January 28, 2003

Mr. John L. Skolds
Chief Operating Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED INSPECTION REPORT 50-277/02-06, 50-278/02-06

Dear Mr. Skolds:

On December 28, 2002, the NRC completed an inspection at the Peach Bottom Atomic Power Station. The enclosed report documents the inspection findings which were discussed on January 9, 2003, with Mr. Rusty West and other members of your staff.

This inspection was an examination of 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.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective actions program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. A violation of very low safety significance identified by Exelon is listed in Section 4OA7 of the report. If you deny the non-cited violations noted 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, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction (TI) 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the

audits and drills were reviewed and dispositioned by the NRC Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 No. 50-277/02-06 and 50-278/02-06

Attachment: (1) Supplemental Information

cc w/encl: Senior Vice President, Mid-Atlantic Regional Operating Group
Chief, Operating Officer, Exelon Generation Company, LLC
Senior Vice President, Operations Support
Vice President, Mid-Atlantic Operations Support
Senior Vice President, Nuclear Services
Site Vice President, Peach Bottom Atomic Power Station
Plant Manager, Peach Bottom Atomic Power Station
Vice President - Licensing
Director, Licensing, Mid-Atlantic Regional Operating Group
Director, Nuclear Oversight
Regulatory Assurance Manager - Exelon Generation Company, LLC
Vice President and General Counsel
D. Quinlan, Manager, Financial Control, PSEG
R. McLean, Power Plant Siting, Nuclear Evaluations
D. Levin, Acting Secretary of Harford County Council
R. Ochs, Maryland Safe Energy Coalition
Mr. & Mrs. Dennis Hiebert, Peach Bottom Alliance
Mr. & Mrs. Kip Adams
D. Allard, Director, Pennsylvania Bureau of Radiation Protection
R. Janati, Chief, Division of Nuclear Safety, Pennsylvania Bureau of Radiation Protection
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Commonwealth of Pennsylvania
State of Maryland
TMI - Alert (TMIA)
Board of Supervisors, Peach Bottom Township
R. Fletcher, Department of Environment, Radiological Health Program
J. Johnsrud, National Energy Committee, Sierra Club
Public Service Commission of Maryland, Engineering Division
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DATE	01/28/03 **/DJF for/**		01/28/03 **/DJF/**		01/28/03 **/MMS/**	

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U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket Nos:	50-277, 50-278
License Nos:	DPR-44, DPR-56
Report Nos:	50-277/02-06, 50-278/02-06
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
Inspection Period:	September 29, 2002 through December 28, 2002
Inspectors:	A. McMurtray, Senior Resident Inspector M. Buckley, Resident Inspector R Nimitz, Senior Health Physicist D. Florek, Senior Project Engineer
Approved by:	Mohamed M. Shanbaky, Chief Projects Branch 4 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000277-02-06, IR 05000278-02-06; Exelon Generation Company; on 09/29-12/28/2002; Peach Bottom Atomic Power Station; Units 2 and 3. Maintenance Risk Assessments and Emergent Work Evaluation.

This inspection was conducted by resident inspectors, a senior health physicist, and a senior project engineer. One finding of very low safety significance was identified during the inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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. Inspector Identified Findings

Cornerstone: Barrier Integrity

- **Green**. The inspectors identified a non-cited violation of very low safety significance (Green). The non-cited violation of Technical Specification 5.4.1 is due to the licensee's failure to adequately establish or maintain preventive maintenance activities and procedures on critical, safety-related ventilation dampers for the Control Room Emergency Ventilation (CREV), Standby Gas Treatment (SBGT), and reactor building ventilation systems. Peach Bottom procedure, A-C-28, "Preventative Maintenance Program" requires preventative maintenance activities on critical equipment, such as these dampers. The licensee discontinued preventive maintenance on critical, safety-related ventilation dampers in 1988.

  This NCV was determined to be of very low safety significance because individual damper failures, to date, have not impacted CREV, SBGT or other safety-related systems due to damper and system redundancy.

