Byron 1
1Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Leakage Detection Trough with Large Accumulation of Boric Acid Identified
A finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when licensee personnel failed to identify boric acid accumulation that would have impeded flow from the leakage detection trough to the sump. The licensee entered this issue into the Corrective Action Program (CAP) as IR 1339957. Corrective actions included removing the boric acid accumulation from the leakage detection trough and passing water through the drain to verify associated piping was free of obstruction.

The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 4(a). Example 4 focuses on procedural errors. The "not minor if" example indicates that, if a later evaluation shows that the safety-related equipment was negatively impacted, it is more than minor. The flow obstruction in the leakage detection trough would have delayed the flow of water to the sump thereby delaying any subsequent alarm. Therefore, this performance deficiency negatively impacted the Initiating Events Cornerstone objective of Equipment Performance. This finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area because licensee personnel failed to ensure that an issue potentially impacting nuclear safety was promptly identified and fully evaluated, and that actions were taken to address safety issues in a timely manner, commensurate with their significance [P.1(d)].
Inspection Report# : 2012003 *(pdf)*

Significance: G Jun 30, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Have Instructions Appropriate to the Circumstances
A self-revealed finding with two examples of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when licensee personnel failed to properly torque an RCS pressure boundary valve closed and failed to properly re-install a Reactor Containment Fan Cooler (RCFC) interior access panel during the previous Unit 1 refueling outage. The licensee replaced the valve and reinstalled the RCFC internal access panel upon identification and entered the item into the Corrective Action Program (CAP) as IR 1339375 and IR 1347450, respectively. Additional corrective actions included modifying the installation procedure to add clarity in the selection of the proper torque value and to add detail and tracking aids for the RCFC interior access panels.

In accordance with IMC 0612, Appendix B, "Issue Screening," the first examples was determined to be more than minor because it was associated with the Procedure Quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, this issue increased the risk of a small break loss of coolant accident. The inspectors performed a Phase 1 SDP screening using IMC 0609,

Attachment 4, Table 4a, “Characterization Worksheet for Initiating Events Cornerstone.” The inspectors determined that the finding would not result in exceeding the Tech Spec limit for any RCS leakage or could have likely affected other mitigation systems resulting in a total loss of their safety function.

The second example was determined to be more than minor because the finding was associated with the Configuration Control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers, including the containment, protect the public from radionuclide releases caused by accidents and events. Specifically, this issue decreased the availability and reliability of the RCFCs for use during a design basis accident. The inspectors determined that the issue was of very low safety significance (Green) because the finding did not represent a degradation of the radiological barrier function, did not represent a degradation of the barrier function of the control room, did not represent an actual open pathway in the physical integrity of reactor containment, and did not involve an actual reduction in function of hydrogen igniters in the reactor containment.

Both examples of the finding had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area [H.4(a)] because licensee personnel failed to properly utilize human error prevention techniques. These two examples of a finding with a cross-cutting aspect were considered as a single NCV.

Inspection Report# : 2012003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
EMBEDMENT PLATE DESIGN DEFICIENCIES
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,” when licensee personnel failed to properly evaluate the structural steel embedment plate which supported Safety Injection (SI) pipe supports 1SI06025V and 1SI06030S. Specifically, the licensee failed to demonstrate compliance with the American Institute of Steel Construction (AISC) and Seismic Category I linear elastic requirements. The licensee entered this issue into their corrective action program (CAP) as Issue Report (IR) 1478188. As part of their immediate corrective actions, the licensee performed an operability evaluation and concluded the structural steel embedment plate was operable, but nonconforming.
The inspectors determined that the performance deficiency was more than minor because it was associated with the Design Control 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 (i.e., core damage). Specifically, the licensee failed to demonstrate compliance with AISC and Seismic Category I linear elastic requirements to ensure the structural steel embedment plate would maintain structural integrity when subjected to a design basis load. The inspectors determined that because the finding did not result in a loss of operability or functionality, the finding was of very low safety significance (Green). This finding did not have a cross-cutting aspect as it was not indicative of current performance.

