Quad Cities 2
2Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
BUS ENERGIZED WITH GROUNDING DEVICE INSTALLED
A finding of very low safety significance with an associated NCV of TS 5.4.1.a, "Procedures," was self-revealed on March 24, 2012, when operators energized an electrical bus in the switchyard with a grounding device still installed on that bus. Failure of a transmission maintenance supervisor to implement the requirements of OP-AA-109-101, "Clearance and Tagging," and have operations place a danger tag on a grounding strap installed on 345 kV Bus 9 resulted in a significant voltage perturbation and operating transient on Unit 1. The licensee entered the issue in the CAP as IR 1345302 and immediate actions included clearing the fault and restoring plant equipment. Individual qualifications were removed for parties involved in the event, and a root cause evaluation was performed.

The finding was determined to be more than minor because it impacted the Human Performance attribute of the Initiating Events 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, the Human Performance attribute was challenged because the human error resulted in a voltage transient that produced an operational transient on Unit 1 and could have resulted in a more severe challenge to both units. The inspectors performed a SDP Phase 1 screening for the finding using IMC 0609, Table 4a, for the Initiation Events Transient Initiators and determined that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The duration of the event, separation of divisional and emergency power supplies, and redundancy of equipment supplying safety functions were considered for this determination. Therefore, the finding screened as Green, or very low safety significance. The inspectors identified that this finding has a cross-cutting aspect in the area of Human Performance - Decision Making because both the station supervisor overseeing the electrical bus realignment and the clearance holder took action based on non-conservative assumptions that could easily have been validated before placing the electrical system at risk (H.1(b)).
Inspection Report# : 2012003 *(pdf)*

Significance: G Jun 30, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO IDENTIFY DESIGN DEFICIENCY IN VENDOR PRODUCT
A self-revealed finding of very low safety significance with an associated NCV of Technical Specification (TS) 3.7.7, "Main Turbine Bypass Valves System," was identified on April 18, 2012, when an unplanned reactor scram occurred during generator voltage regulator testing. Inspectors subsequently determined the licensee had failed to identify elimination of a time delay that changed how the system responded to a load reject with no turbine trip during vendor design documentation review for the digital electro-hydraulic control (DEHC) system modification implemented in 2006. Failure to perform the review with the rigor required by CC-AA-103-1003, "Owner's Acceptance Review of External Engineering Technical Products," is a performance deficiency entered into the licensee's corrective action program (CAP) as Issue Report (IR) 1355763. This finding resulted in exceeding the allowed out-of-service time for TS 3.7.7, "Main Turbine Bypass System," on at least eleven occasions between the two units since the modifications were installed.
The finding was determined to be more than minor because the performance deficiency adversely affected the Reactor Safety - Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. In this circumstance, the Design Control attribute of the cornerstone was adversely impacted when unintended consequences were introduced during a modification. Using IMC 0609, Attachment 4, Table 4a, Initiating Events Cornerstone, Transient Initiators, inspectors determined that the performance deficiency

did not contribute to the likelihood of both a reactor trip and unavailability of mitigation equipment since the main steam safety and relief valves are the credited pressure mitigation equipment and were unaffected by the event. Therefore, this finding screens as Green, or very low safety significance. The inspectors did not identify a cross-cutting aspect for this performance deficiency since it occurred during the DEHC modification review in 2006 and was considered a legacy issue.

Inspection Report# : 2012003 *(pdf)*

Significance: G Sep 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
VALVE OUT OF POSITION IN RADWASTE
A self revealed finding of very low safety significance with an associated NCV of Technical Specification (TS) 5.4.1.a was identified for failure to properly track the abnormal position of the waste sample tanks or floor drain sample tanks to waste collector tank valve, 1/2 2001 54. On August 12, 2011, an operator failed to position the valve in accordance with the operating procedure and did not follow station administrative procedures for tracking components that deviate from expected position. On August 17, a second operator transferred contaminated water to an unintended tank because of this deviation. This issue has been entered into the licensee's corrective action program as Issue Report (IR) 1252370. The 1/2 2001 54 valve was shut immediately on discovery to stop water transfer.

The performance deficiency was more than minor since it can reasonably be viewed as a precursor to a more significant event because mispositioned components could reasonably be expected to result in liquid spills or significant personnel exposure. This performance deficiency also adversely affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions in that a large, uncontrolled spread of contamination as a result of a mispositioned valve in the liquid radioactive waste system would impact access to plant areas and would complicate operator response. Using IMC 0609, Table 4a, under the Initiating Events Cornerstone, all questions were answered "No." This issue was screened as Green, or very low safety significance. Inspectors concluded that this issue had a cross cutting aspect in the area of Human Performance Decision Making. The operator made a decision outside his authority, in that, senior reactor operator approval is required to leave the 1/2 2001 54 valve open and the operator did not engage supervision to obtain that authorization (H.1(a)). (Section 1R04.1.b(2))
Inspection Report# : 2011004 *(pdf)*

Mitigating Systems

Significance: G Oct 21, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Non-Conservative Calibration Tolerance Limits for Electrical Relay Settings
The inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the licensee's failure to specify in a design calculation the allowable relay setpoint calibration tolerances. Specifically, the acceptance criteria used in relay setting calibration procedures was not bounded by the relay setting design calculations. The licensee entered this finding into their corrective action program and verified the calibrated relay settings would still provide adequate electrical protection coordination capability. The inspectors reviewed the licensee's analysis and had no concerns.

