

# Braidwood 1

## 3Q/2008 Plant Inspection Findings

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### Initiating Events

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**Significance:** Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO COMPLY WITH THE SPACING STANDARD FOR SPRINKLER SYSTEMS IN ACCORDANCE WITH THE LICENSEE FIRE PROTECTION PROGRAM REQUIREMENTS**

A finding of very low safety significance and associated NCV of Braidwood's License Condition 2.E was identified by the inspectors for failure to comply with the spacing standard for sprinkler systems in accordance with the licensee Fire Protection Program (FPP) requirements. Specifically, the inspectors identified three permanent scaffolds that obstructed three separate fire protection suppression sprinkler heads in the 2B diesel oil storage tank room. No replacement sprinklers had been installed. After the inspector's identification of this issue the licensee removed the decking and open grating from the scaffolds, which allowed the permanent scaffold configuration to be within the FPP requirements. The inspectors determined that the licensee's failure to comply with the spacing standard for sprinkler systems in accordance with the Braidwood FPP was a performance deficiency. The inspectors concluded that the finding was greater than minor because this issue was associated with the external factor attribute of the Initiating Events cornerstone and affected the 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 determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Appendix F, because it was associated with fire protection defense in depth strategies involving the suppression system. The inspectors determined that the finding has a low degradation rating since only three out of eleven sprinklers in the room were obstructed and for each sprinkler obstructed there was another functional head within ten feet of combustible concern. In addition, other aspects of the system complied with NFPA code. Therefore, the finding was determined to be of very low safety significance. This finding has a cross cutting aspect in the area of Human Performance because the licensee failed to properly evaluate the scaffolding placement due to the engineering staff using poor assumptions.

Inspection Report# : [2008004](#) (*pdf*)

**Significance:** SL-IV Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO PROPERLY EVALUATE REMOVAL OF CARBON DIOXIDE FIRE SUPPRESSION FOR THE UPPER CABLE SPREADING ROOM CARBON DIOXIDE FIRE SUPPRESSION**

A finding of very low safety significance and an associated NCV of Braidwood Operating License Condition 2.E was identified by the inspectors for the licensee's failure to obtain NRC approval before making changes to the approved FPP. Specifically, the licensee permanently isolated the manual carbon dioxide (CO<sub>2</sub>) suppression system to the upper cable spreading rooms (UCSRs) without prior NRC approval. The licensee entered this issue in the corrective action program (CAP) and implemented compensatory actions to verify detection system operability and implement fire watches upon any single detector failure. Additionally, the licensee plans to submit a licensee change request associated with the removal of CO<sub>2</sub> suppression from the UCSRs. The finding was determined to be more than minor because the inspectors could not reasonably determine that the isolation would not have ultimately required NRC prior approval. The inspectors determined this finding to be a Severity Level IV violation due to having very low safety significance (Green) based on the Phase 2 SDP evaluation. This finding is related to the cross cutting area of Human Performance for failure to use conservative assumptions in decision-making and to adopt a requirement that demonstrates the proposed action is safe in order to proceed with respect to reviewing the plant design and license basis. (H.1(b))

Inspection Report# : [2008004](#) (*pdf*)

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**Significance:** Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO PROPERLY IMPLEMENT MATERIAL CONTROL PROCEDURES**

The inspectors identified a performance deficiency involving a NCV of Technical Specifications 5.4.1, related to the unauthorized and improper storage of loose material in the designated material exclusion area around the Unit 1 and Unit 2 transformers. The inspectors identified this issue on a number of occasions. After each occurrence, the licensee took immediate corrective actions by either removing loose material out of the transformer yard or properly securing the material being stored in the transformer yards.

The inspectors concluded that the finding was more than minor because loose/unsecured material in the transformer yards increased the likelihood of those events occurring that could upset plant stability. Specifically, during high wind speed conditions the loose material could have affected the main power transformers and could have caused a unit trip or it could have affected the station auxiliary transformers that could increase the likelihood of a loss of mitigating systems. In each case however, the inspectors concluded that there was not enough debris

in either area to affect both transformers simultaneously. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The primary cause of this NCV was related to the cross-cutting aspect in the area of Human Performance in the Work Practices component (Item H.4.(b)). Multiple groups, including contractors and operators failed to properly implement the procedures for control of material in the transformer exclusion zones. The preliminary cause appeared to be inadequate supervisory and management oversight of work activities.

