Quad Cities 1
3Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
INADEQUATE ZONE OF PROTECTION FOR ELECTRICAL BUS MAINTENANCE
A finding of very low safety significance and associated NCV of Technical Specification 5.4, "Procedures," was self-revealed on March 14, 2015, for the licensee's failure to implement a clearance order in accordance with procedure OP–AA–109–101, "Clearance and Tagging," for electrical maintenance on Bus 12, Cubicle 9. The clearance order failed to provide a safe zone of protection for all physical work to be performed under the clearance order or for required equipment protection. Immediate corrective actions included stopping all electrical work and verifying electrical work boundaries prior to re-commencing work. The licensee documented the issue in the corrective action program (CAP) under Issue Report 2468511.

The finding was determined to be more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the failure to properly control and de-energize equipment prior to performing maintenance could have an impact on safety¬-related equipment (including equipment damage and potential loss of off-site power). The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings." Because the finding impacted the Initiating Events Cornerstone and Unit 1 was shut down at the time of the event, the inspectors determined the finding could be further evaluated using IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings." The inspectors answered "No" to all questions in Exhibit 2 of IMC 0609, Appendix G, Attachment 1 and determined the finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Work Management because the licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the licensee failed to plan, control, and execute a clearance order that provided a safe zone of protection for all physical work to be performed under the clearance order or for required equipment protection during maintenance on Bus 12, Cubicle 9 [H.5].

Inspection Report# : 2015002 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO EVALUATE DEGRADED OR NON-CONFORMING CONDITIONS FOR OPERABILITY
A finding of very low safety significance and an 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 document degraded or non conforming conditions in the corrective action program (CAP) and route or discuss the

issue with Operations shift management so that operability of the affected components could be evaluated. Immediate corrective actions included entering the issues into the CAP and evaluating the issues for operability. The licensee captured the issue in the CAP as Issue Reports (IRs) 2537968 and 2537936.
The finding was determined to be more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the failure to identify degraded, non-conforming, or unanalyzed conditions in the CAP and bring those conditions to the attention of Operations shift management so that the operability of safety-related systems, structures, and components (SSCs) may be evaluated could lead to those SSCs being in an inoperable condition without the appropriate Technical Specification (TS) actions taken. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. The finding was determined to be of very low safety significance because the control room emergency ventilation (CREV) and high pressure coolant injection (HPCI) systems remained operable. This finding had a cross cutting aspect of identification in the area of problem identification and resolution because the licensee did not identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, when degraded and non conforming conditions were identified, licensee personnel failed to promptly capture the issues in the CAP [P.1].

Inspection Report# : 2015003 *(pdf)*

Significance: G Sep 30, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO ADEQUATELY INSPECT RELAY CONTACTS FOR OXIDATION RESULTS IN RELAY FAILURE
A finding of very low safety significance and an 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 establish a preventive maintenance procedure for HFA relays that was appropriate to the circumstances. Immediate corrective actions included burnishing of the associated relay contacts and testing the associated relays. In addition, the licensee revised their relay inspection procedure and planned future relay replacements during the next refueling outage. The licensee entered the issue into their CAP as IR 2485051.
The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the failure to perform adequate preventive maintenance on the automatic depressurization system (ADS) logic HFA relay in 2013 resulted in the build up of oxidation on the relay contacts. This build up caused the relay to fail its next scheduled test in 2015. A senior reactor analyst performed a detailed risk evaluation and determined the finding was of very low safety significance. This finding had a cross cutting aspect of operating experience in the area of problem identification and resolution, because the licensee did not systematically collect, evaluate, and implement relevant internal and external operating experience in a timely manner. Specifically, the licensee identified several internal and external operating experience events related to relay contact oxidation and failed to implement changes to their relay inspection procedures to ensure that effective corrective actions were implemented [P.5].
Inspection Report# : 2015003 *(pdf)*

Significance: G Jun 30, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO CONDUCT POST MAINTENANCE TESTING FOLLOWING MANUAL OPERATION OF RCIC MOV
A finding of very low safety significance and associated NCV of Technical Specification 5.4, “Procedures,” was self-revealed on March 22, 2015, for the licensee’s failure to conduct procedurally required post-maintenance testing on

reactor core isolation cooling (RCIC) motor operated valve (MOV) MO 1–1301–61, following operation of the valve in the manual mode. Immediate corrective actions included manually engaging the motor clutch and functionally stroking the valve from the control room to verify operation. The licensee captured this condition in their CAP as Issue Report 2472416.

The finding was determined to be more than minor because it 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. Specifically, the licensee was not able to ensure the operability of the RCIC system when they failed to conduct post-maintenance testing (PMT) on RCIC 1–1301–61. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors answered "No" to all questions in Section A of Exhibit 2 and the finding screened as Green, or very low safety significance. This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because the licensee did not maintain complete, accurate, and up-to-date documentation. Specifically, the licensee failed to document the status of the RCIC valve after placing it in the manual mode of operation to ensure that the required PMT was performed [H.7].

