U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Limerick 2 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Sep 30, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Design Control of Plant Processing Computer Modification
A self-revealing finding of very low safety significance (Green) was identified when Exelon did not implement their engineering design control procedures during the plant processing computer (PPC) modification. Specifically, procedure CC-AA-103-1003, "Owner's Acceptance Review of External Engineering Technical Products," requires that effects on other plant systems have been addressed, and procedure CC-AA-107-1001, "Post Modification Acceptance Testing," section 4.4.3, states that the testing boundary should encompass not only the equipment modified, but also any components whose operation may have been altered by the modification. The PPC modification had a wiring design error that resulted in the trip of both reactor recirculation pumps (RRPs) which required a manual reactor scram of Unit 2. In response to this issue, Exelon initiated IR 2676712, investigated the cause of the scram, fixed the wiring design error, performed a root cause evaluation, and performed an extent of condition review.

This issue is more than minor because it adversely affected the design control attribute of the initiating events cornerstone to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the PPC modification process had a wiring design error that resulted in the trip of both RRPs which required a manual reactor scram of Unit 2. The issue was evaluated in accordance with IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," using Exhibit 1, "Initiating Events Screening Questions," Section B, "Transient initiators." The finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because LGS staff did not stop when faced with uncertain conditions, and risks were not evaluated and managed before proceeding. Specifically, Exelon did not stop and reevaluate the risks and effects on plant systems when changes were made to the

PPC design modification package. [H.11] (Section 4OA3)
Inspection Report# : 2016003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Work Instructions for Staging of Equipment and Routing of Temporary Power Cables
The inspectors identified a Green NCV of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for Exelon's failure to establish instructions appropriate to the circumstances to properly stage equipment and route temporary power cables. Specifically, during cell replacement of the Class 1E '2A2' 125/250 volts direct current (Vdc) safeguards battery, a portable battery charger was staged adjacent to operable '2A1' battery cells and not restrained to prevent potential tipping and shorting of exposed battery cell terminals and a non-safety related extension cord was routed in near contact with exposed safety related cables in an open cable tray. Exelon moved the portable battery charger, removed and rerouted extension cords, and entered the issues into the corrective action program as issue report (IR) 3980217; IR 3980203; and IR 3983203.

This finding is more than minor because it adversely affected the configuration control attribute of the mitigating systems cornerstone to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the portable battery charger was adjacent to the '2A1' battery rack and oriented such that it was susceptible to tipping over and causing electrical shorting, and a non-safety related temporary power cable connected to a non-safety related power source was routed in near contact with safety related cables in an open cable tray which introduced a potential to damage and disable safety related equipment. Using IMC 0609, Appendix A, Exhibit 2, the inspectors determined that this finding was of very low safety significance (Green). Specifically, the finding did not represent a loss of system or function and did not represent the loss of a single train for greater than technical specification allowed outage times or greater than 24 hours. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Training, because Exelon did not provide sufficient training to maintain a knowledgeable workforce and instill nuclear safety values associated with the staging of material and equipment. [H.9] (Section 1R04)

Inspection Report# : 2017001 *(pdf)*

Significance: G Dec 31, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Control Structure Chiller Unit Trip Caused by Failure to Implement Procedures
A self-revealing Green NCV of LGS Units 1 and 2 technical specification 6.8.1 was identified when Exelon did not properly implement a surveillance procedure. Specifically, operators secured cooling water to the operating 'A' control structure chilled water system (CSCWS) chiller unit which resulted in the unit automatically tripping to prevent damage. Operators restored cooling water flow in accordance with procedures. Exelon entered the issue into the corrective action program as IR 2720374.

This finding is more than minor because it is associated with the human performance attribute of the mitigating systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the loss of cooling water to the 'A' CSCWS chiller unit resulted in a trip of the unit on high condenser pressure and rendered the chiller unavailable. Using IMC 0609, Appendix A, Exhibit 2, the inspectors determined that this finding was of very low safety significance (Green). Specifically, the finding did not

represent a loss of system or function and did not represent the loss of a single train for greater than technical specification allowed outage times or greater than 24 hours. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because operators did not recognize and plan for the possibility of mistakes and inherent risk and did not use appropriate error reduction tools. [H.12] (Section 4OA2)

Inspection Report# : 2016004 *(pdf)*

Barrier Integrity

Significance: G Jun 30, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Inadequate Design Control of the Drywell Unit Cooler Condensate Flow Rate Monitoring System
A self-revealing Green NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, "Design Control," occurred when Exelon failed to verify or check the adequacy of design of a new Unit 2 drywell unit cooler condensate flow rate monitoring system. Specifically, the design did not identify that the low conductivity of the drain fluid affected the ability of the flow elements to accurately detect drain flow. In addition to this, LGS staff did not assure adequate post modification acceptance testing in accordance with CC-AA-107-1001, "Post Modification Acceptance Testing." This inadequately designed and tested modification also resulted in a violation of technical specification (TS) 3.4.3.1, "Leakage Detection Systems," because the system was inoperable and unavailable to perform its function following the Unit 2 April 2015 refueling outage, and the TS 3.4.3.1 action statement was not met until the system was declared inoperable on December 10, 2015. In response to this issue, Exelon initiated a condition report, IR 2598308, performed an apparent cause investigation, and replaced the Rosemount drywell unit cooler condensate flow rate monitoring system with a modified version of the previously used system.

The inspectors determined that the failure to verify the adequacy of the newly installed Rosemount drywell unit cooler condensate flow rate monitoring was within Exelon's ability to foresee and correct and should have been prevented and therefore was a performance deficiency. This issue is more than minor because it adversely affected the design control attribute of the barrier integrity cornerstone to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the Unit 2 drywell unit cooler condensate flow rate monitoring system was inoperable and unavailable to perform its function as part of the reactor coolant leakage detection system following the Unit 2 April 2015 refueling outage. This issue was evaluated in accordance with IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," using Exhibit 3, "Barrier Integrity Screening Questions," Section B, "Reactor Containment." The finding was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of the reactor containment and did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Conservative Bias, because LGS staff made inappropriate decisions based on informal vendor input and a successful implementation of the modification at another facility. [H.14] (Section 4OA3)

Inspection Report# : 2017002 *(pdf)*

Emergency Preparedness
Occupational Radiation Safety
Public Radiation Safety
Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The

Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : September 05, 2017

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