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

Region I

Report No. 50-387/81-19

Docket No. 50-387

License No. CPPR-101 Priority -- Category B

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

Facility Name: Susquehanna Steam Electric Station

Inspection at: Salem Township, Pennsylvania

Inspection conducted: September 16 - October 19, 1981

Inspectors: G. G. Rhoads, Resident Inspector — 10/20/81 date signed

J. F. McCann, Resident Inspector — 10/20/81 date signed

_____ date signed

Approved by: Ebe C. McCabe, Jr — 10/22/81 date signed
Ebe C. McCabe, Chief, Reactor Projects
Section No. 2B, DRPI

Inspection Summary:

Inspection On: September 16 - October 19, 1981 (Report No. 50-387/81-19)

Routine resident (138 hr.) and region-based (18 hr.) inspection of: preoperational testing; plant procedures; fuel receipt; 10CFR21 reporting; open items; and plant status. One violation was cited for NSSS data sheet specifying insufficiently accurate turbine trip switches (Detail 4.a).

Region I Form 12
(Rev. April 77)

DETAILS

1. Persons Contacted

Pennsylvania Power and Light Company

L. Adams, Plant Supervisor of Operations
T. Clymer, Site QAE
F. Eisenhuth, Senior Compliance Engineer
E. Gorski, Plant Quality Supervisor
J. Green, Operations Quality Assurance Supervisor
H. Keiser, Superintendent of Plant
D. Thompson, Assistant Superintendent of Plant

Bechtel Corporation

E. Figard, ISG Supervisor
M. Johnson, ISG QC Engineer

The inspectors also interviewed other PP&L employees, as well as employees of Bechtel.

2. Licensee Action on NRC Findings:

a. (Closed) Inspector Followup Item (387/80-24-01) Reactor Manual Control System Preoperational Test Review.

The inspector had reviewed Preoperational Test P56.1A, Revision 1, for the Reactor Manual Control System, and had submitted comments to be resolved by the licensee. On October 7, 1981, the inspector verified that all comments had been properly resolved. This item is closed.

b. (Closed) Inspector Followup Item (387/80-32-03) Standby Gas Treatment System Preoperational Test.

The inspector had reviewed Preoperational Test P70.1, Revision 1, for the Standby Gas Treatment System (SBGT) and submitted comments to the licensee for resolution. On September 23, 1981, the inspector reviewed the resolutions to the comments, and reviewed P70.1, Revision 2, approved June 30, 1981. This item is closed.

c. (Closed) Inspector Followup Item (387/81-07-01) Shift Supervision Required Reading Book.

On April 30, 1981 the inspector reviewed the required reading book for Shift Supervision. The inspector noted that the required reading book was not routinely being reviewed by Shift Supervisors.

The inspector then reviewed Operations Instruction 80-15A, "Required Reading Book" effective March 17, 1980. This instruction states that the Nuclear Plant Specialist (NPS) is responsible for reviewing the required reading list on a weekly basis and advising the Shift Supervisor of those who are behind. It also states that items will be removed from the required reading file only after all department personnel have read them. The inspector found that three items - Articles 17, 18, and 19 had been removed from the required reading book on March 19, 1981 without everyone in the department initialling the list verifying that they had read the articles.

On May 1, 1981, the inspector discussed these findings with the Supervisor of Operations who stated that the book would be brought up to date.

On October 7, 1981, the inspector reviewed the required reading book and noted that the book was being kept up to date. This item is closed.

3. Plant Tour

The inspector conducted periodic tours of accessible areas in the plant during normal and backshift hours. During these tours, the following 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 cleanliness levels of systems under or following testing.

-- Equipment Preservation: Maintenance or special precautionary measures for installed equipment, as applicable.

-- Component Tagging: Implementation and observance of equipment tagging for safety, equipment protections and jurisdiction.

-- Instrumentation: Adequate protection for installed instrumentation.

-- Logs: Completeness of logs maintained.

-- Security: Adequate site construction security.

