U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket/Report No.	50-277/94-03 50-278/94-03	License Nos. DPR-44 DPR-56
Licensee:	PECO Energy Company P. O. Box 195 Wayne, PA 19087-0195	
Facility Name:	Peach Bottom Atomic Power Station Units 2 and 3	
Dates:	February 6, 1994 - March 19, 1994	
Inspectors:	W. L. Schmidt, Senior Resident Inspector F. P. Bonnett, Resident Inspector R. K. Lorson, Resident Inspector L. M. Kay, Reactor Engineer S. Dembek, Project Manager	
Approved By:	C. J. Anderson, Chief Reactor Projects Section 2B Division of Reactor Projects	4/5/94 Date

EXECUTIVE SUMMARY
Peach Bottom Atomic Power Station

Plant Operations

The plant operators generally conducted routine activities well. Operator performance during an inadvertent shutdown of the E-4 emergency diesel generator (EDG)(Section 5.1), the "ARTS/MELLLA" modification acceptance test (MAT)(Section 2.2), and in response to two incidents involving equipment problems that necessitated the insertion of a half-scram and half-group 1 isolation was good (Section 2.4). However, minor operational weaknesses involving a mispositioned control rod (Section 2.1), a recirculation pump runback, and the alignment of the containment atmosphere control (CAC) system (Section 4.1) were noted.

Maintenance and Surveillance

Maintenance performance was generally good. PECO's response to a Unit 2 drywell/torus vacuum breaker surveillance test failure was prompt and appropriate (Section 4.1). The E-1 and E-4 EDG annual outages, including the 24-hour endurance test runs, were well planned and conducted (Section 4.2). Troubleshooting activities were performed well (Section 5.6).

Procedural and performance weaknesses were noted during a hydrostatic test on the Unit 2 service water supply to the RCIC room cooler (Section 5.4) and also during Unit 3 spent fuel pool cleanup activities when a jet pump grappling hook was dropped into the spent fuel pool (Section 5.5).

Engineering and Technical Support

PECO demonstrated good engineering support for plant operations. Response to degraded operating characteristics in a low pressure coolant injection system (LPCI) valve (Section 5.2) and to a leading qualification fuel bundle was good (Section 3.1). The inspectors concluded that the station blackout tie line project was well organized and the appropriate factors were considered in the line voltage calculations (Section 3.2). The program for monitoring HPCI availability was reviewed and found to be in accordance with industry standards (Section 3.3).

Assurance of Quality

The inspectors reviewed the Management Observation Program and noted that it has increased supervisory presence in the plant and appears to be a positive initiative to improve station performance (Section 2.5).

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY ii

1.0 PLANT OPERATIONS REVIEW 1
1.1 PECO Energy Company Activities 1
1.2 NRC Activities 1

2.0 PLANT OPERATIONS REVIEW 2
2.1 Control Rod Mispositioned - Unit 2 2
2.2 Unit 3 Start-up - ARTS/MELLLA Review 2
2.3 Four-hour NRC Event Notifications 3
2.4 Unit 3 Half-Scram/Half-Group 1 Isolation 3
2.5 Management Observation Program 4
2.6 Licensee Event Report Update 4

3.0 ENGINEERING AND TECHNICAL SUPPORT ACTIVITIES 4
3.1 Leading Qualified Fuel Bundle - Unit 2 4
3.2 Conowingo Station Blackout Power Line 5
3.3 High Pressure Injection System Reliability 6

4.0 SURVEILLANCE TESTING OBSERVATIONS 7
4.1 Drywell/Torus Vacuum Breaker Surveillance - Unit 2 7
4.2 E-1/E-4 Emergency Diesel Generator 24-hour Endurance Surveillance . . . 7

5.0 MAINTENANCE ACTIVITY OBSERVATIONS 8
5.1 E-4 Emergency Diesel Generator Loss of Field 8
5.2 Low Pressure Coolant Injection Valve - Unit 3 9
5.3 E-1/E-4 Annual Outage 10
5.4 Unit 2 Service Water System Hydrostatic Test 10
5.5 Unit 3 Dropped Jet Pump Grappling Hook 11
5.6 Troubleshooting Program Review 11

