January 23, 2004

Mr. Christopher M. Crane
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED INSPECTION REPORT 05000277/2003005 AND 05000278/2003005

Dear Mr. Crane:

On December 31, 2003, the US 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 January 16, 2004, with Mr. Rusty West 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 three self-revealing findings of very low safety significance (Green). All four of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating them as non-cited violations (NCVs), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. If you contest any of the 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.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during calender year (CY) 2002, and the remaining inspection activities for Peach Bottom were

completed in June 2003. The NRC will continue to monitor overall safeguards and security controls at Peach Bottom.

In accordance with 10 CFR 2.790 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).

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 05000277/2003005 and 05000278/2003005
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket Nos.:	50-277, 50-278
License Nos.:	DPR-44, DPR-56
Report No.:	05000277/2003005 and 05000278/2003005
Licensee:	Exelon Generation Company, LLC Correspondence Control Desk 200 Exelon Way, KSA 1-N-1 Kennett Square, PA 19348
Facility:	Peach Bottom Atomic Power Station Units 2 and 3
Location:	1848 Lay Road Delta, Pennsylvania
Dates:	September 28, 2003 - December 31, 2003
Inspectors:	C. Smith, Senior Resident Inspector D. Schroeder, Resident Inspector R. Nimitz, Senior Health Physicist T. Burns, Reactor Inspector R. Bhatia, Reactor Inspector N. McNamara, EP Inspector A. Blamey, Senior Operations Engineer B. Bickett, Reactor Inspector
Approved by:	Mohamed M. Shanbaky, Chief Projects Branch 4 Division of Reactor Projects

CONTENTS

SUMMARY OF FINDINGS

IR 05000277/2003005, 05000278/2003005; 09/28/2003 - 12/31/2003; Peach Bottom Atomic Power Station, Units 2 and 3; Personnel Performance During Non-routine Plant Evolutions, Surveillance Testing, and Access Controls to Radiologically Significant Areas.

The report covered a 13-week period of inspection by resident inspectors, and announced inspections by a senior health physicist, reactor inspectors, an EP inspector, and a senior operations engineer. Four 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 was identified. The NCV is of very low safety significance. The written clearance restoration instructions provided to maintenance technicians to restore Unit 3 reactor vessel water level instruments to service following maintenance were inadequate. The inadequate instructions resulted in the unexpected generation of signals to actuate the Unit 3 emergency core cooling systems (ECCS) and to start the four EDGs. All four EDGs started but were not connected to the Unit 2 or 3 safety buses because normal power was available to these buses. None of the Unit 3 ECCS actuated because Unit-3 was in a refueling outage.

  The finding is greater than minor because it is similar to Insignificant Procedure Error Example 5.a in Appendix E of IMC 0612, "Power Reactor Inspection Reports." The reactor vessel instrumentation system was being returned to service after maintenance with an inadequate work instruction and caused automatic start of all four EDGs. The finding is of very low safety significance on both Unit 2 and Unit 3. Unit 3 was assessed using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." The reactor coolant system level was maintained greater than 23 feet, the two sources of vessel level instrumentation used by plant operators to monitor reactor coolant system inventory were not affected, and the finding did not represent a loss of control. Unit-2 was assessed using IMC 0609, Appendix A "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was not a design deficiency, did not represent an actual loss of safety function, and did not involve the loss of equipment designed to mitigate an external event. (Section 1R14.1)

Summary of Findings (cont'd)

- Green. A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1 was identified for an inadequate high pressure coolant injection (HPCI) check valve maintenance procedure. The NCV is of very low safety significance. The deficiency resulted in the Unit 2 HPCI system suppression pool suction check valve not fully closing during surveillance testing on December 10, 2003. Since the check valve was not fully closed, approximately 16,000 gallons of water from the condensate storage tank was inadvertently transferred to the suppression pool. In addition, unplanned HPCI system unavailability was needed to facilitate repairs.

  The finding is greater than minor because it is associated with the procedure quality attribute and adversely affects the mitigating systems cornerstone objective. The inconsistent valve performance did not ensure the availability or reliability of HPCI to respond to an initiating event. The finding is of very low safety significance because the finding was not a design deficiency, did not represent an actual loss of safety function, and did not involve the loss of equipment designed to mitigate an external event. (Section 1R22.1)

- Green. A self revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion 16 was identified. The NCV is of very low safety significance. During the period of July 2001 through July 2003, Exelon did not adequately correct a condition adverse to quality, specifically a high Unit 2 steam tunnel temperature condition that was not representative of a steam leak. Consequently, on July 22, 2003, following a turbine trip and scram of Unit 2, a high main steam tunnel temperature condition, that was not representative of a steam leak, caused all main steam isolation valves to close resulting in a loss of the normal heat sink and reactor feed water system.

  The finding is considered greater than minor in that the issue is associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affects the mitigating systems cornerstone objective to assure availability of systems that respond to initiating events to prevent undesirable consequences. The finding is also associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affects the objective of limiting the likelihood of those events that upset plant stability. A high steam tunnel temperature condition that is not representative of a steam leak due to a Group 3 isolation would remove the normal source of feed water and heat sink and cause a reactor scram. Based on a Phase 2 SDP using the Risk-Informed Inspection Notebook for Peach Bottom Atomic Power Station (Rev 1) and the draft delta large early release frequency (LERF) guidance in the IMC 0609 Appendix H, the finding was determined to be of very low safety significance (Green).

  This finding is specifically related to the cross-cutting area of Problem Identification and Resolution. Although Exelon documented high main steam tunnel temperatures in their corrective action program on July 1, 2001, and again

on April 20, 2003, Exelon did not correct the high main steam line tunnel temperature condition that was not representative of a steam leak on Unit 2 to prevent the closure of the main steam isolation valves on July 22, 2003. (Section 4OA5)

Cornerstone: Occupational Radiation Safety

- Green. The inspector identified a non-cited violation of very low safety significance of 10 CFR20.1703(a). Exelon did not use continuous flow respirator protective equipment (Bullard Series 88 helmets) in accordance with the approval certification of the National Institute for Occupational Safety and Health (NIOSH). Specifically, on September 25 and 29, 2003, an NRC inspector identified that at least one worker on each day used Bullard Series 88 continuous flow airline respirators (NIOSH approval No. TC-19C-293) during blast cleaning of contaminated turbine components, and the respiratory protective equipment was used with breathing air provided at unapproved air pressure settings.

  The finding was greater than minor in that it is associated with the occupational radiation safety cornerstone attribute of exposure control and did affect the cornerstone objective. Specifically, Exelon could not ensure adequate protection of worker health and safety from exposure to radiation from radioactive material if respiratory protection equipment is improperly used. The finding is suitable for SDP review in that there was a potential for a significantly greater unplanned, unintended dose if breathing air pressures outside the values specified by NIOSH were used. The finding is of very low safety significance in that, it did not involve an ALARA finding, result in an overexposure, result in a substantial potential for an overexposure, and did not compromise the ability to assess dose. (Section 2OS1)

B. Licensee Identified Findings

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began this inspection period operating at approximately 100 percent power. Unit 2 operated the entire period at or near full power with the exception of a brief downpower on December 13, 2003, to approximately 20 percent power, for balance of plant maintenance.

Unit 3 began this inspection period shutdown for refueling outage 3R14. Unit 3 exited the refueling outage on October 12, 2003, and operated the remainder of the period at or near full power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdowns (71111.04Q - 2 Samples). The inspectors performed partial system walkdowns during this inspection period to verify system and component alignments and 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 two samples. The following systems were reviewed:

- Unit 3 recirculation pump seal purge system during troubleshooting for abnormal 'A' recirculation pump seal cavity temperatures on October 16, 2003
- Unit 2 'B' train of residual heat removal with 'A' train out of service for maintenance on November 10, 2003.

Complete System Walkdown (71111.04S - 1 Sample). The inspectors performed a complete system walkdown of the station blackout line during this inspection period to verify that the system was properly aligned for operation. The inspectors reviewed breaker positions and the general condition of major system components. In addition, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), system design drawings, surveillance tests, operating procedures, condition reports and action requests. 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 - 3 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. Documents reviewed during the inspection are listed in the Attachment. This inspection activity represented three samples. The following fire areas were reviewed:

- 2A station battery room during battery replacement activities the week of November 24, 2003
- Unit 2 high pressure coolant injection (HPCI) pump room
- Unit 3 HPCI pump room.

b. Findings

No findings of significance were identified.

