D.C. Cook 1 – Quarterly Plant Inspection Findings

3Q/2017 – Plant Inspection Findings

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Initiating Events

Mitigating Systems

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Ensure the Unit 2 CCW HX Monitoring Program Could Demonstrate Its Continued Operability Between Maintenance Intervals
The inspectors identified a finding of very low safety significance (Green) and associated NCV of Title 10 of the Code of Federal Regulations, (CFR) Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to establish a heat exchanger monitoring program for the Unit 2 east component cooling water (CCW) heat exchanger that demonstrated it would perform satisfactorily in service and remain operable within its required range of physical conditions for the entire interval between heat exchanger maintenance inspections and cleanings. The licensee entered this finding into their Corrective Action Program (CAP) and, after a review of the Ultimate Heat Sink temperatures, determined the Unit 2 East CCW heat exchanger remained operable because the Ultimate Heat Sink temperatures had remained below the point where operability of the heat exchanger could be challenged.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and it adversely affected the associated cornerstone objective to ensure the availability, reliability, and capability of the CCW system to respond to initiating events to prevent undesirable consequences. Specifically, the monitoring program established for the Unit 2 East CCW heat exchanger did not ensure its availability, reliability, and capability for the entire interval between heat exchanger maintenance inspections and cleanings. The finding screened as of very low safety significance (Green) because although it affected the design or qualification of the Unit 2 East CCW heat exchanger, it did not result in the loss of operability or functionality of the heat exchanger. The inspectors determined this finding had an associated cross cutting aspect, Design Margins, in the Human Performance cross cutting area [H.6] because the licensee did not ensure the Unit 2 East CCW heat exchanger's heat transfer margin was carefully guarded after discovering excessive tube plugging above the

acceptance criteria in 2016. Specifically, special attention was not placed on maintaining the safety related heat exchanger to ensure it would remain capable of performing its specified safety function within the required range of physical conditions during the entire interval between heat exchanger maintenance inspections and cleanings.

Inspection Report# : 2017002 *(pdf)*

Significance: G Jun 30, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Identify Parts Subject to a Part 21
A self revealed finding and associated violation occurred on April 2, 2012, when the licensee failed to prevent installation of relays identified in a Part 21. Although the performance deficiency occurred in 2012, the consequence of the error did not manifest until March 2017, when a defective relay caused the Unit 2 control room indicating and display (CRID) 3 inverter to transfer and remain on the alternate power supply. Title 10 CFR 50 Appendix B, Criterion XV requires, in part, that "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their installation." Contrary to this requirement, on April 22, 2012, the licensee failed to prevent installation of an AMETEK board, PC201 with a defective relay. This led to a failure of the CRID 3 inverter on March 27, 2012. The licensee replaced the circuit board and restored CRID 3 to an operable status.

The inspectors determined that the failure to prevent installation of defective parts into the safety related CRID system was a performance deficiency that warranted a significance determination. Using Attachment 0609.04, "Initial Characterization of Findings," dated October 7, 2016, Table 2, the inspectors determined that the finding affected the Mitigating Systems cornerstone. As a result, the inspectors evaluated the finding using IMC 0609, Attachment 1 Exhibit 2, dated June 19, 2012. The inspectors answered "no" to all the questions, therefore the finding screened as Green. Using Attachment 0609.04, "Initial Characterization of Findings," dated October 7, 2016, Table 2, the inspectors determined that the finding affected the Mitigating Systems cornerstone. The inspectors did not identify a cross cutting aspect associated with this finding because it was not reflective of current performance.

Inspection Report# : 2017002 *(pdf)*

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Design Control Measures to Ensure Leakage Remained Within Analysis
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 have adequate design control measures verify that the Essential Service Water to Containment Spray (CTS) heat exchanger outlet valves were not leaking in excess of the limits of the Large Break Loss of Coolant Accident (LBLOCA) analysis. This finding was entered into the licensee's CAP to evaluate adequate design control measures.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the capability of the CTS system to respond to an initiating event to prevent undesirable consequences. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality of one of the trains of the CTS system. The inspectors did not identify a cross cutting aspect associated with this finding because it was not reflective of current performance.

Inspection Report# : 2017002 *(pdf)*

Significance: G Jun 30, 2017
Identified By: Self-Revealing
Item Type: FIN Finding
Single Point Failure Vulnerability in Annunciator System
A self revealed finding occurred on March 30, 2017, when operation of a work station for the control room annunciators caused a loss of all annunciators in the Unit 1 control room. Specifically, a software error coupled with an overflowing cache caused a single point failure of the Unit 1 annunciator. When in use by a control room operator, Server 1 for the annunciator system failed and transferred functions to Server 2.
Server 2 also failed causing a loss of all annunciators for the Unit 1 control room. The licensee restored the system a few hours later and entered the condition into the corrective action program.

The inspectors determined that the failure to design the system to preclude loss of a single active component from causing a loss of the annunciator system was a performance deficiency that warranted a significance determination. Using IMC 0612, the inspectors determined the finding was more than minor because it adversely impacted the mitigating system cornerstone objective to ensure the availability of systems that respond to initiating event. Using IMCC 0609, the inspectors determined that support of the Senior Risk Analyst (SRA) was needed because the condition resulted in the loss of a function, the annunciators. The SRA performed a simple detailed analysis and concluded the finding was of very low safety significance. The inspectors did not identify a cross cutting aspect associated with this finding because it was not reflective of current performance.

