

Oyster Creek 3Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Reactor Water Cleanup Procedure Not Followed Resulting in a Level Transient

A self-revealing NCV of Technical Specification 6.8.1(a), "Procedures and Programs," was identified because Exelon did not follow procedure 303, "Reactor Cleanup Demineralizer System," during the system restoration on March 26, 2015. Specifically, during startup from a forced outage (1F36), Exelon did not follow procedure 303, which required correct valve lineups for system restoration of reactor water cleanup (RWCU) after system isolation. This resulted in decreasing reactor water level, which was automatically terminated by a second RWCU isolation. Exelon entered this issue into the corrective action program. Planned corrective actions include enhancing operator training in system knowledge and procedure compliance and revising startup procedures.

This finding is determined to be more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and affected the 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, Exelon did not properly lineup the RWCU system after isolation, which resulted in a water level transient and challenging the critical safety function of inventory control. This finding is determined to be of very low safety significance (Green), because it 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.

This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not recognize and plan for the possibility of mistakes, or implement appropriate error reduction tools. Specifically, the operators did not stop and fully communicate plant condition after the initial RWCU isolation. Consequently, operators opened the RWCU system inlet valve due to the increasing water level without following procedure guidance.

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

Significance: G Jun 30, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

Reset of the Automatic Voltage Regulator Controller Led to an Automatic Reactor Scram

A self-revealing finding was identified because Exelon did not properly screen work in accordance with MA-AA-716-010, "Maintenance Planning." Specifically, on September 12, 2014, Exelon did not screen the automatic voltage regulator's (AVR) human machine interface (HMI) post-maintenance test per the maintenance planning procedure. As a result, on October 12, 2014, Exelon personnel performing the post-maintenance test did not have a work order, which would have included plant configurations and limitations associated with the test. This led to an automatic reactor scram. Exelon entered this issue into the corrective action program. Planned corrective actions include reinforcing with work planners that a work order is required for similar work activities.

This finding was determined to be more than minor because it is associated with the human performance attribute of

the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during plant operation. Specifically, resetting the three AVR controllers caused an automatic plant scram. This finding is determined to be of very low safety significance (Green), because it 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. This finding has a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because Exelon did not recognize and plan for the possibility of mistakes, or implement appropriate error reduction tools. Specifically, on October 12, 2014, Exelon personnel did not stop when faced with the uncertain situation of the HMI screen that did not respond as expected.

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

Significance: G Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Reactor Head Cooling Spray Piping Flange Misalignment

The inspectors identified a Green Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” because Exelon did not promptly correct a condition adverse to quality associated with reactor head cooling (RHC) spray line 2-inch upper flange installed in a configuration that exceeded the allowable acceptance criteria. Specifically, Exelon staff identified a misaligned flange condition in Issue Report (IR) 845395 but did not correct the deficiency by evaluation, repair or replacement during the 1R22 refueling outage in 2008 or subsequently during the 1R23 and 1R24 refueling outages. Exelon staff completed corrective actions to replace the flange during the 1R25 refueling outage after the NRC inspector questioned the acceptability of this condition. Exelon staff entered this issue into their corrective action program as IR 2385501.

The finding is more than minor because it is associated with the Equipment Performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, misalignment of the RHC spray line flange was greater than that provided in Oyster Creek pipe specifications and resulted in additional stresses in the flange weld. This condition was identified by Exelon staff as a possible contributor to the occurrence of a through wall crack and leak in the N7B upper flange socket weld joint that was identified and repaired in November 2012, but the misalignment was not corrected at that time.