2. Annual Fire Brigade Drill Observation (71111.05A - 1 Sample)

a. Inspection Scope

The inspectors observed plant personnel performance during an annual fire brigade drill on November 25, 2003 to evaluate the readiness of station personnel to prevent and fight fires. The drill simulated fighting a fire involving oil soaked insulation on 2B Reactor Feed Pump Turbine. The inspectors reviewed the drill scenario and Exelon Nuclear fire protection procedures, RT-F-101-922-2, Revision 3, “Fire Drill” and FF-01, Revision 9, “Fire Brigade.” The inspectors also reviewed the strategies and information in the Pre-Fire Plan PF102, “Pre-Fire Strategy Plan, TB2-165 Reactor Feed Pump Turbine/Chiller Area, Fire Zone 102." This review was performed to verify that the pre-fire strategy plan was consistent with the fire protection design features, fire area boundaries and combustible loading assumptions listed in the Fire Protection Plan for Peach Bottom. The inspectors observed the fire brigade members don protective clothing, turnout gear, and self-contained breathing apparatus, enter the fire area, and utilize the pre-fire plan strategies. The inspectors observed the fire fighting equipment brought to the fire area scene to evaluate whether sufficient equipment was available for the simulated fire. The inspectors evaluated whether the fire hose lines identified in the pre-fire plan were capable of reaching the fire area and whether hose usage was adequately simulated, including laying out the hose without flow constrictions. The inspectors observed fire fighting directions and radio communications between the brigade leader and the brigade members. The inspectors verified that the pre-planned drill scenario was followed. The inspectors observed the post-drill critique to evaluate if

the drill objectives acceptance criteria were satisfied and any drill weaknesses were discussed. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) (71111.08 - 9 Samples)

a. Inspection Scope

The inspector observed selected samples of nondestructive examination (NDE) activities in process. Also, the inspector reviewed selected additional samples of completed NDE and repair/replacement activities. 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 observations and documentation review were performed to verify the activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspector reviewed a sample of inspection reports and deviation reports initiated as a result of problems identified during in-service inspections (ISI) examinations. Also, the inspector evaluated effectiveness in the resolution of problems identified during ISI activities.

The inspector observed the performance of 2 NDE activities in process and reviewed documentation and examination reports for an additional 3 NDE activities. Also, the inspector reviewed 2 samples of NDE activities which identified rejectable indications that were accepted by the licensee for continued operation. The inspector reviewed one sample of welding activities on a pressure boundary and reviewed one ASME repair package for a repair performed during the last operating cycle (an on-line repair).

The inspector observed manual ultrasonic testing (UT) and visual (VT) testing activities to verify effectiveness of the examiner and process in identifying degradation of risk significant systems, structures and components and to evaluate the activities for compliance with the requirements of ASME Section XI of the Boiler and Pressure Vessel Code. The inspector examined the licensee's evaluation and disposition for continued operation without repair or rework of indications identified during ISI activities by review of action request (AR) 1338796, nonconformance report (NCR) PB01-00999 and the flaw evaluation and fracture mechanics analysis developed for disposition of the reported indications.

The inspector observed the ultrasonic test performed on high pressure coolant injection (HPCI) weld 23-2TE20-2 and reviewed the examination reports of magnetic particle test of residual heat removal (RHR) weld 10-DDN-H66A, core spray (CS) weld 14-GB-H40 and the examination report of the liquid penetrant test of the weld build up of the HPCI isolation valve bonnet (MO-2-23-016). In addition, the inspector reviewed the radiographs and the examiner's interpretation of the indications observed within field weld two (2) of the high pressure service water (HPSW) system and the subsequent

repair of this weld. The inspector verified that the identification and characterization of the indications was appropriate. The inspector reviewed the disposition and repair of these indications.

The inspector reviewed video recordings of the remote in-vessel visual inspection (IVVI) of a sample of the core spray piping base metal, butt welds and tee boxes. The inspector also reviewed the visual examination of the condition of the steam dryer and a sample of the dryer structural welds. Also, the inspector reviewed the results of the visual examination of the jet pump riser pipe weld (RS-1) between jet pumps 9 and 10. These reviews were conducted to confirm the test equipment mobility, camera resolution capability and water clarity enabled the performance of the visual (VT-3) examination of the selected vessel internals. Also, the inspector confirmed that for the recordings evaluated, the visual examination was in compliance with the requirements of ASME Section XI.

The inspector reviewed the plan, procedures and results of the visual examination of selected portions of the containment liner and torus inside diameter (above the water line) for compliance with the requirements of ASME Section XI, IWE (requirements for class MC and metallic liners of class CC components). Examination reports and action requests which identified coating failure, corrosion and damage to moisture barriers were reviewed by the inspector to evaluate corrective actions specified for repair.

The inspector reviewed welding activities associated with the repair of selected components to verify the activities were performed in accordance with the requirements of ASME Section IX and XI. The inspector reviewed selected portions of AR 1397127 which provided the repair instructions for the weld build up of the bonnet outside diameter of valve MO-2-23-016 in the HPCI system. The inspector reviewed the joint process control instructions, welding instructions, welding procedure, welding procedure qualification, NDE requirements and the test results of the completed weld. The inspector reviewed welding procedure specification TE4.4-B, Rev. 0 and procedure qualification record TE4A-A-2 for compliance with the requirements of ASME Section IX. This inspection activity represented nine samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

1. Simulator Evaluation (71111.11Q - 1 Sample)

a. Inspection Scope

The inspectors observed an operating crew training session on the plant reference simulator on November 12, 2003. The session involved scenarios requiring operators to respond to various reactor plant transients with concentration on loss of reactor pressure vessel level control scenarios. The inspectors observed the crew performance critique following the training session. This activity represented one sample.

b. Findings

No findings of significance were identified.

2. Licensed Operator Test Results Review (71111.11B - 1 Sample)

a. Inspection Scope

On December 15, 2003, the inspector conducted an in-office review of senior reactor operator limited to fuel handling annual operating test results for 2003. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process" This inspection activity represented one sample. The inspector verified that:

- Individual failure rate on the operating test was less than or equal to 20%.
- Overall pass rate among individuals for the exam was greater than or equal to 75%.

b. Findings

No significant findings were identified.

1R12 Maintenance Implementation (71111.12)

1. Routine Maintenance Effectiveness (71111.12Q - 3 Samples)

a. Inspection Scope

The inspectors reviewed the follow-up actions for issues identified on systems, structures, or components (SSCs) and the performance of these SSCs, to assess the effectiveness of Exelon's maintenance activities. The following equipment performance issues were reviewed:

- functional failure evaluation for reactor core isolation cooling system flow oscillations observed during the Unit 2 reactor trip on July 22, 2003
- functional failure evaluation for the E-4 emergency diesel generator (EDG) speed switch failure on December 4, 2003
- maintenance rule system assessment for EDG equipment performance issues.

The inspectors verified that problem identification and resolution of these issues had been appropriately monitored, evaluated, and dispositioned in accordance with Exelon's procedures and the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed selected SSC classification, performance criteria and goals, and corrective actions to verify that the actions were reasonable and appropriate. This inspection activity represented three samples.

b. Findings

No findings of significance were identified.

2. Biennial Periodic Evaluation (71111.12B - 6 Samples)

a. Inspection Scope

The inspector conducted a review of Peach Bottom's periodic evaluation of implementation of the Maintenance Rule as required by 10 CFR 50.65 (a)(3). The evaluation covered a period from October 1999 to September 2001. The purpose of this review was to ensure that Peach Bottom has effectively assessed its (a)(1) goals, (a)(2) performance criteria, system monitoring, and preventive maintenance activities. The inspector verified that the assessment was completed in the required time period and that industry operating experience had been utilized where applicable. Additionally, the inspector verified that Peach Bottom had appropriately balanced equipment reliability with unavailability when planning maintenance activities.

