Braidwood 1
1Q/2010 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO FULLY IMPLEMENT ABNORMAL OPERATING PROCEDURES FOLLOWING A SEISMIC EVENT
The inspectors identified a Green finding and an associated Non-Cited Violation of Technical Specification 5.4.1 for the failure to fully implement an abnormal procedure following a seismic event. Specifically, on April 18, 2008, following a seismic event, the licensee chose to perform field walkdowns to verify that sulfuric acid and sodium hypochlorite tanks were intact rather than to isolate control room ventilation as required by Procedure 0BwOA ENV-4, "Earthquake." As a corrective action, the licensee performed training activities to clarify when procedural deviations are allowed. The finding was determined to be more than minor because it impacted the procedure quality attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the finding in accordance with IMC 0612, Appendix B, "Issue Screening." The inspectors performed a significance evaluation in accordance with IMC 0609, Attachment 4, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors answered 'No' to the external event initiators question in the Initiating Events Cornerstone column of Table 4a and the issue screened as one of very low safety significance. This finding is associated with the cross-cutting attribute of decision making in the Human Performance cross-cutting component (H.1(b)). Specifically, the licensee did not use conservative assumptions in the decision to send an operator to locally verify rather than perform a procedural step from the control room as written. In the event the sulfuric acid and sodium hypochlorite tanks were damaged, the control room operators could have been impacted with chlorine gas prior to receiving verification from the locally dispatched operator since the licensee elected not to isolate control room ventilation.

Inspection Report# : 2009005 *(pdf)*

Significance: G Jun 30, 2009
Identified By: Self-Revealing
Item Type: FIN Finding
FAILURE TO CONTROL AND SECURE MATERIAL ADJACENT TO UNIT 1 TRANSFORMER YARD WHICH COULD BECOME POTENTIAL MISSILES
The inspector identified a Green finding associated with the failure to control or remove material adjacent to the Unit 1 main power transformers, station auxiliary transformers and unit auxiliary transformers. Plant personnel failed to identify these discrepant conditions during the performance of a plant surveillance procedure with the purpose of identifying and removing potential missile hazards from areas where they could damage important plant electrical equipment during adverse weather conditions. The licensee entered this issue into their correction action program. Proposed corrective actions included relocating storage to an appropriate less vulnerable location and reemphasizing good practices related to housekeeping. The finding is greater than minor because the finding could be reasonably viewed as a precursor to a significant event, such as a loss of Technical Specification required power supplies or a loss of off-site power caused by missile damage to the auxiliary power system. The inspectors determined that because the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available; and the finding did not increase the likelihood of a fire or internal or external flooding, it was of very low safety significance. The cause of the finding is related to the work practices attribute of the cross-cutting element of Human Performance (H.4(c)).

Inspection Report# : 2009003 *(pdf)*

Mitigating Systems

Significance: W Nov 03, 2009
Identified By: NRC
Item Type: VIO Violation
FAILURE OF CONTAINMENT SUMP SUCTION VALVE 1SI8811B TO STROKE OPEN
The inspectors identified a finding of substantial safety significance and an associated apparent violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to prevent water from entering the motor operated valve actuator for valve 1SI8811B that resulted in corrosion of the torque switch. This resulted in the valve failing to stroke full open on June 24, 2009. The licensee determined that water entered the valve actuator through a flexible conduit penetration and pooled in the actuator limit switch box. This caused corrosion of the torque switch and minor corrosion of the limit switch. As part of the corrective actions for this event, the licensee sealed the susceptible conduit. Also, to address extent of condition, the licensee subsequently performed successful valve strokes of the 1SI8811A and 2SI8811A/B valves as part of previously scheduled maintenance windows. Additionally, the licensee performed a walkdown of the other SI8811 valves on both Units. Open conduit terminations were identified on all three remaining valves. The 2SI8811B valve was found to have the same susceptible conduit/cable tray configuration while the 1SI8811A and 2SI8811A valves had horizontal conduit terminations that were less susceptible to water intrusion. As a result, the licensee sealed the 2SI8811B valve open conduit termination. The inspectors determined that the finding was more than minor due to impacting the Equipment Performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems the respond to initiating events to prevent undesirable consequences. The finding associated with this apparent violation was assessed using a Phase 3 analysis in accordance with NRC Inspection Manual Chapter 0609 Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations,” and is preliminary determined to have substantial significant safety significance (Yellow). The inspectors determined that this issue is associated with the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area. (P.1(a)) Specifically, licensee staff was aware for several years of water leakage from the overhead areas around the SI8811 valves. Several corrective action documents were generated previously but the licensee did not adequately evaluate the potential safety significance of the water leakage and did not correct the issue.

