

Calvert Cliffs 2

2Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Maintenance Instructions for Replacement of the Units 1 and 2 Containment Air Cooler Starters

•Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for failure to include appropriate quantitative acceptance criteria for determining the auxiliary contacts and mechanical interlocks were properly installed and adjusted when the Units 1 and 2 containment air coolers (CAC) starters and contactors were replaced during plant modifications. The starter and contactors with associated mechanical interlocks and auxiliary contacts provide the necessary electrical coordination to shift the CACs from fast to slow speed during a safety injection actuation signal (SIAS). The starter and contactor replacements occurred from July 2002 to July 2004. The inspectors determined that Exelon’s failure to include appropriate quantitative acceptance criteria for determining the auxiliary contacts and mechanical interlocks were properly installed and adjusted when the Units 1 and 2 CAC starters and contactors were replaced during plant modifications is a performance deficiency. Exelon entered this issue into their corrective action program (CAP) as IR02408755, completed an apparent cause evaluation (ACE), and completed corrective action work orders (WO) to adjust all associated starters and contactors auxiliary contacts.

The inspectors reviewed IMC 0612, Appendix B, “Issue Screening,” and determined the issue is more than minor because it is associated with the Mitigating Systems cornerstone attribute of design control and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. 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 for Findings At Power,” Exhibit 2, “Mitigating Systems Screenings Questions,” issued on June 19, 2012, and determined a detailed risk evaluation was required for the actual loss of function of the 13 CAC for greater than its technical specification (TS) allowed outage time. A regional Senior Reactor Analyst performed a detailed risk evaluation using the Calvert Cliffs Standardized Plant Analysis Risk (SPAR) Model for Calvert Cliffs Unit 1, Version 8.27, for internal events and determined the finding to be of very low safety significance (Green). The inspectors determined that the finding did not have a cross-cutting aspect because the issue was not indicative of current licensee performance. (Section 40A2.1)

Inspection Report# : [2015002](#) (*pdf*)

Significance: G Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Component Cooling Operated in Unanalyzed Condition

Green: The inspectors identified a Green NCV of Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.5, “Component Cooling (CC) System,” and 3.0.3, because Exelon operated Units 1 and 2 CC systems in an unanalyzed condition on 18 occasions and operated in a condition prohibited by TS on two occasions within the last three years. The inspectors determined that Exelon’s operation with both CC loops inoperable and the subsequent failure to place the unit in Mode 5 within 37 hours as required by TS is a performance deficiency. Exelon entered this issue into their corrective action program (CAP) as IR02439913. Exelon’s immediate corrective actions included the submission of event notification (EN) 50752 and prohibiting operation of the CC system in a configuration outside of that specified in the TS bases while further analysis was conducted.

The inspectors reviewed IMC 0612, Appendix B, “Issue Screening,” and determined the issue is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the station operated with two CC loops unable to perform their safety function of maintaining component cooling heat exchanger (CCHX) outlet temperatures at or below 120°F. In accordance with 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 2, “Mitigating Systems Screening Questions,” issued on June 19, 2012, the inspectors determined that a detailed risk evaluation was necessary to disposition the significance of this finding because the finding represented a loss of a system and/or function. The detailed risk evaluation considered that the deficiency could have, under some ultimate heat sink temperature conditions, resulted in the CCHX outlet temperatures exceeding the design analyzed limit of 120°F following the recirculation actuation signal (RAS) during a loss of coolant accident (LOCA). The Senior Reactor Analyst performed a bounding significance determination by conservatively assuming a complete loss of safety function for the CCHXs for the applicable limited exposure time. Emergency operating procedures also had contingencies for a postulated loss of the CC function which directed the re-alignment of a containment spray (CS) pump to ensure adequate safety injection is maintained. This evaluation determined the issue was of very low safety significance (Green). The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Design Margins, because Exelon did not operate and maintain equipment within design margins. Specifically, Exelon operated the CC system outside its design safety-related specification, resulting in an operating condition prohibited by TS [H.6]. (Section 1R04)

Inspection Report# : [2015001](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Spent Fuel Pool Cask Handling Crane 10 CFR 50.65(a)(2) Performance Not Met

•Green: The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” paragraph (a)(2), because Exelon did not adequately demonstrate that the spent fuel pool cask handling crane (SFPCHC) (a)(2) performance was effectively controlled through performance of appropriate preventative maintenance. Specifically, Exelon did not identify and properly account for a maintenance rule functional failure (MRFF) of the SFPCHC in September 2013, and thereby did not recognize that the crane exceeded its performance criteria and required a Maintenance Rule (a)(1) determination. Exelon entered this issue in the corrective action program (CAP) as incident report (IR) 02422876. Exelon’s immediate corrective actions were to reclassify the September 2013 failure as a MRFF and conduct a Maintenance Rule (a)(1) determination on the SFPCHC.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the finding is more than minor because it is associated with the structure, system, and component (SSC) performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, following the MRFF of the SFPCHC in October 2014, Exelon personnel did not identify that the crane required a Maintenance Rule (a)(1) determination, to establish if the crane should be monitored in accordance with 10 CFR 50.65(a)(1). As a result, an excessive amount of time passed for Exelon to comply with the requirements of the Maintenance Rule. In accordance with IMC 0609.04, "Initial Characterization of Findings," issued on June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," issued on June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the finding did not result in handling errors, dropped storage cask, or crane operations over the spent fuel pool that caused mechanical damage to fuel clad and a detectable release of radionuclides. The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Exelon did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Exelon personnel failed to properly evaluate the issue that occurred in September 4, 2013 as a MRFF [P.2]. (Section 1R12)

