

Nine Mile Point 2 4Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

Ineffective Corrective Action Results in Water Intrusion to Battery Switchgear Room

The inspectors identified a Green finding (FIN) of PI-AA-125, "Corrective Action Program," Revision 3, when Exelon failed to implement adequate corrective actions in March 2003, to prevent water intrusion into the Unit 2 normal switchgear building area at elevation 237. Specifically, on May 4, 2016, the inspectors observed water leaking into the normal switchgear room through a wall on elevation 237. The leakage was through a section of the wall that contained electrical junction boxes which were not sealed. The water progressed under inverter 2BYS-SWG001B, which led to the potential for a reactor scram from an electrical fault associated with uninterruptible power supply battery breakers. Exelon generated IR 02664534 for this issue. A reactor scram had occurred at Unit 2 on March 4, 2014, when the inverter was lost because of an electrical fault. Corrective actions included generating work order (WO) C93414574 to seal or repair the wall. The WO is scheduled to be performed in October 2016 with an action to assess moving the work to the refueling outage if needed to remove the electrical junction boxes to apply coating to the wall.

The finding is more than minor because it is associated with the Protection Against External Factors attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, Exelon did not ensure the surface area behind the electrical junction boxes was coated to prevent water intrusion into the normal switchgear room at elevation 237. The water intrusion through this area of the wall had the potential to cause an electrical fault on 2BYS-SWG001B resulting in a reactor scram similar to the reactor scram in March 2014. The inspectors evaluated this finding using IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." The inspectors determined that this finding was of very low safety significance (Green) because while the performance deficiency resulted in additional water intrusion into normal switchgear room area elevation 237 that had the potential to cause a reactor scram due to an electrical fault on uninterruptible power supply (UPS)3B battery breaker, it did not result in a reactor scram or a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors did not assign a cross-cutting aspect to this finding because the performance deficiency is not indicative of present performance as it did not occur within the last 3 years. (Section 1R01)

Inspection Report# : [2016002](#) (*pdf*)

Mitigating Systems

Significance: G Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify Wide Range Level Indication Impacts Operability of HPCS and RCIC

The inspectors identified a Green NCV of Unit 2 Technical Specification (TS) 3.5.1, “Emergency Core Cooling (ECCS) Systems-Operating,” and TS 3.5.3, “Reactor Core Isolation Cooling (RCIC) System,” for failure to ensure all necessary attendant instrumentation required for the systems to perform their specified safety functions were capable of performing their related support function. Specifically, the inspectors identified the Unit 2 wide range level indication to be inaccurate during Mode 2 and at 200 pounds per square inch gauge (psig) reactor pressure, a mode of applicability requiring both high-pressure core spray (HPCS) and RCIC to be operable. Exelon generated issue report (IR) 02667837 to address the inspectors’ concern regarding the wide range level indication. An action has been created to evaluate the impact of the wide range level discrepancy with regard to its impact on safety-related functions to supply water in the TS Mode of Applicability. Exelon also plans to assess the need for a TS amendment.

The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon failed to recognize that the wide range level indication did not provide accurate indication at low reactor pressures and temperatures, preventing automatic safety-related functions associated with high drywell pressure automatic initiation signals and manual start functions. This would require operators to manually open the HPCS and RCIC injection valves during these conditions should a loss of offsite power or loss-of-coolant accident occur. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 2 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the inspectors determined that the finding was of very low safety significance (Green), because the finding was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Identification. Exelon personnel had many opportunities, including during the reactor startup in May of 2016, to question operability of the instrumentation that provides input for automatic initiation and isolation signals. As a result, Exelon personnel failed to identify that the wide range level indication did not support operability of the HPCS and RCIC systems during reactor startup on May 5, 2016. [P.1] (Section 1R15)

Inspection Report# : [2016002](#) (pdf)

Significance: G Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

50.65(a)(4) Risk Evaluation Not Properly Performed Prior to Residual Heat Removal Heat Exchanger Testing

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) 50.65 (a)(4), “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” when Exelon did not assess and manage the increase in risk for online maintenance activities. Specifically on February 12, 2016, Exelon did not assess and manage risk during Unit 2 planned testing associated with the ‘A’ residual heat removal (RHR) system heat exchanger (HX). The inspectors identified that although the testing would render the ‘A’ RHR minimum flow valve 2RHS*MOV4A unavailable, this was not considered as part of the planned maintenance window, which resulted in an increase in risk during the unavailability of 2RHS*MOV4A. When properly calculated, plant risk should have been indicated as Yellow for the day and not Green. Exelon wrote issue report (IR) 02625546 to document the inspector’s concern regarding the status of the availability associated with the ‘A’ RHR minimum flow valve during test setup for the ‘A’ RHR HX. Exelon generated IR 02625546 to document this issue. Exelon corrective actions included evaluating what risk management activities should be implemented when the minimum flow valves are subject to maintenance or testing activities to ensure future work is properly screened.

This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the associated cornerstone objective to ensure the availability, reliability,

and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon's failure to plan for the unavailability of the 'A' RHR minimum flow valve resulted in Unit 2 being placed in an unplanned elevated risk category (i.e., Yellow) without ensuring adequate compensatory measures were established and briefed to ensure maximum availability, reliability, and capability of the system. This issue is similar to Example 7.f of IMC 0612, Appendix E, "Examples of Minor Issues," because the overall elevated plant risk placed the plant into a higher licensee-established risk category. The inspectors evaluated the finding using Phase 1, "Initial Screening and Characterization" worksheet in Attachment 4 and IMC 0609, "Significance Determination Process." For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, "Maintenance Risk Assessment and Emergent Work Control," the inspectors shall use IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine the significance of the finding. The inspectors used Flowchart 1, "Assessment of Risk Deficit," to analyze the finding and calculated incremental core damage probability using Equipment Out Of Service, Exelon's risk assessment tool. The inspectors determined that had this condition existed for the full duration of the technical specification limiting condition for operation, the incremental conditional core damage probability would have been 3.46E-9. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7, this finding was determined to be of very low safety significance (Green). This finding has a cross cutting aspect in the area of Human Performance, Work Management, because Exelon did not properly implement a process of planning, controlling, and executing the work activity such that nuclear safety was the overriding priority. Specifically, Exelon did not ensure risk was properly assessed during the planning process in accordance with WC-AA-101-1006, "On-Line Risk Management and Assessment," Revision 001, prior to testing the 'A' RHR HX, which caused unavailability of the 'A' RHR minimum flow valve during certain periods of the test.

