

## Limerick 2

### 4Q/2003 Plant Inspection Findings

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## Initiating Events

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## Mitigating Systems

**Significance:**  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Did Not Adequately Assess and Manage Risk of Testing the D21 4kV Bus Under-Voltage Relay**

The inspector identified a finding of very low safety significance (Green), that is also a non-cited violation of 10 CFR 50.65 (a)(4), because on October 20, 2003, Exelon performed testing on the Unit 2 D21 4 kV bus under-voltage relay without having properly assessed and managed the increase in risk associated with the test. Specifically, Exelon did not establish appropriate actions in the test procedure to ensure D21 bus and D21 EDG availability. The risk was higher than Exelon originally determined since the actions in the test procedure did not ensure that the D21 4 kV bus and D21 EDG would be available. As a result, based on the higher risk, the test should not have been performed with the plant at power.

This issue is greater than minor because it is associated with the human performance attribute (incorrect assumption made in risk determination because operators and technicians actions added to the test procedure were not simple) and adversely affects the objective of the mitigating system cornerstone in that the EDG and associated bus were unavailable during the test and could not respond to certain initiating events. This finding is not suitable for analysis by a Significance Determination Process (SDP) because there is no current SDP to assess the significance of maintenance risk assessment findings. This finding was determined to be of very low safety significance (Green) and not greater than very low safety significance by management review because the performance deficiency did not result in a loss of the system safety function and the length of time that the D21 EDG and bus were unavailable was short (45 min). (Section 1R13)

The inspector identified that a contributing cause of this finding was related to the cross-cutting area of Problem Identification and Resolution. Exelon's corrective action for the finding associated with the D12 bus under-voltage relay test performed on August 5, 2003, was not adequate to assure that the associated bus and EDG would be considered available when other bus under-voltage relays were tested. The corrective actions were inadequate because the technical review to support the procedure changes did not adequately evaluate the procedure change against the NUMARC 93-01 standard to ensure the procedure change maintained the EDG and associated bus available.

Inspection Report# : [2003005\(pdf\)](#)

**Significance:**  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Did Not Follow Chemistry Procedure CH-1010**

The inspectors identified a finding of very low safety significance that is also a non-cited violation of Technical

Specification 6.8.1, "Procedures," because the chemistry staff did not follow procedures. Specifically, on several occasions since April 2003, Exelon staff did not perform the required daily sample and analysis of spray pond water and when pH in the spray pond water was outside of the specifications, did not take the actions described in the procedure within the specified time period.

The finding is greater than minor because it is similar to example 4.a " Insignificant Procedural Errors" in Appendix E of NRC Inspection Manual Chapter 0612, "Power Reactor Inspection Reports." By not following the chemistry sampling and analysis procedure, Exelon adversely affected the safety-related 2B RHR heat exchanger, in that, the reliability of the 2B RHR heat exchanger under post-accident conditions was reduced. The finding impacts the Mitigating System Integrity Cornerstone because it is associated with the reliability of the 2B RHR subsystem, a mitigating system.

The inspectors identified that a contributing cause of this finding involved a human performance error because neither a chemistry technician nor the technician's supervisor followed the steps prescribed by procedure CH-1010. (Section 1R15)

Inspection Report# : [2003005\(pdf\)](#)



**Significance:** Nov 21, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Develop s Station Blackout Procedure Consistent with 10CFR50.63 Coping Analysis**

The team identified a non-cited violation of 10 CFR 50.63, "Loss of All Alternating Current Power," because the licensee's procedures used to cope with a station blackout may not have restored a source of alternating current power to the affected unit within one hour. The restoration of power within one hour is an assumption in the station blackout coping analysis used to demonstrate the plant would be able to manage a station blackout of a specified duration by taking credit for certain safe shutdown equipment such as residual heat removal pumps, air compressors, and battery chargers.