6.0 PLANT SUPPORT 11
6.1 Radiological Controls 11
6.2 Physical Security 12

7.0 MANAGEMENT MEETINGS 13

DETAILS

1.0 PLANT OPERATIONS REVIEW (71707)*

1.1 PECO Energy Company Activities

The PECO Energy Company (PECO) safely conducted normal operating and shutdown activities at Peach Bottom Atomic Power Station (PBAPS) Unit 2 (Unit 2) and Unit 3 (Unit 3) over the period.

Unit 2 began the period at 100% power. PECO reduced power to approximately 72% on February 8 to conduct a rod pattern adjustment when a qualification fuel bundle (QFB) was found to be leading the core (Section 3.1). The unit was restored to full power and operated at essentially 100% power until February 19 when power was reduced to 39% to perform recirculation system maintenance and flux tilt testing. The flux tilt testing identified three new leaking fuel bundles, to which PECO took appropriate actions to mitigate the effects of the leaking bundles. On February 22, while restoring to 100% power, control rod 38-15 was mispositioned for approximately two minutes (Section 2.1). While reducing power on February 24 for a rod pattern exchange, a recirculation pump runback to 60% power occurred due to an operational error in securing the 2A reactor feedwater pump. Power was restored to 100% and essentially operated there for the remainder of the period. An asymmetrical rod pattern was established on March 13 to enable the unit to remain at 100% power with the leaking fuel bundles shadowed.

Unit 3 operated at essentially 100% power for the entire inspection period. PECO restarted the unit at the beginning of the period following a manual shutdown that was initiated on February 3 due to main generator field problems. After reaching 100% power, the unit did not experience any major transients or engineered safety feature actuations.

1.2 NRC Activities

The resident and region based inspectors conducted routine and reactive inspection activities concerning operations (Section 2.0), surveillance (Section 3.0), maintenance (Section 4.0), engineering and technical support (Section 5.0), and plant support (Section 6.0). The inspectors conducted these activities during normal and off-normal (backshift) PECO work hours. There was a total of 28 and 8 hours of backshift and deep-backshift inspection hours, respectively.

* The inspection procedure from NRC Manual Chapter 2515 that the inspectors used as guidance is parenthetically listed for each report section.

2.0 PLANT OPERATIONS REVIEW (71707, 70710, 60710, 93702)

The inspectors found that operators conducted routine Unit 2 activities well including: operator response to the inadvertent shutdown of the E-4 emergency diesel generator (EDG) during a surveillance test (Section 5.1) and performance of the 24-hour endurance tests for the E-1 and E-4 EDG (Section 4.2). Minor operational weaknesses were noted during the restoration of power following a load drop which resulted in a mispositioned control rod (Section 2.1), a recirculation pump runback that occurred due to securing the 2A reactor feedwater pump, and during alignment of the CAC system to pressurize the Unit 2 drywell (Section 4.1). Unit 3 routine activities were conducted well. These activities included the reactor start-up and modification acceptance test (MAT) for the "ARTS/MELLLA" modification (MOD) (Section 2.2) and the operators response to two incidents involving equipment problems that necessitated the insertion of a half-scram and half-group 1 isolation (Section 2.4).

The operations crews made correct determinations of safety system operability and reportability of identified conditions. The entry into and exit from technical specification (TS) limiting conditions for operation (LCOs) were adequately tracked and controlled. The inspectors routinely verified the operability of safety systems required to support plant conditions at both units. Housekeeping at both units was good.

2.1 Control Rod Mispositioned - Unit 2

During the Unit 2 power restoration on February 22, control rod 38-15 was mispositioned for approximately two minutes. The inspector noted that the reactor operator promptly recognized the condition and properly initiated corrective action in accordance with procedure ON-122, "Mispositioned Control Rod." PECO suspended power restoration to conduct an event investigation. PECO attributed the mispositioning to operator error and a weakness in the double verification process for rod movement. PECO revised the Operations Manual section and procedure RE-31, "Reactor Engineering Core Monitoring Instructions" to strengthen the double verification requirements for rod movement. PECO initiated the procedural changes and conducted operator training prior to continuing with the power restoration. The inspector concluded that the safety significance of this event was minimal and that PECO's response was appropriate.

