Inspection Date: May 1-4, 1984

Inspection at Hatch site near Baxley, Georgia

Inspector: B. R. Crowley 5/21/84
B. R. Crowley Date Signed

Approved by: J. J. Blake 5/22/84
J. J. Blake, Section Chief Date Signed
Division of Reactor Safety

SUMMARY

Scope: This routine unannounced inspection entailed 30 inspector-hours onsite in the areas of RECIRC piping replacement (Unit 2); IE Bulletins (Units 1 and 2); and Inspector Followup Items (Unit 2).

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted:

Licensee Employees

- *T. Green, Deputy General Manager
- D. McCusker, Superintendent of QC
- *G. C. Welsh, QA Engineering Support Supervisor
- *J. M. Watson, QC Supervisor - RECIRC Piping Replacement Project (RPRP)
- *W. D. Drinkard, Field Coordination Supervisor - RPRP
- *R. K. Godby, Engineer - RPRP
- *L. G. Burns, QA Engineer
- *W. B. Thigpen, Acting Regulatory Compliance Supervisor

Other licensee employees contacted included construction craftsmen, H.P. technicians, security force members, and office personnel. In addition, six contractor QC personnel were interviewed.

Other Organizations

- *J. L. Rath, Project Manager, Newport News Industrial Corporation (NNI)
- *B. M. Nichols, Site QA/QC Manager, NNI
- T. D. Hawkes, QC Supervisor, NNI
- C. L. Trent, Field QA Supervisor, NNI
- H. E. Thompson, Site Engineering Manager, NNI
- R. Ziebar, Level III Examiner, Nuclear Energy Services (NES)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 4, 1984, with those persons indicated in paragraph 1 above. Relative to the inspector followup item listed below, the licensee agreed to clarify the requirements for routing and disposition of NNI NCRs. The licensee acknowledged the inspection findings and took no exceptions.

(Open) Inspector Followup Item 366/84-14-01, Clarification of NCR Review and Routing Procedures, Paragraph 4.b.

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved Item 366/84-11-02, Certification of RT Penetrameters. The licensee determined that penetrameter certification is required. Therefore, Field Change 5 to NES Procedure 80A8793, Revision 1, has been issued specifying certification. As noted in report 50-366/84-11, certification is on file.

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations.

4. Independent Inspection Effort (Unit 2) (92706)

The inspector examined the following aspects of the licensee's and NNIs QA program relative to RECIRC piping replacement:

a. Nonconformance Reports (NCRs)

The inspector reviewed section 16, "Nonconforming Material, Components or Items" of NNI QA Manual QAM-200, which covers nonconformance reporting. In order to determine if the requirements of the above manual section were being met, the inspector reviewed the following:

- (1) The "Uncleared NCR status as of April 26, 1984" was reviewed. To date, a total of 165 NCRs had been issued. Thirty-six (36) of the 165 were still open. Twenty-one (21) of these 36 were electrical NCRs to be corrected during reinstallation of electrical equipment after the piping replacement is completed.
- (2) The NCRs listed below were reviewed. The NCRs were not reviewed in detail, but were reviewed to determine the general nature of problems being identified, the general quality of NCRs and the adequacy of corrective actions.

NCRs Reviewed

001	041	115
009	051	121
014	092	122
015	100	123
021	107	125
028	112	

In addition, the NCR log was reviewed. Review of the log and the above NCRs revealed a large number of NCRs for dimensional problems. Discussion with the licensee revealed that these problems were partially attributed to errors by the piping supplier and partially attributed to errors by NNI. Also a number of NCRs were for missed hold points or performing CWI steps out of sequence.

b. Field Changes to Work Instructions

The inspector reviewed Section 10, "Control of Special Processes" of the NNI QA Manual QAM-200, which covered "Controlled Work Instructions" (CWI). The CWI transforms the design specification and the GE design drawings into field instructions and sketches. Changes to the CWI are

accomplished with "Interim Change Notices" (ICNs) which receive the same review as the original CWI. Where CWI requirements are not met, NCRs are issued. Based on the fact that the NCR disposition can approve a change in design, the inspector questioned the approval cycle for NCRs. The NNI QA manual QAM-200, Section 16, requires that all NCRs be approved by the owner. The licensee stated that all NCRs involving design are reviewed by Southern Company and/or GE as design agents. However, the requirements for this review are not clearly defined. The licensee agreed to clarify NCR routing and review procedures to clearly define the licensee review process for NNI NCRs. Pending procedure clarification, this matter is identified as Inspector Followup Item 366/84-14-01, Clarification of NCR Review and Routing Procedures.