Inspection Report# : 2017002 *(pdf)*

Significance: G Mar 31, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Control Nonconformaing Delivery Valve Holders on Emergency Diesel Generators
A self revealed finding of very low safety significance with an associated NCV of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," occurred when the delivery valve holder (DVH) on a fuel injection pump failed during a run of the 1AB emergency diesel generator (EDG). Each cylinder on an EDG has a fuel injection pump. The DVH is the part of the fuel injection pump where the high pressure fuel line meets the pump discharge. A thru wall crack developed from a machined portion inside the DVH that had too sharp of a corner. This same phenomenon occurred onsite and caused a leak in 2013 as well. In 2013, the licensee identified the tight radius as an issue and also identified a particular manufacturing lot of DVHs that might have the tight radius. Contrary to their commercial grade dedication (CGD) procedures, the licensee did not update their CGD plan for these parts to include the radius as a critical characteristic. Further, the licensee relied on informal communications from the commercial grade supplier of the parts to conclude only a certain subset of the suspected lot of DVHs were susceptible to cracking. Finally, several management approved actions to remove all affected DVHs of the lot were not performed, as there was the belief by some that only certain DVHs were affected. As a result, the licensee installed many DVHs from the suspect lot they thought were acceptable. However, in December 2016, one of the DVHs thought to be acceptable developed a leak during an EDG run. The radius was discovered to be out of tolerance, as were numerous other radii in DVHs across all of the EDGs which were from the suspect manufacturing lot. The licensee declared three of the four onsite EDGs inoperable, replaced DVHs, and commenced a root cause evaluation to address the issue.

The issue was more than minor because it adversely affected the Design Control attribute of the Mitigating Systems cornerstone. Specifically, allowing nonconforming parts to be installed on safety related equipment without proper controls or evaluation adversely affects the cornerstone objective of ensuring the availability, reliability, and capability

of systems that respond to initiating events to prevent undesirable consequences. The finding screened as Green because performance testing of representative DVHs and engine analysis demonstrated that the EDGs in the as found condition would have been able to perform their safety functions for the required lengths of time. The inspectors determined the issue had a cross cutting aspect in the Problem Identification and Resolution area, specifically, P.2, "Evaluation." Despite identifying a defect on a safety related part due to a failure in 2013, the licensee failed to properly evaluate the condition and ensure all susceptible parts were accounted for. Specifically, the failure to follow station processes for corrective action and CGD resulted in a defective part causing a leak on an EDG.
Inspection Report# : 2017001 *(pdf)*

Barrier Integrity

Significance: G Jul 28, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Correct Operable, but Non-Conforming Conditions
The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 Code of Federal Regulations (CFR) Part 50, Criterion V for three examples where the licensee failed to follow procedures associated with the licensee's quality assurance program. This issue resulted in the licensee not properly classifying some structures, systems and components (SSCs) as operable, but non-conforming, consistent with station procedures.

The inspectors determined that the failure to properly classify the above SSCs as operable, but non-conforming, was within the licensee's ability to foresee and correct and was, therefore, a performance deficiency. This performance deficiency was considered more than minor, because it adversely affected the Design Control attribute of Reactor Safety□Barrier Integrity, ensuring that SSCs would remain functional during a design basis event. Specifically, station procedures required that prompt action be taken to address operable, but non-conforming conditions. The inspectors evaluated the finding using the Significance Determination Process in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, dated June 19, 2012. The finding was of very low safety significance (Green), because there was no actual loss of safety function for the affected SSCs.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of resolution, specifically to ensure that the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance.

Inspection Report# : 2017007 *(pdf)*

Emergency Preparedness
Occupational Radiation Safety

Significance: G Mar 31, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Brief Worker Entry to High Radiation Area Resulting in the Unplanned Dose Rate Alarm
A finding of very low safety significance and an associated Non-Cited Violation of Technical Specification 5.7.1.b was self revealed for the failure to a make radiation worker aware of the radiation dose rate before entering a high radiation area. The failure to brief the worker resulted in an unplanned electronic dosimeter dose rate alarm. The worker immediately exited the area and reported the event to the radiation protection staff. The licensee entered the event into their Corrective Action Program as Action Request 2016-13827.

The inspectors determined that the performance deficiency was more than minor in accordance with Inspection Manual

Chapter (IMC) 0612, Appendix B, because the finding impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, worker entry into a high radiation area without an adequate briefing could lead to unintended dose. The inspectors also identified an example in IMC 0612, Appendix E, which is similar to the performance issue. Therefore, the finding was determined to be of very low safety significance in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008. The violation was of very low safety significance (Green) because: (1) it did not involve as low as reasonably achievable planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The inspectors concluded that the cause of the finding involved a cross cutting component in the human performance area, H.4, in the area of teamwork and communication and coordination across organizational boundaries, specifically between radiation protection staff and the individual. This resulted in the worker proceeding into areas that they were not briefed to enter which contained unknown dose rates.
Inspection Report# : 2017001 *(pdf)*

Public Radiation Safety

Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : November 29, 2017

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