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REGION I

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Facility Name:	Limerick Generating Station, Units 1 and 2
Inspection Period:	November 14, 1995 through January 8, 1996
Inspectors:	N. S. Perry, Senior Resident Inspector T. A. Easlick, Resident Inspector

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Date

EXECUTIVE SUMMARY
Limerick Generating Station
Report No. 95-21 & 95-21

Plant Operations

The Unit 1 number six feedwater heaters were taken out of service, as part of the unit coastdown before the February refueling outage. The shift supervisor clearly defined individual responsibilities among the three operators for the activity. Staff from the reactor engineering department were present for the evolution and the operators were careful to ensure adequate time for the plant parameters to stabilize before removing the next heater. The evolution was well controlled and carefully executed (Section 1.3). While filling the D24 emergency diesel generator (EDG) fuel oil tank, the D23 EDG fuel oil tank was inadvertently overfilled. When the D23 fuel oil vault was opened, a level of approximately three feet of fuel oil was discovered on the floor. The investigation concluded that the fuel oil fill valve for the D23 EDG was inadvertently left open after fuel oil was received six days earlier, resulting in a flowpath from the D24 fuel tank to the D23 fuel tank. Corrective actions taken included verifying that all other EDG fuel oil fill valves were closed, and appropriate disciplinary action was taken for the operator involved. This procedure violation meets the criteria for enforcement discretion of Section VII, of the NRC's Enforcement Policy, and will be treated as a non-cited violation (Section 1.4).

Maintenance

An activity was performed to replace Unit 2 Division 4 battery cell 56 whose voltage was found to be low. The technicians performing this replacement were very familiar with the activity. The old cell was carefully disconnected and removed, and the new cell was properly prepared and installed prior to restoration of the battery bank. The HPCI injection valves on Unit 1 and 2, and the RCIC injection valve on Unit 2 were test stroked due to the pressure locking event that occurred on the HPCI feedwater injection valve, at the Susquehanna Steam Electric Station. The HPCI and RCIC injection valves that had not had the pressure-locking modification completed were stroked to verify operability. All three valves opened and closed properly with no change in system parameters. The test was well controlled with excellent management oversight (Section 2.1).

Engineering

A dedicated team of individuals, called a Tiger Team, was formed to make recommendations for improving system performance, in order to reduce plant transients and reduce operator challenges caused by balance of plant systems. The first system selected was the feedwater system. The process received high management support and got good visibility. The process was a very good initiative for improving overall plant safety and reliability and the inspectors noted that the process will continue with a team formed to

review transients associated with the recirculation system, in progress at the end of the inspection period, and the electro-hydraulic control (EHC) system, after the refueling outage (Section 4.1).

During a monthly operability test on the D14 emergency diesel generator (EDG), following the completion of the 10 year fuel oil storage tank cleaning, a rapid and sustained increase in engine crankcase pressure was observed approximately three minutes after reaching the 3000 KW load. Following the cleaning and inspection of the engine a diagnostic test run was performed on D14 with the engine loaded to 3000 KW. The results of the diagnostic test indicated that proper cylinder compression was present on all cylinders, and the engine ran with no problems identified. The piping from the airbox and crankcase to ejector housing was inspected. While the flexmaster fittings were found tight, the ejector fitting had an embrittled rubber grommet. A pipe clamp was missing on the ejector pipe and a dent was identified on the same pipe at the flexmaster fitting. PECO Energy determined that although not conclusive, the flexmaster fitting and pipe conditions at the ejector housing may have caused the high crankcase pressure experienced by D14 EDG (Section 4.2).

Operators noted that the discharge piping of the 1B RHR system was pressurizing at increased frequencies, due to valve leakage. The total leakage was measured to be less than 0.4 gpm. Engineering personnel evaluated the leakage amount and the leakage path, and concluded that it was acceptable to continue to operate with this leakage. The interim disposition was to establish a continuous bleed of the system pressure by throttling some sample valves in the discharge piping. The inspectors, with the help of Region I supervision, reviewed the engineering evaluation and concluded that it was acceptable as a means of providing control of the pressurization of the RHR discharge piping, and that this methodology has been previously implemented at other facilities (Section 4.3).

