D.C. Cook 1
4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2013
Identified By: Self-Revealing
Item Type: FIN Finding
Improper Setting in Digital Control System
A self revealed finding of very low safety significance (Green) occurred because the licensee failed to adjust a key parameter, (KWINIT), in the turbine digital control system after replacing and calibrating the turbine control system linear variable differential transformers. Vendor documents for the generator recommended an initial load of 2 to 5 percent of full load when the turbine generator is synchronized to the grid. For Cook Unit 1, this equates to 22 to 54 megawatts. However, the licensee did not adjust the KWINIT parameter, which is used to determine control valve position, after the turbine control system linear variable differential transformers were replaced and subsequently calibrated using a tighter tolerance than previously used. Consequently, when the turbine generator was synchronized to the grid the turbine control valves opened more than on previous synchronizations, which resulted in picking up excessive load. As a result, reactor cooling system (RCS) temperature momentarily lowered below the minimum temperature for criticality. As an immediate corrective action, the licensee stabilized the plant by taking manual control of the turbine generator. The licensee has entered the condition into the corrective action program (CAP) as AR 2013 7472.

Using IMC 0612 the inspectors concluded that this issue was more than minor because it is associated with the equipment performance attribute in the Initiating Events Cornerstone and it adversely impacted the cornerstone objective of limiting the likelihood of events that upset plant stability. Using IMC 0609, Appendix A, Exhibit 1, the inspectors concluded the finding was of very low safety significance (Green) because it did not cause both a reactor trip and a loss of mitigating equipment. The inspectors concluded the finding had an aspect in the Work Control component of the Human Performance cross-cutting area because the licensee did not coordinate work activities to address the impact of changes to work activities on plant performance

Inspection Report# : 2013004 *(pdf)*

Significance: G Jul 26, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Evaluate Routing of Fiber Optic Cable in Combustible Exclusion Zone.
The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specification 5.4.1.d, “Procedures,” for the failure to control combustibles in accordance with a Fire Protection Program (FPP). Specifically, the licensee failed to obtain the FPP engineering review when they routed a fiber optics cable in a combustible exclusion area which was designated to establish separation between two fire areas required per 10 CFR Part 50, Appendix R. A twenty feet separation space with no intervening combustibles was located between Fire Areas AA36 and AA42 in the Auxiliary Building at 609 foot elevation. The licensee subsequently entered the issue into their Corrective Action Program and performed a preliminary evaluation of this issue and concluded that the cable routing did not affect the requirements of the FPP.

The inspectors determined that this finding was more than minor because if left uncorrected, it would become a more significant safety concern. Specifically, the licensee's failure to perform an engineering evaluation when introducing combustibles in the combustible exclusion zone or safety-related areas could potentially affect the validity of future evaluations. The inspectors determined that the finding screened as having very-low-safety significance in Task 1.3.1 of IMC 0609, Appendix F. This finding has a cross-cutting aspect in the area of human performance, work control, because the licensee failed to coordinate the routing of the fiber optics cable through a combustible exclusion area with the Fire Protection Engineer (FPE).

Inspection Report# : 2013009 *(pdf)*

Significance: G Jun 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Through Wall Leak
The inspectors identified a finding of very low safety significance with an associated non cited violation of Technical Specification (TS) 5.4.1 for failure to implement procedures listed in Regulatory Guide 1.33. Specifically, the licensee's boric acid control program requires boric acid leakage conditions be identified and documented. However, licensee personnel failed to identify a boric acid deposit indicative of a through wall leak on the reactor coolant system (RCS) 'B' loop flow indicator instrument line, which was identified by the inspectors. Corrective actions included replacing the section of pipe with the leak and entering the condition into the corrective action program (CAP).

