

Limerick 2

2Q/2011 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Position Recirculation Isolation Valves in Accordance with Clearance

A Green, self-revealing NCV of Technical Specification (TS) 6.8.1, "Procedures and Programs," was identified for failure to position the Unit 2 recirculation loop isolation valves in accordance with the clearance instruction. As a result, the decay heat removal flow path, as provided by Unit 2 'A' residual heat removal (RHR), was in a degraded condition from April 6, 2011 until April 12, 2011, when the valve mispositioning was corrected. In addition, if the RHR system had been aligned to the Shutdown Cooling mode with the valves mispositioned in the open position, a large portion of the cooling flow would have bypassed the core, significantly impacting decay heat removal capability. Exelon entered the issue into the Corrective action Program (CAP) for resolution.

The inspectors determined that the failure to position the Unit 2 'A' loop recirculation pump suction and discharge valves to the closed positions in accordance with a clearance is a performance deficiency. This issue is more than minor because it was associated with the Configuration Control attribute of the Initiating Events cornerstone (i.e., shutdown equipment lineup), and it affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was determined to be of very low safety significance (Green) using IMC 0609, "Significance Determination Process", Appendix G, "Shutdown Operations Significance Determination Process" because the finding did not require quantitative assessment (i.e., the finding did not degrade the ability to recover decay heat removal once lost). Exelon entered this issue into the CAP for resolution. Corrective actions included remediating the reactor operator who applied the main control room tag and revising the cross check program to require a concurrent verification check on clearance applications for valves being de-energized with main control room indicators.

The inspectors determined that this issue has a cross-cutting aspect in the area of Human Performance, Work Practices, because Exelon did not properly use human error prevention techniques (e.g., self and peer checking), commensurate with the risk of the assigned task. [H.4(a)] (Section 1R20)

Inspection Report# : [2011003](#) (*pdf*)

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Identify Adverse Trend regarding Out of Calibration Instrumentation

A Green self-revealing finding was identified for Exelon's failure to identify and correct an adverse trend regarding out of calibration temperature switches in the Unit 1 and Unit 2 stator cooling water (SCW) systems. Specifically, between 1990 and 2011 the SCW outlet temperature switches were checked by Exelon on a two year frequency and found to be out of calibration approximately 50 percent of the time. Since 2005, the switches were found out of calibration nearly 70 percent of the time, often by a significant amount. Each time the switches were found out of calibration, they were recalibrated within acceptable limits, but the adverse trend was not recognized. The inspectors determined that Exelon's failure to identify and correct the adverse trend of out of calibration SCW outlet temperature switches was a performance deficiency which was reasonably within the licensee's ability to foresee and prevent. Specifically, Exelon's Performance Monitoring Program, described in ER-AA-2003, should have identified the trend during engineer's annual review of cause and repair codes for completed work orders. Exelon entered the issue into the CAP for resolution.

The finding was more than minor because it was associated with the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Specifically, on February 25, 2011, the out of calibration SCW outlet temperature switches resulted in a SCW runback and manual scram of Limerick Unit 2 when they actuated 15 degrees lower than their intended set point. The finding was determined to be of very low safety significance (Green) in accordance with a Phase 1 of IMC 0609, "Significance Determination Process," because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Exelon did not identify the trend of out-of-calibration temperature switches in a timely manner. Exelon relied on the implementation of a thorough Performance Monitoring Program to supplement their CAP in the specific area of instrument performance monitoring and trending, and this program failed to detect the adverse trend in instrument performance. [P.1(b)]

Inspection Report# : [2011003](#) (pdf)

Mitigating Systems

Significance: SL-IV Nov 19, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Update the UFSAR Consistent with Plant Conditions as Required

The inspectors identified a Severity Level IV (SLIV) NCV of 10 CFR Part 50.71(e) in that Exelon failed on multiple occasions to revise the Updated Final Safety Analysis Report (UFSAR) with information consistent with plant conditions. Specifically, Exelon personnel failed to incorporate four previously identified UFSAR inconsistencies into the September 2010 UFSAR update as required.

The inspectors determined that the failure to update the UFSAR in accordance with 10 CFR 50.71(e) was a performance deficiency that was reasonably within Exelon's ability to foresee and correct, and should have been prevented. Because the issue had the potential to affect the NRC's ability to perform its regulatory function, the inspectors evaluated this performance deficiency in accordance with the traditional enforcement process. Using example 6.1.d.3 from the NRC Enforcement Policy, the inspectors determined that the violation was a SLIV (more than minor concern that resulted in no or relatively inappreciable potential safety or security consequence) violation, because the information that was not updated in the UFSAR was not used to make an unacceptable change in the facility nor did it impact a licensing or safety decision by the NRC.

In accordance with inspection manual chapter 0612, appendix B, this issue was not assigned a cross-cutting aspect.

Inspection Report# : [2010007](#) (pdf)

Significance:  Nov 19, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Three of Four RHR Unit Coolers Unreliable due to Various Planned and Unplanned Conditions (Siltng).

The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that Exelon failed to correct a condition adverse to quality for a safetyrelated support system that was essential to successful mitigating system operation.

