Byron 2
2Q/2008 Plant Inspection Findings

Initiating Events

Significance: N/A Mar 28, 2008
Identified By: NRC
Item Type: VIO Violation
Failure to Implement Timely Corrective Actions for Degraded SX Riser Piping
•White. The team identified an violation of 10 CFR 50 Appendix B, Criterion XVI, “Corrective action,” associated with the licensee’s failure to take timely corrective actions after identification of the corroded essential service water system riser pipes. Specifically, the licensee failed to take timely actions to remove the external corrosion layer present on the riser pipes to support sufficient wall thickness measurements to assess the significance of the pipe wall loss. Consequently, the licensee operated the plant for an extended period of time with a substantial loss of pipe wall on the essential service water riser piping while corrosion proceeded to the point that a through-wall leak developed on the 0C essential service water riser pipe.
The cause of this apparent violation was related to the Decision Making Component (Item H.1(b) of IMC 305) for the cross-cutting area of Human Performance, because the licensee failed to make conservative assumptions in decisions affecting the integrity of the essential service water riser piping. The presumption of pipe integrity was not based on sufficient information to be able to demonstrate that the proposed action/decision to leave these risers in service was safe. The licensee subsequently completed a plant shutdown and replaced the degraded portions of these essential service water system riser pipes.
The finding associated with this apparent violation was greater than minor because the degraded essential service water piping condition resulted in an increase in the likelihood of the loss of the essential service water system due to pipe failures, which directly affected the Initiating Events Cornerstone. It was also 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). The finding associated with this apparent violation was assessed using a Phase 3 analysis in accordance with NRC Inspection Manual Chapter 0609 Appendix M, “Significance Determination Process Using Qualitative Criteria,” and is preliminarily determined to have low to moderate safety significance (White). (Section 4OA3.3)

Inspection Report# : 2007009 *(pdf)*

Significance: W Mar 28, 2008
Identified By: NRC
Item Type: VIO Violation
Inadequate Design Margins for Continued Operation of SX Riser Pipes
•White. The team identified a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control,” associated with the licensee’s failure to verify the adequacy of the methodology and design inputs used to support licensee decisions to accept the degraded 0B, 0E and 0H essential service water system riser pipes for continued service. Specifically, the licensee failed to evaluate for compressive loads (e.g., buckling), use the applicable Code allowable stress, apply Code equations which account for thermal loads, and failed to correctly apply equations for checking the pipe functional capability. Consequently, the licensee failed to establish adequate design margins for continued service of the 0E, 0H and 0B essential service water system riser which resulted in extended plant operation with degraded SX riser pipes.
The cause of this apparent violation was related to the Resources Component (Item H.2(a) of IMC 305) for the cross-cutting area of Human Performance, because the licensee failed to maintain plant safety by maintenance of design margins. Specifically, these degraded riser pipes remained in-service without establishing adequate design margins in the engineering evaluations to justify continued service. The licensee subsequently completed a plant shutdown and replaced the degraded portions of these essential service water system riser pipes.
The finding associated with this apparent violation was greater than minor because the degraded essential service water piping condition resulted in an increase in the likelihood of the loss of the essential service water system due to pipe failures, which directly affected the Initiating Events Cornerstone. It was also 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). The finding associated with this apparent violation was assessed using a Phase 3 analysis in accordance with NRC Inspection Manual Chapter 0609 Appendix M, “Significance Determination Process Using Qualitative Criteria,” and is preliminarily determined to have low to moderate safety significance (White). (Section 4OA3.4)

