January 14, 2005

Mr. Christopher M. Crane
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 - SUPPLEMENTAL INSPECTION REPORT 05000277/2004011

Dear Mr. Crane:

On December 3, 2004, the NRC completed a supplemental inspection at the Peach Bottom Atomic Power Station, Unit 2 that included both onsite (September 16, October 6 & 28, and December 3) and in-office inspection activities. The enclosed report documents the results of the inspection, which were discussed with Mr. J. Grimes and other members of your staff on December 3, 2004.

The NRC performed this supplemental inspection to assess your activities to address the Peach Bottom Unit 2 unplanned scrams performance indicator (PI) crossing the Green-White threshold in the third quarter of 2003 and the first quarter 2004. The purpose of this inspection was to assure that the causes of the performance issues associated with this PI crossing the Green-White threshold were understood, the extent of condition had been identified, and that corrective actions were sufficient. Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," was used as guidance for the inspection.

Based on the results of this inspection, no findings of significance were identified. Therefore, consistent with NRC Inspection Manual Chapter (IMC) 0305, the performance indicator was removed from consideration in the assessment process as of April 2004, when the calculated indicator returned to a Green characterization.

Overall, the inspectors concluded that Exelon adequately addressed the problem identification attributes of Inspection Procedure 95001. Nonetheless, the inspector identified an overall weakness in the area of problem resolution. Specifically, Exelon's cause evaluations for the scrams were not thorough in that some conclusions were not supported by available information and root cause evaluations did not always identify the underlying causes. In most cases there was little evidence of the use of credited evaluation methods and some conclusions did not appear to be supported by these evaluation methods. The extent of condition and cause reviews were not always appropriately focused and there were problems with the adequacy and implementation of some corrective actions. Nonetheless, the inspector concluded that although Exelon missed some opportunities to identify the underlying causes of events and that some of the root cause analysis were not thorough, the evaluations did identify and the licensee did implement corrective actions sufficient to prevent recurrence of similar events. This conclusion is also supported by the fact that there were no additional scrams as of the conclusion of this inspection. We plan to review your actions to address these weaknesses during subsequent baseline inspections such as our problem identification and resolution (PI&R) biennial team inspection and PI&R sample inspections.

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

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

Sincerely,

/RA by Brian E. Holian, Deputy Director, for/

Mohamed Shanbaky, Chief
Projects Branch 4
Division of Reactor Projects

Docket No. 50-277
License No. NPF-44

Enclosure: Inspection Report No. 05000277/2004011
w/Attachment: Supplemental Information

cc w/encl:
Chief Operating Officer, Exelon Generation Company, LLC
Site Vice President, Peach Bottom Atomic Power Station
Plant Manager, Peach Bottom Atomic Power Station
Regulatory Assurance Manager - Peach Bottom
Senior Vice President, Nuclear Services
Vice President, Mid-Atlantic Operations
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director, Licensing and Regulatory Affairs, Exelon Generation Company, LLC
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Pennsylvania Bureau of Radiation Protection)
Public Service Commission of Maryland, Engineering Division
Board of Supervisors, Peach Bottom Township
D. Levin, Acting Secretary of Harford County Council
Mr. & Mrs. Dennis Hiebert, Peach Bottom Alliance
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J. Johnsrud, National Energy Committee, Sierra Club
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T. Snyder, Director, Air and Radiation Management Administration,
Maryland Department of the Environment (SLO)

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OFFICE	RI/DRP		RI/DRP							
NAME	ABurritt/**ALB**		MShanbaky/**BEH** for							
DATE	01/12/05		01/13/05		01/ /05		01/ /05		01/ /05	

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos:	50-277
License Nos:	NPF-44
Report No:	05000277/2004011
Facility:	Peach Bottom Atomic Power Station Units 2 and 3
Location:	1848 Lay Road Delta, Pennsylvania
Dates:	September 16, 2004 through December 3, 2004
Inspectors:	A. Burritt, Senior Project Engineer
Approved by:	Mohamed M. Shanbaky, Chief Projects Branch 4 Division of Reactor Projects

ENCLOSURE

SUMMARY OF FINDINGS

IR 05000277/2004-011, 9/16/2004 to 12/03/04, Peach Bottom Point Unit 2; Supplemental Inspection of unplanned reactor scrams. Inspection Procedure 95001, Inspection for One or Two White inputs in a Strategic Performance Area.

