

July 23, 2002

Mr. John L. Skolds  
President and CNO  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
5<sup>th</sup> Floor  
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INSPECTION REPORT  
50-277/02-04, 50-278/02-04

Dear Mr. Skolds:

On June 29, 2002, the NRC completed an inspection at the Peach Bottom Atomic Power Station. The enclosed report documents the inspection findings which were discussed on July 8, 2002, 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).

The NRC has increased security requirements at the Peach Bottom Atomic Power Station in response to terrorist acts on September 11, 2001. Although the NRC is not aware of any specific threat against nuclear facilities, the NRC issued an Order and several threat advisories to commercial power reactors to strengthen licensees' capabilities and readiness to respond to a potential attack. The NRC continues to monitor overall security controls and will issue temporary instructions in the near future to verify by inspection the licensee's compliance with the Order and current security regulations.

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).

Mr. John L. Skolds

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

Sincerely,

*/RA/*

Mohamed Shanbaky, Chief  
Projects Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 50-277/02-04 and 50-278/02-04

Attachment: (1) Supplemental Information

cc w/encl: Senior Vice President, Mid-Atlantic Regional Operating Group  
President and CNO, Exelon Nuclear  
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 and Regulatory Affairs  
Director, Licensing, Mid-Atlantic Regional Operating Group  
Director, Nuclear Oversight  
Regulatory Assurance Manager - Exelon Generation Company, LLC  
Senior 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  
R. Janati, Chief, Division of Nuclear Safety  
Vice President, General Counsel and Secretary  
Correspondence Control Desk  
Commonwealth of Pennsylvania  
State of Maryland  
TMI - Alert (TMIA)  
Peach Bottom Township Board of Supervisors  
R. Fletcher, Department of Environment, Radiological Health Program  
J. Johnsrud, National Energy Committee, Sierra Club  
Public Service Commission of Maryland, Engineering Division  
Manager, Licensing - Limerick and Peach Bottom

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 A. McMurtray, DRP - NRC Senior Resident Inspector  
 H. Nieh, RI EDO Coordinator  
 S. Richards, NRR  
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| OFFICE | RI/DRP             |  | RI/DRP           |  | RI/DRP          |  |
| NAME   | DFlorek /by phone/ |  | AMcMurtray /MMS/ |  | MShanbaky /MMS/ |  |
| DATE   | 07/23/02 /MMS/     |  | 07/23/02         |  | 07/23/02        |  |

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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: 50-277/02-04, 50-278/02-04

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: May 19, 2002 through June 29, 2002

Inspectors: A. McMurtray, Senior Resident Inspector  
M. Buckley, Resident Inspector  
J. Caruso, Senior Operations Engineer

Approved by: Mohamed Shanbaky, Chief  
Projects Branch 4  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000277-02-04, IR 05000278-02-04; Exelon Generation Company; on 5/19-06/29/2002; Peach Bottom Atomic Power Station; Units 2 and 3. Equipment Alignment.

This inspection was conducted by resident inspectors and a senior operations engineer. One finding of very low significance was identified during the inspection. 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 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: Mitigating Systems

- **Green.** The inspectors identified a finding of very low safety significance (Green) because Exelon did not adequately isolate the pneumatic portion of the emergency diesel generator (EDG) cardox (carbon dioxide) fire suppression system following the unexpected cardox injection into the E-3 EDG room on June 2, 2002. This inadequate isolation would permit a pneumatic trip and lock-out of any one of the operable E-1, E-2 or E-4 EDGs if a spurious cardox actuation signal was generated for the respective room of that EDG.

The finding was determined to be of very low safety significance because it did not result in an actual loss of safety function. The E-1, E-2 and E-4 EDGs remained operable during all troubleshooting activities and restoration of the E-3 EDG to an operable condition. (Section 1R04)

## 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 routine maintenance activities and rod pattern adjustments.

#### UNIT 3

Unit 3 operated at approximately 100 percent power throughout the inspection period except for scheduled power changes to support routine maintenance activities and rod pattern adjustments.

#### COMMON

On June 2, 2002, Exelon declared an Alert at 1:02 A.M. following an unexpected discharge of the cardox (carbon dioxide) fire suppression system into the E-3 emergency diesel generator (EDG) room in the Diesel Generator Building at 12:31 A.M. This occurred while the diesel was being operated for testing purposes. A cardox system discharge into an EDG room results in a carbon dioxide level in the room that is life threatening to plant personnel. The discharge was due to a system malfunction and was not due to a fire in the E-3 EDG room. The event was terminated at 03:01 A.M., after habitability in the E-3 EDG room was restored.

