

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-354/84-25

Docket No. 50-354

License No. CPPR - 120

Priority -

Category A

Licensee: Public Service Electric & Gas Company  
80 Park Plaza - 17C  
Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station, Unit 2

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: November 14 - 29, 1984

Inspectors: Robert A. McBrearty  
R. A. McBrearty, Reactor Engineer

Jan. 10, 1985  
date

Approved by: James W. Durr for J. P. Durr  
J. P. Durr, Chief  
Materials & Process Section

1/10/85  
date

Inspection Summary: Inspection on November 14-29 (Report No. 50-354/84-25)

Areas Inspected: Routine, unannounced inspection of preservice inspection (PSI) activities including program review, procedure review, observations of work in progress and review of records including NDE personnel qualification/certification records and QA surveillance reports. The inspection involved 32 hours onsite and 37 hours in the office by one regional-based inspector.

Results: No violations were identified.

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## Details

### 1. Persons Contacted

#### Public Service Electric & Gas Company (PSE&G)

- \* A. D. Barnabei, Principal QA Engineer
- \* F. V. Cielo, Principal Engineer - Engineering Controls
- \* G. L. Duncan, Senior ISI Supervisor - Startup PSI
- \* R. T. Griffith, Sr., Principal Staff QA Engineer
- \* M. F. Metcalf, Principal QA Engineer - Startup

#### Southwest Research Institute (SWRI)

- \* E. J. Feige, Inspection Engineer

#### USNRC

- \* S. K. Chaudhary, Senior Resident Inspector
- \* Indicates those present at the exit meeting.

### 2. Preservice Inspection (PSI) Program

The inspector reviewed documents associated with the PSI program to ascertain compliance with applicable ASME code requirements, licensee commitments, and regulatory requirements. The following were included in the inspector's review:

- Startup Administrative Procedure (SAP) No. 25, Revision 1, "Preservice Inspection Organization and Responsibilities"
- SAP No. 10, Revision 6, "Startup Deviation Report Program"
- SAP No. 15, Revision 2, "Personnel Certification"
- SAP No. 16, Revision 2, "Document Control and Record Receipt"
- Project Plan for the Preservice Examination of Hope Creek Generating Station, Unit 1
- Examination Plan for the Preservice Examination of selected components and piping of the Hope Creek Generating Station, Unit 1.

Based on the date of issue of the construction permit for Hope Creek, the PSI program is required to meet the requirements of the ASME Code Section XI, 1974 Edition with Addenda through summer 1975. The licensee has elected to update the program to meet requirements of the ASME Code Section XI, 1977 Edition with Addenda through Summer 1978, except for piping in the Residual Heat Removal System (RHR), and the Emergency Core

Cooling System (ECCS), which will be examined in accordance with Table IWC - 2520 category C-F of the 1974 Edition of Section XI with Addenda through Summer 1975 as required by the regulations. The use of the later code edition is acceptable as specified by 10 CFR 50.55a(g).

The initial ISI program must comply with the requirements of the latest edition and Addenda of Section XI of the ASME Code in effect twelve months prior to the date of issuance of the operating license, subject to the limitations and modifications set forth in Section 50.55a(g) of 10 CFR Part 50. In the event that the licensee will be required to base the Inservice Inspection (ISI) program on the ASME Code, Section XI, 1980 Edition with Addenda through Winter 1981, which is the latest edition referenced in 10 CFR Part 50, any additional examinations required by that edition and addenda will be performed as part of the PSI program.

No violations were identified.

### 3. Procedure Review

The inspector reviewed selected SWRI Procedures to ascertain compliance with applicable ASME Code and regulatory requirements. The following were included in the inspector's review:

- IX - FE 103 - 2, Revision 2, "Weld Joint Identification Marking on Nuclear Power Plant Piping"
- IX - FE - 104 - 2, "Measuring and Recording Search Unit Location and Maximum Signal Amplitude Data During Ultrasonic Weld Examinations"
- IX - FE - 116 - 0, Change 4, "Recording Data from Direct Visual, Liquid Penetrant and Magnetic Particle Examinations"
- XVII - AG - 101 - 1, Revision 1, "Data Storage and Retrieval"
- SWRI - NDT - 200 - 1, Revision 55, "Liquid Penetrant Examination, Color Contrast Method"
- SWRI - NDT - 300 - 1, Revision 23, "Dry Powder Magnetic Particle Examination"
- SWRI - NDT - 800 - 97, Revision 0, "Manual Ultrasonic Examination of Pump Studs with Partially Drilled Heater Holes at Hope Creek"
- SWRI - NDT - 600 - 18, Revision 20, "Manual Ultrasonic Examination of Pressure - Retaining Studs and Bolts 2" or Greater in Diameter Containing Access Holes"