This finding is greater than minor because the finding affects the Mitigating System Cornerstone objective of ensuring equipment availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Systems used to mitigate the effects of a station blackout could be adversely effected if a source of alternating current power was not restored to the affected unit within one hour. The finding is of very low safety significance (Green) because the finding is not a design or qualification deficiency, does not represent an actual loss of safety function of a train or system, and does not screen as risk significant due to a seismic, fire, flooding, or severe weather initiating event.

Inspection Report# : [2003009\(pdf\)](#)



**Significance:** Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Did Not Follow Chemistry Procedure CH-1010**

The inspectors identified a finding of very low safety significance that is also a NCV of TS 6.8.1, "Procedures," because chemistry staff did not follow procedures. Specifically, spray pond water samples were not analyzed for soluble manganese within the required weekly frequency and when manganese in the spray pond water was above 100 parts-per-billion (ppb), the actions specified in the procedure were not taken.

The finding is more than minor because it is similar to example 4.a in App. E of NRC IMC 0612. This finding was determined to have very low safety significance by Phase 1 of the Reactor Inspection Findings for At-Power Situations

Significance Determination Process because the performance deficiency did not result in a loss of safety function and is not potentially risk significant due to a seismic, flood, fire, or severe weather initiating event.

The inspectors also identified that a contributing cause of this finding involved a human performance error because neither a chemistry technician nor the technician's supervisor followed the steps prescribed by the procedure.

Inspection Report# : [2003004\(pdf\)](#)

**Significance:**  Jun 28, 2003

Identified By: NRC

Item Type: FIN Finding

**Performing Preventive Maintenance Prior to Required Surveillance Testing of Recirculation Pump Trip Breakers and Safety-Related Battery Chargers**

The insp. identified a finding of very low significance (Green) because Exelon's practice of performing preventive maintenance prior to required surveillance testing of recirc pump trip breakers and safety-related battery chargers masked the as-found conditions of these components, and this practice had not been evaluated.

The finding is considered more than minor because it affected the ability to detect component degradation which would adversely impact the reliability of the RPT breakers and battery chargers to respond to initiating events and prevent undesirable consequences. This finding is of very low safety significance because it involved inadequate testing and did not degrade the capability of these components to perform their safety functions.

The inspectors also identified that a contributing cause of this finding was related to the cross-cutting area of Problem Identification and Resolution. After the inspectors noted the MSIV preconditioning issue in February 2003, Exelon's corrective action included a review of other outage-related activities for unacceptable preconditioning. Exelon's corrective action was narrow in scope and did not identify the RPT breaker and battery charger preconditioning issues. Inspection Report# : [2003003\(pdf\)](#)

**Significance:**  Mar 29, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Average Power Range Monitor Operability During Testing**

The inspectors identified a finding of very low significance (Green) that is also a non-cited violation of 10 CFR 50, Appendix B, Criterion V "Procedures," because Exelon's procedure governing local power range monitor (LPRM) maintenance did not include provisions to ensure that the associated average power range monitor (APRM) remained operable. Specifically, the procedure did not include steps to ensure the APRM remained within the technical specification required accuracy when changing the LPRM input configuration to the APRM and at the completion of the maintenance.

This finding was determined to have very low safety significance because it did not result in an actual loss of safety function, and it did not screen as risk significant due to a seismic, fire, flooding, or severe weather initiating event. (Section 1R19)

Inspection Report# : [2003002\(pdf\)](#)

**Significance:**  Mar 29, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### Unexpected Scram Bypass Due to a Degraded Transistor

The inspectors identified a finding of very low significance (Green) that is also a non-cited violation of 10 CFR 50, Appendix "B," Criterion XVI, because Exelon had not implemented adequate measures to preclude repetition of a significant condition adverse to quality, specifically a defective transistor in safety related protection system trip units that resulted in a portion of the reactor protection system being inoperable.

This finding was determined to have very low safety significance because it did not result in an actual loss of safety function, and it did not screen as risk significant due to a seismic, fire, flooding, or severe weather initiating event.