This inspection was conducted by one regional inspector and included in-office inspection and four days of onsite inspection. 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.

Cornerstone: Initiating Events

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess Exelon's evaluation of the White PI associated with the Peach Bottom Unit 2 scrams. This supplemental inspection assessed Exelon's problem identification, cause evaluation and corrective actions associated with the Unit 2 unplanned scram performance indicator (PI). Based on the results of this inspection, no findings of significance were identified. Therefore, consistent with IMC 0305, the PI was removed from consideration in the assessment process as of April 2004, when the calculated indicator returned to a Green characterization.

Overall, the inspectors concluded that Exelon adequately addressed the problem identification attributes of IP 95001. Regarding the problem resolution attributes of IP 95001, the inspector did not identify any common root causes for the five scrams; however, there were some common contributing causes including: not entering or resolving equipment failures in the corrective action process; not implementing timely corrective measures; not appropriately assessing potential safety risk associated with equipment anomalies and problems. Some examples of these problems were discussed in the licensee's common cause analysis and the inspector identified additional examples that are discussed in the body of this report.

The inspector independently evaluated the cause analysis for each of the five scrams and identified an overall weakness in the area of problem resolution. Specifically, Exelon's cause evaluations for the scrams were not always thorough in that some of the conclusions were not supported by available information and two of the root cause evaluations did not identify the underlying causes. In most cases there was little evidence of the use of credited evaluation methods and some conclusions did not appear to be supported by these evaluation methods. Additionally, the extent of condition and cause reviews were not always appropriately focused and there were problems with the adequacy and implementation of some corrective actions. Nonetheless, the inspector concluded that although Exelon missed some opportunities to identify the underlying causes of events and that some of the root cause analysis were not thorough, the evaluations did identify and the licensee did implement corrective actions sufficient to prevent recurrence of similar events. This conclusion is also supported by the fact that there were no additional scrams as of the conclusion of this inspection. We plan to review your actions to address these weaknesses during subsequent baseline inspections such as our problem identification and resolution (PI&R) biennial team inspection and PI&R sample inspections.

Report Details

01 INSPECTION SCOPE (IP 95001)

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection in accordance with NRC Inspection Procedure (IP) 95001, Inspection For One or Two White Inputs in a Strategic Performance Area, to assess Exelon's problem identification, cause evaluation and corrective actions associated with the Peach Bottom Unit 2 unplanned scram performance. This performance issue was characterized as "White" in the third quarter 2003 and in the first quarter 2004 performance indicators. A total of five scrams caused the performance indicator to cross the green to white threshold on these two occasions. A summary of the five scram events, including the licensee identified root or apparent cause, and corrective actions to prevent recurrence, are listed below:

- On February 22, 2004, a manual scram was initiated in response to lowering main condenser vacuum, caused by a failure of the 2A reactor feed pump exhaust expansion joint bellows. The licensee concluded the scram was preventable. The corrective actions involved procedure revisions to ensure a more appropriate station response to any future main condenser air in-leakage and exhaust bellows inspections, repairs or replacements.

- On September 15, 2003, a loss of offsite power occurred following a lightning strike on the offsite electrical distribution system causing both Peach Bottom plants to scram. Two separate protective relaying failures allowed an electrical system fault to propagate and resulted in the loss of two independent offsite sources of power to Peach Bottom. The protective relay problems were caused by a previously undetected failed fuse and a loose wire in a protective circuit. Exelon concluded that the underlying causes of the protective relay failures included less than adequate preventative maintenance and testing of associated protective relaying equipment. Procedures were developed to address the protective relay equipment issues.

- On July 22, 2003, a main generator lockout and scram occurred as a result of a ground fault caused by a piece of broken fan belt in the isophase bus duct cooling system. Exelon concluded that a design weakness existed in that there were no debris guards to prevent intrusion of fan belt material into the fan suction. The corrective actions included installing debris guards.

