

November 5, 2004

Mr. Christopher M. Crane  
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Exelon Generation Company, LLC  
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Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED  
INSPECTION REPORT 05000277/2004004 AND 05000278/2004004

Dear Mr. Crane:

On September 30, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Peach Bottom Atomic Power Station, Units 2 and 3. The enclosed integrated inspection report documents the inspection findings, which were discussed on October 14, 2004, with Mr. Grimes and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents one NRC identified finding and one self-revealing finding of very low safety significance (Green). Both findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), in accordance with Section VI.A of the NRC's Enforcement Policy. If you contest any NCVs in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Peach Bottom facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Mr. Christopher M. Crane

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If you have any questions, please contact me at 610-337-5209.

Sincerely,

*/RA/*

Mohamed Shanbaky, Chief  
Projects Branch 4  
Division of Reactor Projects

Docket Nos.: 50-277, 50-278  
License Nos.: DPR-44, DPR-56

Enclosure: Inspection Report 05000277/2004004 and 05000278/2004004  
w/Attachment: Supplemental Information

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REGION I

Docket Nos.: 50-277, 50-278

License Nos.: DPR-44, DPR-56

Report No.: 05000277/2004004 and 05000278/2004004

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Correspondence Control Desk  
P.O. Box 160  
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Facility: Peach Bottom Atomic Power Station Units 2 and 3

Location: 1848 Lay Road  
Delta, Pennsylvania

Dates: July 1, 2004 through September 30, 2004

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## SUMMARY OF FINDINGS

IR 05000277/2004004, 05000278/2004004; 07/01/2004 - 09/30/2004; Peach Bottom Atomic Power Station, Units 2 and 3; Post-Maintenance Testing and Public Radiation Safety.

The report covered a 13-week period of inspection by resident inspectors and announced inspections by a regional senior health physicist, regional reactor inspectors, and an emergency preparedness inspector. Two Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

- Green. A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1, "Administrative Controls - Procedures," was identified for instrument control technicians not following written procedures during conduct of a surveillance test on the Unit 3 high pressure coolant injection (HPCI) system. The technician's procedure error resulted in the HPCI high reactor vessel water level trip circuit being disabled due to a test wire not being properly reconnected following testing on August 3, 2004. Instrument control technicians identified the disabled trip circuit while performing testing on the opposite trip circuit on September 14, 2004.

The finding is considered more than minor because the issue was associated with the configuration control attribute of the mitigating systems cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events. HPCI reliability could be impacted if the turbine did not trip on high reactor water level. The finding was determined to be of very low safety significance (Green) because the issue did not result in a loss of the HPCI system automatic injection safety function.

A contributing cause to the HPCI high reactor vessel water level trip being disabled was related to the human performance cross-cutting area. Specifically, instrument control technicians did not follow written instructions to reconnect a wire following planned surveillance testing. (Section 1R19)

#### Cornerstone: Public Radiation Safety

- Green. The NRC identified a non-cited violation (NCV) of 10 CFR 71.5 associated with failure to properly close Type A shipping packages (control rod drive shipping boxes). Specifically, for packages loaded on September 20, 2004, and previous shipments, Exelon did not torque the package closures (T-bolts) to

## Summary of Findings (cont'd)

torque values specified in vendor closure procedures as required by 49 CFR 173.475.

The finding was more than minor, in that it is associated with the public radiation safety cornerstone. The cornerstone objective was affected because the issue involved an occurrence in the radioactive material transportation program that was contrary to NRC or Department of Transportation regulations. Specifically, Exelon did not ensure the DOT Type A packages were properly closed. The finding is of very low safety significance (Green), in that it involved a radioactive material control and package procedure compliance issue, but did not involve a radiation limit being exceeded or a package breach. Exelon placed this issue in its corrective action program, had not shipped the specific packages offsite, and verified that previous shipments of this package type had arrived at their destination with no external contamination. (Section 2PS2)

### B. Licensee-Identified Violation

None.

## REPORT DETAILS

### Summary of Plant Status

Unit 2 began the inspection period operating at 100 percent power. Unit 2 reduced power to 28 percent on August 15, 2004, for repairs to the 'A' reactor recirculation pump motor power supply breaker. Unit 2 returned to 100 percent power on August 19, 2004. Unit 2 entered refueling outage 2R15 on September 14, 2004, and remained shut down for the remainder of the inspection period.

Unit 3 began this inspection period operating at 100 percent power and remained at or near that power level except for brief periods of planned testing.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

##### 1R01 Adverse Weather Protection (71111.01 - 1 Sample)

###### a. Inspection Scope

The inspectors reviewed Exelon's preparations for hurricane related weather events on September 7 and 20, 2004. The inspectors walked down outside areas susceptible to high winds and flooding, including offsite power substations. The inspectors reviewed operator actions described in AG-108, "Preparation for Severe Weather," during this inspection. The inspectors discussed these actions with station engineering, operations, and work management personnel. This inspection activity represented one sample.

###### b. Findings

No findings of significance were identified.

##### 1R04 Equipment Alignment

###### a. Inspection Scope

Partial System Walkdowns (71111.04Q - 3 Samples). The inspectors performed partial system walkdowns during this inspection period to verify system and component alignments and to note any discrepancies that would impact system operability. The inspectors verified selected portions of redundant or backup systems/trains were available while a system was out of service. The inspectors reviewed selected valve positions, electrical power availability, and the general condition of major system components. This inspection activity represented three samples. The partial walkdowns included the following systems:

- Unit 2 'A' core spray system with the 'B' train out-of-service for planned maintenance on August 4, 2004

Enclosure



- Unit 2 and Unit 3 high pressure coolant injection (HPCI) and reactor core isolation coolant (RCIC) systems with the station blackout (SBO) power line out of service for emergent maintenance on September 13, 2004
- Unit 2 and Unit 3 redundant structures, systems, and components (SSCs) including emergency diesel generators (EDGs), switchgear rooms, HPCI, RCIC, core spray, and residual heat removal (RHR) with the E1 EDG out of service for a planned E12 bus outage on September 16, 2004

Complete System Walkdown (71111.04S - 1 Sample). During the week of September 27, 2004, the inspectors performed a complete Unit 2 high pressure service water (HPSW) system walkdown to verify proper system alignment and configuration control following the Unit 2 refueling outage. The inspectors reviewed valve positions, electrical power availability, and the general condition of HPSW components. The inspectors independently verified the HPSW system alignment using COL 32.1.A-2, "High Pressure Service Water System," and SO 32.1.A-2, "High Pressure Service Water System Startup and Normal Operation." In addition, the inspectors also reviewed the Updated Final Safety Analysis Report (UFSAR), system design drawings, HPSW design baseline document (P-S-04), and issues tracked by the system health report (condition reports, work orders, action requests and maintenance rule issues). These reviews were conducted to identify discrepancies that could impact system operability. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 9 samples)

