

Quad Cities 2

3Q/2013 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW CLEARANCE ORDER INSTRUCTIONS

A finding of very low safety significance and associated non-cited violation of Technical Specifications 5.4.1.a, "Procedures," was self-revealed on March 13, 2013, when operators placing a clearance on the Unit 1 analog trip system de-energized the Unit 2 analog trip system resulting in a Unit 2 half-scam. The operators that opened the wrong breaker did not follow the instructions in the clearance order brief as required by OP AA 109-101, "Clearance and Tagging," and misidentified the inverter on the south wall of the cable spreading room as the Unit 1 analog trip system inverter when it was actually the Unit 2 inverter. The operators did not use the concurrent verification techniques specified in the pre-job briefing for ensuring that the inverter was the correct component to be manipulated, and did not implement the clearance order as written. Immediate actions taken were removal of the implementing operators' qualifications and briefing to all operating personnel.

Inspectors determined that the issue was more than minor because it adversely affected the Reactor Safety Initiating Events Cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The performance deficiency challenged the configuration control attribute of the objective for operating equipment lineups. The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, Appendix A, "The Significance Determination Process For Findings At-Power." The inspectors answered all questions of Exhibit 1, "Initiating Events Screening Questions," for transient initiators and support system initiators. Questions in both categories were answered "No," and the finding screened as very low safety significance, or Green. Inspectors determined that a significant contributor to this finding was the failure of the operator performing breaker manipulation to verify the component label matched the clearance checklist and card in accordance with the site standard, HU-AA-101, Human Performance Tools and Verification Practices. As a result, inspectors identified that this issue had a cross-cutting aspect in the area of Human Performance - Work Practices for failure to use the human performance techniques to ensure that the work tasks are performed safely and individuals do not proceed in the face of uncertainty (H.4(a)).

Inspection Report# : [2013002](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

WRONG PARTS INSTALLED FOR CRD HCU

A finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was self-revealed through repetitive low pressure alarms on a recently overhauled control rod drive (CRD) hydraulic control unit (HCU) accumulator. Specifically, the work

instructions for overhaul of the HCU for CRD 2-0305-34-59 were not appropriate to the circumstances in that the wrong part number for the bottom O-ring was listed and as a result, the wrong sized O-ring was installed in the safety related application. The wrong O-ring allowed nitrogen pressure to leak out of the HCU accumulator after the HCU was returned to service. After the part discrepancy was identified, the licensee stopped all work on the HCU until the parts list was corrected and the procedure was updated to add the catalogue identification number for each part to the applicable steps. The HCU overhaul was completed and retested satisfactorily. An extent of condition review was performed to identify and evaluate other potential instances where the parts list may have been used. The inspectors determined that the development and implementation of an informal parts list was a significant contributor to the performance deficiency and identified that this issue had a cross-cutting aspect in the area of Human Performance – Work Control in that the licensee did not plan the activity with sufficient rigor to support long-term equipment reliability without reliance on manual actions (H.3(b)).

This performance deficiency was determined to be more than minor because it adversely affected the Mitigating Systems Cornerstone objective to ensure availability, reliability, and capability of mitigating systems for the Equipment Performance attribute because frequent manual operator actions were required to be taken to maintain reliability of the affected accumulator. The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, Appendix A, “The Significance Determination Process (SDP) For Findings At-Power.” The inspectors answered “No” to all questions of Exhibit 2, “Mitigating Systems Screening Questions,” Section C – “Reactivity Control Systems,” and therefore, the finding screened as Green or very low safety significance.

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

CALCULATION ASSUMPTIONS NOT TRANSLATED IN TO OPERATING PROCEDURES

A finding of very low safety significance and associated non-cited violation (NCV) of 10 CFR Appendix B, Criterion III, “Design Control,” was identified by the inspectors for the licensee’s failure to translate design requirements into procedures to ensure availability of the ultimate heat sink (UHS) in a loss of lock event. Specifically, the licensee failed to translate the need to minimize diesel generator cooling water (DGCW) flow as assumed in the design calculation into station operating procedures. In response to the inspectors’ concerns, the licensee initiated actions to verify the required flow of the DGCW system and assessed operability. Because the existing river temperature was significantly lower than 95°F (the assumed initial temperature), the licensee concluded the UHS was capable of performing its function. This violation was entered into the licensee’s corrective action program as issue report 1416634.

The inspectors determined the performance deficiency was more than minor because operating procedures did not require throttling of the DGCW flow or guidance if an emergency diesel generator was operating following a lock failure resulting from a barge colliding into the lock structure. The lack of guidance resulted in an increased heat load and resulted in reasonable doubt the UHS would remain below 108°F. The inspectors evaluated the finding using IMC 0609, Exhibit 4, “External Events Screening Questions,” and answered “no” to all of the applicable questions. Subsequent calculations by the licensee indicated the maximum flow would not challenge the maximum design temperature limits for the UHS. Therefore, the finding screened as of very low safety significance (Green). The inspectors determined the cause of this finding did not represent current licensee performance and, thus, no cross-cutting aspect was assigned.

Inspection Report# : [2013003](#) (*pdf*)

Significance:  May 17, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Translate Design Basis Into Toxic Chemical Response Procedures

A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the licensee's failure to translate the design basis correctly into procedures and instructions for the operators. Specifically, the licensee did not update procedures and instructions to ensure that operators would don respirators within two minutes of detection of a toxic chemical, ammonia, as determined in a calculation. The licensee entered the issue into their corrective action program and planned to revise the calculation using detection of odor as an entry condition for donning of respirator protection and update the operating procedures accordingly.

