

Byron 1

3Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

ISOLATING CARBON DIOXIDE FIRE SUPPRESSION SYSTEM IN UPPER CABLE SPREADING ROOMS WITHOUT PRIOR NRC APPROVAL

A finding of very low safety significance and an associated Non-Cited Violation (NCV) of Byron Unit 1 Operating License Condition 2.C(6) and Byron Unit 2 Operating License Condition 2.E was identified for the licensee's failure to obtain NRC approval before making changes to the fire protection program. Specifically, the licensee isolated the manual carbon dioxide (CO₂) suppression system to the upper cable spreading rooms (UCSR) without prior NRC approval. The licensee entered this issue in the corrective action program and implemented compensatory action to verify detection system operability.

The finding was determined to be more than minor because the inspectors could not reasonably determine that the isolation would not have ultimately required NRC prior approval. The inspectors determined this finding to be of very low safety significance (Green) based on a Phase 2 SDP evaluation. This finding is related to the cross-cutting area of Human Performance for failure to use conservative assumptions in decision making and to adopt a requirement that demonstrates the proposed action is safe in order to proceed with respect to reviewing the plant design and license basis. (H.1(b))

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FIRE SUPPRESSION SPRINKLER OBSTRUCTION IN THE DIESEL OIL STORAGE TANK ROOM

The inspectors identified a finding of very low safety significance and associated NCV of the Byron Operating License Condition 2.C.6 for failure to comply with the spacing standard for sprinkler systems of the Fire Protection Program. Specifically, a permanent scaffold obstructed a fire protection suppression sprinkler in the Unit 1 "A" (1A) diesel oil storage tank room and no replacement sprinkler was installed. The licensee entered the issue into the corrective action program and subsequently removed the scaffold decking.

This finding is more than minor because it was associated with the external factor attribute of the Initiating Events cornerstone 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. The finding is of very low safety significance because it has a low degradation rating as only one out of eleven sprinklers in the room was obstructed and there was another functional head within 10 feet of combustible concern. This finding has a cross-cutting aspect in the area of Human Performance for Work Practices (H.4.(b)) because the licensee failed to define and effectively communicate expectations regarding procedural compliance and to ensure that personnel follow procedures.

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECTLY EVALUATE AND DISPOSITION OF A WELD INDICATION

The inspectors identified a finding of very low safety significance and associated NCV of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Section 50.55a, for the failure to correctly disposition an ultrasonic (UT) examination indication found in feedwater weld 1FW87CA-6?/C08A as required by American Society of Mechanical Engineers (ASME) Code, Section XI. This issue was entered into the licensee's CAP; the indication was re examined and correctly dispositioned.

The inspectors concluded that the finding was more than minor because a failure to perform the required corrective action could have allowed an unacceptable flaw to remain in service and so could become a more significant safety concern. The inspectors applied the IMC 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings" to this finding. The inspectors concluded that the finding was of very low safety significance, because the licensee re-performed the UT examination, and correctly dispositioned the indication in accordance with ASME Code. Furthermore, the finding did not contribute to both the likelihood of a reactor trip, and the likelihood that mitigation equipment will not be available. The inspectors determined that this finding was related to the Decision Making Component (H.1 (b)) for the cross-cutting area of Human Performance.

Inspection Report# : [2008003](#) (*pdf*)

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 a 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)

W

Significance: 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)

G

Significance: 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)



Significance: Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM EVALUATION OF A LEADING BOLTED CONNECTION

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," regarding the licensee's failure to perform adequate evaluations of the boric acid leakage from bolted connections in accordance with Procedure ER-AP-331-1002, "Boric Acid Corrosion Control Program Identification, Screening, and Evaluations." This issue was entered into the licensee's CAP. Licensee corrective actions included revising the procedure and re-performing the evaluation.

As implied by Example 4a of IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," the finding was not minor under the category of "Insignificant Procedural Errors," because the licensee routinely failed to perform/document engineering evaluations for bolted connections with boric acid leaks. A failure to adequately perform the required evaluation could result in equipment susceptible to the corrosive effects of boric acid being returned to service in a degraded condition and so could become a more significant safety concern.

The inspectors applied the IMC 0609, Attachment 0609.04, to this finding. The inspectors checked the Reactivity Control Degraded box in the Mitigation System Cornerstone column of Table 2, and answered "no" to all of the questions in the Mitigation System Cornerstone column of Table 4a, to conclude that the finding was of very low safety significance (Green). Specifically, the finding did not represent a loss of any safety function. The inspectors determined that this finding was related to the cross-cutting component of Human Performance for Work Practices (H.4.(b)). (Section 1R08.3.b)

Inspection Report# : [2008003](#) (*pdf*)



Significance: 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: 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:  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:  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:  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 essential 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:  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:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

UNIT 1 TRAIN B AUXILIARY FEEDWATER PUMP LUBE OIL LEAK

The inspectors identified a Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to classify safety related part appropriately. Specifically, the replacement rocker cover gasket for the Unit 1 Train B (1B) diesel driven auxiliary feedwater pump was not classified as safety related component, which led to the use of inappropriate gasket for the diesel engine and rendered the pump unable to perform its safety shutdown function when an excessive leak developed prematurely. The licensee took the pump out of service and repaired the gasket leak within the 72 hours of the Technical Specification allowable outage time. Subsequently, the licensee re-classified the replacement cover gasket as a safety related component. The finding was determined to be more than minor since if left uncorrected, the finding could become a more significant safety concern that affects other cover gaskets of the diesel driven auxiliary pump. The finding was evaluated under the SDP using Appendix F of the NRC IMC 0609, "Fire Protection Significance Determination Process" and screened as very low safety significance (Green) as the finding only affected the ability to reach and maintain cold shutdown conditions. (Section

Inspection Report# : [2007005](#) (*pdf*)

Barrier Integrity

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 : November 26, 2008