The inspectors completed IMC 0609.04, “Phase 1- Initial Screening and Characterization of Findings,” and screened the finding as very low safety significance (Green). Using Exhibit 1 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the inspectors answered “No” to Question 1 because the worst-case degradation would be a small leak from a fatigue crack caused by operating thermal and/or mechanical loads combined with cold spring stresses. The inspectors answered “No” to Question 2 of Exhibit 1 because the degradation would only result in a small leak in the socket weld of RHC spray line 2-inch upper flange connection and would not have affected other systems used to mitigate a Loss of Coolant Accident (LOCA). Based on the leakage observed from the through-wall crack in the 2-inch socket weld during the 1R24 outage Reactor Leak Test the reactor coolant leak rate would likely be less than technical specification limits and leakage would not be expected to increase greater than the make-up capacity of a control rod drive pump. Additionally, operations personnel could have manually depressurized the reactor pressure vessel if needed and all other mitigating systems equipment was available. The inspectors determined that this finding had a Problem Identification and Resolution cross-cutting aspect because Exelon did not evaluate and take timely corrective actions to address the long-standing repetitive flange alignment issue of the reactor head cooling spray piping flange connection to RPV head N7B nozzle (P.2). 1R08

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

Significance: G Dec 12, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Evaluate a Temporary Configuration Change

A self-revealing finding (FIN) of very low safety significance was identified for Exelon's failure to implement the temporary configuration change program when a temporary repair was performed on condenser bellows expansion joint Y-1-26. The temporary repair impacted the design function of Y-1-26 and led to failure of the downstream side of the bellows, causing a loss of condenser vacuum and manual reactor scram on July 11, 2014. Exelon replaced both the expansion joint Y-1-26 and the 2nd stage reheater steam supply relief valve V-1-132 on July 11, 2014, during forced outage 1F35. Exelon entered this issue into the corrective action program (IR 2422831).

This finding was more than minor because it was associated with the Design Control attribute of the Initiating Events cornerstone, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that this finding was of very low safety significance (Green) using Exhibit 1 of NRC IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not cause both 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 (e.g. loss of condenser, loss of feed water). The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because Exelon did not systematically and effectively evaluate relevant internal operating experience related to a similar condenser bellows expansion joint failure in 1986. [P.5] (Section 40A3)

Inspection Report# : [2014010](#) (*pdf*)

Mitigating Systems

Significance: G Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Non-Conservative Temperature Input in the Electromatic Relief Valve Voltage Drop Calculation

The inspectors identified an NCV of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion III, "Design Control," in that Exelon's measures for verifying the adequacy of design of the electromatic relief valve (EMRV) voltage drop calculation were inadequate. Specifically, non-conservative temperature inputs were used for the safety related EMRV direct current voltage drop calculation, which reduced the margin of available voltage to the EMRV solenoids. Exelon entered this issue into the corrective action program for resolution as issue report 2522756, and corrective actions included revising the calculation to include the correct temperature values and conduct an extent of condition of other voltage drop calculations that could have similar temperature values.

The performance deficiency is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, lower voltage to the EMRV solenoid at higher temperatures could affect the reliability and capability of the EMRV to perform its design function. In addition, the performance deficiency is determined to be more than minor because it is similar to example 3.j of NRC IMC 0612, Appendix E, "Example of Minor Issues," in that as a result of the calculation errors and the magnitude of the decrease of margin, there was a reasonable doubt on the operability of the component. The inspectors evaluated the finding using 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating System Screening Questions." The inspectors determined that this finding is a deficiency that affected the design or qualification of a mitigating structure, system or component (SSC), where the SSC maintained

its operability or functionality. Therefore, inspectors determined the finding to be of very low safety significance (Green). The finding is not assigned a cross-cutting aspect because it is not reflective of current performance. Specifically, the last time Exelon had an opportunity to evaluate this issue was in 2010 when Exelon identified that the EMRV solenoid voltage had low margin.

Inspection Report# : [2015003](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: FIN Finding

Inadequate Assessment of Degraded 4k Emergency Switchgear Roll-Up Door Floor Gasket

The inspectors identified a finding associated with Exelon procedure, OP-AA-108-115, “Operability Determinations,” because Exelon did not adequately assess a degraded floor gasket for the ‘D’ emergency 4 kilovolt (kV) switchgear roll-up door. Specifically, Exelon did not adequately assess the flood and fire functionality of the degraded gasket, which is credited to provide protection to safety-related ‘D’ emergency 4kV switchgear during a postulated internal flood event and to contain the carbon dioxide (CO₂) gaseous suppression system during a postulated fire within the ‘D’ switchgear room. Exelon entered this issue into the corrective action program.