The inspector selected a sample of six risk-significant systems in (a)(1) and (a)(2) status to verify that: (1) failed structures, systems, and components were properly characterized, (2) goals and performance criteria were appropriate, (3) corrective action plans were adequate, and (4) performance was being effectively monitored in accordance with Peach Bottom procedure ER-AA-310, Rev. 2, "Implementation of the Maintenance Rule." The following systems were selected for this detailed review:

- High pressure coolant injection system
- Radiation monitoring system
- Primary containment
- Main feedwater system
- Reactor vessel (internals & instrumentation)
- Emergency cooling water system

These systems were either in a(1) status or at some time during the assessment period were a(1) status or had experienced degraded performance. The inspector reviewed corrective action documents for malfunctions and failures of these systems to determine if: (1) they had been correctly categorized at functional failures, (2) they were correctly categorized as maintenance preventable, and (3) their performance was adequately used to determine if moving a system to (a)(1) status was appropriate.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13 - 4 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.

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:

- E-1 emergency diesel generator surveillance test with Unit 3 'B' high pressure service water pump and 'A' standby gas treatment out of service on October 23, 2003
- E22 and E32 4kV undervoltage relay test with 2SU startup transformer out of service for maintenance on November 6, 2003
- Unit 3 'B' residual heat removal system outage the week of October 27, 2003
- 2A station battery replacement the week of November 17, 2003.

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 four samples.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

1. Inadvertent Emergency Diesel Generator Fast Start (71111.14 - 1 Sample)

a. Inspection Scope

The inspectors reviewed control room operator response to an inadvertent fast start of all four emergency diesel generators (EDGs) on September 25, 2003. The event occurred as maintenance technicians were restoring a reactor vessel water level instrument during the Unit 3 refueling outage. As part of the followup to this event, the inspectors reviewed Exelon's prompt investigation and immediate corrective actions, as well as the formal root cause analysis report.

b. Findings

Introduction. A self revealing non-cited violation (NCV) of technical specification 5.4.1 was identified. The NCV is of very low safety significance (Green). The written clearance restoration instructions provided to maintenance technicians to restore Unit 3 reactor vessel water level instruments to service following maintenance were inadequate. The inadequate instructions resulted in the unexpected generation of signals to actuate the Unit 3 emergency core cooling systems (ECCS) and to start the four EDGs. All four EDGs started but were not connected to the Unit 2 or 3 safety buses because normal power was available to these buses. None of the Unit 3 ECCS actuated because Unit-3 was in a refueling outage.

Description. On September 25, 2003, with Unit 3 in a refueling outage, plant maintenance technicians were given approved clearance restoration instructions to restore two reactor vessel water level instruments to service following maintenance. The task required the manipulation of a series of valves to restore the level instruments to service. During the restoration of the first level instrument to service, the clearance restoration instructions resulted in the generation of a reactor vessel low level ECCS actuation signal in the main control room. During the restoration of the second reactor vessel instrument to service, the clearance restoration instructions also resulted in the generation of a second reactor vessel low level ECCS actuation signal. The second signal completed the logic to actuate the Unit 3 ECCS and fast start of all four EDGs. No Unit 3 ECCS components actuated because automatic initiation of ECCS components was defeated, by procedure, with the plant in the cold shutdown refueling mode of operation. At no time did an actual Unit 3 reactor vessel low level condition exist during the event. The four EDGs supply power to safety buses on both Unit 2 and Unit 3. After all EDGs started, Unit 2 and Unit 3 safety buses continued to be powered by their normal supply.

Exelon's investigation into this event found that the clearance restoration instruction failed to verify that instrument root isolation valves were open prior to restoring the two reactor vessel level transmitters to service. When the transmitters were placed in

service the root isolation valves were closed rather than open. With the root isolation valves closed, an erroneous low level signal was inputted into the ECCS actuation logic.

Analysis. The performance deficiency is that Exelon did not develop an adequate written instruction to restore the reactor vessel water level instrumentation to service following maintenance as required by technical specifications. This resulted in an inadvertent Unit 3 ECCS actuation logic system actuation and automatic start of all four EDGs. The finding is greater than minor because it is similar to Insignificant Procedure Error Example 5.a in Appendix E of IMC 0612, "Power Reactor Inspection Reports." The reactor vessel instrumentation system was being returned to service after maintenance with an inadequate work instruction and caused automatic start of all four EDGs. This finding affects the Mitigating Systems cornerstone because it is associated with the function of the ECCS and EDGs. The inspectors evaluated the safety significance of the finding on Unit 3 using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." The finding was determined to be of very low safety significance (Green) using the "Boiling Water Reactor Refueling Operation with Reactor Coolant System Level Greater Than 23 Feet" mitigation checklist of IMC 0609, Appendix G, Table 1. The finding affected the core heat removal and inventory control guidelines for vessel level instrumentation. The finding did not exceed the Table 1 checklist thresholds, because the two sources of vessel level instrumentation used by plant operators to monitor reactor coolant system inventory were not affected. The finding did not represent a loss of control, as defined in IMC 0609, Appendix G, Table 1. For Unit-2, the finding was determined to be of very low safety significance (Green) using IMC 0609, Appendix A "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was not a design deficiency, did not represent an actual loss of safety function, and did not involve the loss of equipment designed to mitigate an external event.

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. 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 A, "Administrative Procedures," specifically requires written procedures be implemented covering equipment control (e.g., locking and tagging). Exelon procedure OP-MA-109-101, "Clearance and Tagging," Section 11.5, Clearance Removal and Closeout, requires steps to verify the sequence of system valve manipulations as part of the clearance restoration process. Contrary to the above, on September 25, 2003, clearance removal instructions to restore Unit 3 reactor vessel instruments did not contain steps to verify the root isolation valves were open prior to restoring the reactor vessel level transmitters to service. The lack of these steps resulted in the automatic start of all four EDGs. Because this finding is of very low safety significance and has been entered into the corrective action system (CR 177610), this violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000277 & 278/2003005-01**, **Inadequate Clearance Restoration Results in Automatic Start of All Four Emergency Diesel Generators**.

2. Online Repairs Reactor Feed Pump Repairs (71111.14 - 1 Sample)

a. Inspection Scope

The inspectors reviewed plant computer and recorder data, operator logs and approved procedures while evaluating the performance of operations, engineering, and maintenance personnel in response to non-routine online repairs to the Unit 3 'A' reactor feed pump control linkage on October 30, 2003. The inspectors assessed personnel performance to determine whether the operator's response was appropriate and in accordance with procedures and training. The inspectors also assessed whether engineering and maintenance personnel followed procedures, as required, and were properly trained and briefed prior to performing work evolutions. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

3. Return to Power Following a Planned Unit 2 Power Reduction (71111.14 - 1 Sample)

a. Scope

The inspector observed control room operator and reactor engineer actions on December 14, 2003, to return Unit 2 back to full power operation after a planned power reduction. The inspector verified that operator and reactor engineering actions to increase power were consistent with the approved plant procedures.

b. Findings

No findings of significance were identified by the inspector. Notwithstanding, the licensee identified a violation of NRC requirements. This licensee identified violation is documented in section 4OA7 of this report.

1R15 Operability Evaluations (71111.15 - 6 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 LS-AA-105, Revision 0, "Operability Determinations" and CC-AA-11, Revision 0, "Nonconformances." The inspectors used the Technical Specifications, Technical Requirements Manuals, the UFSAR and associated Design Basis Documents as references during these reviews. This inspection activity represented six samples. The issues reviewed included:

- E-2 EDG failure to remotely shut down on September 26, 2003

- Unit 3 'A' reactor recirculation pump seal cavity abnormal temperatures on October 14, 2003
- Unit 3 high pressure coolant injection (HPCI) minimum flow check valve bonnet gasket on October 1, 2003
- E-3 EDG turbo charger inlet temperature anomalies on November 18, 2003
- Unit 2 HPCI suction check valve did not fully close on December 10, 2003
- Unit 3 HPCI turbine moisture drain pot indication anomalies on December 17, 2003

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16 - 1 Sample)

a. Inspection Scope

The inspectors reviewed both units for the effects of operator work-arounds and equipment deficiencies on the reliability, availability, and potential for misoperation of systems. The inspectors evaluated the effects of identified items on the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspectors also reviewed deficiencies to determine if any items complicating the operators' ability to implement emergency operating procedures had not been identified by Exelon as an operator work-around. The inspectors reviewed operator procedure guidance for maintaining HPCI system discharge piping full following transfer of the HPCI suction from the condensate storage tank to the suppression pool. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 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. 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 TS requirements. The inspectors reviewed the recorded test data to evaluate whether the acceptance criteria were satisfied. This inspection activity represented five samples. The inspectors reviewed post-maintenance tests performed in conjunction with the following maintenance activities:

