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

Region I

Report No. 50-272/79-12; 50-311/79-24

Docket No. 50-272; 50-311

License No. DPR-70; DPR-53 Priority - Category C; B1

Licensee: Public Service Electric and
Gas Company
80 Park Place
Newark, New Jersey 07101

Facility Name: Salem Nuclear Generating Station - Units 1 and 2

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: March 25 - April 21, 1979

Inspectors: L. J. Norrholm, Resident Inspector — date signed 5/30/79

H. H. Nicholas, Reactor Inspector — date signed 5/30/79

R. P. Zimmerman, Reactor Inspector — date signed 5/30/79

Approved By: R. R. Keimig, Chief, Reactor Projects Section No. 1, RO&NS Branch — date signed 5/30/79

Inspection Summary:

Inspections on March 25-April 21, 1979 (Combined Reports Nos. 50-272/79-12 and 50-311/79-24)
Unit 1 Areas Inspected: Routine inspection of plant operations including; tours of the facility, log and record reviews, preparations for

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refueling outage, followup on licensee events, licensed operator training; and, followup on previous inspection items. The inspection involved 26 hours by the NRC resident inspector.

Unit 2 Areas Inspected: Routine inspection of plant preoperational testing including; tours of the facility; witnessing and results review of selected preoperational tests; preparedness for operating license; test program quality assurance and implementation controls; and, followup on previous inspection items. The inspections involved 37 hours by the NRC resident inspector and seven hours by two NRC regional based inspectors.

Results: No items of noncompliance were identified with respect to Unit 2. One item was identified with respect to Unit 1 (Deficiency-Failure to maintain procedure document control (Paragraph 5)).

DETAILS

1. Persons Contacted

PSE&G

R. Griffith, Site QA Engineer
C. Johnson, Startup Engineer
S. LaBruna, Maintenance Engineer
A. Meyer, Site QA Engineer
E. Meyer, Project QA Engineer
H. Midura, Manager - Salem Generating Station
W. Reuther, Site QAD
F. Schnarr, Station Operating Engineer
R. Silverio, Assistant to the Manager
J. Stillman, Station QA Engineer
W. Treston, Site QAD
J. Zupko, Chief Engineer

The inspector also interviewed other licensee personnel during the course of the inspections including management, clerical, maintenance, operations, performance, quality assurance, testing, and construction personnel.

2. Status of Previous Inspection Items

(Closed) Noncompliance (272/78-04-07 and 272/79-02-02). Failure to issue a SORC-approved chlorination procedure. The inspector reviewed PD-3.4.029. Operation of the Chlorination System, Revision 0, dated 2/27/79. The inspector had no questions relative to the procedure and further noted that completion of this item was being tracked by the Station QA Engineer as stated in the licensee's response letter dated April 6, 1979.

(Closed) Noncompliance (272/78-04-11 and 272/79-02-05). Failure to issue SORC-approved chemical inventory procedure. The inspector reviewed PD-3.8.-026 Inventory of Identifiable Chemicals Discharged Directly to the River, Revision 0, dated 2/79. The inspector had no questions relative to the procedure and further noted that completion of this item was being tracked by the Station QA Engineer as stated in the licensee's response letter dated April 6, 1979.

(Closed) Unresolved Item (311/78-55-01) Preparation of chemical inventory and chlorination procedures. With the completion of the above referenced items (79-02-02 and 79-02-05), this issue is resolved for Unit 2.

(Closed) Follow Item (311/78-13-01) Resolution of discrepancies in Performance Department Manual. The inspector reviewed Performance Department Manual, Revision 9, dated March 26, 1979. The three items of concern, dealing with qualification statements and organization, have been addressed in the revision.

(Closed) Follow Item (311/78-13-03) Development of necessary health physics procedures. The inspector reviewed the following procedures:

-- PD-15.1.006 Decontamination of Personnel, Rev 0, 3/79
-- PD-15.1.005 Nasal Swabs, Rev 0, 2/79
-- PD-15.11.009 Bioassay Program, Rev 0, 3/79
-- PD-15.3.019 Lost, damaged or Off-Scale Dosimeter or TLD, Rev 0, 3.79
-- PD-15.3.020 report of overexposure to ionizing radiation, Rev 0, 3/79
-- PD-15.4.015 Beta Dose Rate Determination, Rev 0, 7/78
-- PD-15.3.021 Special Personnel Monitoring, Rev 0, 2/79
-- PD-15.11.011 MPC Hour Accounting, Rev 0, 2/79

This completes all procedures addressed in this item with the exception of respiratory protection which was not inspected. These procedures will be reviewed with followup item 311/78-13-06.