Inspection Report# : [2008003](#) (*pdf*)

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**Significance:** Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **INADEQUATE PROCEDURE**

The inspectors identified a performance deficiency involving a NCV of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," related to a plant barrier impairment (PBI) procedure. The procedure for PBI did not contain steps to ensure that relied-upon compensatory measures were maintained. Specifically, while the B Train room of essential service water had a flood barrier removed and covered under a PBI, the compensatory measure of sump alarms were found not functioning. The licensee has entered the issue into their corrective action program, repaired the sump alarms, and plans to revise the PBI procedure. The inspectors concluded that the finding was greater than minor because the licensee failed to effectively manage prescribed compensatory measures related to a cornerstone objective. The finding was determined to be of very low safety significance based on a SDP Phase 1 screening in accordance with IMC 0609, Table 4a, because the finding did not increase the likelihood of an external or internal flood. The primary cause of this NCV was related to the cross-cutting component of Human Performance for Resources (Item H.2.(c)) because the licensee's PBI procedure was not adequate in that it did not ensure safety margins were maintained by providing instructions to periodically verify that the compensatory measures were still available.

Inspection Report# : [2008003](#) (*pdf*)

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## **Mitigating Systems**

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**Significance:** Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO CONTROL LABELING ON BOTH UNITS CONTROL PANELS AND SIMULATOR**

The inspectors identified a performance deficiency involving a NCV of Technical Specifications 5.4.1, for the licensee's failure to provide procedural controls for the unique identification of Regulatory Guide 1.97 post accident instrumentation to aid the control room operator. Specifically, the licensee failed to adequately control the labeling on both units' control panels and the simulator, resulting in several improperly marked post-accident indicators. The licensee has entered the issue into their corrective action program and labeled the appropriate post-accident instruments. The finding was greater than minor because, if left uncorrected, it could become a more significant safety concern. Inaccurately labeled control room indicators of post-accident instrumentation could lead to confusion and hamper operator response if conflicting indications resulted due to accident conditions. The finding was determined to be of very low safety significance based on a SDP Phase 1 screening in accordance with IMC 0609.04, "Initial Screening and Characterization of Findings." The inspectors did not identify a cross-cutting aspect to this finding.

Inspection Report# : [2008003](#) (*pdf*)

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**Significance:** Mar 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **This is a security Related Finding - see inspection report for details.**

This finding, affecting the Mitigating Systems Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information": therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance - conservative assumptions and safe actions. See inspection report for more details.

Inspection Report# : [2008006](#) (*pdf*)

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**Significance:** Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

## FAILURE TO PERFORM AN EVALUATION ON A BOLTED CONNECTION

The inspectors identified a Non-Cited Violation of 10 CFR 50.55a(a)(3)(i) for failure to apply an approved alternative to the American Society of Mechanical Engineers Code to evaluate susceptibility of bolting corrosion and the potential for failure after identifying leakage at residual heat exchanger flow control valve assembly, valve 2RH606, bolted connection. The primary cause of this failure was related to the cross cutting component of Human Performance, Work Practices (Item H.4.(b) of IMC 0305) because licensee personnel failed to follow procedures. As part of its corrective actions, the licensee performed a review of 160 bolted-connection boric acid leaks and identified 47 similar examples (including 2RH606). The licensee planned to assign a work group evaluation to determine the appropriate additional corrective actions. The finding was more than minor because it met the criteria in IMC 0612, Appendix E, "Examples of Minor Issues," Example 4a. Specifically, the licensee routinely failed to perform/document engineering evaluations to evaluate bolted connections with boric acid leaks. The issue was of very low safety significance based on Phase 1 screening in accordance with IMC 609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Specifically, no failures of American Society of Mechanical Engineers Code bolted connections had actually occurred due to a failure to perform this evaluation.

