

# Brunswick 1

## 2Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:** **G** Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to follow plant procedure caused loss of E1 bus**

A self-revealing Green NCV of Technical Specification (TS) 5.4.1, Procedures, was identified when the licensee failed to follow procedure 0MST-DG11R, Diesel Generator 1 Loading Test. During the preparation for the test, procedural steps were not performed correctly and the E1 electrical bus was inadvertently de-energized, requiring emergency diesel generator (EDG) 1 to auto-start and re-energize the bus. Once EDG 1 was supplying power to bus E1, the licensee exited from the surveillance procedure and restored offsite power to bus E1. The licensee entered the issue into their corrective action program as Action Request (AR) 529330.

The inspectors determined that the failure to follow procedure 0MST-DG11R, Diesel Generator 1 Loading Test, was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Initiating Events Cornerstone attribute of human performance 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. Specifically, loss of the E1 bus adversely affected the shut down unit's defense-in-depth for the electrical power availability key safety function. Since Unit 1 was shut down at the time of the event, the finding's significance with regard to Unit 1 was evaluated using IMC 0609 Appendix G, Shutdown Operations Significance Determination Process. Since one offsite transmission network remained available to Unit 1 during the event, per Checklist 7 of IMC 0609 Appendix G, Attachment 1, the finding did not require a quantitative assessment. Therefore, the finding is of very low safety significance (Green) for Unit 1. Unit 2 was at power and was also affected by the finding. IMC 0609 Attachment 0609.04, Phase 1 - Initial Screening and Characterization of Findings, Table 4a for the Initiating Events Cornerstone was used to determine that the finding is of very low safety significance (Green) because the finding is a transient initiator that did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding has a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, because the licensee failed to implement adequate error prevention techniques while performing plant procedure 0MST-DG11R, Diesel Generator 1 Loading Test. Specifically, technicians did not utilize adequate error prevention techniques to prevent them from connecting test recorders incorrectly, H.4(a). (4OA3)

Inspection Report# : [2012003](#) (*pdf*)

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### Mitigating Systems

**Significance:** **W** Nov 21, 2011

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Identify and Correct a Degraded Flood Barrier for the Emergency Diesel Generator Fuel Oil Tank Rooms**

(TBD) The inspectors identified an Apparent Violation (AV) of 10 CFR Part 50 Appendix B Criterion XVI, Corrective Action, for failure to identify and correct a condition adverse to quality associated with the entrance enclosures for the Emergency Diesel Generator (EDG) fuel oil tank rooms. Specifically, the enclosures contained openings which would adversely impact their ability to mitigate external flooding of the EDG fuel oil tank rooms in

the event of a design basis external event (hurricane). These openings were not identified or corrected by the licensee prior to the inspectors identifying the issue. The licensee corrected this condition by installing new sealant material to close the openings and entered the issue into their corrective action program. The licensee entered this issue into their corrective action program as AR 466253.

The licensee's failure to identify and correct the degradation of the access enclosures to the EDG fuel oil tank rooms was a performance deficiency. The finding is more than minor because it affects the Mitigating Systems cornerstone attribute of protection against external events and affects 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 water entry pathways into the EDG fuel oil tank rooms increased the likelihood of EDG failure during an external weather event (hurricane). The significance of this finding was evaluated using Inspection Manual Chapter 0609, Significance Determination Process. Using the phase 1 worksheet tables 4a and 4b, the finding was evaluated to be potentially greater than green because it screens as potentially risk significant due to a seismic, flooding, or severe weather initiating event which would degrade two or more trains of a multi-train system or function. Table 4a of the phase 1 worksheet requires a phase 3 significance determination evaluation. Following the initial review of this matter using preliminary quantitative analysis, Appendix M was used considering the uncertainties in the bounding analysis and the insights from the qualitative review (See Appendix M in Enclosure 2 and Phase 3 in Enclosure 3 of this report). There is a lack of quantitative data and probabilistic risk assessment tools to accurately assess the risk significance of this performance deficiency in a timely manner. The NRC preliminarily concluded that, although licensee performance is outside the bounds of nominal performance, cornerstone objectives were met with minimal reduction in safety margin. The Agency concluded that the finding likely did not represent a decline in licensee performance with a significant reduction in safety margin. Based on the available information from the quantitative and qualitative analyses, and the guidance of Appendix M, the NRC concluded that this performance deficiency is preliminarily characterized as a low to moderate safety significance finding (White). This finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not identify the issue completely, accurately, and in a timely manner commensurate with its safety significance, [P.1(a)].