  A contributing cause to the length of time that Exelon did not identify this issue was related to the Problem Identification and Resolution cross-cutting area. Peach Bottom plant personnel did not identify the lack of preventative maintenance for safety-related dampers following several damper failures at Peach Bottom and a 1999 generic issue related to these dampers identified to the Peach Bottom staff by the licensee's Limerick Generating Station. The causal relationship between this finding and the cross-cutting area was that plant personnel did not identify that preventative maintenance was not being performed on safety-related dampers and, as a result, some individual dampers degraded to a point where they could not perform their intended functions. (Section 1R13)

B. Licensee Identified Violations

A violation of very low significance, identified by Exelon, has been reviewed by the inspectors. Corrective actions, taken or planned by Exelon, have been entered into Exelon's corrective action program. This violation and corrective action tracking number is described in Section 40A7.

Report Details

SUMMARY OF PLANT STATUS

UNIT 2

Unit 2 began this inspection period shutdown in Mode 5 (Refueling) during the 2R14 refueling outage. On October 2, 2002, the reactor was taken critical and power was increased until the unit reached 100 percent power on October 5. Shortly thereafter, Unit 2 power was reduced to approximately 79 percent due to a high oil level alarm on the 2 'B' recirculation pump motor. Following troubleshooting, Unit 2 power was returned to 100 percent on October 6. On October 18, Unit 2 power was reduced to approximately 48 percent to allow walkdowns of the moisture separator area and inspections of the leaks on the Caldon leading edge flowmeter (LEFM) spool pieces. Unit 2 returned to 100 percent power on October 19. On November 23, the Appendix K uprate (i.e., use of the Caldon LEFM flow measurement system installed in the reactor feedwater system during 2R14) was implemented. This resulted in the Unit 2 full power thermal limit increasing from 3458 MegaWatts (thermal) to 3514 MegaWatts (thermal). On December 17, Unit 2 power was reduced to approximately 16 percent to facilitate leak repairs on the Caldon LEFM flow measurement system. After repairs, Unit 2 returned to 100 percent power in the afternoon of December 21. In the evening of December 21, an automatic reactor shutdown occurred following closure of all of the Main Steam Isolation Valves after several of the turbine bypass unexpectedly opened due to a malfunctioning electro-hydraulic control system card. Unit 2 returned to 100 percent power on December 25.

UNIT 3

Unit 3 began this inspection period operating at 100 percent power. On November 4, 2002, the 3 'B' reactor feedwater pump tripped and Unit 3 power was automatically reduced to approximately 69 percent when both recirculation pumps ran back to 45 percent speed. Unit 3 returned to 100 percent power later on November 4 and remained at or near that power level for the remainder of the inspection period.

1. REACTOR SAFETY [R]
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed Exelon's preparations for cold weather conditions and walked down selected systems that could be affected by low temperatures to verify that these systems would remain functional during cold weather conditions. The inspectors used RT-O-040-620-2, Revision 9, "Outbuilding Heating, Ventilation and Air Conditioning and Outer Screen Inspection for Winter Operations" and OP-AA-108-109, Revision 1, "Seasonal Readiness" during this inspection. The inspectors also used Exelon's procedure, AG-108, Revision 6, "Preparation for Severe Weather" to review the station's preparations for several snowstorms that occurred during December 2002. During these reviews, the inspectors analyzed the removal of any critical equipment for planned maintenance and the possible impact on plant risk with severe weather expected.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns 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. The walkdowns involved the following systems:

- Units 2 and 3 high pressure service water (HPSW) system line-up while maintenance was performed on the 2 'D' HPSW pump
- E1, E2 and E4 emergency diesel generators (EDGs) while the E3 EDG was in a scheduled maintenance outage

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.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 these areas to assess control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The fire areas included:

- Unit 2 recirculation pumps motor/generator rooms
- Station black out (SBO) switchgear building
- Unit 3 electro-hydraulic control (EHC) pump room
- Unit 3 high pressure coolant injection (HPCI) room

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation

a. Inspection Scope

The inspectors observed plant personnel performance during an unannounced fire brigade drill on November 6, 2002 to evaluate the readiness of station personnel to prevent and fight fires. The drill simulated fighting a fire involving a pile of combustible materials in the Radwaste Extension building. The inspectors reviewed the drill scenario prior to the drill and Exelon Nuclear fire protection procedures, RT-F-101-922-2, Revision 3, "Fire Drill" and FF-01, Revision 8, "Fire Brigade." The inspectors also reviewed the strategies and information in the Pre-Fire Plan PF-150, "PreFire Strategy Plan, Hydrogen Cylinder Storage and Radwaste Services Enclosure, Fire Zone 150." 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 (e.g., laid out without flow constrictions). The inspectors observed fire fighting directions and radio communications between the brigade leader and brigade members. The inspectors evaluated the simulated smoke removal operations to verify that they would be effective. 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.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

