U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-387/84-40
50-388/84-50

Docket No. 50-387
50-388

License No. NPF-14
NPF-22

Licensee: Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station Unit 1 and 2

Inspection At: Berwick and Allentown, Pennsylvania

Inspection Conducted: December 10-14, 1984

Inspectors: J. Prell for — A. Alba, Reactor Engineer — 1-10-85 date
G. Kelly — G. Kelly, Project Engineer — 1-10-85 date
J. Prell — J. Prell, Reactor Engineer — 1-10-85 date
E. Thomas Shaub — E. Shaub, Reactor Engineer — 1-10-85 date

Approved by: P. K. Eapen — P. K. Eapen, Acting Chief, Management Program Section, DETP — 1-10-85 date

Inspection Summary: Inspection conducted December 10-14, 1984 (Combined Report Nos. 50-387/84-40 and 50-388/84-50)

Areas Inspected: Routine announced inspection by four regional-based inspectors of the Quality Assurance Program including design and modification control, procurement, and receipt and storage of safety related systems, structures and components. The inspection involved 96 hours onsite and 43 hours at the corporate offices.

Results: No violations were identified.

DETAILS

1. Persons Contacted

T. Abbatiello, Supervisor QA Modifications, NQA
R. Baker, Technical Procurement Supervisor
K. Blakslee, Operations Supervisor
D. Bockstanz, Project Engineer, Nuclear Power Engineering (NPE)
C. Brown, Project Engineer - Mechanical - NPE
*C. Burns, Senior Project Engineer, NQA
P. Capotone, Senior Project Engineer - NPE
T. Crimmons, Manager - NPE
F. Czysz, Senior Project Engineer - Mechanical - NPE
*A. Derkacs, Senior Quality Engineer - NPE
*S. Denson, Assistant Manager, Nuclear Quality Assurance
M. Detamove, Supervisor, System Engineering - NPE
A. Dominquez, Senior Project Engineer - Plant Engneering
J. Edwards,Personnel andAdministrative Supervisor
J. Everett, Senior Results Engineer - Operations
*J. Frittzen, Group Supervisor, Resident Engineering
W. Gulliver, Supervising Engineer - NQA
J. Hober, Project Engineer, Mechanical - NPE
J. Hubis, Senior Peoject Engineer, Installation Engineering
*H. Keiser, Plant Superintendent
I. Keister, Manager, Nuclear Operations - NPE
A. Male, Manager, Nuclear Design - NPE
R. Mathews, Senior NQA Analyst
W. Metgzer, Group Supervisor, Engineering Planning - NPE
W. O'Donnell, Senior Project Engineer - NQA
*R. Prego, NQA Operations Supervisor
C. Purcell, Warehouse Supervisor
D. Satter, Group Leader, Engineering Mechanics and Welding Codes - NPE
R. Sees, Material Support Service Supervisor
B. Stitt, Senior Simulator Instructor - Training
H. Stokes, Senior Project Engineer, QA Modifications - NQA
*D. Sutton, Materials Supervisor
*D. Thompson, Assistant Plant Supervintendent
J. Tucker, Supervisor, Engineering Support - NPE
C. Whirl, Senior NQA Project Engineer
R. Whitmayer, Senior QC Specialist

USNRC

L. Plisco, Resident Inspector

*Denotes those present at the exit interview on December 14, 1984.

The inspectors also interviewed other personnel including engineers, technical and administrative personnel.

2. Design Change and Modification

2.1 References

-- ANSI N45.2.11 - 1974, Quality Assurance Requirements for the Design of Nuclear Power Plants

-- ANSI N18.7 - 1976, Quality Assurance for the Operational Phase of Nuclear Power Plants

-- Final Safety Analysis Report

-- Operational Quality Assurance Program (OPS 9, 13, & 14)

-- Nuclear Department Instruction (NDI)-QA-15.1.1, Communication Interfaces with Nuclear Power Engineering (NPE), Revision 3

-- NDI-QA-15.2.1, Delegation of Design Authority to Plant staff, Revision 1

-- NDI-QA-15.2.3, Configuration Control Program, Revision 0

-- NDI-QA-15.2.4, As Built Drawing Requirements, Revision 1

-- NDI-QA-15.2.7, Drawing Change Control

-- AD-QA-410, Plant Modification Program, Revision 3

-- AD-QA-414, Installation Engineering Activities, Revision 2

-- AD-QA-900, Conduct of Insallation Engineering Group, Revision 0

-- NDI 8.2.6 QA Requirements for Safety Impact Items, Revision 0

-- NDI 9.1, Safety Evaluations, Revision 1

-- Engineering Department Manual

- DC-010.0 Design and Approval of Design Documents, Revision 3
- DC-10.1 Design Verification, Revision 2
- DC-30.0 Design Control Package, Revision 3
- DC-40.0 Design Change Mechanisms, Revision 2