- Unit 3 Appendix K power uprate modification on October 21, 2003
- Unit 3 'B' high pressure service water motor repairs on October 30, 2003
- Unit 3 reactor core isolation coolant refueling outage overhaul on October 9, 2003
- E-4 emergency diesel generator engine ready relay replacement on December 16, 2003
- Unit 2 high pressure coolant injection suction check valve in-body repairs on December 12, 2003

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

1. Unit 2 High Pressure Coolant Injection System Suction Check Valve Did Not Fully Close (71111.22 - 1 Sample)

a. Inspection Scope

The inspectors reviewed Exelon's actions in response to the Unit 2 high pressure coolant injection (HPCI) system suppression pool suction check valve that did not fully close during routine surveillance testing on December 10, 2003. Control room operators became aware of this condition when they received an unexpected suppression pool high level alarm. This inspection activity represented one sample.

b. Findings

Introduction. A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1 was identified for an inadequate high pressure coolant injection maintenance procedure. The NCV is of very low safety significance. The deficiency resulted in the Unit 2 HPCI system suppression pool suction check valve not fully closing during surveillance testing on December 10, 2003. Since the check valve was not fully closed, approximately 16,000 gallons of water from the condensate storage tank (CST) was inadvertently transferred to the suppression pool. In addition, unplanned HPCI system unavailability was needed to facilitate repairs.

Description. On December 10, 2003, with Unit 2 operating at 100% power, plant operators identified that the HPCI system suppression pool suction check valve did not fully close during routine surveillance testing. Operators identified the condition when an unexpected suppression pool high water level alarm was received after the HPCI pump suction was transferred from the CST to the suppression pool during conduct of the surveillance test procedure.

HPCI has two suction paths. The normal suction path is aligned from the CST. The suction path from the suppression pool is normally isolated by two motor operated valves with a check valve in between. The suction path automatically swaps from the

CST to the suppression pool on low CST level or high suppression pool level. The function of the suppression pool suction check valve is to prevent the HPCI pump discharge from draining back to the suppression pool after the automatic swap over. Maintaining the discharge line full mitigates a potential water hammer condition during intermittent HPCI system operation.

Upon discovery of the failure, operators took action immediately to isolate the leak path by shutting the two suppression pool suction path motor operated valves and restoring the normal standby suction path to the CST. Maintenance technicians disassembled the check valve to determine the failure cause. The as found condition of the check valve showed evidence that the valve disc was not properly aligned with the seat due to excessive internal clearances. Exelon determined the check valve maintenance procedure, M-510-107, "Inspection and Refurbishment of Atwood Morrill Mark No. 234 and 237 Swing Check Valves," used the last time the valve was disassembled, in April 2002, did not provide adequate internal clearance acceptance criteria to ensure consistent valve performance. The check valve closed properly in September 2003, during a loss of offsite power event which involved an automatic HPCI suction transfer from the CST to the suppression pool. Through consultation with the valve manufacturer, Exelon developed detailed internal clearance acceptance criteria and reassembled the valve. Post-maintenance was successfully completed and the HPCI system was returned to service on December 12, 2003. The HPCI system was unavailable for a portion of the time to facilitate repairs.

Exelon conducted an extent of condition review of other check valves with the same model number. Plant maintenance personnel reviewed the most recent work orders for these valves, on both units, and, based on the revised acceptance criteria, determined the internal clearances to be acceptable on all but one of six valves. This valve, the Unit 2 HPCI system CST suction check valve, will be scheduled for future inspection. There is no evidence of a similar failure on this valve.

Analysis. The performance deficiency is that the maintenance procedure did not provide adequate instructions as required by Technical Specification 5.4.1. As a result, the Unit 2 HPCI system suppression pool check valve was not maintained in a manner to assure consistent valve performance that resulted in the valve not fully closing during routine surveillance testing on December 10, 2003. The finding is greater than minor because it is associated with the procedure quality attribute and adversely affects the mitigating systems cornerstone objective. The inconsistent valve performance did not ensure the availability or reliability of HPCI to respond to an initiating event. The inspectors evaluated the safety significance of this finding using IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) using the Phase I screening worksheet of IMC 0609, Appendix A, Attachment 1. The finding affected the high pressure coolant injection function under the mitigating system cornerstone. The finding was not a design deficiency, did not represent an actual loss of safety function, and did not involve the loss of equipment designed to mitigate an external event.

Enforcement. Technical Specification Section 5.4.1, "Administrative Controls - Procedures," requires that written procedures be established, implemented, and maintained covering the 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 the above, the inspectors determined Exelon Procedure, M-510-107, "Inspection and Refurbishment of Atwood and Morrill Mark No. 234 and 237 Swing Check Valves," did not have adequate instructions to control maintenance on the Unit 2 HPCI system suppression pool suction check valve. As a result, the valve did not fully close during surveillance testing on December 10, 2003. Because this finding is of very low safety significance and has been entered into the corrective action system (CR 189956), this violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000278/2003005-02, Inadequate Maintenance Procedure Results in Unit 2 High Pressure Coolant Injection System Check Valve Not Fully Closing.**

2. Other Surveillance Testing Samples (71111.22 - 4 Samples)

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 four samples. The observed or reviewed surveillance tests included:

- E-13 4kV bus loss of offsite power / loss of coolant accident relay testing on October 1, 2003
- Unit 3 reactor vessel refueling outage hydrostatic pressure test on October 7, 2003
- Unit 3 'A' core spray loop logic system functional test on November 5, 2003
- Unit 3 HPCI system pump valve and flow test on December 16, 2003.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 Sample)

a. Inspection Scope

The inspectors reviewed a temporary plant modification installed for enhanced performance monitoring of the Unit 2 reactor vessel head seal. The inspectors

conducted the review on November 17, 2003. The objectives of this review were to verify that (1) the design bases, licensing bases, and performance capability of risk significant structures, systems, and components had not been degraded through this modification, and (2) that implementation of the modification 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 one sample.

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 licensee-submitted revisions to the emergency plan, implementing procedures and EALs which were received by the NRC during the period of July - December 2003. 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.

3. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

20S1 Access Controls To Radiologically Significant Areas (71121.01 - 12 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 CFR20, applicable Technical Specifications, and applicable Exelon procedures. This inspection activity represented twelve samples.

Station, Job-In-Progress Reviews

The inspector made tours of selected radiologically controlled areas (RCAs), identified exposure significant work areas (radiation areas, high radiation areas (<1 R/hr), and airborne radioactivity areas), and reviewed associated radiological controls for those work areas (e.g., surveys, postings, barricading) to determine their acceptability.

The inspector reviewed Unit 3 drywell in-service inspection (ISI) activities, Unit 3 torus diving activities, Unit 3 refueling activities (RWP 61), Unit 3 recirculation pump work activities (RWP 95), Unit 3 main steam line valve work, and Unit 3 condenser bay work activities. The inspector also reviewed on-going work on the Unit 3 turbine deck including control and stop valve work (RWP 74) and blast cleaning activities (RWP 76). The inspector also reviewed on-going underwater cutting of control rod blades at Unit 3 (RWP-03-20010) including physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored and moved within the spent fuel pool. 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 set points to verify the set points were commensurate with ambient/expected conditions and radiation work permits. The inspector selectively verified workers knew what actions were required when their dosimeters alarmed. The inspector observed portions of the worker briefings for diving activities and transport of torus water clean-up filters.

The inspector reviewed, observed, and discussed ongoing work in Technical Specification controlled high radiation areas, including Unit 3 drywell and 3 torus (diving activities). The inspector reviewed work activities with radiation dose rate gradients (e.g., diving activities (RWP 116, 117), control rod drive work activities (RWP 97), torus filter transfers (RWP 119)) to verify that Exelon had applied appropriate radiological controls including use of multiple dosimeters or repositioning of dosimetry, as appropriate. The inspector reviewed radiation protection job coverage, including use of audio and visual surveillance.