Plant Support

An operator identified a door propped open, with a flashlight, which was required to be controlled as a locked high radiation door. The door provided access to the moisture separator area in the Unit 2 turbine building. Approximately 6 hours later, a health physics technician discovered the same door propped open again with a wrench. The area inside the door was inspected with no adverse conditions noted. At the end of the inspection period, plant personnel were investigating the incidents to determine the cause for the propped open door. This item will remain unresolved pending NRC review of the incident, including the results of the investigation (URI 50-353/95-21-01) (Section 5.1).

A security guard identified a 2 inch by 24 inch long thin cardboard tube with an 8 inch white strap protruding from one end in the Unit 1D safeguards battery room. Security treated the object as a suspicious device until the contents could be determined. Based on this discovery, operations declared an Unusual Event. The device was removed from the plant and x-rayed at the PECO Energy warehouse. The cardboard tube was found to be empty with cellophane tape stuffed at both ends. The response to this event was appropriate, given

the circumstances. Additionally, the security procedures were properly implemented. One area for improvement noted was the communications between operations and security during the event. An investigation determined that the tube was actually trash that was left following work in the battery room. The tube was left after rolls of absorbent material were placed under the batteries for cleanliness concerns (Section 5.2).

Miscellaneous

A violation response (50-352, 353/95-12-01) was reviewed associated with the inadequate design control and testing that led to the unknown degradation of the recombiner systems. In response to this event and subsequent violation, PECO Energy performed a comprehensive review of engineering projects and ECRs dating back to 1993 (over 2000 total packages reviewed) and found no similar problems. The overall modification process was reviewed and revised. Engineering performed a comprehensive investigation using both barrier analysis and event and casual factor charting. The results of the investigation and root cause analysis were used in the enhancement and development of the new modification process. These new procedures adequately addressed major weaknesses identified for this event including, the use of acceptance test plans and post modification testing (PMT). The inspectors had no further questions concerning this event and this item is closed.

An unresolved item (URI 50-352/95-18-01) was closed concerning the NRC review of the completed PECO Energy investigation concerning why an RHR check valve disc nut was inadequately peened, what the source of foreign materials was in the valve, and why a cleanliness inspection failed to identify the foreign materials. The foreign materials were not introduced into the system during the activity which repaired the loose disc nut. The cleanliness inspection failed to identify the materials because they were apparently elsewhere in the system; quality verification management determined that the cleanliness inspection performed was as required and met management expectations. The procedure and accompanying engineering change request, ECR-94-07721, required that the pin be inserted through the disc nut for the check valve and disc pin and peened at both ends. The pin was not adequately peened after insertion, which allowed the pin to work its way out, and for the nut to subsequently loosen. This procedure violation meets the criteria for enforcement discretion of Section VII, of the NRC's Enforcement Policy, and will be treated as a non-cited violation. The inspectors had no further questions concerning this event and this item is closed.

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DETAILS

1.0 PLANT OPERATIONS (71707)[1]

The inspectors observed that plant equipment was operated and maintained safely and in conformance with license and regulatory requirements. Control room staffing met all requirements. Operators were found alert, attentive and responded properly to annunciators and plant conditions. Operators adhered to approved procedures and understood the reasons for lighted annunciators. The inspectors reviewed control room logs for trends and activities, observed control room instrumentation for abnormalities, and verified compliance with technical specifications. Accessible areas of the plant were toured; plant conditions, activities in progress, and housekeeping conditions were observed. Additionally, selected valves and breakers were verified to be aligned correctly. Deep backshift inspection was conducted on November 19, December 24, 1995, and January 1, 1996.

