

Brunswick 2

1Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Oct 15, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Fisher Model 9100 Unbonded Butterfly Valve Failures

The inspectors identified an NCV of 10 CFR 50 Appendix B, Criterion XVI, for failure to promptly identify and correct a condition adverse to quality related to foreign material in the service water system (SW) resulting from Fisher butterfly valve rubber lining failures. There had been a number of failures of Fisher butterfly valve rubber linings since 1985 including a Unit 1 failure in 2004 and a Unit 2 failure in 2005. The examples in 2004 and 2005 were examples where valve lining material was missing from Fisher valves and all the material was not accounted for and removed from the SW system. On August 16, 2007, the licensee detected reduced flow from the 1B Residual Heat Removal (RHR) room cooler and on August 18, 2007, identified foreign material in the inlet piping to the cooler. Additional rubber lining material was also found in the 1 A RHR room cooler. An additional example of Fisher valve foreign material in the SW system was noted in 2005 in the Unit 2 2B Turbine Building Component Cooling Water Heat Exchanger. The licensee entered this issue into the corrective action program.

The failure to maintain the SW system free of foreign material was considered a performance deficiency and a finding in the mitigating systems cornerstone. This finding is greater than minor because it affected the availability and reliability of the RHR room coolers which support the emergency core cooling equipment used to mitigate the consequences of an accident. Although related to degradation in the service water system, the finding is of very low safety significance because the licensee detected the change in SW flow and removed the material prior to the flow reduction reaching the minimum required flow for accident mitigation. There was no loss of safety function from either train of service water. This finding has an appropriate and timely corrective action aspect in the cross-cutting area of problem identification and resolution because the licensee failed to recognize the foreign material as a condition adverse to quality and implement timely corrective action to locate the source of and remove all the material from the SW system

Inspection Report# : [2007011](#) (*pdf*)

Significance:  Sep 30, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Diesel Generator Trip Due to Failure to Follow Procedure

A self-revealing Green non-cited violation (NCV) of Technical Specification 5.4.1 was identified for failure to follow the Diesel Generator monthly load test procedure (OPT-12.2D) which resulted in Diesel Generator number 4 tripping on reverse power and locking out. This issue was entered into the corrective action program for resolution.

The finding was more than minor because it was associated with the equipment performance attribute of the mitigating system cornerstone objective of ensuring the availability of systems that respond to initiating events. The finding was assessed using the Significance Determination process and determined to be of very low safety significance (Green) because it did not contribute to a loss of the Diesel Generator safety function for greater than its technical specification allowed time. This finding was related to the human performance and error prevention aspect of the crosscutting area of human performance because the Diesel Generator tripping on reverse power and locking out was the result of a human error due to the failure to properly use self and peer checks (H.4.a). (Section 1R22)

Inspection Report# : [2007004](#) (*pdf*)

Significance:  Jun 30, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Incorporate Operating Experience into Plant Procedures and Training

A self-revealing non-cited violation of 10CFR50, Appendix B, Criterion XVI, Corrective Action, was identified for failing to incorporate operating experience into appropriate precautions and operating limitations for single recirculation loop operation into plant procedures and training. As a result, Unit 2 experienced an automatic reactor scram on December 25, 2006 due to actuation of the Neutron Monitoring Oscillation Power Range Monitors while in single recirculation loop operation.

The finding was more than minor because it was associated with equipment performance and affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety function during power operations. The finding was assessed using the Significance Determination Process for Reactor Inspection Findings for At-Power Situations and determined to be of very low safety significance (Green) because, although the finding contributed to the likelihood of a reactor trip, it did not contribute to the likelihood that mitigation equipment or functions would not be available. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, specifically because the licensee did not implement appropriate changes to plant procedures and training programs to address operating experience that was reviewed (Section 40A2.2).

Inspection Report# : [2007003](#) (*pdf*)

Significance: N/A Apr 13, 2007

Identified By: NRC

Item Type: FIN Finding

95001 Supplemental Inspection

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection in accordance with Inspection Procedure 95001, to assess the licensee's evaluation associated with the Unit 1 and Unit 2 performance indicators in the mitigating systems cornerstone. The mitigating systems performance indicator (MSPI) for emergency AC power systems crossed the threshold from Green (very low risk significance) to White (low to moderate risk significance) in the second quarter of 2006. Specifically, the licensee's emergency AC power systems MSPI value reached 2.01E-6 for Unit 1 and 1.50E-6 for Unit 2. The MSPI becomes White when the value reaches 1.0E-6. The MSPI for Units 1 and 2 consist of an unreliability index based on emergency AC power system function failures and an unavailability index based on emergency AC power system unavailability. Since the vast majority of the contribution to the MSPI for Units 1 and 2 is from the unreliability indexes, the inspection focused on the emergency AC system functional failures.

The inspector determined that the licensee performed a comprehensive evaluation of the conditions that led to the MSPI exceeding the Green/White threshold. Performance deficiencies were identified by the NRC during previous inspections and are listed in subsequent sections of this report. In addition, the licensee adequately analyzed the circumstances associated with those issues and, where appropriate, took effective immediate corrective action. Also, the licensee developed corrective actions to prevent recurrence. The inspector noted that additional failures of the emergency diesel generators have occurred subsequently to the failures included in the scope of this inspection. These failures will be further evaluated by the NRC outside of this inspection.

Inspection Report# : [2006008](#) (*pdf*)

Barrier Integrity

Significance:  Feb 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct a Condition Adverse to Quality Involving an MSIV Design Deficiency

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for failure to correct a condition adverse to quality (i.e., design deficiency) which led to multiple and repetitive failures of

the main steam isolation valves (MSIVs). The March 2007 failure of the 2-B21-F028A outboard MSIV to pressurize during local leak rate testing (LLRT) exhibited similar symptoms to previous MSIV failures which occurred over the period from 2003 to 2006. The inspectors identified a number of missed opportunities by the licensee to properly identify and correct the failure mechanism (i.e., design deficiency) which led to the most recent failures. The licensee has entered this issue into the corrective action program as nuclear condition report 267744, and was evaluating their plans to improve MSIV performance.

This finding is of greater than minor safety significance because it was associated with the Containment Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of containment isolation reliability to protect the public from radiological releases caused by accidents or events. The finding was determined to be of very low safety significance because there was no loss of safety function (i.e., simultaneous failure of both the inboard and outboard MSIVs) that resulted in an actual open pathway in the physical integrity of containment. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity, regarding an adverse trend of continuing MSIV LLRT failures. (P.1.(d))

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

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

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