### **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 hot weather conditions and walked down selected systems that could be affected by high temperatures to verify that these systems would remain functional during hot weather conditions. The inspectors used RT-O-040-610-2, Rev. 7, "Outbuilding HVAC and Equipment Inspection for Summer Operation," during this inspection. The inspectors also reviewed the documentation of the actions taken for summer readiness preparations in accordance with OP-AA-108-109, Rev. 0, "Seasonal Readiness." The inspectors discussed these actions with station engineering, operations, and work management personnel.

##### b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignment

### .1 Partial System Walkdown

#### a. Inspection Scope

The inspectors performed a partial system walkdown 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 walkdown involved the following system:

- Emergency diesel generator (EDG) cardox (carbon dioxide) fire suppression system

#### b. Findings

##### Introduction

The inspectors identified a finding of very low safety significance (Green) because Exelon did not adequately pneumatically isolate the EDG cardox fire suppression system following the unexpected cardox injection into the E-3 EDG room on June 2, 2002.

##### Description

On June 2, 2002, in response to the unexpected discharge of the cardox (carbon dioxide) fire suppression system into the E-3 EDG room in the Diesel Generator Building, Exelon management directed actions to isolate the cardox fire suppression system until the cause of the discharge was determined. Exelon posted a firewatch while the cardox system was isolated. Exelon management directed this action because a cardox system discharge into an EDG room results in a trip and lock-out of the EDG in the affected room in addition to creating a carbon dioxide level in the room that is life threatening to plant personnel.

The inspectors identified that hand valve, HV-0-37G-12579, "EDG Building Cardox Tank Carbon Dioxide Vapor Pilot Valve" remained open. With this valve open, a pneumatic trip and lock-out of any one of the operable E-1, E-2 or E-4 EDGs, would still occur if a spurious cardox actuation signal was generated. Specifically, a cardox actuation signal would permit pneumatic actuation of the relays in the branch of the cardox system for the affected EDG. The inspectors also identified that the electrical portion of the cardox system that generated the EDG trips and lock-outs was not isolated. Operations personnel informed the inspectors that the E-1, E-2 and E-4 room cardox defeat switches were not disarmed because they wanted to quarantine this portion of the system to facilitate troubleshooting activities. Subsequently, operations personnel isolated the electrical trip of the EDGs when they disarmed the cardox defeat switches using an isolation clearance.

The inspectors identified this condition while the E-3 EDG was inoperable and prior to Exelon starting troubleshooting to determine why the cardox system had unexpectedly discharged into the E-3 EDG room. After identification by the inspector, Exelon promptly took actions to close the valve.

### Analysis

Exelon's inadequate isolation of the EDG cardox fire suppression system following the cardox injection in the E-3 EDG bay on June 2, 2002 is considered a performance deficiency. Exelon management expected that the actions taken by their staff would pneumatically isolate the cardox system to prevent a trip and lock-out of the EDG in the affected room if another unexpected discharge of the cardox system had occurred. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or Exelon's procedures. This finding was considered more than minor since it was associated with an attribute and affected the objective of the Mitigating System cornerstone. The applicable attribute was configuration control of operating equipment lineup and affected the objective of this cornerstone to ensure the availability of EDGs to respond to initiating events to prevent undesirable consequences.

Exelon's inadequate isolation of the EDG cardox fire suppression system following the cardox injection in the E-3 EDG bay screened out as (Green) using Phase 1 of the Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations. The finding was determined to be of very low safety significance (Green) because it did not result in an actual loss of safety function. The E-1, E-2 and E-4 EDGs remained operable during all troubleshooting activities and while restoring the E-3 EDG to an operable condition. **(FIN 50-277;278/02-04-01)** Exelon entered this issue into their corrective program as CR#114935.

### Enforcement

No violation of regulatory requirements occurred.