2.2 Unit 3 Start-up - ARTS/MELLLA Review

A Unit 3 reactor start-up was in progress when the inspection period began. The mode switch was taken to "Run" on February 6 and power ascension continued until February 8 when the unit reached 100% power. The inspectors reviewed the outstanding items identified in the post-

* The inspection procedure from NRC Manual Chapter 2515 that the inspectors used as guidance is parenthetically listed for each report section.

scram review (GP-18, "Scram Review Procedure") performed by the Plant Operations Review Committee (PORC) and noted that PECO adequately addressed all issues prior to the start-up.

During power ascension to 100% power, PECO Reactor Engineers (RE) performed the remaining portions of the MAT for MOD 5374, "ARTS/MELLLA." PECO installed the hardware changes to Unit 3 during refueling outage nine. Many of the average power range monitor (APRM) and rod block monitor (RBM) flow-biased restrictions were either relaxed or eliminated by the implementation of power-biased limits in the APRM/RBM Technical Specification (ARTS) program. These changes allow power operation in the maximum extended load-line limit analysis (MELLLA) region which permits improved power ascension capability, full power operation, and improved fuel cycle efficiency.

The inspector reviewed the MAT, interviewed members of the RE staff, and observed a portion of the testing in the control room. The MAT was performed safely and in a professional manner. Control room operators were briefed and cognizant of plant conditions throughout the testing. The MAT was completed satisfactorily. The inspector monitored steady-state plant operations in the MELLLA region on Unit 3 and has not identified any deficiencies.

2.3 Four-hour NRC Event Notifications

PECO made two four hour event notification reports to the NRC on March 3 in accordance with 10 CFR 72. The first event occurred when PECO declared the control room emergency ventilation (CREV) system inoperable following indication that the system did not actuate properly following a control room ventilation system high radiation trip. The second report was made when the Unit 2 high pressure coolant injection (HPCI) system was declared inoperable due to excessive vibration readings during a surveillance test. PECO retracted the first report after determining that operator error in resetting the control room ventilation high radiation trip led to the false indication that the CREV did not operate properly. The second report was retracted when PECO determined that the high HPCI system vibration readings were due to test instrument error. The inspector concluded that retraction of these reports was appropriate

2.4 Unit 3 Half-Scram/Half-Group 1 Isolation

Operators responded well to two incidents at Unit 3 on February 24, involving equipment problems that necessitated the insertion of a half-scram and half-group 1 isolation.

- Operators identified that the scram discharge high level switch was causing intermittent half-scrams, while the scram discharge volume remained empty. The operators appropriately declared the switch inoperable.

- While taking logs operators noticed a divergence in main steam tunnel temperatures, one instrument was reading lower than the others by greater than 30°F. The operators declared this instrument inoperable.

In both cases the inspectors observed that operators followed general procedure (GP)-25 to insert a half-scram condition and a half-group 1 isolation. The operators, maintenance personnel, and system managers performed well the tasks necessary to restore the equipment to operability and demonstrated good skills in limiting the time that the unit was in this degraded condition.

2.5 Management Observation Program

PECO recently implemented a management observation program designed to improve management's oversight of field activities. The program requires all supervisory personnel to perform a minimum of fifteen plant observations per month. The supervisors are expected to document their findings and initiate appropriate corrective actions.

The inspectors reviewed the observation program and noted that supervisory personnel had performed the required number of observations. The inspector reviewed several observation findings and noted that appropriate corrective actions had been initiated for these findings. The inspector concluded that the program has increased management's field presence and appears to be a positive initiative to improve station performance.

2.6 Licensee Event Report Update

The inspectors reviewed the following Licensee Event Reports (LERs), finding them factual and that PECO had identified the root causes, implemented appropriate corrective actions, and made the required notifications.