Inspection Report# : [2016001](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Procedure Leads to Failure to Manage Elevated Risk during Preventive Maintenance

The inspectors identified a Green non-cited (NCV) of Title 10 of the Code of Federal Regulation (10 CFR) 50.65(a) (4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for Exelon's failure to take risk management actions (RMAs) as required by procedure OP AA 108 117, "Protected Equipment Program," Revision 004, during a Unit 2, Division III, emergency switchgear electrical maintenance window on January 27, 2016. Specifically contrary to procedure OP AA 108-117, during planned maintenance, Exelon failed to post the unit coolers in the 'A' and 'B' residual heat removal (RHR) pump and heat exchanger (HX) rooms, the 'C' RHR pump room, and their associated breakers as protected equipment although their inoperability would have resulted in both trains of the standby gas treatment system (SBGT) and would require entry into Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3. Exelon generated IR 02617915 to document this issue. Corrective actions included creating an action item to evaluate Attachment 3 of N2 OP-52 and to determine the relevance of the TS LCO 3.0.3 entry requirement.

The inspectors determined the performance deficiency to be more than minor because it was associated with the structure, system, and component and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the

public from radionuclide releases caused by accidents or events. Specifically, Exelon personnel failed to include the unit coolers for the Unit 2 RHR pump and HX rooms and their associated breakers, whose unavailability would have resulted in the inoperability of both trains of SGBT, necessitating entry into LCO 3.0.3 and in accordance with OP-AA-108-117. Additionally, Examples 7.e, 7.f, and 7.g from IMC 0612, Appendix E, “Examples of Minor Issues,” provided similar scenarios to this issue. Example 7.e details that a performance deficiency is more than minor if a failure to include accurate TS requirements in a risk assessment would require under plant procedures, RMAs, or additional RMAs. The inspectors evaluated the finding using Phase 1, “Initial Screening and Characterization” worksheet in Attachment 4 to IMC 0609, “Significance Determination Process.” For findings within the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones, Attachment 4, Table 3, Paragraph 5.C, directs that if the finding affects the licensee’s assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure 71111.13, “Maintenance Risk Assessment and Emergent Work Control,” the inspectors shall use IMC 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process,” to determine the significance of the finding. The inspectors used Flowchart 2, “Assessment of RMA’s,” to analyze the finding and calculated incremental core damage probability using EOOS, Exelon’s risk assessment tool, and found the result to be less than 1E-6. The inspectors determined that had this condition existed for the full duration of the TS LCO, the incremental core damage probability would have been 6.8E 7. Because the incremental core damage probability deficit was less than 1E-6 and the incremental large early release probability was less than 1E-7, this finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Exelon failed to follow processes, procedures and work instructions. Specifically, Exelon failed to follow procedure OP-AA-108-117, which led to the failure to protect the unit coolers for the RHR pump rooms, HX rooms, and associated breakers which could have led to a TS LCO 3.0.3 entry.

Inspection Report# : [2016001](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Understand Radiological Conditions Results in Unintended Exposure (Section 2RS1)

A self-revealing NCV of TS 5.4.1 “Procedures” was identified when a worker performed a radiological work activity without notifying radiation protection personnel and, as a result, did not comply with procedure RP-AA-1008, “Unescorted Access to and Conduct in Radiologically Controlled Areas, Revision 5,” in being briefed on the necessary radiological work controls and conditions for performance of the Unit 2 reactor seal cleaning work activity. Specifically, on April 11, 2016, a worker entered the Unit 2 reactor cavity to perform inspection of the reactor seal that was highly contaminated. Although not previously discussed with radiation protection staff, the worker cleaned the highly contaminated reactor seal with rags and carried the highly contaminated rags (5 rem/hr) in his hand out of the reactor cavity, which resulted in unplanned radiation exposure to his hand. Exelon’s immediate corrective actions included reinforcing the need to properly communicate radiological work activities with radiation protection, and require workers to carry WOs with them to improve communications with radiation protection. Exelon entered the issue into the corrective action program (CAP) as IR 02654591.

The failure of the worker to discuss the full scope of the radiological work activity with radiation protection staff, who were subsequently not effectively briefed on the expected radiological work conditions and requisite radiological controls needed for the work activity, is a performance deficiency that was reasonably within Exelon's ability to foresee and correct. The finding was determined to be more than minor because it affected the human performance attribute of the Occupational Radiation Safety cornerstone objective. Using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because it did not involve: (1) as low as reasonably achievable (ALARA) occupational collective exposure planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. The finding is self-revealing because Exelon was made aware of the situation when an air monitor alarmed.

The finding had a cross-cutting aspect of Human Performance, Team Work, in that the worker did not communicate to radiation protection the reactor seal cleaning activity that was performed, which resulted in radiation protection personnel not prescribing sufficient radiological controls for this high-contamination work activity, and the unintended exposure to the worker's hand. [H.4] (Section2RS1)

Inspection Report# : [2016002](#) (*pdf*)

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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Miscellaneous

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