1. Routine Plant Area Tours

a. Inspection Scope

The inspectors reviewed the fire protection plan, Technical Requirements Manual, and the respective pre-fire action plan procedures to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the areas examined during this inspection. The inspectors then performed walkdowns of the following areas to assess control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. This inspection activity represented nine samples. The following fire areas were reviewed:

- Unit 2 turbine building, 135 foot elevation on July 6, 2004
- Unit 3 torus room on August 4, 2004
- Unit 2 E32 switchgear room on August 4, 2004
- Unit 2 E22 switchgear room on August 4, 2004
- Unit 2 reactor recirculation pump motor generator set room on August 17, 2004

- Unit 2 reactor recirculation pump motor generator set lubricating oil pump room on August 17, 2004
- Unit 2 & 3 cable spreading room on September 21, 2004
- Unit 3 high pressure coolant injection pump room on September 21, 2004
- Unit 3 reactor core isolation coolant pump room on September 21, 2004

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 Sample)

Internal Flood Protection

a. Inspection Scope

The inspectors reviewed Exelon's internal flood analysis for the Unit 2 emergency core cooling system (ECCS) pump rooms. The inspectors used design baseline document (DBD) P-T-09, "Internal Hazards," to conduct this review. The inspectors walked down selected areas of the Unit 2 reactor building to verify internal flooding design features were as described in DBD P-T-09 and UFSAR, Appendix J, Section J.3.4.2, "Suction Piping System Supply Water to ECCS - Design Aspects." This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

1. Biennial Heat Sink Inspection (71111.07B - 5 Samples)

a. Inspection Scope

The inspector selected all four EDG lube oil coolers and the 2D RHR heat exchanger (HX) for this biennial review, based on risk significance, resident inspector input, and the last biennial inspection. The EDG lube oil coolers transfer heat directly to the emergency service water (ESW) system. The 2D RHR HX transfers its heat directly to the HPSW system.

The inspector reviewed Exelon's inspection, cleaning, chemical control, and performance monitoring methods and frequencies to ensure compatibility with commitments made in their response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspector compared surveillance test and inspection data to the established acceptance criteria to verify that the results were acceptable and that operation was consistent with design. The inspector walked

down selected HXs, the HPSW and ESW pump enclosures, and the inner screen structure to assess the material condition of the systems and components.

The inspector also reviewed a sample of condition reports (CRs) related to the selected heat exchangers as well as the normal service water, ESW, and HPSW systems. This review was performed to ensure that Exelon was appropriately identifying, characterizing, and correcting problems related to these systems and components. This inspection activity represented five samples.

b. Findings

No findings of significance were identified.

2. Residual Heat Removal Heat Exchanger Testing (71111.07A - 1 Sample)

a. Inspection Scope

Based on risk significance and recent HX performance testing, the inspectors observed the Unit 2 'D' RHR HX testing conducted on September 17, 2004, in accordance with surveillance procedure RT-O-010-660-2, "RHR Heat Exchanger Performance Test." Exelon used the test to determine if the heat removal capability of the HX met design requirements. The inspectors reviewed Exelon's engineering heat transfer rate calculation, performed using RT-X-010-661-2, "RHR Heat Exchanger Performance Calculation Test," and measured the HX performance results against design basis calculation PM-0589, "RHR Heat Exchanger Performance Evaluation." The inspectors also reviewed the documentation for potential deficiencies, which could mask degraded performance or common cause performance problems. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08 - 1 Sample)

a. Inspection Scope

The purpose of this inspection is to assess the effectiveness of Exelon's program for monitoring degradation of vital system boundaries, including the reactor coolant system and other risk significant systems. The inspectors assessed the inservice inspection (ISI) activities using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI.

The inspectors observed selected in-process nondestructive examination (NDE) activities, reviewed documentation and interviewed personnel to verify that the activities were performed in accordance with the ASME Boiler and Pressure Vessel Code Section XI requirements. The sample selection was based on the inspection procedure

objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The inspectors reviewed a sample of condition reports to assess Exelon's effectiveness in problem identification and resolution. This inspection activity represented one sample. The specific ISI activities selected for review included:

- Observation of the ultrasonic testing (UT) manual technique, UT procedure, weld calibration test block, and performance of pre and post examination calibration for ultrasonic testing of the recirculation discharge riser N2F mid-span weld;
- Review of the computer-based UT procedure and observation of its application for inspection of the vertical reactor vessel welds V3C and V4C;
- Observation of the UT examination of a pre-existing subsurface reactor vessel weld indication in the C-1 weld for verification that the indication was appropriately characterized and appropriately dispositioned by a fracture mechanics engineering evaluation for continued operation without repair;
- Review of jet pump restrainer bracket video-visual examination records and proposed vibration damping clamp repairs for 8 jet pump inlet mixers;
- Observation of the magnetic particle testing (MT) surface examinations of 3 core spray piping integral attachment welds that were part of the core spray piping pressure boundary. Two small linear indications were identified during the examination on core spray "B" below the condensate storage tank suction block valve. A follow up review of the resulting inspection scope expansion and disposition of the two small linear indications was performed;
- Review of the UT examination records of the reactor closure head meridian weld CH-MB current refueling outage indications and their disposition based on a bounding fracture mechanics evaluation dated September 2002;
- Two valve replacement activities were reviewed that involved welding on Class 1 or Class 2 pressure boundary systems during the current refueling outage. These included the HPCI turbine steam supply valve (MO-2-23-014), and the reactor water cleanup (RWCU) outboard isolation valve (MO-2-12-068). Documentation of weld information data sheets and the final radiographic and magnetic particle examinations of the welds were reviewed.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q - 1 Sample)

a. Inspection Scope

The inspectors observed operating crew performance on the reference plant simulator on August 19, 2004. The exercise scenario involved use of OT-110, "Reactor High Level - Procedure." The inspectors observed the crew's performance and the critique following the training session. This activity represented one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

1. Biennial Periodic Evaluation Inspection (71111.12B - 6 Samples)

a. Inspection Scope

The inspector reviewed the periodic evaluations required by 10 CFR 50.65 (a)(3) for Peach Bottom Station, Units 2 & 3, to verify that structures, systems and components (SSCs) within the scope of the maintenance rule were included in the evaluations, and to confirm that balancing of reliability and unavailability was given adequate consideration. The inspector reviewed Exelon's most recent periodic assessment report which covered the period from October 1, 2001 through September 30, 2003.

The inspector selected risk significant systems that were in (a)(1) status to verify that: (1) goals and performance criteria were appropriate, (2) industry operating experience was considered, (3) corrective action plans were effective, and (4) performance was being effectively monitored. As of July 12, 2004, there were five risk significant SSCs in an (a)(1) status. These five systems were in various stages of evaluation, monitoring, and corrective action. The inspector reviewed Exelon's assessment of the balance between reliability and availability for these systems. This inspection activity represented six samples.

