Calvert Cliffs 2
3Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2016
Identified By: NRC
Item Type: FIN Finding
Failure to Implement Engineering Change Procedures Results in Plant Trip
•Green. The inspectors documented a self-revealing, Green finding for Exelon's failure to implement procedures for engineering changes. Specifically, Exelon failed to address the full scope and critical parameters associated with a modification to a steam generator feed pump (SGFP). As a result, the 22 SGFP turbine pedestal studs were improperly torqued, resulting in the SGFP shifting, becoming misaligned, and eventually resulting in the failure of the turbine to pump coupling. This resulted in the unexpected tripping of the 22 SGFP on December 1, 2015, and operators inserting a manual reactor trip as required by procedure. The inspectors determined that Exelon's failure to properly implement procedures
CNG-CM-1.01-1003, "Design Inputs and Change Impact Screen," Revision 00601, Attachment 12; CNG-CM-1.01-2000, "Scoping and Identification of Critical Components," Revision 00201; and CNG-FES-007, "Preparation of Design Inputs and Change Impact Screen," Revision 00010 was a performance deficiency that was a performance deficiency that was within Exelon's ability to foresee and prevent. Exelon's corrective actions included, replacing the failed coupling, verifying the torque on the 21 SGFP using a HYTORC™, and developing an adverse condition monitoring plan for Unit 1's SGFPs. Exelon conducted a root cause evaluation (RCE) and developed corrective actions to preclude repetition (CAPR) including implementation of Exelon procedure HU-AA-1212, "Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Review," Revision 007 and conducting critical parameters and rigor training for engineering personnel including the expectations for three pass reviews and verification of assumptions.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and IMC 0612, Appendix E, "Examples of Minor Issues" and determined the issue is more than minor because it was associated with the Design Control Attribute of the Initiating Events Cornerstone and adversely impacted the associated cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the performance deficiency resulted in a reactor trip from full power on December 1, 2015. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued on June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," issued on June 19, 2012 and determined the finding 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 the finding had a cross-cutting aspect in the area of Human Performance, Documentation, because Exelon failed to develop and maintain complete and accurate engineering change packages (ECP), work orders (WO), and maintenance procedures.[H.7] (Section 4OA2)

Inspection Report# : 2016002 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Scaffolding Impairs Fire Sprinkler Systems in Safety Related Fire Areas
• Green. The inspectors identified a Green, NCV of CCNPP Renewed Facility Operating License for Units One and Two, paragraph 2.E for Exelon's failure to maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (UFSAR). Specifically, Exelon installed scaffolding in safety related areas not in accordance with approved procedures and, therefore, impaired fire sprinkler systems that were required by the approved fire protection program without establishing approved contingency measures. The inspectors determined that Exelon's impairment of fire sprinkler systems by installing scaffolding with dimensions exceeding those approved in Exelon procedure MA-AA-716-025 was a performance deficiency that was within Exelon's ability to foresee and prevent. The performance deficiency led to the violation of CCNPP Renewed Facility Operating License, paragraph 2.E, because Exelon failed to maintain in effect all provisions of the approved fire protection program. Exelon's immediate corrective actions included stationing continuous fire watches and removal of the scaffolding deck boards which were impairing the fire sprinkler systems. Exelon entered these issues in to their corrective action program (CAP) as issue reports (IR): 02642463, 02642549, 02642844, 02644495, 02647104, 02647454, and 02647455.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the issue is more than minor because it adversely affected the protection against external factors attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon installed scaffolding that exceeded the allowed dimensions in MA-AA-716-025 and impaired the function of fire sprinkler systems in areas containing safety related equipment. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued on June 19, 2012, and IMC 0609, Appendix F, "The Fire Protection SDP Worksheet" issued on September 20, 2013 and determined the finding to be of very low safety significance (Green) because, in all cases of impairment, the fire sprinkler systems were still capable of protecting their intended targets or were still capable to suppress fires such that no additional equipment important to safety would have been affected. The inspectors determined that the finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Exelon failed to properly implement procedure MA-AA-716-025, "Scaffold Installation, Modification, and Removal Request Process," Revision 11, which limits scaffolding dimensions and locations when installing scaffolding in safety related areas. [H.8] (Section 1R05)

Inspection Report# : 2016002 *(pdf)*

Significance: G Dec 02, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Verification of Offsite Power Operability Limit
The team identified a finding of very low safety significance involving a non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," because Exelon did not ensure the operability of offsite power in design calculations. The team found that the voltage calculation performed by Exelon used non-quantified conservatism in the calculation in order to conclude offsite power was operable; however, the team did not find conservatisms in the calculation. Additionally, the team found non-conservative assumptions in the calculation resulting in the team questioning whether offsite power was operable.

