October 18, 2001

Mr. Oliver D. Kingsley
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INSPECTION REPORT 50-277/01-08, 50-278/01-08

Dear Mr. Kingsley:

On September 30, 2001, the NRC completed an inspection at the Peach Bottom Atomic Power Station. The enclosed report documents the inspection findings which were discussed on October 4, 2001, with Mr. Jay Doering 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 action 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. If you deny any non-cited violation 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 DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Peach Bottom facility.

Since September 11, 2001, the Peach Bottom Atomic Power Station has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to Exelon Generation Company. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

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/NRC/ADAMS/index.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. 50-277/01-08 and 50-278/01-08

Attachments: (1) Supplemental Information

cc w/encl: J. Hagan, Senior Vice President, Mid-Atlantic Regional Operating Group
J. Cotton, Senior Vice President, Operations Support
W. Bohlke, Senior Vice President, Nuclear Services
J. Skolds, Chief Operating Officer
J. Doering, Vice President, Peach Bottom Atomic Power Station
G. Johnston, Plant Manager, Peach Bottom Atomic Power Station
J. A. Benjamin, Vice President - Licensing and Regulatory Affairs
M. P. Gallagher, Director, Licensing, Mid-Atlantic Regional Operating Group
G. Hunger, Chairman, Nuclear Review Board
P. Chabot, Director, Nuclear Oversight
A. F. Kirby, III, External Operations - Delmarva Power & Light Co.
A. A. Winter, Manager, Experience Assessment
J. W. Durham, Sr., Senior Vice President and General Counsel
H. C. Kresge, Manager, External Operations, Connectiv
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R. McLean, Power Plant Siting, Nuclear Evaluations
D. Levin, Acting Secretary of Harford County Council
R. Ochs, Maryland Safe Energy Coalition
J. H. Walter, Chief Engineer, Public Service Commission of Maryland
Mr. & Mrs. Dennis Hiebert, Peach Bottom Alliance
Mr. & Mrs. Kip Adams
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NAME	TmcMurtray/by phone with D. Florek		DFlorek/DF		MShanbaky/MS	
DATE	10/18/01		10/18/01		10/18/01	

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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:	50-277/01-08, 50-278/01-08
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
Inspection Period:	August 19, 2001 through September 30, 2001
Inspectors:	A. McMurtray, Senior Resident Inspector M. Buckley, Resident Inspector T. Burns, Reactor Inspector R. Nimitz, Senior Health Physicist A. Burritt, Senior Resident Inspector, Limerick
Approved by:	Mohamed M. Shanbaky, Chief Projects Branch 4 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000277-01-08, IR 05000278-01-08, on 08/18-09/30/2001; Exelon Generation Company, Peach Bottom Atomic Power Station; Units 2&3. Access Control to Radiologically Significant Areas.

The inspection was conducted by resident inspectors, a senior health physicist, and a reactor inspector. The inspection identified one Green finding which was considered a non-cited violation. The significance of most findings is indicated by the color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspector Identified Findings

Cornerstone: Occupational Radiation Safety

- **Green**. A Non-cited violation of Technical Specification 5.7.1, "High Radiation Area with Dose Rates not Exceeding 1.0 rem/hour (at 30 centimeters from the radiation sources or from any surface penetrated by the radiation)" was identified. The non-cited violation was for failure to appropriately barricade a posted high radiation area on the Unit 3 turbine floor. The high radiation area was not appropriately barricaded because the normally locked door to the area was open and the health physics technician assigned to restrict access to the high radiation area while the door was open was inattentive to his duties. The failure to properly restrict access through this door could allow site personnel to inadvertently enter the high radiation area on the main turbine deck and receive unintended dose.

  This issue was determined to be of very low safety significance since it did not constitute an ALARA finding, no unauthorized persons entered the area, no personnel were overexposed, and there was no substantial potential for exposure above the regulatory limits. (Section 2OS1.1)

B. Licensee Identified Violations

- A violation of very low significance, which was identified by Exelon, has been reviewed by the inspectors. Corrective actions, taken or planned by Exelon, appeared reasonable. This violation is described in Section 4OA7 of this report.

Report Details

SUMMARY OF PLANT STATUS

UNIT 2

Unit 2 operated at approximately 100 percent power throughout the inspection period except for scheduled power changes to support maintenance activities.

