



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

Report Nos.: 50-321/84-42 and 50-366/84-42

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 Conducted: October 9-12, 1984

Inspector: B. R. Crowley
B. R. Crowley

10/30/84
Date Signed

Approved by: J. J. Blake
J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

10/30/84
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 32 inspector-hours on site in the areas of inspection activities related to Generic Letter 84-11 (Unit 1), inservice inspection (ISI) (Unit 1), licensee action on previous enforcement matters (Units 1 and 2), and IE Bulletins (Units 1 and 2).

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Licensee Employees Contacted

- *T. Green, Deputy General Manager
- *G. Welsh, QA Engineering Support Supervisor
- D. McCusker, Superintendent of QC
- *H. Talton, Overlay Site Manager
- P. Norris, Senior Plant Engineer
- D. Vaughn, Senior QA Field Representative Burns
- R. Godby, Plant Engineer

Other Organization

Southern Company Services (SCS)

- T. Epps, Manager, Inspection, Testing, and Engineering
- *J. Agold, Supervisor of Coordination and Documentation
- J. Davis, Supervisor of Nondestructive Examination
- G. Loftus, NDE Inspector - LIII
- K. Jones, NDE Inspector - LII

NRC Resident Inspector

- *R. Crlenjak

- *Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 12, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings listed below and took no exceptions.

(Open) Inspector Followup Item 321/84-42-01, Ultrasonic Inspection Technique for Inspection of Weld Overlays - paragraph 8.b.

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation 366/84-27-01, Failure to Provide Correct Acceptance Criteria for AWS Welds. Georgia Power Company's (GPC) letter of response (NED 84-447) dated August 21, 1984, has been reviewed and determined to be acceptable. Based on examination of corrective actions, as stated in the letter of response, and discussions with responsible licensee personnel, the inspector concluded that Georgia Power had determined the full extent of the subject violation, performed the necessary survey and followup actions to correct the present conditions, and developed the necessary actions to preclude recurrence of similar circumstances. The corrective actions have been implemented.

(Closed) Violation 321, 366/84-05-01, Inadequate Inspection of Masonary Wall Modifications. Georgia Power Company's letter of response (NED 84-195) dated April 16, 1984, as supplemented by letters NED 84-260 dated May 14, 1984, and NED 84-450 dated August 22, 1984, has been reviewed and determined to be acceptable. Based on examination of corrective actions as stated in the letters of response, and discussions with responsible licensee personnel, the inspector concluded that Georgia Power had determined the full extent of the subject violation, performed the necessary survey and followup actions to correct the present conditions and developed the necessary actions to preclude recurrence of similar circumstances. In review of the licensee's response, the inspector noted that poor quality drawings relative to weld joint details were identified as a contributing factor in this violation. Discussions with licensee personnel revealed that corrective actions taken as a result of this violation have greatly improved the quality of drawings being issued.

4. Unresolved Items (92701)

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (927065) (Unit 1)

At the time of this inspection, the licensee was in the process of performing inspections of the recirculation (RECIRC), residual heat removal (RHR) and reactor water cleanup (RWCU) stainless steel pipe welds in response to Generic Letter 84-11. The following summarizes the inspector's reviews/observations relative to these inspections:

- a. In response to Generic Letter 84-11, Georgia Power Company's original inspection plan, as outlined in letters NED 84-280 dated May 21, 1984, and NED 84-506 dated September 26, 1984, required inspection of 39 RECIRC, RHR and RWCU welds.

In addition, as a result of recent cracking at other BWR utilities, GPC included one RECIRC outlet nozzle-to-safe end weld, two RECIRC inlet nozzle thermal sleeve attachment welds, and "A" and "B" RECIRC loop jet pump instrumentation nozzle safe end-to-penetration seal welds. Additional stainless steel welds were added to the ASME Section XI program. The final original scope included 50 circumferential stainless steel welds.

- b. At the conclusion of the inspection, 45 welds had been UT inspected. Twenty-nine of the 45 had been fully evaluated. Fourteen of the 29, including the RECIRC nozzle-to-safe end and jet pump instrumentation nozzle safe end-to-penetration seal welds, were considered acceptable. Fifteen welds, as indicated below, had reportable indications.