The inspectors determined that the failure to correct a condition adverse to quality in accordance with 10 CFR 50 Appendix B, Criterion XVI, during the timeframe of June 1, 2008 to September 14, 2008, contributed to the unreliability of the 1C-V210 unit cooler and was a performance deficiency. Specifically, Exelon did not initiate bi-weekly flushing per RT-6-011-603-0 of the 1C-V210 unit cooler to minimize the effects of silt build up. This finding is more than minor because it affected the equipment performance attribute of the Mitigating System cornerstone and the associated cornerstone objective of ensuring the reliability and availability of systems that

respond to initiating events to prevent undesirable consequences, This issue was also similar to example 3.j. in NRC IMC 0612, Appendix E, "Examples of Minor Issues," in that it resulted in a condition where there was a reasonable doubt on the operability of the 1C-V210 unit cooler. The inspectors assessed this finding in accordance with IMC 0609, Attachment 4, Phase 1, "Initial Screening and Characterization of Findings," and determined that it was of very low safety significance (Green) since it was determined that the error did not result in a loss of the system's safety function.

The inspectors determined that this violation had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that Exelon did not take appropriate corrective actions to address a condition adverse to quality in a timely manner, commensurate with its safety significance and complexity. Specifically, Exelon failed to take appropriate actions to initiate bi-weekly flushes of the 1C-V210 unit cooler, upon discovery of conditions conducive to silt buildup during June through September 2008. [P.1 (d)]
Inspection Report# : [2010007](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Take Compensatory Action for Inoperable Fire Door

The inspectors identified a Green NCV of Limerick Generating Station operating License Condition 2.C.3, in that Exelon failed to take compensatory actions for an inoperable fire door. Specifically, on two occasions a required fire door was found in a condition where the latching mechanism did not function. Although issue reports (IRs) were written which identified this door to be a Technical Requirements Manual (TRM) fire door, actions were not taken to station the required hourly fire watch. Corrective actions included setting the required hourly fire watches, distributing guidance to all senior licensed operators, and implementing procedural changes to clarify the requirements of fire doors for future operability determinations.

The finding was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This issue was found to be of very low safety significance (Green) based upon a Phase 2 SDP screening. The inspectors determined that this finding did not have a cross-cutting because the incorrect operability decisions were based on a 1999 engineering evaluation and, therefore, was not reflective of current licensee performance.

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Adequate PM on EDGs

The inspectors identified a Green NCV of Limerick Unit 2 Technical Specification (TS) 6.8.1, "Procedures and Programs," in that Exelon did not provide an adequate procedure for preventive maintenance (PM) of the Limerick Emergency Diesel Generator (EDG) lube oil (LO) filter bypass valves. As a result, Exelon did not identify that the EDG D23 LO filter bypass valves were degraded and allowed oil to bypass the filter during engine operation. This condition, combined with historical foreign material in the LO system, led to the failure of the EDG D23 number 5 upper piston assembly during a 24-hour endurance test run on May 5, 2010. Corrective actions implemented included repairing the damage to D23, performing a flush of the D23 LO system, revising the applicable PM procedure to include specific instructions for inspecting the LO filter bypass valves, and revising performance monitoring guidance to ensure spuriously lifting LO filter bypass valves would be identified in the future.

The finding was more than minor because it was associated with the Equipment Performance attribute of the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green) in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," using SDP Phases 1, 2, and 3. This finding has a cross-cutting aspect in the area of Human Performance, Resources, because

Exelon did not provide complete, accurate and up-to-date design documentation, procedures, and work packages [H.2 (c)]. Specifically, Exelon did not provide site engineers with complete and accurate resources to ensure performance centered maintenance (PCM) template revisions were thoroughly reviewed and implemented.

Inspection Report# : [2010004](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Address Repeat TS Response Time Test Failures (Section 40A2.2)

The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action Program,” because Exelon did not adequately evaluate and correct a condition adverse to quality regarding repeat failures of a Technical Specification (TS) surveillance test (ST). Specifically, on July 13, 2010, Exelon generated issue report (IR) 1091132 to document that ST-2-041-909-2, the Unit 2 Main Seam Line (MSL) Flow – High Response Time Test, had failed its past two performances. In both instances, in October 2008 and July 2010, multiple response time values exceeded the TS requirements, and Exelon had to replace several relays to bring the values back into compliance. After the 2008 failure Exelon performed an apparent cause evaluation (ACE) and generated one corrective action (CA) and several action items (ACITs) to address the causes. Following the 2010 failure, Exelon did not evaluate the repeat failure or generate any additional actions. The inspectors determined that the CA and ACITs from 2008 did not thoroughly address the MSL Flow - High test failure, and the repeat test failure in 2010 was an opportunity for Exelon to re-evaluate the issue and pursue more appropriate and timely corrective actions. Exelon’s failure to evaluate and correct a condition adverse to quality regarding repeat failures of a TS surveillance test was determined to be a performance deficiency (PD).

The PD was determined to be more than minor because it was associated with the System, Structure, and Component & Barrier Performance attribute of the Reactor Safety - Barrier Integrity cornerstone. The PD adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance (Green) in accordance with Inspection Manual Chapter 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings,” because it did not represent an actual open pathway in the physical integrity of reactor containment. The inspectors determined this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Exelon did not thoroughly evaluate the repeat MSL response time test failures to ensure the underlying causes were identified and resolved. [P.1(c)] (Section 40A2.2)

Inspection Report# : [2011002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : October 14, 2011