UNIT 3

Unit 3 began this inspection period at approximately 81 percent power, in end-of-cycle coastdown, with the fourth and fifth stage feedwater heaters removed from service. On September 14, 2001, Unit 3 was manually scrammed, in preparation for the 3R13 refueling outage. Unit 3 ended the inspection period shutdown in Mode 5 (Refueling).

1. REACTOR SAFETY
Initiating Events / Mitigating Systems / Barrier Integrity [Reactor-R]

1R04 Equipment Alignment

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors performed a partial system walkdown during the 3R13 outage 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, if required. The inspectors reviewed selected valve positions, electrical power availability, and the general condition of major system components. The inspectors also used abnormal operating (AO) procedure AO 10.3-3, Rev. 8, "Residual Heat Removal System to Fuel Pool Cross-Connect Operation" and piping and instrument diagram 6280-M-361, Rev. 62, "Residual Heat Removal System" during this walkdown. The walkdown involved the following system:

- Unit 3 "A" and "C" residual heat removal sub-systems

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed the Fire Protection Plan, Technical Requirements Manuals 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 area 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 Condensate Pump Pit
- Unit 3 'A' and 'C' Residual Heat Removal (RHR) Pump and Heat Exchanger Rooms
- Unit 3 'B' and 'D' RHR Pump and Heat Exchanger Rooms
- Emergency Diesel Generator Buildings, including E1 through E4 diesel rooms, cardox room, and ventilation rooms
- Diesel Fire Pump Room
- Unit 3 Switchgear Buildings (343 and 3 start-up switchgear buildings)

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed and reviewed the test listed below to verify that the heat exchanger demonstrated the capability to perform the intended safety function and met required heat transfer criteria. The heat exchanger design calculations and performance evaluations were reviewed with site engineering personnel to determine if the calculations and evaluations were consistent with the required design capabilities. The inspectors compared the test data with the acceptance criteria that was established by the licensee's calculations. The inspectors also reviewed heat exchanger test methodology, frequency of testing, test conditions, acceptance criteria and trending of results. The inspectors assessed the trending of the measured data for the components inspected and discussed with system managers and technical specialists the proposed actions for any results that were identified not to be within specified acceptance criteria. The following test was observed:

- High Pressure Service Water (HPSW) Oil Cooler Heat Transfer Capability Test (RT-O-032-310-3, Rev 5)

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI)

a. Inspection Scope

The inspectors observed selected samples of nondestructive examination (NDE) activities in process. The inspectors also 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 was performed to verify the activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspectors reviewed a sample of inspection reports and deviation reports initiated as a result of problems identified during ISI examinations. The inspectors also evaluated effectiveness in the resolution and corrective action of problems identified during ISI activities for selected samples.

The inspectors observed manual ultrasonic testing (UT) and magnetic particle (MT) 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 inspectors examined the licensee's evaluation and disposition for continued operation without repair or rework of selected non-conforming conditions identified during ISI activities by review of nonconformance report 99-02244, flaw evaluation B13-02010-00-012 and NDT examination report 315670.

The inspectors observed the ultrasonic and magnetic particle tests performed on high pressure core injection (HPCI) weld 23-O-6 and the ultrasonic and penetrant tests performed on residual heat removal (RHR) welds 10-O-23 and 10-O-30. In addition, the inspectors reviewed the radiographic examination test results of field welds 12-0-201, 204, 201R1 for the replacement of the reactor water clean up (RWCU) system inlet inboard isolation valve MO-3-12-015 and, one subsequent weld repair. The inspectors also reviewed radiographs of field welds 1 and 2 for the replacement of emergency service water valve (ESW) HV-3-33-502. The inspectors interviewed the licensee's radiographic personnel responsible for the review and interpretation of the above test results.

The inspectors reviewed a sample of video recordings of the remote in-vessel visual inspection (IVVI) of the in vessel core spray piping base metal, butt welds and tee boxes. The inspectors reviewed the visual examination of the condition of the steam dryer and a sample of the dryer structural welds. The inspectors also reviewed the results of the visual examination of the weld of the core shroud to the shroud support plate. This review was conducted to confirm the test equipment and environment enabled the performance of the visual (VT-3) examination of the selected vessel internals. The inspectors also confirmed that for the recordings evaluated, the visual examination was in compliance with the requirements of ASME Section XI. The inspectors reviewed the plan, procedures and results of the visual examination of selected portions of the containment liner for compliance with the requirements of ASME Section XI, IWE (requirements for class MC and metallic liners of class CC components). Action requests A12829112-01, 1282912-02 and 1282912-03, which identified coating failure, corrosion and damage to moisture barriers were reviewed by the inspectors to evaluate corrective actions specified for liner restoration.