Final Determination Letter: 2011-014

During an NRC inspection conducted on April 20, 2011 a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR Part 50 Appendix B Criterion XVI, Corrective Action states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected.

Contrary to the above, as of April 20, 2011, the licensee failed to identify and promptly correct a condition adverse to quality involving the external flood barrier for the EDG fuel oil tank rooms. Specifically, the entrance enclosures which house the EDG fuel oil tanks had several openings, unsealed pin holes, and a narrow gap along the perimeter of the base walls, which would allow water intrusion into the EDG fuel oil tank rooms during a design basis external event (hurricane).

Inspection Report# : [2011014](#) (pdf)

Inspection Report# : [2011012](#) (pdf)

**Significance:**  Sep 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Corrective Actions for Control Building Air Conditioning Failures**

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, for the licensee's failure to promptly identify and correct a condition adverse to quality related to the Control Room Air Conditioning (AC) system. Specifically, the licensee failed to identify and correct repetitive failures of nonconforming low ambient temperature damper actuators for the 2D control building air cooled condenser unit. This resulted in multiple control building AC refrigerant circuit failures. Upon discovery of the issue, the licensee placed the control building AC system in a safe condition for summer operation and initiated actions to procure acceptable damper

actuators prior to the onset of low seasonal temperatures. The condition was entered into the licensee's CAP as AR #462873.

The inspectors determined that the licensee's failure to promptly identify and correct the failures of the 2D control room AC system low ambient temperature damper actuators was a performance deficiency. This finding is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the finding reduced the reliability of the control building AC system and its ability to maintain control building equipment within specified temperature limits. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter 0609 Attachment 4. The finding was determined to be of very low safety significance (Green) because the finding was a design or qualification deficiency that was confirmed not to affect equipment operability. The cause of this finding was directly related to the cross cutting aspect of thorough evaluation of problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to promptly evaluate the failures of the low ambient temperature damper actuators and eliminate the adverse condition. [P.1(c)]

Inspection Report# : [2011004](#) (pdf)

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## Barrier Integrity

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Identify and Correct a Refrigerant Leak in the Instrument Air Dryer System**

A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, was identified for the licensee's failure to promptly identify and correct a condition adverse to quality related to the Control Room Air Conditioning (AC) system and the Control Room Emergency Ventilation (CREV) system. Specifically, the licensee failed to identify and correct a slow refrigerant leak in the instrument air dryer in the control building HVAC instrument air system, rendering both the control room AC and CREV systems inoperable. Upon discovery, the instrument air dryer was bypassed, air pressure was restored, and the control room AC and CREV systems were restored. The licensee entered this issue into the corrective action program as Action Request (AR) 502214.

The failure to identify and correct the slowly lowering refrigerant pressure was a performance deficiency. This finding was more than minor because it was associated with the structure, system, and component (SSC) and barrier performance attribute of the Barrier Integrity Cornerstone. It also adversely affected the cornerstone objective of maintaining a radiological barrier for the control room. Specifically, the finding led to a loss of all air conditioning and filtering capability of control room air. The significance determination process was completed in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings, Table 4a for the Barrier Integrity Cornerstone. The finding was determined to be of very low safety significance (Green) because it only affected the radiological barrier function of the control room, and does not represent a degradation of the smoke or toxic atmosphere barrier function of the control room. This finding has a cross-cutting aspect in the corrective action program component of the Problem Identification and Resolution area because the licensee did not identify the issue completely, accurately, and in a timely manner commensurate with its safety significance. [P.1 (a)]

Inspection Report# : [2012002](#) (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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### 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.

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### Miscellaneous

Last modified : September 12, 2012