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Licensee: PECO Energy Company  
Correspondence Control Desk  
P.O. Box 195  
Wayne, PA 19087-0195

Facility: Peach Bottom Atomic Power Station Units 2 and 3

Inspection Period: April 5, 1999 through May 17, 1999

Inspectors: A. McMurray, Senior Resident Inspector  
M. Buckley, Resident Inspector  
B. Welling, Resident Inspector

Approved by: Curtis J. Cowgill, Chief  
Projects Branch 4  
Division of Reactor Projects

## EXECUTIVE SUMMARY

Peach Bottom Atomic Power Station  
NRC Inspection Report 50-277/99-04, 50-278/99-04

This inspection report included aspects of PECO operations; surveillances and maintenance; engineering and technical support; and plant support areas.

### Operations:

- Equipment operators performed well during plant rounds. They properly completed surveillance readings and reported abnormal plant conditions. The use of peer mentors for improving performance of newly qualified equipment operators was a positive practice. (Section O4.1)
- PECO controlled the overtime hours of operations and maintenance personnel within the limits of the technical specifications and administrative procedures. (Section O6.1)

### Maintenance:

- Maintenance activities associated with Thermolag and penetration seal upgrades were typically well-controlled. (Section M2.1)

### Plant Support:

- Communications equipment, supplies and data acquisition systems were maintained in a high state of operational readiness in the Technical Support Center and the Operational Support Center. Emergency siren activation equipment was fully operational. Equipment and supplies for off-site dose assessment teams were properly calibrated and fully functional. (Section P2.1)
- On April 6, 1999, site security personnel discovered that a Unit 3 vital area door alarm had been disabled. The alarm had inadvertently been disabled by security personnel during planned maintenance on security system equipment. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. (Section S2.1)

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
TABLE OF CONTENTS .....	iii
Summary of Plant Status .....	1
I. Operations .....	1
O2 Operational Status of Facilities and Equipment .....	1
O2.1 Engineered Safety Feature System Walkdowns (71707) .....	1
O2.2 Operations Personnel Response to High Control Rod Drive (CRD) Seal Temperatures .....	1
O4 Operator Knowledge and Performance .....	2
O4.1 Equipment Operator (EO) Performance During Daily Rounds .....	2
O6 Operations Organization and Administration .....	3
O6.1 Site Use of Overtime .....	3
O8 Miscellaneous Operations Issues .....	4
O8.1 (Closed) Violation (VIO) 50-277/98-06-02 Plant Status Control Corrective Action .....	4
O8.2 (Closed) Violation 50-277(278)/98-06-04 Failure to Perform Surveillance Required for First Recirculation Pump Start .....	4
O8.3 (Closed) LER 50-278/3-99-001 Unit 3 Reactor Core Isolation Cooling (RCIC) Engineered Safety Feature (ESF) Isolation due to High Steam Flow Signal During System Restoration .....	4
O8.4 (Closed) Violation (VIO) 50-278/98-08-01 Reactor Water Cleanup (RWCU) System Startup Procedure .....	4
II. Maintenance .....	5
M1 Conduct of Maintenance .....	5
M1.1 General Comments .....	5
M2 Maintenance and Material Condition of Facilities and Equipment .....	5
M2.1 Thermolag Remediation Work .....	5
III. Engineering .....	6
E8 Miscellaneous Engineering Issues .....	6
E8.1 (Closed) VIO 50-278/98-06-03 Unit 3 Recirculation Loop Mismatch Following the Runback of the 3 'A' Recirculation Pump .....	6
IV. Plant Support .....	6
P2 Status of Emergency Preparedness (EP) Facilities, Equipment, and Resources .....	6
P2.1 Readiness of Site Emergency Response Facilities .....	6
S1 Conduct of Security and Safeguards Activities .....	7
S1.1 Significant Fitness for Duty Event Requiring NRC Notification .....	7
S2 Status of Security Facilities and Equipment .....	8

	S2.1	Inadvertent Disabling of a Unit 3 Safeguard System Vital Area Door and (Closed) LER 50-278/3-99-002 .....	8
F8		Miscellaneous Fire Protection Issues .....	9
	F8.1	(Closed) Inspector Follow-up Item (IFI) 50-277(278)/97-04-02 Review; Revisions to Fire Protection Training Lesson Plans .....	9
V.		Management Meetings .....	9
	X1	Exit Meeting Summary .....	9
		INSPECTION PROCEDURES USED .....	10
		ITEMS OPENED AND CLOSED .....	10
		LIST OF ACRONYMS USED .....	11

## Report Details

### Summary of Plant Status

PECO operated both units safely over the period of this report.

