

Braidwood 1

2Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: N/A May 27, 2004

Identified By: NRC

Item Type: FIN Finding

RESULTS OF SUPPLEMENTAL INSPECTION FOR WHITE PI FOR U1 AUX FEEDWATER UNAVAILABILITY

The U. S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee's root cause evaluation, extent of condition determination, and corrective actions for the unavailability of the Unit 1 auxiliary feedwater system since the last quarter of 2001, which resulted in the licensee exceeding the NRC's performance indicator threshold. The licensee's evaluations and corrective actions associated with this White performance indicator were previously examined by the NRC and inspection results were documented in supplemental inspection reports 50-456/02-04(DRP) and 50-456/02-10(DRP) and in the problem identification and resolution inspection report 50-456/457/2003009(DRP). During this inspection, the inspector focused on licensee's evaluations and corrective actions associated with the 1B AFW Diesel Driven Pump failure on May 24, 2003, and the July 11, 2003, airbox blower bearing failure. Based on the results of this supplemental inspection, the inspector concluded that the licensee had developed comprehensive root cause evaluations and corrective actions to address the concerns associated with the Braidwood Unit 1 AFW system White performance indicator. Additionally, an engine monitoring system was added to continuously monitor, and periodically assess, important engine parameters which should help in early identification of conditions which could adversely impact the ability of the diesel driven AFW pump to perform its intended safety function.

Inspection Report# : [2004005\(pdf\)](#)

Significance: SL-IV Sep 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ACCURATE PERFORMANCE INDICATOR DATA TO THE NRC

A self-revealing issue was identified when licensee engineers noted, during a review, that they had miscalculated and therefore misreported in July 2001, the fault exposure time for a 1B auxiliary feedwater pump failure. The issue was more than minor because it caused the performance indicator to cross the Green-to-White threshold during later quarters. The licensee submitted the corrected data to the NRC in a special mid-quarter data submittal in August 2003 and the issue was entered into the licensee's corrective action system. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated with the traditional enforcement process. The issue was determined to be a Severity Level IV Non-Cited Violation of 10 CFR 50.9.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Sep 12, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

INSTRUMENTATION ASSUMPTION AT DEGRADED VOLTAGE NOT ADEQUATELY VERIFIED

A finding of very low safety significance was identified involving a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the failure to maintain an accurate design basis for instrumentation required to function at degraded voltage conditions.

This finding is greater than minor because the unverified assumption used in the degraded voltage calculation impacted the mitigating systems cornerstone objective of design control in that the instrumentation was not verified to operate under the design basis condition of degraded voltage. This finding is of very low safety significance because the licensee was able to subsequently verify, through calculation, that sufficient voltage was available under degraded voltage conditions to ensure the instrumentation would properly function. This issue was a design deficiency that was confirmed not to result in the loss of function in accordance with Generic Letter 91-18 (Revision 1).

Inspection Report# : [2003007\(pdf\)](#)

Significance:  Jul 11, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ASSESS AND ADDRESS COORDINATION CALCULATION CONCLUSIONS/RECOMMENDATIONS

A finding of very low significance was identified by the inspectors for a violation of 10 CFR 50, Appendix B, Criterion XVI. The licensee failed to assess and resolve recommendations to correct conditions adverse to quality as noted in the conclusion section of Calculation BYR 98-293/BRW 98-1287-E, dated October 1, 2001. The purpose of the calculation was to evaluate the 125Vdc and 120Vac circuits that supply safe shutdown equipment for adequate coordination such that a fire induced fault will not impact the shutdown capability of the plant.

This issue is greater than minor because if these potential breaker coordination deficiencies were not corrected in a timely manner the undersized breaker may fail to clear a load fault and may trip the upstream MCC feed breaker resulting in the loss of the entire associated MCC. The issue was of very low safety significance because it did not result in loss of function per Generic Letter 91-18. The issue was a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI.

Inspection Report# : [2003005\(pdf\)](#)

Significance:  Jul 11, 2003
Identified By: NRC

Item Type: NCV NonCited Violation

MOLDED CASE CIRCUIT BREAKERS NOT PERIODICALLY CYCLED/EXERCISED

A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR 50, Appendix B, Criterion XVI. The licensee failed to manually cycle/exercise numerous molded case circuit breakers (MCCBs) at the 120Vac, 125Vdc, and 480Vac voltage levels, on a pre-established periodic basis, as recommended by the MCCBs manufacturer, by NEMA AB-4, and as required by the Braidwood Station's Safe Shutdown Analysis.

This issue was more than minor because if this concern is not corrected in a timely manner and the MCCB trip points drifts too high, or fails to trip, the breaker may fail to clear a load fault, as designed, and may trip the upstream motor control center (MCC) feed breaker resulting in the loss of the entire associated MCC. The issue was of very low safety significance because it did not result in loss of function per Generic Letter 91-18. This issue was a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI.