Final Significance letter issued February 25, 2010 - characterized as WHITE.
Inspection Report# : 2010008 *(pdf)*
Inspection Report# : 2009007 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PROVIDE CONTINUOUS MONITORING OF A FIRE DOOR
tection Program,” for the licensee’s failure to take adequate compensatory measures following the failure of electronic supervision of a fire door. Specifically, when continuous electronic supervision of a fire door in an area with gaseous fire suppression failed, the licensee did not establish an hourly fire watch as required by Procedure BwAP 1110-1, “Fire Protection Program System Requirements.” The inspectors determined that the licensee failed to take procedurally required compensatory measures for the loss of electronic fire door monitoring. Upon notification of these requirements by the inspectors, the licensee restored power to the system and entered the issue into the CAP as Issue Report (IR) 945777.
The inspectors determined the finding is more than minor because it is associated with the external events (fire) attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding category was Fire Prevention and Administrative Controls and assigned a low degradation rating. Therefore, the finding screened as of very low safety significance. The cause of the finding is related to the work practices attribute of the cross-cutting element of Human Performance (H.4(b)). Specifically, procedures were in place that directed the appropriate compensatory measures for the loss of electronic monitoring of fire doors; however, the licensee did not implement those procedures.
Inspection Report# : 2009004 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE OF THE LICENSEE'S STAFF TO PROPERLY MANAGE ON-LINE RISK ASSOCIATED WITH TESTING OF THE 2A AUXILIARY FEEDWATER PUMP SLAVE RELAYS
The inspectors identified a NCV of 10 CFR Part 50.65 (a)(4), due to the licensee's failure to properly assess and manage the risk associated with scheduled slave relay testing for the 2A Auxiliary Feedwater (AF) system. Specifically, the licensee declared the system inoperable but available. However, the system at the time could neither automatically respond to an event, nor was an operator "dedicated" as defined in the NRC endorsed industry guidance, Nuclear Management and Resources Council (NUMARC) 93-01, to manually realign the system to perform its safety-related function for the system to be considered available. Corrective actions for this issue included assigning dedicated operators in accordance with NUMARC 93-01, Section 11. The inspectors did not identify a cross-cutting aspect for this issue. The finding is more than minor because there was elevated plant risk associated with the 2A AF pump being unavailable that would have required the implementation of additional risk management actions (i.e., assigning dedicated operators and/or maintenance personnel in accordance with NUMARC 93-01, Section 11). The inspectors assessed the safety significance of this finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." Using input from the licensee's risk assessment engineer, the inspectors determined that the actual risk deficit was 1.5 x 10-7. The finding was determined to be of very low safety significance because the actual risk deficit was determined to be less than 1 x 10-6.

Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 30, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
ISOLATION OF LOWER CABLE SPREADING ROOM CARBON DIOXIDE FIRE SUPPRESSION
A Non-Cited Violation of License Condition 2.E, "Fire Protection Program," was self-revealed when the automatic carbon dioxide (CO2) fire suppression system was isolated from the Unit 1 and Unit 2 Lower Cable Spreading Rooms from July 23, 2007, through August 11, 2008. Specifically, the licensee identified that a modification to the Upper Cable Spreading Room CO2 system, on July 23, 2007, had inadvertently isolated the CO2 system to the LCSRs. The licensee entered the deficiency with the automatic carbon dioxide fire suppression system into their corrective action program and installed a modification to return the LCSR CO2 system to service. The finding was determined to be more than minor because the design control attribute of the mitigating systems cornerstone was impacted. The inspectors determined this finding to be of very low safety significance based on the Phase 2 SDP evaluation in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding is related to the cross-cutting area of Human Performance associated with the attribute of resources (H.2(c)).

Inspection Report# : 2009003 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PROPERLY EVALUATE INSTALLATION OF ECCS THROTTLE VALVES
A NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for failure to install a modified Emergency Core Cooling System throttle valve design commensurate with the design control measures applicable to the original design. This resulted in the failure to select a material suitable to the application. Specifically, the licensee selected a design that included gas nitrided surfaces, contrary to the Westinghouse design specification for the original emergency core cooling system throttle valves that prohibited the use of nitrided surfaces in reactor coolant applications. Corrective actions included replacing the Emergency Core Cooling System throttling valve that showed worst flow degradation. Additionally the licensee re-performed the surveillance test and adjusted the throttle valves such that any future degradation of the flow area (caused by corrosion or brazing material loss) will not result in pump run-out. The finding was determined to be more than minor because it was similar to Example 5.a of IMC 0612, Appendix E, "Examples of Minor Issues," in that a modification that did not meet design requirements