Planned corrective actions include reinforcing the operability determination procedure and enhancing operator training in fire and flood functionality of gaskets. Additional corrective actions included repairing the gasket and performing a detailed analysis of the ability of degraded gasket to meet its flooding and fire function.

This finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone, and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded floor gasket could have resulted in increased water level in the ‘D’ emergency 4kV switchgear room during a postulated internal flood due to a fire water pipe rupture, therefore affecting the reliability of the ‘D’ emergency 4k switchgear to perform its safety function. In addition, the degraded floor gasket could have resulted in CO₂ leakage out of the ‘D’ emergency 4k switchgear room during a postulated fire in that room, therefore affecting the reliability of the ‘D’ emergency 4k switchgear gaseous suppression system to perform its safety function. The inspectors determined that this finding is of very low safety significance (Green) because it is a deficiency that affected the design or qualification of a mitigating structure, system, or component (SSC), where the SSC maintained its operability or functionality. This 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 the causes and extent of conditions commensurate with their safety significance. Specifically, Exelon staff did not thoroughly evaluate the issue associated with the degraded floor gasket for fire and flood functionality.

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

Significance:  Jun 30, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

Failure Rates Exceed Twenty Percent for Annual Requalification Exam

A self-revealing finding was identified associated with inadequate licensed operator performance during licensed operator requalification exams in accordance with TQ-AA-150, “Operator Training Program.” Specifically, two of seven crews failed the simulator scenario portion of the requalification examinations. As an immediate corrective action, the crews that failed were restricted from licensed duties. Exelon entered this issue into the corrective action program, and facility training staff remediated the crews (the crews were retrained and successfully retested), and those crews were returned to licensed duties.

This finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, two of seven crews failed to demonstrate a satisfactory understanding of the knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions.

The inspectors determined the finding to be of very low safety significance (Green) because it is related to requalification exam results, did not result in a failure rate of greater than forty percent, and the two crews were remediated (i.e., the crews were retrained and successfully retested) prior to returning to shift. This finding has a cross-cutting aspect in the area of Human Performance, Training, because Exelon staff did not provide adequate operator requalification training to maintain a knowledgeable, technically competent workforce.

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

Significance: G Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Post Maintenance Testing for Emergency Service Water Pump Breaker

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings” for Exelon’s failure to develop an adequate post maintenance test to determine operability of the ‘A’ emergency service water pump breaker. Specifically, the corrective maintenance work performed on April 16, 2013, did not correct the cause of the failure and Exelon did not perform an adequate post maintenance test to verify conditions had been corrected. As a result, the emergency service water system was returned to service even though it did not meet all the requirements for operability. The issue was not identified and resolved until a subsequent surveillance test on April 17, 2013, which identified a failed breaker. Exelon entered this issue into their corrective action program (IR 2471069). Planned corrective actions include revising work order activities to specify the correct post maintenance test.

This performance deficiency is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone, and adversely affected its objective to ensure the availability and reliability of the systems that respond to initiating events. Specifically, the inadequate post maintenance test for ‘A’ emergency service water pump breaker on April 16, 2013, led to the ‘A’ emergency service water pump failing to perform its function during the subsequent surveillance testing on April 17, 2013. The inspectors assessed this finding in accordance with the IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” The inspectors concluded that this finding did not represent an actual loss of function of the emergency service water system for greater than its technical specification allowed outage time (15 days). Therefore, the inspectors determined that this finding is of very low safety significance (Green). The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Work Management, in that Exelon’s work planning and executing of work activities did not include documented instructions for performing an adequate post maintenance test. [H.5]

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

Significance: Y Feb 11, 2015

Identified By: NRC

Item Type: VIO Violation

Exelon did not establish adequate measures for the suitability of applications of materials and processes (maintenance) for the EMRV solenoid-operated actuators.

