

Quad Cities 1

4Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

FAILURE TO FOLLOW VENDOR REQUIREMENTS LED TO FAST DOWNPOWER

A finding of very low safety significance was self-revealed when the licensee failed to re-establish oil level in accordance with vendor requirements in the Unit 2 Main Power Transformer (MPT-2) Conservator Oil Preservation System (COPS) tank after repairs were performed on the MPT-2 cooler group #4 upper isolation valve. Specifically, on May 12, 2014, the MPT-2 pressure relief device (PRD) actuated because of a high oil level in conjunction with higher temperature at full power operations. This resulted in operators reducing Unit 2 power to approximately 79 percent rated thermal power to reseal the PRD after venting approximately 20 gallons of oil. The licensee drained approximately 200 gallons of oil from the COPS tank prior to resuming full power operations. The licensee documented this issue in CAP as IR 1659110.

The licensee's failure to follow vendor manual requirements for filling MPT-2 with oil was a performance deficiency. The performance deficiency was determined to be more than minor, and a finding because it was associated with the Initiating Events Cornerstone Attribute of Procedure Quality and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability. The finding was determined to be of very low safety significance because each of the questions provided in IMC 0609, Appendix A, Exhibit 1 "Initiating Events Screening Questions" was answered "No". This finding has a cross-cutting aspect of field presence in the area of human performance for failing to ensure supervisory and management oversight of work activities, including contractors and supplemental personnel. Specifically, oversight of vendor activities during re-fill of the COPS tank failed to ensure that vendor guidance was used (H.2).

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

Significance: G Mar 31, 2014

Identified By: NRC

Item Type: FIN Finding

STEAM DRYER/STEAM SEPARATOR LIFTING DEVICE FAILURE TO MEET AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) N14.6

The inspectors identified a finding of very low safety significance (Green) involving the licensee's failure to demonstrate compliance with American National Standards Institute (ANSI) N14.6-1978, Section 3.2.1.1. Specifically, the licensee did not establish the design stress factors based on the fracture toughness characteristics of the socket pins, lock pins, and hook pins for the steam dryer/steam separator lifting device. This issue was entered into the licensee's corrective action program (CAP) as Action Request (AR) 1517114, "Dryer/Separator Strongback Calculation Discrepancies," dated May 23, 2013, and AR 1578475, "Dryer/Separator Strongback Pin Inspection Criteria," dated October 30, 2013.

The inspectors determined the finding to be more than minor because the finding was associated with the Initiating Events Cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, compliance with ANSI N14.6-1978, Section 3.2.1.1 is to ensure safe load handling of heavy loads over the reactor core, spent fuel, and/or safety-related systems through establishing the design

based on the fracture toughness characteristics of the material. The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I -- Initial Screening and Characterization of Findings," Table 3. Since the finding was associated with shutdown conditions, the inspectors used IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that none of the conditions constituting a loss of control were met as described in Appendix G, Attachment 1, "Phase I Operational Checklists for Both PWRS and BWRS," for this finding and no Phase II or Phase III analysis was required. Specifically, the licensee provided information to inspectors that prior nondestructive examinations and inspections of the lifting device found no prior material defects. In addition, the licensee had not experienced any load drop events since placing the steam dryer/steam separator lifting device into service. The lifting device was also load tested successfully in accordance with the applicable requirements of ANSI N14.6. Therefore, the inspectors determined that this finding was of very low safety significance (Green). The inspectors did not identify a cross-cutting aspect associated with this finding because the concern was related to a design calculation from 2005, and thus was not necessarily indicative of current licensee performance.

No violation of regulatory requirements is associated with this finding based on the steam dryer/steam separator lifting device being a non-safety-related structural component.

Inspection Report# : [2014002](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

HPCI FLOOD BARRIER DEGRADED

A finding of very low safety significance (Green) and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings,"

was identified by the inspectors for the licensee's failure to meet the requirements of

QCTP 0130-11, "Internal Flood Protection Program," and QCTS 0810-10, "Reactor Building Internal Flood Barrier Surveillance," which require, in part, that internal flood protection requirements for emergency core cooling systems rooms are met. Specifically, the licensee failed to identify that a flood barrier for a fire protection pipe penetration into the Unit 2 high pressure coolant injection room was in a degraded condition. The licensee entered the condition into their CAP as Issue Report 2406984, "IEMA U2 HPCI Flood Penetration Concern," and was able to immediately correct the degraded condition of the link-seal type barrier by tightening the bolts around the seal.