On December 18 and 20, 2002, the inspectors observed licensed operators' performance during Licensed Operator Requalification Training Cycle 02-05 to assess operator performance in the simulator and the crew's and evaluators' training critique. The inspectors also observed classroom training involving proper usage of Emergency Planning procedures by operations personnel. The simulator training included evaluating the performance of shift supervision using trip procedures to address a feedwater leak in an outboard main steam isolation valve room. This observation included evaluating the critiques of the operators' performance to ensure that any operator performance errors were detected and corrected. The inspectors focused on

the operating crew's satisfactory completion of critical tasks, including proper and timely identifications and classifications of emergencies. The inspectors also evaluated whether the operators adhered to Technical Specifications, emergency plan implementation and the use if the emergency operating procedures. The inspectors discussed the training, simulator scenario and critique with operators, shift supervision, operations management and training instructors.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Effectiveness

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 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. The following system, equipment problems, and documents were reviewed:

Systems

- Multiple damper stroke failures in standby gas treatment and reactor building ventilation systems

Procedures and Documents

- Peach Bottom Health Overview Reports
- Peach Bottom Maintenance Rule Bases Documentation
- ER-AA-310, Revision 1, "Implementation of the Maintenance Rule"
- ER-AA-310-1002, Revision 0, "Maintenance Rule - SSC Risk Significance Determination"
- ER-AA-310-1003, Revision 0, "Maintenance Rule - Performance Criteria Selection"
- ER-AA-310-1004, Revision 0, "Maintenance Rule - Performance Monitoring"
- ER-AA-310-100, Rev 0, "Maintenance Rule - Dispositioning between (a)(1) and (a)(2)"
- Condition Report (CR) #121375 "AO-2-40B-20469-02 Stroked Slowly in the Open direction"
- CR #125740 "Unexpected Stroke Time Failures in Standby Gas Treatment and Reactor Building Ventilation Systems"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

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:

- Failure of the "A" Control Room Emergency Ventilation (CREV) inlet damper to open during surveillance testing
- E3 emergency diesel generator (EDG) planned maintenance outage while 2"D" HPSW pump was out of service for replacement
- Water leakage into the Unit 2 side of the cable spreading room after a domestic water filter broke in the kitchen outside of the main control room resulting in flooding on the kitchen floor. The water leakage into the Unit 2 side of the cable spreading room caused the following instruments to become inoperable and alarms, associated with the "A" channel of the compensated level trip system, to actuate:

  Unit 2 Instruments

  Reactor pressure and level indication: PR/LR-2-2-3-404A
  Wide range reactor vessel level indications: LI-85A and LT-72A
  Fuel zone reactor vessel level indication: DPI-2-2-3-73A

  Unit 2 Alarms

  "A" channel Alternate Rod Insertion trip
  High drywell pressure bypass timers initiated
  System I Emergency Core Cooling System reactor vessel Lo-Lo-Lo level
  Reactor water level low
  System I reactor vessel pressure low
  Feedwater field instrument trouble

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.

b. Findings

Introduction

The inspectors identified a non-cited violation of very low safety significance (Green). The non-cited violation of Technical Specification 5.4.1 is due to the licensee's failure to adequately establish or maintain preventive maintenance activities and procedures on critical, safety-related ventilation dampers for the Control Room Emergency Ventilation (CREV), Standby Gas Treatment (SBGT), and reactor building ventilation systems. Peach Bottom procedure, A-C-28, "Preventative Maintenance Program" requires preventative maintenance activities on critical equipment, such as these dampers. The licensee discontinued preventive maintenance on critical, safety-related ventilation dampers in 1988.