The inspector reviewed and discussed external and internal dose assessments since the start of the Unit 3 2003 outage to identify any unplanned occupational external and internal doses including internal doses greater than 50 millirem committed effective dose equivalent (CEDE). The review also included an evaluation of the adequacy of associated dose assessments, as appropriate. The inspector evaluated the radiological source term to identify potential changes in radionuclide mix and Exelon actions, as appropriate. The inspector inter-compared radiological controls from the Unit 3 2001 outage with that provided for the current Unit 3 2003 outage, for control and stop valve work, to evaluate the adequacy of contamination control practices. The inspector reviewed the adequacy of dose assignments, as appropriate, including calculations for committed effective dose equivalent (CEDE).

Problem Identification and Resolution

The inspector selectively reviewed condition reports (CRs) to determine if identified problems were entered into the corrective action program for resolution. The inspector evaluated the CR database for the Unit 3 outage to identify repetitive deficiencies, or significant individual deficiencies, to identify if Exelon was identifying and addressing deficiencies, as appropriate. The review also included evaluation of data to determine if any problems involved undetected PI events. The inspector reviewed self-assessments and audits in the area of access control since the last inspection. The review also included a review of CRs for the outage involving radiological access controls issues and potential radiation worker or radiation protection personnel errors to determine if there was an observable pattern traceable to a similar cause and corrective actions, as appropriate. (See Section 4OA2)

High Risk Significant, High Dose Rate HRA and VHRA Controls

The inspector discussed procedure changes for high and very high radiation area access controls since the last inspection to determine if changes resulted in a reduction in the effectiveness and level of worker protection. The inspector conducted a high radiation area and very high radiation area key inventory and physically challenged the locked access points to two very high radiation area access points. The inspector discussed high and very high radiation area controls and reviewed posting of entrances to high dose rate and very high radiation areas, as appropriate. The inspector also reviewed controls for the underwater storage of non-fuel radioactive materials (e.g., torus filters).

Radiation Worker/Technician Performance

The inspector observed radiation worker and radiation protection technician performance during selected work activities including Unit 3 turbine stop and control valve work, Unit 3 drywell in-service inspections, Unit 3 torus diving activities, on-going Unit 3 refueling activities, Unit 3 control rod blade cutting activities, and transport of Unit 3 torus clean-up filters to determine if performance was consistent with the level of radiological hazards present. The inspector observed radiation protection technician performance with respect to all radiation protection work requirements to determine if the technicians were aware of radiological conditions, and if their performance was consistent with expected training and qualifications, considering radiological hazards and work activities. Workers were also observed to evaluate radiological controls practices during work activities.

b. Findings

Introduction. The inspector identified a non-cited violation of very low safety significance (Green) of 10 CFR20.1703(a). Exelon did not use continuous flow respirator protective equipment (Bullard Series 88 helmets) in accordance with the approval certification of the National Institute for Occupational Safety and Health (NIOSH).

Description. On September 25 and 29, 2003, the inspector identified that Exelon was using Bullard Series 88 continuous flow airline respirators (NIOSH approval No. TC-19C-293) during blast cleaning of contaminated turbine components. On each day, a worker was wearing the respirator inside a tented structure on the Unit 3 turbine deck during the cleaning of the components. The respirators were being used to limit intake of airborne radioactivity generated during the cleaning and Exelon was making allowance for the respiratory protective equipment's protection factor to limit workers' intake of airborne radioactivity. The respirators were to be supplied, in accordance with the NIOSH approval certification, a continuous flow of breathing air at a pressure of 19-24 pound per square inch gauge (psig). The pressure to be used is based on breathing air hose length used. The specific length used was 75 feet.

The inspector identified that on September 25, 2003, one worker, wearing the respirator, was supplied breathing air at a pressure of 41 psig. An Exelon radiation protection group member re-adjusted the flow to between 35-40 psig, the pressure range value painted on the respirator air supply manifold/filter. Similarly, on September 29, 2003, an individual using the respirator during a blast cleaning operation, was supplied breathing air at a pressure of 50 psig. An Exelon radiation protection group member re-adjusted the flow on that day to the flow indicated on an airline hose length/pressure sheet attached to the respirator air supply manifold/filter, a value of 28-48 psig. The inspector determined that in both cases, the air pressure was set to a significantly higher value than was specified (i.e., 19 -24 psig) for the type of respirator that was actually being used by the workers. In these instances, the group member had set the air supply pressure to values that were intended for respirators that were different than the type that was in use. The inspector also noted that the airline hose length/pressure chart, posted on the latter air system supply manifold/filter, indicated erroneous pressure data

due to misalignment of the columns that contained the air pressure values versus the applicable hose lengths.

Analysis. The finding is a performance deficiency because Exelon did not use respiratory protective equipment in accordance 10 CFR20.1703(a) (approval certificate of the certifying agency, NIOSH) and the improper use of the equipment was reasonably within Exelon's ability to detect and correct. Traditional enforcement does not apply since the finding did not have any operational 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 occupational radiation safety cornerstone attribute of exposure control and did affect the cornerstone objective. Specifically, Exelon could not ensure adequate protection of worker health and safety from exposure to radiation from radioactive material if respiratory protection equipment is improperly used. The finding is suitable for SDP review in that there was a potential for a significantly greater unplanned, unintended dose if breathing air pressures outside the values specified by NIOSH were used. The finding is of very low safety significance in that, it did not involve an ALARA finding, did not result in an overexposure, did not result in a substantial potential for an overexposure, and did not compromise the ability to assess dose.

The equipment was used with pressures exceeding twice the maximum approved value. In addition, due to a typographical error, the procedure for use of the equipment indicated an approved maximum pressure value below the minimum value specified by NIOSH in its approval certification. Notwithstanding, the workers using the equipment did not sustain unplanned intakes of radioactive material.

Enforcement. 10 CFR20.1703(a) requires that each licensee use only respiratory protection equipment that is tested and certified by NIOSH. On September 25 and 29, 2003, Exelon used respiratory protection equipment (Bullard Series 88 helmets) in a manner that was not tested and certified for use by NIOSH in its certificate of approval. Specifically, on September 25 and 29, 2003, workers used Series 88 helmets, and were supplied breathing air at pressures outside the approved values specified by NIOSH in its certificate of approval.

Exelon documented this issue in its corrective action program(CR 178186), and reviewed air supplied respiratory protection equipment in use to ensure other such equipment was being properly used. Since this violation is of very low safety significance, and Exelon entered the finding into its corrective action program, this violation is being treated as a Non-Cited Violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000278/2003005-03, Did Not Properly Use Respiratory Protective Equipment**.

2OS2 ALARA Planning and Controls (71121.02 - 7 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 occupational radiation 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 Exelon procedures. This inspection activity represented seven samples.

Job Site Inspections and ALARA Controls

The inspector reviewed on-going Unit 3 outage work activities and selected six 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, in-service inspection, recirculation pump impeller and motor replacement, scaffolding activities (RWP 81), temporary shielding (RWP 84), and main steam isolation valve work. The inspector also reviewed work activities that presented unusual conditions or situations (i.e., diving in the torus, transport of used torus filters for disposal, and control rod blade cutting). 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 toured selected areas of the RCA, including the Unit 3 drywell and Unit 3 control rod blade cutting (RWP 03-20010) area, and observed ongoing radiological work activity. The inspector evaluated whether workers were utilizing low dose waiting areas, were effective in maintaining their doses ALARA, and received appropriate on-the-job supervision to ensure ALARA requirements.

The inspector reviewed exposures of individuals from selected work groups to identify significant exposure variations which may exist among workers.

Verification of Dose Estimates and Exposure Tracking

The inspector reviewed Exelon's method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope, radiation levels, or emergent work were encountered to determine if the adjustments were based on sound radiation protection and ALARA principles. The inspector also reviewed the frequency of these adjustments to evaluate the original ALARA planning process. The inspector reviewed re-forecast work activity dose estimates including for work activities in the Turbine Building, Unit 3 drywell, and balance of plant.

The inspector compared the results achieved (person-rem, dose rate reductions) with estimated exposures and determined the 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. The inspector evaluated the reasons for inconsistencies between intended and actual work activity doses. The inspector compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements and evaluated the accuracy of these time estimates.