The SWRI Nuclear Projects Operating Procedure IX - FE - 103 - 2, Revision 2 provides instructions for marking welds with the required identification for PSI or ISI. The procedure requires that the personnel

who perform the marking also perform the verification inspection to ascertain that the weld has been accurately marked. Appendix B to 10 CFR 50 requires that such inspections shall be performed by individuals other than those who performed the activity being inspected. The matter was discussed with licensee personnel who informed the inspector that weld identification is verified by the NDE technician before he performs the required NDE. This was confirmed by the inspector's observations of work in progress and by his discussions with SWRI NDE personnel. Additionally the inspector verified that the following welds were properly marked:

- IAE - 24 - DLA - 035, welds 1 and 2, 24" diameter Class 1 feedwater system
- IAE - 24 - DLA - 036, welds 1 and 2, 24" diameter Class 1 feedwater system
- IAE - 24 - DBB - 034, weld 6, 24" diameter Class 2 feedwater system
- IAE - 24 - DBB - 037, weld 6, 24" diameter Class 2 feedwater system
- IBC - 24 - HBB - 087, weld 12, 24" diameter Class 2 RHR system
- IBE - 12 - DBB - 005, weld 2, 12" diameter Class 2 core spray system

The licensee stated that the procedure will be revised to comply with Appendix B to 10 CFR 50, and that a sample of the approximately 900 stamped welds will be inspected by QA personnel to ascertain that they are properly and accurately marked. This item is unresolved pending licensee action and subsequent NRC inspection (354/84-25-01).

#### 4. Observations of Work in Progress

The inspector observed NDE in progress to ascertain that applicable ASME Code and regulatory requirements were met, and that the examinations were performed by qualified personnel in accordance with approved procedures. The following were included in the inspector's observations:

##### Magnetic Particle Examination

- RHR, Class 2 weld no. 1BC-24-HBB-087-12
- Core Spray, Class 2 weld no. 1 BE-12-DBB-005-2

##### Ultrasonic Examination

- Recirculation Pump "A" studs 24, 19 and 33

The inspector found that the above listed examinations were done by qualified technicians using approved procedures. Additionally, certification records of the associated examination equipment were examined and were found to be acceptable.

No violations were identified.

5. Nondestructive Examination Personnel Certification Records

The inspector reviewed records of the SWRI personnel who participated in the examinations which were witnessed by the inspector, and additionally, of other SWRI Personnel at the site. This review was done with regard to compliance with applicable requirements of SNT-TC-IA and with regulatory requirements.

The records were found to be complete and current including visual acuity examination documentation.

No violations were identified.

6. Quality Assurance (QA) Surveillance

The inspector reviewed licensee QA surveillance reports to ascertain that PSI activities are addressed by the licensee's program, and that regulatory requirements are met. Reports covering the period from March 12, 1984 to November 28, 1984, were included in the inspector's review. The SWRI activities which were covered by the reports included verification of weld identification marking, personnel and equipment certification records, calibration block records, procedure review and approval, QA coverage and observations of NDE In progress.

The surveillance reports indicated that various vendor activities were examined on a frequent basis, and that findings were documented and properly closed out.

No violations were identified.

7. Ultrasonic Examination of Corrosion Resistant Cladded (CRC) Recirculation System Stainless Steel Piping

On November 26, 1984, at Bethesda, Maryland, the licensee and SWRI personnel discussed the development of a technique to ultrasonically examine CRC stainless steel piping. The discussion was followed by a demonstration of their progress to date.

The equipment used for the demonstration consisted of the following:

- Sonic MKI instrument
- Contact type, dual element, 1/4" x 1/2", 2.25 MHZ, 45° refracted longitudinal wave transducer focused to provide optimum response from ID Notches in 0.653" thick material
- Hope Creek welded mockup - 12" diameter stainless steel containing ID/OD CRC on one side of the weld and no CRC on the opposite side, and machined I.D./O.D. notches.

- Sample obtained from EPRI, fabricated by IHI containing intergranular stress corrosion cracks (IGSCC). This block does not contain CRC.

The demonstration consisted of showing that the reflection from the ID notch could be clearly displayed on the instrument when scanning from the clad and the unclad side of the weld with no apparent difference in signal strength. At the same sensitivity level, the IGSCC in the IHI sample was also detected.

the licensee was requested to continue development of the technique using cracked samples containing CRC and representing 22" diameter and 28" diameter stainless steel piping.

This item is being followed by NRR.

#### 8. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable, violations or deviations. An unresolved item is discussed in this report in paragraph 3.

#### 9. Exit Interview

The inspector met with licensee representatives, denoted in Paragraph 1, at the conclusion of the inspection on November 29, 1984. The inspector summarized the scope and the purpose of the inspection and the findings. At no time during the course of this inspection was written material provided to the licensee by the inspector.