The inspectors reviewed welding activities associated with the replacement of selected components to verify the activities were performed in accordance with the requirements of ASME Section IX and XI. The inspectors reviewed selected portions of ECR PB99-01506 (replacement of isolation valve MO-3-12-015) in the RWCU system. The inspectors reviewed the joint process control instructions, welding instructions, welding procedure 08-08-TS-001, welding procedure qualifications 08-08-TS-001, 8.8.6-0KG

and 08-08-TS-002. The inspectors also reviewed the NDE requirements, acceptance criteria and the test results of the completed welds. The inspectors reviewed the disposition for removal of a linear indication identified during the in service test of weld 23-2TE20-12 in the HPCI system.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed the follow-up actions for issues identified on three 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 systems and documents were reviewed:

Systems

- Main Stack Rad Monitor
- Seismic Monitoring
- Unit 2 and 3 Reactor Building Closed Cooling Water (RBCCW)

Procedures and Documents

- Peach Bottom Maintenance Rule Bases Documentation
- System Health Overview Reports
- Maintenance Rule Systems, Structures, and Components (SSC) Bases Information Document
- PEP I0011500 Electrical storm caused loss of communication for the Main Stack Radiation Monitoring.
- PEP I0010450 Repeat Main Stack sample pump diaphragms and internals failures
- PEP 10010500 Flow instrumentation fluctuations during rainstorms.
- A1335141 RBCCW head tank level rising approx. 2.5"/day
- AG-CG-028.1, Rev 8, "Maintenance Rule Implementation Program"
- AG-CG-028.1-5, Rev 1, "PECO Energy Approach to Use Maintenance Preventable Functional Failures for Maintenance Rule Performance Monitoring"
- AG-CG-028.1-9, Rev 6, "Guidance for Identifying and Evaluating Maintenance Preventable Functional Failures"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed 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 in accordance with the following Exelon procedures:

- E1 Emergency Diesel Generator (EDG) Run with the Station Blackout (SBO) line inoperable
- Unit 2 plant risk with 'B' Emergency Service Water (ESW) inoperable and Unit 2 'B' HPSW train cross-tied and supplying cooling water to Unit 3 HPSW
- Unit 2 risk during simultaneous start of all four EDGs (Unit 3 outage test)

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

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed one operability evaluation to assess the adequacy of the evaluation, the use and control of compensatory measures, compliance with the Technical Specifications, and the risk significance of the issue. The inspectors verified that the operability determination was performed in accordance with NOM-C-11.1, Rev. 1, "Operability" and A-C-901, Rev. 10, "Control of Nonconformances." The inspectors used the Technical Specifications, Technical Requirements Manuals, the Final Safety Analysis Report, and associated Design Basis Documents as references during this review. The following issue was reviewed:

- Emergency Service Water operability during testing, maintenance and removal of HV-3-33-502

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent plant modification package to verify that (1) the design bases, licensing bases, and performance capability of risk significant Structures Systems or Components (SSCs) had not been degraded through modifications, and (2) modification performed during increased risk configurations did not place the plant in an unsafe condition. The modification reduced the number of hold down bolts required to clamp the core shroud head to the core shroud. The purpose of the modification was to reduce the refueling outage duration by reducing the number of bolts required to be removed and subsequently re-installed to support refueling. The inspectors verified that the core shroud to core shroud head joint would maintain structural integrity consistent with the design and licensing bases assumptions and that no adverse operational problems would be created by the reduction in clamping force as a result of the modification. The following modification package was reviewed:

- ECR PB 01-00790 Reduce the Number of Core Shroud Head Bolts

The following documents were used during this modification review:

- GE-NE-B13-02097-00-19, Peach Bottom Units 2 & 3 Shroud Head Bolt Reduction
- GE-NE-771-59-0994, Design Report for the Installation of Stabilizers on the Peach Bottom2 & 3 Core Shroud
- Procedure M-004-200, Reactor Pressure Vessel Disassembly
- Procedure M-004-400, Reactor Pressure Vessel Reassembly
- Updated Final Safety Analysis Report (UFSAR) Section 3.3, Reactor Vessel Mechanical Design