LER No.	LER Date	LER Title
2-94-01	2/18/94	Missed Firewatch in the Diesel Generator Cardox Room

3.0 ENGINEERING AND TECHNICAL SUPPORT ACTIVITIES (37700)

The inspectors routinely monitor and assess licensee support staff activities. During this inspection period, the inspectors focused on PECO's response to the leading qualified fuel bundle, Station Blackout Analysis and installation of a dedicated power line from the Conowingo Hydroelectric Power Station, and High Pressure Injection System Reliability. The results of these reviews are discussed in detail below.

3.1 Leading Qualified Fuel Bundle - Unit 2

The Unit 2 Reactor Operator (RO) noticed on the 7:00 p.m. hourly P-1 Edit, on February 7, that a QFB was leading the core maximum average planer ratio (CMAPRAT). This was contrary to an NRC commitment that was made to keep the QFB's thermal limits from leading the core during steady-state operations. The control room operators reduced power to about 90% to adjust the rod pattern and correct the problem.

PECO loaded a number of QFB fuel bundles into Unit 2 during cycle 9. The QFBs were manufactured by ABB Atom Inc. and Siemens Power Corporation and were designed to be mechanically, thermal-hydraulically, and neutronically compatible with type GE9 fuel. Because the QFBs could not be directly modeled in the GE core computer model, PECO committed in a letter dated November 21, 1990, that the QFBs would not lead the core with respect to thermal limits. This was accomplished by loading the bundles in areas of the core where power production was typically lower. As a result of recent control rod insertions to suppress failed fuel and subsequent rod pattern adjustments to maintain 100% power, the thermal limit margins of the QFBs had decreased.

To address the decrease in the thermal limit margin, the REs revised the Core Operating Limits Report (COLR). The REs assessment of past core performance determined that the original maximum average planner limiting heat generation rate (MAPLHGR) was conservatively applied to the ABB and Seimens fuel. The MAPLHGR limit became overly restrictive for the operating strategies and control rod sequences currently employed. The COLR revision provides additional margin for the QFBs so as to meet the NRC commitment and ensure that the QFBs will not lead the core.

The inspectors reviewed the commitment and Unit 2's past performance history and determined that the thermal limits of the core were well below the specified limits and the QFBs did not adversely impact reactor safety. The inspector was satisfied with PECOs prompt response to correct the problem as soon as it was identified and in revising the COLR to ensure reactor safety.

3.2 Conowingo Station Blackout Power Line

The PECO Station Blackout (SBO) Analysis discussed installation of a dedicated 34.5 kV, 15 MVA power line from the Conowingo Hydro-electric Power Station (Conowingo) to PBAPS as an alternate ac source. The installation of this line was to satisfy the requirements of the station blackout rule as discussed in a letter to the NRC dated August 6, 1992. The scope of this inspection was to review the design and installation adequacy, proposed testing, and project controls for implementation of this modification.

PECO divided the SBO power line installation activities into three sub-projects. The first sub-project involves the installation of a 34.5 kV underground power cable ductbank from the Susquehanna substation bus at Conowingo to the Conowingo pond. The second sub-project involves the installation of submerged cable along the Conowingo pond to Peach Bottom. PECO intends to use a contractor to accomplish the second sub-project. The cable will be approximately nine miles underwater to the termination area located at PBAPS. The final sub-project is to construct a new SBO substation outside of the protected area at PBAPS where the cables will be suspended above ground from Unit 1 to the Unit 2 Startup Switchgear.

The SBO line will feed a new 750 kVA, 34.5 kV - 480 V transformer at Unit 1 and will become the primary source for 480 V power at Unit 1 and the Training Center. This arrangement will provide a continuous light loading for the SBO circuit without impairing its primary function of providing safe shutdown power, if required. From the low voltage side of the SBO transformer (13.8 kV), a feed will be provided to a Unit 2 auxiliary switchgear bus as the point of connection for the SBO circuit through the 500 kV south switchyard. The breaker to the auxiliary switchgear bus will be maintained normally open and provided with indication in the main control room. Additionally, a single common alarm point will be provided in the main control room denoting SBO circuit trouble. Inputs to this alarm will be from the common outputs of the new switchgear and transformer.