The performance deficiency 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 failure to adequately evaluate the design requirements of the relay settings could have resulted in a loss-of-relay coordination and could allow a fault on one piece of equipment to propagate to other safety-related equipment outside the designed isolation boundary. The finding screened as very low safety significance

(Green) because the finding was design deficiency confirmed not to result in a loss of safety function of a system or a train. There was no cross-cutting aspect associated with this finding because it did not reflect current performance.
Inspection Report# : 2011009 *(pdf)*

Significance: G Oct 21, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform Required In-Service Testing of Shutdown Cooling Suction Valves
The inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation of Technical Specification 5.5.6, “Inservice Testing Program,” for the failure to perform required testing in accordance with the American Society of Mechanical Engineers Code for eight valves that had active safety functions. Specifically, the licensee failed to test eight valves which were required to operate in Mode 3 to return the residual heat removal system from the shutdown cooling mode to the low pressure coolant injection mode of operation. The licensee entered this finding into their corrective action program and verified the valves were operable based on recent exercising of the valves during the last refueling outages.

The performance deficiency 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, degraded valve performance could go undetected without periodic testing and trending. The finding screened as very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding had no cross-cutting aspect because the incorrect valve classification was not indicative of current performance.
Inspection Report# : 2011009 *(pdf)*

Significance: G Oct 21, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Safety-Related Battery Charger Testing and Maintenance Procedures Did Not Include Steps for Electrolytic Capacitor Replacement
The inspectors identified 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, for the licensee’s failure to have appropriate maintenance procedures instructions in place for periodic replacement of the electrolytic capacitors in the 125Vdc and 250Vdc safety-related battery chargers. Specifically, the licensee failed to specify steps or requirements in battery chargers maintenance procedures for a periodic replacement every ten years, within the design service life of the electrolytic capacitors. The licensee entered this finding into their Corrective Action Program and initiated actions to address the non-conformance.

The performance deficiency 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, failing to periodically replace the electrolytic capacitors in the battery chargers as required by the vendor and the PCM program could result in the failure of the battery chargers to perform their safety function and respond to initiating events. The finding screened as very low safety significance (Green) because the finding was design deficiency confirmed not to result in a loss of safety function of a system or a train. There was no cross-cutting aspect associated with this finding because it did not reflect current performance. (Section 1R21.3.b.(3))
Inspection Report# : 2011009 *(pdf)*

Significance: SL-IV Oct 21, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Update the FSAR With the Safety Analysis Performed In Response to GL 2008-01
On January 11, 2008, the NRC requested each addressee of GL 2008 01 to evaluate its ECCS, DHR, and containment spray systems licensing basis, design, testing, and corrective actions to ensure that gas accumulation was maintained less than the amount that would challenge the operability of these systems, and take appropriate actions when conditions adverse to quality were identified. As a consequence, the licensee performed analyses that resulted, in part, in the development of void acceptance criteria, identification of gas susceptible locations in piping, development of periodic gas monitoring procedures for these newly identified locations, and the acceptance of some locations that could potentially accumulate voids that were determined to be benign. However, on September 4, 2011, the inspectors noted the licensee had not updated the UFSAR to reflect these analyses.
Inspection Report# : 2011009 *(pdf)*

Significance: G Oct 21, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Ensure that RHR Would Be Capable to Respond to a LOCA at Mode 3
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to ensure the emergency core cooling system mode of operation of the residual heat removal system would be capable of performing its mitigating function at Mode 3. Specifically, the residual heat removal system would experience flash evaporation during a rapid system depressurization while in Mode 3 and this condition was not analyzed. This finding was entered into the licensee’s corrective action program.

The performance deficiency was determined to be minor per the IMC-0612 significance determination process. Because it was associated with the Mitigating System Cornerstone attribute of Equipment Performance and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design of the residual heat removal system did not ensure that its emergency core cooling mode of operation would be capable of performing its mitigating function at Mode 3. Steam voids would form when transitioning from decay heat removal to emergency core cooling mode of operation in Mode 3 and this condition was not analyzed. The finding screened as very low safety significance (Green) using a Significance Determination Process Phase II evaluation. This finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee did not thoroughly evaluate relevant external operating experience. Specifically, the licensee’s evaluation of similar operating experience such as Information Notice 2010-11 incorrectly concluded the station was not vulnerable to the operating experience described therein. [P.2(a)] (Section 4OA5.1c(2))
Inspection Report# : 2011009 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
TURBINE BUILDING DIFFERENTIAL PRESSURE INDICATING POSITIVE
An NRC identified finding of very low safety significance with an associated NCV of 10 CFR 20.1302 was identified for failure to take action to prevent a potential unmonitored release on August 3, 2011, when the turbine building differential pressure indicated positive on the building differential pressure indication in the main control room. This issue was entered into the licensee's corrective action program as IR 1247501. Immediate corrective action included determination that the turbine building was still at a negative differential pressure and no unmonitored release path existed.

The performance deficiency was more than minor because it adversely affected the Public Radiation Safety Cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Failure to perform surveys when indicated conditions warrant increases the possibility that an unmonitored release could occur. Using IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," radioactive material control program flowchart, there was no public exposure, and this finding was screened as Green, or very low safety significance. The inspectors identified that this finding had a cross cutting aspect in the area of Human Performance Work Practices because operators failed to follow the steps of the annunciator response procedure (H.4(b)). (Section 1R04.1.b(1))
Inspection Report# : 2011004 *(pdf)*

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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