- UFSAR Section 14.6.5, Main Steam Line Break Accident
- UFSAR Appendix C, Structural Design Criteria
- Design Bases Document P-T-18, Reactor Vessel and Internals

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors observed portions of post-maintenance testing activities and reviewed selected test data. The inspectors assessed the adequacy of the test methodology based on the scope of maintenance work performed and the acceptance criteria to demonstrate that the tested components satisfied the design and licensing bases and Technical Specification requirements. The specific issued reviewed included:

- E1 EDG Supplemental Supply Fan Temperature Element Modification Test (ST-I-40F-251-2, Rev 0, “E1 Diesel Generator Ventilation Logic Test”)
- E3 Diesel Generator Emergency Dead Bus Start Relay Activation Verification after Cable Replacement per ECR 01-00933, C0198930
- Main Steam Isolation Valve and Pilot Solenoid Valve testing after planned maintenance (RT-O-01A-475-3 Rev 3, “Main Steam Isolation Valve Pilot Solenoid Valve Functional Test and ST-M-01A-471-3, Rev 6, “Main Steam Isolation Valve Timing, Spring only Closure and Position Switch Adjustment”)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

.1 Outage Risk Management and Control of Outage Activities

a. Inspection Scope

Prior to the outage, the inspectors reviewed the licensee’s outage risk control plan and verified that station personnel had appropriately considered risk, industry experience and previous site specific problems, including isolations of RHR shutdown cooling during the 2R13 outage last year. The inspectors discussed the risk control and previous site specific problems with outage work management, operators, site engineers and health physics technicians. The inspectors verified that the station had mitigation/response strategies for potential losses of key safety functions.

The inspectors observed selected maintenance, testing and equipment removal from service and restoration activities. The inspectors verified that component configuration management, test control, and post maintenance checks were performed in accordance with 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 operation of the RHR system in alternate decay heat removal (i.e. RHR system aligned to the spent fuel pool to provide pool cooling) 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 and in accordance with the Technical Specification requirements.

Prior to the commencement of the reactor startup, the inspectors also performed a walkdown of selected Unit 3 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:

- The outage plan and outage ORAM risk assessment
- Outage risk management including changes due to emergent work or unexpected conditions
- Plant shutdown and cool down activities
- Outage configuration controls including:
  1) availability and accuracy of reactor coolant system instrumentation
  2) electrical power alignments
  3) decay heat removal system operation
  4) availability of reactor inventory makeup water systems
  5) secondary containment controls and integrity

b. Findings

No findings of significance were identified.

.2 Refueling Activities

a. Inspection Scope

The inspectors observed portions of fuel handling and refueling operations to assess the impact on the fuel barrier during handling and from related activities that could impact the integrity of the fuel barrier during subsequent reactor operation. In addition, the inspectors reviewed related reactor vessel maintenance, inspection and testing activities to verify that the activities were performed in accordance with the Technical Specification requirements and Exelon approved procedures. During the conduct of the refueling inspection activities, the inspectors reviewed the associated documentation to ensure that the tasks were performed safely and in accordance with plant technical specifications and operating procedures. The following activities and documents were reviewed or observed:

Refueling Activities

- Fuel handling operations including fuel movement, fuel assembly tracking, and core verification activities
- Foreign material exclusion control around the spent fuel pool and reactor vessel cavity
- Jet pump removal and cleaning
- Core plate plug replacement

Procedures and Documents

- ON-124, Fuel Floor and Fuel Handling Problems
- ON-125, Loss or Unavailability of Shutdown Cooling
- GP-12, Core Cooling
- AO 10.3-3, Residual Heat Removal System to Fuel Pool Cross-Connect Operation
- OS-CG-200, Outage Planning and Risk Management
- OS-CG-102, Risk Assessments Using ORAM-Sentinal and Contingency Plan Development
- AG-CG-043, Guideline for the Performance of System Outage