12-12" RECIRC system welds with circumferential indications essentially 360° and 30% maximum thru wall

2 - 28" RECIRC system welds with circumferential indications essentially 360° and 30% maximum thru wall

1 - 24" RHR system weld with axial indications 1 3/4" maximum length and 50% maximum thru wall

These indications were reported to GPC on Indication Notification (INF) No. I84H1001 by the ISI contractor, SCS.

- c. Based on the above inspection findings, GPC expanded the scope of the inspection to include 100% of the circumferential stainless steel welds in the RECIRC, RHR and RWCU systems.
- d. The inspector discussed with SCS the qualification program being used for NDE UT examiners. All level II examiners are required to have passed the EPRI course for crack detection in stainless steel. In addition, a written test on the SCS UT procedure must be passed. The level I examiner must pass a written test on the SCS procedure and demonstrate inspection techniques on a cracked pipe. The level II examiners participate in the demonstration on the cracked pipe with the level I examiners. Only level II inspectors view the UT screen during the inspection and interpret results. The level I examiners only manipulate the transducer and help record/report results.

SCS has three level III examiners who have passed the EPRI sizing course. These examiners are being used for sizing activities.

- e. GPC indicated in their letter, NED-84-506, that procedures similar to those previously qualified and used would be used on Unit 2. During review of procedures, the inspector noted that procedure UT-H-400, the primary procedure being used for inspection of the stainless steel welds, has been revised to allow the level II examiner to distinguish between geometry and a flaws for indications with amplitudes between 0 and 49% DAC and not record the indication if it is considered to be geometry. Previous revisions to the procedure required recording all indications greater than 20% DAC. Discussions with SCS personnel revealed that the reason for this change is that all level II examiners are required to pass the EPRI detection course and are considered to be capable of distinguishing between flaws and geometry for low level indications. Therefore, to conserve man-REM, time should not be spent recording low level geometry indications.
- f. In order to verify cracks and determine crack depth, SCS is using advanced TIP refraction ultrasonic techniques. Combinations of techniques using the SLIC-40 and highly dampened (5 MHz dampened to 1½ cycles or 3 half cycles) SUSI and Automations transducers are being used. The inspector observed demonstrations of these techniques on a notched block and on indications in RECIRC system welds (see paragraph 8.b. below). In addition, the inspector reviewed SCS procedure UT-H-470, Revision 0, "Planar Flaw Sizing", which outlined requirements for use of the above techniques.

- g. See paragraphs 6, 7, and 8 below for additional reviews and examinations made by the inspector.

In this area of inspection, no violations or deviations were identified.

6. Inservice Inspection - Review of Program (73051) (Unit 1)

The inspector reviewed the licensee's inservice inspection (ISI) program for the current outage in the areas indicated below. In accordance with the updated program (submitted to NRC on August 12, 1983), the applicable Code is the ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition with Addenda thru W80. Southern Company Services (SCS) has the responsibility as the ISI contractor. In addition to the regular ISI inspections, the outage plan includes those inspections required by Generic Letter 84-11.

- a. The inspector reviewed the inspection plans listed in b. below to determine whether the plans had been approved by the licensee.
- b. The inspector reviewed the following GPC and SCS documents relative to the ISI program. Except for the Examination Outage Plan, GPC administrative control procedures 10AA-MGR02-0 and 40AC-ENG01-0, GPC "Quality Assurance Audit Program (By Auditor) 1984", and GPC "Audit Plan" QA-80-294, these documents have been reviewed during previous inspections (See RII Reports 50-321/83-14 and 50-321/84-23). During the current inspection, only changes to previously reviewed documents were reviewed.
- (1) SCS "Nondestructive Examination Outage Plan - Edwin I. Hatch Nuclear Plant Unit 1 - 1984 Outage"
 - (2) HNP QA-03-02, Revision 10, "Training and Personnel Qualifications"
 - (3) HNP QA-05-01, Revision 9, "Field Audits"
 - (4) HNP-9, Revision 25, "Procedure Writing Use and Control"
 - (5) HNP-10, Revision 14, "Document Distribution and Control"
 - (6) HNP-820, Revision 14, "Plant Records Management"
 - (7) HNP-907, Revision 3, "Inservice Inspection Visual Examination Surveillance Procedure for Classes 1, 2, and 3 Pipe Supports"
 - (8) Hatch Administrative Control Procedure 10AC-MGR02-0, Revision 0, "Plant Review Board Administrative Procedure"
 - (9) Hatch Administrative Control Procedure 40AC-ENGR01-0, Revision 0, "Inservice Inspection (ISI) Program"
 - (10) Hatch "Quality Assurance Audit Program (By Auditor) 1984"