The inspector reviewed the voltage regulation study performed to determine the voltage drop under SBO conditions utilizing the proposed 34.5 kV feeder from Conowingo. The inspector verified that applicable design voltage conditions had been considered, including degraded grid, motor starting, and steady state electrical requirements of the plant. Voltage levels had been established by PECO using a computer software nodal analysis program. The assumptions used by this program were found to be in accordance with those documented in NRC Inspection Report 93-80 regarding Peach Bottom's degraded grid relay and load tap changer settings. The inspector verified that adequate impedance losses and power factors as well as locked rotor current values had been used for determining the voltage supplied to plant equipment. The inspector concluded, based on review of the voltage regulation study, that adequate voltage would be provided by the Conowingo power line to the required loads for safe shutdown.

Although some design packages and installation procedures were not complete at the time of this inspection, the inspector noted that detailed design requirements and industry standards had been incorporated into the Design Input Document, 10 CFR 50.59 review, and Engineering Work Letter. The inspector noted that the work scope details and preliminary acceptance test requirements that had been established were acceptable.

PECO plans to install the submerged cable in the spring of 1994 and expects to have the SBO system in service by fall of 1994. The inspector concluded that the modification package appropriately considered design inputs. The project planning was well organized and PECO personnel involved in this project demonstrated a good understanding of the project and coordination required.

3.3 High Pressure Injection System Reliability

The inspectors reviewed the 1993 HPCI system performance data to determine the impact of recent component problems, such as the time armature relay failures (discussed in NRC Inspection Report 93-31), on system availability. The inspector reviewed PECO's program for monitoring HPCI system performance and noted that system unavailability times were accurately measured and in accordance with industry guidance. The inspector reviewed a 36 month rolling

average of the Unit 2 and Unit 3 HPCI systems unavailability data and noted a consistent trend and low unavailability rate for both units. The inspector concluded that the component problems discussed above had only a minor impact on HPCI availability and overall risk.

4.0 SURVEILLANCE TESTING OBSERVATIONS (61726, 71707)

The inspectors observed the conduct of surveillance tests to determine if approved procedures were used, test instrumentation was calibrated, qualified personnel performed the tests, and test acceptance criteria were satisfied. The inspectors verified that the surveillance tests had been properly scheduled and approved by shift supervision prior to performance, control room operators were knowledgeable about testing in progress, and redundant systems or components were available for service, as required. The inspectors routinely verified adequate performance of daily surveillance tests including instrument channel checks, and jet pump and control rod operability tests. The inspectors found the licensee's activities to be generally acceptable.

4.1 Drywell/Torus Vacuum Breaker Surveillance - Unit 2

On February 9, during performance of the Unit 2 drywell/torus vacuum breaker operability test the #2 vacuum breaker failed to indicate closed following cycling. PECO promptly initiated the "Primary Containment to Torus Bypass Test" as required by technical specifications. An operational weakness in aligning the containment atmosphere control (CAC) system to supply nitrogen to the drywell delayed completion of this test by about 8 hours. However, the inspectors concluded that PECO's response was appropriate and met the TS LCO time restraint.

4.2 E-1/E-4 Emergency Diesel Generator 24-hour Endurance Surveillance

PECO performed the 24-hour endurance surveillance tests for the E-1 and E-4 EDGs ST-C-052-701(704)-2, "E-1(E-4) Diesel Generator 24 Hour Endurance Test." This test is required to be performed once per operating cycle. The purpose of the test was to verify the EDGs ability to operate for at least two-hours at 2800-3300 KW and at 2400-2600 KW for the remaining 22-hours; verify the EDGs ability to reject a load of 2600 KW without tripping; and verify the EDGs ability to restart and load 5 minutes after being shutdown from full load operating temperature. During the test, all equipment functioned as expected within the required times and the tests were declared satisfactory.

