

## Limerick 2

### 2Q/2004 Plant Inspection Findings

#### Initiating Events

#### Mitigating Systems

**Significance:**  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

##### **Inadequate Corrective Actions for Emergency Diesel Generator Jacket Water Leak (Section 1R04)**

The inspectors identified a finding of very low safety significance that is also a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Specifically, Exelon did not properly identify and correct a jacket water leak on the D24 emergency diesel generator.

This finding is more than minor because if left uncorrected, it would become a more significant safety concern. The leakage rate did not reach a level that made the D24 emergency diesel generator (EDG) inoperable or unavailable. However, the rapidly increasing rate of leakage, if left uncorrected, could have caused the EDG to be unavailable and inoperable. The issue affected the Mitigating Systems cornerstone. This finding was assessed 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 while the Mitigating System was degraded, there was not an actual loss of safety function, and the finding is not potentially risk significant due to seismic, flood, fire, or severe weather initiating events.

The inspectors identified that a contributing cause of the finding was related to the problem identification and resolution cross-cutting area, in that Operations personnel did not adequately resolve known problems with a D24 emergency diesel generator jacket water leak. (Section 1R04)

Inspection Report# : [2004003\(pdf\)](#)

**Significance:**  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

##### **Did Not Follow Chemistry Procedure CY-LG-120-1102 (Section 1R15)**

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 Exelon staff did not follow procedures. Specifically, when soluble manganese in the spray pond water was above 100 parts-per-billion (ppb), the actions specified in the procedure were not taken.

This finding is more than minor because if left uncorrected, it would adversely impact the reliability of the 2B residual heat removal (RHR) heat exchanger following an accident. By not following the chemistry procedures, the spray pond chemistry would be out of specification for extended periods, increasing the likelihood of operation of the 2B heat exchanger with poor quality cooling water which could cause accelerated corrosion of the heat exchanger tubes. The finding impacts the Mitigating System Integrity Cornerstone because it is associated with the reliability of the 2B RHR subsystem, a mitigating system. This finding is determined to have very low safety significance (Green) by Phase 1 of the Reactor Inspection Findings for At-Power Situations Significance Determination Process because the performance deficiency does 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 identified that a contributing cause of this finding involved a human performance error because operators did not ensure actions were taken consistent with the 2B RHR heat exchanger operability evaluation and the applicable chemistry procedures. The inspectors also identified that a contributing cause to this finding was related to the cross cutting area of Problem Identification and Resolution. This is the third finding within the last year in which the station did not properly implement chemistry sampling and analysis procedures. (Section 1R15)

Inspection Report# : [2004003\(pdf\)](#)

**Significance:**  Jun 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

##### **Exelon did not promptly correct a condition adverse to quality associated with age-related degradation of the 'B' CREFAS system moisture element**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not identify and promptly correct a condition adverse to quality associated with four Unit 2 control rods that were not properly surveillance tested when they were susceptible to friction caused by fuel channel bow.

This finding is more than minor because if left uncorrected, it would become a more significant safety concern. Specifically, there was a potential for the

channel bow degradation to go undetected because the affected control rods were not being tested. The failure to enter this condition adverse to quality in the CAP, for several months, potentially affected the reactor shutdown function of the rod control mitigating system because the operability and reliability of four control rods were not demonstrated by the surveillance testing. The finding was determined to be of very low safety significance, because the control rods passed channel bow surveillance tests in April 2004. (Section 40A2.a.2.2)

Inspection Report# : [2004006\(pdf\)](#)

**Significance:**  Mar 31, 2004  
Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions for Faulty Breaker Charging Spring (Section 1R12)**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not take adequate corrective actions for an undersized breaker charging spring found during post maintenance testing in October 2003. As a result, a similar spring in a residual heat removal pump breaker did not properly charge following breaker operation in February 2004.

This finding is more than minor because it affected the Mitigating System Cornerstone objective of maintaining equipment reliability, in that failure of the charging spring to function could inhibit equipment operation by preventing breakers from properly closing causing equipment unavailability. The finding is of very low safety significance, because while equipment reliability was degraded, there was no actual loss of safety function. (Section 1R12)

Inspection Report# : [2004002\(pdf\)](#)

**Significance:**  Mar 31, 2004  
Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions for Emergency Diesel Generator Relay (Section 1R15)**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not identify and correct a faulty emergency diesel generator (EDG) relay on the D12 and D23 EDGs.

This finding is more than minor because it affected the Mitigating System Cornerstone objective of maintaining equipment reliability, in that intermittent failure of the EDG relay inhibited the ability of the EDG to synchronize and share load with the offsite source as required by Technical Specifications. The finding is of very low safety significance, because while equipment reliability was degraded, there was no actual loss of safety function. (Section 1R15)

Inspection Report# : [2004002\(pdf\)](#)

**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\(pdf\)](#)

**G**

**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\(pdf\)](#)

**G**

**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\(pdf\)](#)

## Barrier Integrity

**G**

**Significance:** Jun 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Exelon NF did not identify and promptly correct a condition adverse to quality associated with control rods that were not tested for the effects of channel bow.**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not implement prompt corrective actions for an age-related degradation of a moisture element in the 'B' train of the control room emergency fresh air supply (CREFAS) system.

This finding is greater than minor because it affected the Barrier Integrity Cornerstone objective of maintaining the availability and reliability of systems used to maintain control room habitability following a reactor accident. This finding is of very low safety significance because it represented a degradation in the radiological barrier function provided for the main control room. (Section 40A2.b.2.1)

Inspection Report# : [2004006\(pdf\)](#)

**G****Significance:** Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Did Not Meet 10CFR 55.53(fg)(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\(pdf\)](#)**G****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\(pdf\)](#)

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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\(pdf\)](#)

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

Last modified : September 08, 2004