1.1 Operational Overview

At the beginning of the inspection period, Unit 1 was operating at full power. On November 29, 1995, the sixth stage feedwater heaters were removed from service, and on December 27, 1995, the fifth stage feedwater heaters were removed from service, in order to maintain reactor thermal power at a maximum level as the unit entered coastdown for the refueling outage, scheduled for February 1996. The coastdown for the refueling outage began on December 20, 1995. On January 3, 1996, power was reduced to approximately 90% in order to perform planned maintenance on the B reactor feed pump. At the end of the inspection period, Unit 1 was operating at 90% power, and the B reactor feed pump was being tested prior to restoration.

Unit 2 operated at full power until November 22, 1995, when the main turbine generator was removed from service for replacement of the stator cooling water strainer. The reactor remained critical at a low power level, approximately 20%, during the maintenance. The turbine generator was synchronized to the grid on November 23, 1995, and full power was achieved on November 24, 1995. Power was reduced to approximately 65% on December 1, 1995, in order to perform planned hydraulic control unit (HCU) maintenance. However, the unit was restored to full power on December 3, 1995, when problems were encountered maintaining acceptable reactor thermal limits. The HCU maintenance was rescheduled and performed from January 5 to 8, 1996, during which time power was maintained at approximately 75%. At the end of the inspection period, the unit was being restored to full power following maintenance on the HCUs.

1.2 Event Reports

There were five notifications made to the NRC during this inspection period.

On December 10, 1995, an Unusual Event was declared due to a fire lasting longer than 10 minutes in the D23 emergency diesel generator bay. The fire, which lasted approximately 12 minutes, was in an overhead lighting fixture,

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[1]The NRC Inspection Procedures used as guidance are listed parenthetically throughout this report.

and was put out after operators opened the electrical feed to the fixture. There was no damage to any plant equipment, other than the lighting fixture, and the emergency diesel generator's operability was not affected by the fire. All required notifications to county, state and federal authorities were made.

On December 23, 1995, a manual engineered safety feature (ESF) actuation was initiated by starting the standby gas treatment system, when secondary containment was lost due to problems with the reactor enclosure HVAC control system.

An automatic ESF actuation occurred on December 27, 1995, when a Unit 1 reactor water cleanup (RWCU) pump seal failed, causing an RWCU isolation due to Division 1 and 4 steam leak detection isolation signals. The B RWCU pump was isolated, and the A and C pumps were returned to service.

An Unusual Event was declared on January 1, 1996, after a suspicious device (potential bomb type object) was discovered inside a battery room. This event is described in section 5.2 of this inspection report.

On January 7, 1996, notifications were made after it was determined that there was impairment of the state and local government's ability to perform their emergency responsibilities, due to the major roads in the area being officially closed during a severe winter storm.

1.3 Removal of Sixth Stage Feedwater Heaters from Service

On November 29, 1995, with Unit 1 at 98% of rated power, the number six feedwater heaters were taken out of service, as part of the unit coastdown before the February refueling outage. The inspector observed the activity from the main control room. During the shift briefing GP-5, Power Operations, was reviewed with the controlling parameters for the evolution discussed. The health physics department was notified so that the number six feedwater heater rooms could be correctly posted. The shift supervisor clearly defined individual responsibilities among the three operators for the activity. Reactor engineering was present for the entire evolution and helped coordinate the heater removal. The inspector noted that the operators were careful to ensure adequate time for the plant parameters to stabilize before removing the next heater. The evolution was well controlled and deliberately executed.

1.4 Emergency Diesel Generator Fuel Oil Tank Overfill

On December 21, 1995, while filling the D24 emergency diesel generator (EDG) fuel oil tank, the D23 EDG fuel oil tank was inadvertently overfilled. Operators discovered this condition after noting that the D24 EDG fuel oil tank level increase was less than expected. The D23 EDG fuel oil tank level was found to have increased; its high level alarm was previously lit, so that the level increase was initially masked. When the D23 fuel oil vault was opened, a level of approximately three feet of fuel oil was discovered on the floor. The electrical supply breaker for the transfer pump was immediately opened, and the D23 EDG was declared inoperable. The EDG was restored to an

operable status after plant personnel verified that the transfer pump motor was never submerged, the area was cleaned up, and the pump was run to verify its operability.

