Brunswick 2
2Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Degraded Fire Barrier Seals in the Unit 2 Cable Accessway
An NRC-identified Green non-cited violation (NCV) of License Condition 2.B.(6), Fire Protection Program, was identified for the licensee's failure to maintain the 3 hour fire seals in the Unit 2 cable access way. Specifically, three cables in the Unit 2 cable access way were not within continuously enclosed conduits, which failed to preserve the integrity of the 3-hour rated barrier. As corrective action, the licensee sealed all three penetrations with a qualified 3-hour seal. This issue was entered into the licensee's corrective action program (CAP) as nuclear condition report (NCR) 740606.

The inspectors determined that the licensee's failure to maintain the 3 hour penetration fire barrier conduits in the Unit 2 cable access way, as required by licensee specification 118-003, Selection and Installation of Fire Barrier and Pressure Boundary Penetration Seals, was a performance deficiency. The finding was more than minor because it was associated with the external factors attribute (i.e. fire) of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this resulted in the failure of the three conduits to perform their function. The finding was screened using NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because the finding affected the ability to confine a fire. Using IMC 0609, Appendix F, Attachment 1, "Fire Protection SDP Phase 1 Worksheet," dated September 20, 2013, the finding was assigned to the Fire Confinement category because the degraded penetrations were located in a fire barrier that separated two fire areas. Proceeding to Task 1.3.1 of IMC 0609, Appendix F, Attachment 1, the inspectors determined the finding was of very low safety significance (Green) because safety significant equipment was located a sufficient distance from the degraded penetrations and the reactor's ability to reach and maintain a safe shutdown condition was not
impacted. The finding does not have a cross-cutting aspect since the performance deficiency is not indicative of current plant performance.

Inspection Report# : 2015002 *(pdf)*

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: FIN Finding
Failure to Perform an Adequate Extent of Condition Review for the 1C Conventional Service Water Pump Strainer
An NRC-identified Green finding of licensee procedure CAP-NGGC-0205, Condition Evaluation and Corrective

Action Process, was identified for the licensee's failure to perform an adequate extent of condition review for the 1C CSW pump strainer stop collar clearance issue. Specifically, between February 21, 2014, and April 8, 2015, the licensee failed to perform an adequate extent of condition to identify the 2C CSW pump strainer stop collar was also installed without being securely positioned. This resulted in the failure of the shear pin and inoperability of the 2C CSW strainer and pump. As corrective actions, the licensee replaced the shear pin securely and scheduled the replacement of the other CSW pump strainer shear pins at the earliest available work window. The licensee entered this issue into the CAP as NCR 742444.

The inspectors determined that the licensee's failure to perform an adequate extent of condition review for the 1C CSW pump strainer stop collar clearance issue, as required by licensee procedure CAP-NGGC-0205 was a performance deficiency. The finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this resulted in the failure of 2C CSW pump strainer shear pin, and inoperability of the 2C CSW strainer and pump. Using IMC 0609, Appendix A, issued June 19, 2012, the SDP for Findings At-Power, the inspectors determined the finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a mitigating SSC, the finding did not represent a loss of system and/or function, the finding did not represent an actual loss of a function of a single train for greater than the TS allowed outage time, the finding did not represent an actual loss of a function of one or more non-TS trains of equipment, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the evaluation attribute because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to evaluate the applicability of the stop collar clearance issue to the other strainers after the failure of the 1C CSW pump strainer shear pin.

Inspection Report# : 2015002 *(pdf)*

Significance: G Dec 31, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Protect Emergency Diesel Generator 4-Day Fuel Oil Tank Ventilation Piping from Tornado Missiles
The NRC-identified a Green non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, Design Control, for the failure to ensure adequate tornado missile protection for the emergency diesel generator (EDG) 4-day fuel oil tank ventilation piping. Specifically, it was determined that the ventilation piping could be sheared with a design basis tornado missile at the 4-day fuel oil tank building roof level and water intrusion into the EDG fuel oil system would occur during a design basis rain event that would prevent the diesel from performing its required safety function. The licensee documented this issue in their corrective action program (CAP) and performed corrective actions to install concrete blocks around the piping.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it is associated with the Mitigating Systems Cornerstone attributes of Protection Against External Factors and Equipment Performance, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, it was determined that the ventilation piping could be sheared with a design basis tornado missile at the 4-day fuel oil tank building roof level and water intrusion into the EDG fuel oil system would occur during a design basis rain event that would prevent the EDG from performing its required safety function. Using IMC 0609, Appendix A, issued June 19, 2012, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined the finding screened to a detailed risk evaluation since the EDG1 fuel oil system was assumed to be completely failed due to a tornado, and it would degrade one or more trains of a system that supports a risk significant system or function. The regional Senior Reactor