The inspectors reviewed the test procedure and observed portions of the ST. For the E-1 EDG, the inspectors attended the load reject test pre-briefing, witnessed the load reject portion of the test from the control room and the EDG building, and reviewed the test results. The test pre-brief was very thorough, with the Shift Manager clearly communicating the need for caution and conservatism during the evolution. The procedure was well written and testing was conducted in an orderly, well planned manner. Communications by operators and technicians in the control room and in the plant were excellent.

5.0 MAINTENANCE ACTIVITY OBSERVATIONS (62703)

The inspectors observed portions of ongoing maintenance work to verify proper implementation of maintenance procedures and controls. The inspectors verified that the licensee adequately implemented administrative controls including blocking permits, fire watches, and ignition source and radiological controls. The inspectors reviewed maintenance procedures, action requests (AR), work orders (WO), item handling reports, radiation work permits (RWP), material certifications, and receipt inspections. During observation of maintenance work, the inspectors verified appropriate Quality Verification (QV) involvement, plant conditions, TS LCOs, equipment alignment and turnover, post-maintenance testing and reportability review. The inspectors found the licensee's activities to be acceptable.

5.1 E-4 Emergency Diesel Generator Loss of Field

The E-4 EDG was inadvertently shutdown on February 11 when a Plant Operator (PO) stationed at the EDG bumped the "Voltage Shutdown" pushbutton. The E-4 EDG was in service for surveillance test ST-O-052-204-2, "E-4 Diesel Generator Slow Start and Full Load Test." The actuation of the pushbutton shorted the generator field causing voltage and load instabilities. The PO at the local panel and the Control Room Operator (CRO) noted wide swings in the output voltage and kilowatts. The CRO unloaded and tripped the EDG output breaker and shutdown the EDG. The Shift Supervisor immediately declared the E-4 EDG inoperable.

A maintenance inspection of the EDG was performed to determine if damage to the generator or diesel engine had occurred. PECO performed extensive testing which identified that no damage had occurred. The E-4 EDG was returned to an operable condition on February 13 after successful completion of the surveillance.

PECO's investigation of the event determined that the PO had bumped the "Voltage Shutdown" pushbutton. The pushbutton was located on the local panel directly below an alarm display panel and has the appearance of an alarm acknowledge pushbutton used throughout the plant. To correct this deficiency, PECO processed an engineering change request to replace the pushbutton with a pushbutton design which includes a protective cover. The pushbutton is planned to be installed during each EDG's annual outage.

PECO issued a report of the EDG failure as required by a commitment to Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units as Onsite Electric Power System at Nuclear Power Plants." PECO classified the event as a non-valid failure which does not change the surveillance frequency. The inspector reviewed and was satisfied with PECO's response, corrective actions, and reports. The inspector had no further questions.

5.2 Low Pressure Coolant Injection Valve - Unit 3

NRC Inspection Report 93-25 discussed the maintenance activities which were performed in December 1993 to repair the 3A LPCI outboard injection valve (the valve) following a surveillance test failure. Following the repairs, PECO increased the frequency of diagnostic testing (VOTES) to monitor the valve's performance. While performing diagnostic testing on February 24, PECO noted increases in the motor's operating current and power factor in the upper portion of the valve stroke. PECO determined that the stem to stem nut threaded interface had degraded, but concluded that the valve was operable. PECO corrected the interface problem, satisfactorily retested the valve, and enhanced the performance monitoring program. The inspector concluded that PECO's response to the test anomalies was appropriate and reflected a good safety perspective.

5.2.1 Valve Inspection and Maintenance

On February 27 PECO disassembled the valve actuator and performed a visual inspection of the stem. The maintenance personnel noted that the stem grease had degraded, and that the stem nut could not be manually threaded down the stem. PECO analyzed the stem grease using ferrography and identified wear particles indicative of excessive stem nut loading. PECO performed a chemical analysis and concluded that the grease had undergone oxidation. The inspector independently reviewed this analysis and agreed that the grease had oxidized. These analyses indicated that the grease degradation was probably caused by heating due to excessive stem to stem nut friction.