Description

In 1988, the licensee stopped periodic and preventive maintenance on the dampers for the Standby Gas Treatment (SBGT), Reactor Building Ventilation, and Control Room Emergency Ventilation (CREV) systems on both Units 2 and 3 and decided to perform maintenance on these dampers, when needed, as indicated by damper failure. This was contrary to the instructions contained in maintenance procedure, A-C-28, Revision 0, "Preventive Maintenance Program." Safety-related ventilation dampers met the definition of critical plant equipment subject to preventive maintenance per procedure, A-C-28 since failure of any of these dampers could result in loss of vital system redundancy. Per A-C-28, if failure of a component resulted in loss of vital system redundancy, the component shall be classified as critical and is subject to preventative maintenance.

Operating experience for these dampers indicated a trend of failures which could have reasonably been prevented with periodic maintenance. The damper failures included: reactor building ventilation dampers (AO-2-40B-20462 and AO-2-40B-20464) due to excessive stroke times during surveillance testing in June 2000; Unit 2 Drywell /Reactor Building Equipment Exhaust Damper (AO-2-40B-20469-02) due to a failure to stroke as required during surveillance testing on June 16, 2002; the "A" CREV Inlet Damper did not open when required during surveillance testing on October 11, 2002; and the Unit 2 Reactor Building Ventilation Exhaust Damper (AO-2-40B-20463) failed to automatically stroke close when required after a Group III Primary Containment Isolation System signal during the Unit 2 automatic reactor shutdown that occurred on December 21, 2002. All of these dampers are critical equipment to proper system operation and several of these dampers provide for the integrity of secondary containment. These ventilation damper failures also resulted in unplanned Technical Specification Action Statement entries.

Additionally, in 1999, Limerick Generating Station identified several problems with ASCO solenoid valves that resulted in inoperable ventilation dampers. An Action Request ((A/R) # A1202027) was assigned to Peach Bottom Component Engineering noting this problem and requesting that Peach Bottom engineering evaluate upgrading the ASCO solenoid valves to AVCO. Peach Bottom engineering did not take any action at this time because they noted that Peach Bottom was not experiencing any problems with ASCO valves or ventilation dampers. This provided another opportunity for the station to review the lack of preventative maintenance on safety-related dampers and possible impact of ASCO solenoid problems on these dampers. The inspectors determined that the corrective actions for this generic issue, identified at the Limerick station in 1999, were inadequate at Peach Bottom Atomic Power Station.

Analysis

Exelon's failure to adequately establish or maintain preventative maintenance activities and procedures on critical, safety-related ventilation dampers since 1988 is a performance deficiency because Exelon's procedure A-C-28 requires preventative maintenance activities on critical equipment, such as these dampers. Traditional enforcement does not apply for this issue because it did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result in any willful violations of NRC requirements of Exelon's procedures.

This finding was considered more than minor since it was associated with an attribute and affected the objective of the Barrier Integrity cornerstone (Maintain Functionality of Containment). The applicable attribute was procedure quality of a Maintenance procedure and affected the objective of the cornerstone to ensure that critical, safety-related ventilation dampers functioned, as required, when needed. Exelon's lack of preventative maintenance procedures for critical, safety-related dampers was determined to be of very low safety significance (Green) using Phase 1 of the Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations. This issue was of very low safety significance because individual damper failures, to date, have not impacted CREV, SBGT or other safety-related systems due to damper and system redundancy. Exelon entered this issue into their corrective action program as Condition Reports # 126840 and 137379.

A contributing cause to the length of time that Exelon did not identify this issue was related to the Problem Identification and Resolution cross-cutting area. Peach Bottom plant personnel did not identify the lack of preventative maintenance for safety-related dampers following the identification of excessive stroke times on AO-2-40B-20462 and AO-2-40B-20464 in June 2000 or the AO-2-40B-20469-02 failure to stroke on June 16, 2002. Additionally, plant personnel failed to adequately address the action item related to the failures of solenoid valves that occurred at Limerick in 1999. The causal relationship between this finding and the cross-cutting area was that plant personnel did not identify that preventative maintenance was not being performed on safety-related dampers and, as a result, some individual dampers degraded to a point where they could not perform their intended functions.