Inspection Report# : [2014005](#) (*pdf*)

Emergency Preparedness

Significance: **W** Jun 30, 2014

Identified By: NRC

Item Type: AV Apparent Violation

Inaccurate EAL Threshold Values Incorporated into Site EAL Scheme Change

•Preliminary White: The inspectors documented a licensee-identified apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.54(q)(2), which preliminarily has been determined to be of low to moderate safety significance (White). Specifically, 10 CFR 50.54(q)(2) requires a licensee to develop and maintain an emergency plan which meets the requirements of 10 CFR 50.47(b), and 10 CFR 50, Appendix E. Contrary to this requirement, from October 11, 2013, through March 4, 2014, CCNPP failed to maintain in effect an emergency plan that met the standards in 10 CFR 50.47(b)(4) and 10 CFR 50, Appendix E, Section IV.B.1 for Unit 2. CCNPP did not maintain an adequate standard emergency level scheme because inaccurate effluent radiation monitor thresholds were incorporated into Table R-1, "Effluent Monitor Classification Threshold." During the replacement of the Unit 2 main steam line radiation monitors (MSLRMs), CCNPP's staff inaccurately calculated the associated emergency action levels (EALs) effluent threshold values for Alert, Site Area Emergency, and General Emergency, and incorporated these thresholds into Table R-1. This error could have resulted in an over-classification of an event and at the general emergency level potentially resulted in an unnecessary protective action recommendation and could cause offsite response organizations to implement unnecessary protective actions. Exelon identified the issue, entered it into their corrective action program (CAP), implemented appropriate compensatory actions, and initiated corrective actions to revise the EAL table. The inspectors determined the finding no longer presents an immediate safety concern since appropriate compensatory actions have been implemented.

The failure to maintain the EAL threshold values in Table R-1 of the site approved emergency plan was a performance deficiency that was within the Exelon staff ability to foresee and correct and should have been prevented. Using IMC 0612, Appendix B, "Issue Screening," the performance deficiency was determined to be more than minor

because it impacted the procedure quality attribute of the Emergency Preparedness cornerstone and adversely impacts the associated cornerstone objective “to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency.” Specifically, an EAL change was improperly implemented, which could result in an over-classification of an event and at the general emergency level potentially result in unnecessary protective action recommendations and movement of the public. The inspectors utilized IMC 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” to determine the significance of the performance deficiency. The performance deficiency is associated with the emergency classification planning standard and is considered a risk significant planning standard (RSPS) function. This performance deficiency impacts the following required planning standard and RSPS function: 10 CFR 50.47(b)(4), “Emergency Classification System.” The inspectors were directed by the SDP to compare the performance deficiency with the examples in Section 5.4, “10 CFR 50.47(b)(4), Emergency Classification System,” to evaluate the significance of this performance deficiency. Using Table 5.4-1, “Significance Examples §50.47(b)(4),” the inspectors determined that the performance deficiency matched an example of a degraded RSPS function, which would be assessed as White. Specifically, the example states, in part, that the performance deficiency would be assessed White if the EAL classification process would result in an over-classification that would lead to off-site response organizations implementing, by procedure, unnecessary protective actions for the public. This condition should also be considered met if the licensee would make a protective action recommendation to the off-site response organizations because of the over-classification.

The inspectors determined that the cross-cutting aspect that contributed most to the root cause is H.12, “Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction techniques.” Specifically, Exelon staff did not independently validate the new EAL threshold values prior to revising and implementing the EAL scheme change. (Section 1R15)

Inspection Report# : [2014003](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Ship Category 2 Radioactive Material - Quantity of Concern

•Green. The inspectors identified a Green NCV of 10 CFR 71.5, “Transportation of Licensed Material,” and CFR 172, Subpart I, “Safety and Security Plans.” Specifically, Exelon personnel shipped a Category 2 radioactive material quantity of concern (RAM-QC) on public highways to a waste processor without adhering to a transportation security plan. Prior to shipment, Exelon’s staff failed to recognize that the quantity of radioactive material met the definition RAM-QC. The inspectors determined that Exelon’s failure to ship material as a Category 2 RAM-QC was a performance deficiency. Exelon entered this issue into their CAP as IR02481678 and corrective actions included revising the shipping procedure to reflect the appropriate Department of Transportation requirements for shipment of Category 2 radioactive material. Additionally, Exelon implemented a formal process for reviewing pending regulatory changes for impacts to operations and support activities by the implementation of Exelon Procedure LS-AA-110, “Commitment Management,” Revision 10, in September 2014.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the issue is more than minor because it is associated with the program and process attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. In accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," issued on February 12, 2008, the inspectors determined the finding to be of very low safety significance (Green) because Exelon had an issue involving transportation of radioactive material, but it did not involve: (1) a radiation limit that was exceeded; (2) a breach of package during transport; (3) a certificate of compliance issue; (4) a low level burial ground nonconformance; or (5) a failure to make notifications or provide emergency information. The inspectors determined that the finding did not have a cross-cutting aspect because the issue was not indicative of current licensee performance because Exelon successfully implemented its transportation security plan in shipping three Category 2 RAM-QC packages in 2014. (Section 2RS8)

Inspection Report# : [2015002](#) (*pdf*)

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.

Miscellaneous

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