The inspector determined if work activity planning included consideration of the benefits of dose rate reduction activities such as shielding provided by water filled components/piping, job scheduling, and shielding and scaffolding installation and removal activities.

The inspector evaluated the interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups for interface problems or missing program elements.

The inspector evaluated the radiation protection group generated shielding requests with respect to dose rate reduction problem definition and assigning value (dose savings or dollars). The inspector evaluated shielding installed relative to requests made.

The inspector determined if post-job (work activity) reviews were conducted and if identified problems were entered into the corrective action program.

Source-Term Reduction and Control

The inspector reviewed the implementation and effectiveness of Exelon's contingency plans for managing the elevated radiation levels (AR 176080) following the Unit 3 shutdown for refueling and difficulties encountered during system clean-up (AR 176677). In particular, the inspector evaluated Exelon's response in the area of ALARA planning and controls. The inspector reviewed re-forecasts of estimated person-rem and exposure mitigation activities.

The inspector reviewed and discussed the effectiveness of Exelon's supplementary shielding, flushing strategies, filtration efforts, and work control/deferrals to minimize the impacts on person-rem. The inspector reviewed the site ALARA procedures, including job exposure estimates and tracking.

The inspector reviewed the effectiveness of Exelon's contingency plans implemented during the 2003 Unit 3 outage for managing the elevated radiation levels (AR176080) following the Unit 3 shutdown for refueling and difficulties encountered during system clean-up (AR 176677). In particular, the inspector evaluated Exelon's response in the area of ALARA planning and controls. The inspector reviewed re-forecasts of estimated person-rem, exposure mitigation activities, and results achieved.

The inspector reviewed and discussed the effectiveness of Exelon's supplementary shielding, flushing strategies, filtration efforts, and work control/deferrals to minimize the impacts on person-rem. The inspector reviewed the site ALARA procedures including job exposure estimates and tracking. The inspector evaluated Exelon's use of engineering controls to achieve dose reductions.

The inspector evaluated Exelon's understanding of the plant source term, including knowledge of input mechanisms to reduce the source term and whether Exelon had a source-term control strategy in place. The review included a review of the source-term control strategy to determine if specific sources have been identified for exposure reduction actions and what priorities had been established for implementation of these actions.

The inspector evaluated what results have been achieved against these priorities since the last refueling cycle. The inspector also evaluated whether source reduction evaluations have been made and actions have been taken to reduce the overall source-term compared to the previous year.

Problem Identification and Resolution

The inspector reviewed CRs in this area since the last inspection to determine if Exelon was including ALARA deficiencies and issues in its corrective action program (See Section 4OA2 for specific CRs reviewed).

The review included self assessments, audits and corrective action reports related to the ALARA program since the last inspection to determine if the follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk.

The inspector reviewed dose significant post-job (work activity) reviews and post-outage ALARA report critiques of exposure performance to determine if identified problems were properly characterized, prioritized, and resolved in an expeditious manner.

The inspector reviewed preliminary on-going assessment activities associated with the elevated cobalt 60 concentrations in the Unit 3 reactor coolant system, the inability to initially conduct clean-up activities using the reactor water clean-up (RWCU) system, and the transport of contamination to selected systems within the turbine building.

Declared Pregnant Workers

The inspector reviewed exposure control documentation for declared pregnant workers, as available, for the current assessment period. The review included a review the exposure results and monitoring controls employed by the licensee with respect to requirements of 10 CFR 20 and applicable Exelon procedures.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03 - 1 Sample)

a. Inspection Scope

The inspector selectively reviewed 2002 and 2003 surveillance test data for Unit 2 and 3 drywell high range radiation monitoring systems. The review was against criteria contained in applicable Technical Specifications and station procedures. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety [PS]

2PS2 Radioactive Material Processing and Transportation (71122.02 - 1 Sample)

PS2.1 Shipment Records and Documentation

a. Inspection Scope

The inspector selectively reviewed records associated with shipment of control rod drives in Type A packages (Shipment PM-02-087). The inspector also evaluated the training of radioactive materials shipping, handling, and loading personnel involved in shipment of radioactive material Shipment Nos. PW-03-001 and PW-03-002.

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, and applicable station procedures. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151)

1. Emergency AC Power System Unavailability (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 indicator was reviewed:

- Unit 2 and Unit 3 AC emergency power system unavailability

b. Findings

No findings of significance were identified.

2. Occupational Exposure Control Effectiveness (1 - Sample)

a. Inspection Scope

The inspector reviewed the performance indicator (PI) for the Occupational Exposure Cornerstone. The inspector discussed and reviewed current performance, relative to the indicators, with cognizant Exelon personnel. The inspector selectively reviewed alarm indications associated with exceeding dose or dose rate alarms on worker electronic dosimetry for the Unit 3 outage to identify potential instances of unplanned personnel exposures and missed Pis. The review was against criteria contained in NEI 99-02, Rev. 2. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

3. RETS/ODCM Radiological Effluent Occurrences (1 - Sample)

a. Inspection Scope

The inspector reviewed the performance indicator for radiological effluent technical specifications (RETS) and offsite dose calculation manual (ODCM) occurrences. The inspector reviewed monitoring data, event reports, and corrective action program records to determine if Exelon experienced any radiological effluent release occurrences meeting the dose criteria in NEI 99-02, Rev. 2 for the previous four quarters. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

1. Daily Screening of Corrective Action Program Items

a. Inspection Scope

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 the licensee's corrective action program. This review was accomplished by reviewing hard copies of each condition report, attending daily screening meetings, and accessing the licensee's computerized database.

b. Findings

No findings of significance were identified.

2. Annual Sample Review (71152 - 1 Sample)

a. Inspection Scope

Replacement of Cutler-Hammer Thermal Overload Relays

On December 22, 2002, following a Peach Bottom Unit 2 automatic reactor shutdown, the 2C reactor feed pump discharged isolation valve MO-2-06C-8090 did not open due to a motor control unit Cutler-Hammer thermal overload (TOL) relay failure. The failure of this valve to open removed a preferred path for operators to use to restore and maintain reactor water level following the shutdown. Exelon documented the TOL relay failure in CR 137738. The inspector reviewed Exelon's actions to replace the Cutler Hammer TOL relays utilized in various components important to transient recovery.

The inspector reviewed documents associated with the implementation of the above condition report and the failure data base and preventive maintenance schedule for those components containing TOLs that are important to transient recovery. The inspector also inspected the warehouse to confirm that no outdated TOL relays existed for class 1E use. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

3. Corrective Action Reports Reviewed Associated With Inservice Inspection Activities

a. Inspection Scope

The inspector reviewed one sample of corrective action reports shown in Attachment 1, which identified flaws discovered during this and previous outages. The inspector verified that flaws identified during non-destructive testing were reported, characterized, evaluated and appropriately dispositioned and entered into the corrective action program. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

4. Evaluation of Exelon's Threshold for Identifying, Evaluating, and Resolving Problems Relating to Occupational Radiation Safety

a. Inspection Scope

The inspector reviewed condition reports (CRs) to determine if identified problems were entered into the corrective action program for resolution. The inspector reviewed twenty-three Action Requests to evaluate Exelon's threshold for identifying, evaluating, and resolving problems relating to occupational radiation safety. The review included a check of possible repetitive issues, such as radiation worker or radiation protection technician errors (CRs 176677, 176080, 178010, 178215, 175793, 178017, 177441, 176646, 176647, 175906, 178156, 176117, 168924, 177789, 177855, 177060, 177989, 176991, 177937, 177883, 177572, 176694, 176251).

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.

4OA3 Event Followup (71153)

1. (Closed) LER 05000277/2003004-00, Units 2 and 3 Automatic Scrams Resulting from an Off-Site Electrical Grid Disturbance

At approximately 1:32 a.m. on 9/15/03, Units 2 and 3 automatically shutdown and the main steam isolation valves closed as a result of an interruption of power to the Reactor Protection System and the Primary Containment Isolation System logic circuits. This interruption of power was caused by a brief loss of two of the three PBAPS off-site power sources caused by an electrical grid disturbance approximately 35 miles away from the site. The disturbance was the result of failure of off-site protective relaying during a lightning storm. The emergency diesel generators (EDGs) started and provided on-site power. On Unit 3, one safety relief valve (SRV) remained open after actuation. It subsequently closed when reactor pressure was reduced. At approximately 2:35 a.m., the E-2 EDG tripped on low jacket coolant pressure. A discretionary Unusual Event was declared by the Shift Manager as a result of the E-2 EDG trip combined with the off-site grid concerns. The high pressure coolant injection and reactor core isolation cooling systems were used to provide reactor water level control.