Enforcement

Technical Specification 5.4.1, "Procedures," requires that written procedures be established, implemented and maintained covering the activities listed in Regulatory Guide 1.33. Regulatory Guide 1.33 states that maintenance which can affect the performance of safety-related equipment shall be properly preplanned and performed in accordance with written procedures appropriate to the circumstances. Safety-related ventilation dampers for the Control Room Emergency Ventilation (CREV), Standby Gas Treatment (SBGT), and reactor building ventilation systems met the definition of critical plant equipment subject to preventive maintenance per procedure, A-C-28, "Preventative Maintenance Program." Contrary to these requirements, the licensee did not establish or maintain preventative maintenance activities or procedures on critical, safety-related ventilation dampers after 1988. This violation of Technical Specification 5.4.1 is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 50-277;278/02-06-01)**

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events

a. Inspection Scope

The inspectors reviewed plant computer and recorder data, operator logs and approved procedures while evaluating the performance of operations personnel in response to non-routine evolutions. The inspectors assessed personnel performance to determine whether the operator's response was appropriate and in accordance with procedures and training. The following non-routine evolution was observed:

- Unplanned trip of the 3"B" reactor feedwater pump turbine due to a direct current (DC) ground

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed four 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, Rev. 0, "Operability Determinations" and CC-AA-11, Rev. 0, "Nonconformances." The inspectors used the Technical Specifications, Technical Requirements Manuals, the Updated Final Safety Analysis Report (UFSAR) and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- Final operability determination for the Unit 2 "B" recirculation system piping and supports following the drop of the "B" recirculation pump motor during the 2R14 outage

- Unit 3 residual heat removal (RHR) containment spray outer isolation valve, MO-3-10-26A, after being driven hard into the backseat without torque switch protection
- Unit 2 primary containment operability with the primary containment integrated leak rate test valves (MO-0-07A-002 and MO-0-07A-003) left open
- Unit 2 HPCI pump turbine steam supply isolation valve, MO-2-23-16, with loose operator housing bolts

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed both units for the aggregate effects of operator work-arounds and equipment deficiencies on the reliability, availability, and potential for misoperation of systems. The inspectors evaluated the cumulative effects of these items on the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspectors also reviewed these 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 item included:

- Non-routine operator special checks for both units

The following documents were used during the reviews:

- OP-AA-102-103, Rev. 0, "Operator Work-Around Program"
- Degraded Equipment Logs (DEL) for both units

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

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 Technical Specification requirements. The inspectors reviewed the recorded test data to evaluate whether the acceptance criteria were satisfied. The specific activities reviewed included:

- E3 EDG inspection post-maintenance functional testing (RT-O-052-253-2, Revision 12) following planned maintenance outage
- Unit 3 "A" RHR loop pump, valve, flow and unit cooler functional and inservice test (ST-O-010-301-3, Revision 21) after maintenance on the "A" RHR pump motor and room cooler
- Unit 2 reactor core isolation cooling (RCIC) pump, valve, flow and unit cooler functional and in-service test (ST-O-013-301-2, Revision 23) and RCIC flow rate at $\leq$ 175 psig. (ST-O-013-200-2, Revision 14) following adjustment of the pump flow controller gain set

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors observed selected maintenance, testing and equipment restoration activities to verify whether component configuration management, test control, and post maintenance checks were performed per NRC requirements and Exelon procedures. The inspectors reviewed unexpected plant conditions, emergent work, and system configuration control during testing and maintenance activities to evaluate whether the activities were performed in accordance with NRC requirements and Exelon procedures.

The inspectors observed the RHR system operation to verify that the system was operable and properly aligned. The inspectors verified that the station maintained a defense-in-depth commensurate with the outage risk management goals in accordance with the Technical Specification requirements.

Prior to the commencement of the reactor startup, the inspectors also performed a walkdown of selected Unit 2 structures, systems and components (SSCs) to assess the readiness of the SSCs to support plant restart following the refueling outage.