(Open) Follow Item (311/78-13-04) Resolution of discrepancies in Health Physics procedures. The inspector reviewed the following:

-- PD-15.3.009 Current Radiation Exposure Records, Rev 1
-- PD-15.8.015 Use of STAPLEX High Volume Air Sampler, Rev 1

These procedures resolve concerns relative to the use of form NRC-5 and representative air sampling. The item remains open pending completion of radioactive waste shipment procedures which include the requirements of 49 CFR Part 170-189 and 10 CFR 71, Appendix E.

(Closed) Noncompliance (311/78-47-01) Failure to comply with system status identification requirements. The inspector verified corrective actions taken as detailed in the applicant's response letter dated February 2, 1979. The inspector further noted that, by memorandum dated April 17, 1979, all systems are now to be considered as turned-over and work on any system is to be coordinated through the cognizant test engineer.

(Closed) Follow Item (311/78-47-02) Completion of ECN to replace stem mounted limit switches in containment as detailed in response to IE Bulletin No. 78-04. By direct inspection and document review, the inspector verified that ECN's 35294, Rev 1, and 35195, Rev 0, had been completed. This completes required actions resulting from the bulletin for Unit 2.

Unit 1

3. Plant Tour

a. In the course of the inspections including backshifts and a holiday, the inspector made observations and conducted tours of:

- -- Control Room
- -- Relay Room
- -- Auxiliary Building
- -- Service Water Structure
- -- Yard Areas
- -- Rad Waste Building
- -- Site perimeter
- -- Electrical penetration area
- -- Circulating Water Structure
- -- Control Point
- -- Turbine Building

b. The following determinations were made:

- -- Logs. A sampling review of station operating logs was made to verify compliance with procedures and to verify operating parameters were within Technical Specification limits.

-- Monitoring instrumentation. The inspector frequently verified that selected instruments were functional and demonstrated parameters within Technical Specification limits.

-- Valve Positions. The inspector verified that selected valves were in the position or condition required by the Technical Specifications for the applicable plant mode.

-- Radiation Controls. The inspector verified by observation that control point procedures and posting requirements were being followed. The inspector identified no failure to properly post radiation and high radiation areas.

-- Plant housekeeping conditions. Observations relative to plant housekeeping and fire hazards identified no notable conditions.

-- Fluid leaks. No fluid leaks were observed which had not been identified by station personnel with corrective action initiated, as necessary.

-- Piping vibration. No excessive piping vibrations were observed and no adverse conditions noted.

-- Selected pipe hangers and seismic restraints were observed and no adverse conditions noted.

-- Control Room annunciators. Selected lit annunciators were discussed with control room operators to verify that the reasons for them were understood and corrective action, if required, was being taken.

-- By frequent observation through the inspection, the inspector verified that control room manning requirements of 10 CFR 50.54(k) and the Technical Specifications were being met. In addition, the inspector observed that frequent tours were made by shift supervision.

c. The following acceptance criteria were used for the above items.

-- Technical Specifications
-- Operations Directives Manual
-- Inspector Judgement

d. The following specific observations were made by the inspector and problems were identified promptly to station management.

-- On April 3, 1979, Unit 1 was shut down to commence the first refueling outage. The inspector reviewed the subsequent cooldown to Mode 5 to verify Limiting Conditions of Operation relative to system cooldown rates were met. No problems were identified.

-- The inspector noted that a Hand and Foot Counter at the Turbine Building cross-over to Unit 2 had an expired calibration sticker. Subsequent review of the Inspection Order system indicated that the counter's calibration was current. The outdated sticker was removed.

-- On April 17, 1979, feeders to No. 21 Station Power Transformer tripped. The problem was traced to a ground fault on the 13 KV side of the transformer and appears to be unrelated to previous problems with Station Power Transformers. The effect on the station was limited to loss of non-vital switchboards on Unit 2, resulting in some loss of power to station administrative areas as well. No effect on Unit 1 was identified.

-- On April 18, 1979, with Unit 1 in cold shutdown, a service water expansion joint failed and resulted in rapid flooding of the service water bay containing Nos. 14, 15 and 16 Service Water Pumps. The flooding level was sufficient to submerge the pump motors. The licensee's evaluation of corrective action and reportability is continuing. No Limiting Condition

for Operation was invoked due to the plant operating mode.

The inspector had no further questions in this area.

4. Operational Staff Training

a. On April 20, 1979, a briefing session was conducted by NRC staff members to discuss the sequence of events and lessons to be derived from the event at Three Mile Island. All licensed operators at Salem attended one of the two sessions given.

b. In a review of requalification training program continuity, the inspector noted that the current training cycle was shortened to one week instead of the usual two, at the expense of individual study time for the operators. The scheduled lectures and examinations were still being given. The inspector stated that the examinations will be reviewed as a part of the routine inspection program to ensure that an adequate level of retraining is maintained during the refueling outage. The licensee acknowledged the inspector's statement.

