

April 27, 2000

Mr. G. Rainey, President
PECO Nuclear
Nuclear Group Headquarters
Correspondence Control Desk
P. O. Box 195
Wayne, PA 19087-0195

SUBJECT: NRC INSPECTION REPORT 05000352/2000-002, 05000353/2000-002

Dear Mr. Rainey:

On April 1, 2000, the NRC completed a routine inspection of activities at the Limerick Generating Station, Units 1 and 2. The enclosed report presents the results of this inspection.

Your staff continued to operate both units safely. Your staff's preparation for the eighth refueling outage at Unit 1 was thorough and the unit shutdown was performed without incident.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. This violation is being treated as Non-Cited Violation (NCV) consistent with Section VII.B.1.a of the Enforcement Policy. The NCV involved the long term gas supply to all of the Unit 2 automatic depressurization system valves. If you contest the violation or its severity level, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and the NRC resident at the Limerick Generating Station.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be placed in the NRC Public Document Room.

Mr. G. R. Rainey

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No reply to this letter is required, but should you have any questions regarding this please contact me at 610-337-5233.

Sincerely,

/RA/

Curtis J. Cowgill, Chief
Project Branch No. 4
Division of Reactor Projects

Docket Nos.: 05000352, 05000353

License Nos: NPF-39, NPF-85

Enclosures: NRC Inspection Report 05000352/2000-002, 05000353/2000-002

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket Nos. 05000352
05000353

License Nos. NPF-39
NPF-85

Report No. 05000352/2000-002
05000353/2000-002

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

Facilities: Limerick Generating Station, Units 1 and 2

Location: Wayne, PA 19087-0195

Dates: February 8, 2000 through April 1, 2000

Inspectors: A. L. Burritt, Senior Resident Inspector
F. P. Bonnett, Resident Inspector
D. G. Cullison, Project Engineer
G. C. Smith, Senior Physical Security Inspector, DRS

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

EXECUTIVE SUMMARY
Limerick Generating Station, Units 1 and 2
NRC Inspection Report 05000352/2000-002, 05000353/2000-002

This inspection report includes aspects of PECO Energy (PECO) operations, maintenance, and plant support. The report covers a seven-week period of routine resident inspection.

Operations

- In LER 2-00-002, PECO identified that the manual block valves for both trains of the Unit 2 automatic depressurization system backup nitrogen supply headers were closed when they were required to be open by the system procedure checkoff list. This condition was a violation of Technical Specification 6.8.1. This Severity IV violation is being treated as a Non-Cited Violation consistent with Section VII.B.1.a. of the Enforcement Policy. This violation is in the PECO corrective action program as PEP I0010731.

Maintenance

- Preparation for refueling outage 1R08 work was thorough. PECO effectively managed the shutdown risk levels associated with the planned outage work activities. (Section M1.3)

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Report Details

Summary of Plant Status

Unit 1 began this inspection period operating at 96% power in end-of-cycle coastdown operations. Control room operators removed the No. 6 feedwater heaters from service on February 12, and the No. 5 feedwater heaters from service on February 25, in accordance with the end-of-cycle coastdown strategy described in procedure GP-5 "Power Operations."

On March 29, 2000, with the reactor operating at 88% power, the operators took Unit 1 offline to commence the eighth refueling outage. The refueling outage included several maintenance and surveillance activities including:

- Replacement of the two-stage Target Rock main steam safety relief valves with three-stage Target Rock main steam safety relief valves;
- Installation of a digital power range nuclear monitoring system;
- Completion of the 1A reactor water cleanup pump modification;
- Inspection of reactor vessel welds; and
- Noble metal chemical addition to inhibit future intergranular stress corrosion cracking.

Unit 2 began this inspection period operating at 100%. The unit remained essentially at full power throughout the period.

I. Operations

O1 Conduct of Operations¹

O1.1 General Comments (71707)

PECO conducted power and shutdown activities at Limerick Units 1 and 2 safely. Control room operators performed non-routine tasks, such as removal of the fifth and sixth feedwater heaters from service to support the end-of-cycle coastdown strategy, using approved procedures. The entries in the operator's log accurately reflected plant conditions.

On February 10, 2000, Unit 1 operators responded appropriately to unusual control panel indications for the drywell equipment and floor drain sumps when restoring from routine test RT-2-061-604-1, "Drywell Floor Drain Sump Level Switch Calibration/Functional Test." After the operators identified that the control panel indications were not functioning properly, technicians determined that the sump level instrument reference leg isolation valve had been left closed. PECO subsequently identified that the technicians performing the test did not complete the procedure step to reopen the valves. The drywell sumps provide reactor coolant leakage detection and are required per Technical Specifications. The inspector determined that the system's allowed outage time had not been exceeded. The failure to perform a procedure step as required is considered a minor violation not subject to formal enforcement. PECO entered the component mis-positioning event into the Performance Enhancement Program (PEP I0010789).

