

Calvert Cliffs 1

1Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  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*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Risk Management Action for LOCI Sequencer Maintenance

Green: The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65(a)(4) because Exelon did not implement adequate risk management actions (RMA) during the replacement of the loss of coolant incident (LOCI) sequencer for the safety-related 11 4KV [kilovolt] bus in accordance with station procedures. The inspectors determined that Exelon's failure to establish adequate RMA's during the performance of LOCI sequencer maintenance activities in accordance with CNG-OP-4.01-1000 is a performance deficiency. Exelon's immediate corrective actions included entering this issue into their CAP as IR02444523

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the issue is more than minor because it was associated with the procedure quality 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, without adequate RMAs per station procedure CNG-OP-4.01-1000, the capability of the 0C alternate alternating current (AAC) diesel generator (DG) to perform its safety function of powering the 11 4KV bus was adversely impacted. The inspectors also reviewed IMC 0612, Appendix E, "Examples of Minor Issues," and noted that this issue is sufficiently similar to examples 7.e and 7.f, in that, Exelon was required, under plant procedures, to establish RMAs or additional RMAs. The inspectors, with the assistance of a Region I Senior Reactor Analyst, evaluated this finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," issued on May 19, 2005. Using Appendix K, Flowchart 2, "Assessment of RMAs," the inspectors determined that the finding was of very low safety significance (Green) based upon the short duration exposure time (approximately one hour). Specifically, comparing the licensee's calculated Yellow (1E-5) annualized risk for this maintenance evolution to the actual (1E-4/year X 1 year/8760 hours = 1E-8) incremental risk increase places the risk of this finding below the Incremental Core Damage Probability (ICDP) > 1E-6 threshold, resulting in a very low safety significance (Green). The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Work Management, because Exelon did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities. Specifically, Exelon failed to adequately plan, control, and execute the LOCI sequencer maintenance activity by establishing adequate RMAs that would have provided alternate success paths for maintaining the safety function of the out of service structures, systems, and components (SSCs) [H.5]. (Section 1R15)

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*)

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Main Steam Line Drain Containment Isolation Valves not Scoped in IST

•Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.55a, "Codes and Standards," for Exelon's failure to meet the test requirements set forth in the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for main steam line drains (MSLDs) and containment isolation valves (CIVs) motor operated valves (MOVs) (6611, 6612, 6613, 6615, 6620, 6621). Specifically, Exelon failed to scope the MSLD MOVs in their in-service testing (IST) program. As a result, the MOVs reliability was not ensured due to valve degradation not being trended as required in the IST program. Also, the MOV operability was in question because the valves were never tested to perform their containment isolation function. Exelon entered this issue into their corrective action program (CAP) as condition report (CR)-2014-005961. Immediate corrective actions included testing the MOVs.

The inspectors determined that the failure to scope and meet the testing requirements of the OM Code for MSLD MOVs in accordance with 10 CFR 50.55a was a performance deficiency. This finding is more than minor because it was associated with the barrier 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, the failure to scope and test the MSLD MOVs in accordance with the OM Code did not ensure component reliability by monitoring valve degradation and did not provide assurance that the MSLD MOVs would perform their CIV function in order to protect the public from radionuclides releases during a steam generator tube rupture (SGTR) with a loss of offsite power event. The inspectors reviewed IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions" issued June 19, 2012, and determined that the finding

was of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components and the finding did not involve an actual reduction of hydrogen igniters in the reactor containment. The inspectors determined that this finding did

not have a cross-cutting aspect because the most significant contributor to the performance deficiency was not reflective of current licensee performance. Specifically, the 2007 IST fourth year interval submittal was the last reasonable opportunity for Exelon to identify this issue. (Section 1R04)

Inspection Report# : [2014004](#) (*pdf*)

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

Emergency Preparedness

Significance: G Jun 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate EAL Initiating Condition HA3.1

•Green: The inspectors identified a Green NCV of 10 CFR 50.54 (q)(2) and 10 CFR 50.47(b)(4) because Exelon did not maintain the emergency plan to adequately meet the standards in 10 CFR 50.47(b)(4). Specifically, Exelon failed to include Unit 1 and Unit 2 component cooling (CC) rooms under EAL initiating condition HA3.1. As a result, an Alert declaration would have not been made during a hazardous gas event in a vital area. Exelon entered this issue into their CAP as condition report (CR)-2014-004683. Immediate corrective actions included revising EAL initiating condition HA3.1 to include the CC rooms and verify that there are no other areas that need to be included in EAL HA3.1.

The failure to update the EAL scheme the site approved emergency plan following a plant modification 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, a plant modification was completed which required operators to be able to enter the CC room in order to bring the plant to cold shutdown and the EAL scheme was not updated to reflect this change. 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 RSPS function. This performance deficiency impacts the following required planning standard and RSPS function: 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. The inspectors determined that the EAL was ineffective because it, in and of itself, no longer resulted in a timely and accurate declaration of an Alert for the initiating condition. Utilizing Figure 5.4.1, an ineffective EAL where an Alert would not be declared when required would screen as a Green finding.

This finding has a cross-cutting aspect in the area of Human Performance, Change Management, because Exelon personnel didn't use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, Engineering personnel did not ensure that the impact to the Emergency Plan was

adequately evaluated as a result of the permanent plant change engineering change package (ECP)-11-000983 [H.3].
(Section 1R15)

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

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 may be viewed.

Miscellaneous

Last modified : June 16, 2015