

# Braidwood 1

## 1Q/2005 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

#### **INCREASED PROBABILITY OF A REACTOR TRIP DUE TO POOR MAINTENANCE THAT CAUSED AN ELECTRO-HYDRAULIC LEAK ON THE 1C TURBINE DRIVEN FEEDWATER PUMP**

A finding of very low safety significance was identified through a self-revealing event when the main control room received low level alarms for the Unit 1 electro-hydraulic fluid reservoir during the return-to-service of the 1C turbine-driven feedwater pump. The primary cause of this event was related to the cross-cutting area of Human Performance. Licensee maintenance staff had improperly installed a servo valve on the 1C pump resulting in the electro-hydraulic fluid leak during the subsequent pump start. The same staff had also improperly installed a cover plate over the servo valve, preventing station operators from identifying the leak during post-maintenance testing. This finding was considered more than minor, because it increased the likelihood of a reactor transient. Specifically, the loss of electro-hydraulic fluid could have led to a turbine trip followed by a reactor trip, as both the 1B and C feedwater pumps and the main turbine share a common reservoir. This finding was of very low safety significance because of the short exposure time and the fact that the 1A motor driven feedwater pump was running and therefore available as a mitigating component.

Inspection Report# : [2004008\(pdf\)](#)

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### 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 it's intended safety function.

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

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### Barrier Integrity

**Significance:**  Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

#### **FAILURE TO FOLLOW LICENSEE PROCEDURES DURING UNIT 1 CORE RELOAD**

A finding of very low safety significance was identified through a self-revealing event when, during the Unit 1 core reload, the licensee inadvertently bumped two fuel assemblies together. The primary cause of this event was related to the cross-cutting area of Human Performance; specifically, that the licensee staff failed to follow the applicable procedures controlling fuel movement. This finding was considered more than minor, because it challenged the integrity of the fuel cladding barrier. This finding was considered of very low safety significance as it only affected the fuel cladding barrier. Because of the failure to follow station procedures, the finding was considered a Non-Cited Violation of regulatory requirements.

Inspection Report# : [2004008\(pdf\)](#)

**Significance:** **G** Sep 30, 2004  
Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO HAVE APPROPRIATE PROCEDURES FOR OPERATION OF THE HYDROGEN RECOMBINERS**

The inspectors identified a finding of very low safety significance when they noted that the procedures for operating the hydrogen recombiners, if followed as written, would have resulted in the recombiners operating at too low of a temperature to be effective. This was due to a revision that changed the startup procedure, but not the panel lineup and shutdown procedures. The causes of this violation were related to the cross-cutting areas of Human Performance, because a system engineer failed to properly revise the procedures, and Problem Identification and Resolution, because the purpose of the revision was as a corrective action for a previously identified violation and was not effective. The condition existed for a period of 2 weeks before being identified and corrected through another procedure revision. 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 10 CFR 50, Appendix B, Criteria V, for procedures that were not appropriate to the circumstances.

Inspection Report# : [2004007\(pdf\)](#)

**Significance:** **G** 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\(pdf\)](#)

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

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

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## **Miscellaneous**

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