2.2 Program Review

The procedures references in Section 2.1 were reviewed to determine that the licensee has established a program for control of design changes and modifications to plant systems structures and components which included the following:

-- Mechanisms for assuring that proposed changes do not involve an unreviewed safety question as described in 10 CFR 50.59

-- Definition of responsibilities for identifying, reviewing and approving design changes, including independent design verification

-- Definition of design organization interfaces

-- Control of changes to design documents including distribution, approval and revisions

-- Definition of post modification testing requirements and acceptance criteria

Either the plant staff or corporate organization may identify the need for a modification by initiating a Request for Modification (RFM) which, after processing by the Nuclear Support Group (NSG) and if approved by the Resource Management Review Group (Keiser, Greminons, Cantone), is assigned a Plant Modification Record (PMR) number.

That assignment keys the PP&L corporate design organization, Nuclear Plant Engineering (NPE), into creation of an Engineering Work Request (EWR) which will initiate and track design and engineering activity. NPE's methods of design, review and safety analysis of plant modifications are governed by the Engineering Procedures Manual (EPM), which provides those written instructions that in turn implement the requirements of ANSI N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants".

The documentation and control of PP&L's design processes are accomplished through and implemented by the Design Change Package (DCP). This document is the integral part of any PMR, and principally contains design inputs, a safety evaluation, records of review, and approved design output for a specific plant modification. The DCP is evidence of the development, review and approval of a design change by NPE, from initiation of an EWR through issuance to and installation by the field, and eventual update of as-built design documents.

There has been considerable design activity at Susquehanna in the past 12-15 months, associated with the December 1983 - February 1984 tie-in outage of both units, the Unit 2 precommercial outage of October-December 1984, and the upcoming Unit 1 first refueling outage scheduled to commence in February 1985. Over 100 DCP's were issued for work during the inter-tie outage, and approximately 150 packages have been issued (since October 1984) for work during the Unit 1 refueling outage.

2.3 Implementation

Implementation of design changes and facility modifications were reviewed at the corporate office and on site to verify the following:

-- Changes were reviewed and approved in accordance with Technical Specification 10 CFR 50.59 and established QA/QC controls.

-- Adequate post modification testing was required and implemented, including review of test results.

-- Applicable documents (i.e., operating and surveillance procedures, FSAR and system descriptions) were updated to reflect the modification.

-- As-built drawings were changed to reflect the modification.

-- Design input and verification was adequately performed.

-- Modification training was given to applicable personnel (i.e., operation, engineering, etc).

Ten (10) DCP's were reviewed for NDI and EPM procedural adherence, as well as for the technical content and adequacy of safety evaluations, independent verification and other reviews such as NQA, safety impact, compliance and Design Review Board. Both properly prescribed design input and appropriate design output were evaluated, and finally, each DCP's responsible NPE engineer was interviewed to assess his training, qualifications, knowledge, and ability to defend his DCP.

The DCPs reviewed were:

-- DCP 82-0051, Unit 1 RHR Throttle Valve
-- DCP 83-0592D, Unit 2 ESW Loop A Waterhammer
-- DCP 84-3109, Unit 2 LPCI Injection Valve Wear Strips
-- DCP 82-0761, Diesel Generator Air Dryers
-- DCP 83-0474, Unit 1 Vacuum Breaker Limit Switch Support
-- DCP 84-3014, Unit 1 RHR Pump Seal Cooler
-- DCP 83-0267, Unit 1 RHR Heat Exchanger Discharge Temperature Indicator
-- DCP 83-0189, Unit 1 Containment Purge Valves
-- DCP 82-0578, Unit 1 Scram Discharge Instrument Volume
-- DCP 84-3119B, Unit 2 Moisture Separator Check Valve

Discussions were held with the licensee group involved in modifications and determined that the licensee personnel were aware of their duties and responsibilities.

The modification process was walked through with the Plant Engineer, Installation Engineering, Quality Control, Quality Assurance, and Operations and assured that licensee personnel were aware of their

duties and responsibilities associated with modifications. Work authorizing documents, testing requirements, and inspection requirements associated with the DCP listed above were reviewed.