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

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

- Unit 2 Standby Liquid Control Pump Functional Test for Inservice Testing (ST-O-011-301-2, Rev 14)
- Unit 3 E43 4KV Bus Undervoltage Relays and LOCA LOOP Functional Test and E43 and E434 Alternative Shutdown Control Functional Test (ST-O-054-754-3, Rev 12)
- Unit 3 E23 4KV Bus Undervoltage Relays and LOCA LOOP Functional Test and E23 and E234 Alternative Shutdown Control Functional Test (ST-O-054-752-3, Rev 13)
- Unit 3 Reactor Level and Pressure Excess Flow Check Valve Operability (ST-I-02B-655-3, Rev 4)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary plant modification that supported Unit 2 electro-hydraulic control (EHC) system load set fluctuation monitoring. This review was performed to determine whether the temporary changes 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 FSAR 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 changes by reviewing selected drawings and procedures to verify that appropriate updates had been made, and in compliance with Exelon Nuclear's procedure, "Temporary Plant Alternations (TPA)," MOD-C-7, Rev. 6. The inspectors compared the actual installation against the temporary modification documents to verify that the implemented changes were consistent with the approved documents. The inspectors reviewed selected post-installation test results to confirm that the actual impact of the temporary change had been adequately verified by test. The following temporary modification and documents were included in the review:

Temporary Modifications

- Unit 2 EHC Load Set Fluctuation Monitoring

Procedures and Documents

- MOD-C-7 Rev. 6, "Temporary Plant Alterations (TPA)"
- Engineering Change Request (ECR) PB 97-03331-002
- ECR PB 00-01749
- Action Requests (A1289886, A1289936,A1293404)
- RT-O-001-400-2, Rev 17, "Individual Full Closure of Main Turbine Stop Valves"
- UFSAR Sections 7.11, 11.2, 11.5, and 14.5.1-2
- Design Basis Document (DBD) P-S-45 Rev 15, "Main Steam, Turbine, and Extraction Steam Systems"

b. Findings

No findings of significance were identified.

1. RADIATION SAFETY
Occupational Radiation Safety [OS]

2OS1 Access Control To Radiologically Significant Areas

.1 High Radiation Area Not Appropriately Barricaded Issue

a. Inspection Scope

During plant tours on August 20, 2001, the inspectors observed that a health physics technician was inattentive to his duties when he was assigned to restrict access to a posted high radiation area on the Unit 3 turbine floor. The technician was posted at a normally locked high radiation door that was open. With the door open access was provided from the main turbine deck area to the turbine floor. The inspectors reviewed the Unit 3 Technical Specifications and 10 CFR Part 20 sections that contained NRC requirements for high radiation areas. The inspectors also discussed this issue with station health physics management and personnel and a regional senior health physicist.

b. Findings

The inspectors identified a Non-cited violation of very low safety significance (Green) of Technical Specification 5.7.1, "High Radiation Areas with Dose Rates not Exceeding 1.0 rem/hour (at 30 centimeters from the radiation sources or from any surface penetrated by the radiation)." The Non-cited violation was for Exelon's failure to appropriately barricade a posted high radiation area on the Unit 3 turbine floor.

The inspectors determined that a normally locked and posted door to the high radiation area on the Unit 3 turbine floor was not appropriately barricaded when the health physics technician assigned to restrict access while the door was open was inattentive to his duties. Upon notification of this issue by the inspectors, the licensee promptly relieved the technician of his duties and reestablished the barricade controls for the area as required by the Technical Specification.

The failure to properly barricade the open door to the high radiation area on the Unit 3 turbine floor was more than minor because it had a credible impact on safety since personnel inadvertently entering this area could receive an unintended dose. Radiation surveys showed that dose rates were as high as 700 millirem per hour at some locations in the area. This failure to restrict access to a high radiation area affected the Occupational Radiation Cornerstone since it involved the failure of a radiation barrier that was used to prevent unintended dose. This issue was determined to be of very low safety significance (Green), using the Significance Determination Process (SDP), Occupational Radiation Safety. The safety significance was very low because the issue did not constitute an ALARA finding, no unauthorized persons entered the area, no personnel were overexposed, and there was no substantial potential for exposure above the regulatory limits. Additionally, all personnel who had access to the area were provided with a TLD and self-alarming electronic dosimetry so there was no compromise in the licensee's ability to assess the dose received by the individuals working in the area.