## 1R05 Fire Protection

### 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 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:

- Units 2 and 3 recirculation pump motor generator rooms
- Units 2 and 3 high-pressure coolant injection rooms
- Units 2 and 3 reactor core isolation coolant rooms

- Units 2 and 3 195' reactor building
- EDG building, including the E1 through E4 diesel rooms, cardox room and ventilation rooms
- Unit 2 high-pressure and emergency service water bay
- Unit 2 switchgear building

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Limited Senior Reactor Operator (LSRO) Requalification Inspection

a. Inspection Scope

The Limited Senior Reactor Operator (LSRO) Requalification Program for Fuel Handlers is a dual site operator license program that applies to both Limerick and Peach Bottom. The inspector reviewed recent operating history documentation found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix (PIM) for both Limerick and Peach Bottom to detect any operational events that were indicative of possible training deficiencies. The inspector also consulted with the senior resident inspectors at both Limerick and Peach Bottom for additional insights regarding licensed operators' performance

The inspector followed guidance found in NUREG 1021, Rev. 8, Supplement 1, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure Attachment 7111111, "Licensed Operator Requalification Program," Appendix A "Checklist for Evaluating Facility Testing Material." The inspector:

- reviewed the operating and written exams administered the week of May 20, 2002 for quality and performance.
- reviewed the results of the annual operating tests for years 2001 and 2002 and the written exam for 2002 (in office) for quality, performance and grading. The inspector assessed whether failure rates are consistent with the guidance of NUREG-1021, Revision 8, Supplement 1, "Operator Licensing Examination Standards for Power Reactors" and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)."
- observed the job performance measures (JPM) administered during the week of May 20, 2002. These observations included facility evaluations of individual performance during the individual performance of 5 JPMs on the refueling bridge/floor at Limerick.
- reviewed the remediation plans for individual failures over the past two year requalification program cycle to assess the effectiveness of the remedial training.

- reviewed Exelon operator license reactivations for the past two year requalification program cycle to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met.
- interviewed Instructors and training/operation's management for feedback regarding the implementation of the program.
- reviewed a sample of records for requalification training attendance, program feedback, reporting, and medical examinations for compliance with license conditions, including NRC regulations.

b. Findings

Introduction

The inspector identified a Unresolved Item that requires Office of Nuclear Reactor Regulation (NRR) guidance and clarification because Exelon's methods and standards to re-activate a LSRO license at Limerick and Peach Bottom may not meet the requirements of 10 CFR 55.53(f)(2).

Discussion

Exelon's methods and standards used at Limerick and Peach Bottom to re-activate a LSRO license may not meet the requirements of 10 CFR 55.53(f)(2). 10 CFR 55.53(f)(2) requires, in part, that the LSRO stand one shift under-instruction under the direction of a senior reactor operator (SRO), and in the position to which the individual will be assigned (i.e., refueling director on the refueling floor). Exelon's practice has been to have a LSRO licensee stand one shift of under-instruction watch. The watch consisted of checking in with the shift manager, spending a few hours in the main control room reviewing refueling related instrumentation and plant status, reviewing the applicable unit Limiting Condition for Operation (LCO) log, and attending shift briefings. The LSRO then spent the remainder and bulk of the shift time on the refueling floor performing a self-directed review and study of procedures, as well as walk-downs and familiarity with equipment. Exelon's current procedure guidance and practice for re-activating a LSRO license provides very little direct SRO oversight or feedback while the LSRO licensee is completing the required one shift under-instruction.

Exelon believes it is in compliance with the LSRO reactivation requirements in 10 CFR 55.53(f)(2). Exelon also stated that their program is based, in part, on an NRC letter addressed to Philadelphia Electric Company, dated October 7, 1993, "Requalification and Reactivation Programs for Senior Reactor Operators Limited to Fuel Handling." The letter discusses minimum activities needed for reactivation including: 1) a tour of the main control room to become familiar with equipment status; 2) attending shift turnover meetings; 3) tour of the refueling floor for the unit in which core alterations are to be performed; and 4) reviewing the applicable unit Limiting Condition for Operation (LCO) log. However, this letter does not discuss whether the LSRO needs to be in the presence of the supervising SRO when standing the under-instruction watch and to what extent the LSRO under-instruction should be supervised and receives feedback on performance.

Exelon's current method and standard for reactivating LSRO licenses may not meet the rule. This issue has been forwarded to the Office of Nuclear Reactor Regulation (NRR) for further guidance and clarification and will be treated as an unresolved item pending NRR's disposition. **(URI 50-277; 278/02-04-02)** If Exelon's methods and standards used at Limerick and Peach Bottom to re-activate a LSRO license do not meet the requirements of 10 CFR 55.53(f)(2) this would constitute a performance deficiency. Additionally if this finding is substantiated, this finding would be considered more than minor since use of inappropriately activated LSROs could be a precursor to operator errors which, in turn, could lead to a significant event.