-- Cable Installation: Adequate precautions taken to prevent damage to installed cables.

-- Communications: Adequate public address system.

-- Equipment Maintenance and Controls: Corrective maintenance is performed in accordance with approved procedures, no unauthorized work activities on systems or equipment, no uncontrolled openings in previously cleaned or flushed systems or components.

No unacceptable items were identified.

4. Preoperational Test Observation

a. Control Rod Drive Testing

On October 7, 1981, the inspector observed portions of the Control Rod Drive Preoperational Test P55.1, Revision 1. The inspector verified readings recorded and used to calculate minimum flow per Section 7.3.3. The preoperational test was stopped by the Test Engineer when it was noted that the flow indicator located in the control room was not indicating properly. The inspector reviewed the following Control Rod Drive Instruments calibration records to verify proper calibration:

-- PI-1R008 - Drive Water Pump Discharge Pressure.

-- PI-1R015 - Flow Control Station Inlet Pressure.

-- PDI-1R005 - Downstream Pressure Control/REA Delta Pressure.

-- 1F-1R019 - Flow Control Station Total Water Flow.

The inspector noted no discrepancies.

The inspector questioned the Assistant Instrument and Control Foreman on how required accuracies were tabulated for the above instruments. He replied that General Electric had supplied Instrument Data-Sheets (IDS) for all General Electric supplied instrumentation, which listed both required accuracy and actual accuracy for the instrumentation. He also stated that the vendor's technical manuals of the supplied instrumentation were consulted when discrepancies occurred on the IDS.

The inspector next reviewed General Electric Instrument Data Sheet (IDS) Number 234A90309AE, Revision 2 for High Pressure Coolant Injection (HPCI) Instrumentation to verify that installed instruments' actual accuracies agreed with or were more conservative than the required accuracies.

The inspector noted the following discrepancies:

1. HPCI pump discharge pressure switch E-41-R601 had a required accuracy of $\pm$ 30 psig and an actual accuracy of $\pm$ 34 psig.

2. HPCI turbine exhaust high pressure turbine trip pressure switch E41-017A and E41-017B had a required accuracy of $\pm$ 2 psig, and an actual accuracy of 4.6 psig.

The inspector questioned the General Electric Control and Instrumentation Engineer about these discrepancies. He stated that General Electric did not use the IDS as Purchase Documents, but instead used Purchase Part Drawings to buy the instruments. He stated a possibility existed that the actual instruments bought per the Purchase Parts Drawing may have

occured on the IDS.

(actual)

(The inspector) questioned the General Electric Control and Instrumentation engineer about this discrepancy.

the required accuracies, but that the IDS may not have been revised to indicate the change. On October 15, 1981 the inspector reviewed the following General Electric Purchase Part Drawings:

1. G.E. Purchase Part Drawing Number 159C4540, Sheet 1, Revision 38.

2. G.E. Purchase Part Drawing Number 145C3011, Sheet 1, Revision 10.

The inspector verified that drawing 159C4540, Sheet 1, was for the E41-R601 HPCI pump discharge pressure switch and that the specification stated the instrument had an accuracy of 2% if supplied with AC electrical power and 1.5% if supplied with DC electrical power. The inspector next reviewed G.E. HPCI system elementary diagram 791E420WJ, Sheet 6, Revision 0 and verified the instrument was supplied with DC electrical power. With the DC power supply, the actual accuracy in terms of pressure is ± 25.5 psig. which is more conservative than the ± 30 psig. required by the IDS.