Inspection Report# : 2015002 *(pdf)*

Significance: G Mar 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO ESTABLISH AND MAINTAIN SERVICE LIFE FOR SAFETY-RELATED RELAY RESULTS IN FAILURE AND INOPERABILITY
A finding of very low safety significance (Green) and associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was self-revealed on January 6, 2015, when an electrical maintenance worker found a tripped breaker in motor control center (MCC) 28–1, for the Unit 2 power feed to the common unit (Unit 0) fuel oil transfer pump (FOTP). The licensee determined that an HGA relay in the FOTP power transfer circuit had failed due to aging and not having any associated preventive maintenance task. The inspectors determined the licensee failed to establish and maintain the service life for the FOTP
HGA relay, which was a performance deficiency. This also resulted in the inoperability
of the Unit 0 emergency diesel generator (EDG) for longer than its technical
specification allowed outage time, which was a violation of Technical Specification 3.8.1, "AC Sources–Operating." The immediate corrective actions included replacing the failed relay and declaring the EDG operable following post-maintenance testing. The licensee captured the issue in their corrective action program (CAP) as Issue Report (IR) 2433389.
The performance deficiency was determined to be more than minor and a finding because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely 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 caused an unplanned inoperable condition for the Unit 0 EDG. The inspectors evaluated the finding using IMC 0609, Appendix A, "The SDP for Findings At-Power," issued June 19, 2012. The issue resulted in the EDG being inoperable for longer than the Technical Specification (TS) allowed outage time. A detailed risk analysis was performed and determined the finding was of very low safety significance. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because the licensee did not thoroughly evaluate issues to ensure that the resolution addressed causes and extent of conditions commensurate with their safety significance. Specifically, the licensee identified other EDG electrical component failures that occurred at the station where the causes were identified as failure to have associated preventive maintenance for the affected components and equipment. The extent of condition evaluations for those events failed to identify additional safety related components that did not have any associated preventive maintenance tasks or documented service life, including replacement schedules [P.2].

Inspection Report# : 2015001 *(pdf)*

Significance: G Mar 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO ENSURE STANDBY LINEUP RESULTS IN STEAM RELEASE IN THE HPCI ROOM
A finding and non-cited violation of very low safety significance (Green) was
self-revealed for the licensee's failure to ensure the Unit 1 high pressure coolant injection (HPCI) system was in a standby lineup configuration in accordance with station procedures. This represented a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." The performance deficiency resulted in a steam release into the Unit 1 HPCI room. The licensee took immediate actions to terminate the steam release by closing the HPCI steam isolation valves. The licensee captured the issue in their corrective action program as IR 2450896.

The performance deficiency was determined to be more than minor and a finding because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, Appendix A, "The SDP for Findings At-Power," and answered "No" to all of the screening questions in Exhibit 2 "Mitigating Systems," and concluded the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Work Management, because the organization failed to implement a process of planning, controlling, and executing work activities such that nuclear safety was the overriding priority; and the work process did not include the identification and management of risk commensurate to the work, and the need for coordination with different job activities. Specifically, the licensee failed to coordinate the simultaneous performance of two tests and ensure the HPCI system was in the proper lineup and configuration prior to test execution [H.5].

Inspection Report# : 2015001 *(pdf)*

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV Non-Cited 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: G Dec 05, 2014
Identified By: NRC
Item Type: NCV Non-Cited 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)*

Barrier Integrity

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO ESTABLISH ADEQUATE PROCEDURE TO PRECLUDE UNACCEPTABLE PRECONDITIONING OF THE STANDBY GAS TREATMENT SYSTEM
A finding of very low safety significance and an associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to establish a procedure appropriate to the circumstances that precluded unacceptable preconditioning of the standby gas treatment (SBGT) system during surveillance testing. The licensee performed an evaluation and concluded the SBGT system was operable and planned additional testing on the relay timing function. Other corrective actions included revising the applicable procedures such that unacceptable preconditioning would not occur. The licensee captured this issue in their CAP as IR 2524699.
The finding was determined to be more than minor because it was associated with the Barrier Integrity Cornerstone attribute of Procedure Quality and affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the inadequate procedure had the potential to mask the ability of the

SBGT system to initiate in time to prevent ex-filtration of radioactive gases during a design basis accident. The finding was determined to be of very low safety significance because it represented a degradation of the radiological barrier function for the SBGT system. This finding had a cross cutting aspect of questioning attitude in the area of human performance because the licensee did not recognize the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes. Specifically, the licensee failed to recognize that performing the steps in the specified sequence could unacceptably precondition the time-delay relay for the SBGT system and mask the ability of the system to perform its function [H.12].

Inspection Report# : 2015003 *(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