Analyst performed a detailed risk evaluation by using a qualitative screening analysis to determine the significance of the finding. Tornado initiating event frequency was derived from Nation Weather Service data. Because of the low likelihood of a tornado powerful enough to throw an object of sufficient size to damage the piping, the remote chance the thrown object would strike the vent pipe, and because the remaining EDGs would not be impacted in the same way by the tornado, the finding was determined to be Green. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding is an old design issue that has been in place since original plant construction.
Inspection Report# : 2014005 *(pdf)*

Significance: G Dec 31, 2014
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Follow Emergency Diesel Generator No. 3 Monthly Load Test Surveillance Procedure
A Green self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the failure to conduct the number 3 EDG monthly load test in accordance with the prescribed technical specification surveillance test procedure. Specifically, plant personnel performing the load test on EDG3 manually synched the generator out-of-phase to its corresponding emergency bus, causing equipment damage to the collector ring and brushes and the silicon controlled rectifier (SCR) circuitry. The licensee documented the issue in their CAP, completed a prompt investigation, and performed a root cause evaluation. The EDG was immediately repaired and additional corrective actions include: 1) revise all EDG monthly load test procedures with “cautions” to emphasize the importance of synching the generator properly and performing the steps of the procedure as prescribed; and 2) install synch check relays on all manually paralleled generators.

The finding was more than minor in accordance with IMC 0612, Appendix B, because it is associated with the Mitigating Systems Cornerstone attribute of Human Performance, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, plant personnel performing the local load test on EDG3 manually synched the generator out-of-phase to its corresponding emergency bus, resulting in extended EDG3 inoperability and equipment damage to the collector ring, brushes, and the SCR circuitry. Utilizing IMC 0609, Appendix A, Exhibit 1, effective July 1, 2012, the finding screened as Green by answering “no” to the question related to an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for >24 hrs. The finding had a cross-cutting aspect in the area of Human Performance related to the aspect of Avoid Complacency, in that individuals failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes, and implement appropriate error reduction tools. In this event, the operators had an inaccurate risk perception that the evolution of increasing load on the EDG was more critical than synching the generator properly. This was emphasized during the pre-job brief and not identified by the supervisory oversight of the evolution. [H.12]
Inspection Report# : 2014005 *(pdf)*

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: FIN Finding
Failure to Correct SLC Tank Level Indication Degradation
An NRC-identified Green finding of Licensee Procedure AD-PI-ALL-0100, Corrective Action Program (CAP), was identified for the failure of the licensee to identify and correct a condition adverse to quality with the Unit 2 standby liquid control (SLC) control room level indicator. Specifically, between February 25, 2012, and August 17, 2014, the licensee failed to identify and correct three clogged SLC tank level indicators before the indicators failed. The licensee’s corrective actions included cleaning out the SLC tank level indicator bubbler and evaluating the adequacy of the preventative maintenance associated with this indicator. The licensee entered this issue into the CAP as NCRs

704327 and 704593.

The inspectors determined that the failure of the licensee to identify and correct the clogged SLC tank level indicators before the indicators failed was a performance deficiency. The finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this resulted in the instrument reading a higher tank level than actual due to the flow restriction in the bubbler tube, and the inoperability of the instrument. Using IMC 0609, Appendix A, issued June 19, 2012, the SDP for Findings At-Power, the inspectors determined the finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a mitigating structure, system and component (SSC), the finding did not represent a loss of system and/or function, the finding did not represent an actual loss of a function of a single train for greater than the technical specifications (TS) allowed outage time, the finding did not represent an actual loss of a function of one or more non-TS trains of equipment, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The finding has a cross-cutting aspect in the area of human performance associated with the work management attribute because the licensee failed to implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The licensee failed to have the work process include the identification and management of risk commensurate to the work and the need for coordination with different groups. Specifically, the licensee failed to identify and manage the risk of the SLC tank level indicator bubbler clogging issue. [H.5]
Inspection Report# : 2014004 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Post a High Radiation Area
A Green self-revealing NCV of TS 5.7.1 was identified for the failure to post a high radiation area (HRA). Specifically, on September 25, 2014, the licensee failed to post the Unit 2 high pressure coolant injection (HPCI) pump room as a HRA during a HPCI pump run in which maximum dose rates increased to 900 mrem per hour at 30 cm. As a result, an individual entered the area without knowledge of the changing radiological conditions and received a dose rate alarm. In response, the licensee immediately shut down the HPCI pump, performed a human performance review board, posted the area as a HRA, and surveyed the affected areas. The licensee entered this issue into the CAP as NCR 710281.

The failure to post a high radiation area with dose rates greater than 100 mrem per hour is a performance deficiency. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective to

ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Failure to inform workers of radiological conditions through the use of postings could lead to unintended exposures. The Occupational Radiation Safety Cornerstone was affected; therefore, the inspectors used Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, to determine the significance of the violation. The violation had very low safety significance (Green) because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a cross-cutting aspect in the area of human performance, associated with the teamwork attribute, because individuals and work groups failed to communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained and post the HPCI room as a high radiation area. [H.4]
Inspection Report# : 2014004 *(pdf)*

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 : August 07, 2015