Quad Cities 2
3Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO MEET DESIGN REQUIREMENT FOR SAFETY-RELATED CABLES IN 'D' HEATER BAY
A finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was self-revealed for the licensee’s failure to demonstrate compliance with ComEd Standard N-EM-0035 for safety-related cables within the Unit 2 ‘D’ Heater Bay. Specifically, the licensee failed to route the Instrument Bus and Essential Service (ESS) Bus cables with minimum cable static bend radius requirements in a manner consistent with N-EM-0035. This resulted in an event that caused a fire in the turbine building, smoke in various motor control center (MCC) cubicles due to overheated control power transformers (CPTs) (including one safety-related MCC), a manual scram and main steam isolation, and an Alert emergency declaration. The licensee’s corrective actions for this event included repairing cables damaged in the fire, replacement of the expansion joint; and revision to the steam seal operating procedures. The licensee documented this issue in the corrective action program (CAP) as Issue Report (IR) 1642409.

The finding was determined to be more than minor per IMC 0612, Appendix B, “Issue Screening,” because it was a precursor to a significant event. Specifically, failure to install Instrument bus and ESS cables in accordance with the requirements of
N-EM-0035 resulted in the initiation of an electrical fault and cable fire. The fire resulted in a manual reactor scram and the loss of safety-related equipment. The performance deficiency was associated with the Reactor Safety - Initiating Events Cornerstone attribute of Design Control, and affected the cornerstone objective of ensuring the capability of equipment relying on the power supply form Instrument and ESS Buses, both during shutdown as well as power operations. A detailed risk evaluation was performed by the regional senior reactor analysts (SRAs), and the finding was determined to be of very low safety significance. The finding does not have a cross-cutting aspect, because it is associated with a performance deficiency from the timeframe of the plant’s original construction and is not representative of the licensee’s current performance.

Inspection Report# : 2014003 *(pdf)*

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO OPERATE THE GLAND SEAL SYSTEM AS DESIGNED
A finding of very low safety significance (Green) and associated non-cited violation of Technical Specification (TS) Section 5.4.1 was self-revealed on April 2, 2014 for the licensee’s failure to establish a procedure in accordance with the requirements of Regulatory Guide 1.33. Specifically, the licensee established procedure QOP 5600-01, “Gland Seal System Operation,” for use during startup of the Main Steam and Turbine-Generator systems. However, the procedure failed to include provisions to ensure that the steam seal regulator bypass valve, 2-3099-S2 (S2) was closed prior to lifting the steam seal bypass relief valve and exceeding the bypass line design pressure. That resulted in a failure of the piping and a significant steam leak in the ‘D’ heater bay. Immediate corrective actions taken by the

licensee included revising their procedures for operation of the Gland Seal system and conducting just-in-time training on Gland Seal system operation for operators prior to the subsequent startup on Unit 2. In addition, the licensee planned to review and revise their operator training program for the Gland Seal system. The licensee documented this issue in CAP as IR 1642409.
The performance deficiency was determined to be more than minor and a finding because it was a precursor to a significant event. Specifically, the Gland Seal System steam seal regulator bypass valve was opened at pressures that the bypass line was not designed to withstand. This led to a significant steam leak in the 'D' heater bay, and the resulting fire caused by a degraded cable fault. The inspectors concluded this finding was associated with the Initiating Events Cornerstone and a Detailed Risk Evaluation was required. The finding was determined to be of very low risk significance by the SRAs. The inspectors determined that a principal contributor to the finding was that the licensee did not stop when faced with uncertain conditions and risks were not evaluated and managed before proceeding. Specifically, when the licensee identified a steam packing leak in the S1 valve in June 2013 and decided to close the valve when leakage increased to an unacceptable level in October 2013, they failed to recognize the risk and prioritize the repair of the valve prior to the reactor startup on April 2, 2014. In addition, when operators faced unexpected system response during the startup of the Gland Seal system and conflicting procedural guidance, the cause of the problem was not thoroughly understood and evaluated prior to continuing the system startup. As a result, the inspectors assigned a cross-cutting aspect of challenging the unknown in the area of human performance (H.11).

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: G 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: G 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 response 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
3
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: G 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: G Jun 30, 2014
Identified By: NRC
Item Type: NCV NonCited Violation
SEISMIC SCAFFOLD IN CONTACT WITH SAFETY-RELATED EQUIPMENT
A finding of very low safety significance and associated non-citied 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 procedure MA-AA-796-024, "Scaffold Installation, Inspection, and Removal," when scaffold Q0178 was built with one of its supports in rigid contact with the operable Unit 2 torus. Immediate corrective actions included modifying the scaffold such that it was no longer in contact with

the Unit 2 torus. This issue was captured in the licensee's CAP as IR 1639356.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of protection against external factors and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, a scaffold built in contact with safety related equipment could damage the equipment and affect its availability and reliability. 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 has a cross-cutting aspect of documentation in the area of human performance because the licensee did not create and maintain complete, accurate and, up-to-date documentation. Specifically, the licensee did not completely and accurately evaluate the acceptability of a scaffold that was in contact with safety related equipment (H.7).

Inspection Report# : 2014003 *(pdf)*

Barrier Integrity

Emergency Preparedness

Significance: G 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

Last modified : November 26, 2014