The inspectors determined that the failure to identify the boric acid leakage as required by licensee procedures was a performance deficiency that warranted a significance determination. The performance deficiency adversely impacted the initiating events cornerstone objective of limiting the likelihood of events that upset plant stability in that the through wall leak impacted the equipment performance attribute of barrier integrity. Specifically, the through wall leak could further deteriorate and result in higher leakage. The inspectors determined the finding was not of more than very low safety significance (Green) using Exhibit 1 of IMC 0609, Appendix A, because the finding could not reasonably result in exceeding the RCS leak rate for a small break loss of coolant accident (LOCA); and could not have likely affected other systems used to mitigate a loss of coolant. The finding includes a cross cutting aspect of planning of work activities (H.3(a)) in the area of human performance. Specifically, the planning did not account for job site conditions, including systems, structures and components that may impact the ability to identify boric acid residue.
Inspection Report# : 2013003 *(pdf)*

Significance: G Mar 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Establish Feed Pump Control Bands
One self revealing finding of very low safety significance (Green) with an associated NCV of Technical Specification (TS) 5.4.1 occurred because of a failure to implement plant procedure OHI-4000, Conduct of Operations (COOP). While responding to oscillating levels in steam generator (SG) #4 following a signal position controller failure and resultant power transient, control room operators failed to follow conduct of operations procedure requirements for establishing a control band for controllers placed in manual. This failure contributed to SG levels becoming unstable and rising to within 1 percent of the level for an automatic turbine trip and resultant reactor trip. The licensee stabilized the plant and restored controllers to automatic. Corrective actions included a debrief of personnel in the control room and a lessons learned to all operations personnel. The licensee entered the issue into the corrective action program.

The inspectors determined that the failure to implement the COOP procedure during at power operation was a licensee performance deficiency that warranted an evaluation in accordance with the Significance Determination Process (SDP). The inspectors concluded that performance deficiency was more than minor because it was associated with the Initiating Event cornerstone attribute of human performance and adversely impacted the cornerstone objective of limiting the likelihood of events that upset plant stability. Since the performance deficiency did not result in a reactor trip, the inspectors concluded that the finding was of very low safety significance. The finding includes the H.4(c) cross cutting aspect in the work practices component of the human performance area because supervisory personnel in the control room did not provide effective oversight to support nuclear safety. Specifically, supervisory command and control was not effective while responding to a SG level transient that approached the turbine trip setpoint.

Inspection Report# : 2013002 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2013
Identified By: Self-Revealing
Item Type: FIN Finding
Faulted 4KV Qualified Off-site Circuit
A finding of very low safety significance was self-revealed on April 24, 2013, because the licensee failed to comply with requirements contained in procedure PMI 7030, “Corrective Action Program,” prior to restoring power to the Unit 1 reserve auxiliary transformer CD-101. Specifically, following multiple trips of supply breaker 12 CD, the licensee failed to correct an issue, defined as a condition adverse to quality in their corrective action program, prior to restoring power to the transformer on April 21. This ultimately led to the supply breaker to the Unit 1 and 2 reserve auxiliary transformers opening due to a faulted cable. No violations of NRC requirements were identified for this issue since the degraded cable was on a non-safety related portion of the electrical system. The licensee entered the issue into the corrective action program as AR 2013 6194. The corrective actions for this issue included replacing the faulted cables and testing the unaffected cables.

Using IMC 0612, the inspectors concluded that the issue was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone and it adversely impacted the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded insulation failed causing a loss of the qualified circuit; a condition which lessened the likelihood of its availability for some events. Using IMC 0609, Appendix A, Section 6, a detailed risk evaluation, assuming inoperability of four days, determined the delta Core Damage Frequency was less than 1E 6; therefore the finding screens as very low safety significance (Green). The inspectors concluded this finding was associated with an aspect in Operating Experience component of the Problem Identification and Resolution cross-cutting area because the licensee did not implement and institutionalize operating experience information from the Electric Power Research Institute (EPRI) and Institute of Electrical and Electronics Engineers (IEEE) into processes and procedures.

Inspection Report# : 2013004 *(pdf)*

Significance: G Jul 26, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Propped Open Fire Doors Required Manual Actuation of the CO2 System to Close

The inspectors identified a finding of very low safety significance (Green) and associated NCV of the D. C. Cook Nuclear Power Plant facility operating licensee conditions for the Fire Protection Program for the licensee's failure to ensure fire doors that were propped open will automatically close at time of a fire. Specifically, Fire Doors 1-DR-AUX471 and 2-DR-AUX472 were found propped open and held by fusible links and CO2 devices. In the event of a fire in either Fire Area AA40 or Fire Area AA43, the associated door would not automatically close due to the location of the fusible link, and the CO2 pop-off devices would activate when the CO2 System is manually actuated. The licensee subsequently entered the issue into their Corrective Action Program and established fire tours of the affected fire areas.