Inspection Report# : 2007009 *(pdf)*

Significance: G Jan 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Unauthorized Transient Combustibles
The inspectors identified an NCV, having very low safety significance, of license condition 2.C(6) in that the licensee failed to implement and maintain in effect all provisions of the approved fire protection program. specifically, the inspectors identified that unauthorized transient combustibles were left adjacent to a cable riser in the auxiliary building contrary to implementing fire protection procedures.
Inspection Report# : 2008006 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO CORRECTLY TIGHTEN FITTINGS LEADS TO FAILURE TO START DURING A SURVEILLANCE OF THE 0B SX AMKEUP PUMP
A finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4, “Procedures,” was self-revealed on May 27, 2008, when the 0B essential service water (SX) system makeup pump failed to start during a planned monthly surveillance test. The pump failed to start due to a lack of fuel prime. The licensee determined that on April 29, 2008, the check valve on the fuel oil supply line between the day tank and the engine had been replaced as part of a routine preventive maintenance program. The check valve was found in the installed condition with a loose fitting. The loose fitting had leaked slowly allowing fuel oil to drain from the primed fuel oil supply line. The issue has been entered into the licensee’s CAP (IR 779699). The licensee’s corrective actions included repairing the check valve and associated deficiencies, as well as revising the maintenance procedure.

The finding was considered more than minor because there was an actual loss of safety function of a single train for greater than its TS allowed outage time. The finding was determined to be of very low safety significance during a Phase 3 SDP. The primary cause of this finding was related to the cross-cutting area of Human Performance for Work Practices (H.4(c)) because licensee supervisory oversight of work activity failed to ensure procedural compliance. (Section 1R12.1.b)

Inspection Report# : 2008003 *(pdf)*

Significance: TBD Jun 30, 2008
Identified By: NRC
Item Type: AV Apparent Violation
FAILURE TO PERFORM AN UPDATED RISK EVALUATION PRIOR TO SURVEILLANCE TESTING OF THE UNIT 1 TRAIN A DIESEL GENERATOR BASED ON EXISTING PLANT CONDITIONS
AV. The licensee identified an apparent violation of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” (a)(4) for failure to perform an updated risk evaluation prior to surveillance testing of the Unit 1 Train A emergency diesel generator (EDG) based on existing plant conditions. This failure resulted in an inadvertent entry into an elevated online risk condition for Unit 2. This issue has potential safety significance greater than very low safety significance for Unit 2, which may change pending completion of the SDP. This issue was entered into their corrective action program as IR 759945. The licensee immediately implemented the

compensatory measure of an operator stationed at the valve. They also took corrective actions to reassemble the valves and place them back in service.

The finding is more than minor in accordance with IMC 0612, Appendix E, Section 7, Example f, because the elevated overall plant risk when correctly accessed, is greater than 1.0E-6 Incremental Core Damage Probability (ICDP) and also put the plant into a higher risk category with additional risk management actions. The cause of this finding was related to the cross-cutting element of human performance for work control (H.3.(b)). (Section 1R13.1.b)

Inspection Report# : 2008003 *(pdf)*

Significance: G Mar 28, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Operating Experience Procedure Not Followed for Service Water Corrosion Event
•Green. The team identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to follow Procedure LS-AA-115, "Operating Experience Procedure," and implement corrective actions in response to an industry service water piping corrosion event which caused a service water system failure at a foreign reactor plant. Consequently, the licensee failed to implement actions to fix existing procedural controls so that a similar service water system corrosion and failure event would be precluded at the Byron Station. The cause of this finding was related to the Decision Making Component (Item H.1(b) of IMC 305) for the cross-cutting area of Human Performance, because the licensee did not make conservative assumptions in decisions affecting the integrity of this SX piping. Specifically, the licensee's decision to not implement changes to station procedures and to not perform training for personnel on this service water operating experience event was not based on sufficient information to demonstrate that the decision was safe (e.g., would preclude a similar event from occurring at the Byron Station). The licensee entered this issue into the corrective action program.
This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening" because the finding was 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 licensee's failure to implement corrective actions associated with the Byron programs for maintenance of the service water system adversely affects system reliability. The team evaluated the finding in accordance with IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." Under the Mitigating Systems Cornerstone Column of Table 4a, the team answered "No" to each of the screening questions, because the failure to incorporate corrective measures for this applicable operating experience event did not directly contribute to the delay in correcting the degraded SX riser pipe condition. Specifically, each of the degraded SX riser pipes had been identified and placed in the corrective action system by June of 2007, shortly after this operating experience evaluation was performed. Therefore, the finding screened as having very low safety significance. (Section 40A3.3)

