Byron 1
1Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
WATER INTRUSION LEADS TO LOSS OF ANNUNCIATORS (SECTION 1R15.b)
The inspectors identified a finding of very low safety significance and associated NCV of Byron Operating License Condition 2.C(6) for Unit 1 and 2.E for Unit 2 for the licensee failing to provide an adequate floor drain system as required by the Fire Protection Program. Specifically, the floor drain system in the Upper Cable Spreading Room (UCSR) was not adequate to prevent firefighting water from entering the Control Room through the floor openings and affecting equipments. The licensee entered this issue into the CAP as IR 1046794 and subsequently sealed the UCSR floor.
The finding is greater than minor because it was associated with the protection against external factors 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 significance because safety equipment functions remained available to control room personnel. This finding was related to the cross-cutting area of Problem Identification and Resolution and its associated component for Corrective Action Program (P.1(d)) because the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. (Section 1R15.b)

Inspection Report# : 2010003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
AUXILIARY FEEDWATER PUMP LUBE OIL HEAT EXCHANGER CONFIGURED INCORRECTLY
An NRC-identified finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified by the inspectors when licensee personnel failed to install the Unit 1 Train B auxiliary feedwater pump lube oil heat exchanger end bell in accordance with design drawings. The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of Configuration Control and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the as-found orientation of the heat exchanger end bell was not consistent with design drawings and adversely affected the performance of the auxiliary feedwater pump lube oil heat exchanger.
The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” Table 4a, for the Mitigating Systems Cornerstone. The inspectors determined that the finding was a design or qualification deficiency confirmed not to result in a loss of operability or functionality. This conclusion was reached after reviewing an analysis performed by the licensee that concluded the auxiliary feedwater system would perform its safety-related function with the lube oil heat exchanger end bell in the as-found and as-installed configuration. The licensee subsequently restored the configuration, consistent with design drawings. Due to the age of this issue, it was not determined to be reflective of current licensee performance and therefore a cross-cutting aspect was not assigned to this finding. (Section 1R07)

Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
INADEQUATE INSTRUCTIONS FOR MEASURING ECCS VOIDS
An NRC-identified finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified by the inspectors when licensee personnel failed to establish instructions for measuring pipe voids detected during surveillances of the emergency core cooling systems for gas accumulation. Specifically, instructions to measure the size of gas voids detected during venting at each safety injection and residual heat removal system vent location were not provided so that the effect of the void on system operability could be evaluated. The licensee entered this issue into their corrective action program and initiated procedure revisions to provide additional guidance for recording data to size voids identified during venting operations.
The performance deficiency was determined to be more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. The finding screened as having very low safety significance because it did not result in a loss of operability or functionality. Specifically, a qualitative assessment of the voids detected by venting since the implementation of the licensee’s resolution of Generic Letter 2008 01 established reasonable assurance that these voids did not result in a loss of operability. The inspectors did not identify a cross-cutting aspect that represented the underlying cause of this performance deficiency. Therefore, no cross-cutting aspect was assigned to this finding.

Inspection Report# : 2011002 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Instructions for the Inspection of the River Screen House and Essential Service Water Cooling Tower
A finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified by the inspectors when licensee personnel failed to establish specific instructions for inspecting the River Screen House and Essential Service Water Cooling Tower. Specifically, the procedure that provided guidance for inspecting these structures lacked specific instructions on how to detect concrete degradation, erosion, corrosion and biological fouling. The licensee entered this issue into their corrective action program and initiated procedure revisions to provide further direction for identifying and documenting the degradation of these structures and related components.

The performance deficiency was determined to be more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. The finding screened as of very low safety significance because it was a qualification deficiency confirmed not to result in a loss of operability or functionality. Specifically, a qualitative assessment of historic surveillance reports found the documented results acceptable. The inspectors determined that this finding did not represent current licensee performance and therefore no cross-cutting aspect was assigned. (Section 1R07.1)
Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 03, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Adequate Guidance in Safe-Shutdown Procedures
A finding of very low safety-significance and associated NCV of Technical Specification 5.4.1.c for Units 1 and 2 was identified by the inspectors for the licensee's failure to provide adequate guidance in safe shutdown procedures. Specifically, the licensee failed to provide adequate guidance to reenergize the 4 kiloVolt (kV) buses, which were required to power safe shutdown components to achieve hot shutdown in the event of a fire in Fire Zone 11.3-0. The

licensee subsequently entered the issue into their corrective action program and initiated actions, which included recommendations to revise safe shutdown procedures to provide guidance for recovery actions to reenergize the required affected busses.

