U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No.	50-311/78-29	•		
Docket No	50-311			,
License No.	<u>_CPPR-53</u> Priority		Category	<u> </u>
Licensee:	Public Service Electric & Gas. Co.			
	80 Park Place			· · ·
	Newark, New Jersey 07101			
Facility Nam	ne: <u>Salem Nuclear Generating Station</u> U	nit 2		
Inspection a	t: Hancocks Bridge, N.J.			
Inspection	conducted: August 22-24, 31, 1978			
Inspectors:	J. C. Higgins, Reactor Inspector			7/78 ate signed
	H. J. Wong, Engineer/Intern		di	ate signed $P/7/18$
Approved by	T. H. Smith Reactor Inspector D. L. Caphton, Chief Nuclear Support Section No. 1. RO&NS Branch		d	ate signed $9/7/78$ ate signed

Inspection Summary:

Inspection on August 22-24, 31, 1978 (Report No. 50-311/78-29

<u>Areas Inspected</u>: Routine unannounced inspection by regional based inspectors of containment leak rate testing, pipe support and restraint systems and preservice testing. The inspection involved 44 inspector-hours on site by three NRC regional based inspectors and 15 hours by a regional based supervisor. <u>Results</u>: No items of noncompliance were identified.

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Region I Form 12 (Rev. April 77)

DETAILS

Persons Contacted

The below technical and supervisory level personnel were contacted.

Public Service Electric & Gas Co.

*S. Chawaga, Project QC Engineer

*Y. Contractor, Site QA Engineer

*J. Cox, Asst Startup Engineer

*F. Diaferio, QC Test & Startup Group Head

J. Flynn, Test Engineer (Energy Laboratory)

*R. Griffith, Senior Staff Engineer, QA

*E. Meyer, Project QA Engineer

*P. String, QA/QC Coordinator

*D. Tauber, Site QA Engineer

G. Traylor, Test Engineer (Westinghouse Startup)

United Engineers and Constructors

*F. Albert, Asst Lead Test Engineer

- N. Bender, Asst Lead Test Engineer
- W. Bloemer, Hanger Superintendent (Auxiliary Building)
- R. Brown, Hanger Superintendent (Containment)

R. DiStephano, Asst Piping Superintendent

M. Juister, Mechanical Test Engineer

L. McGregor, Mechanical Group Supervisor

*R. Phelps, Field Superintendent, QC

D. Snyder, Project Engineer

W. Staubmuller, Asst Chief, Mechanical Design

*E. Walsh, Asst Field Superintendent, QC

*denotes those present at the exit interview

The inspector also talked with and interviewed several members of the QA and QC staffs, construction personnel and test/startup personnel.

2. Preservice Testing

The inspector discussed with licensee personnel their plans for assembling data in performing baseline measurements under Subsections IWP and IWV of Section XI to the ASME Boiler and Pressure Vessel Code. Under these subsections for testing of pumps and valves the licensee plans to collect preservice data and organize his program for implementation when plant operation commences.

3. Local Leak Rate Testing (LLRT)

a. Test Program

The inspector reviewed the licensee's program for preoperational Type B and C local leak rate testing. This review included Startup Procedures (SUP) DTP-30-LRT-1 and 2 dated July 10, 1978 and August 4, 1978 respectively, and some completed test results from these procedures. The inspector had the below comments on program content.

(1) Type C Retest

The current LLRT program for containment isolation valves (CIV's) will serve as a construction verification test, preoperational Type C test and operational Technical Specification Type C test to demonstrate containment integrity. If maintenance is performed on a valve after the initial test is completed, the validity of using that test to demonstrate containment integrity is brought into question. The current program has no provision for retesting valves following maintenance. This item is unresolved pending the establishment of some provision for a Type C retest after maintenance (311/78-29-01).

(2) Test, Vent and Drain Lines

Test, Vent, and Drain lines, coming off lines penetrating the containment, between the containment isolation valves, provide a path for flow to bypass containment isolation valves. Valves in these lines constitute containment isolation valves in themselves, and therefore require local leak rate testing. These connections need not be tested, provided:

- (a) The lines are 1" in diameter or less;
- (b) There are two leakage barriers (2 valves, valve and a cap, etc); and,
- (c) The barriers are under administrative controls to ensure closure.

The licensee currently does not test valves in these lines, therefore this item is unresolved pending establishment of the administrative controls for times when containment integrity is required (311/78-29-02).

(3) Reverse Direction Testing

The licensee currently Type C tests several CIV's with pressure applied in a direction opposite to that which would occur during the Design Basis Accident.

This testing is permitted by Section III C.1 of Appendix J to 10 CFR 50 provided the tests will provide equivalent or more conservative results. This item is unresolved pending documentation by the licensee of the conservatism of the reverse direction tests used (311/78-29-03).

b. Type C Test Procedure

Based on the review of SUP-DTP-30-LRT-2, "Reactor Containment Type C Leak Rate Test", the inspector had the following comments:

(1) Draining

Appendix J and step 9.2.3 of the procedure requires draining of both sides of CIV's being tested. A sampling of valve lineups for individual CIV tests revealed that not all were completely drained of water (e.g. Penetrations 18, 49 and 54). This is unresolved pending review of the valve lineups by the licensee and correction to ensure complete draining prior to testing.

