Brunswick 1
2Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure for Performing Maintenance on the Control Room AC Subsystem
A self-revealing Green non-cited violation of Technical Specification 5.4.1 was identified for an inadequate procedure used to specify configuration controls during a maintenance activity. The configuration management program implementation procedure, ADM-NGGC-0106, was not clear in determining whether additional actions should be taken to ensure Control Room Air Conditioning (AC) operation while preventative maintenance was being performed on the CREV system. The three Control Room AC subsystems tripped inadvertently during the performance of this planned preventive maintenance activity due to the supply fan dampers drifting shut, resulting in Unit 1 and Unit 2 entering LCO 3.0.3. This issue was entered into the licensee's Corrective Action Program (CAP) as AR 281950.

The finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of equipment performance. The finding was determined to be of very low safety significance because it did not represent an actual loss of safety function for greater than the TS allowed outage time. The finding has a cross-cutting aspect in the area of Human Performance of complete documentation because the licensee did not provide an adequate procedure that provided clear guidance in identifying intrusive maintenance on the CREV system such that appropriate actions were taken to ensure proper operation during preventative maintenance. (H.2.(c))

Inspection Report# : 2008003 *(pdf)*

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Calibration Procedure for the Conventional Service Water Relays
A self-revealing Green non-cited violation of Technical Specification 5.4.1 was identified for an inadequate procedure used for the calibration of the conventional service water pump logic relays in September 2007. Specifically, procedure 0PM-RLY-001, PM GE HFA Relays, used to calibrate the conventional service water (CSW) pump relays was inadequate because the procedure was determined not to be applicable to the relay type. The incorrectly calibrated conventional service water pump relay resulted in improper operation of the conventional service water pump and could have affected proper emergency diesel generator operation during a Loss of Offsite Power (LOOP) Event. The finding is in the licensee’s Corrective Action Program (CAP) as AR 245864.

The finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of equipment performance. The finding was determined to be of very low safety significance because it did not contribute to improper emergency diesel generator operation. The finding has a cross-cutting aspect in the area of Human Performance of complete documentation because the licensee did not provide an adequate procedure to calibrate the CSW pump relays. (H.2.(c))

Inspection Report# : 2008003 *(pdf)*

Significance: G Feb 29, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Evaluate and Correct a Condition Adverse to Quality Involving Service Water Fouling of the 1A RHR Heat Exchanger
The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the inadequate evaluation and corrective actions to address a condition adverse to quality involving degraded performance of the 1A Residual Heat Removal (RHR) Heat Exchanger (HX) due to Service Water (SW) fouling. The licensee documented this issue in their corrective action program as nuclear condition report 268318. The licensee also performed an operability evaluation of the RHR system, and instituted compensatory measures until the condition could be corrected during the Spring 2008 Unit 2 outage.

The finding is more than minor because if left uncorrected, the issue would become a more significant safety concern in that the potential existed for making the 1A RHR HX inoperable due to tube sheet fouling. In addition, the inspectors also determined that this issue was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected 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). The finding was determined to be of very low safety significance because the degraded condition did not actually result in a loss of the RHR system safety system function. 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, in that the licensee did not promptly address an adverse trend in the 1A RHR HX's performance. (P.1.(d))

Inspection Report# : 2008006 *(pdf)*

Significance: G 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: G Oct 15, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Loose Parts Analysis / Operability Evaluation for Fisher Butterfly Valve Taper Pin

The inspectors identified an NCV of 10 CFR 50 Appendix B, Criterion V, for an inadequate loose parts analysis / operability evaluation performed following the failure of SW valve 1-SW-V105 to open on July 26, 2005, due to the loss of both taper pins which connected the stem to the valve disc. Inadequate testing of the impact of a butterfly valve taper pin on an operating RHR SW booster pump and incorrect communication of the results of this testing led to returning the SW system to service without retrieving the second taper pin. The pin was later retrieved when on August 21,2007, the pin caused a failure of the 1D RHR SW booster pump. The licensee entered the issue into the corrective action program, removed the pin from the pump, replaced the motor and returned the pump to operable status.