The inspector had no further questions relative to this area.

5. Plant Procedures

a. The inspector conducted a review of station procedures dealing with the Auxiliary Feedwater System. Preliminary review indicates that surveillance procedures are sufficiently detailed to restore system lineups following testing. In reviewing OI-III-10.3.1, Auxiliary Feedwater System Operation, Rev 5, 3/27/79, the inspector noted that the recommendations of the manufacturer dealing with draining the oil of the Woodward governor following an inadvertent start of the steam driven pump had been incorporated. However, the information was not sufficiently highlighted to ensure that the pump is restored to operable standby status following an inadvertent start. This item is unresolved pending procedure revisions to ensure that the steam drive pump will not overspeed on a subsequent start occurring within 30 minutes of a previous run.

b. During this report period, a Region-based inspector used controlled copies 5 and 6 of the Maintenance Department Manual (MDM) for the review of maintenance procedures as part of Unit 2, Inspection No. 79-23. The MDM incorporates the maintenance procedures for both Unit 1 and Unit 2. During this review, the inspector noted that the controlled copies did not appear to have been properly maintained. Specifically, the third volume of copy 5 (out of a set composed of 4 volumes), could not be located. Procedures A-12 and A-13 were also missing from copy 5. Controlled copy 6 did not include Procedures M11E, M13A(7) and enclosures 1 and 2 of Procedure M3A. The above condition represents an apparent item of noncompliance (deficiency) with TS 6.8.1, and Regulatory Guide 1.33-1972. (272/ 79-12-02).

Unit 2

6. Preoperational Testing Quality Assurance

During witnessing of preoperational testing, the inspector verified that QC/QA personnel were present conducting surveillance activities and observing mandatory witness points. QC personnel employ checklists to ensure all required aspects of test procedures in progress have been addressed.

Through review of system turnover package (POTT 30-01, Containment and POTT 32-01, Containment Spray), the inspector verified that QC/QA input is solicited to ensure that outstanding deficiencies are identified and tracked through the turnover process.

Deficiencies noted during construction and testing were identified and tracked to resolution. The inspector verified that four selected deficiency reports (DR's) were adequately resolved.

The inspector noted that during the previous quarter no new QA personnel had been assigned and no audits of the startup program conducted. One audit is in progress.

During the witnessing of one Start Up Test (SUP 16.1, Liquid Waste Processing), the inspector noted that a Mandatory Witness

Point (MWP) had not been signed and stamped by QC. It was subsequently determined that the step had, in fact, been witnessed and the documentation was updated.

The inspector had no further questions in this area.

7. Preoperational Test Program Implementation Controls

To review the implementation of preoperational testing controls, the inspector reviewed the following Preoperational Test and Turnover (POTT) packages:

POTT 30-01 Containment
POTT 32-01 Containment Spray

Further review of jurisdictional controls maintained in these and other systems which had undergone turnover included field observations of jurisdictional tagging and verification that all parties at the site respected jurisdictional boundaries such that post-turnover and post-test status remained valid.

Additional inspection was made to verify that a schedule of preoperational testing was maintained, that the quality of chemistry in safety related systems was maintained, that preventive maintenance of turned-over systems is specified and accomplished, and that corrective maintenance is accomplished by qualified persons using approved procedures.

The inspector had no questions relative to the above.

8. Preoperational Testing

a. For all testing witnessed and described below, the following aspects, as a minimum, were verified by the inspector on a sampling basis:

-- The latest procedure with appropriate approved changes was available and in use by crew members.

-- The minimum crew requirements had been met.

-- Briefings had been conducted with test personnel as required.

-- Adequate dry runs were held by all inspection teams.

-- Test prerequisites were met.

-- Special test equipment and instrumentation required by the procedure was calibrated, inservice and manned by test personnel.

-- Testing was being performed as required by the procedure.

-- Crew actions appeared to be correct and timely during the performance of the test.

-- All data were collected for final analysis, by the cognizant test personnel.

-- Test results observed by the inspectors indicated that test acceptance criteria had been met.

b. Portions of the following specific tests were witnessed by the inspectors:

-- SUP 16.1 - Liquid Waste Receipt and Storage

-- SUP 16.6 - Gaseous Waste Processing

-- Special test to demonstrate ability to provide backup supply to Auxiliary Feedwater within 30 minutes (Section 3.5.2, SER Supplement 3). The inspector verified that, starting from the control room two male operators were able to install the Service Water/Auxiliary Feedwater spool piece within 12.5 minutes.

c. Test Results Evaluation

The following procedures were reviewed to ascertain whether uniform cirteria are being applied for evaluating completed preoperational tests to assure their technical and administrative adequacy:

-- SUP 17.4 Revision 0, Approved April 10, 1979. Fuel Handling Equipment and Tools.