Inspection Report# : 2007009 *(pdf)*

Significance: G Mar 28, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
TRM Change Bypasses Procedure Change and Safety Evaluation Processes
•Green. The team identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to ensure that Revision 54 of the Technical Requirements Manual was appropriate to the circumstances. Revision 54 of the Technical Requirements Manual was not appropriate to the circumstances, because it allowed deviations from the Technical Requirement Manual requirements without following the procedure change process and 10 CFR 50.59 review process. The cause of this finding was related to the Decision Making Component (Item H.1(b) of IMC 305) for the cross-cutting area of Human Performance, because the licensee failed to make conservative assumptions in decisions affecting the procedure adherence for safety related systems. Specifically, the licensee's assumptions for implementing Revision 54 were not based on a comprehensive review of system alignments for all possible Technical Requirements Manual deviations, and thus did not demonstrate that the proposed deviations allowed would be safe. The licensee subsequently removed the option to deviate from the Technical Requirements Manual and entered this issue into the corrective action program.

This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” because the finding was 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). Absent NRC intervention, the licensee’s procedure option could have allowed unsafe deviations from the Technical Requirements Manual or allowed actions which would have required prior NRC approval (e.g., license amendment). The team evaluated the finding in accordance with IMC 0609.04 “Phase 1 – Initial Screening and Characterization of Findings.” Under the Mitigating Systems Cornerstone Column of Table 4a, the team answered “No” to each of the screening questions, because the NRC identified this deficient change prior to the licensee implementing any actions which adversely affected the structural integrity or operability of mitigating systems. Therefore, the finding screened as having very low safety significance. (Section 40A3.7)

Inspection Report# : 2007009 *(pdf)*

Significance: G Mar 28, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Corroded 0SX138B Valve Bolting During VT-2 Examination
•Green. The team identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to identify severely corroded bolts (condition adverse to quality) on the 0B SX basin suction supply isolation valve 0SX138B. The cause of this finding was related to the Corrective Action Program Component (Item P.1(a) of IMC 305) for the cross-cutting area of Problem Identification and Resolution, because the licensee staff failed to adopt an appropriate threshold for identifying issues. Specifically, the failure of the licensee VT-2 examiner to identify these degraded bolts was related to an excessively high threshold for problem identification. The licensee entered this issue into the corrective action program and replaced the bolts on the lower half of this valve which were subjected to the most severe corrosion. This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening” because the finding was 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). Absent NRC intervention, the inappropriate threshold for identification of bolt corrosion as a condition adverse to quality would have gone uncorrected. This condition, if uncorrected, could lead to undetected corrosion failures in carbon steel components, affecting the reliability or capability of mitigating systems. The team evaluated the finding in accordance with IMC 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” Under the Mitigating Systems Cornerstone Column of Table 4a, the team answered “No” to each of the screening questions, because the corrosion of the 0SX138B valve bolts had not yet challenged structural integrity or operability of the system. Therefore, the finding screened as having very low safety significance (Section 40A3.9).

Inspection Report# : 2007009 *(pdf)*

Significance: SL-IV Jan 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform 10 CFR 50.59 Evaluations for Changes in Assumed Operator Times
The inspectors identified a Severity Level IV NCV, having very low safety significance, of 10 CFR 50.59 from the licensee's failure to provide a documented basis for determining that changes in how operator response times for postulated steam generator tube ruptures were credited in accident analyses did not require prior NRC approval.
Inspection Report# : 2008006 *(pdf)*

Significance: G Jan 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Corrective Actions for Motor Operated Valve Breaker Magnetic Trip Settings
The inspectors identified an NCV having very low safety significance of 10 CFR Part 50, Appendix B, Criterion XVI for the licensee's failure to take prompt corrective actions for a condition adverse to quality. specifically, when it was identified in 2003 that the magnetic trip setting for breakers associated with three eseential service water MOVs was below calculated required values for motor reversal conditions, the licensee failed to take interim corrective actions.