The inspector selected the following (a)(1) systems for a detailed review:

- High pressure coolant injection (Unit 3) (System 23)
- Radiation monitoring (Unit 3) (System 63)
- Emergency lighting (Unit 3) (System 37)
- Reactor pressure vessel internals (Unit 3) (System 04)
- Emergency diesel generators (System 52 A-G and 40F)
- Reactor building closed loop cooling system (Unit 2) (System 35)

The inspector reviewed the Plant Health Committee System Presentation Report for the following (a)(2) risk significant systems to verify that performance was acceptable:

- High pressure coolant injection system (Unit 2) (System 23)
- Residual heat removal (Units 2 & 3) (System 10)
- Standby liquid control (Units 2 & 3) (System 11)
- Emergency service water (Units 2 & 3) (System 33)

b. Findings

No findings of significance were identified.

2. Routine Maintenance Effectiveness Inspection (71111.12Q - 1 Sample)

a. Inspection Scope

The inspectors reviewed the follow-up actions for issues identified on SSCs and the performance of those SSCs, to assess the effectiveness of Exelon's maintenance activities. The inspectors reviewed Exelon's evaluation of reactor feed pump turbine linkage and control issues on September 7, 2004. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13 - 6 Samples)

a. Inspection Scope

The inspectors reviewed Exelon's risk evaluations and contingency plans for selected planned and emergent work activities to verify that appropriate risk evaluations were performed and to assess Exelon's management of overall plant risk. The inspectors compared the risk assessments and risk management actions against the requirements of 10 CFR 50.65(a)(4) and the recommendations of NUMARC 93-01 Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities." The inspectors verified that risk assessments were performed when required and appropriate risk management actions were identified. This inspection activity represented six samples.

The inspectors attended planning meetings and discussed the risk management of the activities with operators, maintenance personnel, system engineers, and work coordinators to verify that risk management action thresholds were identified correctly. The inspectors also verified that appropriate implementation of risk management actions were performed. The following planned and emergent work activities were reviewed:

- Unit 2 control rod drive flow control valve troubleshooting on August 2, 2004
- Unit 2 'D' battery maintenance with concurrent E1 EDG monthly load run on August 10, 2004
- E3 EDG 24-hour full load test during adverse weather on August 13, 2004
- Station blackout system outage on August 23, 2004
- E1 EDG missed surveillance test requirement on August 24, 2004
- Cross-tie of the Unit 2 and Unit 3 high pressure service water systems on September 23, 2004

In addition, the inspectors reviewed the assessed risk configurations against the actual plant conditions and any in-progress evolutions or external events to verify that the assessments were accurate, complete, and appropriate for the issues. The inspectors performed control room and field walkdowns to verify that compensatory measures

identified by the risk assessments were appropriately performed. This inspection activity represented six samples.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Evolutions (71111.14 - 1 Sample)

a. Inspection Scope

The inspectors reviewed plant computer and recorder data, operator logs, and approved procedures to evaluate operations and engineering personnel performance in response to an emergent Unit 2 power reduction and transition to single reactor recirculation loop operation on August 16, 2004. The power reduction was required to effect repairs on the 'A' reactor recirculation pump motor power supply breaker. The inspectors assessed operator performance while removing the 'A' reactor recirculation pump from service, operating at power with one reactor recirculation pump out of service, and restoring the idle recirculation pump to service. The inspectors used Exelon abnormal operating procedure AO 2A.1-2, "Recirculation System Single Loop Operation," to assess operator performance. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 Samples)

a. Inspection Scope

The inspectors reviewed operability evaluations to assess the adequacy of the evaluations, the use and control of compensatory measures, compliance with the Technical Specifications, and the risk significance of the issues. The inspectors verified that the operability determinations were performed in accordance with Exelon administrative procedure LS-AA-105, "Operability Determinations." The inspectors used the Technical Specifications, Technical Requirements Manuals, the UFSAR, and associated DBDs as references during these reviews. This inspection activity represented five samples. The issues reviewed included:

- Unit 2 reactor core isolation cooling adverse condition monitoring plan for elevated oil levels on August 10, 2004
- Unit 3 'B' core spray automated data system local pressure indicator response failure on August 19, 2004
- Unit 2 high pressure coolant injection controller panel push button failure on August 21, 2004
- E3 emergency diesel generator combustion gas intrusion into the jacket coolant water system on August 29, 2004

- Unit 2 reactor vessel jet pump wear issues on September 21, 2004

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 Samples)

1. High Pressure Coolant Injection System Trip Circuit Wire Not Reinstalled

a. Inspection Scope

The inspectors reviewed the circumstances of a procedure implementation error that disabled the Unit 3 HPCI turbine high reactor vessel level automatic trip following conduct of a planned surveillance test. The error was not immediately identified during post-maintenance testing following completion of the surveillance. This inspection activity represented one sample.

b. Findings

Introduction. A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1, "Administrative Controls - Procedures," was identified. The NCV is of very low safety significance (Green). Instrument and control technicians did not follow the surveillance instruction for testing the Unit 3 HPCI turbine high reactor vessel water level automatic trip. The procedure error resulted in the high reactor vessel water level trip circuit being disabled on August 3, 2004. The error was not identified until subsequent trip circuit testing on September 14, 2004.

Description. On September 14, 2004, with Unit 3 operating at 100 percent reactor power, a relay failed to actuate as expected during performance of surveillance instruction SI3L-2-72-D1FQ, "Functional Test of Emergency Core Cooling System (ECCS) 'D' Channel Compensated Trip System." Investigation revealed a wire lifted during testing of the 'C' trip channel on August 3, 2004, was not properly reinstalled. The surveillance instructions for both the 'C' and 'D' compensated trip system channels require the trip actuation relay be disabled by disconnecting a wire to prevent an actual HPCI turbine trip during conduct of the tests. The HPCI high reactor vessel level trip circuit receives inputs from the 'C' and 'D' compensated trip channels.

Exelon's prompt investigation into this event revealed the cause to be a human performance error during conduct of surveillance instruction SI3L-2-72-C1FQ, "Functional Test of Emergency Core Cooling System 'C' Channel Compensated Trip System," on August 3, 2004. Specifically, instrument and control technicians failed to reinstall a lifted wire in the HPCI high reactor vessel level trip circuit as required by step 6.2.24 of SI-3L-2-72-C1FQ.

Analysis. The performance deficiency is a human performance related procedure error. Specifically, instrument control technicians did not follow written instructions and did not



reinstall a wire in the HPCI high reactor vessel water level trip circuit during conduct of a surveillance test. Traditional enforcement does not apply because the issue did not have an actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of a willful violation of NRC requirements or Exelon's procedures. The finding is considered more than minor because the issue was associated with the configuration control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The error resulted in the HPCI high reactor vessel water level automatic trip function being disabled. Technical Specification 3.3.5.1 requires the HPCI high reactor vessel water level trip to be operable during power operation. The finding was determined to be of very low safety significance (Green) using Phase 1 of the SDP for reactor inspection findings for at-power situations because the finding did not result in a loss of the HPCI system automatic injection safety function and because the finding does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

A contributing cause to the instrument control technician not reinstalling the wire in the HPCI high reactor vessel automatic trip circuit was related to the human performance cross-cutting area. Specifically, instrument and control technicians did not follow written instructions that required the lifted wire to be reinstalled.