The stem to stem nut threaded interface is a triple lead design. PECO concluded that the probable cause for the above indications was tight clearance on one of the threads which led to an elevated loading condition for that particular thread. PECO machined the stem nut threads to open the thread clearances. Following the stem nut machining, the valve was reassembled, and tested satisfactorily.

5.2.2 Performance Monitoring Program

PECO utilized the test and inspection data to enhance the valve's monitoring program. Specifically, the program was expanded to require a stem grease inspection, and measurement of the valve's stem factor. Additionally, PECO increased the valve monitoring frequency to include all planned operations. The inspector concluded that the monitoring program changes were a positive initiative to ensure future valve reliability.

5.2.3 Summary

The inspector reviewed the February 24 test data and agreed with PECO's operability determination. The inspector was initially concerned that the unequal thread load sharing could have resulted in thread failure. However, the inspector reviewed a thread stress calculation and

noted that a single thread had adequate strength to withstand loads up to the stem buckling limit. The inspector reviewed the post-maintenance test data and concluded that the valve was operable.

The NRC issued Violation 50-277 & 50-278/93-25-01 to PECO for not establishing adequate measures while performing in-body valve corrective maintenance in October 1993 to assure that the valve's design requirements were maintained. Specifically, the maintenance activities, which included reversal of the wedge, caused the stem to bend during operation and led to valve failure. The inspector reviewed PECO's response to this violation and concluded that the planned corrective actions, which included procedural and testing enhancements, were acceptable. Additionally, the inspector noted, during the recent visual inspection, that the stem was straight providing additional confidence that the December 1993 in-body repairs were effective. This violation is closed.

5.3 E-1/E-4 Annual Outage

The inspectors reviewed the activities associated with the diesel outage including maintenance planning and operations support prior to the start of the outage and conduct of maintenance and testing activities during the outage. The inspectors found that the licensee had developed a detailed and aggressive schedule. The inspectors verified that operations had completed procedure GP-23, "Diesel Generator Outages," which established the administrative controls for removing the EDG from service and identified the affected safety related systems and their redundant trains. The inspectors found the maintenance and testing activities that were observed to be acceptable. However, during injector pressure and spray pattern testing, the inspector noted a less than adequate double-verification of one of the injector's lift pressure setpoint. One of the technicians did not appear to have adequately verified the lift pressure during the test. The inspector identified the weakness to the attention of the technicians and their management. The inspectors did not observe any further weaknesses during the outages. PECO management actively tracked the EDG outage status, anticipated potential problems, and evaluated alternatives in the event of schedule slippage. The inspector found that PECO's actions regarding the planning and conduct of the E-1/E-4 EDG outages were good.

5.4 Unit 2 Service Water System Hydrostatic Test

The inspector observed the hydrostatic test following installation of an improved flow monitoring device on the service water supply line to the Unit 2 RCIC room cooler. The inspector determined that the test was conducted safely and that the acceptance criteria were satisfied. The inspector noted that the test procedure guidance was very general and did not provide valve positioning guidance. This was due to the large scope and number of systems the MOD effected. The test procedure relied, therefore, on the worker's system knowledge which led to two minor system lineup problems. In one instance, the technicians introduced air into the previously vented pipe when the hydro rig was valved in. The second instance occurred when the technicians failed to observe a pressure increase when the hydro began because of failing to

shut a hydro boundary isolation valve. The inspector noted that no damage or system safety limits were violated and discussed the procedural and lineup weaknesses with the test supervisor. PECO indicated that they would review these test procedures to enhance future testing.

5.5 Unit 3 Dropped Jet Pump Grappling Hook

On February 23, while preparing to perform spent fuel pool cleanup activities, a jet pump grappling hook dropped into the Unit 3 spent fuel pool. The inspector reviewed the event and concluded that it was of minor safety significance due to the low weight of the hook (less than five pounds). PECO suspended cleanup activities to investigate this event. The inspector concluded that PECO's initial event investigation and planned corrective actions were adequate.

