

Oyster Creek

1Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Problem Identification and Resolution Leading to Degradation of EPR Causing a Reactor Scram

A self-revealing finding was identified because Exelon did not adequately identify and correct conditions, per LS-AA-120, "Issue Identification and Screening Process," that led to degradation of the electric pressure regulator (EPR) wiring, which resulted in an uncontrolled rise in reactor pressure and subsequent reactor scram on average power range monitor (APRM) Hi-Hi Flux. Specifically, Exelon failed to generate issue reports to document degraded EPR wiring that was previously identified, and therefore did not take corrective action prior to a reactor scram. Planned corrective actions include reinforcing with station personnel that an issue report is required when issues are identified.

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and adversely impacted its objective to limit the likelihood of events that upset plant stability and challenge critical safety functions. In accordance with IMC 0609, Attachment 4 and Exhibit 1 of Appendix A, the inspectors determined that this finding is of very low safety significance (Green) 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. The inspectors determined there is no cross-cutting aspect associated with this finding since it is not representative of current Exelon performance. Specifically, in accordance IMC 0612, the causal factors associated with this finding occurred outside the nominal three-year period of consideration and considered not representative of present performance. (Section 4OA3)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  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. [H.11]

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

Significance:  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. [H.11]

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

Mitigating Systems

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify a Slower than Normal Scram Time of a Control Rod Drive

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not promptly identify and correct a condition adverse to quality. Specifically, Exelon did not identify the scram time test result for control rod drive 18-47 was beyond the analyzed scram time, which resulted in a degraded control rod drive. Exelon entered this issue into their corrective action program and immediate corrective actions included fully inserting the control rod drive and developing a casual analysis to determine the degraded condition.

The performance deficiency is more than minor because it is associated with the configuration 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, the performance deficiency affected the reliability of control rod drive 18-47 to perform its safety function due to a slower than normal scram time. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding to be of very low safety significance (Green). The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Identification, because Exelon did not identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, Exelon did not identify that the actual scram time of control rod drive 18-47 was beyond the analyzed scram time resulting in a degraded control rod drive. [P.1] (Section 1R15

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

Significance: TBD Mar 31, 2016

Identified By: NRC

Item Type: AV Apparent Violation

Inadequate Instructions for the Flexible Coupling Hose Preventative Maintenance Resulting in an Inoperable Emergency Diesel Generator

(Initial Entry)

The inspectors identified a preliminary White finding and associated apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Exelon did not appropriately prescribe instructions or procedures for maintenance on the emergency diesel generator (EDG) No. 1 cooling water system to ensure the EDG cooling flexible coupling hose was maintained to support the EDG safety function. Specifically, Exelon did not have appropriate work instructions to replace the EDG cooling flexible coupling hoses every 12 years as specified by Exelon's procedure and vendor information. As a result, the flexible coupling hose was in service for approximately 22 years and subjected to thermal degradation and aging that eventually led to the EDG No. 1 failure on January 4, 2016. As a consequence of this inappropriate work instruction issue, Exelon also violated Technical Specification 3.7.C because EDG No. 1 was determined to be inoperable for greater than the technical specification allowed outage time of seven days. Exelon's immediate corrective actions included entering the issue into their corrective action program (issue reports 2607247 and 2610027), replacing of the EDG No. 1 and No. 2 flexible coupling hoses, and initiating a failure analysis to determine the causes of the failed flexible coupling hose.

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). Specifically, the ruptured flexible coupling hose caused the inability of the EDG No.1 to perform its safety function. 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 EDG No. 1 was inoperable for greater than the technical specification allowed outage time of 7 days. 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 05000219/2016001 and 05000219/2016009 dated March XX, 2015)

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

Inspection Report# : [2016009](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Preconditioning of the Standby Liquid Control Relief Valves

The inspectors identified an NCV of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion XI, "Test Control," because Exelon conducted unacceptable preconditioning of the standby liquid control (SLC) relief valves prior to American Society of Mechanical Engineers (ASME) code testing. Specifically, Exelon performed a SLC system functional test prior to performing the SLC relief valve as-found testing. Exelon's immediate corrective actions included completing the as-found test prior to the functional test. Exelon entered this issue into their corrective action program (CAP) as issue report 2566036 to track the resolution of the issue.

The performance deficiency is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, if left uncorrected, the performance deficiency could have the potential to lead to a more significant safety concern. Specifically, completion of the functional test prior to the replacement of the SLC relief valves masks the actual as-found condition by solidifying the valve internals. As a result, the as-found condition of the SLC relief valves have not been conducted and in the worst case scenario, could open below the design setpoint, which would divert flow back to the liquid poison tank instead of into the vessel to shut down the reactor during an anticipated transient without scram (ATWS) condition. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance (Green) because the structure, system or component (SSC) maintained its operability. 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 did not evaluate the effect of performing the SLC system functional test prior to conducting the ASME code as-found test on the SLC relief valves. [P.2] (Section 1R15)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  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.

The finding has a cross-cutting aspect in the area of human performance associated with resources attribute because leaders failed to ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety to maintain the ECST inventory during the mission time. [H.1]

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. [H.9]

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

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 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. [H.13]

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

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Use Respiratory Protection as Required in RWP/ALARA Plan for Drywell Head Reassembly

A self-revealing Green NCV of Technical Specification 6.8.1, "Procedures and Programs" was identified for Exelon's failure to use respiratory protection, as required in the radiation work permit (RWP)/as low as reasonably achievable (ALARA) plan 14-406 for drywell head reassembly work on October 2, 2014. The radiation protection (RP) supervisor overseeing this work removed the respiratory protection requirement for this work contrary to the RWP/ALARA requirement and without engineering approval. As a result, two workers received an unplanned intake of radioactive material that resulted in unintended internal dose. Exelon stopped work on this task and subsequently enforced the respiratory protection requirements to complete the remaining work and entered this event into their corrective action program as issue report (IR) 2390111.

This finding is more than minor because it is associated with the Occupational Radiation Safety Cornerstone to ensure adequate protection of the worker from radiation exposure. Specifically, without the use of respiratory protection two workers received unintended internal dose. The inspectors evaluated the finding using inspection manual chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process." The inspectors determined

that this finding is of very low safety significance (Green), because it did not result in an overexposure, there was no substantial potential for an overexposure, and the ability to assess dose was not compromised. This finding has a cross-cutting aspect in Human Performance, Procedural Adherence, because Exelon did not follow procedures and work instructions. Specifically, RP supervision instructed the workers that respiratory protection was not required contrary to the applicable RWP/ALARA plan. [H.8] (Section 2RS1)

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

Public Radiation Safety

Security

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

Miscellaneous

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