The NRC dispatched an Augmented Inspection Team (AIT) to PBAPS to assess Exelon's response to this event. The AIT documented its findings in NRC Inspection Report 05000277/2003013,05000278/200303 dated December 18, 2003. The resident inspectors did not identify any new issues in this LER review. This LER is closed.

4OA5 Other

(Closed) URI 05000277/2003004-03: Inadequate Corrective Actions for High Unit 2 Steam Tunnel Temperature.

a. Inspection Scope

During the previous inspection period (NRC Inspection Report 05000277, 278/2003004, dated November 4, 2003, the inspectors documented an unresolved item related to 10 CFR 50, Appendix B, Criterion 16, because during the period of July 2001 through July 2003, Exelon did not adequately correct a condition adverse to quality, specifically a high Unit 2 steam tunnel temperature condition that was not representative of a steam leak. Consequently, on July 22, 2003, following a turbine trip and scram of Unit 2, a high main steam tunnel temperature condition, that was not representative of a steam leak, caused all main steam isolation valves to close resulting in a loss of the normal heat sink and reactor feed water system. The report documented an unresolved item (URI) pending completion of the Significance Determination Process (SDP). The inspectors have completed the SDP and the finding is documented below.

b. Findings

Introduction:

A self revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion 16 was identified. The NCV is of very low safety significance. During the period of July 2001 through July 2003, Exelon did not adequately correct a condition adverse to quality, specifically a high Unit 2 steam tunnel temperature condition that was not representative of a steam leak. Consequently, on July 22, 2003, following a turbine trip and scram of Unit 2, a high main steam tunnel temperature condition, that was not representative of a steam leak, caused all main steam isolation valves to close resulting in a loss of the normal heat sink and reactor feed water system.

Description:

During the July 22, 2003, Unit 2 scram main steam isolation valves (MSIVs) closed about 13 minutes after the reactor scram because the Unit 2 main steam tunnel temperature reached the setpoint for automatic closure of the MSIVs. The temperature increase was due to the expected Group 3 isolation that caused isolation of normal reactor building ventilation and the automatic start of the "B" train of the standby gas treatment system. Ventilation flow of standby gas was not sufficient to avoid a temperature rise above the main steam tunnel high temperature trip setpoint, which resulted in a closure of all MSIVs. The closure of the MSIVs resulted in a loss of the main condenser and reactor feedwater system, thereby complicating operator response to the scram. This condition was a known deficiency since July 2001 and Exelon had adequate time to correct it prior to the MSIV closure on July 22, 2003. Steam tunnel temperatures on Unit 2 were considerably warmer than those on Unit 3, resulting in a much lower temperature margin to the MSIVs closure setpoint. This temperature setpoint is designed to mitigate the consequences of a significant steam leak, if one would develop in the steam lines located in the steam tunnel.

Analysis:

The performance deficiency is that Exelon did not correct a condition adverse to quality, specifically a high steam tunnel temperature condition that was not representative of a steam leak, as required by 10 CFR 50 Appendix B, Criterion XVI. Traditional enforcement does not apply because the issue did not result in any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or Exelon's procedures. The finding is considered greater than minor in that the issue is associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affects the mitigating systems cornerstone objective to assure availability of systems that respond to initiating events to prevent undesirable consequences. The finding is also associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affects the objective of limiting the likelihood of those events that upset plant stability. A high steam tunnel temperature condition that is not representative of a

steam leak due to a Group 3 isolation would remove the normal source of feed water and heat sink and cause a reactor scram.

A SDP for Inspector Findings for At Power Conditions phase 1 screening of the finding screened to phase 2 because the finding affects both the Initiating Events and Mitigating Systems Cornerstones. Based on a Phase 2 SDP using the Risk-Informed Inspection Notebook for Peach Bottom Atomic Power Station (Rev 1) and the draft delta large early release frequency (LERF) guidance in the IMC 0609 Appendix H, the finding was determined to be of very low safety significance (Green). This included an assumption that the condition for the high temperatures was in place for one summer season or 25% of a year. An operator recovery to prevent the Group I isolation was credited with a value of 1 or a 1E-1 chance that the operator would not increase the temperature setpoint prior to MSIV isolation. The inspector also determined that the external events did not contribute significantly to the probability of core damage given the finding. There were two dominant delta core damage frequency (CDF) sequences. The first was a loss of the power conversion system (PCS) combined with a loss of containment heat removal (CHR) and a loss of containment venting (CV). The second was a loss of PCS combined with a loss of high pressure injection (HPI) and depressurization capability (DEP). The Region I SRA conducted a Phase 3 analysis using a simplified containment event tree for a Mark I containment to refine the delta LERF estimates provided by the Phase 2 analysis. The dominant delta LERF sequence was a loss of PCS combined with losses of HPI and DEP. Based on the simplified containment event tree LERF factors of 0.2 for high pressure sequences and 0.1 for low pressure sequences were developed. Applying these factors resulted in delta LERF having very low safety significance (Green).

This finding is specifically related to the cross-cutting area of Problem Identification and Resolution. Although Exelon documented high main steam tunnel temperatures in their corrective action program on July 1, 2001, and again on April 20, 2003, Exelon did not correct the high main steam line tunnel temperature condition that was not representative of a steam leak on Unit 2 to prevent the closure of the MSIVs on Unit 2 MSIVs on July 22, 2003.

Enforcement:

10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” requires licensees to correct conditions adverse to quality. Contrary to the above, between July 1, 2001, and July 22, 2003, Exelon did not correct a known high main steam tunnel temperature condition, a condition adverse to quality. Consequently, on July 22, 2003, the high main steam tunnel temperature condition caused a MSIV closure following a scram, complicating the operator actions required to place the reactor in a safe shutdown condition. Because the violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” is of very low safety significance and has been entered into the CAP (CR 168859), this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 0500278/2003-005-004, Inadequate Corrective Actions for High Unit 2 Steam Tunnel Temperature**.

4OA6 Meetings, Including Exit

On January 16, 2004, the resident inspectors presented the inspection results to Mr. Rusty West and members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following finding of very low safety significance was identified by Exelon and is violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation (NCV):

- Technical Specification 5.4.1, "Administrative Controls - Procedures," requires written procedures be established, implemented, and maintained covering safety-related activities listed in Regulatory Guide 1.33, Appendix A, November 1972. Contrary to this, on December 14, 2003, control room operators and reactor engineers did not follow written guidance for control rod withdraw following a scheduled Unit 2 downpower. As a result, a single control rod was not withdrawn in the sequence listed in the Reactivity Maneuvering Approval Package approved in accordance with Exelon procedure NF-AB-702, "Reactivity Maneuvering Guidance." The error was discovered approximately three hours later by the shift reactor engineer. The event is documented in the corrective action program (CR 190725). This finding is of very low safety significance because the error was discovered and corrected and at no time was the core in an unanalyzed condition.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. West, Site Vice President
J. Mallon, Director, Training
J. Stone, Plant Manager
E. Eilola, Operations Director
D. Foss, Licensing Regulatory Affairs
C. Fritz, LSRO Program Coordinator
C. Goff, Exam Development/Operations Instructor
P. Davison, Maintenance Director
G. Stathes, Site Engineering Director
M. Anthony, Work Management Director
C. Behrend, Senior Manager Plant Engineering
B. Norris, Radiation Protection Manager
E. Anderson, Manager, Regulatory Assurance
W. Trump, Nuclear Security Manager
A. Coppa, Emergency Preparedness Manager
K. Langdon, Site Nuclear Oversight Manager
R. Lubaszewski, Rad Material Shipping Coordinator
G. McCarty, Radiological Engineering Manager
S. Wilson, Instrumentation Coordinator
S. Kobus, Radiation Protection Supervisor
T. Lee, Engineering
T. Martin, Manager, Support Health Physics
C. Crabtree, Radiation Protection Supervisor
D. Barron, Rad Engineer
J. Schwarz, Rad Engineer
H. McCrory, Dosimetry Physicist
J. Volz, Physicist
W. Scott, Chemist
N. Weissenreider, Respiratory Physicist
C. Jordan, Chemistry Manager
J. Zardus, HPCI System Engineer
C. Arnone, EP Director
J. Karkoska, MAROG Emergency Preparedness Manager
J. Anderson, Program Coordinator
R. Rogers, Training Coordinator
J. Cohen, NOS auditor
E. Naill, CMO-Component Specialist
D. Shaw, CMO-Component Specialist
T. Veale, Electrical Design Engineer
P. Rau, Programs Manager
A. Charles, Maintenance Rule Coordinator