The inspector next reviewed the G.E. Purchase Part Drawing Number 145C 3011, Sheet 1, Revision 10 and verified the part drawing was applicable to HPCI Turbine Exhaust High Pressure Turbine Trip Switch, E41-PSH-N017A and B. This purchase part drawing stated the required accuracy was to be ± 1% of full range of the switch. Since the switch covered a range of 230 psig. the accuracy in terms of pressure would be 2.3 psig. which is greater than the required accuracy of 2 psig. as stated on the G.E. IDS. On October 16, 1981 the inspector informed the Assistant Superintendent of Plant that this was a violation in accordance with 10 CFR 50, Appendix B, Criterion IV. (387/81-19-01)

On October 16, 1981, the inspector reviewed the Licensee's Instrument Calibration Record data sheets for HPCI Turbine Exhaust High Pressure Turbine Trip Switches, E41-PSH-N017A and B. E41-PSH-N017A was calibrated on February 11, 1981 with the required tolerance of ± 2 psig., while E41-PSH-N017B was calibrated on July 20, 1980 with the required tolerance of ± 1.15 psig. The inspector verified both switches were manufactured by Static "O" Ring with Model Number 5N-AA3-X105TT. The inspector then questioned an Assistant Instrument and Control Foreman about the difference in tolerances on the two forms.

The Assistant Foreman stated the probable reason was that PP&L had received a letter from Static "O" Ring Pressure Switch Company with an attached statement on accuracy of pressure switches dated October 1972. This statement was shown to the inspector. The statement said that the Static "O" Ring Pressure Switches would meet an accuracy of ± ½% of maximum adjustable range. The Assistant Foreman stated apparently the tolerance for pressure switch E41-P51.1-N017B had been updated to correspond to this new reported accuracy, while pressure switch E41-PSH-N017A had not been updated.

The inspector verified that both switches calibration accuracy error was less than 1.15 psig. On October 19, 1981 the inspector discussed this item with the Superintendent of Plant, who stated a review of required versus actual tolerances of instrumentation would be performed to verify in-plant instrumentation met required specification.

This item is unresolved pending NRC review of licensee actions. (387/81-19-02)

b. Standby Gas Treatment System Testing

On September 24 and 25, the inspector witnessed portions of Preoperational Test P70.1, Revision 2, Standby Gas Treatment (SBGT) System. Sections witnessed were the following:

Section 7.3.2 - Alarm Indication Test.

Section 7.3.8 - B Fan Failure - Standby Start Test.

Section 7.4.10 - Low Flow-Standby Start Test - B Fan.

The inspector made the following observations:

(1) During performance of step 7.3.2 (16) an alarm is to be verified energized thirty (30) seconds after number terminals TBB-1 to TBB-8 in panel OC-833-A and terminals 13 to 14 on PD541-07553-A. The inspector questioned the accuracy of the watch used for this measurement. The test was secured until a calibrated stop watch was obtained and the steps performed over.

(2) PP&L Nonconformance Report (NCR) 81-171 was still outstanding with tags on equipment throughout the SBGT System. The inspector reviewed NCR 81-171 and noted that the original NCR contained fifty-six (56) discrepancies. As of September 25, 1981, tags had been removed on nineteen (19) of the items indicating that the problems had been resolved. The licensee's I&C and Electrical Senior QC Specialist stated that other items may have actually been resolved but that PP&L QC was not aware of this. The discrepancies indicated as being outstanding included the following:

(a) Wrong instruments are presently installed for FY-07553A, FY-07 551B, FY-07553B, TT-07552A2, PDIC-07550A, PDY-07550A, and PDY-07550B.

(1) During performance of step 7.3.2 (16) an alarm is to be verified
[illegible] delay (20) seconds after number [illegible] is TBD-6
in panel OE-352-A and terminal 32 to 3C on [illegible]. The test
director is using his personal vehicle for [illegible]. The
inspection [illegible] the accuracy of [illegible] as TBD. The test witness [illegible]
required the test until a calibrated stop watch - [illegible] was obtained
and the steps performed over.

The inspector then questioned the Startup Test Engineer who stated that the Bailey Instruments in the system were to be replaced in the future. The installed instruments were not seismically qualified and therefore were being replaced with a different series of instruments which are seismically qualified. The inspector asked the Test Engineer what affect this replacement would have on the preoperational test. The Test Engineer stated he felt approximately 60% of the test would need to be rerun after the change-out.