(Initial Entry)

The NRC identified a preliminary Yellow finding and associated apparent violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” and Technical Specification 3.4.B, “Automatic Depressurization System,” because the

station did not establish adequate measures for selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the electromatic relief valves (EMRVs). The violation was also preliminarily determined to meet the IMC 0305, Section 11.05, criteria for treatment as an old design issue. Specifically, on June 20, 2014, during refurbishment of EMRVs that were removed from the plant during the 2012 refueling outage, Exelon personnel identified deficiencies with the 'B' and 'D' EMRVs. As part of the planned EMRV actuator testing and refurbishment activities, Exelon personnel conducted bench testing on June 26, 2014. Both valves did not stroke satisfactorily and resulted in two inoperable EMRVs for greater than the Technical Specification allowed outage time of 24 hours. Exelon's immediate corrective actions included placing this issue into the corrective action program as issue report 1679428 and redesigning the EMRV actuators to ensure the spring is on the outside of the guide bushing, therefore removing the possibility of the spring entering the guide bushing area and subsequently jamming the actuator causing valve failure. All of the actuators were replaced with redesigned actuators during the refueling outage in October 2014. In addition, Exelon issued a 10 CFR Part 21 report to inform the industry of the deficient EMRV actuator design.

This finding is more than minor because it adversely affected the design control quality 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, the design deficiency of the EMRVs and the inadequate maintenance process led to the inability of the 'B' and 'D' EMRVs to perform their safety function. The inspectors screened this issue for safety significance in accordance with IMC 0609, Appendix A, Exhibit 2, and determined a detailed risk evaluation was required because the EMRVs were potentially failed or unreliable for greater than the Technical Specification allowed outage time. As described in Attachment 3 to this report, a detailed risk evaluation concluded that the increase in core damage frequency (CDF) related to failure of the 'B' and 'D' EMRVs is in the mid E-5 range; therefore, this finding was preliminarily determined to have a substantial safety significance (Yellow). Due to the nature of the failures, no recovery credit was assigned. The dominant sequences included loss of main feedwater with failures of the isolation condensers, and failure to depressurize. This finding does not represent an immediate safety concern because Exelon replaced all of the actuators with the redesigned actuators during the refueling outage in October 2014. Further, the NRC is considering treatment of this finding as an old design issue because the condition existed since the original installation of the EMRVs, and is not indicative of current licensee performance. Additional details are discussed in Attachment 1. 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 inspectors determined that the performance deficiency existed since original installation of the EMRVs. Although an opportunity to identify this issue following original installation occurred in 2006 when Quad Cities changed the EMRV actuator design due to similar issues, the inspectors could not conclude that the issue would have likely been identified during that period since a Part 21 Report was not issued to inform the industry and NRC of the design change and industry operating experience focused on plants that completed or were scheduled to complete an extended power uprate.

(IR 05000219/2014009 dated February 11, 2015)

(First Update)

The finding was determined to be of substantial safety significance (Yellow). As described in Attachment 3 to this report, a detailed risk evaluation concluded that the increase in CDF related to failure of the 'B' and 'D' EMRVs is in the mid E-5 range; therefore, this finding was preliminarily determined to have a substantial safety significance (Yellow). Due to the nature of the failures, no recovery credit was assigned. The dominant sequences included loss of main feedwater with failures of the isolation condensers, and failure to depressurize. This finding does not present an immediate safety concern because Exelon replaced all of the actuators with redesigned actuators during the refueling outage in October 2014.

(IR 05000219/2015007 dated April 27, 2015)

Inspection Report# : [2014009](#) (pdf)

Inspection Report# : [2015007](#) (pdf)

Significance: **W** Feb 11, 2015

Identified By: NRC

Item Type: VIO Violation

Inadequate Review of Change in Maintenance Process Results in Inoperable Emergency Diesel Generator
(Initial Entry)

The inspectors identified a preliminary White finding and an associated apparent violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," because Exelon staff did not review the suitability of the application of a different maintenance process at Oyster Creek that was essential to a safety-related function of the emergency diesel generators (EDG). Specifically, in May 2005, Exelon staff changed the method for tensioning the cooling fan belt on the EDG from measuring belt deflection to belt frequency and did not verify the adequacy of the acceptance criteria stated for the new method. As a result, Exelon staff did not identify that the specified belt frequency imposed a stress above the fatigue endurance limit of the shaft material, making the EDG cooling fan shaft susceptible to fatigue and subsequent failure on July 28, 2014. As a consequence, Exelon also violated Technical Specification 3.7.C, because the EDG No. 2 was determined to be inoperable for greater than the technical specification allowed outage time. Exelon's immediate corrective actions included entering the issue into their corrective action program as issue report (IR) 1686101, replacing the EDG No. 2 fan shaft, examining the EDG No.1 fan shaft for extent of condition, and performing a failure analysis to determine the causes of the broken shaft.