- On April 12, 2003, a scram occurred when a single main steam isolation valve (MSIV) failed closed due to a broken air supply line. Exelon concluded that the MSIV air tubing was vulnerable to a fatigue failure due to the method of supporting the air tubing. The corrective actions included installing additional tubing supports to all outboard MSIV air supply lines.

- On December 21, 2002, an electro-hydraulic control (EHC) system circuit card failure resulted in a closure of MSIVs and a scram. Exelon concluded that the circuit card failure was caused by a manufacturing defect in a component on the circuit card. The circuit card had been installed 3 months earlier. The corrective actions included ensuring there were no similar defective components installed on circuit cards at Peach Bottom.

02 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. Determination of who identified the issue and under what conditions

The White unplanned reactor scrams performance indicator (scrams PI) was self revealing through Exelon's collection of PI data taken in support of the NRC's reactor oversight program. Each of the five unplanned reactor scrams that caused the PI to cross the Green-White threshold twice were also self-revealing.

b. Determination of how long the issue existed, and prior opportunities for identification

The inspector concluded that the prior opportunities for identification were appropriately assessed in the root cause evaluations, as applicable. For example, Exelon concluded that the February 22, 2004 loss of vacuum scram was preventable; Exelon engineers did not properly assess the increasing main condenser air in-leakage and the potential consequences. Additionally, the root cause evaluation for the December 21, 2002, EHC card failure provided details regarding previous opportunities to have learned from three identical circuit failures.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue

The risk significance was addressed as part of the investigations associated with each of the five scram events. The licensee found that the events were not risk significant with the exception of the loss of offsite power event on September 15, 2003. The risk for the loss of offsite power event was primarily as a result of post scram complications including an emergency diesel generator (EDG) failure about an hour into the even. The NRC dispatched an augmented inspection team to address this event; the results of this inspection are documented in NRC inspection report 05000277, 278/2003-013. The NRC also performed a special inspection for the EHC circuit card failure in December 2002; the results of this inspection are documented in NRC inspection report 05000277/2003-07.

The inspector concluded that Exelon adequately addressed the problem identification attributes of inspection procedure 95001.

02.02 Root Cause and Extent of Condition Evaluation

Common Cause Analysis

A common cause analysis was performed, in part, to address the four scrams that caused the unplanned scram performance indicator to exceed the green/white threshold in the third quarter 2003. The intent of the review was to identify common, underlying problems leading to the Unit 2 unplanned reactor scrams PI crossing the Green-White threshold and to determine the extent of cause and condition. Nonetheless, the

common cause evaluation was a much broader review which considered scrams dating back to 1995 as well as equipment problems that complicated each of these events. The common causes identified were generally not related to the scrams of interest and therefore are not applicable to this inspection. The inspector found that the only common element that related to the four scrams was that three of them related to design vulnerabilities of non-safety related systems. Exelon did not perform any additional corrective actions of substance since this common cause was believed to be well understood and would be addressed by the actions from other initiatives such as the Peach Bottom single point vulnerability study.

Self Assessment

Exelon performed a pre-inspection assessment of the individual and aggregate actions taken to address the four scrams. Four deficiencies were identified; however, some of the issues had not been resolved as of the end of the inspection. For example, the EHC scram corrective action to prevent recurrence was not re-assessed and corrective actions such as the audit of non-safety related part change recommendations has still not been performed. Although condition reports were generated for the deficiencies, limited investigations and corrective actions were performed to address why they occurred.

Inspector Observations

The inspector did not identify a common cause for the four scrams; however, there were some common contributing causes including: not entering or resolving some equipment failures in the corrective action process; not always implementing timely corrective measures; not appropriately assessing potential safety risk associated with equipment anomalies and problems consistently. Some examples of these problems were discussed in the licensee's common cause analysis and the inspector identified additional examples which are discussed below. Since the common cause analysis was of limited applicability, the inspector independently evaluated the cause analysis for each of the four scrams. The discussions below relate to individual event investigations.

a. Evaluation of method(s) used to identify root cause(s) and contributing cause(s).