Enforcement. Technical Specification Section 5.4.1, "Administrative Controls - Procedures," requires that written procedures be established, implemented, and maintained covering safety-related activities listed in Regulatory Guide 1.33, Appendix A, November 1972. Regulatory Guide 1.33, Appendix A, Section I, "Procedures for Performing Maintenance," requires, in part, that maintenance which can affect the performance of safety-related equipment be performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to this requirement, the inspectors determined instrument control technicians did not follow written instructions while performing Unit 3 'C' channel ECCS compensated trip system surveillance testing on August 3, 2004. Specifically, technicians did not reinstall a wire lifted during performance of the test, as required by the test instruction. Not reinstalling the wire disabled the HPCI automatic high reactor vessel water level trip function. Because this finding is of very low safety significance and has been entered into the corrective action system (CR 252501), this violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000278/2004004-01, High Pressure Coolant Injection System High Reactor Vessel Automatic Trip Disabled.**

2. Post-Maintenance Testing Additional Samples
  - a. Inspection Scope

The inspectors observed portions of post-maintenance testing activities in the field and reviewed selected test data at the job site. The inspectors observed whether the tests were performed in accordance with the approved procedures and assessed the adequacy of the test methodology based on the scope of maintenance work performed.

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In addition, the inspectors assessed the test acceptance criteria to verify whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the Technical Specification requirements. The inspectors reviewed the recorded test data to evaluate whether the acceptance criteria was satisfied. This inspection activity represented five samples. The inspectors reviewed post-maintenance tests performed in conjunction with the following maintenance activities:

- Unit 2 HPCI system steam supply valve, tightened the packing following a leak on July 16, 2004
- Unit 3 'B' RHR pump torus suction motor operator valve (MOV) supply breaker replacement following a failure of the MOV to operate on July 26, 2004
- Unit 2 'A' reactor recirculation pump motor supply breaker replacement following a breaker trip on August 17, 2004
- E3 EDG cylinder liner gasket replacement on August 31, 2004
- Torus-to-drywell vacuum breaker maintenance on September 28, 2004

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20 - 1 Sample)

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Peach Bottom Unit 2R15 Refueling Outage (September 14, 2004 through October 8, 2004). This review was conducted to confirm that Exelon had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of key safety functions while shutdown. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored Exelon controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment. This inspection activity represented one sample. Specific activities observed included:

- Plant shutdown and cooldown from full power operations to the point of initiating shutdown cooling
- C Outage risk management
- C Clearance activities on equipment removed from service for maintenance
- C Reactor coolant pressure, level, and temperature instrument availability
- C Electrical system and switchyard configurations and controls
- C Decay heat removal operability and operation
- C Spent fuel pool cooling capabilities and operation
- C Reactor water inventory controls and contingency plans
- C Reactivity controls
- C Primary and secondary containment status and controls
- C Fuel off-load and core re-load observed from the refueling bridge and the main control room

- C Startup and ascension to full power operation
  - Tracking of mode change and startup prerequisites
  - Walkdown of the drywell to verify that debris had not been left which could enter the wetwell and block emergency core cooling system suction strainers
- C Problem identification and resolution related to refueling outage activities

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 7 Samples)

Routine Surveillance Tests

a. Inspection Scope

The inspectors reviewed and observed portions of surveillance tests, and compared test data with established acceptance criteria to verify the systems demonstrated the capability of performing the intended safety functions. The inspectors also verified that the systems and components maintained operational readiness, met applicable Technical Specification requirements, and were capable of performing the design basis functions. This inspection activity represented seven samples. The reviewed or observed surveillance tests included:

- E4 EDG four hour full load run on July 9, 2004
- Emergency service water functional inservice test on July 22, 2004
- Unit 2 main steam line radiation monitors electronic calibration on July 27, 2004
- E22 4 kV bus undervoltage relay calibration on August 5, 2004
- Unit 3 'A' RHR system pump, valve, and flow test on August 11, 2004
- Unit 2 main steam isolation valve full closure test on September 15, 2004
- E32 4 KV bus loss of coolant accident and loss of off site power functional test on September 22 and 23, 2004

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 2 Samples)

a. Inspection Scope

The inspectors reviewed installed temporary plant modifications associated with Unit 3 reactor recirculation pump second stage cavity pressure control system and a temporary cable (TC 89-108) routed throughout the cable spreading room (CSR) (common to both units). The inspectors verified that (1) the design bases, licensing bases, and performance capability of risk significant structures, systems, and components (SSCs) had not been degraded through these modifications, and (2) that implementation of the

modifications did not place the plant in an unsafe condition. The inspectors verified the modified equipment alignment through control room instrumentation observations; UFSAR, drawing, procedure, and work order reviews; and plant walkdowns of accessible equipment. This inspection activity represented two samples.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness [EP]**

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 Sample)

a. Inspection Scope

A regional in-office review was conducted of Exelon's submitted revisions to the emergency plan, implementing procedures and EALs, which were received by the NRC during the period of April - September 2004. A thorough review was conducted of plan aspects related to the risk significant planning standards (RSPS), such as classifications, notifications and protective action recommendations. A cursory review was conducted for non-RSPS portions. These changes were reviewed against 10 CFR 50.47(b) and the requirements of Appendix E and they are subject to future inspections to ensure that the combination of these changes continue to meet NRC regulations. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4, and the applicable requirements in 10 CFR 50.54(q) were used as reference criteria. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

**Cornerstone: Occupational Radiation Safety [OS]**

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 16 Samples)

a. Inspection Scope

The inspector reviewed selected activities and associated documentation in the below listed areas. The evaluation of Exelon's performance in these areas was against criteria contained in 10 CFR 20, applicable Technical Specifications, and applicable Exelon procedures. This inspection activity represented sixteen samples.

### Inspection Planning - Performance Indicators

The inspector reviewed performance indicators (PIs) for the occupational exposure cornerstone. The inspector also discussed and reviewed current performance, relative to the indicators, with cognizant Exelon personnel.

### Plant Walkdowns, RWP Reviews, and Jobs in Progress Reviews

The inspector walked down selected radiological controlled areas and reviewed housekeeping, material conditions, posting, barricading, and access controls to radiological areas. The inspector reviewed exposure significant work areas to determine if radiological controls were acceptable, conducted selective radiation surveys, and selectively walked down these areas to determine the adequacy of posting and controls.

During plant tours, the inspector conducted a job-in-progress review of ongoing work associated with the Unit 2 B RWCU non-regenerative heat exchanger and inspection of new Unit 2 fuel.