Inspection Report# : [2003005\(pdf\)](#)

Barrier Integrity

Significance:  Jun 30, 2004
Identified By: NRC

Item Type: NCV NonCited Violation

0A HYDROGEN RECOMBINER INOPERABLE FOR LONGER THAN TS ALLOWED OUTAGE TIME

The inspectors identified a finding of very low significance when they determined that the 0A hydrogen recombiner had been inoperable for at least 43 days, longer than its Technical Specifications allowed outage time of 30 days. The train was inoperable because of a combination of conditions which degraded it to the point where it could not be relied upon to perform its intended safety function. Specifically (1) the temperature controller for the reaction chamber temperature was erratic, causing unexpected trips of the heater breaker; (2) a procedure revision to direct operators to gradually bring up reaction chamber temperature by manually adjusting the temperature controller was not completed in a timely manner, nor was training held on the procedure; and (3) annunciators intended to alert operators to a trip of the heater breaker, or other malfunctions of the recombiner, were not functional. At the time the finding was identified, the temperature controller had already been replaced and tested, the procedure revision had been incorporated, and the repairs of the annunciators had been scheduled. The causes of this violation were related to the cross-cutting areas of Human Performance, because engineering personnel did not properly assess operability, and Problem Identification and Resolution, because untimely corrective actions resulted in the recombiner being inoperable for longer than the allowed outage time in the Technical Specifications. The finding was more than minor because it affected the barrier integrity cornerstone objective of providing reasonable assurance that the physical containment barrier would protect the public from radio nuclide releases caused by accidents or events. The finding was of very low safety significance because the hydrogen recombiner system is not a significant contributor to the large early release frequency for pressurized water reactors with large dry containments. This issue was determined to be a non-cited violation of Technical Specification 3.6.8 for failure to maintain the hydrogen recombiner operable.

Inspection Report# : [2004004\(pdf\)](#)

Significance:  Dec 31, 2003
Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT CONTAINMENT ATMOSPHERE RADIATION MONITORS WERE INOPERABLE

The inspectors identified a Non-Cited Violation of Criteria XVI of 10 CFR 50, Appendix B, having very low safety significance for failing to identify and correct a condition adverse to quality. Specifically, the licensee failed to recognize that the containment atmosphere radiation gaseous monitors were inoperable when it was determined that the monitors were not capable of detecting reactor coolant leakage in a reasonable period of time. The finding also affected the cross-cutting area of Problem Identification and Resolution because the issue was discovered by the licensee's staff; however, it was not adequately resolved until questioned by the NRC inspectors. The finding was greater than minor because the finding was associated with the barrier integrity cornerstone and, if left uncorrected, could result in an undetected reactor coolant system leak. The finding was determined to be of very low safety significance by management review because alternate methods of detecting small reactor coolant system leaks were available. The licensee's corrective actions included declaring the monitor inoperable and submitting a technical specification change request.

Inspection Report# : [2003008\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Oct 15, 2003

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

Issues which were identified during the previous problem identification and resolution (PI&R) inspection completed in February 2002 and for Supplemental Inspection 95002 "Inspection For One Degraded Cornerstone or Any Three White Inputs In A Strategic Performance Area," completed in December 2002 were specifically re-examined. Significant actions had been taken to address these issues, which appeared to be effective.

The team concluded that the licensee adequately identified, evaluated, and resolved problems within the requirements of their corrective action program (CAP). The program was a large-volume, low threshold program, supported by a computerized data base and primarily administered by departmental CAP Coordinators. The significance threshold for entering issues into the corrective action program appeared to be appropriate.

The team developed a number of observations, including:

- The team noted three performance trends which had not been identified by the licensee in a timely manner. This resulted in delayed corrective actions.
- Assessments of numerous radiation protection (RP) problems from outage A1R10 found that many resulted, in part, from unanticipated conditions, which caused a significant mismatch of resources to workload within the fixed schedule. The licensee acted to improve future RP resource flexibility, but did not address workload adjustment.
- The licensee continued to experience minor but recurring problems in some of the areas identified during the previous PI&R inspection in February 2002. While not trending in a negative direction, examples of human performance problems continued to be noted with foreign material exclusion control, rework, and configuration control.
- Through interviews and observations, the team concluded that Braidwood had established a safety-conscious work environment where people were not reluctant to raise issues. Previously identified issues relating to staff unfamiliarity with the then-new processes for entering items into the computerized corrective action program, including ability to track and trend condition- report-related data, have been addressed in part by software improvements and by increased familiarity with the system.
- The team determined that the licensee had completed essentially all of the corrective actions identified in the degraded cornerstone root cause investigation.

Inspection Report# : [2003009\(pdf\)](#)

Last modified : September 08, 2004