The finding was determined to be more than minor because failing to identify degraded flood barriers could lead to safety-related equipment becoming susceptible to a flooding event. The finding was associated with the Mitigating Systems Cornerstone attribute of protection against external factors (flood hazard) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The inspectors answered, "No," to all of the Exhibit 2, "Mitigating Systems Screening Questions," in section B for external events and determined the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Consistent Process aspect because the licensee did not use a consistent and systematic approach to conducting flood barrier inspections [H.13].

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

Significance:  Dec 05, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify Aging Effects on Plant Equipment and Structures

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to effectively identify, evaluate, and document aging effects on plant equipment and structures as part of the licensee's Aging Management Programs for a plant within its period of extended operation. The inspectors identified two corroded pipe supports and associated base plates in the Unit 1 high pressure coolant injection (HPCI) room as well as a severely corroded nut and stud on the 1/2 diesel generator cooling water pump outboard mechanical seal. These conditions had not been previously identified, evaluated, or documented. The licensee entered this finding into their Corrective Action Program.

The performance deficiency was determined to be more than minor and a finding in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding screened as very low safety significance (Green) because the inspectors were able to answer "No" to each screening question, because the conditions had not yet affected structural integrity or operability of the systems. Specifically, the licensee confirmed the HPCI supports would be capable to perform their function and the remaining bolts on the mechanical seal were sufficient to prevent excessive leakage. The inspectors identified a cross-cutting aspect associated with this finding in the area of Human Performance, Resources component, because the licensee did not ensure that personnel, equipment, procedures, and other resources are adequate to assure nuclear safety by maintaining long term plant safety.

Inspection Report# : [2014008](#) (*pdf*)

Significance:  Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

ANGLE IRON SUPPORT INSTALLED WITH MINIMAL CLEARANCE TO UNIT 2 TORUS SHELL

A finding of very low safety significance (Green) and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the licensee's failure to evaluate the impact of a conduit support installed in close proximity of the Unit 2 torus shell. Specifically, during installation of the conduit support, the licensee failed to provide instructions to ensure that sufficient clearance from the torus shell was provided to accommodate the torus wall movements predicted in the Updated Final Safety Analysis Report (UFSAR) torus design basis load cases. Immediate corrective actions included performing an operability evaluation under Issue Report (IR) 1672301 that determined the torus remained operable under all design basis events. The licensee has also corrected the condition by cutting the conduit support to ensure sufficient clearance to the torus wall is maintained.

The performance deficiency was determined to be more than minor because the finding was associated with the design control attribute of both the Mitigating Systems and Barrier Integrity Cornerstones. The finding adversely affected the Mitigating Systems cornerstone attribute of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding also adversely affected the Barrier Integrity Cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. The inspectors determined the finding screened as very low safety significance (Green) because the licensee's operability evaluation determined the torus remained operable under all design basis conditions. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance because it was associated with a modification that occurred in the 1980s.

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

Significance:  Sep 26, 2014

Identified By: NRC

Item Type: FIN Finding

INADEQUATE ROUNDS PACKAGE ACCEPTANCE CRITERIA

A finding of very low safety significance (Green) was identified by the inspectors when they determined that non-licensed operator general area rounds and field checks were inadequate for the circumstances. The inspectors determined that the failure to have non-licensed operator rounds package acceptance criteria that met procedural requirements was a performance deficiency. The licensee entered this issue into the CAP as Issue Report (IR) 02385609, "PIR – Operator Rounds For HPCI Bearing Oil Lvl Differ between Units." The licensee had not had time to determine corrective actions before the end of the inspection.