The inspectors determined that this finding was more than minor because the failure to ensure the propped open fire doors would automatically close in the event of a fire did not ensure that the fire would not spread between the adjacent fire areas separated by the doors and could have potentially compromised the ability to safely shutdown the plant. Based on the Detailed Risk-Evaluation completed by the Region III Senior Reactor Analysts (SRA), the inspectors determined the finding was of very low safety significance (Green) because the resulting change in the Core Damage Frequency (?CDF) was less than 1E-6/yr. The finding did not have a cross-cutting aspect because it was not reflective of current performance.

Inspection Report# : 2013009 *(pdf)*

Significance: G Jul 26, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Assure that a Second Fire Pump would Start upon Demand at the Setpoint
The inspectors identified a finding of very low safety significance (Green) and associated NCV of the D. C. Cook Nuclear Power Plant facility operating licensee conditions for the Fire Protection Program for the licensee's failure to ensure fire doors that were propped open will automatically close at time of a fire. Specifically, Fire Doors 1-DR-AUX471 and 2-DR-AUX472 were found propped open and held by fusible links and CO2 devices. In the event of a fire in either Fire Area AA40 or Fire Area AA43, the associated door would not automatically close due to the location of the fusible link, and the CO2 pop-off devices would activate when the CO2 System is manually actuated. The licensee subsequently entered the issue into their Corrective Action Program and established fire tours of the affected fire areas.

The inspectors determined that this finding was more than minor because the failure to ensure the propped open fire doors would automatically close in the event of a fire did not ensure that the fire would not spread between the adjacent fire areas separated by the doors and could have potentially compromised the ability to safely shutdown the plant. Based on the Detailed Risk-Evaluation completed by the Region III Senior Reactor Analysts (SRA), the inspectors determined the finding was of very low safety significance (Green) because the resulting change in the Core Damage Frequency (?CDF) was less than 1E-6/yr. The finding did not have a cross-cutting aspect because it was not reflective of current performance.

Inspection Report# : 2013009 *(pdf)*

Significance: G Jul 26, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Incorporate Required Shutdown Guidance into Fire Response Procedure.
The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specification 5.4.1.d, “Procedures,” for the licensee's failure to provide adequate guidance required for safe shutdown in the response procedures. Specifically, the licensee failed to provide adequate guidance to reset the associated

Emergency Diesel Generator (EDG) lockout relays to support EDG operation, which were required to power safe shutdown components to achieve shutdown in the event of a fire in either Fire Zones 79 or 85 for Units 1 or 2 respectively. The licensee subsequently entered the issue into their Corrective Action Program and added steps into the fire response procedure.

The inspectors determined that this finding was more than minor because the failure to provide adequate procedural guidance to reset the EDG lockout relays could have potentially compromised the ability to safely shutdown the plant in the event of a fire. Based on the Detailed Risk Evaluation completed by the Region III SRA, the inspectors determined the finding was of very low safety significance (Green) because the resulting change in the Core Damage Frequency (?CDF) was equal to 4.17E-9/yr. The finding did not have a cross-cutting aspect because it was not reflective of current performance.
Inspection Report# : 2013009 *(pdf)*

Significance: G Jun 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement the Scaffold Guidelines Procedure
The inspectors identified a non-citied violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” because the licensee failed to properly install seismically qualified scaffolds adjacent to safety related equipment as required by site procedures. Specifically, the licensee’s Scaffolding Guidelines procedure requires that scaffold builds not be erected in contact with plant equipment. Contrary to this requirement, the inspectors identified several instances where erected scaffolds were in contact with safety related equipment. For corrective actions, the licensee completed a walk down of all erected scaffolds installed on site, briefed scaffold crews on equipment clearance requirements, are revising the Scaffolding Guidelines procedure to include increased supervisory oversight and separation gap requirements, and entered the condition into the Corrective Action Program (CAP).