The following activities were reviewed and/or observed:

- Clearance and tagging
- Availability and restoration of emergency core cooling systems
- Drywell close-out
- Outage configuration controls including:

1) availability and accuracy of reactor coolant system instrumentation
2) electrical power alignments
3) decay heat removal and alternate decay heat removal system operation
4) availability of reactor inventory makeup water systems
5) primary and secondary containment controls and integrity

The inspectors observed and/or reviewed numerous activities and controls at the end of the Unit 2 outage, including:

- Foreign material exclusion control around the fuel pool and reactor vessel cavity
- Underwater repairs, using divers, to reactor steam dryer
- Unit 2 hydrostatic pressure testing of the reactor coolant system

The inspectors also observed selected portions of the reactor heatup and startup from the control room to verify that Technical Specifications, license conditions, and administrative requirements were satisfied. Portions of the following activities and documents were reviewed or observed:

Plant Startup Activities

- Primary and secondary containment integrity established, as required
- Startup preparations for mode change
- Reactor coolant system heat up
- Core flow calibrations
- Reactivity manipulations with the reactor recirculation system

Procedures and Documents

- GP-2, Revision 100, “Normal Plant Startup”
- SO 1B.1.A-2, Revision 31, “Main Turbine Startup and Normal Operations”
- SO 2A.1.B-2, Revision 34, “Starting the Second Recirculation Pump”

Additionally, the inspectors observed the preparation and execution of the Unit 2 Maintenance Outage to repair the Appendix K Modification, weld leaks, on the reactor feedwater system spoolpieces at the Leading Edge Flowmeter (LEFM) flow transducers.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed and observed portions of following 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. The observed or reviewed surveillance tests included:

- ST-O-052-701-2, Revision 10, "E1 Diesel Generator 24 Hour Endurance Test"
- RT-O-010-630-2, Revision 6, "Unit 2 "C" RHR Heat Exchanger Leak Test"
- ST-O-09A-325-2, Revision 3, "Standby Gas Treatment Subsystem Operability Test"
- RT-O-052-204-2, Revision 16, "E4 Diesel Generator Load Run"

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary plant modification that cut and capped the Unit 2 reactor pressure vessel (RPV) flange leak-off drain piping downstream of AO-2-02-020 to ensure redundant shutoff of the inner seal leakage instrument to clean radwaste. This modification was performed to minimize the potential for steam cutting of the RPV flanges while operating with the Unit 2 RPV inner seal leaking.

This review was performed to determine whether the temporary change adversely affected system or support system availability, or adversely affected a function important to plant safety. The inspectors reviewed the associated system design bases, including the UFSAR and Technical Specifications, and assessed the adequacy of the 10 CFR 50.59 safety evaluation screening for this issue. The inspectors also assessed configuration control of the temporary change by reviewing selected drawings and procedures to verify that appropriate updates had been made, and were in compliance with Exelon Nuclear's procedure, "Temporary Configuration Changes," CC-AA-112, Revision 5. The inspectors reviewed the temporary modification documents to verify that the implemented changes were consistent with the approved documents. The following temporary modification and documents were included in the review:

Temporary Modification

- Suspected Unit 2 Head Flange Leak Modification to cut and cap the reactor pressure vessel flange leak-off drain line between the last pipe support and the connection to the drain header

Procedures and Documents

- CC-AA-112, Revision 5, "Temporary Configuration Changes"
- CC-MA-112-1001, Revision 0, "Temporary Configuration Change Packages (TCCP)"
- Engineering Change Request (ECR) PB 02-00653-000
- PBAPS UFSAR Section 7.8, "Reactor Vessel Instrumentation"
- PBAPS UFSAR Section 4.2, "Reactor Vessel and Appurtenances Mechanical Design"

b. Findings

No findings of significance were identified.

EMERGENCY PREPAREDNESS [EP]

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency preparedness training evolution conducted by Exelon on December 13, 2002. The inspectors focused on the performance of risk significant evolutions by site personnel in a simulated main control room and technical support center (TSC). These risk significant evolutions included emergency classification, NRC and offsite agency notifications, and coordination with the emergency operations facility (EOF) to issue the protective action recommendations (PARs). The inspectors also evaluated the emergency response organization's recognition of abnormal conditions, command and control, communications, potential utilization of repair and field monitoring teams, and the overall implementation of the emergency plan procedures. The inspectors observed the licensee's critique of personnel performance and verified that any weaknesses or deficiencies observed during the evolution were discussed and evaluated.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

The inspectors conducted the following activities and reviewed the following documents to determine the effectiveness of access controls to radiologically significant areas:

- The inspectors reviewed ongoing radiological work activities including cutting of Unit 3 control rod blades, Unit 2 feed water flow element work activities, and entries into the Unit 2 reactor drywell at reduced reactor power. The inspectors observed work in progress and conducted independent reviews of the adequacy and effectiveness of radiological controls, including implementation of procedure requirements. Also reviewed were controls for highly activated or contaminated non-fuel materials stored within spent fuel or other storage pools. The inspectors verified radiological controls such as required surveys, job coverage, and contamination controls were implemented; personnel dosimetry was used and properly worn; worker briefings were provided, and workers were knowledgeable of ambient radiological conditions.