The inadequate loose parts analysis / operability evaluation for the missing SW butterfly valve taper pin was considered as a performance deficiency and a finding in the mitigating systems cornerstone. This finding is greater than minor because it affected the reliability and availability attribute of one RHR SW booster pump, a mitigating system component. The finding was of very low safety significance because only one RHR SW booster pump was affected, it did not represent a loss of a safety function of either train of service water. This finding has a thorough evaluation of an identified problem in the cross-cutting area of problem identification and resolution because the licensee failed to thoroughly evaluate the condition adverse to quality which resulted in additional unavailability of the 1D RHR SW booster pump.
Inspection Report# : 2007011 *(pdf)*

Significance: G Aug 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Goal Setting and Monitoring not Performed for an Emergency Diesel Generator
The team identified a Green non-cited violation (NCV) of 10 CFR 50.65 (maintenance rule) for failure to demonstrate that the performance or condition of structures, systems, or components is being effectively controlled through the performance of appropriate preventive maintenance. An inadequate maintenance rule evaluation was performed after an emergency diesel generator exceeded its maintenance rule (a)(2) performance criteria and, as a result, goal setting and monitoring was not performed as required by Paragraph (a)(1) of the maintenance rule.

This finding was more than minor because it was associated with the equipment performance attribute and affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The lack of proper attention by the maintenance rule program to the degraded performance of Emergency Diesel Generator 3 allowed degraded performance to continue for all emergency diesel generators. This finding was of very low safety significance because it was not a design or qualification deficiency, did not directly result in an actual loss of safety function for a system or train, and was not risk significant due to a seismic, fire, flooding, or severe weather initiating event. The cause of the finding directly involved the cross-cutting area of human performance, in the decision making component under the aspect of using conservative assumptions because the expert panel decided to keep Emergency Diesel Generator 3 under maintenance rule Paragraph (a)(2) without fully supporting that conclusion. The licensee made this decision even though other evidence indicated that preventive maintenance was not effectively controlling Emergency Diesel Generator 3 performance [H.1(b)].

Inspection Report# : 2007010 *(pdf)*

Barrier Integrity

Significance: G 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

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: FIN Finding
Failure to Conduct Adequate and Timely Evaluations of Onsite Groundwater Monitoring Well Tritium Concentration Trend Data
The inspectors identified a Green finding (FIN) for failure to properly evaluate the potential causes of increased tritium (H-3) concentrations in groundwater samples collected and reviewed in accordance with Brunswick procedure E&RC-3250, “Environmental and Radiation Control.” Specifically, the licensee failed to properly evaluate, and initiate actions to address increasing H-3 concentrations reported from 2003 through 2007 for quarterly samples collected from Environmental Sampling Station (ESS)-2C and ESS-16 monitoring wells. The failure to properly investigate the increasing H-3 concentrations resulted in the licensee continuing to attribute the subject results to a 1994 U2 radioactive liquid effluent waste line break without considering potential leakage of contaminated liquids from U2 storm drain piping.

This issue has been entered in the licensee’s CAP as NCR 268357.
The finding is more than minor because it is associated with the Program and Process attribute of the Public Radiation Safety Cornerstone and adversely affects the cornerstone objective because it relates to effluent measurement and abnormal releases. The licensee’s failure to recognize the increasing groundwater tritium concentrations delayed actions to address and correct abnormal liquid releases within the switchyard area. Using the Public Radiation Safety Significance Determination Process, this finding was determined to be of very low safety significance (Green) because the performance deficiency did not result in offsite releases and resultant offsite doses to members of the public and was not a failure to implement the effluent program. Furthermore, the finding did not prevent the licensee from initiating appropriate corrective actions to determine extent of the contamination and to mitigate its effect on the surrounding environs. The cause of the finding was related to the cross cutting area of human performance, the component of work practices, and the aspect involving supervisory oversight of work activities, because the licensee failed to properly evaluate monitoring well sample data to determine the possible radiological effects of plant operation on the local groundwater.

Inspection Report# : 2008003 *(pdf)*

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

Last modified : August 29, 2008