The performance deficiency was 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 to respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," the

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finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure, system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross-cutting area of Human Performance in the aspect of Training. Specifically, the non-licensed operators should have been trained that an oil level not between the marked bands on the oil level indicator was an issue regardless of the rounds acceptance criteria for that parameter. (IMC 0310 H.9)

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Sep 26, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE ADMINISTRATIVE CONTROLS

A finding of very low safety significance (Green) and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when they determined that Technical Specification (TS) surveillance procedures contained inadequate acceptance criteria. The failure to have TS surveillance procedure acceptance criteria that ensured the Emergency Diesel Generator (EDG) loading would not exceed the maximum licensed limit was a performance deficiency. The issue was entered into the licensee's CAP as IR 02389102, "PIR Admin Controls For Allowed EDG Frequency Tolerance." The licensee had not had time to determine corrective actions before the end of the inspection.

The performance deficiency was determined to be more than minor because it was associated with the design 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 and is therefore a finding. Specifically, the licensee failed to ensure the acceptance criteria for EDG frequency and voltage would not affect the operability and reliability of the engine and safety related structures, systems or components. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," dated June 19, 2012, the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system or component. This finding has a cross-cutting aspect of resolution in the area of problem identification because the licensee did not take

effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, the licensee did not implement adequate administrative controls to their EDG testing procedures to ensure that the procedures adequately addressed the non-conservative TS. (IMC 0310 P.3)
Inspection Report# : [2014007](#) (pdf)

Significance:  Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

POST MAINTENANCE TEST FAILS TO ENSURE BATTERY CHARGER CAN PERFORM FUNCTION

A finding of very low safety significance and associated non-cited violation

of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the licensee's failure to meet the requirements of MA-AA-716-012, "Post Maintenance Testing," which states, in part that post maintenance testing ensures that a component is able to perform its intended function and that the original deficiency is corrected. Specifically, licensee procedure QCEMS 0210-01 failed to include quantitative and qualitative acceptance criteria for determining that the Unit 1 250 VDC Battery Charger could perform its intended function. This issue was placed into the licensee's CAP as IR 1631541. Immediate corrective actions included replacing the float potentiometer in the battery charger circuitry, replacing a thyristor in the voltage regulation circuitry, and correcting a loose solder connection identified in the battery charger circuitry. Planned corrective actions include revising procedure QCEMS 0210-01 to include acceptance criteria that ensure the battery chargers can satisfactorily perform their intended function.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors answered, "No," to all of the Exhibit 2, "Mitigating Systems Screening Questions," in Section A and determined the finding was of very low safety significance. This finding had a cross-cutting aspect of design margins in the area of Human Performance because the licensee did not operate and maintain the battery charger within design margins. Specifically, the licensee's post maintenance testing acceptance criteria did not give them enough margin to prevent the battery from becoming inoperable (H.6).

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

Barrier Integrity

Emergency Preparedness

Significance:  Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVACUATION TIME ESTIMATE SUBMITTALS

The inspectors identified a finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR 50.54(q)(2) as required by 10 CFR 50.47(b)(10) and 10 CFR Part 50, Appendix E, Section IV.4, for failing to maintain the effectiveness of the Quad Cities Nuclear Power Station Emergency Plan, as a result of failing to provide

the station evacuation time estimate (ETE) to the responsible offsite response organizations by the required date.

Exelon submitted the Quad Cities Nuclear Power Station ETE to the NRC on December 12, 2012, prior to the required due date of December 22, 2012. The NRC completeness review found the ETEs to be incomplete due to Exelon fleet common and site-specific deficiencies, thereby preventing Exelon from providing the ETEs to responsible offsite response organizations and from updating site-specific protective action strategies as necessary. The NRC discussed its concerns regarding the completeness of the ETE, in a teleconference with Exelon on June 10, 2013, and on September 5, 2013, Exelon resubmitted the ETEs for its sites. The NRC again found the ETEs to be incomplete. The issue is a performance deficiency because it involves a failure to comply with a regulation that was under Exelon's control to identify and prevent. The finding is more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of procedure quality and because it adversely affected the cornerstone objective of ensuring 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. The finding is of very low safety significance (Green) because it was a failure to comply with a non-risk significant portion of 10 CFR 50.47(b)(10). The licensee had entered this issue into their corrective action program (CAP) and re-submitted a new revision of the Quad Cities Nuclear Power Station ETE to the NRC on April 30, 2014. The cause of the finding is related to cross-cutting element of Human Performance, Documentation [H.7].

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

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