In the area of outage activities, the inspector selectively reviewed the radiological controls for Unit 2 work activities, including drywell ISI activities, torus diving activities, refueling activities, valve work activities, condenser bay work activities, control rod drive removal and packaging activities, fuel pool gate gasket repair, and drywell shielding activities. The inspector also selectively reviewed ongoing work on the Unit 2 turbine deck including blast cleaning activities. The reviews included evaluation of the adequacy of applied radiological controls including radiation work permits, procedure adherence, radiological surveys, job coverage, system breach surveys, air sampling, and contamination controls. The inspector also reviewed electronic personnel dosimetry alarm setpoints to verify the setpoints were commensurate with ambient/expected conditions and radiation work permits. The inspector selectively verified if workers knew what actions were required when their dosimeters alarmed. The inspector observed portions of the worker briefings for work activities.

The inspector reviewed, observed, and discussed ongoing work in Technical Specification controlled high radiation areas, including Unit 2 drywell and torus (diving activities). The inspector reviewed radiation protection job coverage including use of audio and visual surveillance.

The inspector reviewed work activities with radiation dose rate gradients (e.g., diving activities, and control rod drive work activities) to verify that Exelon had applied appropriate radiological controls including use of multiple dosimeters or repositioning of dosimetry, as appropriate. The inspector reviewed posting and locking of entrances to high dose rate and very high radiation areas, as appropriate. The inspector reviewed the high radiation area controls for the underwater storage of materials.

The inspector reviewed and discussed internal dose assessments for 2003 and 2004, including the Unit 2 outage (thru September 23, 2004) since the previous inspection, to identify any apparent actual occupational internal doses greater than 50 millirem

committed effective dose equivalent (CEDE). The review also included the adequacy of evaluation of selected dose assessments, as appropriate, and included selected review of the program for evaluation of potential intakes associated with hard-to-detect radionuclides (e.g., transuranics).

#### Problem Identification and Resolution

The inspector selectively reviewed self-assessments and audits since the previous inspection to determine if identified problems were entered into the corrective action program for resolution. The inspector evaluated the database for repetitive deficiencies or significant individual deficiencies to determine if self-assessment activities were identifying and addressing the deficiencies. The review also included evaluation of data to determine if any problems involved performance indicator (PI) events with dose rates greater than 25 R/hr at 30 centimeters, greater than 500 R/hr at 1 meter or unintended exposures greater than 100 millirem total effective dose equivalent (TEDE), 5 rem shallow dose equivalent (SDE), or 1.5 rem lens dose equivalent (LDE).

The review also included a review of problem reports since the last inspection, which involved potential radiation worker or radiation protection personnel errors to determine if there was an observable pattern traceable to a similar cause. The review included an evaluation of corrective actions, as appropriate. (See Section 4OA2)

#### High Risk Significant, High Dose Rate High Radiation Area and Very High Radiation Area Controls

The inspector discussed procedure changes for high radiation area access controls since the last inspection with the radiation protection manager and selected supervisors to determine if the changes resulted in a reduction in the effectiveness and level of worker protection. The inspector conducted a selective review of high radiation area key controls including key inventory.

#### Radiation Worker/Radiation Protection Technician Performance

The inspector observed radiation worker performance with respect to stated radiation protection requirements to determine if the workers were aware of significant radiological conditions in their work place, and the radiation work permit (RWP) controls/limits in place, and that their performance took into consideration the levels of radiological hazards present. The inspector also evaluated radiation protection technician performance relative to control of hazards and work activities, as applicable. In addition, the inspector reviewed problem reports to identify problems with worker or radiation protection technician performance.

b. Findings

No findings of significance were identified.

## 2OS2 ALARA Planning and Controls (71121.02 - 10 Samples)

### a. Inspection Scope

The inspector conducted the following activities to determine if Exelon was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as is reasonably achievable (ALARA). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and applicable station procedures. This inspection activity represented ten samples.

#### Inspection Planning

The inspector reviewed pertinent information regarding station collective dose history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The inspector determined the plant's current 3-year rolling average collective exposure for the period January 2001 - December 2003.

The inspector determined the site specific trends in collective exposures (using NUREG-0713 and plant historical data) and source-term (average contact dose rate with reactor coolant piping) measurements. The inspector selectively reviewed site specific procedures associated with maintaining occupational exposures ALARA and processes used to estimate and track work activity specific exposures.

The inspector reviewed planning, preparation, and conduct of the Unit 2 maintenance outage to determine if Exelon had established procedures, engineering and work controls, based on sound radiation protection principles, to achieve occupational exposures that were ALARA. For planning purposes, the inspector selected six work activities likely to result in the highest personnel collective exposures and reviewed the planning and preparation for those work activities to determine if ALARA requirements were integrated into work procedure and radiation work permit documents.

The following work activities were reviewed:

- under vessel work/control rod drive change-out
- in-service inspection
- scaffolding activities
- temporary shielding
- main steam isolation valve work
- radiological controls coverage

The inspector also selectively reviewed implementation of action items from previous post-job reviews for these work activities, as applicable. In addition, the inspector also reviewed exposure goals for work groups and reviewed exposures to date relative to established goals. The inspector selectively evaluated interfaces between operations, radiation protection, and other work groups particularly in the area of source term

controls. The use of shielding and other techniques (e.g., decontamination) to reduce exposures was reviewed.

#### Verification of Dose Estimates and Exposure Tracking Systems

The inspector reviewed the assumptions and basis for current annual collective exposure estimates. Also reviewed was the methods used for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work are encountered.

The inspector reviewed the exposure tracking system to evaluate the level of detail and exposure report timeliness.

#### Job Site Inspections and ALARA Controls

The inspector reviewed ongoing Unit 2 outage work activities and selected work activities likely to result in the highest personnel collective exposures or presented challenges for ALARA control and reviewed the current and expected collective radiation exposure for these work activities. The work activities reviewed were control rod drive change-out and packaging, drywell in-service inspection, refueling floor activities, blast cleaning activities, and backwash receiver room activities. The inspector also reviewed work activities that presented unusual conditions or situations (i.e., diving in the Unit 2 torus) for radiological coverage. The inspector selectively reviewed implementation of applicable ALARA plans and procedures for these activities including tracking of exposures. The inspector reviewed ALARA work activity evaluations, exposure estimates and mitigation requirements. The inspector evaluated the adequacy of Exelon's engineering and work controls and the grouping of the activities relative to work activity. The inspector reviewed the integration of ALARA requirements into procedures, as applicable, and RWP documents.

The inspector compared the results achieved (person-rem) with estimated exposures (to date) and evaluated reasons for inconsistencies between intended and actual exposure. The comparison included evaluation of person-hour estimates, expected dose rates, emergent work, and use of supplemental shielding, as necessary.

#### Source-Term Reduction and Control

The inspector reviewed and discussed Exelon's understanding of the plant source-term, including knowledge of input mechanisms to reduce the source term and the source-term control strategy in place. The inspector reviewed and discussed Exelon's plans for source term controls and clean-up during shutdown, including chemistry plans designed to minimize the source-term external to the core. Also reviewed, was the implementation of the source term control plans for shutdown.