Unit 2 began this inspection period at 100% power. On May 15, 1999, Unit 2 load was reduced to approximately 71% for maintenance on an outboard main steam isolation valve. Unit 2 power returned to full power later that day and remained at 100% for the rest of the period.

Unit 3 began this inspection period at 100% power. On April 17, 1999, Unit 3 load was reduced to approximately 83% power for a control rod pattern adjustment and to repair an air leak on a control rod hydraulic control unit. Unit 3 power returned to 100% later that day. On May 15, Unit 3 load was reduced to approximately 80% power for a control rod pattern adjustment, then restored to 100% power. Unit power remained at 100% for the rest of the period.

### I. Operations

#### **O2 Operational Status of Facilities and Equipment**

##### **O2.1 Engineered Safety Feature System Walkdowns (71707)**

The inspectors used Inspection Procedure 71707 to walkdown sections of the following safety systems or subsystems:

- High Pressure Service Water Pumps - Units 2 and 3
- Emergency Service Water System- Units 2 and 3
- Emergency cooling Booster Pumps- Units 2 and 3

Equipment operability and material condition were acceptable in all cases. Minor equipment discrepancies were brought to the attention of operations personnel and corrective actions were initiated.

##### **O2.2 Operations Personnel Response to High Control Rod Drive (CRD) Seal Temperatures**

###### **a. Inspection Scope (71707)**

On April 25, 1999, a high high temperature alarm (greater than 500°F) was received for the Unit 3 control rod drive (CRD) 26-11. The inspectors reviewed the actions by operations and engineering personnel to monitor and address the impact of high CRD seal temperatures.

###### **b. Observations and Findings**

After a routine stroking surveillance was performed on CRD 26-11 on April 25, the inspectors observed that the CRD temperature was indicating 514°F. After further review of this high temperature condition, the inspectors noted that a high-high

temperature alarm for this CRD was first received by operators on March 13, 1999. At that time, operators initiated an action request (AR) to address the problem. Engineering personnel evaluated the AR and concluded the CRD remained operable. Later in March, the temperature dropped below the high-high temperature alarm setpoint.

The inspectors reviewed PECO's operability determination and identified no concerns. A CRD high temperature condition can cause seal degradation and could result in up to a 0.15 second increase in scram insertion times, according to a General Electric Service Information Letter (SIL). However, the technical specification maximum scram time would not be approached for this CRD, even with the 0.15 second increase.

After the inspectors questioned the high temperature reading, reactor engineering provided guidance to the control room operators to correct the condition. The CRD was subsequently moved from the full out position of 48 to 46 to reestablish proper cooling flow and reduce drive temperature below the alarm setpoint. The inspectors noted that these steps were not incorporated into existing procedures. PECO personnel stated that they were evaluating updating procedures to add this action.

Although the system manager was tracking CRDs with high temperatures, the inspectors noted that the control room CRD discrepancy log was not updated to reflect that CRD 26-11 was moved to position 46 to alleviate a high temperature condition. Operations management indicated that operators should have made an entry in the CRD deficiency log to indicate that the position of the CRD was changed to correct a discrepant condition. Subsequently, a CRD discrepancy log entry was made. In addition, the operators included CRD status during shift turnover.

c. Conclusions

Inspectors identified two discrepancies during the review of a high temperature condition (above 500 °F) on a Unit 3 control rod drive (CRD). The station had not incorporated into operating response procedures the practice of moving a CRD from the full out position to correct a high temperature condition. In addition, operators were not documenting in the CRD discrepancy log that a CRD was moved to reduce the temperature.

**O4 Operator Knowledge and Performance**

**O4.1 Equipment Operator (EO) Performance During Daily Rounds**

a. Inspection Scope (71707)

The inspectors observed EOs out in the field to assess their performance and to determine whether abnormal conditions observed during rounds were being noted and reported.

b. Observations and Findings

The inspectors observed that EOs for both units performed well during plant rounds. They properly completed surveillance readings and reported abnormal plant conditions. Newly qualified EOs were assigned peer mentors with several years of experience. These mentors were referred to as needed and provided insights into tasks being performed. The inspectors determined that use of peer mentors for improving performance of newly qualified equipment operators was a positive practice.

c. Conclusions

Equipment operators performed well during plant rounds. They properly completed surveillance readings and reported abnormal plant conditions. The use of peer mentors for improving performance of newly qualified equipment operators was a positive practice.