¹ Topical headings such as O1, M8, etc., are used in accordance with the NRC standardized reactor inspection report outline. Individual reports are not expected to address all outline topics.

The Unit 1 control room operators fully inserted and disabled control rod 22-39 after position indication became erratic during the control rod exercise test. The operators appropriately declared the control rod inoperable to comply with the Technical Specifications.

O1.2 Unit 1 Shutdown for Refueling Outage 1R08

a. Inspection Scope (71707)

The inspectors observed the activities of Operations personnel in the main control room performing the unit shutdown to begin the eighth refueling outage.

b. Observations and Findings

The inspectors noted professional operator performance during the Unit 1 shutdown and noble metal injection activities. The reactor operators followed procedures, their communications were clear, and peer-checking standards were followed. The inspectors noted that Operations personnel remained aware of activities taking place in the plant.

Throughout the evolution, operations supervision maintained good control and oversight of plant activities. The appropriate procedures, including contingency procedures, were open and readily available. The unit supervisor held pre-job briefs on several occasions with the unit operators to discuss upcoming evolutions and reactivity manipulations. Shift supervision took appropriate action to minimize occasional operator distractions caused by high numbers of personnel in the control room.

When directed by the unit supervisor, the operators manually scrammed the plant from 15% power to insert all control rods. The plant responded as designed. The operators entered the appropriate Transient Response Implementing Procedures, stabilized the plant, and promptly exited the procedure. The appropriate log entries into the Unified Log were completed in a timely manner.

c. Conclusions

The Operations staff safely shutdown Unit 1 to begin the eight refueling outage.

O2 Operational Status of Facilities and Equipment

O2.1 Facility Tours (71707)

The inspectors routinely conducted independent plant tours and walk-downs of selected portions of safety-related systems during the inspection period. These activities consisted of the verification that system configuration, power supplies, process parameters, support system availability, and current system operational status was consistent with Technical Specification requirements and Updated Final Safety Analysis Report descriptions. System operability and material conditions were noted to be

acceptable in all cases. The inspectors did not identify any substantive concerns or deficiencies as a result of these walk-downs.

O8 Miscellaneous Operations Issues (90712)

O8.1 (Closed) LER 2-00-002: Automatic Depressurization System Long-Term Gas Supply Valve Mispositioned - Unit 2

This event involved a condition outside of the plant design basis for long term nitrogen supply to all of the automatic depressurization system valves. PECO identified that the manual block valves for both trains of the Unit 2 automatic depressurization system backup nitrogen supply headers were closed when they were required to be open. PECO determined that the most probable cause of this event was improper documentation of a valve line-up performed for testing during the last refueling outage in May 1999. The inspector performed an in-office review and determined that the valve mis-alignment affected only the long-term alternate shutdown cooling mode, which is required 6 hours following an event as per the Updated Final Safety Analysis Report. The emergency core cooling safety function remained operable. Technical Specification 6.8.1 requires, in part, that written procedures be implemented covering applicable procedures recommended in Regulatory Guide 1.33, Appendix A, February 1978. The valves were in a position that was contrary to the system procedure checkoff list which is a violation of TS 6.8.1. This Severity IV violation is being treated as a Non-Cited Violation (**NCV 05000353/2000-002-01**), consistent with Section VII.B.1.a. of the Enforcement Policy. This violation is in the PECO corrective action program as PEP I0010731.

O8.2 (Closed) LER 1-99-003: Reactor Protection System and Primary Containment and Reactor Vessel Isolation Control System Actuation due to Loss of Feedwater Flow Transient - Unit 1

This event, which occurred on April 20, 1999, and involved an automatic reactor shutdown and an emergency core cooling system's (ECCS) actuation/injection, was discussed in Inspection Reports 05000352/050000353 1999-003 and 1999-004. The Licensee Event Report (LER) contained a Special Report, required by Technical Specifications, describing the circumstances of the ECCS actuation and the total accumulation actuation cycles to date. No violations or new issues were revealed by the LER.

O8.3 (Closed) LER 2-99-006-01: Automatic Reactor Shutdown and Unusual Event Due to a Lightning Arrester Failure - Unit 2

This was a revision to an event reviewed in Inspection Report 050000352/05000353 1999-010. No violations or new issues were revealed by the LER.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Maintenance Activities (62707)

The inspectors observed selected maintenance activities to determine whether approved procedures were in use, Technical Specifications were satisfied, maintenance was performed by knowledgeable personnel, and post-maintenance testing was appropriately completed.

The inspectors observed portions of the following work activities:

- R0771518 - Control rod drive accumulator level and pressure switch calibration/functional testing - various days in February;
- Unit 1 - Noble metals modification installation - February 14;
- Unit 1 - Replacement of the 1B residual heat removal flow transmitter FT-51-1N652B - February 18;
- TRT 00-0149 - Replacement of position indication MUX card for control rod 22-39 - February 25.