Technical Specification 5.7.1, "High Radiation Areas," that applies to high radiation areas with dose rates in excess of 100 millirem per hour but less than 1000 millirem per hour at 30 centimeters from the source, requires, in part, that these areas be barricaded. Contrary to Technical Specification 5.7.1, on August 20, 2001, a barricade was not provided for a high radiation area on the Unit 3 turbine floor while the normally locked high radiation area door was open. Access through the door was not restricted due to an inattentive health physics technician. This violation of Technical Specification 5.7.1 is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy. Exelon entered the issue into the corrective action system as Condition Report (CR) # 00072672. **(NCV 50-278/01-08-01)**

.2 Outage Review

a. Inspection Scope

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

- 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 access controls to High and Very High Radiation Areas and High Radiation Area key controls to determine if keys were properly controlled, the controls were adequate to prevent unauthorized access, and the keys were present or signed out, as appropriate. The inspectors reviewed and challenged five locked High Radiation Area access points to determine if access controls were sufficient to preclude unauthorized entry.

- The inspectors reviewed changes to High Radiation Area access control procedures and Technical Specifications to ensure no apparent degradation in access controls had occurred. The inspectors discussed the adequacy of the controls to such areas with the Manager, Radiation Protection.

- The inspectors reviewed radiological controls established for exposure significant work areas within Radiation Areas, High Radiation Areas, and potential Airborne Radioactivity areas and reviewed in-place controls and radiological surveys for acceptability. The inspectors also reviewed the licensee's controls for highly activated or contaminated non-fuel materials stored within spent fuel or other storage pools.

- The inspectors reviewed radiation work permits (RWPs) used for access control to radiologically significant areas to ensure work control instructions and barriers were acceptable and specified, surveys and postings were accurate, and whether airborne radioactive material samplers were properly located for measurement purposes. The inspectors also reviewed the appropriateness of

electronic personnel dosimetry (EPD) alarm set points, worker knowledge on actions to take upon EPD alarm, and proper placement of dosimetry.

- The ambient radiological source term was evaluated to ensure radiological dose assessments were properly performed including dose assessment for potential transuranic radionuclides.

- The inspectors selectively reviewed instances of personnel contamination during the outage and reviewed all instances of personnel exceeding 100 millirem on a single entry during the outage for potential unplanned dose implications. The inspectors also reviewed whole body count data and associated dose assessments.

The inspectors directly observed and conducted an independent review of the adequacy and effectiveness of radiological controls, including implementation of procedure requirements, for the following radiological work activities. The purpose was to determine if controls were acceptable, engineering controls to limit airborne radioactivity were implemented, and radiation workers were aware of radiological conditions. In particular, the inspectors verified radiological controls such as required surveys, job coverage, and contamination controls were implemented; personnel dosimetry was used and properly worn; and worker briefings were provided during the following activities:

- Position indicating probe work under the Unit 3 reactor vessel on September 24, 2001
- Unit 3 reactor jet pump removal and cleaning activities on September 24, 200l
- Removal and replacement of Unit 3 reactor core plate plugs on September 24-25, 2001
- Re-insulation of a Unit 3 reactor feed water nozzle in the drywell on September 24, 2001
- Entry into Unit 3 main condenser to remove scaffolding on September 25, 2001

The inspectors also reviewed the radiological controls implemented for various completed work, including change out of control rod drives, repair of valves and shielding activities. The inspectors also reviewed radiological controls planning for diving in the Unit 3 reactor equipment pit.

The inspectors observed and interviewed radiation worker and radiation protection personnel during activities to ascertain levels of knowledge and implementation of prescribed radiological controls.

The inspectors reviewed selected corrective action program items to determine if issues were being evaluated, prioritized and resolved (Condition Report Nos. 76332, 74899, 75711, 7523, 76070, and 76764).

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 licensee's program to reduce occupational radiation exposure to as low as is reasonably achievable (ALARA). The inspectors conducted the following activities and reviewed the following documents to determine the effectiveness of ALARA planning and controls for the Unit 3 refueling outage:

- Reviewed the licensee's mitigation efforts to reduce occupational radiation dose associated with ambient radiation levels in the Unit 3 drywell following shutdown

- Reviewed the implementation and adequacy of ALARA planning and controls for the following work conducted during the current Unit 3 refueling outage to verify that planned ALARA controls and measures were implemented

The inspectors reviewed the scheduling of tasks for dose reduction purposes, the adequacy of exposure tracking, and the effectiveness of radiation shielding efforts for the following activities:

- in-service inspection activities
- control rod drive work removal and replacement
- scaffolding installation
- drywell shielding activities
- valve work
- refueling
- jet pump work

The inspectors also reviewed ALARA planning and preparation for the planned diving activities in the Unit 3 reactor equipment pit.