- (11) Hatch "Audit Plant" QA-80-294, Revision 1
- (12) SCS GEN-H/F/V-100, Revision 2, "Procedure Numbering System"
- (13) SCS GEN-H/F/V-101, Revision 2, "Filing System"
- (14) SCS GEN-H/F/V-102, Revision 4, "Procedure Development and Revision"
- (15) SCS ADM-H/F-200, Revision 1, "Inservice Inspection and Inservice Testing Plan and Revisions"
- (16) SCS ADM-H/F-201, Revision 1, "Inservice Inspection and Inservice Testing Program and Revisions"
- (17) SCS ADM-H/F-203, Revision 1, "Design Change Incorporation"
- (18) SCS ADM-H/F-204, Revision 2, "Nondestructive Examination Outage Plan"
- (19) SCS ADM-H/F/V-205, Revision 2, "Indication Notification"
- (20) SCS ADM-H/F-206, Revision 2, "Deviations to SCS Preservice/ Inservice Inspection Procedures and Examination Plans"
- (21) SCS ADM-H/F-207, Revision 1, "Final Report Preparation"
- (22) SCS ADM-H/F/V-208, Revision 1, "Data Control"
- (23) SCS ADM-H/F-211, Revision 0, "The Georgia Power/Southern Company Services ISI/NDE Program Responsibilities for the Edwin I. Hatch Nuclear Plant - Units 1 and 2"
- (24) SCS ADM-H/F/V-212, Revision 1, "Nonconformance Items"
- (25) SCS AUX-H/F/V-300, Revision 2, "Procedure (written practice) for Qualification of Nondestructive Personnel"
- (26) SCS AUX-H-301, Revision 0, "Measuring and Recording Search Unit Location During Manual Ultrasonic Examinations"
- (27) SCS AUX-H-302, Revision 0, "Preservice and Inservice Inspection Documentation"
- (28) SCS UT-H-450, Revision 0, "Qualification of Manual Ultrasonic Equipment"

These documents were reviewed to assure that procedures and plans had been established (written, reviewed, approved and issued) to control and accomplish the following activities:

- Organizational structure including qualifications, training, responsibilities, and duties of personnel responsible for ISI
- Audits including procedures, frequency, and qualification of personnel
- General QA requirements including examination report, deviations from previously established program, material certifications and identification of components to be covered
- Work and inspection procedures
- Control of processes including suitably controlled work conditions, special methods, and use of qualified personnel
- Corrective action
- Document control
- Control of examination equipment
- Quality records including documentation of indications and NDE findings, review of documentation, provisions to assure legibility and retrievability, and corrective action
- Scope of the inspection including description of areas to be examined, examination category, method of inspection, extent of examinations, and justification for any exception
- Definition of inspection interval and extent of examination
- Qualification of NDE personnel
- Controls of generation, approval, custody, storage and maintenance of NDE records

In this area of inspection, no violations or deviations were identified.

7. Inservice Inspection - Review of Procedures (73052B) (Unit 1)

The inspector reviewed the ISI procedures indicated below to determine whether the procedures were consistent with regulatory requirements and licensee commitments. See paragraph 6 above for the applicable code.

- a. The following procedures were reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records:

- (1) SCS-UT-H-400, Revision 5, "Manual Ultrasonic Examination of Full Penetration Piping Welds (Greater than 0.400 Inch)"

- (2) SCS-UT-H-401, Revision 5, "Manual Ultrasonic Examination of Full-Penetration Welds (0.200 to 0.400 Inches)
 - (3) SCS-VT-H-710, Revision 0, "Visual Examination (VT-1)"
 - (4) SCS-MT-H-500, Revision 0, "Dry Power Magnet Particle Examination, Yoke Method"
 - (5) SCS-PT-H-600, Revision 0, "Visible, Solvent-Removable, Liquid Penetrant Examination Procedure"
- b. Procedures UT-H-400, Revision 5, and UT-H-401, Revision 5, were reviewed for procedure technical content relative to: type of apparatus, extent of coverage including beam angles and scanning techniques, calibration requirements, search units, DAC curves, transfer requirements, reference level for monitoring discontinuities, method of demonstrating penetration, levels of evaluation and recording indications, and acceptance standards.