The inspector determined that Exelon's cause evaluations for some of the scrams were not thorough in that some of the root cause evaluation conclusions were not supported by available information. Problems with root cause evaluations adversely impacted an extent of condition and cause review.

- Exelon performed an apparent cause determination rather than a root cause evaluation, as allowed by procedures, for the MSIV closure scram that occurred in April 2003. Engineering determined that the cause of the MSIV air supply failure was that the air tubing was not installed consistent with the original design specifications in that the tubing was not adequately supported. Exelon concluded that the lack of adequate tubing support led to a high cycle fatigue failure of this air supply line. Engineering did not consider deformation damage

from re-installation following MSIV maintenance and increased vibration due to a power uprate, implemented in September 2003, as the primary causes of the failure. This conclusion was based on the belief that high cycle fatigue is a rapid failure mechanism which typically occurs within days to weeks and both the re-installation and the power uprate occurred 5 months prior to the failure. Instead, Engineering determined that the unsupported air supply tubing was the primary cause even though this was the original configuration that had not failed for over 30 years. The inspector determined that there was evidence that the cause of the event was not likely just unsupported piping. For example, there was no procedure for installing and re-installing the air line fittings prior to the event. The training lesson plans for re-installing the fittings were incorrect, which could have led to over-tightened joints and there was no limit on the number of times a fitting could be re-used. The inspector noted that some deformation of tubing was identified during the failure analysis likely due to over-tightening or work hardening from re-use of fittings. Further, the evaluation to verify the power up-rate modification effects on tubing simply stated that the root cause was not attributed to increased vibration. The inspector determined that fatigue failures typically involve vibration which is the mechanism that causes too many bending cycles that can lead to material property changes and failures. Although the evaluation was less than adequate, the corrective actions of installing additional air line supports alone should reasonably prevent a recurrence of the MSIV air line failure event.

- The Peach Bottom staff's root cause report for the loss of offsite power scram in September 2003 did not identify the loose wire in the protection circuit as a root cause. The Peach Bottom staff determined that the fuse failure was the root cause since it was in the primary relaying circuit and had it worked as designed then the backup protection circuit with the loose wire would not have been required to trip. The inspector concluded that there were two root causes and that the Peach Bottom staff's logic was flawed which could have led to less than adequate corrective actions. Nonetheless, the Exelon Energy Delivery investigation report, used to develop the Peach Bottom staff's root cause analysis, considered both the fuse failure and the loose wire as root causes and corrective actions were developed to address both failures.

b. Level of detail of the root cause evaluation

The root cause evaluations were not always thorough, since there was little evidence of the use of the various root cause evaluation methods that were credited. Two of four conclusions did not appear to be supported by the credited evaluation method. Two of four of the root cause evaluations did not identify the underlying causes. Examples include:

- There was little evidence of the application of any evaluation techniques referenced in the root cause evaluation for the broken isophase bus duct cooling fan belt that caused a generator lockout in July 2003. The inspector concluded that the application of the change analysis process would have yielded a root

cause related to the cause of fan belts breaking, which was a change based on Exelon's timeline. Exelon did not consider the broken belts to be the root cause since they were not certain they could prevent a belt from breaking in the future. Exelon also stated that the fan function would not be lost if a belt broke since a total of six belts are used to drive the fan and also there is a redundant fan unit. The root cause appeared to be based on the desire to develop simple corrective actions rather than on the outcome of evaluation techniques. Nonetheless, the corrective action to prevent recurrence involved installing belt guards that will prevent foreign material from entering the ducts was appropriate and should preclude another similar event, but will not prevent belts from breaking.

- There was little evidence to support the use of any of the evaluation techniques listed in the root cause evaluation for the loss of offsite power scram in September 2003. Further, the inspector concluded that task analysis was listed, and this would not appear to be an appropriate method given the underlying causes.

- The root cause evaluation for the loss of offsite power scram in September 2003 was less than adequate in that the underlying problems were not addressed. Specifically, the Exelon root cause and corrective action documents did not address the underlying causes which included standards not rigorously implemented, testing and maintenance on protection circuits not fully understood, and poor work practices and management expectations, as detailed in the NRC Augmented Inspection Team Report 50-277/2003013, dated December 18, 2003.