The inspectors reviewed the interfaces between onsite groups to identify interface problems or missing program elements. The inspectors also reviewed the integration of ALARA requirements into work procedure and RWP documents and the accuracy of person-hour estimating for ALARA planning purposes.

The inspectors reviewed selected corrective action program items to determine if issues were being evaluated, prioritized, and resolved (Condition Report Nos. 75920, and 75234).

a. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors selectively reviewed elements of the radiation monitoring instrumentation program to determine the accuracy and operability of radiation monitoring instruments that were used for the protection of occupational workers. These reviews included the calibration of the following radiation monitoring and survey instruments used on the Unit 3 refueling floor for alert and dose control purposes :

- Four fixed radiation monitors (Nos. 7-9, 7-10, 7-11, 7-12)
- Refuel Floor Vent Monitors (RIS-17-458 B&D and A&C)
- PDE-4 No. 991620 teledosimetry
- RO2A No. 3756
- Telepole No. 6698012

The inspectors also reviewed selected corrective action program items to determine if issues were being evaluated, prioritized, and resolved (Respiratory Protection Self-Assessment - July 13, 2001).

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed the station's records to assess the accuracy and completeness of selected NRC performance indicator (PI) data. The records reviewed included selected Technical Specification limiting condition for operation logs, system surveillance tests, licensee event report, and condition reports. The specific indicators included:

- Unit 2 High Pressure Coolant Injection (HPCI) Safety System Unavailability
- Unit 3 HPCI Safety System Unavailability
- Unit 2 Reactor Core Isolation Cooling (RCIC) Safety System Unavailability
- Unit 3 RCIC Safety System Unavailability
- Occupational Exposure Control Effectiveness

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

.1 (Closed) LER 2-01-002: Main Turbine Trip Results in Actuation of the Reactor Protection System

On July 01, 2001, Unit 2 automatically shutdown from 100% power when an electro-hydraulic control system malfunction cased the main turbine control valves to partially close initiating a reactor scram. This malfunction was the result of a degrading power supply which cased variations in the servo currents and actual valve movement. This event was discussed in Section 4OA3.3 of NRC Inspection Report 50-277(278)/01-06 and has been entered into the licensees corrective action program as CR 00061172. The failed power supply that caused this event was replaced and tested satisfactorily. The inspectors on-site review of this LER identified no findings of significance.

.2 (Closed) LER 3-01-001: High Pressure Coolant Injection Inoperable due to Leaking Check Valve

On July 25, 2001, the Unit 3 high pressure coolant injection (HPCI) system experienced an unplanned swapover of the system from the condensate storage tank to the torus when the storage tank level switch was inadvertently bumped. While attempting to restore the system to the normal alignment, operations and engineering personnel discovered that the torus suction check valve, CHK-3-23B-61, was leaking. This leakage provided a flowpath from the HPCI suction and discharge piping to the torus while HPCI was aligned to the torus. This condition caused some voiding in the Unit 3 HPCI discharge piping. Operations personnel removed the Unit 3 HPCI system from service due to the potential of a water hammer condition if HPCI were to start. Later that afternoon, operations personnel restored the HPCI suction to the normal source (condensate storage tank) and verified that the HPCI discharge piping was full. Subsequently, site engineering personnel determined that the seat leakage through the Unit 2 and Unit 3 torus suction check valves was not enough to cause a water hammer event that would render the respective HPCI system inoperable.

This event was discussed in Section 1R13 of NRC Inspection Report 50-277(278)/01-06 and has been entered into the licensees corrective action program as CR 00061213. The leaking check valve that caused this event was repaired during the current 3R13 outage. Actions were initiated to ensure that appropriate engineering documents and test procedures for Units 2 and 3 were updated as necessary to ensure appropriate testing of the Units 2 and 3 HPCI and RCIC check valves in the future. The inspectors on-site review of this LER identified no findings of significance.

4OA6 Meetings

.1 Exit Meeting Summary

The inspectors presented the results of the inspection to Mr. Jay Doering and members of Exelon's management on October 4, 2001. Exelon management acknowledged the findings presented. No proprietary information was identified.

4OA7 Licensee Identified Non-compliance

The following finding of very low significance was identified by the licensee 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 (NCV).