This finding is more than minor because it is 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 (i.e., core damage). 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," issued June 19, 2012, the inspectors screened the finding for safety significance and determined that a detailed risk evaluation was required because the finding represented an actual loss of function of a single train for greater than its technical specification allowed outage time. The detailed risk evaluation concluded that the increase in core damage frequency was $5.1E-6$, or White (low to moderate safety significance). This finding does not have an associated cross-cutting aspect because the performance deficiency occurred in 2005 and is not reflective of present performance.
(IR 05000219/2014005 dated February 11, 2015)

(First Update)

The finding was determined to be of low to moderate safety significance (White). Based upon the detailed risk evaluation, the calculated change in core damage frequency for this issue was $5.1E-6$, or low to moderate safety significance (White). The dominant internal core damage sequences involved various losses of offsite power initiating events followed by failure of the remaining 4160 Volt AC emergency bus. The dominant external event core damage sequences involved switchyard fires that contributed to loss of offsite power. The time that the EDG was available before failure was credited in the analysis and afforded operators more time to recover offsite power, which lowered the risk of this issue. Also, diverse make-up sources to the isolation condenser and availability of the Forked River Combustion Turbine Generators helped mitigate the risk. An exposure time of 44 days (42 days plus two days for corrective maintenance) was used for the time the EDG could have met its 24 hour mission time. A detailed analysis is contained in Attachment 1 of this report.
(IR 05000219/2015007 dated April 27, 2015)

(Final Update)

The NRC staff performed this supplemental inspection in accordance with IP 95001, "Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area," to assess Exelon's evaluation of a performance deficiency and violation of White significance, associated with the Mitigating Systems cornerstone, which was identified in the fourth quarter 2014 integrated inspection report (Agencywide Documents Access and Management System (ADAMS))

Accession Number ML15042A072). The finding was associated with an inadequate review of a change in maintenance process that caused an inoperable emergency diesel generator (EDG). The final significance determination and follow-up assessment letter for this finding issued on April 27, 2015, documented that Oyster Creek transitioned to the Regulatory Response Column of the NRC's Reactor Oversight Process (ROP) Action Matrix, retroactive to the fourth quarter of 2014.

Based on the results of the inspection, the inspectors concluded that Exelon had adequately performed a root cause analysis of the event, and corrective actions, both completed and planned, were reasonable to address the related issues. Based on the guidance in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," dated October 18, 2013, and the results of this inspection, the White finding will be closed effective October 1, 2015. (IR 05000219/2015009 dated October 15, 2015)

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

Inspection Report# : [2015007](#) (*pdf*)

Inspection Report# : [2015009](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Plant Shutdown Procedure Was Inadequate For Soft Shutdown

The inspectors identified a Non-Cited Violation (NCV) of very low safety significance (Green) of TS 6.8.1, Procedures and Programs, because Exelon did not adequately establish and maintain the plant shutdown procedure. Specifically, the procedure was not adequate in that it did not contain precautions concerning rod insertion when reactor power is below the point of adding heat; operational limitations on plant cooldown when power is below the point of adding heat and contingency actions for re-criticality during shutdown. This issue has been entered into Exelon's Corrective Action Program (CAP) as IR 2412093 and a root cause analysis was conducted.