The inspectors determined that failure to properly implement the scaffolding procedure was a licensee performance deficiency that warranted a significance determination. The performance deficiency adversely impacted the Mitigating Systems cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The issue affected the protection against external factors attribute for this cornerstone. Specifically, several scaffolds were erected in contact with safety related equipment which could challenge the availability, reliability and capability of safety related systems affected during a seismic event. The inspectors determined the finding was not of more than very low safety significance (Green) using Exhibit 2 of IMC 0609, Appendix A, because the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic event. The inspectors concluded that this finding was associated with a cross cutting aspect in the work practice component of the human performance cross cutting area. Specifically, contractor oversight and operations supervision did not provide effective oversight to prevent scaffold contact with safety related equipment .

Inspection Report# : 2013003 *(pdf)*

Significance: G May 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Emergency Operating Procedures for Mitigating the Consequences of a SGTR per TS Section 5.4.1, “Procedures”
The inspectors identified a finding of very low safety significance, with two associated NCVs of Technical Specification (TS), Section 5.4.1, “Procedures,” and TS 3.7.4, “Steam Generator (SG) Power Operated Relief Valves (PORVs),” for the failure to implement design measures which were consistent with the licensing bases for a Steam

Generator Tube Rupture (SGTR) concurrent with a Loss of Offsite Power (LOOP) to the station. Specifically, the licensee's emergency operating procedures (EOPs) 1(2) OHP-4023-E-3, "Steam Generator Tube Rupture," failed to provide adequate actions to mitigate the consequences of a SGTR, coincident with a LOOP, in sufficient time to prevent overfilling the ruptured steam generator. Additionally, the licensee failed to declare the affected unit's SG PORVs inoperable and complete the required actions when the non-safety-related control air compressor (CAC) was made unavailable and incapable of providing its required support function. With the unit's CAC unavailable, the SG PORVs would not be capable of being remotely operated from the control room during a SGTR concurrent with the LOOP. The licensee entered this issue into their corrective action program and completed modifications to establish Nitrogen as another motive force to support SG PORV operability.
Inspection Report# : 2013010 *(pdf)*

Significance: G May 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Enter the Limiting Condition for Operations and Perform Required Actions per TS 3.7.4, "SG PORVs."
This performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was evaluated using the SDP in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power." Based on the Detailed Risk Evaluation required, the inspectors determined the finding was of very low safety significance (Green) because the resulting change in the Core Damage Frequency (CDF) was equal to 2.4E-8/yr. The inspectors determined the cause of this finding involved the crosscutting area of human performance, the component of decision making, and the aspect of conservative assumptions, H.1(b) in that the licensee did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement that it is unsafe in order to disapprove the action. Specifically, the licensee incorrectly assumed the unaffected unit's plant air system (not backed by the emergency diesel generators) would be available during the SGTR scenario to supply motive power to the affected unit's SG PORVs. This assumption failed to take into account the licensing basis requirement of considering a SGTR and a loss of offsite power to the station (both units).

Inspection Report# : 2013010 *(pdf)*

Significance: G Mar 31, 2013
Identified By: NRC
Item Type: FIN Finding
Operability Evaluation Relied on Alternate Methods Not Demonstrated to be Technically Appropriate
The inspectors identified a finding of very low safety significance for the failure to follow operability evaluation procedural guidance. Specifically, an evaluation was conducted for past operability of the residual heat removal and containment spray systems due to the discovery of a void in the containment recirculation sump suction piping. However, the evaluation relied on computer software that has not been benchmarked to demonstrate its applicability to the type of analyses being conducted. This finding was entered into the licensee's Corrective Action Program (CAP) to revise the affected evaluation of past operability. Reanalysis using other appropriate methods determined the piping was operable.

The performance deficiency was more than minor because it was associated with the Mitigating System Cornerstone attribute of equipment performance and adversely affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. In addition, the performance deficiency was more than minor because it was associated with the Barrier Integrity cornerstone attribute of structure, system, component, and barrier performance and adversely affected the cornerstone objective of providing reasonable

assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as of very low safety significance (Green) because it was a design deficiency confirmed not to result in loss of operability. Specifically, the licensee performed an alternate operability determination which reasonably concluded the residual heat removal system was operable. In addition, it did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction in function of hydrogen igniters in the reactor containment. This finding did not involve enforcement action because no violation of regulatory requirements was identified. The inspectors did not identify a cross cutting aspect associated with this finding because it was not confirmed to reflect current performance.
Inspection Report# : 2013002 *(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

Last modified : February 24, 2014