Drawings in the control room and Technical Support Center were reviewed and ensured that the as-built plant conditions were posted to the applicable drawing after DCP closeout. The training provided to the operation department for these DCP was reviewed with senior operations staff and the training department. Training is provided for each DCP's via required reading, shift briefings, or a formal presentation in the requalification program for operations. The method of training is based on the operational impact of the modification.

2.4 QA/QC Involvement with Design Change and Modification

Quality Assurane provides inline review and approval of all safety related DCP's, surveillance and audit of the modification program. Quality control (modification) provides inspections for the safety-related work associated with modification. The inspectors discussed the inline review and approval with Quality Assurance engineering and determined the adequacy of their reviews. QC inspection reports (i.e., GIR V4392-H, V43974-H, C44425-28-M and GIR C40886-E) were reviewed and discussed with QC personnel. This ensured that the inspection plans were detailed and acceptance criteria were established.

The QA surveillance program was discussed with QA supervision and determined that the level of QA coverage for modifications was adequate. Several QA surveillance reports were reviewed (QSAR's 83-159, 203, 84-54, 75 and 22) and verified the initiation of prompt and adequate corrective action for identified problems.

2.5 Findings

No violations were identified.

3.0 Procurement

3.1 References/Requirements

-- Susquehanna Steam Electric Station (SSES) Final Safety Analysis Report (FSAR) Units 1 and 2, Chapter 17

-- Administrative Directive (AD) - Quality Assurance (QA)-210, Revision 3, Procurement Control Activities

-- Nuclear Department Instruction (NDI)-QA-2.4.5, Revision 1, Evaluation and Approval of Suppliers of Quality Material and Service

-- NDI-QA-2.4.7, Revision 0, Procurement of Quality Materials and Services

-- NDO-QA-2.4.4, Revision 1, Quality Consideration Lists

-- Defective Device List, Revision 35

-- Approved Supplier Quality List (ASQL)

-- Nuclear Quality Assurance Procedure (NQAP)-4.1, Revision 2, Procurement Document Review

-- NQAP-6.1, Revision 1, Evaluation and Approval of Suppliers for SSES

-- Operational Policy Statement (OPS)-10, Revision 0, Procurement Control

-- Regulatory Guide 1.123, Revision 1, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants, endorses ANSI N45.2.13

3.2 Program Review

The inspector reviewed the documents listed in Section 3.1 and determined that the licensee had established a procurement program of safety-related replacement items which included the following:

-- Only approved and qualified suppliers were used for supplying safety-related items.

-- Procurement procedures were developed in accordance with Regulatory Guide 1.123.

-- Procurement activities were in accordance with established procedures.

-- Purchase and receipt records for safety-related items were retained and maintained in accordance with established requirements.

-- QA/QC performed an overview of the above activities.

3.3 Implementation Review

The inspector selected the following plant purchase requisitions (PPRs) for safety related items to ascertain whether procurement activities were conducted in accordance with programmatic and QA/QC requirements.

-- PPR M-4-351, 8/13/84, Reactor Vessel Flanges

-- PPR M-4-251, 6/21/84, RCIC Oil Drain

-- PPR E-4-0259, 6/27/84, Hydromotor Actuator

-- PPR E-4-0354, 9/4/84, Carrier Chiller

-- PPR C-4-1378, Welding Procedure Qualification

The inspector verified that the vendors for the above PPRs were on the ASQL; that QA/Engineering had performed an evaluation/reevaluation of the vendors according to procedures; that the PPR's had received the necessary technical and quality control review and documentation; and, that the PPR's references the appropriate codes, standards, Part 21, shelf-life/preventive maintenance, and Certificate of Conformance requirements.

3.4 QA/QC Interface

The inspector discussed with site QC personnel, their program for procurement review and receipt inspection. Site QA was also interviewed and the following audit was examined: SSES Audit No. 1A-84-06, April 1984, Procurement Activities. The checklist for this audit was reviewed and found adequate. The 1984 and 1985 audit schedule was examined and procurement audits were scheduled annually.

The inspector also reviewed the QA vendor evaluation program with PP&L Headquarters personnel. Supplier Evaluation Forms for the following vendors were reviewed for timeliness and adequacy; Carrier Corporation, Hub Incorporated, Pittsburg Testing Laboratory and Johnson Controls, Inc. In addition to performing their own evaluations, PP&L is a member of CASE and uses these evaluations as well as Bechtel vendor evaluations.

Based upon the above review the inspector found PP&L QA/QC procurement activities adequate in all areas.

3.5 Findings

No violations were identified.