### Problem Identification and Resolutions

The inspector reviewed self-assessments and audits related to the ALARA program since the last inspection to determine if the overall audit program scope and frequency (for all applicable areas under the occupational cornerstone) meet the requirements of 10 CFR 20.1101. (See Section 4OA2)

### Declared Pregnant Workers

The inspector reviewed the exposure control program for declared pregnant workers and the implementation of program controls.

### Radiation Worker/Radiation Protection Technician Performance

The inspector observed radiation worker and radiation protection technician performance, in the area of ALARA practices, to identify acceptable performance in areas of greatest radiological risk to workers.

#### b. Findings

No findings of significance were identified.

### 2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03 - 2 Samples)

#### a. Inspection Scope

The inspector reviewed selected activities, and associated documentation, in the below listed areas. The evaluation of Exelon's performance in these areas was against criteria contained in 10 CFR 20, applicable Technical Specifications, and applicable station procedures. This inspection activity represented two samples.

### Problem Identification and Resolution

The inspector reviewed audits and self-assessments in this area to determine if identified issues in this area were entered into the corrective action program. The inspector reviewed condition reports and action requests to evaluate Exelon's threshold for identifying, evaluating, and resolving problems in this area. (See Section 4OA2)

### Radiation Protection Technician Instrument Use

The inspector selectively verified the calibration expiration and source check response on radiation detection instruments staged for use for the Unit 2 outage. The inspector observed radiation protection technicians for appropriate instrument selection and use including self-verification of instrument operability.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety [PS]**

2PS2 Radioactive Material Processing and Transportation (71122.02 - 2 Samples)

1. Improper Closure of Department of Transportation Type A Packages

a. Inspection Scope

The inspector directly observed the loading and closure of two non-excepted shipments of radioactive material (PW-04-018, PW-04-019) in Department of Transportation (DOT) Specification 7A packages. The inspector selectively reviewed packaging, ongoing radiation surveys, markings, placarding, vehicle checks, emergency instructions, disposal manifests, shipping papers provided to the driver, and Exelon verification of shipment readiness. The inspector selectivity reviewed the qualification of the packages as Specification 7A packages and reviewed the package loading and closure procedures to determine if the procedures were consistent with the vendor's approved procedures. This inspection activity represented two samples.

The inspector observed the radiation workers during conduct of the radioactive material shipping activities for the above two shipments to determine if the shippers were knowledgeable of shipping regulations and whether shipping personnel demonstrated adequate skills to accomplish the package preparation requirements for public transport. The inspector selectively reviewed the training of personnel conducting the package loading, closure, survey, and shipping activities relative to the training specified in NRC Bulletin 79-19 and 49 CFR 172, Subpart H.

The inspector selectively reviewed the loading of Unit 2 control rod drives into Department of Transportation Type A packages and the closure of the packages.

The review was against criteria contained in 10 CFR 20; 10 CFR 71; applicable Department of Transportation requirements, as contained in 49 CFR 170-189; station procedures; and applicable Certificates of Compliance or vendor procedures.

b. Findings

Introduction. A Green NCV of 10 CFR 71.5 was identified by the NRC associated with workers not properly closing a Type A shipping package (control rod drive shipment box) as required by 49 CFR 173.475 ©) during CRD loading and closure activities on September 20, 2004.

Description. On September 20, 2004, the inspector observed Exelon workers removing control rod drives from the Unit 2 reactor and packaging them in DOT Type A packages (Model IAEA-102.2-3.5-7A-TRF, Spec -01-1524) for eventual shipment offsite. The

inspector observed what appeared to be hand tightening of the internal horizontal CRD hold-down supports. The inspector questioned the apparent hand tightening activity and asked to see the loading and closure procedure for this DOT Type A package to ascertain the specific loading and closure instructions for this package. The inspector determined, after subsequent review, that Exelon was hand tightening the nuts and then tightly securing, both the hold-down supports and closure T-bolts, of the package. The inspector noted that a torque value was not specified for the hold-down supports. However, the package closure T-bolts were to be torqued to values specified in vendor instruction CHP-100, Container Handling and Maintenance. Additional inspector review identified that Exelon had developed a procedure, which was used for loading and closure of the CRD package. However, the package torque value was not used in Exelon's approved loading and closure procedure (RP-AA-602, Rev.7) and Exelon was not able to identify if torque values met specified values at the time of closure. Further, previous shipments had been made with no apparent torque values specified for the T-bolts. However, the bolts were tightly secured.

Analysis. Exelon not properly closing the DOT Type A package, in accordance with 10 CFR 71.5, 49 CFR 173.475, and the vendor procedure, is a performance deficiency since Exelon did not close the package in accordance vendor's instructions and the improper closure was reasonably within Exelon's ability to detect and correct. Traditional enforcement does not apply since the finding did not have any actual safety consequence, did not impact NRC's regulatory function, and was not willful.

The finding was greater than minor, in that it is associated with the public radiation safety cornerstone. The cornerstone objective was affected because the issue involved an occurrence in the radioactive material transportation program that was contrary to NRC or Department of Transportation regulations. Specifically, Exelon did not ensure the DOT Type A package was properly closed. Using the Public Radiation Safety Significance Determination Process (SDP) flow chart, the finding is of very low safety significance (Green), in that; it did involve a radioactive material control issue, it did involve transportation, it did not involve a radiation limit being exceeded or a breach of packaging, but it did involve a use issue, in that it involved compliance with vendor use procedures. In addition, the identified packages were not shipped offsite and the previous shipments made had arrived at their destination with no external contamination indicating no loss of package integrity.

Enforcement. 10 CFR 71.5 requires licensees to conform with the regulations in DOT 49 CFR Parts 170 through 189. 49 CFR 173.475(c) requires that special instructions for closing of the package be followed. On September 20, 2004, and for other previous shipments, Exelon did not follow the package vendor special instructions to close a DOT Type 7A package for shipment, in that specified torque values for package closure was not used.

Exelon documented this issue in its corrective action program (AR 255799), and did not ship the specific packages. Exelon also reviewed previous shipments for anomalies and no external contamination was identified. Consequently, no actual safety consequence was identified. Since this violation is of very low safety significance (Green) and Exelon

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entered the finding into its corrective action program, this violation is being treated as a Non-Cited violation, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000277/2004004-02, Failure to Follow DOT Package Closure Requirements.**

2. Shipment Records and Documentation (71122.02 - 1 Sample)

a. Inspection Scope

The inspector reviewed the records associated with the two non-excepted shipments of radioactive material as discussed above. This inspection activity represented one sample. The following aspects of the radioactive waste, radioactive material packaging, and radioactive material shipping activities were reviewed.

- Implementation of applicable shipping requirements, including completion of shipping paper/disposal manifest
- Inclusion of emergency response information and 24-hour contact number
- Classification and characterization of waste relative to 10 CFR 61.55 and 61.56

The review was against criteria contained in 10 CFR 20; 10 CFR 61; 10 CFR 71; applicable DOT requirements, as contained in 49 CFR for the above areas; station procedures; applicable disposal facility licenses; and applicable vendor procedures for shipping cask.

b. Findings

No findings of significance were identified.