The PECO Energy investigation concluded that the fuel oil fill valve for the D23 EDG was inadvertently left open after fuel oil was received on December 15, 1995. When fuel was received for the D24 EDG on December 21, both fuel oil fill valves were open, therefore allowing fuel oil to be added to both tanks. Normally only the fuel oil fill valve for the appropriate EDG is opened during receipt of fuel oil. At the end of the fuel receipt, the controlling procedure, S92.3.N, Ordering and Receiving Diesel Fuel Oil Delivery, requires that the appropriate fuel oil fill valve be closed. Additionally, the investigation noted that the operation was conducted during somewhat adverse weather, the error occurred in the last four hours of a hectic 12 hour shift, and the fuel was received during a particularly busy time. Corrective actions taken included verifying that all other EDG fuel oil fill valves were closed, and appropriate disciplinary action was taken for the operator involved. Additionally, the high level alarm setpoints for the EDG fuel oil tanks will be reviewed, with appropriate action taken, to ensure that a high level alarm will not mask a problem with overfilling the tanks. This procedure violation meets the criteria for enforcement discretion of Section VII, of the NRC's Enforcement Policy, and will be treated as a non-cited violation.

2.0 MAINTENANCE (62703)

2.1 Maintenance Observations

The inspectors reviewed the following safety-related maintenance activities to verify that repairs were made in accordance with approved procedures and in compliance with NRC regulations and recognized codes and standards. The inspectors also verified that the replacement parts and quality control used on the repairs were in compliance with PECO Energy's Quality Assurance (QA) program.

The following maintenance activities were reviewed:

- IC-11-02031, Replacement of Station Battery Cells, Revision 5, performed November 19, 1995.

This activity was performed to replace Unit 2 Division 4 battery cell 56 whose voltage was found to be low. The inspector noted that the technicians performing this replacement were very familiar with the activity since they had performed a similar cell replacement the week before. Additionally, the battery was kept operable during the replacement by jumpering out 20 cells with a portable bank of 20 cells. The technicians were very exact about matching the cell voltages prior to removing the normal cells from service. Because the battery was kept operable, the technicians were allowed to proceed with the activity without being rushed. The old cell was carefully disconnected and removed, and the new cell was properly prepared and installed prior to restoration of the battery bank.

- PMQ-500-020, Preventive Maintenance Procedure For Repacking of Q and Non-Q Listed Valves, Revision 18, performed December 29, 1995.

This activity was performed on HV-055-2F054, a Unit 2 high pressure coolant injection (HPCI) steam drain valve. The inspector noted that this activity was performed by the Fix It Now (FIN) team, and included 2 maintenance workers, an equipment operator, and a health physics technician. The procedure was at the work site and was closely followed; data for torque values was taken and documented in the procedure. Post maintenance stroking of the valve was coordinated with control room personnel very well, as was the restoration of the system.

On December 7, 1995, the inspector observed the stroking of the HPCI injection valves on Unit 1 and 2, and the reactor core isolation cooling (RCIC) injection valve on Unit 2. Due to the pressure locking event that occurred on the HPCI feedwater injection valve, at the Susquehanna Steam Electric Station, the HPCI and RCIC injection valves that had not had the pressure-locking modification completed were stroked to verify operability. The valves were stroked under a Limerick Generating Station Troubleshooting Control Form (TCF), since the valves are not normally test operated at power. As a precaution, the pump discharge valves were closed prior to stroking the injection valves. A 10 CFR 50.59 evaluation was performed and attached to the TCF. The shift briefing was performed by engineering, and the system manager, as well as an engineering branch manager were present for the entire test. Additionally, a maintenance electrician was stationed at the valve breaker to ensure that the valve operated correctly. All three valves opened and closed properly with no change in system parameters. All systems were returned to their normal line-up following the satisfactory completion of the test. The test was well controlled with excellent management oversight.

3.0 SURVEILLANCE (61726)

3.1 Surveillance Observations

During this inspection period, the inspectors reviewed in-progress surveillance testing and completed surveillance packages. The inspectors verified that the surveillances were completed according to PECO Energy approved procedures and plant technical specification requirements. The inspectors also verified that the instruments used were within calibration tolerance and that qualified technicians performed the surveillances.