4.0 Receipt, Storage and Handling

4.1 References/Requirements

-- Susquehanna Steam Electric Station (SSES) Final Safety Analysis Report (FSAR), Chapter 17

-- Non-Conformance Report (NCR)-83-559, Agastat Timing Relay

-- Quality Assurance Action Request (QAAR) - 83-1833, Agastat Timing Relay

-- Receipt Inspection Report (RIR)-83-670, Agastat Timing Relay

-- RIR-82-1057, Pressure Switch

-- RIR-82-471, Hex Bolts

-- RIR-83-653, Mode Switch

-- RIR-83-650, Weld Rod

-- PP&L Nuclear Quality Assurance Procedure (NQAP) 11.2, Revision 1, Receiving Inspection

-- AD-QA-200, Revision 4, Material Control Activities

-- Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants, which endorses ANSI N45.2.2-1972

-- Nuclear Department Instructions (NDI) 8.1.5, Revision 1, Nonconformance Control and Processing

-- NDI 8.1.9, Revision 0, Receipt, Non-Conformance Control and Processing

4.2 Program Review

The inspector reviewed the documents listed in Section 4.1 and determined that the licensee had established a receipt, storage and handling program for safety-related material which:

-- Provided for receipt inspection of all incoming safety-related materials and supplies

-- Identified qualified vendors who may supply safety-related items which are supported solely by a certification of conformance

-- Required that received materials be examined for conformance with requirements specified in the purchase order

-- Provided for documentation of receipt inspection and storage of receipt inspection records

-- Provided controls for tagging/marking of acceptable and nonconforming items

-- Established controls for the disposition and documentation of nonconforming items

-- Established controls for the conditional release of nonconforming items

-- Established responsibilities for each aspect of the program

-- Established controls for components having a shelf-life or requiring preventive maintenance

-- Provided for periodic inspections of the storage areas

4.3 Implementation Review

Implementation of the program was determined by the following:

-- A tour of the warehouse and outside storage area. Segregation of safety-related items from non-safety related items was accomplished through the use of colored tags attached to or with each item. All items inspected were properly stored, identified and segregated. In addition, the inspector found no indication of water leakage or rodent damage.

-- Inspection of acceptance tags. It was found that the acceptance tags allowed tracing each item to the purchase order.

-- Verification that access controls exist which limit entrance to the warehouse and outdoor storage area.

-- Verification that hazardous materials were stored away from safety-related items.

-- Verification that safety-related items were stored at their proper storage level or better.

In addition, the inspector witnessed a QC receipt inspection being performed for steel piping and the generation of the corresponding Receipt Inspection Report (RIR). The NRC inspector verified that the following items were examined during the receipt inspection; heat numbers, dimensions, interior/exterior surface conditions, preservatives, capping, and purchase order numbers.

The inspector reviewed the licensee's program for handling non-conforming material and verified its proper implementation. Verification that the licensee was properly implementing his shelf-life and preventive maintenance program was made by inspecting several items requiring shelf-life or preventive maintenance controls.

4.4 QA/QC Interface

The site procurement QC group is responsible for reviewing all PPR's and inspecting all received safety related items. A nonconformance identified during receipt inspection results is one of two types of reports being written. A Quality Assurance Action Request (QAAR) is issued if the nonconformance is with the receipt documentation. Corrective action for QAAR's is the responsibility of the Procurements and Contracts groups. A Receipt Discrepancy Report (RDR) is issued for all other receipt non-conformances. All RDRs are reviewed and

addressed by the Technical Procurement Group. An automated tracking system of RDRs is being developed by the QC group to replace a manual system now in use. An RDR that has been issued against an item to be conditionally released is converted to an NCR and then tracked by the site maintenance or engineering QC group. The inspector reviewed the trending RDR log, examined several RDRs and QAARs and verified that proper corrective action had been taken, and reviewed five RIRs for compliance with appropriate procedures, standards and regulations. The inspector also reviewed two Material Control and Identification audit reports, Audit numbers 0-83-02 and 0-84-23, and verified that NQA is maintaining and scheduling an active audit program over material control.

Based on the above the inspector found PP&L QA/QC material control program adequate in all areas.

4.5 Findings

No violations were identified.

5. Management Meetings

Licensee Management was informed of the scope and purpose of the inspection at the entrance interview conducted on December 10, 1984. The findings of the inspection were periodically discussed with licensee representatives during the course of the inspection. An exit interview was conducted on December 14, 1984, see Detail 1 for attendees, at which time the findings of the inspection were presented.

At no time during the inspection was written material provided to the licensee by the inspectors.