(2) Downstream Venting

In order to ensure that the CIV being tested sees a differential pressure of at least Pa during the full test, the volume downstream of the CIV must be vented to atmosphere. Not all of the valve lineups reviewed provided this downstream vent (e.g. Penetrations 49, 54, and E22). This item is unresolved pending review of the valve lineups by the licensee and correction to ensure all lineups are vented downstream.

(3) Boundary Valve Leakage

Certain CIV tests encompass a large test volume and have many valves on the test volume boundary. If any of these valves leak, the test is difficult to complete and procedural changes are generally required. The procedure currently gives no guidance if problems of this type are encountered. If the primary test method is unsuccessful, the other methods used must be verified to provide conservative results.

These items are designated as Unresolved Item (311/78 - 29-04).

c. <u>Test Witness</u>

On August 30, 1978, the inspector witnessed the Type C leakage rate tests performed on containment isolation valves 2 NT 32 (penetration 21 B), N₂ Supply to Safety Injection Accummulators and 21CS48, 21C54 (penetrations 43, 44) Containment Spray lines. The inspector verified that: the test was performed in accordance with the procedure by qualified test personnel; temporary producure changes had been properly approved and incorporated; instrumentation used in the test was calibrated; and valve lineups, including vents, were correct.

The tests identified leakage in excess of procedural acceptance criteria for all three valves tested, requiring repairs and subsequent retests at a later date.

No items of noncompliance were identified.

d. Instrumentation

The licensee is currently using 3 Volumetrics Leak Rate Monitors for measuring leakage rates during Type B and C testing. The inspector reviewed calibration dates showing traceability to the National Bureau of Standards . Two of these units (serial Nos. 125 and 141) had no low range scale (0-20 SCCM), yet the licensee was recording leakage rates in this range from these machines. Additionally, the information reviewed did not specify the calibration conditions. Based on the inspector's questions, the licensee contacted the vendor, who stated via telephone that the Units could detect leakage in the 0-20 SCCM range, however the accuracy would be $\pm 2\%$ of Full Scale vice the normally guaranteed $\pm 1\%$ of Full Scale. The vendors representative also verbally gave the calibration conditions. This item is unresolved pending receipt and review of found documentation of the above (311/78-29-07).

e. Type C Test on RHR Valves

The inspector noted that the valves on the RHR suction line from the containment sump (21 SJ 44 and 22 SJ 44) are not included in the licensee's Type C leakage rate test program. Appendix J to 10 CFR 50 states that valves that are required to operate intermittently under postaccident conditions should be Type C tested. The licensee's representative was unable to provide justification for not Type C testing these valves during the inspection. This is an unresolved item (311/78-29-08).

Containment Liner Weld Channels

The inspector discussed testing of the containment liner welds with the licensee's representatives. Some of these welds have test channels installed over them and have been individually leak tested. The inspector reviewed a sampling of this data. The inspector also stated that during the containment integrated leak rate test any weld channels installed should be open to containment so that the liner welds are fully tested at this time. The licensee's representative replied that test plugs would be removed and that all weld channels would be vented.

4. Pipe Hangers and Supports

a. Piping Support Inspection

An inspection was conducted of a random sample of pipe supports, restraints and snubbers on the following systems; safety injection, pressure relief, residual heat removal and chemical and volume control, all of which were at ambient temperature. The piping support systems were verified against design drawings. With exception of the below items no discrepancies were identified.

(1) Spring Hanger Settings

The inspector noted during his tour that the spring hangers settings could be read in several ways. This could lead to a difference in setting of a significant amount. Upon questioning licensee personnel, the inspector learned that common practice was to read the spring side of the disc; but that this was not delineated in a written procedure. The inspector also verified this method of reading with the manafacturer. This item is unresolved pending establishment of procedural controls for setting of spring hangers. (311/78-29-05).

(2) Disassembled Hangers

During several tours of the site the inspector noted several disassembled hangers on apparently completed systems. Discussions with licensee personnel indicated that hangers may be disassembled after construction is completed for various reasons, such as maintenance on nearby components, nondestructive testing, etc. These hangers would be tracked by the cognizant UE and C Test Engineer and reassembled by Test Group craft personnel. The inspector noted that the method of tracking these hangers was often only verbal and that craft personnel, when reassembling hangers, did not always use design drawings. Additionally, there was no scheduled verification to ensure hangers were installed precisely per design. The Preoperational Testing Turnover (POTT) would identify major discrepancies but might not pick out minor deviations. This item is unresolved pending licensee review to determine the extent of the problem and possible corrective measures. (311/78-29-06).

b. Test Program

The inspector reviewed draft procedures for preoperational testing and inspection of pipe supports and discussed the planned program for hot functional testing with licensee personnel. The test program includes plans to measure and record both cold and hot settings for safety related spring hangers and snubbers. Additionally there will be measurements and evaluations performed for each approximately 100°F increase during the hot functional test.

5. Unresolved Items

Items about which more information is required to determine acceptability are considered unresolved. Paragraphs 3.a, 3.b, 3.d, 3.e and 4.a of this report contain unresolved items.

6. Exit Interview

At the inspection's end the inspectors held a meeting (see Detail 1 for attendees) to discuss the inspection scope and findings. The unresolved items were identified.