

# Limerick 2

## 4Q/2008 Plant Inspection Findings

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### Initiating Events

**Significance:**  Feb 01, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Maintenance Procedure for the 2A Main Transformer**

A self-revealing finding was identified for an inadequate maintenance procedure regarding electrical connections associated with the Unit 2A Main Transformer bushings. The procedure was not clear as to the appropriate method to prepare the surface for an aluminum bushing terminal and did not provide adequate information on torque requirements and the use of anti-oxidant grease. This resulted in the failure of the bushing connection and a Unit 2 reactor scram on February 1, 2008. Exelon entered this issue into the corrective action program (CAP), performed repairs, and revised the procedure to reflect the appropriate information to successfully assemble the connection.

The issue is more than minor because it is associated with procedure quality attribute of the Initiating Events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors evaluated the finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding was determined to be of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would be unavailable. (Section 1R12)

Inspection Report# : [2008002](#) (*pdf*)

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### Mitigating Systems

**Significance:**  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Post Maintenance Test following Containment Isolation System Relay Replacement**

The inspectors identified a NCV of Technical Specification 6.8.1, "Administrative Controls-Procedures", because Exelon did not maintain adequate maintenance procedures associated with work performed on the Unit 2 Nuclear Steam Supply Shutoff System (NSSSS). Specifically, the procedures, which performed system relay replacements, did not contain adequate post maintenance testing to demonstrate that the Technical Specification required response times of all circuits affected by the maintenance were satisfied.

The inspectors determined that this finding was more than minor because it was associated with the procedure quality attribute of the Mitigating System cornerstone, and affected the Mitigating System cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. As a result, additional unavailability and engineering evaluation was required to demonstrate satisfactory response times. The finding was determined to be of very low safety significance (Green) because it did not represent a loss of safety function. The inspectors determined this finding has a cross-cutting aspect in Human Performance, Resources, because Exelon did not provide complete and accurate work packages to assure nuclear safety. Specifically, the NSSSS was returned to service without all the required post maintenance testing being performed to demonstrate operability. (IMC 0305 aspect: H.2(c) (Section 1R19).

Inspection Report# : [2008005](#) (*pdf*)

**Significance:**  Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Secondary Containment Control Procedure**

The inspectors identified a NCV of Technical Specification (TS) 6.8.1, “Administrative Controls – Procedures,” because Exelon did not maintain adequate procedures in that Emergency Operating Procedure T-103, “Secondary Containment Control,” contained an inappropriate high maximum safe operating flooding level for the Unit 2 High Pressure Coolant Injection (HPCI) room.

The inspectors determined that this finding was greater than minor because it affected the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of the HPCI system. Emergency Operating Procedure T-103, “Secondary Containment Control,” delineated an incorrect value of 40 inches for the Unit 2 HPCI room maximum safe operating (MSO) flooding level. Water at this height in the Unit 2 HPCI room would submerge the auxiliary oil pump and would render the HPCI system inoperable. This finding is of very low safety significance because it did not represent a design or qualification deficiency, a loss of safety system function, an actual loss of safety function of a single train for greater than its TS allowed outage time, or a total loss of any safety function that contributes to external event-initiated core damage sequences. The inspectors determined that this violation has a cross-cutting aspect in the area of problem identification and resolution because Limerick did not perform a thorough extent-of-condition review following a 2005 NCV for a similar issue for the Unit 1 RCIC room MSO level (NCV 05000352/2005003-01). Although the station identified that the Unit 2 HPCI auxiliary oil pump and its associated junction box were located below the MSO level during the review, Limerick did not thoroughly evaluate the impact of the elevation difference on the operation of the HPCI system.

Inspection Report# : [2008004](#) (*pdf*)

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## **Barrier Integrity**

**Significance:**  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Correct Adverse Condition Associated with Motor Operated Valves**

The inspectors identified an NCV of Title 10 of the Code of Federal Regulation, Part 20 (10CFR50), Appendix B, Criterion XVI, Corrective Action, for not correcting a condition adverse to quality associated with safety-related motor operated valve motor control center auxiliary contact switches in a timely manner following the failure of the Unit 1 Core Spray Loop A test bypass primary containment isolation valve (HV-052-1F015A) to close on August 3, 2006. As a result, the Unit 2 RCIC turbine exhaust line vacuum breaker outboard primary containment isolation valve (HV-049-2F080) experienced a similar failure to close on June 4, 2008.

The finding was more than minor because it was associated with the structures, systems, and components and barrier containment performance attribute of the Barrier Integrity cornerstone and affected the objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspector assessed the finding using Phase 1 of IMC 0609, Appendix A, “Significance Determination Process for Reactor Inspection Findings for At-Power Situations” and determined the finding to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment. This finding has a cross-cutting aspect of Problem Identification and Resolution because Exelon did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with the safety significance and complexity (P.1(d)). (Section 40A2)

Inspection Report# : [2008003](#) (*pdf*)

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# Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

**Significance:** N/A Sep 12, 2008

Identified By: NRC

Item Type: FIN Finding

### Identification and Resolution of Problems

The inspectors concluded that Exelon was generally effective in identifying, evaluating, and resolving problems. Specifically, Exelon personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with the safety significance. For most cases, Exelon appropriately screened issues for operability and reportability and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. However, for one issue reviewed by the inspectors, an inadequate evaluation resulted in an NRC-identified finding. Corrective actions taken to address the problems identified in Exelon's corrective action process were typically implemented in a timely manner.

The inspectors also concluded that, in general, Exelon adequately identified, reviewed, and applied relevant industry operating experience to Limerick Generating Station (LGS) operations. In addition, based on those items selected for review by the inspectors, Exelon's audits and self-assessments were thorough and probing.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employees concerns program issues, the inspectors did not identify any concerns that site personnel were not willing to raise safety issues nor did they identify conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2008009](#) (pdf)

**Significance:**  Aug 19, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to translate preventative maintenance practices described in design calculations used to upgrade the LGS 125 ton Reactor Building Bridge Crane into the approved crane inspection procedures.**

A Green non-cited violation (NCV) of 10CFR Part 50, Appendix B, Criterion III, "Design Control" was identified. The NCV was related to the licensee's failure to translate preventative maintenance practices described in design calculations used to upgrade the LGS 125 ton Reactor Building Bridge Crane into the approved crane inspection

procedures.

The finding is more than minor because left uncorrected it could become a more significant safety concern if the crane components were allowed to degrade in an undetected manner. Specifically, the failure to develop the preventative maintenance practices would lead to operation of the crane in a degraded condition.

The inspectors used Inspection Manual Chapter 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," because other significance determination process guidance was not suited to provide reasonable estimates of the significance of this inspection finding. With the assistance of Region I management, the inspectors determined that the finding was of very low safety significance (Green) because there was no actual crane operation problems during any spent fuel handling activities.

Inspection Report# : [2008006](#) (*pdf*)

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