The inspectors identified that this finding involved a human performance error because the System Manager performing a review of the test data did not identify that one analog trip unit exceeded the repair criteria. (Section 40A2)

Inspection Report# : [2003002\(pdf\)](#)

## Barrier Integrity

**Significance:**  Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### Did Not Meet 10CFR 55.53(f)(2) When Reactivating Senior Operators to Support Fuel Handling

The inspectors identified a non-cited violation of 10CFR55.53(f)(2) regarding the licensee's method used to reactivate senior operator licenses to support refueling. The operator licenses were reactivated without the required direct supervision being present during the shift under-instruction time.

This finding was determined to be more than minor but of very low safety significance. It is more than minor because it is similar to example 2h in App. E of IMC 0612. The performance deficiency is related to operator license conditions. The performance deficiency involved more than 20% of the senior operator license reactivations to support refueling operations not meeting the requirements of 10CFR55.53(f)(2). Accordingly, the performance deficiency was determined to be of very low safety significance.

Inspection Report# : [2003004\(pdf\)](#)

**Significance:**  Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### Performed Core Alterations Without Maintaining Secondary Containment Integrity

A self-revealing NCV of TS 3.6.5.1.2 was identified because Exelon did not maintain refueling area secondary containment integrity while performing core alterations during a refueling outage.

The finding is more than minor because the issue was associated with the human performance attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective. The Barrier Integrity cornerstone objective was affected because secondary containment functionality was not maintained when required by TSs. This finding was determined to be of very low safety significance (Green) by NRC IMC 0609, App. G, Shutdown Operations Significance Determination Process. The plant conditions while secondary containment was breached did not require a phase 2 assessment and therefore screened as Green per the Appendix G, Section 1 guidance.

The inspectors also noted that a contributing cause of this finding was related to a human performance error because operators did not properly verify TSs compliance when breaching secondary containment.

Inspection Report# : [2003004\(pdf\)](#)

**Significance:**  Jun 28, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Exelon's Main Steam Isolation Valve Stroke Time Test Methodology**

The inspectors identified a finding of very low significance (Green) that is also a violation of 10 CFR 50 Appendix B, Criterion XI, "Test Control," because Exelon's MSIV stroke time test procedure did not include sufficient steps to assure that, when the MSIVs are in-service in Operational Conditions 1, the MSIV full closure times will meet TS requirements.

The finding was considered more than minor, in that the issue was associated with the Maintain Functionality of Containment Procedure Quality attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective. The Barrier Integrity cornerstone objective was affected because the inadequate testing procedures adversely affect assurance that the containment would protect the public from radionuclide releases caused by accidents or events. This finding was also associated with the Procedure Quality attribute of the Mitigating Systems cornerstone, and it affected the cornerstone objective. The cornerstone objective was affected because the testing did not ensure the reliability of the MSIV's to respond to initiating events to prevent undesirable consequences.

This finding was determined to have very low safety significance (Green) by Phase 2 of the Reactor Inspection Findings for At-Power Situations Significance Determination Process. This finding was determined to be of very low safety significance because the issue involved inadequate testing and did not degrade the MSIVs capability to perform its safety function. Therefore, no mitigation equipment or sequences in Phase 2 were adversely impacted.

Inspection Report# : [2003003\(pdf\)](#)

**Significance:**  Mar 29, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Dropped New Fuel Bundles**

The inspectors identified a finding of very low safety significance that is also a non-cited violation of Technical Specification 6.8.1, "Procedures," because maintenance technicians did not follow procedures while performing an inspection of new fuel bundles.

This finding was determined to have very low safety significance because fuel barrier findings screen as Green.