The inspectors determined that this finding was more than minor because the failure to provide adequate procedural guidance to reenergize the 4 kV buses could have potentially compromised the ability to safely shutdown the plant in the event of a fire in Fire Zone 11.3-0. This finding was of very low safety significance (Green) based on a Phase III significance determination analysis. The finding did not have a cross-cutting aspect because it was not reflective of current performance. (Section 1R05.1R05.6.b(1))
Inspection Report# : 2010006 *(pdf)*

Significance: G Dec 03, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Periodically Test 125 Vdc Molded Case Circuit Breakers
. A finding of very low safety significance and associated NCV of the Byron Station facility operating licensee conditions for fire protection was identified by the inspectors for the licensee's failure to periodically test samples of molded case circuit breakers (MCCBs) at the 125 Volt direct current (Vdc) level. The licensee subsequently entered the issue into their corrective action program and verified that sufficient design margin existed such that breaker coordination would not be adversely affected.

The inspectors determined that this finding was more than minor because the failure to test the MCCBs would result in a failure to detect excessive set-point drift which impacted breaker coordination. This finding was of very low safety significance (Green) because the licensee verified that sufficient design margin existed such that breaker coordination would not be adversely affected. In addition, no failures of 125 Vdc MCCBs to trip due to set-point drift had been identified. The finding did not have a cross-cutting aspect because it was not reflective of current performance. (Section 1R05.1R05.6.b(2))
Inspection Report# : 2010006 *(pdf)*

Significance: G Jun 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO APPROPRIATELY ANALYZE THE DEGRADED VOLTAGE TIMER SETTINGS
A finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, was identified by the inspectors for the licensee's failure to have an appropriate analysis for the second level undervoltage (degraded voltage) relay timer settings. Specifically, Byron's analysis EC 377631, "Evaluation and Technical Basis for the AP System Second Level Undervoltage (Degraded Voltage) Time Delay Settings," dated February 3, 2010, failed to demonstrate the ability of the permanently connected safety-related loads to continue to operate for 5 minutes and 40 seconds without sustaining damage during a worst case, non-accident degraded voltage condition. The licensee entered this issue into their corrective action program as IR 1071667.
The performance deficiency was determined to be more than minor because the finding affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was reasonable doubt as to whether the permanently connected safety-related loads would remain operable during a worst case, non-accident degraded voltage condition for the duration of the time delay chosen. This finding is of very low safety significance (Green), because the design deficiency was confirmed not to result in loss of operability or functionality. After consulting with the Office of Nuclear Reactor Regulation (NRR), the inspectors identified a cross-cutting aspect associated with this finding in the area of human performance, decision making because the licensee did not use conservative assumptions based on NRC approved changes to the licensing basis in choosing the worst case degraded voltage condition in their February 2010 analysis. Specifically, in their February 2010 analysis, the licensee chose 75 percent of nominal voltage as their lower limit of degraded voltage (based on a not formally approved manual action), opposed to the worst possible degraded voltage of approximately 66 percent of nominal (first level undervoltage setpoint). (IMC 0310, Section 06.01.a. (2)
Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
0B FIRE PUMP DISCHARGE VALVE DISCOVERED CLOSED (SECTION 1R12)
A self-revealed finding of very low safety significance and associated Non-Cited Violation of Byron Operating License Condition 2.C(6) for Unit 1 and 2.E for Unit 2 for the licensees failure to identify the separation of the 0B Fire Pump discharge valve, 0FP018B, valve stem and valve disk. As a result, the mitigating functions associated with the 0B Diesel driven fire pump would not be assured. The licensee entered this issue into the Corrective Action Program (CAP) as Issue Report (IR) 1063395 and repaired the valve.
The issue is more than minor because it affected the Mitigating Systems Cornerstone attribute of Protecting Against External Events and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Based on a Phase 3 significance evaluation, the finding is determined to be of very low safety significance. The primary cause for this finding was related to the cross-cutting area of Problem Identification and Resolution and its associated component for Corrective Action Program (P.1(c)) because licensee personnel failed to identify the discharge valve's functionality was impacted by its degraded state. (Section 1R12.b)

