

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

REPORT NOS. 50-272/93-09  
50-311/93-09

DOCKET NOS. 50-272  
50-311

LICENSE NOS. DPR-70  
DPR-75

LICENSEE: Public Service Electric and Gas Company  
P. O. Box 236  
Hancocks Bridge, New Jersey 08038

FACILITY: Salem Generating Station, Units 1 and 2

INSPECTION AT: Hancocks Bridge, New Jersey

INSPECTION DATES: March 29 - April 2, 1993

INSPECTOR:

*Thomas Harvey*  
for R. A. McBrearty, Reactor Engineer,  
Materials Section, EB, DRS

4/13/93  
Date

APPROVED BY:

*E. H. Gray*  
E. H. Gray, Chief, Materials Section,  
Engineering Branch, DRS

4/13/93  
Date

Areas Inspected: An announced inspection was conducted of the licensee's inservice inspection (ISI) program and related activities to ascertain that these activities were conducted in accordance with applicable ASME Code and regulatory requirements. The inspection included portions of the ISI program, observations of ISI in progress and quality assurance involvement with inservice inspection activities.

Results: The licensee's ISI program is being implemented in compliance with applicable ASME Code and regulatory requirements. Nondestructive examinations are performed by qualified examiners using licensee approved procedures. The Quality Assurance Group is actively involved with ISI. QA surveillances are performed by QA Engineers who are knowledgeable of the activity they have been assigned to observe.

## DETAILS

### 1.0 INSERVICE INSPECTION ISI PROGRAM (INSPECTION PROCEDURE 73051)

The Salem Unit 2 facility has completed its first 10-year inservice inspection interval and is now in the first refueling outage of the second 10-year inspection interval, first period. The facility's operating license, No. DPR-75, was issued on October 13, 1981, which was the starting date of the first interval. The governing code for the second interval is the ASME Boiler and Pressure Vessel Code Section XI, 1986 Edition.

The inservice inspection program plan for the first interval at Salem Unit 2 and the final report for each refueling outage were prepared by Southwest Research Institute (SWRI), the licensee's ISI vendor. The vendor, additionally, maintains all examination data generated during the interval. The licensee has decided to exert more programmatic control by preparing its second 10-year interval program plan and will, by the next refueling outage, maintain all examination data and prepare the outage final report.

The plan includes examination selection criteria for Class 1, 2 and 3 components, a list of all included components, and the period of the interval and outage in which the particular component is scheduled for examination. Information is included in the plan to expeditiously locate previous examination results for review and comparison with current data.

Examination criteria for augmented examination of the reactor coolant pump flywheel, steam generator and reactor coolant pump main flange bolting, and containment spray piping with wall thickness less than 3/8" are listed and include the basis for the requirement to examine each item. Also included in the program plan submitted by the licensee for approval to the NRC are eight requests for relief from ASME Code requirements.

A memorandum dated March 17, 1993, from the Senior ISI Support Staff Engineer provides guidelines for establishing and revising the outage ISI examination plan. It identifies how changes to the outage plan, deletions, substitutions, and deferrals are to be documented and entered into the computer data base. The guidance, eventually, will be proceduralized and incorporated into the program plan. Outage plan changes to date were verified to have been properly identified and documented as required.

The 10-year plan is in the NRC review process and has not yet been approved.

#### Conclusions

By preparing its 10-year inservice inspection (ISI) program plan and assuming the maintenance of examination data generated during the second 10-year interval, the licensee has enhanced its control of ISI activities, including those of its ISI vendor. The responsibility for program plan preparation and maintenance of examination data generated during its first 10-year ISI interval was delegated by the licensee to its ISI vendor.

## **2.0 NONDESTRUCTIVE EXAMINATION (NDE) IMPLEMENTING PROCEDURES (IP 73052)**

Selected NDE implementing procedures were inspected to ascertain compliance with code and regulatory requirements, and for technical adequacy. The following procedures were included in the inspection:

- VS 2.SS-IS.ZZ-0070(Q), Revision 0, "Dry Powder Magnetic Particle Examination"
- VS 2.SS-IS.ZZ-0075(Q), Revision 0, "Solvent-Removable Liquid Penetrant Color Contrast Examination"
- VS 2.SS-IS.RCE-0084(Q), Revision 0, "Manual Ultrasonic Examination of Ferritic Pressure Vessel Welds (Greater than 2 to 12 inches in Thickness)"
- VS 2.SS-IS.ZZ-0088(Q), Revision 0, "Manual Ultrasonic Examination Using Longitudinal-Wave Straight-Beam Techniques"

The procedure numbers listed above were assigned by the licensee to SWRI procedures that were incorporated into the licensee's ISI program. Each procedure was reviewed and approved by the licensee for use at Salem Unit 2.