Inspection Report# : 2013002 *(pdf)*

Significance: G Mar 31, 2013
Identified By: NRC

Item Type: FIN Finding
FAILURE TO PROPERLY SCOPE ALL PERTINENT EXTERNAL FLOOD PROTECTION FEATURES INTO WALKDOWN LISTS IN ACCORDANCE WITH INDUSTRY GUIDANCE NEI 12-07
The inspectors identified a finding of very low safety significance (Green) when licensee personnel failed to develop inspection lists that included all external flood protection features credited in current licensing bases (CLB) documents as specified in Nuclear Energy Institute (NEI) 12-07, "Guidelines for Performing Walkdowns of Plant Flood Protection Features." Specifically, concrete flood barriers in the fuel handling building (FHB) that protected safety-related equipment in the auxiliary building and flood barriers for the spent fuel pool cooling pumps were not included in the licensee's flooding inspection lists, although these passive components were a critical element of the licensee's flood mitigation strategy. The licensee entered this issue into their CAP as IR 1466355. Corrective actions included plans to perform an inspection of the NRC-identified features that were omitted from the inspection lists and an extent-of-condition review.
The inspectors determined that the performance deficiency was more than minor because it was associated with the Protection Against External Factors (Flood Hazard) 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 (i.e., core damage). Because the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors), the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area because licensee personnel failed to properly apply human error prevention techniques such as peer checking and proper documentation of activities [H.4(a)].

Inspection Report# : 2013002 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PREVENT EXCESSIVE SILT BUILDUP IN THE 1b SAFETY INJECTION PUMP OIL COOLER
A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self revealed when the licensee failed to properly address 1B SI pump oil cooler silting on August 25, 2010, and, as a result, the 1B SI pump oil cooler became blocked by silt and was unable to be supplied with sufficient SX flow during pump testing on September 28, 2012. The licensee entered this issue into their Corrective Action Program (CAP) as IR 1419800. Corrective actions included cleaning the 1B SI pump oil cooler, cleaning the oil cooler approach piping, ensuring the oil cooler outlet valve was fully open, and assessing the oil cooler approach piping for other similar coolers.
Inspection Report# : 2012005 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
INADEQUATE WORK INSTRUCTIONS LEAD TO FAILURE OF THE 1B SX PUMP MOTOR
A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self revealed when the 1B SX pump tripped when a motor lug failed as a result of an inadequate motor maintenance procedure. Specifically, Work Order (WO) 525476-02, "Unit 2 ESW [Essential Service Water] Pump 2SX01PB Remove Existing Motor and Install Rebuilt Motor," contained instructions to de-terminate the motor leads to the 1B SX pump motor, but failed to specify the removal of bus bars, which subsequently damaged the motor cables and motor lug during shipment for motor refurbishment. The licensee entered this issue into their CAP as IR 1414688. Corrective actions included replacing the failed motor termination lug,

reterminating the remaining two lugs on the 1B SX pump motor, initiating the replacement of lugs on the remaining SX pump motors, adding steps in work instructions to de-terminate motor termination lugs when removing the SX pump motors for preventive maintenance, and checking similar motor leads on other systems for similar issues.
Inspection Report# : 2012005 *(pdf)*

Significance: G Jun 15, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Non-Conforming 480/120 Vac Motor Control Contactors
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 qualified components were installed in the plant. Specifically, purchase orders did not specify the minimum pickup voltage for NEMA Size 1 through Size 4 safety-related motor-control contactors such that the installed contactors were not rated to function at the design basis minimum voltage. The licensee entered the issue into their corrective action program and based on a sample testing of contactors demonstrated there was adequate margin between the highest found minimum-pickup voltage and the design basis pickup voltage.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating System Cornerstone attribute of Design Control, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, having installed contactors that may not function under degraded voltage conditions could affect the operability of multiple safety-related structures, systems and components during an event. The finding screened as of very low safety significance (Green) because the finding involved a design or qualification deficiency that did not result in a loss of operability. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2012007 *(pdf)*