**O6 Operations Organization and Administration**

O6.1 Site Use of Overtime

a. Inspection Scope (71707 & 62707)

The inspectors reviewed overtime records for the last six months to determine if overtime usage for safety-related work by the operations and maintenance departments complied with technical specifications and administrative limits.

b. Observations and Findings

The administrative controls section of the Peach Bottom technical specifications lists overtime guidelines and requires that administrative procedures be developed and implemented to limit the working hours of unit staff who perform safety related functions. The inspectors reviewed the overtime records for operations and maintenance personnel for the last six months and compared the overtime worked with the technical specification and site administrative procedures. The inspectors determined that overtime was well-controlled within the limits of the technical specifications and administrative procedures. In addition, the inspectors reviewed overtime records and documentation for restoration and post-maintenance testing for a recent E-3 emergency diesel generator (EDG) outage. The inspectors noted that there were no indications that the amount of overtime worked by plant personnel affected work quality or testing performance.

c. Conclusions

PECO controlled the overtime hours of operations and maintenance personnel within the limits of the technical specifications and administrative procedures.

## O8 Miscellaneous Operations Issues

### O8.1 (Closed) Violation (VIO) 50-277/98-06-02 Plant Status Control Corrective Action

The inspectors verified that the corrective actions that addressed the cause of this violation were implemented. Corrective actions for station wide plant status control deficiencies were addressed in Performance Enhancement Program (PEP) No. I0008088. In addition, the procedure improvement initiative at the station addressed generic issues that contributed to this violation. The inspectors have no additional concerns with this issue. This violation is closed.

### O8.2 (Closed) Violation 50-277(278)/98-06-04 Failure to Perform Surveillance Required for First Recirculation Pump Start

This Severity Level IV violation was documented in a Notice of Violation issued before March 11, 1999, implementation of the NRC's new policy for treatment of Severity Level IV violations (Appendix C of the Enforcement Policy). Because this violation would have been treated as an NCV in accordance with Appendix C, it is being closed out in this report. This violation is in PECO's correction program as PEP No. I0008126.

### O8.3 (Closed) LER 50-278/3-99-001 Unit 3 Reactor Core Isolation Cooling (RCIC) Engineered Safety Feature (ESF) Isolation due to High Steam Flow Signal During System Restoration

This event was discussed in NRC inspection Report 50-277(278)/99-02, Section O3.1. The inspectors performed an on-site review of the LER. Shift managers reviewed this event during a professional development seminar. Instruction on repressurizing the RCIC system so that the high flow isolation does not occur was planned for future operator training. No additional concerns were identified by the inspectors during this review.

### O8.4 (Closed) Violation (VIO) 50-278/98-08-01 Reactor Water Cleanup (RWCU) System Startup Procedure

This Severity Level IV violation was documented in a Notice of Violation issued before March 11, 1999, implementation of the NRC's new policy for treatment of Severity Level IV violations (Appendix C of the Enforcement Policy). Because this violation would have been treated as an NCV in accordance with Appendix C, it is being closed out in this report. This violation was documented in PECO's corrective action program as PEP Nos. I0008835 and I00008846.



ii. Maintenance**M1 Conduct of Maintenance****M1.1 General Comments**

NRC Inspection Procedures 62707 and 61726 were used in the inspection of plant maintenance and surveillance activities. The inspectors observed and reviewed selected portions of the following maintenance and surveillance test activities:

<u>Maintenance Observations:</u>		<u>Observed On:</u>
C0186325	Install Data Acquisition System Penetration in Cable Spreading Room	April 27, 1999
C0186392	Thermolag Upgrade (E13 4KV Switchgear Room)	April 27, 1999
M1206858	'B' Reactor Feed Pump Turbine Thrust Bearing Drain Oil Temperature Variations	May 7, 1999
C0188535	Rework/Recalibrate/Replace Power Supply for APRM Channel 'E' (Unit 2)	May 7, 1999

<u>Surveillance Observations:</u>		<u>Observed On:</u>
RT-O-023-725-3	High Pressure Coolant Injection (HPCI) Response Time Test (Unit 2)	April 13, 1999
ST-O-23-301-2	HPCI Pump, Valve, Flow and Unit Cooler Functional and Inservice Test	May 11, 1999

The work and testing performed during these activities was professional and thorough. Technicians were experienced and knowledgeable of their assigned tasks. The work and testing procedures were present at the job site and actively used by the technicians and operators for activities observed. Good pre-job briefs were observed prior to the performance of the surveillances observed. Engineering personnel were present and actively monitoring system performance during the surveillances observed.