Each procedure was determined to comply with the applicable ASME Code and regulatory requirements and, further, were determined to be technically adequate for their intended use.

### Conclusion

The licensee's review and approval of vendor nondestructive examination procedures prior to their use at Salem Unit 2 assures compliance with applicable requirements, and exerts additional licensee control of its vendor's activities.

## **3.0 OBSERVATIONS OF WORK IN PROGRESS (IP 73753)**

During this inspection, the ultrasonic examination of welds on the Salem Unit 2 boron injection tank was in progress by examiners employed by SWRI, the licensee's ISI vendor. A portion of the examination of the lower head to shell weld "B" was observed by the inspector to determine whether the examination complied with applicable code and regulatory requirements, and whether the examiners were properly qualified to perform their assigned duties.

The calibration of the ultrasonic examination system for the 45° shear wave examination of weld "B" was witnessed as was the examination using 60° shear wave. The calibration and examination was performed in compliance with procedure VS 2.SS-IS-RCE-0084(Q), Revision 0, also identified as SAM 2 - UT 15, Revision 0, Change 0, which is the corresponding SWRI procedure number. The examination team was comprised of two members certified to UT Level IT and Level II, respectively. Personnel qualification records verified that each examiner was properly qualified to perform his assigned responsibility.

Data related to the weld examination was inspected and determined to clearly document the acceptability of the weld and to identify all portions of the weld that could not be examined because of access limitations.

#### Personnel Qualification/Certification Records

In addition to the qualification records of the examiners responsible for the ultrasonic examination of the weld discussed above, records of the remaining ISI vendor NDE personnel were selected for inspection. The records were inspected to determine their completeness, and that they verified that the related personnel were properly qualified and certified in compliance with the provisions of SNT-TC-1A, the governing document. All information required by SNT-TC-1A was included, and the proper qualification and certification of the personnel was confirmed. In compliance with the licensee's program, all of the records were reviewed and approved by the licensee prior to the performance of NDE by the individuals represented by the records.

#### Quality Assurance (QA) Involvement in ISI

Quality assurance activities for the refueling outage, including those associated with inservice inspection, were planned prior to the start of the outage. The plan assigns responsibility to various QA Engineers with respect to their area of expertise. The goal of the QA effort is to identify problems or potential problems before they develop into significant issues which challenge safety in proper program implementation.

Three QA Surveillance Reports were selected for inspection to ascertain that appropriate attributes were included in the surveillance, that the results were clearly documented including problems identified and their resolution, and that the surveillance was performed by a qualified, knowledgeable QA engineer.

The following reports were inspected:

- Report No. 93-0066, surveillance of the liquid penetrant examination of various weld joints

- Report No. 93-079, surveillance of the magnetic particle examination of a weld joint
- Report No. 93-099, surveillance of erosion/corrosion examination

Each report clearly described the activity, the results of the surveillance and identified the implementing procedure in each case. Report No. 93-099 describes a problem that was observed during the performance of the erosion/corrosion examination and goes on to describe the satisfactory resolution of the problem.

The reports confirmed that the QA Engineers who performed the surveillances are knowledgeable of the observed activity and were qualified to perform the surveillance activity.

### Conclusions

Inservice inspection activities were conducted in compliance with the applicable ASME code and regulatory requirements. Nondestructive examinations were performed by qualified examiners using licensee approved procedures.

Quality assurance engineers were assigned to perform surveillance of activities within their area of expertise. Completed surveillance reports were evidence of the engineer's expertise and knowledge of the activities covered by the reports.

### **4.0 Exit Meeting**

The inspector met with licensee representatives, denoted in Attachment 1, at the exit meeting on April 2, 1993. The inspector summarized the scope and findings of the inspection.

**ATTACHMENT 1**

**Persons Contacted**

Public Service Electric and Gas Company

- \*C. J. Conner, Supervising Engineer - ISI
- M. Gross, Quality Assurance Supervisor
- \*J. Nichols, Manager, Reliability and Assessment
- \*V. J. Polizzi, Manager, Operations
- \*W. R. Schultz, Manager, Station Quality Assurance
- \*E. H. Villar, Licensing
- \*C. A. Vondra, General Manager - Salem

Delmarva

- \*P. Dura, Site Representative

U.S. Nuclear Regulatory Commission

- \*S. Barr, Resident Inspector

\*Denotes those attending the exit meeting.