The finding was determined to be more than minor because the failure to provide procedures or instructions to operators to don respirators could result in the operators becoming incapacitated and not being able to respond to an accident or event that had a possibility of radionuclide releases. The finding was determined to be of very low safety significance (Green) due to the low probability of an ammonia release associated with a barge accident. The finding had a cross-cutting aspect in the area of human performance, work control, because the licensee's engineering organization did not coordinate with the operations organization on the need to don respirators within two minutes of detection of ammonia gas following a postulated toxic chemical accident.

Inspection Report# : [2013007](#) (*pdf*)

Significance: G Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

DIESEL GENERATOR COOLING WATER PUMP ALIGNED TO WRONG UNIT

A finding of very low safety significance and associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed on March 1, 2013, during restoration from the 1B core spray logic test, when the 1/2 diesel generator cooling water pump (DGCWP) was discovered to have been lined up to Unit 2 emergency core cooling system room coolers instead of Unit 1 coolers as expected. The operators that had performed the initial valve manipulations on February 28, 2013, did not complete the alignment as required by QCOP 6600-15, "1/2 Diesel Generator Cooling Water Pump Cross Connect Alignment." Specifically, the operators executing QCOP 6600-15 did not follow the procedure for aligning the Unit 1/2 DGCWP to supply the Unit 1 emergency core cooling system room coolers. The issue was entered into the licensee's CAP as Issue Report 1486754, and the licensee restored operability of the Unit 1 DGCW pump to restore compliance. Standdown briefings were conducted for all station operators to discuss the event lesson learned, and performance management actions were implemented for the operators involved in the event.

This issue was more than minor because it adversely affected the Reactor Safety Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences in that failure to align cooling water per the procedure adversely impacted the cornerstone attribute of Configuration Control for operating plant equipment lineups. Specifically, the as-left equipment lineup was different than that reported to the main control room when the activity was completed. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609 Appendix A, "The Significance Determination Process For Findings At-Power." The inspectors answered all questions of Exhibit 2, "Mitigating Systems Screening Questions," Section A - Mitigating SSCs and Functionality (Except Reactivity Control Systems) "No," and therefore, the finding screened as Green or very low safety significance. This finding has a cross-cutting aspect in the area of Human Performance - Work Practices because the licensee personnel did not use human performance tools and techniques to ensure proper execution of the task (H.4(a)).

Inspection Report# : [2013002](#) (*pdf*)

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

DIESEL GENERATOR TECHNICAL SPECIFICATION FREQUENCY AND VOLTAGE VARIATION NOT CONSIDERED IN LOADING CALCULATIONS

The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to verify and ensure that operating the emergency diesel generators (EDGs) at the limits of voltage and frequency, allowed by Technical Specification (TS) 3.8.1.2, would not affect the safety related components. Specifically, the license failed to ensure the EDGs, operating under any combination of allowed voltage and frequency, would not be loaded in excess of the licensed limit and would not cause supplied components to become inoperable. The licensee entered the issue into the corrective action program (CAP) as Issue Report (IR) 01288784, “CDBI – Technical Specification Limits for EDG,” and restricted EDG operation to near the midpoint of the allowed TS range during any potential event until the licensee demonstrates operability over the full TS range.

The finding was more than minor because it affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design control attribute was adversely affected because the licensee failed to ensure the TS allowed operating band for EDG frequency and voltage could not affect the operability and reliability of mitigating system components. Based on a Phase 3 internal events SDP evaluation performed by a regional senior reactor analyst, the inspectors determined the finding was of very low safety significance (Green). No cross-cutting aspect was assigned since the analysis was last performed in May of 2007 and is not necessarily reflective of current performance.

Inspection Report# : [2012005](#) (pdf)

Significance:  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW SURVEILLANCE PROCEDURE

A self-revealed finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedure, and Drawings,” were identified on October 25, 2012, when the operator performing the Unit 2 EDG surveillance test failed to follow procedural direction when applying load to the machine resulting in the Unit 2 diesel generator being inoperable for approximately seven hours while troubleshooting activities were conducted. The operator did not perform the diesel loading in accordance with the procedure in that real load was applied in a manner that changed reactive load significantly in the opposite polarity from real load and resulted in a “loss of field” trip of the diesel generator output breaker. After troubleshooting, the surveillance was completed to ensure no impact to the voltage regulating circuit and restore operability for prior work activities. This issue was entered into the licensee’s CAP as IR 1431240. Immediate corrective actions included revision of procedures that operated the diesel generator in parallel with another source to include information reminding operators that the Unit 2 EDG responded differently to load adjustments, and care should be used when making adjustments to prevent a “loss of field” trip.

The finding was more than minor because it affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The deficiency impacted the Equipment Performance attribute for reliability in that the performance deficiency challenged the voltage regulator protective feature and could have damaged the excitation circuit for the diesel generator. Inspectors performed the Phase 1 screening of the finding using the SDP and determined that the issue was of very low safety significance, or Green. The questions in IMC 0609, Attachment 4, Appendix A, Exhibit 2, Section A were answered “No” by inspectors because the diesel was quickly made available for emergency response following the breaker trip, and the remaining diesel generator and both offsite power sources were operable. Inspectors determined this finding to be cross-cutting in Human Performance-Resources in that the licensee ensures that appropriate training is provided to assure nuclear safety (H.2(b)) because a contributor to this finding was that a

post-maintenance change in voltage regulator performance was not systematically communicated to the operating staff through training.

Inspection Report# : [2012005](#) (*pdf*)

Barrier Integrity

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

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