3. Identification and Resolution of Problems

a. Inspection Scope (71122.02 - 1 Sample)

The inspector selectively reviewed corrective action documents associated with radioactive waste packaging and shipping activities (ARs 220931, 238826, 238829, 238841, 240959) to verify that identified issues were being included in the corrective action program for evaluation and resolution, as appropriate. This inspection activity represented one sample.

The review was against criteria contained in 10 CFR 20 Appendix G and applicable station procedures.

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 - 2 Samples)a. Inspection Scope

The inspectors reviewed selected records at the station to assess the accuracy and completeness of the NRC Performance Indicator (PI) data. The records reviewed included Technical Specification limiting condition for operation logs, system surveillance tests, licensee event reports, action requests and condition reports. The information reviewed was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment PI Guideline," Revision 2. The inspectors verified that conditions met the NEI criteria, were recognized, identified, and accurately reported. This inspection activity represented two samples. The following specific indicators were reviewed for the previous four calendar quarters of reported data:

- Unit 2 and Unit 3 RCIC unavailability on September 1, 2004

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into Exelon's corrective action program. This review was accomplished by reviewing hard copies of each condition report, attending daily screening meetings, and accessing Exelon's computerized database.

1. Identified Problems Entered into the Corrective Action Program - (71121.01, 71121.02, 71121.03)a. Inspection Scope

The inspector reviewed audits and self-assessments to determine if identified problems were entered into the corrective action program for resolution. The inspector also reviewed action requests to evaluate Exelon's threshold for identifying, evaluating, and resolving problems including identifying and implementing effective corrective actions. The review included a check of possible repetitive issues, such as radiation worker or radiation protection technician errors. The following documents were reviewed:

- Nuclear Oversight Quarterly Report - First and Second Quarters 2004
- NOS Health Physics /Radiation Protection Audit Report, May 2003
- Radiological Protection Site Integrated Performance Assessment, First Quarter 2003, Second Quarter 2002

- Assignment Reports (ARs): 224216, 193583, 201316, 201426, 201252, 204182, 198884, 202255, 176677, and 255799

This review was against the criteria contained in 10 CFR 20, Technical Specifications, and the station procedures.

b. Findings

No findings of significance were identified.

2. Inservice Inspection (ISI) Problem Identification

a. Inspection Scope

The identification and resolution of problems in the inservice inspection (ISI) area and the provisions for evaluation of indications identified by nondestructive testing were examined. The inspector verified that problems were being identified, evaluated, appropriately dispositioned, and entered into the corrective action program.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting

On October 14, 2004, the resident inspectors presented the inspection results to Mr. Grimes and members of his staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Exelon Generation Company

B. Braun, Site Vice President  
J. Grimes, Plant Manager

N. Alexakos, Program Manager  
C. Behrend, Sr. Manager Plant Engineering  
D. Foss, Senior Regulatory Engineer  
Chris Hawkins, ISI Project Manager  
C. Jordan, Chemistry Manager  
R. Lubaszewski, Radwaste and Shipping Specialist  
J. McLaughlin, EDG System Manager  
R. Norris, Radiation Protection Manager

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None

Opened and Closed

05000278/2004004-01	NCV	Unit 3 High Pressure Coolant Injection System Trip Circuit Wire Not Reinstalled Following Testing (Section 1R19)
05000277/2004004-02	NCV	Failure to Follow DOT Package Closure Requirements (Section 2PS2)

Closed

None

Discussed

None

## LIST OF DOCUMENTS REVIEWED

### Section 1R07: Heat Sink Performance

#### Condition Reports:

129877	163240	195915
134322	169076	197991
137090	181238	206200
140282	190462	231620
159565	191983	233879
161966	194538	242381

### 89-13 Program and Design Basis Documentation

ER-AA-340, GL 89-13 Program Implementing Procedure, Revision 2  
 ER-AA-340-1001, GL 89-13 Program Implementation Instructional Guide  
 Peach Bottom Atomic Power Station, Units 2 and 3, Response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," January 29, 1990  
 Peach Bottom Atomic Power Station, Units 2 and 3, Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment" Implementation of Actions, June 1, 1992  
 Peach Bottom Atomic Power Station, Units 2 and 3, Generic Letter 89-13 Program Scope  
 EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991  
 EPRI TR-107397, Service Water Heat Exchanger Testing Guidelines, March 1998

### Test Procedures and Inspections

RT-O-010-660-2, RHR Heat Exchanger Performance Test, Revision 7, completed 11/29/2002  
 RT-X-010-661-2, RHR Heat Exchanger Performance Calculation Test, Revision 3, completed 12/13/2002  
 ST-O-052-211-2, E1 Diesel Generator Slow Start Full Load and IST Test, Revision 22  
 RT-O-033-600-2, Flow Test of ESW to ECCS Coolers and Diesel Generator Coolers, Rev. 13  
 RT—033-675-2, Unit 2 Pump Intake Structure Inspection and Cleaning, Revision 3  
 RT—030-410-2, Sluice Gate MO-0-30-2209 Functional Test, Revision 0  
 ESW/HPSW Bays Silt Survey Results 12/02/2000 - 6/15/2004  
 E2 Emergency Diesel Generator Heat Exchanger Eddy Current Testing Results, 6/2/2004  
 E4 Emergency Diesel Generator Heat Exchanger Eddy Current Testing Results, 6/23/2004  
 2D RHR Heat Exchanger Eddy Current Testing Results, 2/19/2004 and 7/14/2004  
 History Plot of ESW Flow to Emergency Diesel Generators 8/11/2000 - 8/8/2004  
 Recurring Task Work Orders to Clean and Examine EDG Lube Oil Coolers  
     R0870834 - Clean Service Water Side of E1 EDG Lube Oil Cooler  
     R0902838 - Clean Service Water Side of E2 EDG Lube Oil Cooler  
     R0861376 - Clean Service Water Side of E3 EDG Lube Oil Cooler  
     R0904374 - Clean Service Water Side of E4 EDG Lube Oil Cooler  
 C0209778, Station Work Order to Clean and Eddy Current Test 2D RHR Heat Exchanger



**Procedures**

AO 29.1-2, Screen Structure Traveling Screens Emergency Control, Revision 1  
AO 28.2, Response to High/Low River Level, Revision 0  
AO 29.2, Discharge Canal to Intake Pond Cross-Tie Gate Operation, Revision 8  
SE-3 Procedure, Loss of Conowingo Pond, Revision 16  
SE-3 Bases, Loss of Conowingo Pond, Revision 11  
SE-4 Procedure, Flood, Revision 20  
SE-4 Bases, Flood, Revision 10

**Engineering Evaluations and Calculations**

PM-0589, RHR Heat Exchanger Performance Evaluation, Revision 4  
PM-678, Performance Curves for Emergency Diesel Generator Heat Exchanger to Support  
Generic Letter 89-13 Monitoring