The hook dropped when a maintenance technician improperly fastened two jet pump grappling hook swivel devices together. These devices are not designed to be fastened together, however, the threaded fit was tight enough to indicate to the technician that the connection was acceptable. The inspector concluded that procedural and level of knowledge weaknesses led to this event and that PECO's response to this event was prompt and appropriate.

5.6 Troubleshooting Program Review

The inspectors reviewed the performance of troubleshooting activities. PECO's troubleshooting program had been reviewed in NRC Inspection Report 93-14 and found to be acceptable. During this period, the inspectors reviewed performance data and observed troubleshooting activities and concluded that these activities were adequately conducted.

The inspectors reviewed the LER database for the past three years and only identified one troubleshooting activity during this period which led to a plant transient. A review of the performance enhancement program (PEP) database over the last six months indicated that no PEP issues have been initiated due to troubleshooting activities. The inspectors observed troubleshooting activities for problems such as the Unit 3 scram discharge volume level switch (discussed in Section 2.4) and a turbine building elevated noble gas condition and concluded that they were well controlled. The inspectors determined, based on data reviewed and field observations that PECO has effectively implemented their troubleshooting program.

6.0 PLANT SUPPORT (71707, 90712)

6.1 Radiological Controls

The inspectors examined work in progress in both units to verify proper implementation of health physics (HP) procedures and controls. The inspectors monitored the ALARA (As Low As Reasonably Achievable) program implementation, dosimetry and badging, protective clothing use, radiation surveys, radiation protection instrument use, handling of potentially contaminated equipment and materials, and compliance with RWP requirements. The inspectors observed

that personnel working in the radiologically controlled areas met applicable requirements and were frisking in accordance with HP procedures. During routine tours of the units, the inspectors verified that a sampling of high radiation area doors were locked, as required. All activities monitored by the inspectors were found to be acceptable.

6.1.1 HPCI Pump Room Contamination - Unit 3

Increased contamination in the Unit 3 HPCI pump room was identified by HPs during a routine survey on March 9. The contamination resulted in seven shoe personnel contamination reports (PCRs). HPs posted the room as a contaminated area and initiated an investigation to locate the source of the contamination. A team consisting of a representative from Engineering, Operations, and HP was formed to determine the cause and corrective actions for this problem.

The team identified the source of the contamination to be a small steam leak from the stop valve bypass chamber which had developed during a HPCI run. Although the HP survey performed during the HPCI run did not detect the problem, the contamination appeared about 12 hours after the HPCI system had been shutdown. PECO's follow-up actions identified isotopes including iodine (I-131,133,134,135), xenon (Xe-138), cobalt (Co-60), and zinc (Zn-65) with the principle isotope being I-133. These isotopes are primarily found in the reactor and carried throughout the steam system. PECO determined that the contamination was from the radioactive decay of gaseous isotopes in the steam to particulate isotopes which plated out in the room. The half-life of these particles is about 12 hours.

PECO had identified a second continuous steam leak on the steam isolation valve (MO-14) which complicated the room decontamination efforts. PECO plans to repair the stop valve steam leak during the HPCI surveillance test run in April. After that time PECO will isolate the MO-14 by constructing a radiological tent around it. PECO plans to repair the MO-14 valve during an outage window in June. The inspectors will continue to follow this issue.

6.2 Physical Security

The inspectors monitored security activities for compliance with the accepted Security Plan and associated implementing procedures. The inspectors observed security staffing, operation of the Central and Secondary Access Systems, and licensee checks of vehicles, detection and assessment aids, and vital area access to verify proper control. On each shift, the inspectors observed protected area access control and badging procedures. In addition, the inspectors routinely inspected protected and vital area barriers, compensatory measures, and escort procedures. The inspectors found the licensee's activities to be acceptable.

7.0 MANAGEMENT MEETINGS (71707,30702)

The resident inspectors provided a verbal summary of preliminary findings to the station management at the conclusion of the inspection. During the inspection, the inspectors verbally notified PECO management concerning preliminary findings. The inspectors did not provide any written inspection material to the licensee during the inspection. The licensee did not express any disagreement with the inspection findings. This report does not contain proprietary information.