On October 13, 1981, the inspector reviewed the official test copy of Preoperational Test P70.1, Revision 2, and noted that Section 4.1.4 had been verified completed indicating a review of the systems Startup Work List had been completed and any outstanding items would not affect the test. The inspector discussed this item with the Assistant Superintendent of Plant on October 13, 1981, and stated this item would remain unresolved pending licensee evaluation of test results. (387/81-19-03)

5. Procedure Review

a. References

(1) Quality Assurance Supplemental Procedure (SP)-5, Revision 1 "Control of Plant Maintenance," effective September 26, 1980.

(2) FSAR Section 3.13.1.

(3) Regulatory Guide 1.33, Revision 1 "Quality Assurance Program Requirements (Operation);" issued January 1977.

b. Inspector Findings:

The inspector reviewed reference (1) on September 17, 1981 and noted that section 5.2.1.2 of the procedure stated that selected maintenance activities which require only the skills normally possessed by a qualified individual may not require the use of written procedures. Examples listed are such things as gasket replacement and trouble shooting electrical circuits.

The inspector next reviewed references (3) and (4) and noted that paragraph 9.a of Appendix A to reference (4) discusses procedures for performing maintenance which states that skills normally possessed by qualified maintenance personnel may not require detailed step-by-step delineation in a procedure. The same examples as above are given. The inspector discussed this item with the Operations-Quality Assurance (QA) Supervisor on September 18, 1981 and stated that it was the NRC position that although step-by-step procedures were not required, the maintenance performed should be subject to administrative procedural controls. The Operations QA Supervisor stated that all such work was subjected to administrative procedural controls in particular Administrative Procedure AD-00-046, Revision 1, "Work Authorization System." He also acknowledged that reference (1) should be changed to reflect what controls are placed on all maintenance.

This item will remain unresolved pending licensee action to revise reference (1). (387/81-19-04)

6. Licensee Preparations for New Fuel Receipt

a. The procedures listed below were reviewed prior to the licensee's initial fuel receipt to verify that adequate fuel receipt, inspection, security, and handling procedures required by NRC Special Nuclear Materials License No. SNM-1878 had been developed, approved and implemented:

-- AD-QA-431, Responsiblity Procedure for Receiving of New Fuel, Fuel Channels and Channel Fasteners, Revision 0, of August 6, 1981.

-- AD-00-099, Personnel Access to and Work Control on Elevation 818' (Unit 1) and the Controlled Access Areas (CAA), Revision 0, of July 6, 1981.

-- AD-00-048, Housekeeping/Cleanliness Control, Revision 0, of March 26, 1979.

-- QCP-11, Training and Qualification of Personnel Inspecting New Fuel Bundles, Revision 0, of April 28, 1981.

-- QCP-30, Receiving Inspection, Revision 0, of May 27, 1981.

-- RE-81-039, Accountability and Reporting Requirements, Revision 1, of March 19, 1981.

-- RE-81-100, Receipt and Inspection of Fuel, Fuel Channels and Channel Fasteners, Revision 1, of March 19, 1981.

-- RE-81-101, Installation and Removal of Fuel Channels and Fuel Channel Fasteners, Revision 0, of February 9, 1981.

-- RE-81-102, Fuel Movements Within Vault and Pool Locations, Revision 1, of April 17, 1981.

-- RE-81-103, Receiving Inspection of New Fuel Bundles, Revision 0, of April 6, 1981.

-- HP-TP-656, Receipt of New Fuel, Revision 0, of March 19, 1981.

-- HP-TY-001, Issuance, Use and Evaluations of Dosimetry Required For Personnel Approved to Use NRC Licensed Materials, Revision 1, of October 9, 1981.

-- SSES Physical Security Plan for the Protection of Special Nuclear Material of Low Strategic Significance, dated December 23, 1980.

All procedural controls for fuel receipt required in the license were adequately addressed by the licensee.

b. The results of the tests listed below were reviewed to verify that preoperational and functional testing was completed to the extent necessary to prove that the fuel handling equipment was functioning properly and was safe to handle fuel over the fuel receipt, inspection and storage areas:

-- P88.1, Fuel Handling Equipment, Preoperational Test, portions complete on October 8, 1981.

-- P99.1, Reactor Building Crane, Preoperational Testing, portions complete on October 12, 1981.

-- SM-99-003, Reactor Building Crane - Spent Fuel Storage Pool, Travel/Load Restriction Check, test completed on October 12, 1981.

The following test was reviewed to verify operability of the fire fighting equipment in areas where new fuel is handled:

-- FP-TP-100, Revision 1 of October 9, 1981, tests performed October 13, 1981.

c. The inspector observed initial fuel receipt and inspection activities on October 13 and October 18, 1981, to verify the following:

-- The storage areas for fuel had adequate dust and debris control, flooding protection and physical damage protection.

-- The licensee's procedures for review and verification of fuel manufacturer shipping documents, procurement documents, and documents required by DOT and NRC were available and in use.

-- Inspections were conducted by the licensee for external damage, security seal integrity, and loose material.

-- All fuel movements were in accordance with approved plant procedures.

-- Required radiation surveys were made in accordance with approved plant procedures.

-- Personnel access control, area lighting, and guard requirements were in accordance with the security plan.

d. On September 16, 1981 the inspector witnessed the fuel receipt inspection of two new fuel bundles numbered LJ5-992 and LJ5-674. The inspector noted that the inspection was performed in accordance with the licensee's Fuel Bundle Inspection Sheet, Form RE-81-103-1, Revision 1.

During the inspection a discrepancy was noted by the licensee on Bundle LJ5-674. The rod-to-upper tie plate expansion spring was not located in the proper position on rod position G-7. A PP&L Nonconformance Report (NCR-81-477) was written to document this discrepancy.

No items of noncompliance were identified.

7. Part 21 Report Followup

a. American Warming and Ventilation (AWV) Damper Wiring Defects

AWV notified the NRC on May 6, 1980 of a Part 21 report concerning wiring deficiencies in ventilation damper controls. The licensee generated Quality Action Request 8856-F-604 and Nonconformance Reports 5307 and 5914. The repairs consist of replacing wiring terminations, visual inspection, and replacement of any identified defective wiring. These activities are covered by a procedure supplied by AWV, dated June 30, 1980.

The inspector examined 6 junction boxes both before and after repairs. He observed the craftsmen repair a junction box and verified that the work was performed in accordance with the procedure, that the proper crimping tools were used, and that inspections were made.

On October 5, 1981 the inspector reviewed the licensee letter to the NRC, PLA-716 dated May 1, 1981 which was the final report on the deficiency. The letter stated that all replacement wiring had been completed with 100% QC inspection and that PP&L's Nuclear Quality Assurance (NQA) would perform a verification of the corrective action.

The inspector next reviewed the NQA checklist for American Warming and Ventilating (AWV) Backdraft Isolation Damper dated May 14, 1981, documenting the audit performed.

This item is considered closed.

8. Operating Staff Training

On October 16, 1981 the inspector attended the licensee's Health Physics Level II training. Successful completion of this course is a prerequisite for unescorted access to controlled areas of the plant. The session covered the following areas:

1. Radiological Work Permit.
2. Federal and Local Administrative Exposure Limits.
3. Contaminated Areas, Radiation Areas, High Radiation Areas.
4. Use of Self-Reading Dosimeters and Thermoluminescent Devices (TLD's).
5. Proper Operation of RADIACS to be Used On Site.
6. Federal and Local Administrative Recommended Practices Concerning Pregnant Female Employees.
7. Effects of Ionizing Radiation on Personnel, Sources of Radiation in the Plant, and Methods to Minimize Exposure.

A comprehensive written quiz was given. Persons receiving a grade below 80% are required to retake the course. No unacceptable items were identified.

9. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Sections 4.a, 4.b, and 5.b.

10. Exit Interviews

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