The inspector scanned the master copies of CWIs, 301, 303, and 302 (Package 91) to determine if CWI steps were being signed off in accordance with the QA manual and to note the number of ICNs being issued. A total of 23 ICNs had been issued against CWI 301, 56 against CWI 302, and 2 against CWI 303.

No violations or deviations were identified.

5. Nuclear Welding (RECIRC Piping Replacement) (Unit 2) (55050)

The inspector examined the licensee's program for ASME Code welding relative to RECIRC system piping replacement as indicated below to determine whether applicable code and regulatory requirements were being met. NNI has been contracted for the replacement work. The work was being accomplished using NNI procedures and personnel under program direction of Georgia Power Company. The applicable specification is SCS Inquiry No. GA 6582, "Specification for Replacement of Recirculation Piping Systems for the Nuclear Reactor for Hatch Nuclear Plant - Unit No. 2." In accordance with this specification, the applicable code for welding is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB, 1980 Edition, W80 Addenda. Welding procedures and welders are qualified to the latest edition and addenda of ASME Section IX in effect at the time of qualification.

a. Welder Performance Qualification

The inspector verified by review of the qualification records, including status records, that the following welding operators, who had welded on the welds listed in paragraph b. below, were currently qualified to weld under the applicable procedure:

3345	2339	2248
4150	1255	1466
7995	0741	
5223	6338	
0676	3992	
3010		
5093		

In addition, the inspector verified that the system for maintaining a continuous record of qualification status was being effectively utilized and accurate.

b. Production Welding

- (1) The inspector observed the below listed in-process welds at the indicated status of completion:

<u>Weld No.</u>	<u>Status</u>
28AS-6	Observed final weld in as-welded condition
12BA-2	Observed welding capping passes to meet ISI requirements
28BS-7	Insert tacked in place
28BS-6	Insert tacked in place
20-1	Root pass welded
20-3	Weld about one half full

The welding was observed to determine whether:

- Work is conducted in accordance with a document which coordinates and sequences operations, references procedures, establishes hold points, and provides for production and inspection approval
- Procedures, drawings, and other instructions are at the work station and readily available
- WPS assignment is in accordance with applicable code requirements
- Welding technique and sequence are specified and adhered to
- Welding filler materials are the specified type and traceable to certifications
- Weld joint geometry is in accordance with applicable procedure and is inspected
- Alignment of parts is as specified
- Temporary attachments are by qualified welders in accordance with a qualified WPS
- Purging gas is in accordance with applicable welding procedure
- Preheat and interpass temperatures are in accordance with applicable procedures

- Welding technique is in accordance with applicable procedures
- Electrodes are used in positions and with electrical characteristics specified
- Shielding gas is in accordance with the welding procedure
- Gas flow meters are correct
- Welding equipment is in good condition and automatic welding equipment is calibrated
- Interpass cleaning is in accordance with applicable procedures
- Temporary attachments are removed in accordance with applicable procedures
- Gas purging, if specified, is used in accordance with applicable procedure
- Process control system has provisions for repairs
- Welders are qualified
- No peening performed on root and surface layers

(2) In addition, the following welds, which were complete or in some stage of final surface preparation and NDE, were observed:

<u>Weld No.</u>	<u>Status</u>
12 AS-3	RT Complete
12 AK-3	RT Complete
12 AJ-2	RT Complete
12 AH-2	RT Complete
12 AG-2	RT Complete
12 AF-3	RT Complete
12 AK-2	RT Complete
12 BE-3	RT Complete
12 BD-2	RT Complete
12 BC-2	RT Complete
12 BE-2	Weld Crown Reduction (WCR) Complete, PT Complete
12 BB-2	Weld Crown Reduction (WCR) Complete, PT Complete
12 BB-3	Weld Crown Reduction (WCR) Complete, PT Complete

General weld appearance and surface condition were examined.

c. Preheat and Postweld Heat Treatment

In addition to the RECIRC piping replacement, NNI has been contracted for replacement of the RHR check valves. This replacement will involve carbon steel materials approximately 1½" thick and PWHT. At the time of the inspection, a general preheat and PWHT procedure for this work, 1918K - W004, revision B, "PRE and Postweld Heat Treatment", had been issued. This procedure was reviewed by the inspector. The detailed requirements for the PWHT will be covered in the CWI for installation of the replacement valves. This CWI had not been issued.