Inspection Report# : 2008006 *(pdf)*

Significance: G Dec 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
UNIT 0 TRAIN A ESSENTIAL SERVICE WATER BASIN LEVEL DROP
The inspectors identified a Non-Cited Violation (NCV) of 10 CFR 50.65(a)(4), for the licensee's failure to conduct an adequate risk assessment of the maintenance performed at the Unit 0 Train B essential service water basin. Specifically, the maintenance activities lowered the Unit 0 Train A Essential Service Water (SX) basin level and resulted in an unrecognized increase in the level of risk as determined by the licensee's shutdown safety management program. The primary cause of this finding was related to the cross-cutting area of human performance for failure to appropriately coordinate work activities between departments to assure plant and human performance. (H.3(b))
The finding was determined to be more than minor because the unplanned red risk condition was entered and the risk assessment had incorrect assumptions that had the potential to change the outcome of the assessment. The inspectors assessed the finding using Inspection Manual Chapter (IMC) 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," and determined the finding to be of very low safety significance (Green) because the safety function of the ultimate heat sink was not lost.

Inspection Report# : 2007005 *(pdf)*

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
DISCREPANCIES WITH TORNADO ANALYSIS
The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance involving the ultimate heat sink (UHS) capability of mitigating the effects of tornado missiles. Specifically, the inspectors identified that the licensee failed to demonstrate that the ultimate heat sink can withstand the effects of tornado borne missiles rendering all cooling tower fans out of service. In addition, the licensee failed to update their current analysis to show the higher heat load generated as a result of power up-rate, steam generator replacement and the ultimate heat sink design basis reconstitution. In response to the issue, the licensee implemented compensatory actions including allowing only one fan to be inoperable at a time and performing an operability evaluation.

The finding was more than minor because the temperature of the UHS could have exceeded its design value in the event of a tornado and a loss of all cooling towers. The finding was of very low safety significance because the inspectors determined that the UHS was in a non-conforming but operable condition and the issue screened as Green using the SDP Phase 1 screening worksheet.

Inspection Report# : 2007004 *(pdf)*

Barrier Integrity

Significance: G Mar 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
PLANT BARRIER IMPAIRMENT PERMIT NOT FOLLOWED
A finding of very low safety significance and associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to follow plant procedures. Plant maintenance workers left hoses running through a ventilation barrier door that caused the door to be open more than the allowed one inch. The licensee took immediate corrective actions which included closing the door and completing an evaluation which demonstrated operability of the door for ventilation purposes.

The finding was more than minor because, if left uncorrected, the issue would have become a more significant safety

concern. The inspectors determined this finding represented a degradation of the radiological barrier function provided for the auxiliary building, therefore, the finding was considered to be of very low safety significance (Green). Additionally, the inspectors determined that the finding had a cross-cutting aspect in the area of human performance. Specifically, Work Control - The licensee plans and coordinates work activities, consistent with nuclear safety
Inspection Report# : 2008002 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO EVALUATE RADIOLOGICAL HAZARDS FOR ALPHA RADIATION
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation (NCV) of Technical Specification 5.4.1 for failure to implement procedures required to evaluate radiological hazards for alpha contamination. The corrective actions taken by the licensee included notification of RP supervision to reject all surveys with beta/gamma contamination in excess of 100,000 dpm/100 cm2 that do include alpha information. The issue was entered in the licensee's corrective action program as AR 755986.

The finding is more than minor because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that the failure to fully evaluate the radiological hazards present in work areas could result in unplanned exposure to workers. The finding was determined to be of very low safety significance because it was not an As-Low-As-Is-Reasonably-Achievable (ALARA) planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. This finding was caused by inadequate review and approval of survey data by RP Supervision. Consequently, the cause of this deficiency had a cross-cutting aspect in the area of Human Performance. Specifically, the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.
Inspection Report# : 2008002 *(pdf)*

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

Last modified : August 29, 2008