

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

Region I

Report No. 50-311/79-07

Docket No. 50-311

License No. CPPR-53 Priority -- Category B

Licensee: Public Service Electric & Gas Company

80 Park Place

Newark, New Jersey 07101

Facility Name: Salem Nuclear Generating Station, Unit 2

Inspection at: Hancocks Bridge, New Jersey and Newark, New Jersey

Inspection conducted: January 15-17, 1979

Inspectors: A. D. Toth
A. D. Toth, Reactor Inspector

1-31-79
date signed

AC Cerne
A. C. Cerne, Reactor Inspector

1/31/79
date signed

S. J. Elmetts
for A. E. Finkel, Reactor Inspector

1/31/79
date signed

Approved by: S. J. Elmetts
for R. W. McGaughy, Chief, Projects Section
RC & ES Support Branch

1/31/79
date signed

Inspection Summary:

Unit 2 Inspection on January 15-17, 1979 (Report No. 50-311/79-07)

Areas Inspected: Routine, announced inspection by 3 regional office based inspectors.

At the Newark office one inspector examined quality verification records for the electrical relay coordination study. At the reactor site two inspectors reviewed

licensee action on previous inspection findings and examined licensee implementation of design changes. The inspection involved 20 inspector-hours onsite by two

NRC inspectors and 6 hours at the licensee Newark office by one inspector.

Results: No items of noncompliance were identified.

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DETAILS

1. Persons Contacted

Public Service Electric and Gas Company

*S. Chawaga, Site QC Division Head
N. P. Dyck, Principal QA Engineer (Newark)
J. M. DeStefano, Site QA Engineer
W. Garley, Principal Engineer (Newark)
*R. T. Griffith, Site QA Engineer
C. P. Johnson, Startup Engineer
*H. S. Lowe, Site QA Engineer
*D. L. McLaughlin, Senior Construction Engineer
*E. H. Meyer, Site QA Division Head
D. A. Perkins, QA Engineer (Newark)
R. T. Stanley, Lead Mechanical Engineer
J. J. Wroblewski, Principal Engineer (Newark)
J. Yaworsky, Assistant Chief Controls Engineer

United Engineers and Constructors

R. Jorgensen, QC Engineer
M. Livingston, QC Records Assistant Supervisor
*E. A. Walsh, Assistant Field Superintendent - QC
*D. C. Snyder, Project Engineer

Peabody Testing Company

C. Bales, NDE Assistant Supervisor

*denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (311/78-09-01): Anchor bolt embedment length verification program. This item involves specific questions raised during IE Inspection 50-311/78-09, and general corrective actions by the licensee, as described in IE Inspection Report 50-311/78-19, Paragraph 3f. The inspector examined a PSE&G QA document (Reference No. 461) which indicated commitment to a program of sample inspection for proper hanger support plate contact at wall, ceiling and floor supports.

The inspector also examined UE&C Deficiency Report (DR) 6633 and current Insert Inspection Program data to confirm the existence of a program to determine Hilti "Kwik-Bolt" embedment depths by ultrasonic testing (UT) length measurement. He spot checked data accuracy by direct observation of the UT length remeasurement of three bolts selected by the inspector, checked the certification (Peabody Testing No. 461) of the Level II Testing Engineer to SNT-TC-1A requirements, and witnessed the calibration of the UT equipment.

The inspector asked the licensee to provide engineering rationale for the decision not to implement the UT Insert Inspection Program for any floor supports. The inspector did verify that the program called for an engineering analysis of all discrepant bolt embedment conditions for the wall and overhead supports.

This item remains unresolved pending review of licensee rationale for the omission of the floor supports from the UT inspection program.

(Closed) Unresolved Item (311/77-23-03): Installation instructions for different sized tubing in the same tubing tray. The inspector examined PSE&G engineering specification revisions CD-F-9, Revision 11, and CD-M-31, Revision 4 and engineering change notice (ECN)-#30358, Revision 0, which prescribe addition of spacer material to tubing supports in tubing trays. The documents identify drawings and tray numbers where different sized tubing is included, it prescribes the specific spacer material, and provides sketches of typical correct installations. Accomplishment of the work will be in accordance with normal site controls for assuring completion of open ECNs.

This item is considered to be resolved.

3. Licensee Implementation of Design Changes

The inspector examined records and reviewed installations of features prescribed by design changes, where such changes arose from problems common to Unit 1 and Unit 2. Specific items inspected are discussed below:

a. Service Water System Modification

The inspector examined the construction implementation of several of the design commitments regarding the service water system, as documented in the PSE&G letter to NRC, dated November 22, 1976. Specifically, the inspector verified incorporation of valve room level indication (Paragraph 8), replacement relief valves and valve setting and impeller modification and inservice inspection program (Paragraph 9), repair of pump motors (Paragraph 11), and flexible water connection replacement with solid pipe (Paragraph 13). The inspector examined PSE&G memoranda #M-3641 and M-3723, engineering change notice #21697, and Purchase Order E-204858 (for motor repairs).

The inspector had no further questions on this item.

b. Provisions to Detect Corrosion from Borated Water Leakage or Spills

The inspector ascertained that the PSE&G issued Technical Specifications for Unit 2 incorporate part 405 provisions of the NRC Standard Technical Specifications for a Westinghouse PWR, specifically, inservice inspection requirements of Section XI of the ASME Code. The licensee anticipates that required visual examinations will assure detection of leakage of borated water from the reactor vessel head and possible associated corrosion. This is consistent with provisions for Unit 1, as discussed in Unit 1 inspection report 50-272/76-11.