The following surveillance was reviewed:

- ST-3-107-790-1, Control Rod Scram Timing, Revision 22, performed December 27, 1995.

The inspector observed portions of the performance of this surveillance from the main control room. The inspector observed very good communications between the operators and the reactor engineers. Additionally, distractions were kept at a minimum for the personnel performing the surveillance.

4.0 ENGINEERING (37551)

4.1 Feedwater Tiger Team

During this inspection period, the inspectors reviewed an new initiative being implemented by PECO Energy management to address balance of plant system concerns. A dedicated team of individuals, called a Tiger Team, was formed to make recommendations for improving system performance, in order to reduce plant transients and reduce operator challenges caused by balance of plant systems. The first system selected was the feedwater system, whose review was completed in November 1995. The team divided the feedwater system into 13 subsystems and performed an indepth reviewed of Limerick's experiences and industry experience for each subsystem. Feedback and comments were solicited from all plant employees, and ultimately, recommendations were made to plant management for short-term and long-term improvements to the system.

The inspectors observed that the process received high management support and got good visibility. Some of the recommendations will be implemented prior to the refueling outage, scheduled for February 1996, and many more will be implemented during the refueling outage. The inspectors concluded that the process was a very good initiative for improving overall plant safety and reliability and noted that the process will continue with a team formed to investigate the recirculation system, in progress at the end of the inspection period, and the electro-hydraulic control (EHC) system, after the refueling outage.

4.2 Emergency Diesel Generator Crankcase Overpressure Conditions

On November 29, 1995, with Unit 1 at 100% of rated power, a monthly operability test (ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run), was performed on the D14 emergency diesel generator (EDG) following the completion of the 10 year fuel oil storage tank cleaning. Limerick has eight Colt Fairbanks Morse 12 cylinder 24 piston opposed piston engines (four per unit). This monthly test included a fast start (10 second)/fast loading (200 seconds) sequence required by technical specifications once per 184 days. The engine was loaded to 2700 KW, and ran at that load for 20 minutes prior to being raised to 3000 KW, 105% of rated, for post maintenance testing following an adjustment of the engine governor linkage. Approximately three minutes after reaching the 3000 KW load, a rapid and sustained increase in engine crankcase pressure was observed by the equipment operator in the engine room. The operator noted that all the water was expelled from the crankcase vacuum manometer, followed by lubricating oil spraying past the oil seal at either end of the engine. The operator immediately contacted the control room and requested that the engine be unloaded and shut down. The engine was removed from service one and a half minutes later.

PECO Energy contacted the vendor and a representative was sent to the site. On December 1, 1995, following the cleaning and inspection of the engine a diagnostic test run was performed on D14 with the engine loaded to 3000 KW. The results of the diagnostic test indicated that proper cylinder compression was present on all cylinders, and the engine ran with no problems identified. The diagnostic run was followed by a two hour full load operability test run,

including a fast start/fast loading sequence. The operability test was completed without incident and the diesel was declared operable. PECO Energy reviewed the diagnostic and operability test results to determine the cause of the initial crankcase pressure overpressure condition. Troubleshooting eliminated the possibility of piston, cylinder or ring damage. The engine was inspected for jacket water leakage, exhaust blockage, blower seal leakage, ejector or orifice clogging, and crankcase piping/fitting integrity.

These possibilities, with the exception of the crankcase piping/fitting integrity, were determined not to be the cause of the problem. The piping from the airbox and crankcase to ejector housing was inspected. While the flexmaster fittings were found tight, the ejector fitting had an embrittled rubber grommet. Additionally, a pipe clamp was missing on the ejector pipe and a dent was identified on the same pipe at the flexmaster fitting. PECO Energy determined that although not conclusive, the flexmaster fitting and pipe conditions at the ejector housing may have caused the high crankcase pressure experienced by D14 EDG. As a follow-up to this event and an event the next day on D21 (stated below), the remaining Unit 1 EDGs were inspected and run at load with no similar problems identified.