-- SUP 32 Revision 0, Approved April 10, 1979. Service Water System.

The inspector reviewed the test results, and verification of licensee evaluation of test results, by the following methods:

-- Review of test changes;
-- Review of test deficiencies;
-- Review of test summary and evaluations;
-- Review of "As-Run" copy of test procedure;
-- Review of QA inspection records; and,
-- Verifying that the test results have been approved.

No discrepancies were noted in the review of these procedures and the inspector had no further questions at this time.

9. Plant Tour

The inspector conducted periodic tours of accessible areas in the plant. During these tours, the following specific items were evaluated:

-- Hot Work. Adequacy of fire prevention/protection measures used.

-- Fire Equipment. Operability and evidence of periodic inspection of fire suppression equipment.

-- Housekeeping. Minimal accumulations of debris and maintenance of required cleanness levels in systems under or following testing.

-- Equipment preservation. Maintenance of special preservative measures for installed equipment as applicable.

-- Component Tagging. Implementation and observance of equipment tagging for safety or equipment protection.

-- Maintenance. Corrective maintenance in accordance with established procedures.

-- Instrumentation. Adequate protection for installed instrumentation.

-- Cable Pulling. Adequate measures taken to protect cable from damage while being pulled.

-- Communication. Effectiveness of public address system in all areas of the site.

-- Equipment Controls. Effectiveness of jurisdictional controls in precluding unauthorized work on systems in test or which have been tested.

-- Logs. Completeness of logs maintained and resolution of identified problems.

-- Foreign Material Exclusion. Maintenance of controls to assure systems which have been cleaned and flushed are not reopened to admit foreign material.

-- Security. Implementation of security provisions. Particular attention to maintenance of the Unit 1 protected area boundary.

-- Testing. Spot-checks of testing in progress are made.

The following specific comments apply to tours made during this inspection period.

-- Containment fire hose station 2FP 97 had no hose nozzle. The nozzle was replaced. The inspector noted that, under the proposed Unit 2 Technical Specifications, the inoperable hose station would represent noncompliance with a Limiting Condition for Operation.

-- Two plastic bottles, one containing oil, were found in an instrument panel (CS 211) near the Containment Spray Pumps. The bottles were removed.

-- Other observations, including valve packing leaks and equipment deficiencies, were made and verified to have been previously identified and tracked using the Open Items List.

The inspector had no further questions relative to plant tours.

10. Diesel Generator Protection

Safety Evaluation Report (SER) Supplement 3, in Section 8.3.1 applicant has completed ECN 35295-1 on the Unit 2 Diesel Generators.

This ECN leaves only the following trips on a safeguards start of the diesel generators:

-- Low lube oil pressure
-- Bus differential
-- Overspeed
-- Local stop

In a subsequent report, dated April 10, 1979, the applicant reported that the 12PVD11C11A relays providing bus differential protection are not seismically qualified, and may cause loss of the vital bus on a safeguards actuation coincident with a seismic event. Immediate corrective action for both units consisted of bypassing the bus differential relays and relying on breaker overcurrent protection. LER 79-36/0IT was submitted for Unit 1.

The inspector had no further questions on this item at this time.

11. Operational Readiness

10 CFR 50.57 states that the issuance of an operating license is, in part, contingent upon a finding that construction of the facility has been substantially completed , in conformity with the construction permit and the application, as amended, the provision of the Act, and the rules and regulations of the Commission.

In order to provide a basis for this finding, the inspector is conducting a continuing review of licensee readiness to operate

the facility. This review includes, but is not limited to, the following areas:

-- Completion of the NRC inspection program to assess construction, testing and operational preparedness.

-- Status of facility operating procedures and personnel training.

-- Status of all enforcement items and unresolved matters.

-- Status of the preoperational test program.

-- Status of construction activities.

-- Proposed facility Technical Specifications.

-- Review of licensee outstanding items, particularly those identified for completion or resolution after core load.

-- Implementation of corrective measures for Unit 2 as a result of items identified in Unit 1 from Reportable Occurrences, inspection findings, and IE Bulletin and Circulars.

Operational safety concerns arising from the above reviews will be promptly identified to facility managment for resolution prior to the inspector reaching a finding of operational readiness. No specific safety concerns have been identified to date.

12. Unresolved Items

Areas for which more information is required to determine acceptability are considered unresolved. Unresolved items are contained in Paragraphs 2 and 5 of this report.

13. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings.