UNITED STATES NUCLEAR REGULATORY COMMISSION

REGION I

Inspection Report Nos.	50-387/95-05; 50-388/95-05
License Nos.	NPF-14; NPF-22
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:	February 14, 1995 - March 27, 1995
Inspectors:	M. Banerjee, Senior Resident Inspector, SSES D. J. Mannai, Resident Inspector, SSES
Approved By:	J. White, Chief Reactor Projects Section No. 2A,

4/25/95
Date

Scope: Resident Inspector safety inspections were performed in the areas of plant operations; maintenance and surveillance; engineering; and plant support. Initiatives selected for inspection were: Safety Review Committee Meeting, Refueling Outage Preparations, and planned Unit 1 Shutdown for Refueling Outage.

Findings: Performance during this inspection period is summarized in the Executive Summary. Details are provided in the full inspection report.

EXECUTIVE SUMMARY

Susquehanna Inspection Reports

50-387/95-05; 50-388/95-05

February 14, 1995 - March 27, 1995

Operations

The inspectors noted enhanced planning and preparation for the first 45 day outage at Susquehanna Unit 1. A new outage management organization, a work control center and refuel floor organization were viewed as improvements. Good management oversight and improved coordination of activities were observed during the first three days of the outage.

The inspector observed the Unit 1 Reactor Shutdown for the Eighth Refueling and Inspection Outage. Control room staffing was increased for the evolution to allow better operator and supervisory oversight focus. The inspector witnessed excellent supervisory oversight on refuel floor. However, certain activities indicated a potential need to improve work teams' understanding of roles and responsibilities and the task to be performed. Section 2.2, 2.3 and 2.4 pertains.

Maintenance/Surveillance

The inspector observed maintenance and surveillance activities performed correctly. Station personnel's use of procedures was generally good. First line supervision provided good oversight and direction. Section 3 pertains.

Engineering/Technical Support

Nuclear Systems Engineering (NSE) overall effectively coordinated and supported seismic clip walkdown and replacement activities for safety-related Motor Control Centers (MCCs). The action plan was developed when it was discovered some clips had shorter then required screws as well as missing clips. The inspector identified that the documented interim operability assessment was not revised following an engineering analysis which showed the clips were required for dynamic qualification. Section 4.2 pertains.

The Unit 2 reactor core isolation cooling (RCIC) system trip during a surveillance was caused by an industry identified problem of turbine governor valve stem corrosion. Nuclear Systems Engineering's involvement in resolution of RCIC trip event was a strength. Section 4.1 pertains.

Plant Support

The inspectors noted good health physics preparation for the outage. Acceptable performance was noted in security.

Safety Assessment/Quality Verification

The inspector observed a Corrective Action Team (CAT) meeting which discussed several Condition Reports. The CAT is led by the Vice President Nuclear Operations and consists of at least three other station managers. The focus of the meeting is to properly prioritize the significance and determine whether formal root cause determination is required. The Operating Experience Services (OES) group performs an initial investigation and provides recommendations to the CAT regarding significance and root cause determinations. The inspector concluded the up front senior station management involvement in the CAT meeting forum was excellent. Section 6.1 pertains.

The inspector attended the Susquehanna Review Committee (SRC) meeting held in Allentown in March. The SRC members displayed healthy questioning attitudes regarding safety and quality. Section 6.2 pertains.

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1. SUMMARY OF FACILITY ACTIVITIES

Susquehanna Unit 1 Summary

The inspection period began on February 14, 1995, with Unit 1 operating at 100% of rated thermal power. Minor power reductions and control rod movements were performed in support of hydraulic control unit maintenance and control rod scram time testing. Power reductions were also made to allow turbine valve testing and control rod pattern adjustments. On March 24, 1995 the licensee began reducing power for Unit 1's eighth refueling outage and by March 26th the reactor was in condition 5 with the vessel's head detensioned. At the end of this inspection period the reactor head was removed and outage work was under way. By the time its refueling outage began, Unit 1 completed 427 days of continuous operation.

Susquehanna Unit 2 Summary

Unit 2 was operated at or near 100% of rated thermal power throughout the inspection period. Routine power reductions were made during the period in support of control rod pattern adjustments and main turbine valve testing. On March 17, 1995, reactor power was reduced to 55% for the replacement of reactor recirculation pump motor-generator set generator brushes. Full power operation was resumed on March 18th and continued for the remainder of the inspection period.

2. PLANT OPERATIONS (71707, 92901, 93702, 40500)

2.1 Plant Operations Review

The inspectors observed the conduct of plant operations and independently verified that the licensee operated the plant safely and according to station procedures and regulatory requirements. The inspectors conducted regular tours of the following plant areas:

- Control Room
- Control Structure
- Unit 1 and 2 Reactor Buildings
- Unit 1 and 2 Turbine Buildings
- Emergency Diesel Generator Bays
- Protected Area Perimeter
- Security Facilities

Control room indications and instrumentation were independently observed by NRC inspectors to verify plant conditions were in compliance with station operating procedures and Technical Specifications. Alarms received in the control room were reviewed and discussed with operators; operators were found cognizant of control board and plant conditions. Control room and shift manning were in accordance with Technical Specification requirements.

During plant tours, logs and records were reviewed to ensure compliance with station procedures, to determine if entries were correctly made, and to verify correct communication of equipment status. These records included various operating logs, turnover sheets, blocking permits, and bypass logs. The inspector observed plant housekeeping controls including control and storage of flammable material and other potential safety hazards. Posting and control

of radiation, high radiation, and contamination areas were appropriate. Workers complied with radiation work permits and appropriately used required personnel monitoring devices.

The inspectors performed 13 hours of backshift and 22 hours of deep backshift inspections during the period. These deep backshift inspections covered licensee activities between 10:00 p.m. and 6:00 a.m. on weekdays, and weekends and holidays.

2.2 Observation of Activities on Refuel Floor (92905, 92910, 60710)

On March 25 and 26, 1995, the inspector observed removal of the drywell (DW) head, and the subsequent detensioning of the reactor vessel head. The inspector noted that the activities were performed in a safe manner. The observed pre-job briefings and turnover between the work crews were generally adequate. Staggered work hours for crews on the refuel floor provided continuous coverage of the ongoing work. Appropriate QC and HP coverage was provided on the refuel floor. The Refuel Floor Manager and Supervisor provided continuous oversight of activities, the Refuel Floor Coordinator was at hand to resolve emerging problems and the Outage Shift Supervisor provided management involvement in resolution of issues and problems.

Although, the inspector noted good procedure compliance during the observed activities, a QA surveillance identified that after the DW head was removed, the maintenance crew did not replace the reactor cavity ventilation flange gaskets (refuel seal) with new ones as required by the procedure. At that time, no work was going on in the drywell that would require the seal. Susbsequently, the gaskets were replaced and a condition report was written. The inspector considered the QC involvement and identification of the deficiency a strength. This event was an example of a performance problem which has been recognized and is being monitored by station management, and for which various corrective actions are being implemented. The effectiveness of these corrective actions has not yet been observed.

On March 10, 1995, the inspector observed fuel shuffle activities from the new fuel vault to the Unit 1 spent fuel pool designated location in preparation for the refueling outage that began on March 25, 1995. Per licensee procedure OP-ORF-004, Rev 1, Fuel Movement Within Vault and Pool Locations, the jib crane on the south-west corner of the Unit 1 spent fuel pool was being used to move new fuel from the vault location to the fuel prep machine in the fuel pool. The refueling platform was then used to move the fuel bundle from the prep machine to the pool location designated by the Fuel and Core Component Transfer Authorization Sheet (FACCTAS). The inspector noted that the prerequisites were met, and licensee personnel were following the FACCTAS to perform the moves. Oversight and support were provided by the Activity Control Engineer, QA, the Refuel Floor Manager and an HP technician. The inspector noted that procedure steps for second verification of the fuel bundle serial number against the FACCTAS were not being performed. The procedure required a second fuel handler to do this step. However, because of his location, the design of contaminated area boundary, and location of the new fuel vault, it was not physically possible for him to verify the fuel bundle serial number for most of the new fuel vault locations.

The inspector asked the Activity Control Engineer and the Refuel Floor Manager how the second verification was being performed. A person was then designated to perform this second verification. Also, the Activity Control Engineer indicated that at the end of new fuel shuffle, an underwater videotaped inspection would be performed to verify new fuel bundles are in their correct locations in the fuel pool.

On March 14, 1995, the licensee initiated a condition report. Licensee's initial assessment indicated that because the evolution was being performed by a combined work force of operations and maintenance personnel, each group assumed the other one was doing the second verification. Also, responsibility for doing the verification was not discussed during a pre-job briefing.

The inspector concluded the safety significance of not doing an immediate second verification was minimal because the videotaped inspection would provide assurance the new fuel bundles are in their correct locations. However, the incident indicated a need for improvement in communicating the roles and performance expectations of each crew member. This item will remain unresolved pending licensee's completion of corrective actions and further review by the inspectors of overall licensee performance during the outage to determine if the event reflected a common theme. (URI 50-387/95-05-01)

2.3 Outage Management and Preparation

PP&L has put together an outage management organization for Unit 1's eighth refueling outage (Unit 1 RFO 8) that began on March 25, 1995, and is scheduled to last 45 days. This organization consisted of an Outage Manager, who reports to the Vice-President - Nuclear Operations. Reporting to the Outage Manager are four Outage Shift Supervisors providing around the clock oversight of activities, a work control center to handle release and coordination of all work activities, and a refueling floor organization. In addition to this outage organization, an outage core team, including management representatives from operations, maintenance, and nuclear systems engineering, was developed to provide overall management of the outage and timely resolution of issues as they arise. Station management communicated their performance expectations that included direct observation of field work by supervision.

As a result of the work process improvement team review and recommendations, a new work release process including a work control center (WCC) located on the ground level of the control structure was established. The WCC is a central location for release of all work, equipment and permits, and resolution of emerging outage issues with plant work groups. The work control center is headed by the Operations Outage Supervisor. Continuous coverage is provided by one Outage Unit Supervisor (licensed SRO) and two Plant Control Operators (licensed ROs). The control room unit supervisor still maintains ultimate responsibility of equipment release and tagging for plant technical specification related and major equipment by signoff on the release and permit forms, and is informed of all ongoing work and equipment releases. The WCC is expected to improve operations outage work and work group support, and reduce distraction in the control room so that the Unit Supervisor can devote more time to supervisory oversight of control room activities.

The refueling floor organization, established from various functional elements, consisted of a Refuel Floor Manager, reporting to the Outage Manager, with overall responsibility for ensuring safe and effective implementation of all activities on the refueling floor. Reporting to the Refuel Floor Manager is the Refuel Floor Supervisor, who has responsibility for ongoing activities and supervises the Refuel Floor SRO, Refuel Floor Engineer, Refuel Floor Coordinator, and other functional area supervisors. The Refuel Floor Supervisor position is filled by either operations or maintenance personnel depending on the major activity on the refuel floor. Therefore, the Refuel Floor SRO, who provides supervision of core alteration and fuel handling during refueling would act as the Refuel Floor Supervisor during these operations. Conversely, during vessel disassembly, the Production Supervisor on the refuel floor would become the Refuel Floor Supervisor. While on the refuel floor, the line and support organizations are accountable to the Refuel Floor Manager for safe refuel floor operation, as the line management maintains responsibility for performance of assigned function.

The licensee began using a computer-based Outage Risk Assessment and Management (ORAM) program developed by Erin Engineering to evaluate the outage schedule. The program is used by 22 other utilities and tracks several outage safety functions. Specifically, the condition of decay heat removal, inventory control, power availability, reactivity control, and containment are monitored for the entire outage and identified by color codes. The licensee's ORAM chart showed mostly green indicating maximum defense-in-depth and some yellow, indicating reduced defense-in-depth, for evolutions such as the fuel shuffle, shutdown cooling system outage, offsite power transformer outages and evolutions involving controlled or potential reactor drain down (e.g., control rod drive mechanism changeout). No orange or red color indicating high risk or unacceptable risk evolutions, respectively, was involved. Since the program was used for the first time during this outage, an explicit policy on acceptability of risk levels has not yet been developed.

The major changes made to enable a shorter outage duration included fuel shuffle (vice full core offload), use of a wet lift system for vessel disassembly, and earlier planned outage of service water and decay heat removal systems. The licensee is using the COSMOS computer code to calculate the shutdown margin for each fuel shuffle move. A supplemental decay heat removal system has been installed to provide cooling of the reactor cavity and the Unit 1 fuel pool during service water and shutdown cooling system outages. (See Inspection Report 95-01 for a review of the system). To eliminate the potential for vessel draindown before installation of the main steam line plugs, the safety relief valves were electrically disabled by removing fuses.

The inspectors reviewed the outage schedule, attended various outage briefings and the outage readiness meeting, toured the new work control center, observed activities on the refuel floor and interviewed various management and work group personnel. The inspectors noted a positive environment and that the station personnel were optimistic regarding plans and preparations for the 45 day outage. Observation of activities during the first three days of the outage indicated improved coordination of activities primarily due to willingness of people to help out while the new system was being practiced and

improved. Strong management oversight was observed by the inspectors. Good oversight of control room activities by the licensee's Independent Safety Evaluation Services (ISES) was observed during the reactor shutdown and first three days of the outage. Use of the ORAM program to evaluate outage schedule from a risk perspective was an improvement. The inspector concluded that the licensee has developed and is implementing an improved program for outage management.

2.4 Unit 1 Planned Reactor Shutdown

The inspector observed the planned Unit 1 reactor shutdown which commenced on March 24. The operators performed a safe effective shutdown using plant procedures. Excellent supervisory oversight was provided by the Unit Supervisor (US), and the Shift Supervisor (SS). Increased manning, consisting of an additional Plant Control Operator (PCO) and US, provided for improved focus and attention to plant conditions during the shutdown. The additional US handled administrative duties. A fourth PCO from the Work Control Center also voluntarily helped in the control room to further reduce distractions to the operators actually performing the shutdown. The Unit Supervisor's pre-evolution brief for the planned manual scram was particularly noteworthy. Roles, individual responsibilities, procedures and anticipated plant responses were discussed. Operators effectively monitored key plant parameters during the shutdown. The Shift Supervisor confirmed that his expectations were met during reactor shutdown. The inspector observed meticulous use of the multiple procedures utilized during the shutdown. The inspector concluded the planned reactor shutdown was implemented in a very professional manner with excellent supervisory oversight.

3. MAINTENANCE AND SURVEILLANCE (62703, 61726, 92902, 40500)

3.1 Maintenance Observations

The inspector observed and/or reviewed selected maintenance activities to determine whether the work was conducted in accordance with approved procedures, regulatory guides, Technical Specifications, and industry codes and standards. The following items were considered, as applicable, during this review: Limiting Conditions for Operation were met while components or systems were removed from service; required administrative approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and quality control hold points were established where required; functional testing was performed prior to declaring the involved component(s) operable; activities were accomplished by qualified personnel; radiological controls were implemented; fire protection controls were implemented; and the equipment was verified to be properly returned to service.

Maintenance observations and/or reviews included:

-- WA 41231, Replace 1D680 24 Volt Positive and Negative Battery, dated February 21, 1995.

-- WA 43725, Install New Bonnet With Larger Disc Stop and Remove Manual Operating Handle for 'A' RHR Pump Discharge Check Valve HV151F613A, dated February 27, 1995.

-- WA 46080, Underfrequency Relay Calibration for Reactor Building Swing Bus Motor Generator Set 1, dated February 28, 1995.

-- WA 41448, Loosen and Reinstall Seismic Clips for BKR 52-044 on MCC 1B216 for RHR Containment Spray Valve, dated February 28, 1995.

-- WA 41447, Install Missing Upper Seismic Clip and Screw in MCC Cubicle 1B236-022, dated February 28, 1995.

The inspectors concluded the above maintenance work was completed with due concern to plant safety and procedures.

3.2 Relay Calibration

The inspector observed calibration of the underfrequency relay for the reactor building swing bus motor generator set 1 during the residual heat removal on-line maintenance work window. The inspector found the relay and test personnel were knowledgeable and experienced regarding this evolution. The measuring and test equipment (M&TE) calibration was current. The inspector observed personnel following the procedure and work plan. The inspector observed that the "as left" condition of the relay was within the calibration procedure acceptance criteria. The inspector concluded the work was performed in a safe manner.

3.3 Surveillance Observations

The inspector observed and/or reviewed the following surveillance tests to determine whether the following criteria, if applicable to the specific test, were met: the test conformed to Technical Specification requirements; administrative approvals and tagouts were obtained before initiating the surveillance; testing was accomplished by qualified personnel in accordance with an approved procedure; test instrumentation was calibrated; Limiting Conditions for Operations were met; test data was accurate and complete; removal and restoration of the affected components were properly accomplished; test results met Technical Specification and procedural requirements; deficiencies noted were reviewed and appropriately resolved; and the surveillance was completed at the required frequency.

Surveillance observations and/or reviews included:

-- SM-175-204, Div II 24V DC Battery Discharge Performance Test and Replacement of Battery 1D680, dated February 21, 1995.

-- SO-024-014, Monthly Diesel Generator 'E' Operability Test, dated March 1, 1995.

-- SO-250-002, Quarterly RCIC Flow Verification, dated March 3, 1995.

-- SE-159-017, Local Leak Rate Test (LLRT) Personnel Airlock Seal Gap, dated March 23, 1995.

The inspectors concluded the above procedures were completed with appropriate considerations to safe plant operations.

3.4 24 Volt DC Battery Replacement and Testing

The inspector observed the Division II 24 Volt DC battery replacement performed under the Battery Discharge Performance Test on February 21, 1995. The licensee tested the replacement battery in the shop and successfully demonstrated it could pass the 60 month discharge testing criteria of SM-175-104. The licensee then installed the replacement battery while testing the battery charger in parallel. The inspector found the work and surveillance properly authorized.

Electrical Maintenance personnel performing the battery replacement and battery charger testing correctly followed procedures. The inspector observed the electrical maintenance foreman provided good oversight. The maintenance engineer was also present. The inspector concluded the battery replacement and testing activities were performed correctly. Acceptance criteria was successfully met. The inspector had no further questions.

3.5 Monthly Emergency Diesel Generator Operability Test

The inspector observed portions of SO-24-014, 'E' Emergency Diesel Generator Monthly Operability Test on March 1, 1995. The inspector observed that personnel correctly performed the surveillance test. The Assistant Unit Supervisor (AUS), a licensed Senior Reactor Operator (SRO), provided active oversight of non-licensed Nuclear Plant Operators (NPOs) during the start of the EDG and subsequent paralleling the EDG to the test bus. The evolution was delayed when the system engineer identified a Procedure Change Authorization Form (PCAF) that was initiated several weeks earlier but was not yet incorporated. After the PCAF was approved, the system engineer appropriately briefed personnel on the details of the PCAF. The inspector found the system engineer involvement and AUS oversight were strengths. The inspector had no further questions.

4. ENGINEERING (71707, 37551, 92903, 40500)

4.1 RCIC Turbine Trip During Surveillance Testing

During a quarterly flow surveillance testing on March 2, 1995, the Unit 2 reactor core isolation cooling system (RCIC) experienced an overspeed trip. The RCIC system was declared inoperable and appropriate Limiting Condition of Operation (LCO) was entered. The licensee determined that the trip was caused by the turbine governor valve's failure to throttle steam flow and control turbine speed. The licensee's troubleshooting indicated that mechanical binding of the governor valve stem, a known industry problem, was the cause of the trip.

The licensee determined that the governor valve stem and carbon spacers were replaced in November 1992 with a stainless-steel stem with nitrided coating. The same replacement was made on Unit 1 in May 1992. Industry experience suggested that the governor valves supplied by Dresser-Rand are susceptible to extensive corrosion problems of the stem material in the area of valve packing due to intrusion of steam in the area. This galvanic corrosion was believed to increase when contaminants such as chlorides in the packing or sulfur in the carbon spacers are present. NRC Information Notice (IN 94-66), Overspeed of Turbine-Driven Pumps caused by Governor Valve Stem Binding, dated September 19, 1994, and INPO SER 4-95, Terry Turbine Governor Valve Stem Binding Due to Corrosion, have documented the industry's experience with this problem.

The Unit 2 governor valve stem was replaced with a new stainless-steel nitride coated stem on March 4, 1995. The replaced stem indicated evidence of pitting and corrosion in the valve parking area, between the carbon spacers. The licensee implemented interim corrective measures which included weekly manual stroking and lubricating of the valve stem. Additionally, to minimize presence of moisture in the stem packing area, the run time of the barometric condenser vacuum pump was increased from 15 to 30 minutes and the turbine steam admission valve was monitored weekly for leakage. Although the Unit 1 RCIC governor valve was found to be stroking appropriately, the same interim corrective actions have been implemented for it. The licensee is also developing a method for measuring and trending the force required for stroking the valve manually. Replacement of the valve stem with material not susceptible to galvanic corrosion is being pursued as a long-term solution. The licensee determined that the high pressure coolant injection (HPCI) turbine, because of substantial design differences, is not subject to the same failure mechanism.

The inspector reviewed licensee's troubleshooting, corrective actions and available industry information. At the time of the event, the licensee was evaluating long-term corrective actions. The licensee did not consider the stem corrosion an immediate problem based on ongoing trending of governor valve stroke time during surveillance testing, monitoring of steam admission valve for leakage, and the fact that industry failures often had occurred within the first six months of installation of the new stem.

The technical oversight provided by Nuclear Systems Engineering during troubleshooting consisted of additional data gathering, a thorough evaluation of the data and informed decision making, and was considered as a strength. The inspector noted that industry information suggested sampling of corrosion products for chemical analysis and carbon spacers for the presence of contamination. However, the licensee indicated that because of a miscommunication no such samples were obtained. The inspector concluded that the licensee's interim corrective actions adequately addressed the problem. However, failure to obtain the corrosion product sample and the replaced carbon spacers indicated a missed opportunity for additional data gathering. The inspector noted that improved communication between Nuclear Systems Engineering and Maintenance, during the troubleshooting and maintenance work could have prevented the loss of "as found" condition information.

4.2 Seismic Clip Walkdown

The licensee performed a walkdown of Motor Control Centers (MCC) to determine if seismic clips associated with safety-related breakers were installed correctly. The licensee developed this action plan following an event in October 1994 where a seismic clip was found to have a shorter than required retaining screw. NRC Inspection Report 50-387/94-22 reviewed the event. The licensee performed the inspections on an aggressive schedule. The walkdown identified several breakers had missing clips as well as shorter than required screws. The results were documented in Non-Conformance Report (NCR) 94-277.

NSE performed an interim operability determination which determined the effected breakers were operable. The licensee then implemented an aggressive schedule for installation of seismic clips and the correct length screws. In parallel, Nuclear Technology in Allentown, at the request of NSE, performed an analysis which determined seismic clips must be installed to ensure dynamic qualification. The analysis also determined that dynamic qualification was maintained with the shorter screw length (½" vs ¾"). The operability determination, after NRC inspector involvement, was revised following the Nuclear Technology dynamic qualification assessment. NSE determined the equipment was still operable based on sound engineering judgement. The licensee strongly suspects that MCCs were supplied from the vendor without the required clips and screws, and is currently evaluating that possibility.

The inspector reviewed the NCR, MCC inspection results and the replacement schedule. The inspector observed some of the seismic clip and screw replacement activities and noted that the licensee replaced all of the missing seismic clips within one week. The retaining screws were scheduled for replacement within an appropriate time frame. Overall, the inspector found Nuclear Systems Engineering (NSE) effectively coordinated and supported resolution of the seismic clip issue. Although the conclusion of the operability assessment remained unchanged, the inspector considered the licensee's delay in revising the operability assessment based on the engineering evaluations to be excessive. The engineering analysis showed seismic clips were necessary to ensure dynamic qualification. The licensee's new Condition Report process combined with written operability guidance per NDAP-QA-703 is expected to improve performance in this regard.

5. PLANT SUPPORT (71750, 71707, 92904, 40500)

5.1 Radiological and Chemistry Controls

During routine tours of both units, the inspectors observed the implementation of selected portions of PP&L's radiological controls program to ensure: the utilization and compliance with radiological work permits (RWPs); detailed descriptions of radiological conditions; and personnel adherence to RWP requirements. The inspectors observed adequate controls of access to various radiologically controlled areas and use of personnel monitors and frisking methods upon exit from these areas. Posting and control of radiation contamination areas, contaminated areas and hot spots, and labelling and control of containers holding radioactive materials were verified to be in accordance with PP&L procedures. Health Physics (HP) technician control and

monitoring of these activities was satisfactory. Overall, the inspector observed an acceptable level of performance and implementation of the radiological controls program.

5.2 Outage Preparation by Health Physics

The licensee has established a 200 man rem exposure goal for the 8th Unit 1 Refueling Outage. The licensee expected the real time dose tracking and the proactive review of work scope changes by ALARA Committee to help achievement of the goal. The wet lift equipment utilized for vessel disassembly and main steam line plug installation is expected to render some dose savings. Additional upgrades included shielding of the refuel floor ventilation duct process monitor to preclude bypassing it during certain refueling operations with increased background radiation levels.

The HP technician pool has been expanded by bringing in approximately 100 contractor technicians. These personnel are processed through selection examination, technical and task certification, access processing training and control point training. Additionally, approximately 30 HP technicians were dedicated to the production supervisor to support work crews during the outage. To improve HP involvement in work planning, two HP technicians were being assigned to the work planning group.

The inspector discussed the above changes with the HP Manager, attended parts of a briefing given to the contracted HP technicians, and reviewed the outage briefing provided to the HP personnel. The inspector concluded that the licensee has taken proactive steps to improve the HP outage performance and achieve the ALARA goal.

5.3 Security

Implementation of the physical security plan was routinely observed in various plant areas with regard to the following: protected area and vital area barriers were well maintained and not compromised; isolation zones were clear; personnel and vehicles entering and packages being delivered to the protected area were properly searched and access control was in accordance with approved licensee procedures; security access controls to vital areas were maintained and persons in vital areas were authorized; security posts were adequately staffed and equipped, security personnel were alert and knowledgeable regarding position requirements, and written procedures were available; and adequate illumination was maintained. Licensee personnel were observed to be properly implementing the physical security plan.

6. SAFETY ASSESSMENT/QUALITY VERIFICATION (40500, 90700, 90712, 92700)

6.1 Corrective Action Team Meeting

The inspector observed a Corrective Action Team (CAT) Meeting held on March 22, 1995 which discussed nine Condition Reports (CRs). The CAT is a newly formed group that was established as part of the new Condition Report process. The Condition Report is a single deficiency reporting system which replaced

the Significant Operating Occurrence Report (SOOR), Non-Conformance Report (NCR) and Engineering Deficiency Report (EDR) processes.

The CAT consists of the Vice President - Nuclear Operations (or Duty Manager) and managers from at least three functional areas. The newly formed Operating Experience (OE) group performs an initial investigation of CRs and presents its' initial analysis and recommendations to CAT within 24 hours regarding the CRs priority and whether a formal root cause is required. The up front analysis includes identification of repeat or previous similar events, potential generic implications, and assesses safety significance.

The inspector found the CAT meeting well attended and that the initial OE analysis demonstrated a good broad-based safety focus. Impact on plant operation and safety was appropriately assessed. The broader generic issues were discussed. The investigation and analysis of repeat or similar events was excellent. Management asked probing questions and provided strong direction regarding resolution of the various issues. The inspector observed sound highly interactive discussions between the various functional managers. The CAT meeting demonstrated a technical and performance oriented approach regarding problem resolution. The up front senior management involvement in the CAT meeting forum appears to be a significant strength regarding problem identification and corrective actions.

6.2 Susquehanna Review Committee Meeting

The inspector observed the Susquehanna Review Committee (SRC) Meeting held on March 8, at the General Office in Allentown. The Technical Specification (TS) requirements regarding membership and quorum were met. The topics discussed included items required by TS as well as discretionary safety issues. The inspector observed that sound open critical discussions took place throughout the meeting. The SRC members demonstrated clear performance based safety perspectives. The VP Nuclear Operations, an SRC member, presented a summary of operational highlights which was critical, thorough and comprehensive.

6.3 Open Item Followup

(Closed) URI 91-18-01, Improper Oil Level Cause a Control Structure Chiller Trips

This item was left unresolved by the inspector following two trips of the 'A' Control Structure Chiller on October 9 and 10, 1991, pending licensee's determination of long-term corrective actions.

The licensee's investigation of the subject trips and previous chiller trips attributed oil level problems caused by low chiller loads and short chiller run times. An interim corrective action was implemented to closely monitor oil level and add or drain oil level as required. Since then, the licensee contacted the chiller supplier and determined that the evaporator was heavily laden with oil. Subsequently, this condition was corrected. The licensee has continued monitoring oil level and oil consumption, and removed oil from the evaporator on an as needed basis. Although the licensee continues to

experience increased oil consumption in the 'A' chiller and is still attempting to determine the cause, the corrective actions have prevented further trips due to oil level. The inspector considered this item closed.

(Closed) Violation 90-081-03, Procedure Verification Not Performed Biennially

The inspectors concluded that between October 1988 and October 1990, approximately 2000 procedures were reviewed by personnel responsible for performing, or directly supervising the activity of the procedure rather than persons not directly involved in the activity. Based on an interpretation of the ANSI N18.7-1976, which the licensee committed to, the inspector concluded that the licensee was in violation of the independence requirements. ANSI N18.7-1976 paragraph 3.2 requires independent verification of program compliance, and paragraph 5.2.15 requires biennial review of plant procedures.

In its response to the violation PP&L agreed that the exemption from biennial review used for procedures performed "step-by-step" (with a frequency of at least once every two years) did not capture the potential revisions required to incorporate items such as industry events and changes due to revisions of other related procedures. However, PP&L disagreed with the inspector's interpretation related to the independence requirement for the reviewer. PP&L contended that the independent verification requirement of paragraph 3.2 of ANSI N18.7-1976 is achieved by the Quality Verification function of the Nuclear Quality Assurance organization through the performance of audits and surveillances.

The inspector used guidance provided in the internal NRC memorandum dated December 21, 1992 from C. E. Rossi, titled "Biennial Procedure Reviews." The inspector reviewed the following licensee procedures against this guidance:

NDAP-QA-0002, Revision 3, Nuclear Department Procedure Program
NDAP-QA-0050, Revision 2, Nuclear Department Functional Unit Procedure and Instruction Program

The inspector noted that NDAP-QA-0002 requires a procedure review, with a frequency of four years or less. As a minimum, this periodic review must include an "administrative review" when a technical review is waived based on "step-by-step" implementation of the procedure with a frequency of at least once every two years. This administrative review included revisions required to incorporate plant modifications, revisions to related procedures, unusual incidents (e.g., an accident, an unexpected transient, significant operator error, or equipment malfunction), and industry events. The inspector concluded this procedure review requirement was in accordance with the subject NRC guidance.

NDAP-QA-0050 requires that event driven procedures (e.g., emergency operating procedures, off-normal procedures), be reviewed on a periodic basis, and procedures not utilized for two years be reviewed prior to use. This periodic review shall include both the technical and administrative review. The inspector noted that event initiated reviews were additionally required to incorporate changes due to plant modifications, related procedure changes, plant technical specification changes, and incidents. Although a periodic

review to incorporate pertinent industry events was not included, the licensee's industry event review program (NDAP-QA-0725, Rev 2) requires a review of applicable plant procedures for the event or condition being evaluated. The inspector concluded the licensee's program for procedure review met NRC expectations delineated in the December 21, 1992 memorandum, and had no further questions. This item is closed.

7. MANAGEMENT AND EXIT MEETINGS (30702)

7.1 Resident Exit and Periodic Meetings

The inspectors discussed the findings of this inspection with PP&L station management throughout the inspection period to communicate performance observations and issues requiring management attention. At the conclusion of the reporting period, the resident inspector staff conducted an exit meeting summarizing the preliminary findings of this inspection. Based on NRC Region I review of this report and discussions held with licensee representatives, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.

7.2 Other NRC Activities

On February 23, 1995, an Enforcement Conference was held with PP&L and an individual Security Shift Supervisor. The subject of the conference were findings of the NRC Office of Investigation relative to improprieties by a member of the security organization in conjunction with a recertification examination of security force members.

On March 6-9, 1995, an NRC Region I physical security inspection was conducted. The results of this inspection will be documented in the combined NRC Inspection Reports 50-387 and 50-388/95-06.