- The root cause evaluation for the loss of vacuum scram in February 2004 did not identify the underlying cause of the scram. The inspector concluded that a more likely cause was related to less than adequate operational decision making with an underlying cause of ineffective change management. The use of analysis techniques specified in the procedure was not evident in the root cause analysis report. The lack of thoroughness in the root cause evaluation led to a missed opportunity to implement corrective actions for the change management problem at Peach Bottom.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

Exelon's pre-inspection self assessment identified that the interim root cause evaluation for the loss of condenser vacuum scram did not identify the reason that relevant operating experience (1998 and 2000 events at Limerick Generating Station) was not effectively incorporated into station programs or procedures. The licensee plans to address these deficiencies in its corrective action program. The inspector did not identify any additional examples in which prior occurrences of the problem or prior operating experience was not considered.

d. Consideration of potential common cause(s) and extent of condition of the problem

The inspector determined that the extent of condition and cause reviews were not appropriately focused in a number of cases. Some of these deficiencies were caused by less than adequate cause evaluations. Examples include:

- The extent of condition and cause review for the April 2003 MSIV air line failure involved inspecting over 200 pneumatic lines to air operated valves on Unit 2&3; however, the inspection sample did not evaluate other tubing configurations installed under the same design specification such as instrument lines. When leaks were identified, the leaking fittings were tightened or replaced without determining the causes of the leaks because they were viewed as a minor impact on station equipment. Since the cause of the event is not likely only unsupported spans of air tubing, the extent of condition/cause should also address the maintenance practices related to re-use of fittings and the additional vibrations associated with the power uprate. The external physical inspection of pneumatic supply lines to air operated valves would not be sufficient to rule out mechanical damage of the fittings and tightening the fittings to stop leaks could cause more damage.

- The extent of condition review for the December 2002 EHC circuit card failure was appropriate in that it verified that no defective operating amplifiers were installed at Peach Bottom. Nonetheless, the extent of cause was less than adequate to address a fault intolerant EHC system, the Exelon documented root cause. The extent of cause should have addressed other non fault tolerant power generation systems. Nonetheless, the actions planned and taken appear appropriate given that the root cause is likely narrower than specified in the Exelon root cause evaluation.

- The extent of cause review for the December 2002 EHC circuit card failure was less than adequate for the contributing cause of not generating condition reports for 3 previous operating amplifier failures. The Exelon investigation found that condition reports were not written because Exelon staff was not aware of the procedure requirement to do so, and not applying engineering fundamentals, which would have necessitated development of condition reports. These errors were attributed to poor change management in that maintenance personnel were not aware of the rework procedure requirements. The Exelon staff at Peach Bottom missed the opportunity to develop broader corrective actions for change management problems, until prompted by assessments of several external groups including Exelon Nuclear Oversight and the corporate Nuclear Safety Review Board about a year later.

- The extent of condition for the loss of vacuum in February 2004 was less than adequate since engineering did not review the open adverse condition monitoring plans (ACMs) following the event. The inspector's review found that generally the ACMs were not consistent with the procedure guidance related to the condition statement in that they do not describe the potential loss of function,

impairment or challenge to the system or plant. Engineering reviewed open ACMs following the inspectors inquiry; however, this review did not address a number of ACMs that have been closed since the event.

Overall, regarding the root cause and extent of condition evaluations, the inspector concluded that although Exelon missed some opportunities to identify the underlying causes of events, and some of the root cause analyses were not thorough, the evaluations did identify corrective actions sufficient to prevent recurrence of similar events. This conclusion is also supported by the fact that there were no additional scrams as of the conclusion of this inspection. Exelon plans to address the NRC identified root cause and extent of condition evaluation problems in their corrective action program in condition reports 278063 and 277608.

02.03 Corrective Actions

a. Appropriateness of corrective action(s)

There were a number of problems with adequacy and implementation of corrective actions. Examples include:

- The corrective actions for the December 2002 EHC circuit card failure have significantly reduced previous actions to improve EHC reliability. Exelon planned to replace circuit cards sensitive to age related failures in response to a Circuit Card Vulnerability Study published February 4, 2002 that found, “Exelon plants are extremely vulnerable to aging circuit cards.”