No violations or deviations were identified.

6. Visual Examination (RECIRC Piping Replacement) (Unit 2) (57050)

The inspector examined the Visual (VT) examination activities described below relative to the RECIRC system piping replacement to determine whether applicable code and regulatory requirements were being met. In accordance with the applicable specification, SCS Inquiry No. GA 6582, the applicable codes are:

ASME Boiler and Pressure Vessel Code - Sections III and V,
1980 Edition, W80 Addenda

AWS Structural Welding Code D1.1, 1977 Edition

ASME B31.1 Power Piping Code, Winter 1980 Addenda

a. The inspector observed in-process visual examination (VT) of welds 12AJ-1 and 28AS-5 to verify that:

- Applicable instructions or travelers clearly specified the procedure to be used and that a copy of the procedure was available for the inspection
- Personnel performing the examinations were qualified
- Required tools and aids were available
- Specific areas, locations and extent of examination were clearly defined
- Test attributes were specified and consistent with applicable procedures
- Defects were evaluated in accordance with applicable procedure and inspection results were reported as required

b. Personnel qualification/certification records for NDE personnel who performed the VT inspections of the welds in paragraphs a. above and c. below were reviewed.

- c. The inspector reviewed visual inspection records for the welds listed below for compliance with procedure requirements.

Weld No.: 12 BC-2
 12 BD-2
 12 BE-3
 12 AK-2
 12 AF-3
 12 AJ-2
 12 AH-2
 12 AG-2
 12 AK-3
 28 AS-3

- d. Welds 28AS-3, 28AS-5 and 12 AG-2 were VT inspected by the inspector and compared with the completed VT records.

No violations or deviations were identified.

7. Radiographic Examination Procedure (RECIRC Piping Replacement) (Unit 2) (57090)

The inspector examined the radiographic (RT) examination activities described below relative to the RECIRC system piping replacement to determine whether applicable code and regulatory requirements were being met. In accordance with the applicable specification, SCS Inquiry No. GA 6582, the applicable codes are:

ASME Boiler and Pressure Vessel Code - Section III and V,
 1980 Edition, W80 Addenda

ASME B31.1 Power Piping Code, Winter 1980 Addenda

- a. The inspector reviewed completed RT film for the following welds:

28 AS-3	12 AK-3
12 BC-2	12 AF-3
12 BE-3	12 AK-2
12 AH-2	

The film were reviewed for compliance with code and procedure requirements in the areas of:

- Penetrameter type, size, placement, and sensitivity
- Film density and density variation
- Film identification
- Film quality
- Weld coverage
- Defects

- b. Equipment certification and calibration records, as applicable, for the densitometer and penetrameters were reviewed.

No violations or deviations were identified.

8. Liquid Penetrant Examination (RECIRC Piping Replacement (Unit 2) (57060)

The inspector examined the liquid penetrant (PT) examination activities described below relative to the RECIRC system piping replacement to determine whether applicable code and regulatory requirements were being met. In accordance with the applicable specification, SCS Inquiry No. GA 6582, the applicable codes are:

ASME Boiler and Pressure Vessel Code - Sections III and V,
1980 Edition, W80 Addenda

AWS Structural Welding code D1.1, 1977 Edition

ASME B31.1 Power Piping Code, Winter 1980 Addenda

- a. The inspector observed liquid penetrant (PT) examination of weld 12 AJ-1, ground area on ell at weld 28BS-7, and weld 28AS-5 to verify that:
- Applicable instructions or travelers clearly specified the procedure to be used and that a copy of the procedure was available for the inspection
 - Sequencing of examinations relative to other operations were specified and in accordance with applicable codes and procedures
 - Personnel performing the examinations were qualified
 - Materials used for the examinations were certified and the certifications met applicable requirements
 - Areas, locations and extent of examinations were clearly defined
 - The following attributes were as specified in the applicable procedure and consistent with applicable code:
 - (1) Surface preparation/cleaning method, type, time, etc.
 - (2) Penetrant type
 - (3) Penetrant application method
 - (4) Penetration time
 - (5) Temperature of surfaces
 - (6) Penetrant Removal
 - (7) Drying