.2 Quarterly Resident Inspector Observation

a. Inspection Scope

On June 19, 2002, the inspectors observed licensed operators' performance during Licensed Operator Re-qualification Training Cycle 02-02 to assess operator performance and the evaluators' training critique. This training included evaluating the performance of shift supervision using trip procedures on the simulator to address a steam leak in the drywell scenario. The inspectors referenced the simulator scenario evaluation guide, 1008R documentation, during this observation. The inspectors discussed the results with operators, shift supervision, operations management and training instructors. The inspectors noted the operators' adherence to Technical Specifications, emergency plan implementation, and the use of emergency operating procedures.

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 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 and documents were reviewed:

System

- Emergency lighting

Procedures and Documents

- Peach Bottom System Health Overview Reports
- Peach Bottom Maintenance Rule Bases Documentation
- ER-AA-310, Rev 1, "Implementation Of The Maintenance Rule"
- ER-AA-310-1001, Rev 0, "Maintenance Rule - Scoping"
- ER-AA-310-1002, Rev 0, "Maintenance Rule - SSC Risk Significance Determination "
- ER-AA-310-1003, Rev 0, "Maintenance Rule - Performance Criteria Selection"
- ER-AA-310-1004, Rev 0, "Maintenance Rule - Performance Monitoring"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluationa. 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 testing and emergent work activities were reviewed:

- 2'A' residual heat removal logic system functional test
- 3'B' residual heat removal loop logic system functional test
- E-2 EDG surveillance run delayed due to high-pressure coolant injection testing

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 two 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 Final Safety Analysis Report, and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- E-3 EDG return to service following cardox injection
- Fuel oil leaks on E-2 EDG during surveillance run

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:

- EDG cardox system return to service
- E-2 EDG inspection post-maintenance instrumentation and logic test (ST-I-052-252-2) following E-2 EDG maintenance outage
- E-2 EDG inspection post-maintenance functional test (RT-O-052-252-2, Rev. 2) following E-2 EDG maintenance outage

- Emergency cooling fan 'B' post-maintenance test run after vibration trip switch corrective maintenance (A1373927)
- E-4 EDG inspection post-maintenance functional test (RT-O-052-254-2, Rev. 10) following E-4 EDG maintenance outage
- E-4 EDG fast start and full load test (ST-O-052-414-2, Rev. 15) following E-4 EDG maintenance outage

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-I-010-105-3, Rev 14, "Unit 3 Residual Heat Removal Loop 'B' Logic System Functional Test"
- ST-O-023-301-2, Rev 30, "Unit 2 High-Pressure Coolant Injection Pump ,Valve, Flow and Cooler Functional and In-service Test"
- ST-O-052-212-2, Rev 21, "E-2 Diesel Generator Slow Start Full Load and Inservice Test"

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary plant modifications that provided a temporary fix for a battery ground in an annunciator circuit for the 2'A' recirculation pump motor lube oil level alarms and the modification that removed an inoperable Unit 3 containment radiation monitor from service, including bypassing the associated alarms.

These reviews were 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 Updated Final Safety Analysis Report (UFSAR) and Technical Specifications, and assessed the adequacy of the 10 CFR 50.59 safety evaluation screenings for these issues. 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 Configuration Changes," CC-AA-112, Rev 5. The inspectors reviewed the temporary modification documents to verify that the implemented changes were consistent with the approved documents. The following temporary modifications and documents were included in the review:

#### Temporary Modifications

- Unit 2 Temporary Fix for a 2B/D Battery Ground in the 'A' Recirculation Pump Motor Oil" Control Room Annunciator Alarm Circuitry
- Unit 3 Removal of Inoperable Drywell Hi-Range Radiation Monitor, RI-9103C, from Service and Bypass of the Alarms

#### Procedures and Documents

- CC-AA-112, Rev 5, "Temporary Configuration Changes"
- CC-MA-112-1001, Rev 0, "Temporary Configuration Change Packages (TCCP)"
- Engineering Change Request (ECR) PB 01-01142-000
- ECR PB 02-00018-000
- PBAPS UFSAR Section 4.3, "Reactor Recirculation System"
- PBAPS UFSAR Section 7.9, "Recirculation Flow Control System"
- PBAPS UFSAR Section 7.20, "Accident Monitoring"
- PBAPS UFSAR Section 8.7, "125/250 Volt DC Power Supplies and Distribution"

#### 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 data. The information reviewed was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, Rev 1, "Regulatory Assessment Performance Indicator Guideline." The inspectors verified that the information reported in the Performance Indicators met the NEI criteria, and that applicable plant performance data was properly recognized, identified, and accurately reported. The specific indicators reviewed included:

- Unit 2 reactor coolant specific activity
- Unit 3 reactor coolant specific activity
- Unit 2 reactor coolant system leak rate
- Unit 3 reactor coolant system leak rate