- There were no corrective actions identified for the inadequate response to a precursor event to the broken isophase bus duct cooling fan belt that caused a generator lockout in July 2003. The root cause evaluation determined that the corrective actions for CR 140476 were inadequate, since it only re-affirmed the vendor’s information concerning the quality and tolerances associated with the replacement fan belts and did not identify the cause of the belts breaking. Nonetheless, Exelon did not determine why a more thorough evaluation was not performed for this contributing cause.

- The corrective action to prevent recurrence of the loss of offsite power scram in September 2003 was less than adequate. Procedure OP-ED-906 did not address when maintenance or testing should be performed to verify protective circuit continuity and there were no verifiable programmatic corrective actions taken to address other possible latent failures other than fuse problems.

- Several contributing causes for the loss of vacuum scram in February 2004 were either not resolved or not addressed by causal evaluations and corrective actions. Examples include: 1) the cause of the “A” condenser vacuum transmitter reading high and sluggish; 2) the adverse conditions monitoring plan for high air in-leakage did not address the 54 SCFM limit that is related to the gaseous radwaste power generation design bases; 3) CR 192013 and A/R

1447296 incorrectly state that the flow transmitter was only accurate to 85 SCFM; 4) Station Management did not use the "Operational and Technical Decision Making Process" procedure OP-AA-106-101-1006 for increase air in-leakage due to less than adequate change management involving the roll out of the new procedure.

b. Prioritization of corrective actions

Some corrective actions were untimely including:

- Corrective actions for the broken isophase bus duct cooling fan belt that caused a generator lockout in July 2003 were untimely. Specifically, the installation of matched belt sets on all isophase cooling fans, which will minimize belt failures, was not completed on Unit 3 until September 2004, more than a year after the event. The installation of fan belt guards was not completed until about 2 months after the Plant Operating Review Committee specified time frame of 30 days, with no rationale provided for the delay. The extent of cause corrective action to perform an audit of all part changes for non safety related equipment based on manufacturers' recommendations was not completed. The Exelon staff identified the missed corrective action during pre inspection self assessment; however, after four months, the audit is not yet complete.

- The corrective actions to prevent recurrence (CAPR) of the loss of offsite power scram in September 2003 were untimely. Specifically, the CAPR for the loose wire was to develop and implement a maintenance or testing procedure to verify continuity of other protective circuits. This procedure, OP-ED-906, "Relay Testing Guide - Planning, Testing and Inspecting Administrative Procedure," was completed on May 25, 2004, about eight months after the event with no interim corrective actions.

c. Establishment of a schedule for implementing and completing the corrective actions

Some corrective actions schedules were not appropriate and the acceptability of subsequent delays were not assessed. For example, the corrective action to prevent recurrence of the December 2002 EHC circuit card failure was replacement of the EHC system with a more fault tolerant design. The EHC system modification was initially scheduled to be performed in 2006 and 2007 with a subsequent 2 year delay. There were no corrective action assignments developed to ensure that appropriate interim corrective actions were implemented, and no documentation provided justification for the 2 year delay of corrective action implementation. The interim actions taken since the event do not substantially improve the reliability of the EHC system since they were generally focused on the circuit card component problems and reductions in the card replacement program effort. Some control system improvements were identified; however, Engineering could not provide a nexus to EHC reliability using previous EHC operational problems or operating experience. Further, most of these control system improvements have not been installed yet. Exelon plans to revise the CAPR to be more related to the operating amplifier failure.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

The corrective action plans for four of the five events included effectiveness reviews; however, most of these reviews were not completed prior to the end of this inspection. No effectiveness reviews were planned on the corrective actions associated with the MSIV closure event, since a root cause analysis was not done for this event. The effectiveness reviews for the EHC circuit card failure scram, the low condenser vacuum scram, and the grid disturbance dual unit SCRAM events are open since the corrective actions to prevent recurrence of these three events that occurred between December 2002 and February 2004 are still open or have recently been closed.