Significance: G Jun 15, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Verify the CCW System Capability to Withstand a Thermal Barrier Break
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 component cooling water (CCW) system was capable of withstanding a reactor coolant pump thermal barrier break. Specifically, when assuming a single failure of the automatic isolation function, the licensee failed to evaluate the break effect on the CCW system during the 3 minutes postulated to isolate the leak. The licensee entered the issue into their corrective action program; verified the CCW system would be able to withstand the postulated event, and planned to perform a detailed evaluation of the effect of a thermal barrier break on the CCW system.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Design Control and objective of ensuring the capability of the system to respond to an initiating event to prevent undesirable consequences. Specifically, the failure to evaluate the effect of the thermal barrier rupture on the CCW system created reasonable doubt whether the system would be capable of withstanding the applied forces of this event. The finding screened as very low safety significance (Green) because the design deficiency did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2012007 *(pdf)*

Significance: G Jun 15, 2012
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 and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the 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 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 operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2012007 *(pdf)*

Significance: G Jun 15, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Design Analyses Did Not Adequately Address Potential Flooding of the Auxiliary Building
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 adequately analyze potential design basis internal flooding events in the auxiliary building. Specifically, the licensee's analysis did not account for the possible single failure of an essential service water motor-operated isolation valve or its associated power supply, which would have prevented break isolation within 30 minutes. The licensee entered the issue into their corrective action program; verified essential service water piping in the auxiliary building would meet the "crack exclusion" pipe stress criteria, and planned to the revise the flooding analysis.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Design Control and objective of ensuring the capability of the system to respond to an initiating event to prevent undesirable consequences. Specifically, the failure to adequately analyze potential design basis internal flooding events in the auxiliary building would affect the capability of safety-related equipment to withstand the postulated event. The finding screened as very low safety significance (Green) because the design deficiency did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2012007 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO SUBMIT A 10 CFR 50.73(A)(2)(V) REPORT FOR INOPERABLE CONTAINMENT AREA RADIATION MONITORS
The inspectors identified a Severity Level IV NCV of 10 CFR 50.73(a)(2)(v) when licensee personnel failed to report a condition that resulted in a loss of safety function when both containment area radiation monitors were declared inoperable. Specifically, on May 24, 2011, the licensee identified that when reducing reactor power with the isolation setpoints for containment area radiation monitors 1/2AR11J and 1/2AR12J constant and background radiation levels decreasing, the TS setpoint limit for containment area radiation monitors were exceeded and could have prevented the fulfillment of a safety function to automatically isolate containment. The inspectors determined that although this condition represented a loss of safety function in accordance with the 10 CFR 50.73 reporting requirements and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 10 CFR 50.73," Revision 2, the condition was not reported as required. This issue was entered into the licensee's CAP as IR 1463675. Corrective actions included an action to report this event in accordance with NRC requirements.
Inspection Report# : 2012005 *(pdf)*

Significance: G Jun 15, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Means to Detect Leak in Emergency Core Cooling Flow Path
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 provide a means to detect and isolate a leak in the emergency core cooling flow path within 30 minutes, which was contrary to the Updated Final Safety Analysis Report. Specifically, the licensee failed to provide a means to detect and isolate a leak within 30 minutes in that neither sump alarms nor radiation monitors were provided for the safety injection pump rooms. The licensee entered the issue into their corrective action program and planned to evaluate options for modifications to address detection of emergency core cooling system leakage.

The performance deficiency was determined to be more than minor because it was associated with the Barrier Integrity cornerstone attribute of Design Control and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to provide a means to detect and isolate a leak in the emergency core cooling flow path within 30 minutes could result in a delayed isolation of such a leak after an accident and result in a greater radionuclide release to the auxiliary building and the environment. The finding screened as very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.
Inspection Report# : 2012007 *(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

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