The finding was determined to be more than minor because the finding affected the procedure quality attribute of the Mitigating System cornerstone objective to ensure the reliability and capability of systems that respond to initiating events. Specifically, the plant shutdown procedure did not contain precautions to continuously insert control rods when reactor power is less than the point of adding heat, did not define operational considerations for limiting reactor cooldown and did not contain contingency actions for return to criticality during shutdown. The inspectors determined that this finding resulted in a mismanagement of reactivity by operators in that they demonstrated an inability to anticipate and control changes in reactivity during plant operations; and subsequently used Appendix M to determine the findings significance. The bounding analysis required by Appendix M was performed by a senior reactor analyst. This conservative analysis yielded a change in core damage frequency of 8.0E-7 and the finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Exelon did not ensure that the shutdown procedure contained adequate controls for soft shutdown. [H.7] (Section 40A2)

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

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedures Not Implemented During Plant Shutdown

The inspectors identified an NCV of very low safety significance (Green) of TS 6.8.1, Procedures and Programs, because Oyster Creek Operators did not adequately implement procedures when performing a plant shutdown. Specifically, the operators failed to ensure that all personnel on shift had received Just In Time Training (JITT) for their role in the shutdown; operators failed to perform a reactivity Heightened Level Awareness (HLA) brief for the

shutdown, and did not insert SRMs in accordance with procedure. These failures contributed to two unanticipated criticalities during the shutdown. This issue has been entered into Exelon's CAP as IR 2412093 and a root cause analysis was conducted.

The finding was determined to be more than minor because the finding affected the procedure quality attribute of the Mitigating System cornerstone objective to ensure the reliability and capability of systems that respond to initiating events. Specifically, the failure to implement procedures during the plant shutdown contributed to two unanticipated returns to criticality which required operator action to mitigate. The inspectors determined that this finding resulted in a mismanagement of reactivity by operators in that they demonstrated an inability to anticipate and control changes in reactivity during plant operations, and subsequently used Appendix M to determine the findings significance. The bounding analysis required by Appendix M was performed by a senior reactor analyst. This conservative analysis yielded a change in core damage frequency of 8.0E-7 and the 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 licensed operators did not implement processes, procedures and work instructions during the plant shutdown. [H.8] (Section 40A2)

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

Barrier Integrity

Significance: N/A Apr 24, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Use of an Analytical Method to Determine the Core Operating Limits Without Prior NRC Approval

Severity Level IV. The NRC identified a Severity Level IV non-cited violation (NCV) of Technical Specification (TS) 6.9.1.f.2 in that Exelon did not obtain NRC approval prior to using a specific analytical method to determine the core operating limits. Specifically, Exelon used an analytical method (TRACG04P) to determine the core operating limits (the average power range monitor protection settings which were identified in the Core Operating Limits Report (COLR)); however, that particular analytical method was not previously reviewed and approved by the NRC prior to Exelon's use. Exelon submitted a corrective action issue report (IR) to evaluate the condition (IR2482042).

The team determined that Exelon did not comply with TS 6.9.1.f.2 requirements in that Exelon used an analytical method to determine the core operating limits without prior NRC approval. The team determined that this was a performance deficiency that was within Exelon's ability to foresee and correct. Because the issue had the potential to affect the NRC's ability to perform its regulatory function, the team evaluated this performance deficiency in accordance with the traditional enforcement process. Using the Enforcement Manual, the team characterized the violation as Severity Level IV because the underlying analytical method required NRC approval prior to use. Because this violation involves the traditional enforcement process and does not have an underlying technical violation that would be considered more-than-minor within the Reactor Oversight Process (ROP), the team did not assign a cross-cutting aspect to this violation in accordance with IMC 0612, "Power Reactor Inspection Reports," Section 07.03.c (Section 1R17.1).

Inspection Report# : [2015008](#) (*pdf*)

Significance:  Apr 24, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Untimely Corrective Actions to Restore Design Conformance of Two SDV Vent & Drain Valves Pressure Regulator Valves

Green. The NRC identified an NCV of Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly correct a condition adverse to quality. Specifically, corrective actions to restore design conformance of scram discharge volume (SDV) vent and drain valve pressure regulator valves V-6-961 and V-6-962 were not taken at the first opportunity of sufficient duration which was refueling outage 25 (1R25). Additionally, justification of the basis for deferral of corrective actions beyond the restart from 1R25 on October 2014, was not documented, reviewed, or approved by site management and/or oversight organizations as required by station procedure OP-AA-108-115, Section 4.5.5. Consequently, two non-conforming pressure regulator valves which perform a safety-related function remained installed following plant startup from 1R25, without appropriate evaluation and approval. Immediate corrective action included licensee determination that V-6-961 and 962 and the associated SDV vent and drain valves (V-15-119 and 121) remained operable, but non-conforming. Exelon entered the issue into their corrective action program as IR 2482851.