R. Ciemiewicz, Program Manger (Reactor Vessel and Internals)
B. Holcomb, System Manager (Feedwater)
M. Ruff, System Manager (Emergency Heat Sink)
K. O'Dowd, System Manager (RCIC/HPCI)
C. Rogers, System Manager (Electrical)

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000277/2003004-00	LER	Units 2 and 3 Automatic Scrams Resulting from an Off-site Electrical Grid Disturbance
05000277/2003004-03	URI	Inadequate Corrective Actions for High Unit 2 Steam Tunnel Temperature

Opened and Closed

05000277/2003005-01 05000278/2003005-01	NCV	Inadequate Clearance Restoration Results in Automatic Start of All Four Emergency Diesel Generators
05000278/2003005-02	NCV	Inadequate Procedure Maintenance Guidance Results in Unit 2 High Pressure Coolant Injection System Check Valve Failure
05000278/2003005-03	NCV	Failure to Properly Use Respiratory Protective Equipment In Accordance With 10 CFR 20.1703(a)
05000277/2003005-04	NCV	Inadequate Corrective Actions for High Unit 2 Steam Tunnel Temperature

Opened

None

LIST OF DOCUMENTS REVIEWED

PARTIAL LIST OF DOCUMENTS REVIEWED

Section 1R08: Inservice Inspection

Radiograph Review

FW 2	Radiograph, Butt Weld, High Pressure Service Water
FW 2-R	Radiograph, Butt Weld, Repair, High Pressure Service Water

NDT Examination Reports

AA-335-017	VT-3 Examination Report for Pump and Valve Internal Surfaces
AA-335-002	Penetrant Examination Report of MO-2-23-016
249400	Magnetic Particle Test Report of 10DDN-H66A, RHR
312875	Magnetic Particle Test Report of 14GB-H40, CS
315520	UT Examination Report of HPCI Pipe to Tee Weld, 2TE20-2

NDT Examination Procedures

GE-PDI-UT-1, Ver 3	PDI Procedure for the Ultrasonic Examination of Ferritic Pipe Welds
GE-PDI-UT-2, Ver 3	PDI Procedure for the Ultrasonic Examination of Austenitic Pipe Welds
MAG-CG-425, Rev 0	IWE Containment Visual Inspection
GE-MT-100, Ver 3	Magnetic Particle Examination
GE-PT-100, Ver 3	Liquid Penetrant Examination

In Vessel Remote Visual Examination

VT-3	Visual Examination of Core Spray Piping and Tee Boxes
VT-3	Visual Examination of Jet Pumps 9 & 10 Riser Piping, RS-1 Weld
VT-3	Steam Dryer Structural Welds and Base Material

Repair-Replacement Work Order

C0203523	HPCI Valve MO-2-23-016, Repair by Weld Build Up of Bonnet

Flaw Evaluation

B13-02010-00-012	Jet Pump Riser Weld Cracking-Unit 3

Action Requests

AR 00176902	UT Data Quality, Jet Pump Riser Weld, RS-1 (JP 9&10)
AR 1338796	U3 Reactor Head Meridional Weld Ultrasonic Indications
AR 1397127	Weld Build Up of Bonnet Outside Diameter

AR 1396651	RPV Meridional Weld Successive Exam Requirements

Nonconformance Report

01-00999	U3 Reactor Head Meridional Weld Ultrasonic Indications
PB3R14-03-01	Indication Notification Jet Pump Riser RS-1 Weld

Drawings/Isometrics

ISI-203-RV-14, Rev.1	RPV Details, Jet Pump Assembly and Weld Identification
ISI-203-RV-15, Rev.2	RPV Details, Jet Pump Riser Diagram

Miscellaneous

386HA480, Rev. 18	Certification of Nondestructive Test Personnel (GE)
TE4.4-B, Rev. 0	Gas Tungsten Arc Welding Procedure
TE4.4-A-2	Weld Procedure Qualification Record

Section 2OS1: Occupational Radiation Safety

Procedures:

RP-AA-461, Rev. 0	Radiological Controls for Contaminated Water Diving Operations
HP-CG-401, Rev. 0	Health Physics Instrumentation Response Checks
HP-C-401, Rev. 0	Operation of the SAIC PDE-4 Electronic Dosimeter
HPJS-7.27, Rev. 1	Alarming Electronic Dosimeter Investigation
RP-AA-1005, Rev. 1	Condition Report Initiation
RP-AA- 350, Rev. 1	Personnel Contamination Monitoring, Decontamination and Reporting
RP-AA-220, Rev. 1	Bioassay Program
RP-PB-441-1001, Rev. 1	Respirator Field Use and Air Testing
RP-AA-301, Rev. 0	Radiological Air Sampling Program
RP-AA-1002, Rev. 0	Electron Capture Isotope Control

Section 1R12 Maintenance Implementation

ER-AA-310, Rev. 2, “Implementation of the Maintenance Rule.”
ER-AA-2002, Rev. 3, “System Health Indicator Program.”
ER-AA-310-1007, Rev. 2, “Maintenance Rule - Periodic (a)(3) assessment.”
ER-AA-310-1005, rev. 1, “Maintenance Rule - Dispositioning between (a)(1) and (a)(2).”
Peach Bottom Maintenance Rule Periodic Assessment 1997 - 1999.
Maintenance Rule Expert Panel Meeting Minutes/Notes (1997 - 2001)
Plant Health Committee Agenda, 11/19/03
NCR PB 97-02899, Rev. 3, “U3 Jet Pump Thermal Sleeve Cracking.”
2002 Maintenance Rule Focused Self Assessment
2001 Maintenance Rule Focused Self-Assessment

(a)(1) Action Plans

480V NEMA Size 3 starters
Emergency Cooling Tower
Feedwater Train 3B
Jet Pumps - Unit 3
Rockwell Gland Flanges - Unit 3
Primary Containment - Unit 2
HPCI - Unit 2
Feedwater Train 3C
Main Stack Radiation Monitors - Units 2/3

System Health Reports/MR Basis Documents

Main Feedwater (All trains)
Radiation Monitoring
Primary Containment
Emergency Cooling Water
Residual Heat Removal
HPCI
Seismic Monitoring
Reactor Vessel & Internals
RCIC

Corrective Action Plans Reviewed

AR00130951	AR00073413	AR00130102	AR00100187
AR00102921	AR00078062	AR00073932	AR00083005
AR00110021	AR00110600	AR00078325	AR00087532
AR00060067	AR00071322	AR00073932	AR00083076
A1300794	A1229925	A1270788	A1373458
A1373927	I007104	I0009760	I0010450
I0010773	I0012011	A1267094*	A1270788*

LIST OF ACRONYMS

AIT	Augmented Inspection Team
ALARA	as low as is reasonably achievable
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	condition report
CST	condensate storage tank
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
HP	Health Physics
HPCI	high pressure coolant injection
HPI	high pressure injection
HRA	high radiation area
IMC	Inspection Manual Chapter
ISI	in-service inspection
LERF	large early release frequency
MR	maintenance rule
MSIV	main steam isolation valve
NCV	non-cited violation
NDE	nondestructive examination
NEI	Nuclear Energy Institute
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
PCS	power conversion system
PI	performance indicator
PM	preventive maintenance
PSIG	pounds per square inch gauge
RCA	radiologically controlled area
RETS	radiological effluent technical specification
RFPT	reactor feed pump turbine
RSPS	risk significant planning standards
RWP	radiation work permit
SDP	significance determination process
SSCs	systems, structures, or components,
TOL	thermal overload relays
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report