- (8) Developer, application, type
 - (9) Developing time
 - (10) Evaluation technique
 - (11) Acceptance criteria
 - (12) Reporting of results
- b. Personnel qualification/certification records for NDE personnel who performed the PT inspections of the welds listed in paragraphs a. above and c. below were reviewed.
- c. The inspector reviewed PT inspection records for the welds listed below for compliance with procedure requirements.

Weld No.:

12 BC-2
 12 BD-2
 12 BE-3
 12 AK-2
 12 AF-3
 12 AJ-2
 12 AH-2
 12 AG-2
 12 AK-3
 28 AS-3

No violations or deviations were identified.

9. IE Bulletins (Units 1 and 2) (92703)

- (a) (Closed) IEB 321,366/84-BU-01, Cracks in Boiling Water Reactor Mark I Vent Headers. Georgia Power Company's letter of response, NED-84-065, dated February 10, 1984 has been reviewed and is considered acceptable. As noted in the bulletin, the cracks which initiated the bulletin were found at Hatch Unit 2. The Unit 1 and Unit 2 vent headers were inspected on the I.D. and O.D. and no additional cracks were found. As noted in GPC letter NED-84-131, dated March 13, 1984 and the attached metallurgical report, the cracking was attributed to brittle fracture resulting from injection of cold nitrogen into the torus and impingement on the vent header. NRC has confirmed this by independent testing of a sample of the cracked material at Brookhaven National Laboratory.

At plant Hatch, the nitrogen supply to the torus is common to Units 1 and 2. The following DCRs have been issued to correct the problem:

- (1) DCR 84-49, revision 0, was issued to repair the Unit 2 torus vent header. The repair has been completed and the DCR signed off.

- (2) DCR 84-49, revision 1, was issued to reroute the Unit 2 nitrogen inerting line and associated circuitry to enter through penetration X-233 in lieu of penetration X-205. This work was complete, except for hydrostatic testing, at the time of the inspection. The Unit 1 piping did not require rerouting since the entrance did not impinge upon any critical components.
- (3) DCR-84-58, revision 0, was issued to replace the inerting temperature switch (common to both units) with two switches providing a backup. This work has been completed.
- (4) DCR 84-58, revision 1, was issued to replace one of the above temperature switches with a switch of a different make. This had not yet been accomplished.

- b. (Closed) IEB 321/82-BU-03, Stress Corrosion Cracking in Thick-Wall, Large-Diameter, Stainless Steel, Recirculation System Piping at BWR Plants. The licensee's responses dated December 15, 1982 and January 26, 1983, have been received and reviewed. Based on a review of the responses, witness of demonstration of UT methodology at Battelle-Columbus laboratories, and on-site inspections (See Report Nos. 50-321/82-34, 50-321/82-37, 50-321/82-41, and 50-321/83-01), the bulletin is closed.
- c. (Closed) 321/83-BU-02, Stress Corrosion Cracking in Large-Diameter Stainless Steel Recirculation System Piping at BWR Plants. Unit 1 was inspected under bulletin 82-03. Bulletin 83-02 does not apply to Unit 1.
- d. (Closed) 366/83-BU-02, Stress Corrosion Cracking in Large-Diameter Stainless Steel Recirculation System Piping at BWR Plants. The licensee's response dated May 26, 1983, has been received and reviewed. Based on review of the response, witness of demonstration of UT methodology and on-site inspections (See Report Nos. 50-366/83-14, 50-366/83-16, 50-366/83-35, 50-366/84-03, 50-366/84-04 and 50-366/84-11), the bulletin is closed. It should also be noted that all pipe covered by the bulletin has been removed and replacement is in process.

10. Inspector Followup Items (Unit 2) (92701)

(Closed) Inspector Followup Item 366/84-04-01, Torus Vent Header Cracking. See paragraph 9.a. above.