The inspectors identified that this finding involved a human performance error because technicians did not follow a maintenance procedure. Additionally, ineffective supervisory oversight, another human performance factor, contributed to this event. (Section 1R20)

Inspection Report# : [2003002\(pdf\)](#)

**Significance:**  Mar 29, 2003

Identified By: NRC

Item Type: FIN Finding

### **Main Steam Isolation Valve Surveillance Test Preconditioning**

The inspectors identified a finding of very low significance (Green) because Exelon's practice of performing preventative maintenance prior to required surveillance testing of the MSIVs masked the as-found conditions of the valves and this practice had not been evaluated by Exelon.

This finding was determined to be of very low safety significance because the issue involved inadequate testing and did



not degrade the MSIVs capability to perform its safety function. (Section 1R22)  
Inspection Report# : [2003002\(pdf\)](#)

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## Emergency Preparedness

**Significance: SL-IV** Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Did Not Perform a 10 CFR 50.54(q) Review Resulting in Removal of a Provision Without Prior NRC Approval**

The inspector identified a SL IV NCV of 10 CFR 50.54(q) because the licensee decreased the effectiveness of its emergency plan in one area by removing a provision to provide volunteer bus drivers to two school districts within the 10 mile Emergency Planning Zone for evacuating students during a radiological event. The change was implemented without NRC approval.

Changing emergency plan provisions without prior NRC approval impacts the NRC's ability to perform its regulatory function and is therefore processed through traditional enforcement as specified in Section IV.A.3 of the Enforcement Policy, issued May 1, 2000 (65 FR 25388). According to Supplement VIII of the Enforcement Policy, this finding was determined to be a SL IV violation because it involved a failure to meet a requirement not directly related to assessment and notification. This NCV was also determined to have very low safety significance since Exelon had maintained a list of volunteers that would have been able to perform the function if needed.

Inspection Report# : [2003004\(pdf\)](#)

**Significance: SL-IV** Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Did Not Retain a Record of the 10 CFR 50.54(q) Review of the Deleted Portions of the Emergency Plan**

The inspector identified a SL IV non-cited violation of 10 CFR 50.54(q). During the implementation of a new Standard Emergency Plan, Exelon did not retain a record that determined whether a decrease-in-effectiveness had or had not occurred when Exelon generated the new Standard Emergency Plan that deleted portions of the previous Combined Limerick/Peach Bottom Emergency Plan.

Changing emergency plan provisions without documentation impacts the NRC's ability to perform its regulatory function and is therefore processed through traditional enforcement as specified in Section IV.A.3 of the Enforcement Policy, issued May 1, 2000 (65 FR 25388). According to Supplement VIII of the Enforcement Policy, this finding was determined to be a SLI IV because it involved a failure to meet a requirement not directly related to assessment and notification.

Inspection Report# : [2003004\(pdf\)](#)

**Significance: SL-IV** Feb 11, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**10CFR50.54(q) violation for decreasing the effectiveness of the plan by changing EALs that address toxic gas without prior NRC approval**

The licensee changed its emergency action level schemes such that there would e a reduction in declarable events as the emphasis shifted from personnel safety to equipment status. The changes were determined to be a decrease in the effectiveness of the emergency plans. Decreases in the effectiveness of an emergency plan must receive NRC review prior to implementation. The changes were implemented without NRC approval.

The finding was determined to be more than minor as its significance was related to the impact it would have on the mobilization of the emergency response organization and preclude offsite agencies from being aware of adverse

conditions on site. The licensee accepted the NRC's position and entered this issue into its corrective action program (Condition Report 139997) and will change the emergency action levels back to the original wording. The implementation of the changes which decreased the effectiveness of the emergency plans, without NRC review, is being treated as a non-cited violation consistent with Section VI.A. of the Enforcement Policy, issued on May 1, 2000 (65 FR 25388). (NCV 50-277; 50-278/03-008-01 and 50-352;50-353/03-006) (Section 1EP4)

Inspection Report# : [2003006\(pdf\)](#)

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

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## **Miscellaneous**

Last modified : March 02, 2004