**M2 Maintenance and Material Condition of Facilities and Equipment****M2.1 Thermolag Remediation Work****a. Inspection Scope (62707)**

The inspectors observed portions of work activities associated with Thermolag and fire protection penetration seal upgrades.

b. Observations and Findings

The inspectors observed that the work activities were typically well-controlled. Much of the work was being performed in the vicinity of sensitive equipment such as safety-related battery chargers and switchgear in the 4KV switchgear rooms. Station personnel had installed barriers and covers to provide protection from inadvertent bumping. Also, workers had been briefed on the location of the sensitive equipment. Some unexpected control room alarms occurred when workers placed materials in front of the cooling air vents for the battery chargers; in response to the alarms, station personnel removed the material prior to any equipment damage.

c. Conclusions

Maintenance activities associated with Thermolag and penetration seal upgrades were typically well-controlled.

### III. Engineering

**E8 Miscellaneous Engineering Issues**

E8.1 (Closed) VIO 50-278/98-06-03 Unit 3 Recirculation Loop Mismatch Following the Runback of the 3 'A' Recirculation Pump

This Severity Level IV violation was documented in a Notice of Violation issued before March 11, 1999, implementation of the NRC's new policy for treatment of Severity Level IV violations (Appendix C of the Enforcement Policy). Because this violation would have been treated as an NCV in accordance with Appendix C, it is being closed out in this report. This violation was documented in the PECO's corrective action program as PEP No. 10008525.

### IV. Plant Support

**P2 Status of Emergency Preparedness (EP) Facilities, Equipment, and Resources**

P2.1 Readiness of Site Emergency Response Facilities

a. Inspection Scope (71750)

The inspectors toured the Technical Support Center (TSC) and Operational Support Center (OSC) to determine if the facilities and equipment were adequately maintained for activation and response to an emergency. The inspectors also inspected on-site emergency siren activation equipment and the equipment that would be used by the off-site dose assessment teams.

b. Observations and Findings

The inspectors verified that emergency communications equipment in the control room, TSC and OSC was operational. The main and back-up batteries for the TSC communications equipment were clean with tight connections and proper electrolyte level. The exterior of the ventilation ducting and supply and exhaust fans for the TSC were functional. All dosimetry staged at the TSC was properly calibrated. Work areas in the TSC and OSC were uncluttered and in a good state of readiness. Emergency procedures and other documentation were properly filed and readily available. Computers in the TSC were working properly.

The inspectors verified that radiological monitoring equipment at the OSC was within the calibration dates. Field survey kits and decon kits to be used by off-site dose assessment teams were appropriately stocked. Radiological monitoring equipment, used by the off-site dose assessment teams, was properly calibrated. The emergency siren activation system was observed to be fully operational.

Although the plant monitoring system computers in the TSC were operational during this inspection, they have locked up twice this year. The computers were not able to be reset locally to restore the terminals to service during these failures and were restored by Nuclear Information Services Department personnel at the terminal server. This issue was documented in PEP I0009678 and should be resolved later this year when the existing plant monitoring system computer terminals are replaced.

c. Conclusions

Communications equipment, supplies and data acquisition systems were maintained in a high state of operational readiness in the Technical Support Center and the Operational Support Center. Emergency siren activation equipment was fully operational. Equipment and supplies for off-site dose assessment teams were properly calibrated and fully functional.

**S1 Conduct of Security and Safeguards Activities**

S1.1 Significant Fitness for Duty Event Requiring NRC Notification

a. Inspection Scope (71750)

On May 10, 1999, PECO site security personnel received the results of laboratory analysis on syringes found inside the protected area. The results indicated a presence of a controlled substance. The inspectors reviewed PECO's initial response to this event.

b. Observations and Findings

On April 15, 1999, PECO staff found three used syringes in the trash from a warehouse bathroom located within the protected area. The syringes were subsequently sent to an

independent laboratory for drug testing. The testing determined the presence of a controlled substance. On May 11, 1999, PECO made a 24 hour report to the NRC per 10 CFR26.73(a) for this issue.

The inspectors discussed this issue with security management. The inspectors determined that the initial actions by security personnel for this event were appropriate and the issue was properly reported to the NRC. Security management indicated that further action for this event was on-going.

c. Conclusions

On May 11, 1999, PECO notified the NRC that syringes found in the protected area tested positive for a controlled substance. Initial actions by security personnel for this event were appropriate and the issue was properly reported to the NRC. Evaluation and actions for this event by PECO were on-going.