The observed maintenance activities were conducted well using approved procedures, and were completed with satisfactory results. Communications between the various work and support groups were good and supervisor oversight was good.

Maintenance technicians replaced the Unit 1 high pressure coolant injection (HPCI) system cooling water pressure control valve and repaired the barometric condenser condensate pump discharge check valves. These components had been identified as the major contributors to several HPCI system problems and failures (see NRC Inspection Reports 05000352, 05000353/1999-003 and 1999-004). Following this work, significant improvement was noted in barometric condenser performance and the vacuum pump did not trip during the HPCI pump, valve, and flow test.

M1.2 General Comments on Surveillance Activities (61726)

The inspectors observed selected surveillance tests to determine whether approved procedures were in use, test instrumentation was properly calibrated and used, Technical Specifications were satisfied, testing was performed by knowledgeable personnel, and test results either satisfied the acceptance criteria or was properly dispositioned.

The inspectors observed portions of the following surveillance activity:

- ST-4-051-307-1, 1B Residual Heat Removal - Auto closure seal-in contact test for HV-051-1F004B and HV-051-1F007B - February 8;
- RT-2-061-604-1 - Drywell floor drain sump level switch calibration/functional test - February 10;
- ST-6-052-232-2 - 2A Core spray pump, valve, and flow test - February 23;

- ST-6-092-313-1 - D13 Diesel generator slow start operability test run - March 23;
- ST-6-055-200-2 - HPCI valve test, Unit 2 - March 23;
- ST-6-055-230-2 - HPCI pump, valve, and flow, Unit 2 - March 23.

The observed surveillance tests were conducted well using approved procedures and were completed with satisfactory results. Communications between the various work and support groups were good and supervisor oversight was good.

M1.3 Refueling Outage (1R08) Preparations - Unit 1

a. Inspection Scope (60705)

The inspector observed activities involving receipt, inspection, and storage of new fuel. The inspector verified the adequacy of PECO's administrative requirements for control of refueling operations. The inspector also assessed PECO's implementation of controls for the eighth refueling outage.

b. Observations and Findings

The inspector noted, during new fuel receipt and inspection, that the appropriate procedures were clearly available. Inspection activities were adequately staffed with qualified personnel. Maintenance supervision was present during the entire process. No significant findings were identified.

The inspector determined that the portions of the following refueling and administrative procedures provided adequate guidance and met the guidelines for procedures of this type. The procedures reviewed included:

GP-3	Normal Plant Shutdown
GP-6.1	Shutdown Operations - Refueling, Core Alterations and Core Off-loading
FH-105	Core Component Movement - Core Transfers

PECO management effectively controlled the degree of shutdown risk present at any point in the outage. PECO used ORAM which is a computerized tool used to assess the anticipated risk present when reactivity control, decay heat removal, spent fuel pool cooling, inventory control, power availability, and containment capability redundancies were affected.

c. Conclusions

Preparation for refueling outage 1R08 work was thorough. PECO effectively managed the shutdown risk levels associated with the planned outage work activities.

IV. Plant Support

S3 Security Program Plans

a. Inspection Scope (81700)

Area inspected was Security Program Plans.

b. Observations and Findings

An in-office review was conducted of changes to the Limerick Security Plans, Issue 2, Revisions 12, 13 and 14; Contingency Plan, Issue 2, Revision 2; and, Training and Qualification Plan, Issue 2, Revision 4. These revisions were submitted to the NRC on July 27, 1999; November 3, 1999; and, January 20, 2000, in accordance with the provisions of 10 CFR 50.54(p).

c. Conclusion

Based on a limited review of the changes, as described in the plan revisions, no NRC approval of these changes is required, in accordance with 50.54(p). These changes will be subject to future inspection to confirm that the changes, as implemented, have not decreased the overall effectiveness of the security plans.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the results to members of Plant Management at the conclusion of the inspection on April 20, 2000. The Plant Manager acknowledged the inspectors' findings. The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

INSPECTION PROCEDURES USED

IP 60705: Preparation for Refueling
IP 61726: Surveillance Observation
IP 62707: Maintenance Observation
IP 71707: Plant Operations
IP 81700: Physical Security Program for Power Reactors
IP 90712: In-Office Review of Written Reports

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

NCV 05000353/2000-002-01 Automatic Depressurization System Long-Term Gas Supply Valve Mispositioned. (Section O8.1)

Closed

LER 05000353/2-00-002 Automatic Depressurization System Long-Term Gas Supply Valve Mispositioned. (Section O8.1)

LER 05000352/1-99-003 Reactor Protection System and Primary Containment and Reactor Vessel Isolation Control System Actuation due to Loss of Feedwater Flow Transient. (Section O8.2)

LER 05000353/2-99-006, Rev. 1: Automatic Reactor Shutdown and Unusual Event Due to a Lightning Arrester Failure. (Section O8.3)

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PECO	PECO Energy
TRIP	Transient Response Implementing Procedures
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Reports