was returned to service prior to discovery. The inspectors determined the issue did not result in the actual loss of a safety function and the issue screened out as having very low safety significance. This finding has a cross cutting aspect in the area of Problem Identification and Resolution associated with the corrective action program attribute, because the licensee did not thoroughly evaluate all aspects of the modification to the ECCS throttle valves. (P.1(c))
Inspection Report# : 2009003 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
BRYOZOAN INFESTATION AT THE LAKE SCREENHOUSE CIRCULATING WATER FOREBAYS
The inspectors identified a NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action Program,” having very low safety significance, associated with the licensee's failure to identify a significant condition adverse to quality and to develop corrective actions to prevent recurrence. Specifically, the licensee failed to identify the October 2005 bryozoa infestation as a significant condition adverse to quality and did not establish corrective actions to preclude recurrence. This was evidenced by the September 2008 accumulation of bryozoan colonies in the SX and Circulating Water System forebays that resulted in the SX system strainer plugging and hence represented a challenge to the reliability and operability of the SX system. The licensee entered this performance deficiency into their corrective action program. The finding is greater than minor because the failure to identify the significant condition adverse to quality and to develop corrective actions to prevent recurrence affected the Mitigating Systems Cornerstone objective of ensuring the availability, capability and reliability of the Unit 1 and Unit 2 SX trains to respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because based on the results of an analysis performed by the licensee, which concluded that, even under severely degraded flow conditions, the affected trains of SX would have provided sufficient cooling to components served by the SX system following a reactor trip, a loss of coolant accident, or a loss of offsite power. The primary cause of the finding was related to the cross-cutting element of Human Performance and the associated attribute of decision making (H.1(b)).

Inspection Report# : 2009003 *(pdf)*

Barrier Integrity

Significance: G Mar 31, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
PERFORMANCE OF TROUBLESHOOTING LEADS TO AUXILIARY BUILDING VENTILATION FAN FIRE
A finding of very low safety significance and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, “Procedures,” was self-revealed when, on January 9, 2010, auxiliary building ventilation fan 0VA01CC caught fire, resulting in the declaration of an Unusual Event. Specifically, troubleshooting performed on the inboard fan bearing in Spring 2009 changed the bearing oil level without proper limits established, which led to bearing failure due to lack of lubrication. The licensee’s corrective actions included an evaluation of the oil consumption trends for other auxiliary building ventilation fans, additional training on work package quality, and a revision to other existing work orders that are intended to adjust auxiliary building ventilation fan oil levels. The finding was more than minor because it impacted the Systems, Structures, and Components and Barrier Performance attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Because the finding only represented degradation, rather than loss, of the radiological barrier function provided for the auxiliary building it screened as an issue of very low safety significance (Green). This finding is associated with the cross-cutting area component of resources in the human performance cross-cutting area. Specifically, the work instructions for troubleshooting did not contain adequate guidance to adjust the oil bubbler without causing an adverse equipment impact (H.2(c)).
Inspection Report# : 2010002 *(pdf)*

Significance: G Sep 30, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE OF FIRE PROTECTION VALVE STROKE PROCEDURE RESULTS IN TRIP OF B TRAIN OF MAIN CONTROL ROOM VENTILATION
A NCV of 10 CFR 50, Appendix B, Criterion V, was self-revealed on September 22, 2009, when performance of a fire protection valve stroke procedure resulted in a trip of the B Train of the Main Control Room Ventilation System. Specifically, conflicting procedural guidance resulted in operators stroking the B Train Main Control Room Recirculation Charcoal Absorber deluge valve, which resulted in an unexpected trip of the safety-related B train of Main Control Room Ventilation and entry into Technical Specifications (TS) 3.7.10 and 3.7.11. The licensee conducted trainings and briefings to the operators to identify the potential error traps in procedures and entered this issue into the corrective action program (CAP) as IR 968717. The finding is more than minor because it affected the procedure quality attribute of the Barrier Integrity Cornerstone objective to maintain the radiological barrier functionality of the control room. The inspectors answered 'No' to all questions in the Containment Barrier Column of IMC 0604, Attachment 4, Table 4a, "Characterization Worksheet for IE, MS, and BI Cornerstones," and the finding screened as having very low safety significance. This finding is associated with the cross-cutting attribute of decision making in the Human Performance cross-cutting component (H.1(a)). Specifically, when faced with uncertainty in procedural direction during performance of the fire protection valve surveillance, the licensee did not use a systematic process for decision making, which resulted in a trip of the B Train of Main Control Room Ventilation.
Inspection Report# : 2009004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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