On November 30, 1995, with Unit 2 at 100% power, ST-6-092-311-2, D21 Diesel Generator Slow Start Operability Test Run, was performed. During the test, D21 also experienced a pressurization of the crankcase as indicated by a high crankcase pressure alarm and a manometer reading of one to two inches of pressure with the EDG at full load. D21 was shutdown and declared inoperable, and the operator noted that the crankcase did reestablish a vacuum while being unloaded prior to being shut down. The investigation of this event identified that a loose flexmaster fitting on the piping from the airbox and crankcase to ejector housing was the cause of the crankcase pressurization. The fitting was repaired and the EDG was successfully tested and declared operable the following day. The remaining Unit 2 EDGs were also inspected and operated at load with no problems identified.

PECO Energy classified these events as valid EDG test failures, and as such submitted a special report to the NRC on December 28, 1995. The inspector reviewed this report, as well as followed the troubleshooting activities for both these events. Although a positive cause of the D14 overpressurization could not be determined, the inspectors concluded that operations, engineering, and maintenance all worked together to examine all possibilities for the cause of this event. The inspector observed the initial event review meeting, where a detailed troubleshooting plan was immediately developed based on the symptoms experienced on D14. Overall, the response to these events was prompt and the follow-up comprehensive, with effective corrective actions based on the suspected cause of the event.

4.3 Residual Heat Removal Valve Leakage

In December 1995, operators noted that the discharge piping of the 1B residual heat removal (RHR) system was pressurizing at increased frequencies, due to valve leakage. Operations and engineering personnel tried to flush the valves to reduce or eliminate the backleakage, but were not successful. The total leakage was measured to be less than 0.4 gpm. Engineering personnel evaluated

the leakage amount and the leakage path, and concluded that it was acceptable to continue to operate with this leakage. The final disposition of this condition was to rework the suspected leaking valves during the refueling outage, scheduled for February 1996. The interim disposition was to establish a continuous bleed of the system pressure by throttling some sample valves in the discharge piping. A procedure was developed to establish and control the continuous bleed flow, and was implemented on December 22, 1995.

The inspectors, with the help of Region I supervision, reviewed the engineering evaluation and concluded that it was acceptable as a means of providing control of the pressurization of the RHR discharge piping, and that this methodology has been previously implemented at other facilities. Additionally, the inspectors reviewed contingencies if the valve leakage increases, and performed a walkdown of the bleed flow path. The inspectors concluded that the overall control of this problem was very good, and received high management attention.

5.0 PLANT SUPPORT (71707, 71750, 93702)

5.1 Radiological Protection

During the inspection period, the inspectors examined work in progress in both units including health physics (HP) procedures and controls, ALARA implementation, dosimetry and badging, protective clothing use, adherence to radiation work permit (RWP) requirements, radiation surveys, radiation protection instrument use, and handling of potentially contaminated equipment and materials.

The inspectors observed individuals generally frisking in accordance with HP procedures. A sampling of high radiation area doors was verified to be locked as required. Compliance with RWP requirements was reviewed during plant tours. People working in RWP areas were observed as meeting the applicable requirements.

On December 4, 1995, an operator identified a door propped open, with a flashlight, which was required to be controlled as a locked high radiation door. The door provided access to the moisture separator area in the Unit 2 turbine building. Health physics personnel instructed the operator to push the flashlight into the room and ensure the door was locked. Approximately 6 hours later, a health physics technician discovered the same door propped open again with a wrench. The area inside the door was inspected with no adverse conditions noted. Controls for the keys for the locked high radiation areas were verified to be proper, and the core for the door lock was changed.

At the end of the inspection period, plant personnel were investigating the incidents to determine the cause for the propped open door. This item will remain unresolved pending NRC review of the incident, including the results of the investigation (URI 50-353/95-21-01).

5.2 Security

Selected aspects of plant physical security were reviewed during regular and backshift hours, to verify that controls were in accordance with the security plan and approved procedures. This review included the following security measures: guard staffing, vital and protected area barrier integrity, and implementation of access controls including authorization, badging, escorting, and searches.