The finding was more than minor because it was associated with the design control and barrier performance attributes of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of ensuring the operational capability of the containment barrier to protect the public from radionuclide releases caused by accidents or events. Additionally, the finding was similar to example 5.c in Appendix E of Inspection Manual Chapter (IMC) 0612, because the control rod drive system was returned to service following 1R25 with two non-conforming (non-safety-related) pressure regulator valves installed in a safety-related application. The team determined the finding was of very low safety significance because it did not affect the reactor coolant system (RCS) boundary; did not affect the radiological barrier function of the control room, auxiliary building, or spent fuel pool systems or boundaries; and did not represent an actual open pathway in containment or involve a reduction in the function of hydrogen igniters. The team assigned a cross-cutting aspect in the area of Human Performance, Consistent Process (aspect H.13) because the organization did not use a consistent systematic approach to evaluate component operability after Exelon upgraded the classification of three pressure regulator valves from a non-safety to a safety-related status. (Section 1R17.2.2)

Inspection Report# : [2015008](#) (*pdf*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Post Maintenance Test Results Were Not Evaluated to Assure that Technical Specifications Requirements Were Satisfied.

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," when Exelon did not document and adequately evaluate test results to assure that test requirements had been satisfied. Specifically, Exelon did not perform the proper post maintenance test procedure to assure that the requirements of Technical Specification 4.5.G.3 were satisfied following installation of a temporary modification to secondary containment. Exelon entered this issue into the corrective action program for resolution as issue report (IR) 2440643. Corrective actions include revising the process to perform the correct post maintenance test to ensure Technical Specification 4.5.G.3 is met.

This finding is more than minor because it is associated with the configuration control (Standby Gas Trains) attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process: Phase 1 Initial Screening and Characterization of Findings," issued May 9, 2014. Because the finding degraded the ability to close or isolate secondary containment, the inspectors were required to further assess the finding using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," issued May 6, 2004. The inspectors determined that this finding is of very low safety significance (Green) because the decay heat values were low, given that the unit had been shut down for approximately three days, and reactor water level was greater than that required for movement of irradiated fuel assemblies within the reactor pressure vessel. This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Exelon personnel did not

perform the post maintenance test specified by the work order. [H.8]

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

Significance: N/A Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Incomplete 50.72 and 50.73 Reports Associated with Secondary Containment Integrity

The inspectors identified a Severity Level IV NCV of 10 CFR 50.9(a) in that Exelon did not provide complete information in reports submitted per 10 CFR 50.72 and 10 CFR 50.73. Specifically, a licensee event report (LER) submitted on November 18, 2014, did not discuss a separate, partially opened secondary containment door that was discovered during the same time frame, which could have prevented the fulfillment of the safety function of secondary containment, and therefore was required to be discussed in the original LER. Exelon entered this issue into their corrective action program as IR 2440641. Planned corrective actions include revising the original LER to add a discussion of the partially opened secondary containment door.

The inspectors determined that not providing a complete report in accordance with 10 CFR 50.9(a) is a performance deficiency that was reasonably within Exelon's ability to foresee and correct and should have been prevented. Because the issue had the potential to affect the NRC's ability to perform its regulatory oversight function, the inspectors evaluated this performance deficiency in accordance with the traditional enforcement process. In accordance with Section 2.2.2.d of the NRC Enforcement Policy, the inspectors determined that the performance deficiency identified with the reporting aspect of the event is a Severity Level IV violation because it is of more than minor concern with relatively inappreciable potential safety significance and is related to findings that were determined to be more than minor issues. In accordance with IMC 0612, Appendix B, this issue was not assigned a cross-cutting aspect.

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

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 may be viewed.

Miscellaneous

Last modified : December 15, 2015