- The inspectors walked down and made independent radiation measurements of radiation levels within accessible radiologically controlled areas (RCAs) at the station to verify that areas expected to exhibit radiation levels in excess of 100 mR/hr were properly posted and controlled as High Radiation Areas, and to confirm that radiation dose rates were consistent with survey data.

- The inspectors reviewed implementation of changes to internal dosimetry procedures and discussed the changes with the acting Manager, Radiation Protection.

- The ambient radionuclide characterization was evaluated to ensure radiological dose assessments were properly performed including dose assessment for potential transuranic radionuclides. The inspectors reviewed radiological surveys to determine if the licensee was conducting evaluations of hard-to-detect radionuclides including instrument detection capabilities. Also reviewed was response characteristics of radiation monitoring devices worn by personnel during entries into the Unit 2 reactor drywell at reduced reactor power.

The inspectors evaluated licensee performance against applicable licensee procedures, 10 CFR 20, and applicable Technical Specifications.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspectors selectively reviewed the adequacy and effectiveness of the program to reduce occupational radiation exposure to as low as is reasonably achievable (ALARA). The inspectors conducted the following activities to determine the effectiveness of ALARA planning and controls:

- The inspectors attended the December 17, 2002, Station ALARA Council Meeting (02-06). The meeting covered, among other matters planning for emergent feedwater flow element work activities and source term reduction.

- The inspectors reviewed planning for entry into the Unit 2 drywell at reduced reactor power, cutting and packaging of irradiated hardware in the Unit 3 fuel pool, and work on Unit 2 feedwater flow transmitters. Selective job site inspections were made to evaluate: use of engineering controls to achieve dose reductions, use of low dose wait areas, implementation of appropriate radiological controls and on-the-job supervision to ensure implementation of ALARA requirements.

- Post-job accrued radiation exposure was compared to estimated exposures for various Unit 2 outage work activities including: scaffolding installation, shielding activities, refueling floor activities, reactor coolant pump impeller work, diving, and major valve work. Exposures by work groups for 2002 were compared to estimates.

- The site specific historical trends and current status of tracked source terms were reviewed to determine if the overall plant source term was increasing, stable or declining, and to identify licensee source term priorities and reduction strategies. The Peach Bottom Five Year (2001-2005) Exposure Reduction Plan was reviewed.

The inspectors evaluated licensee performance against applicable licensee procedures, 10 CFR 20, and applicable Technical Specifications.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

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. The following specific indicators were reviewed:

- Units 2 & 3 HPCI safety system unavailability
- Emergency AC power safety system unavailability

b. Findings

No findings of significance were identified.

.2 Security Performance Indicators

a. Inspection Scope

The inspectors reviewed the basis for the data that Exelon submitted for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment PIs. The review included Exelon's tracking and trending reports, personnel interviews, security logs, and work requests affecting the PI data submitted from the 1st quarter of 2002 through the 3rd quarter of 2002. The information reviewed was compared against the criteria contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2.

b. Findings

No findings of significance were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors examined the adequacy and effectiveness of Exelon's implementation of the Occupational Exposure Control Effectiveness PI. The inspectors reviewed the following issues:

- The inspectors reviewed corrective action program records for occurrences involving High Radiation Areas, Very High Radiation Areas, and unplanned

personnel exposures (since April 1, 2002). The inspectors used the applicable criteria specified in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2, to verify that conditions that met the NEI criteria were recognized and identified as PI occurrences, as appropriate.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution

.1 Occupational Radiation Safety

a. Inspection Scope

The inspectors reviewed a selection of licensee corrective action documents in the area of radiological controls to determine if issues were being evaluated, prioritized, and resolved. ((Condition Reports (CRs) and Action Requests (ARs)): 122524, 122899, 122913, 122953, 122981). This review included a check for possible repetitive issues such as radiation worker or radiation protection personnel errors.

b. Findings

No findings of significance were identified.