##### b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems

##### .1 Selected Issue Follow-up Inspection - Recent Instrument & Control (I&C) Personnel Human Performance Problems: Condition Report (CR) # 60899

###### a. Inspection Scope

The inspectors performed a review to verify that Exelon had taken appropriate corrective actions in response to an increasing trend of consequential and non-consequential events due to human performance in the I&C organization. This review included the root cause analyses and the corrective actions associated with the adverse trend described in CR# 60899 (Common cause analysis on the recent I&C Human Performance). The inspectors also reviewed CR# 61197 that described the incorrect fuse manipulation by I&C personnel during Unit 2 reactor core isolation cooling power inverter maintenance. This issue was selected for inspection based on the impacts that work activities performed by I&C personnel have on risk significance systems and components.

The inspectors reviewed Exelon's actions to determine if the licensee had adequately addressed the following attributes:

- Complete, accurate, and timely identification of the problem;
- Consideration of previous occurrences, extent of condition, generic or common cause implications;
- Prioritization and resolution of the issue commensurate with the safety or potential safety significant;
- Identification of the root cause and contributing causes of the adverse trend;
- Identification, implementation, and effectiveness of corrective actions commensurate with the safety significance.

###### b. Findings

No findings of significance were identified.

#### 4OA3 Event Follow-up

##### a. Inspection Scope

On June 2, 2002, Exelon declared an Alert at 1:02 A.M. following an unexpected discharge of the cardox (carbon dioxide) fire suppression system into the E-3 emergency diesel generator (EDG) room in the Diesel Generator Building at 12:31 A.M. This occurred while the diesel was being operated for testing purposes. A cardox system discharge into an EDG room results in a carbon dioxide level in the room that is life threatening to plant personnel. The discharge was due to a system malfunction and was not due to a fire in the E-3 EDG room.

The inspectors reported to the Technical Support Center (TSC) at the plant and observed plant parameters and status, including assessing the operability of the remaining three EDGs and the condition of the EDG cardox (carbon dioxide) system. The inspectors evaluated the performance of Exelon's actions in response to this event and communicated details regarding the event to NRC management at Region I and the NRC headquarters. The inspectors referred to NRC Management Directive 8.3, "NRC Incident Investigation Program," for deterministic criteria used to evaluate the event and Exelon's response to the event.

##### b. Findings

The Green finding identified in Section 1R4 of this report was identified during the event follow-up review. NRC Inspection Report 50-277;50-278/2002-007 describes findings that the inspectors identified regarding timely classification of the event and staffing of the technical support center (TSC) during this event. No additional findings of significance were identified.

#### 4OA6 Meetings

##### .1 Exit Meeting Summary

The inspectors presented the results of the inspection to Mr. J. Doering and members of Exelon's management on July 8, 2002. Exelon management acknowledged the findings presented. No proprietary information was identified.

## ATTACHMENT 1

**SUPPLEMENTAL INFORMATION****a. Key Points of Contact**Exelon Generation Company

J. Doering, Site Vice President  
 G. Johnston, Plant Manager  
 B. Hanson, Operations Director  
 J.T. Anthony, Maintenance Director  
 P. Davison, Site Engineering Director  
 D. Henry, Regulatory Assurance Manager  
 W. Trump, Manager, Nuclear Security  
 C. Fritz, LSRO Program Coordinator  
 C. Goff, Exam Development/Operations Instructor

**b. List of Items Opened, Closed, and Discussed**Opened/Closed

|                        |     |  |
|------------------------|-----|--|
| 50-277;50-278/02-04-01 | FIN | Inadequate pneumatic isolation of the emergency diesel generator (EDG) cardox (carbon dioxide) system following the cardox injection in the E-3 EDG bay                  |
| 50-277;50-278/02-04-02 | URI | Licensee's methods and standards used to reactivate staff licensees to support refueling outages appeared to be inconsistent with the requirements of 10 CFR 55.53(f)(2) |

**c. List of Acronyms**

|        |                                  |
|--------|----------------------------------|
| CARDOX | carbon dioxide                   |
| CR     | condition report                 |
| EDG    | emergency diesel generator       |
| I&C    | instrumentation and control      |
| LSRO   | limited senior reactor operator  |
| NRC    | Nuclear Regulatory Commission    |
| NRR    | Nuclear Reactor Regulation       |
| SRO    | senior reactor operator          |
| SSCs   | structure, system, and component |
| TSC    | technical support center         |