The inspector had no further questions regarding this item.

c. Replacement of Fan Coil Unit

In a letter to the NRC dated July 1, 1976, the licensee described a fan vibration problem, and the fact that a Unit 2 fan motor was used to replace one at Unit 1. The inspector examined the records of provisions made to evaluate the problem and to replace the Unit 2 motor. Records included a PSE&G November 18, 1976 evaluation memorandum for "Starting Problems with Salem No. 15 Containment Ventilation Fan Motor" and Westinghouse evaluation letter #BURL-3450 dated November 19, 1976. Unit 2 Technical Specifications require all fans to be operable before Mode 3 operation, and startup procedures specify testing of the motors.

The inspector had no further questions on this item.

4. Relay Coordination Study

The inspector reviewed the system description procedure for protective relaying, vital bus loading documentation, and the relay test order documentation defining set point data as referenced in the engineering set point documentation for the Salem Nuclear Generation Station, Unit No. 2.

a. Salem Nuclear Generating Station 460 and 230 Voltage Vital Bus Anticipated Loads dated February 24, 1977

This study determined the expected load demand on the following vital buses: three 460 volt vital buses fed from 4160 volt vital buses via 4160-480/277 volt transformers, three 230 volt vital buses fed from 4160 volt vital buses via 4160-240/ 139 volt transformers, during normal operation. Normal operation is defined as at reactor power with all AC power sources available. The composite load had a demand factor calculated into it to determine the probable average KW or KVA demand that a given connected load will impose on the power system during a specified time interval of operation. Using the above criteria, the inspector reviewed the bus loading on the following vital buses, both the summer and winter loading. At the present no vital bus load is estimated greater than 76% of transformer load.

- (1) No. 2A Vital Bus, 460 Volt Bus Loads - 750 KVA Transformer, Loaded to 571 KVA = 76%
- (2) No. 2B Vital Bus, 460 Volt Bus Loads - 750 KVA Transformer, Loaded to 459.3 KVA = 61%
- (3) No. 2C Vital Bus, 460 Volt Bus Loads - 1000 KVA Transformer, Loaded to 577.7 KVA = 58%
- (4) No. 2A Vital Bus, 230 Volt Bus Loads - 300 KVA Transformer, Loaded to 177.9 KVA = 59%
- (5) No. 2B Vital Bus, 230 Volt Bus Loads - 300 KVA Transformer, Loaded to 203.2 KVA = 68%
- (6) No. 2C Vital Bus, 230 Volt Bus Loads - 300 KVA Transformer, Loaded to 165.2 KVA = 55%

- b. System Description SD No. E111/C entitled Description of Station Auxiliary Power Protection Relaying dated September 11, 1978, Revision 0.

The inspector reviewed procedure, drawing, and figures associated with the protective relaying setting for the 4160 volt group and vital buses for Salem Unit Generation Station, Unit 2.

In addition to reviewing the SD-E111/C document, the inspector reviewed the following listed drawings and the relay setting data in drawing 497 and 794 which formed a part of the SD-E111/C document.

- (1) Drawing No. 203000A8789-9 entitled Generators and Main Transformers;
- (2) Drawing No. 203061A8789-3 entitled Unit No. 2 4160 Volt Vital Buses;
- (3) Drawing No. 203004A8789-3 entitled Units No. 1 and 2 13 KV Switchgear;
- (4) Drawing No. 203117-BL-497 entitled Relay Settings for No. 1 and 2 Units 4160 Volt Vital Buses; and,
- (5) Drawing No. 222786-AL-794 entitled Relay Settings for No. 2 Unit 4160 Volt Group Buses.

The relay set points that were sent to the site via the Relay Test Order were the levels defined in the SD-E111/C documentation.

- c. The inspector reviewed the Controls Division procedure GD-P-79 dated March 7, 1978, Revision 0. The relay set point data of drawings BL-497 and AL-794 is identified in a Relay Test Order (RTO) which is then sent to the Relay Department who will adjust and set the relays at the site. The relay setting is then recorded on the RTO form and returned to the controls engineer for review and filing. The following RTOs were reviewed by the inspector on a sampling basis:

- (1) Auxiliary Power Transformer RTO dated February 1, 1975;
- (2) No. 21 Station Power Transformer RTO dated February 3, 1976;
- (3) No. 22 Station Power Transformer RTO dated February 3, 1976;
- (4) Diesel Generator No. 2 Vital Bus RTO dated February 6, 1976 and March 14, 1974;
- (5) 2A Vital Bus (2D2A) RTO dated June 30, 1975;
- (6) 2B Vital Bus (2BBD) RTO dated Decmeber 12, 1973;
- (7) 2C Vital Bus (2C3D) RTO dated December 12, 1973; and,
- (8) 2C Vital Bus (2C2D) RTO dated February 4, 1976.

No items of noncompliance were identified.

5. Management Meeting

At the conclusion of the inspection on January 17, 1979, a meeting was held at the site with representatives of the licensee and contractor organizations. Attendees at this meeting included personnel whose names are indicated by notation (*) in Paragraph 1. The inspector summarized the results of the inspection as described in this report.