The team determined that the non-conservative assumptions, in design basis calculations used to evaluate operability limit for offsite power was a performance deficiency. Specifically, the team found the analysis to demonstrate the

operability of the Class 1E AC distribution system did not verify that vital buses would remain connected to the preferred offsite power source during design basis events. The performance deficiency was determined to be more than minor because it was similar to IMC 0612, “Power Reactor Inspection Reports,” Appendix E, Example 3j, because the failure to perform these evaluations resulted in a reasonable doubt on the operability of the offsite power supply. Additionally, the performance deficiency was associated with the Mitigating Systems Cornerstone attribute of Design Control and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power, Exhibit 2 – Mitigating Systems Screening Questions,” and determined that the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of operability or functionality. The team did not identify a cross-cutting aspect with this finding because it did not represent current performance. The inadequate calculation was developed outside of the timeframe that reflected current performance.
Inspection Report# : 2015007 *(pdf)*

Significance: G Dec 02, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Verify AC Equipment Operability at Design Loading and Voltage Levels
The team identified a finding of very low safety significance (Green) involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” because Exelon failed to verify, in design basis calculations, that all required Class 1E AC components would perform their safety functions during design basis events. Specifically, the team found multiple examples where Exelon failed to ensure AC equipment operability and functionality at maximum postulated loading levels and minimum allowable voltage levels.

The team determined that the failure to verify that all required Class 1E AC components would perform their safety functions during design basis events was a performance deficiency. The performance deficiency was determined to be more than minor because it was similar to IMC 0612, “Power Reactor Inspection Reports,” Appendix E, Example 3j, because the failure to perform these evaluations resulted in a reasonable doubt on the operability of the offsite power supply. Additionally, the performance deficiency was associated with the Mitigating Systems Cornerstone attribute of Design Control, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power, Exhibit 2 – Mitigating Systems Screening Questions,” and determined that the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of operability or functionality. The team did not identify a cross-cutting aspect with this finding because it did not represent current performance. The inadequate calculation was developed outside of the timeframe that reflected current performance.
Inspection Report# : 2015007 *(pdf)*

Significance: G Oct 09, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Untimely Actions to Test or Inspect DFO Check Valves Relied on for Safety
Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, “Corrective Action,” because Exelon did not assure that conditions adverse to quality were promptly corrected. Specifically, from November 2012, until October 28, 2015, Exelon did not ensure that diesel fuel oil (DFO) transfer system header check valves DFO-146 and DFO-148 were properly tested or inspected to ensure they would perform their safety function. This issue was previously documented as a NCV of 10 CFR 50, Appendix

B, Criterion XI, “Test Control,” in inspection report 05000317, 318/2013003.

The inspectors determined that not promptly correcting a condition adverse to quality previously documented in an NCV was a performance deficiency that was within Exelon’s ability to foresee and prevent. This finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the safety function of DFO-146 and DFO-148, to close on the failure of a fuel oil storage tank to prevent draining the unaffected tank had never been verified though test or inspection since initial plant construction; therefore, reasonable doubt exists whether the valves remained capable of performing that function. The inspectors evaluated the significance of this finding using IMC 0609, Appendix A, “The Significance Determination Process for Findings at Power,” Exhibit 2, “Mitigating Systems Screening Questions.” The inspectors determined that this finding was of very low safety significance (Green) because the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance Procedure Adherence because Exelon staff did not follow station processes, procedures, and work instructions. Specifically, Exelon staff did not ensure corrective action due date extensions and cancellations were justified, evaluated for adverse consequences, and presented to the Management Review Committee (MRC) as required by station procedures. As a result, corrective actions to restore compliance were not completed in a timely manner. [H.8]

Inspection Report# : 2015010 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

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

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Miscellaneous

Significance: N/A Oct 09, 2015
Identified By: NRC
Item Type: FIN Finding
Biennel PI&R Overall Assessment
The inspectors concluded that Exelon Generating Company, LLC (Exelon) was generally effective in identifying, evaluating, and resolving problems. Exelon personnel identified problems, entered them into the CAP at a low threshold, and prioritized issues commensurate with their safety significance. In 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. The inspectors also determined that Exelon typically implemented corrective actions to address the problems identified in the CAP in a timely manner. However, the inspectors identified one violation of NRC requirements in the area of timely and effective corrective actions.

The inspectors concluded that, in general, Exelon adequately identified, reviewed, and applied relevant industry operating experience to Calvert Cliffs' operations. In addition, based on those items selected for review, the inspectors determined that Exelon's self-assessments and audits were thorough.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual CAP and Employee Concerns Program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : 2015010 *(pdf)*

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