.2 References to Problem Identification and Resolution Findings

Section 1R13 of this report describes a finding due to the licensee not performing preventative maintenance on critical, safety-related ventilation dampers (e.g. SBGT, CREV and reactor building ventilation dampers) since 1988. A contributing cause to the length of time that Exelon did not identify this issue was related to the Problem Identification and Resolution cross-cutting area. Peach Bottom plant personnel did not identify the lack of preventative maintenance for safety-related dampers following several damper failures at Peach Bottom and a 1999 generic issue related to these dampers identified to the Peach Bottom staff by the licensee's Limerick Generating Station.

4OA5 Other Activities

.1 Initial Audit of Nuclear Reactor Safeguards Interim Compensatory Measures at Peach Bottom

a. Inspection Scope

An audit of the licensee's performance of the interim compensatory measures imposed by the NRC's Order Modifying License, issued February 25, 2002 was completed in accordance with the specifications of the NRC Inspection Manual Temporary Instruction (TI) 2515/148, Revision 1, Appendix A, dated September 13, 2002.

b. Findings

No findings of significance were identified.

.2 Review of Institute of Nuclear Power Operations (INPO) Evaluation Report

The inspectors reviewed the final report of an INPO Evaluation conducted in December 2001. The inspectors identified no new findings of significance.

4OA6 Meetings

.1 Exit Meeting Summary

The inspectors presented the results of the inspection to Mr. Rusty West and members of Exelon's management on January 9, 2003. Exelon management acknowledged the findings presented. No proprietary information was identified.

4OA7 Licensee Identified Non-Compliance

The following violation of very low safety significance (Green) was identified by Exelon and is a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

1. Technical Specification 5.4.1 requires that the applicable procedures recommended in Regulatory Guide 1.33, Appendix A, 1972, be established and implemented. Regulatory Guide 1.33, Appendix A includes radiation work permit (RWP) procedures. The RWP procedure (RP-AA-403) required that workers comply with the RWP. Procedure RP-AA-401 stated that the ALARA Plan is part of the RWP. Contrary to this requirement, on September 28, 2002, workers did not follow the documented ALARA Plan (02-45) for RWP No. 0063 and use engineering controls (covering of equipment pit with tarp), prescribed therein, to minimize airborne radioactivity during decontamination of the Unit 2 reactor cavity. As a result, airborne radioactivity was discharged to the refueling floor resulting in intakes of airborne radioactivity and unplanned radiation doses to workers. The finding is of very low safety significance because there was no over exposure, no substantial potential for an overexposure and the ability to assess dose was not compromised. The licensee took various corrective and preventative actions and placed the issue into its corrective action process (CR No. 124961, AR No. 00124961).

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

a. Key Points of Contact

Exelon Generation Company

R. West, Vice-President
G. Johnson, Plant Manager
B. Hanson, Operations Director
P. Davison, Maintenance Director
E. Eilola, Acting Site Engineering Director
M. Anthony, Work Management Director
C. Behrend, Senior Manager Plant Engineering
B. Norris, Radiation Protection Manager
S. Beck, Acting Regulatory Assurance Manager
W. Trump, Nuclear Security Manager
A. Coppa, Emergency Preparedness Manager
W. Eckman, Acting Nuclear Oversight Manager

b. List of Items Opened, Closed, and Discussed

Closed

None

Opened/Closed

50-277;50-278/02-06-01	NCV	Lack of Preventative Maintenance on Safety Related Ventilation Dampers (e.g. Standby Gas Treatment and Control Room Emergency Ventilation Systems)

c. List of Acronyms

ALARA	as low as is reasonably achievable
AR	Action Requests
CFR	code of federal regulations
CR	condition report
CREV	control room emergency ventilation
DC	direct current
EDG	emergency diesel generators
EHC	electro-hydraulic control
HPCI	high pressure coolant injection
HPSW	high pressure service water
HRA	high radiation area
ICM	interim compensatory measures
LEFM	leading edge flowmeter
NEI	Nuclear Energy Institute
PARS	protection action recommendations
PBAPS	Peach Bottom Atomic Power Station
RHR	residual heat removal
RPV	reactor pressure vessel
RWP	radiation work permit
SBGT	Standby Gas Treatment
SSCs	systems, structures, or components
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report