**Piping and Instrumentation Diagrams**

6280—314, Sheet 1, Revision 68  
6280—314, Sheet 2, Revision 59  
6280—314, Sheet 3, Revision 65  
6280—314, Sheet 4, Revision 66  
6280—315, Sheet 1, Revision 65  
6280—315, Sheet 2, Revision 55  
6280—315, Sheet 4, Revision 52  
6280—315, Sheet 5, Revision 55

**Other Documents**

Peach Bottom Atomic Power Station Updated Final Safety Analysis Report  
Individual Plant Examination - Peach Bottom Atomic Power Station Units 2 and 3  
P-S-04, High Pressure Service Water System Design Basis Document, Revision 10  
Emergency Diesel Generator System Health Overview Report, June 2004  
System Health Indicator Program Emergency Diesel Generator Improvement Plan, August 8,  
2004  
ER-AA-310-1005, Revision 1, (a)(1) Action Plan, Goals, and Monitoring Template for the  
Emergency Diesel Generators  
Operability Evaluation 04-008, 2DE024 RHR Heat Exchanger D  
AR A0004660  
Service Water/Service Water Bay System Health Overview Report, June 2004

**Section 1R08: Inservice Inspection**

Procedure: GE-PDI-UT-2, Rev 3, "PDI Generic Procedure for the Ultrasonic Examination of  
Austenitic Pipe Welds  
Procedure: GE-MT-100, Rev. 5, "Procedure for Magnetic Particle Examination"  
2R15 ISI/CISI/IVVI Examination Plan, Rev. 1, September 7, 2004

GENE Examination results for indications on the Unit 2 reactor head meridional weld CH-MB, September 23, 2004

GENE Evaluation of indications in Peach Bottom Unit 2 Vessel Closure Head for Continued Operation, September 2002

GENE Analysis of the RPV-C1 weld flaw discovered during Peach Bottom 2R15

Plant Issue Resolution Documentation of jet pump assembly repairs during 2R15

Risk Informed Inservice Evaluation, Peach Bottom Units 2 & 3

Condition Reports, AR: 256413, 256595, 257418, 257341, 255875, 255926, 255622, 255051, 255416, 176340, 177764, 199832, 200187, 172902, 174158, 163202, 166690, 169758

### **Section 1R12: Maintenance Effectiveness**

Periodic Assessment of Peach Bottom Maintenance Rule Program for the period October 01, 2001, through September 30, 2003

Plant Health Committee System Presentation Reports ( Health Overview Reports) for the Selected Systems for the second quarter of year 2004

#### **System Health Improvement Program Action Plans**

Rockwell Valve (a)(1) action plan update

Basis for reclassification of Unit 2 HPCI to (a)(2) (System23)

Cutler Hammer A1 Series NEMA 3 Starters

Emergency Diesel Generator CARDOX System

#### **Maintenance Rule Self-Assessment Reports**

Self-Assessment Reports for 2004, 2002, and 2001.

#### **Action Requests**

AR 00203879; AR 00203355; and several ARs related to the selected systems via computer data base in the PIMS data system at the site.

### **Section 1R20: Refueling and Outage Activities**

System operating procedure SO 10.1.B-2, Residual Heat Removal System Shutdown Cooling Mode Manual Start

Fuel handling procedure FH-6C, Core Component Movement - Core Transfers

General procedure GP-3, Normal Plant Shutdown

General procedure GP-6, Refueling Operations

AR 253832

**Section 20S1: Access Control to Radiologically Significant Areas****Procedures:**

RT-H-099-930-2, Rev. 2, CY-AB-120-130, Rev.1 RP-AA-222, Rev.1	Evaluation of Plant Radioisotopes and Energies BWR Shutdown Chemistry Methods for Estimating Internal Exposure from In Vivo and In Vitro Bioassay Data
RP-AA-270, Rev. 2 RP-AA-300, Rev.1 RP-AA-300-1001, Rev. 0 RP-AA-301, Rev 0, RP-PB-301-1001, Rev. 1 RP-AA-350, Rev.1	Prenatal radiation Exposure Radiological Survey Program Discrete Radioactive Particle Controls Radiological Air Sampling Program Radiological Air Sampling Documentation Personnel Contamination Monitoring, Decontamination, and Reporting
RP-AA-376, Rev. 1 RP-AA-400, Rev. 3 RP-AA-400-1001, Rev.0 RP-PB-400-1001, Rev.0 RP-AA-401, Rev.3 RP-PB-401-1001, Rev.0 RP-AA-460, Rev. 3 RP-PB-460-1002, Rev.0 RP-PB-441-1002, Rev.0 RP-AB-3001, Rev.0 RP-AA-441, Rev.2. RP-AA-500, Rev. 5 RP-AA-602-1001, Rev.3 RP-AA-602, Rev.7	Radiological Postings, Labeling, and Markings ALARA Program Establishing Collective Radiation Exposure Estimates and Goals Department Dose Zealot Operational ALARA Planning and Controls Micro-ALARA Planning and Controls Controls for High and Very High Radiation Areas Additional High Radiation Area Controls Setup and Use of the Delta Protection Anti-Contamination Suit BRAC Point Radiation Surveys Evaluation and Selection Process for Radiological Respirator Use Radioactive Material (RAM) Control Packaging of Radioactive Material/Waste Shipments Packaging of Radioactive Material Shipments

**Other Documents**

Station ALARA Council Meeting Topics: January 27, 2004, April 27, 2004, July 26, 2004,  
ACE Program, Rev. 2, dated March 31, 2004  
Exposure Reduction Plan - 2004-2006  
Station Departmental Exposure Reduction Plans for 2004  
Five Year Rolling Exposure Reduction Plan (2001-2005)  
RWCU & Cobalt-60 Reduction Team Charter  
Instrument Calibration Data Sheets - AMS4 334632 4/9/04, GAST 1579 8/27/04, SAIC  
1732/1717 9/3/04, RO2A 3410/3/03  
10 CFR 61 Analysis Report, 5/28/04

**LIST OF ACRONYMS**

ALARA	as low as reasonably achievable
ASME	American Society of Mechanical Engineers
CEDE	committed effective dose equivalent
CFR	Code of Federal Regulations
CR	condition report
CSR	cable spreading room
DBD	design baseline document
DOT	Department of Transportation
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
ESW	emergency service water
HPCI	high pressure coolant injection
HPSW	high pressure service water
HX	heat exchanger
ISI	inservice inspection
MOV	motor operated valve
MT	magnetic particle testing
OSP	outage safety plan
NDE	nondestructive examination
RCIC	reactor core isolation cooling
RHR	residual heat removal
RSPS	risk significant planning standards
RWCU	reactor water clean up
RWP	radiation work permit
SBO	station blackout
SDP	significance determination process
SSCs	structures, systems, and components
TEDE	total effective dose equivalent
UFSAR	Updated Final Safety Analysis Report
UT	ultrasonic testing