In addition, the above UT procedures were reviewed to determine whether guidelines necessary for detecting and evaluating intergranular stress corrosion cracking (IGSCC) (i.e., equipment, recording levels, evaluation levels, etc.) had been incorporated.

- c. Procedure PT-H-600 was reviewed in the area of procedure technical content relative to: method consistent with ASME code, specification of brand names of penetrant materials, specification of limits of sulfur and total halogens for materials, pre-examination surface preparation, minimum drying time following surface cleaning, penetrant application and penetration time, temperature requirements, solvent removal, method of surface drying, type of developer and method of application, examination technique, technique for evaluation, acceptance standards, and requalification requirements.
- d. Procedure MT-H-500 was reviewed in the area of procedure technical content relative to: examination method, surface preparation, use of color contrast particles, examination directions and overlap, pole spacing, and acceptance criteria.

In this area of inspection, no violations or deviations were identified.

8. Inservice Inspection - Observation of Work and Work Activities (73753B)
(Unit 1)

The inspector observed the ISI activities described below to determine whether these activities were being performed in accordance with regulatory requirements and licensee procedures. See paragraph 6 above for the applicable code.

- a. Personnel qualification records for two level I, three level II, and one level III UT examiners were reviewed.

- b. A portion of the in-process UT inspection was observed for the following welds:

1B31-1RC-12AR-G-3
 1E11-1RHR-24B-R-13
 1E11-1RHR-20B-D-3
 1B31-1RC-22AM-2
 1B31-1RC-12BR-C1

In addition, the inspector observed examination of indication areas using the SLIC-40 UT equipment for the following welds:

1B31-1RC-BR-E-2
 1B31-1RC-BR-E-3
 1B31-1RC-BR-D-3
 1B31-1RC-BR-C-2
 1B31-1RC-BR-C-3

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

- (1) Availability of and compliance with approved NDE procedure
- (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 of monitoring discontinuities
- (12) Method of demonstrating penetration
- (13) Limits of evaluating and recording indications
- (14) Recording significant indications
- (15) Acceptance limits

During observation of UT of the above welds, the inspector noted that for welds 1E11-1RHR-24B-R-13 and 1E11-1RHR-20B-D-3, which were overlaid during the 1982 outage, the UT screen presentation had excessive "grass" (interference). Although the same interference condition was present during the original inspection of the overlays, the inspector recalled that during inspection of the Unit 2 overlays, a technique was developed which greatly improved the interference problem. The technique included better surface preparation and using a refracted longitudinal wave transducer. The inspector questioned SCS relative to using this improved technique for the current inspections. SCS stated that they were still evaluating the technique being used and considering changing transducers. Pending review of the final inspection technique for overlays, this item is identified as Inspector

Followup Item 321/84-42-01, Ultrasonic Inspection Technique for Inspection of Weld Overlays.

- c. The inspector reviewed in-process UT data as detailed below for a sample of welds containing indications.

<u>Weld</u>	<u>Indication Description</u>
1B31-1RC-28B-4	Circumferential 30%-50% DAC, 360° intermittent, part damp at O.D, part plots to I. D.
1B31-1RC-28B-3	Circumferential 100% Max DAC, 360° except for 8 to 10 inches
1E11-1RHR-24AR-13	Axial, three indications, up to 159% DAC and 1 3/4" maximum length
1B31-1RC-12BR-C-2	Circumferential, 50%-60% DAC, 11" intermittent
1B31-1RC-12AR-F-2	Circumferential, 50%-75% DAC, 360° intermittent
1B31-1RC-12AR-J-3	Circumferential, 20%-80% DAC, 360° intermittent

Indications were still being evaluated, but were reported to the licensee on an INF prior to the end of the inspection.

In this area of inspection, no violations or deviations were identified.

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

(Closed) 321, 366/83-BU-05, ASME Nuclear Code Pumps and Spare Parts Manufactured by the Hayward Tyler Pump Company. The licensee's response, letter NED 83-429, dated August 16, 1983, stated that no pumps or spare parts manufactured or provided by Hayward Tyler Pump Company are installed or planned to be installed at plant Hatch.