

Brunswick 1

3Q/2012 Plant Inspection Findings

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*)

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*)

Barrier Integrity

Significance:  Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Secondary Containment Operable During an OPDRV Activity

The inspectors identified a Green non-cited violation (NCV) of TS 3.6.4.1, Secondary Containment because the licensee did not maintain secondary containment operable as required during a maintenance activity considered an operation with a potential for draining the reactor vessel (OPDRV). Once questioned by the inspectors, the licensee restored secondary containment, developed an Operation standing instruction 12-052 to treat the activity as an OPDRV and placed this issue into its corrective action program (CAP) as AR 562188.

The failure to maintain secondary containment operable while Unit 1 was in Mode 4 with an OPDRV in progress was a performance deficiency. The finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone, and adversely affected the 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 Unit 1 secondary containment boundary was not preserved or maintained. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, Phase 1 - Initial Screening and Characterization of Findings, which required an analysis using IMC 0609 Appendix G since the reactor was in Mode 4 (cold shutdown). The finding was determined to be of very low safety significance (Green) according to IMC 0609 Appendix G, Attachment 1, Checklist 6, since a quantitative assessment (Phase 2 or Phase 3 evaluation) was not required. Specifically, the inspectors determined that the licensee maintained adequate mitigation capability for reactor vessel water level inventory and an event did not occur that could be characterized as a loss of control. The cause of this finding was directly related to the cross-cutting aspect of Accurate Procedures in the Resources component of the Human Performance area, because the licensee did not consider the recirculation pump seal replacement activity to be OPDRV based on procedural guidance that contains exclusions to what are considered OPDRV activities. [H.2(c)]

Inspection Report# : [2012004](#) (*pdf*)

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*)

Emergency Preparedness

Significance: G Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain Reliability and Availability of Emergency Response Equipment for Emergency Response Facilities

A self-revealing Green NCV of 10 CFR 50.54(q)(2) was identified for the licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999. This resulted in the loss of Emergency Response Facility Information System (ERFIS), Emergency Response Data System (ERDS), Safety Parameter Display System (SPDS), and all displays including radiation monitors for the emergency response facilities. Specifically, the licensee failed to ensure that adequate emergency response facilities and equipment were available as required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3 revision 80 and 10 CFR 50.47(b)(8). This issue was captured in the licensee's CAP as AR 542704.

The licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999 was a performance deficiency. Specifically, the licensee introduced a single point failure mode which did not meet the design requirements specified in their Design Basis Document (DBD 60) sections 3.6.7.2 and 3.6.7.3. This resulted in the licensee's failure to ensure that adequate emergency response facilities and equipment were available as delineated in the Updated Final Safety Analysis Report (UFSAR) Section 7.7.1.9, and required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3, revision 80, and 10 CFR 50.47(b)(8). The finding was more than minor because it adversely affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the Facilities and Equipment attribute was affected during the time when the ERFIS, ERDS, SPDS, and all displays including radiation monitors for the emergency response facilities were degraded, and as a result did not meet 10 CFR 50.47(b)(8) Planning Standard program element, adequate emergency facilities and equipment to support the emergency response are provided and maintained. The finding was assessed for significance in accordance with NRC IMC 0609, Appendix B Emergency Preparedness Significance Determination Process. Attachment 2 of Appendix B, Failure to Comply Significance Logic is as follows: Failure to comply; Loss of Risk Significant Planning Standard Function (RSPS), No; RSPS Degraded Function, No; Loss of Planning Standard Function, No; the result is a Green finding. The inspectors determined that this resulted in a very low safety significance finding (Green). No cross-cutting aspect was assigned to this finding because the performance deficiency occurred more than three years ago and is not reflective of current plant performance.

Inspection Report# : [2012004](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : November 30, 2012