On January 1, 1996, a security guard identified a 2 inch by 24 inch long thin cardboard tube with an 8 inch white strap protruding from one end in the Unit 1D safeguards battery room. Security treated the object as a suspicious device until the contents could be determined. Based on this discovery, operations declared an Unusual Event at 10:20 am, in accordance with emergency response procedure (ERP)-101-14, Security. The NRC, and state and local officials were notified, and appropriate security procedures were initiated. Approximately two hours later, the device was removed from the plant and x-rayed at the PECO Energy warehouse. The cardboard tube was found to be empty with cellophane tape stuffed at both ends. The Unusual Event was terminated at 1:25 pm.

A Region I security inspector was immediately sent to Limerick to assist the resident inspector during the event. The inspectors observed the plant staff's response throughout the event. The inspectors concluded that the response was appropriate, given the circumstances, and that security procedures were properly implemented. One area for improvement noted by both the inspectors and plant management, was the communications between operations and security during the event. The shift manager was not being kept informed of the status of the event as it unfolded. Corrective actions were being reviewed by plant management at the end of the inspection period. The inspectors will review these actions during the next inspection period. A follow-up PECO Energy investigation determined that the tube was actually trash that was left following work in the battery room. The tube was left after rolls of absorbent material were placed under the batteries for cleanliness concerns. Plant workers were counseled concerning leaving trash in a work area.

6.0 REVIEW OF LICENSEE EVENT, SPECIAL AND ROUTINE REPORTS (90712, 90713)

6.1 Licensee Event Reports (LERs)

The inspectors routinely reviewed LERs and performed follow-up inspections to PECO Energy's actions regarding the disposition of corrective initiatives. The inspectors reviewed the following LER and found that the event was described accurately, PECO Energy had identified the root causes, implemented appropriate corrective actions and made the required notifications.

LER 1-95-009, Corrosion Induced Bonding Results in Main Steam System Safety Valve Setpoint Drift, Event Date: November 13, 1995, Report Date: December 12, 1995.

This LER reported a condition where two, out of five, main steam system safety relief valves (SRVs), that were removed during a forced outage in September 1995, were found to lift outside of the limits required by technical specifications. All five SRVs were replaced, and resolution of the setpoint drift is being conducted by implementing the solutions recommended by the BWROG Setpoint Drift Fix Program.

The inspectors found that the LER listed above met the requirements of 10 CFR 50.73 and had no further questions regarding the event.

6.2 Special Reports

Two Special Reports were submitted during the inspection period, concerning valid emergency diesel generator test failures.

The first, dated November 15, 1995, documents an instance where the D12 EDG output breaker failed to properly close when demanded from the main control room. Investigation identified that the overvoltage permissive relay was out of calibration. The relay was recalibrated and the EDG was successfully retested. The relay will be replaced and sent to a laboratory for further analysis; a supplement to the report will be issued if significant findings are identified.

The second, dated December 28, 1995, addresses two failures resulting from crankcase pressurization transients. These events are reviewed in section 4.2 of this inspection report.

6.3 Routine Reports

Routine reports submitted by PECO Energy were reviewed to verify the reported information. The following reports were reviewed and satisfied the requirements for which they were reported.

> Station Monthly Operating Reports for October, dated November 13, 1995, and November, dated December 12, 1995.

7.0 FOLLOW-UP OF PREVIOUS INSPECTION FINDINGS (92902, 92903)

Closed (50-352, 353/95-12-01) This violation was associated with the inadequate design control and testing that led to the unknown degradation of the recombiner systems.