NCV Tracking Number	Requirement Licensee Failed to Meet
NCV 50-277/01-08-02	Technical Specification (TS) Section 3.4.5 requires grab samples of the primary containment atmosphere to be analyzed once per 12 hours when the primary containment atmospheric monitoring system is inoperable. On September 15, 2001, the Unit 2 reactor operator noted that chemistry technicians had not taken the 12 hour grab samples as required by TS 3.4.5.B because the sample point was isolated. On September 15, 2001, the licensee replaced the failed relay that caused the system to become inoperable for approximately 30 hours, verified that the primary containment atmosphere was acceptable, and restored the system to an operable status. The corrective actions for this violation were already in the licensee's corrective action program (Condition Report (CR)# 00075295). This is being treated as a Non-Cited violation.

If you deny this noncited violation, 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 DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Peach Bottom facility.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

a. Key Points of Contact

Exelon Generation Company

J.T. Anthony, Maintenance Director
J. Bouck, Operations Director
P. Davison, Site Engineering Director
M. Delowery, Senior Manager-Outages
J. Doering, Site Vice President
G. Johnston, Plant Manager
S. Kobus, Radiation Protection Supervisor
G. McCarty, Manager, Support Health Physics
B. Miller, Radiological Engineering Manager
H. Trimble, Radiation Protection Manager
D. Warfel, Senior Manager, Design Engineering
A. Winter, Manager, Regulatory Assurance

b. List of Items Opened, Closed, and Discussed

Opened

None

Closed

2-01-002	LER	Unit 2 Main Turbine Trip Results in Actuation of the Reactor Protection System
3-01-001	LER	Unit 3 HPCI System Inoperable Due to Leaking Check Valve

Opened/Closed

50-278/01-08-01	NCV	Failure to Maintain a Barricade at a Posted High Radiation Area/High Contamination Area on the Unit 3 Turbine Floor per TS 5.7.1 (Section 2OS1.1)
50-277/01-08-02	NCV	Failure to Obtain Primary Containment Atmosphere Grab Samples as Required by TS 3.4.5 when the Primary Containment Atmospheric Monitoring System was Inoperable (Section 4OA7)

c. List of Documents Reviewed

Radiograph Review

FW 12-0-201	Radiograph Butt Weld, Valve MO-3-12-015
FW 12-0-204	Radiograph Butt Weld, Valve MO-3-12-015
FW 12-0-201R1	Radiograph Butt Weld, Repair 1 of FW 12-0-201
FW 1 and 4	Radiograph Butt Welds, Valve HV-3-33-502

NDT Examination Reports

173800	Pipe to Elbow, 23-O-6, MT and UT
160950	Pipe to Pipe Bend, 10-O-30, UT and PT
158350	Pipe to Pipe Bend, 10-O-23, UT and PT
315670	Pipe to Tee, 23-2TE20-12, MT and UT Initial and after surface grinding

NDT Examination Procedures

PDI-UT-1 Rev C	PDI Procedure for the Ultrasonic Examination of Ferritic Pipe Welds
MAG-CG-425 Rev 1	IWE Containment Visual Inspection
GE-UT-105	Manual UT of Welds Outside the Scope of PDI-UT-1 and PDI-UT-2
GE-MT-100	Magnetic Particle Examination
GE-PT-100	Liquid Penetrant Examination

In Vessel Remote Visual Examination

VT-3	Visual Examination of Core Spray Spargers, Piping and Tee Boxes
VT-3	Visual Examination of Access Hole Cover Plate Welds
VT-3	Shroud Support H-9 Weld
VT-3	Steam Dryer

Repair-Replacement Work Order

ECR PB99-01506 Replacement of Isolation Valve MO-3-12-015

Flaw Evaluation

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

Action Requests

A1282912-01	Moisture Barrier Degradation
A1282912-02	Coating Degradation (Various Drywell Elevations)
A1282912-03	Condition of Unqualified Coatings
A1232348	Re-evaluation of NCR Two Cycle Disposition for Diffuser Cracks

Nonconformance Report

99-02244 Jet Pump, 2 and 10, Crack Like Indication of Adapter Weld AD-3B

Drawings/Isometrics

DBN-23-MI-303-5 HPCI 23DBN-10

Condition Report

AR00076609 Broken Stabilizer Bar on Unit 3 Steam Dryer