**S2 Status of Security Facilities and Equipment**

S2.1 Inadvertent Disabling of a Unit 3 Safeguard System Vital Area Door and (Closed) LER 50-278/3-99-002

a. Inspection Scope (71750)

On March 31, 1999, security personnel inadvertently disabled a Unit 3 vital area door alarm function during planned maintenance on a security system multiplexer unit. The inspectors discussed this issue with the security management and reviewed PECO's initial corrective actions.

b. Observations and Findings

On April 6, 1999, security personnel detected a disabled vital area door alarm in Unit 3. The door alarm function was disabled for approximately six days. Security personnel restored the vital door alarm to operation as part of the initial corrective actions and informed security management. Although the door alarm was disabled, the door continued to be maintained locked and controlled in all other respects.

Security personnel's investigation yielded no evidence of unauthorized access or tampering with the door. All security personnel were briefed on the event, the turnover process for the security alarm station operators was revised, and all security personnel were required to attend self-check training.

The inspectors performed an on-site review of LER 3-99-002, and identified no additional concerns.

The Peach Bottom Atomic Power Station Unit 3 Facility Operating License (DPR-56) specifies that all provisions of the Commission-approved Physical Security Plan shall be fully implemented. Maintaining the alarm function of vital area doors is a requirement of

the Peach Bottom Physical Security Plan. Contrary to this requirement, a Unit 3 vital area door alarm remained disabled for approximately six days. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in PECO's corrective action program as PEP 10009658. **(NCV 50-278/99-04-01)**

c. Conclusions

On April 6, 1999, site security personnel discovered that a Unit 3 vital area door alarm had been disabled. The alarm had inadvertently been disabled by security personnel during planned maintenance on security system equipment. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy.

**F8 Miscellaneous Fire Protection Issues**

F8.1 (Closed) Inspector Follow-up Item (IFI) 50-277(278)/97-04-02 Review Revisions to Fire Protection Training Lesson Plans

In NRC Inspection Report 50-277(278)/97-04, the inspectors opened an inspector follow-up item to review the hotwork firewatch training lesson plan for lessons learned from a Unit 2 vent stack fire in August 1994. The lesson plan should have discussed the unavailability of communication equipment at the job site as a contributing cause for the event, as a corrective action for Performance Enhancement Program (PEP) report 10002682.

The inspectors verified that the current hotwork firewatch lesson plan, LMCTR-1075, Revision 4, contained a section on the lessons learned from the vent stack fire event, which included the unavailability of communications equipment. During plant tours, inspectors questioned firewatch personnel and verified they were aware of the need for communications equipment at the job site. This item is closed.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The inspectors presented the results of the inspection to members of PECO management on May 28, 1999. PECO acknowledged the findings presented. No proprietary information was identified by PECO.

## INSPECTION PROCEDURES USED

IP 37551	Onsite Engineering Observations
IP 61726	Surveillance Observations
IP 62707	Maintenance Observation
IP 71707	Plant Operation
IP 71750	Plant Support Observations

## ITEMS OPENED AND CLOSED

Opened/C. sed

50-278/99-04-01	NCV	Inadvertent Disabling of Safeguard System Vital Area Door
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Closed

50-277(278)/97-04-02	IFI	Review Revisions to Fire Protection Training Lesson Plans
50-277/98-06-02	VIO	Plant Status Control Corrective Action
50-278/98-06-03	VIO	Unit 3 Recirculation Loop Mismatch Following the Runback of the 3 'A' Recirculation Pump
50-277(278)/98-06-04	VIO	Failure to Perform Surveillance Required for First Recirculation Pump Start
50-278/98-08-01	VIO	RWCU System Startup Procedure
50-278/3-99-001	LER	Unit 3 Reactor Core Isolation Cooling (RCIC) Engineered Safety Feature (ESF) Isolation Due to High Steam Flow Signal During System Restoration
50-278/3-99-002	LER	Failure to Maintain Alarmed Access Control to a Safeguard System Vital Area Door

## LIST OF ACRONYMS USED

APRM	average power range monitor
CFR	code of federal regulations
CRD	control rod drive
CS	core spray
DC	direct current
ECCS	emergency core cooling system
EI	escalated enforcement issue
EO	equipment operator
EP	emergency preparedness
ESF	engineered safety feature
FSSD	fire safe shutdown
HCU	hydraulic control unit
HPCI	high pressure coolant injection
LERs	licensee event reports
MCREV	main control room emergency ventilation
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSC	Operational Support Center
PBAPS	Peach Bottom Atomic Power Station
PDR	public document room
PECO	PECO Energy
PEP	performance enhancement program
RCIC	reactor core isolation cooling
RHR	residual heat removal
SBO	station blackout
TSC	Technical Support Center
UFSAR	updated final safety analysis report