On September 2, 1995, with Unit 1 at 23% of rated power, during the performance of surveillance testing, the primary containment hydrogen recombiner cooling water valves HV-057-110A and B failed to open as designed. PECO Energy's investigation identified that the valve failure was associated with a modification made to the systems that replaced the recombiner recorders. This modification had been performed on the 1A, 1B and 2A hydrogen recombiners. The hydrogen recombiners were declared inoperable due to the inability to manually open the recombiner water inlet valve on each of the three recombiners. A power reduction commenced on both units, as required by technical specifications. Later that night, repairs and testing of all three

recombiners were satisfactorily completed and the recombiners were declared operable. Unit 1 had reduced power to approximately 7% and was placed in the startup mode, and Unit 2 had reduced power to approximately 36%, at the time the power reductions were terminated. PECO Energy's investigation identified the existence of incorrect programming of the high temperature trip/permissive logic in the recombiner temperature recorders during a modification. The permissive logic prevented the recombiner from being started below 250 degrees F. Additionally, the investigation identified numerous opportunities and barriers that were missed in order for this event to have occurred. The inadequate design control and testing that led to the unknown degradation of the recombiner systems constituted a violation of the NRC requirements set forth in 10 CFR Part 50, Appendix B, Criterion III.

In response to this event and subsequent violation, an immediate hold was placed on all modifications and engineering change requests (ECRs), with work being released to work groups only after review by the senior manager-design engineering on a case-by-case basis. PECO Energy performed a comprehensive review of engineering projects and ECRs dating back to 1993 (over 2000 total packages reviewed) and found no similar problems. At the time of the event, the overall modification process was being reviewed and revised in response to a similar modification event that occurred at Peach Bottom. For this event, the site engineering staff performed a comprehensive investigation using both barrier analysis and event and casual factor charting. The results of the investigation and root cause analysis were used in the enhancement and development of the new modification process. These new procedures adequately addressed major weaknesses identified for this event including, the use of acceptance test plans and post modification testing (PMT). Several meetings were also held to ensure all personnel understood the lessons learned from this event, and were aware of the modification process enhancements. A training assessment was performed for maintenance personnel on the modification/ECR process, including the PMT process. Training lessons plans and materials will be developed by February 1996, for training of the work groups. The inspectors had no further questions concerning this event and this item is closed.

Closed (URI 50-352/95-18-01) This item was unresolved pending NRC review of the completed PECO Energy investigation concerning why an RHR check valve disc nut was inadequately peened, what the source of foreign materials was in the valve, and why a cleanliness inspection failed to identify the foreign materials.

The PECO Energy investigation concluded that the foreign materials were not introduced into the system during the activity which repaired the loose disc nut. This was based on the fact that no wood like that found in the valve was used during the maintenance activity. The cleanliness inspection failed to identify the materials because they were apparently elsewhere in the system; quality verification management determined that the cleanliness inspection performed was as required and met management expectations.

The work order for the valve maintenance, which was performed in May 1995, instructed that the valve be reassembled using procedure M-400-014, Preventive Maintenance Procedure for Q-listed Type I Anchor Darling Bolted Bonnet Swing

Check Valve With Test Levers and 2 Shaft Pins. The procedure and accompanying engineering change request, ECR-94-07721, required that the pin be inserted through the disc nut and disc pin and peened at both ends. The PECO Energy investigation determined that the pin was not adequately peened after insertion, which allowed the pin to work its way out, and for the nut to subsequently loosen. This was due to inadequate direction to the technicians for peening and inadequate training of the technicians on peening and staking techniques. Corrective actions taken included evaluating the maintenance packages for improvements to make them more efficient for the workers, and maintenance training will be enhanced to include methods for proper peening and staking. Additionally, the procedure will be enhanced to include correct methods of securing the disc nut pin. All other similar check valves will be checked to verify that the disc nut pin has been properly secured. This procedure violation meets the criteria for enforcement discretion of Section VII, of the NRC's Enforcement Policy, and will be treated as a non-cited violation. The inspectors had no further questions concerning this event and this item is closed.

8.0 MANAGEMENT MEETINGS

8.1 Exit Interviews

The inspectors discussed the issues in this report with PECO Energy representatives throughout the inspection period, and summarized the findings at an exit meeting with the Plant Manager, Mr. R. Boyce, on January 11, 1996. PECO Energy personnel did not express any disagreement with the inspection findings. No written inspection material was provided to licensee representatives during the inspection period.