Inspection Report# : [2007006](#) (*pdf*)

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## Barrier Integrity

**Significance:**  May 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### INADEQUATE ACCEPTANCE CRITERIA ESTABLISHED IN TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT

A finding of very low safety significance and associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, Instructions Procedures and Drawings was identified by the inspectors for the licensee's failure to establish adequate acceptance criteria when performing a surveillance required by the plant's Technical Specifications. Specifically, acceptance criteria ensuring airflow flow from areas of low potential contamination to areas of high potential contamination when performing Technical Specification Surveillance Requirement 3.7.12.4 associated with the nonaccessible area exhaust filter plenum ventilation system in the auxiliary building was not established. The licensee has entered the issue into its corrective action program and intend establish qualitative criteria verifying air flow into spaces containing potential contaminated fluids during post accident conditions. This finding was more than minor because it affected the radiological barrier functionality of the control room and auxiliary building attribute under the barrier integrity cornerstone. The finding was of very low safety significance because all the answers were no to the SDP screening associated with the Barrier's Cornerstone.

Inspection Report# : [2008002](#) (*pdf*)

**Significance:**  Mar 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

**This is a security Related Finding - see inspection report for details.**

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in respons to Section B.5.b of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information": therefore, the details of this findng are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance - documentation, procedures, and component labeling. See inspection report for more details.

Inspection Report# : [2008006](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

**Significance:** Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO SAMPLE A TEMPORARY TANK AT THE REQUIRED PERIODICITY**

A finding of very low safety significance and associated NCV of the Technical Requirements Manual, Appendix L, and Technical Specifications 5.4.1(a) were identified by the inspectors. On May 1, 2008, the inspectors identified that the licensee had failed to sample the temporary wastewater storage tanks installed to hold shower and wash water from the Unit 2 Containment Access Facility at the required frequency of seven days. Procedure RP-BR-654, "Unit 1(2) Containment Access Facility Liquid and Air Sampling and Disposal Requirements, Revision 0," as written, did not direct the required sampling frequency. The licensee took immediate corrective action by sampling the temporary storage tank, revising the scheduling tool to ensure that the tanks are sampled at least every seven days when radioactive material is being added to the tank, and planning to revise the sampling procedure. The finding involved an occurrence in the licensee's radioactive material control program that is contrary to the licensee's procedures. The finding was more than minor because it impacted the program and process attribute of the Public Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive material release into the public domain, in that the failure to measure the levels of radioactivity in the temporary storage tanks had the potential to impact the licensee's effluent program. The inspectors applied the IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process" to this finding. The finding is in the licensee's radiological effluent monitoring program. The finding did not involve a failure to implement the effluent release program nor did public dose exceed Appendix I, Criterion, or 10 CFR 20.1302(e) and the finding was determined to be of very low safety significance. The primary cause of this NCV was related to the cross-cutting component of Human Performance for Work Practices (Item H.4.(c)) because the licensee did not ensure that supervisory and management oversight of the procedure was adequate to assure nuclear safety.

Inspection Report# : [2008003](#) (*pdf*)

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## **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.

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## **Miscellaneous**

**Significance:** SL-IV Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

### **DEFICIENT CONTROL OF PLANT STAFF OVERTIME**

The inspectors identified a Severity Level IV Non-Cited Violation of Technical Specification 5.2.2.d for not properly implementing and maintaining procedures for controlling plant staff work hours of personnel performing safety-related activities. Procedure LS-AA-119, "Overtime Controls," Revision 4, was deficient in that it permitted the plant manager to authorize work-hour deviations for routine refueling outage activities. This issue has a cross-cutting aspect in the area of Human Performance, Resources (Item H.2.(c) of IMC 0305), because Procedure LS-AA-119 did not provide adequate instructions to provide reasonable assurance that station management would properly control overtime for plant staff performing safety-related functions to assure nuclear safety as required by Technical Specification 5.2.2.d. The violation is more than minor because, if left uncorrected, the excessive work hours would increase the likelihood of human errors during refueling outage activities and response to plant events and would become a more significant safety concern. The finding is not suitable for Significance Determination Process evaluation, but has been reviewed by NRC management in accordance with IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The resulting increased likelihood of human error, would adversely affect the station's defense-in-depth. However, management determined the violation to be of very low significance, because no significant events or human performance issues were directly linked to personnel fatigue as a result of the hours worked. The licensee added this issue to their corrective action program to address correcting the procedure. In accordance with the NRC Enforcement Policy, Supplement I.D, the issue, being evaluated as having very low safety significance by the Significance Determination Process, is a Severity Level IV Violation.

Inspection Report# : [2007006](#) (*pdf*)

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