The inspector concluded that although there were problems with adequacy and implementation of a number of corrective actions, sufficient action has been taken to reasonably prevent recurrence of similar events. This conclusion is also supported by the fact that there were no additional scrams as of the conclusion of this inspection. Exelon plans to address the NRC identified corrective action problems in their corrective action program in condition reports 278063 and 277608.

03 MANAGEMENT MEETINGS

Exit Meeting Summary

The results of this inspection were discussed at an inspection exit/regulatory performance meeting conducted at the end of the inspection on December 03, 2004, with Mr. J. Grimes and other members of the Exelon staff. No proprietary information was received as part of this inspection.

ATTACHMENT 1
SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company

B. Braun, Site Vice President
J. Grimes, Plant Manager
D. Portrey, Engineering Supervisor
D. Foss, Regulatory Assurance
C. Behrend, Senior Manager, Engineering
J. Mallon, Manager, Regulatory Assurance

NRC

A. Burritt, Senior Project Engineer
T. McGinty, Acting Deputy Division Director, Division of Reactor Projects

DOCUMENTS REVIEWED

Licensee Event Reports

LER 2-02-01, LER 2-03-01, LER 2-03-03, LER 2-03-04, LER 2-04-01

Action Requests

A1450201, A1397824

Corrective Action Documents

CR 277608, CR 278063, CR 153675, CR 177066, CR 193222, CR 175737, CR 137110, CR 168589, CR 203355, CR 203455, CR 124221, CR 198245, CR 205552, CR 140062, CR 140476
Root Cause Report for CR 137110, "Failed EHC Card Caused Unit 2 Reactor Scram and PCIS Group I Isolation" (event date 12/21/2002)
Apparent Cause Evaluation for CR 153675, "Unit 2 Scram Due to 'D' Outboard MSIV Instrument Air Line Break" (event date 04/12/2003)
Root Cause Report for CR 168589, "Unit 2 Scram Due to Generator Lock Out (Isophase Bus Cooler Belt FME)" (event date 07/22/2003)
Root Cause Report for CR 175737, "Dual Unit Scram & Group I Isolation Due to 220 kV Grid Instability" (event date 09/15/2003)
Root Cause Report AR 98020557
Common Cause Evaluation for CR 177066, "NEI/NRC PI, Unplanned Scrams per 7000 Operating Hours in NRC 'White' Region" (event date 09/15/2003)
Interim Root Cause Report for CR 203355, "Unit 2 Reactor Scram Due to Degrading Main Condenser Vacuum" (event date 02/22/2004)
CR Evaluations from CR 205552, "NRC PI White, Unit 2 Unplanned Scrams per 7000 Operating Hours" (last evaluation completed 07/30/2004)

Procedures

LS-AA-125-1001 Root Cause Analysis
LS-AA-125-1002 Common Cause Analysis
OP-AA-108-111 Adverse Condition Monitoring Plan
OP-AA-106-101-1006 Operational and Technical Decision Making Process and the change package for revision 0 of this procedure
MA-AA-716-013 Rework Reduction and the change package for revision 0 of this procedure
MA-PB-1001 Swagelock Fitting Manual
OP-ED-906 Relay Testing Guide - Planning, Testing and Inspecting Administrative Procedure
OP-ED-139-802 Fuse Handling Instructions

Other Documents

Focused Area Self Assessment 237161
Peach Bottom Atomic Power Station Updated Final Safety Analysis Report (UFSAR) Sections 9.4, 14.5.4.1
Adverse Condition Monitoring and Contingency Plans (open and closed) as October 6, 2004
Power Labs Failure Analysis PEA-60418
Maintenance Training Lesson Plan for Tubing Repair

NRC Documents

Inspection Procedure (IP) 95001, Inspection For One or Two White Inputs in a Strategic Performance Area, May 23, 2003
NRC Special Inspection Report 50-277/2003007 dated March 13, 2003
NRC Augmented Inspection Team Report 50-277/2003013 dated December 18, 2003

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CR	condition report
EDG	emergency diesel generator
UFSAR	Updated Final Safety Analysis Report