Inspection Report# : 2010003 *(pdf)*

Barrier Integrity

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO EVALUATE THE EFFECTS OF DYNAMIC LOADS AT THE CS DISCHARGE PIPING
An NRC-identified finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors when licensee personnel failed to evaluate the effects of dynamic loads at the containment spray discharge piping. The inspectors were concerned because portions of the containment spray discharge piping were normally voided by design and neither the structural design nor operation of the system addressed the dynamic loads that would result when the voided piping was rapidly filled following system initiation. The licensee entered this issue into the corrective action program and, at the time of the inspection, planned to include an evaluation of dynamic loads into the design basis of containment spray.
The performance deficiency was determined to be more than minor because it was associated with the Structures, Systems, Components, and Barrier Performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as having very low safety significance because it did not affect either core damage frequency or large early release frequency. The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because the licensee did not thoroughly evaluate external operating experience.

Inspection Report# : 2011002 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM ADEQUATE EVALUATION FOR CRANE UPGRADE
A finding of very low safety significance and an associated Non-Cited Violation (NCV) of Title 10 Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control" was identified by the inspectors for the licensee's failure to perform adequate evaluations to upgrade the single failure proof crane. Specifically, the inspectors identified six examples where the licensee failed to perform adequate evaluations in accordance with American Society of Mechanical Engineers (ASME) NOG-1-2004, requirements. The licensee documented the conditions in Issue Report (IR) 1099897, and IR 1100062 and initiated actions for calculation revisions and field modifications.

The Fuel Handling Building (FHB) crane is designed to Seismic Category I requirements and the licensee used compliance with ASME NOG-1-2004, as the design basis for their crane upgrade to a single failure proof crane. The inspectors determined that the failure to perform adequate evaluations was contrary to ASME NOG-1-2004 requirements and was a performance deficiency. The finding was more than minor as it was associated with the Barrier Integrity cornerstone, because a fuel handling building crane heavy load drop can damage the Spent Fuel Pool (SFP) Cooling System or spent fuel cladding. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” and based on a “No” answer to all of the questions in the Barrier Integrity column of Table 4a, determined the finding to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Resources because the licensee did not provide adequate oversight of work activities, including contractors, such that design documentation was accurate to support nuclear safety. H.2(c) (Section 4OA5)

Inspection Report# : 2010004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
OUT-OF-DATE/EXPIRED RESPIRATOR CARTRIDGES
An NRC-identified finding of very low safety significance and an associated NCV of TS 5.4.1 was identified by the inspectors when out of date respirator cartridges were found available for use. Radiation protection procedures that cover respiratory protection program did not require cartridges to be replaced after the manufacturer specified shelf-life had expired. The manufacturer of the respirator canister recognized that it was possible that chemical cartridges, which were more than a year old, might lose some of their efficiency in their ability to absorb contaminants. The manufacturer prescribed an expiration date of 3 years from the date of the canister manufacture and this date was stamped on to the canister label.
The regulatory authority for respiratory protection is the Occupational Safety and Health Administration (OSHA). The regulations are defined in 29 CFR 1910.134 titled “Respiratory Protection.” Title 29 CFR 1910.134(d)(3)(iii) provides requirements for the protection against gases and vapors. These requirements include that air purifying respirators be equipped with an End-of-Service Life Indicator (ESLI) or the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.
The inspectors reviewed the guidance in IMC 0612, Appendix E, Examples of Minor Issues, but did not identify any examples similar to the performance deficiency. However, in accordance with IMC 0612, the inspectors determined that the finding was more than minor because if left uncorrected the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, cartridges that were beyond the recommended shelf-life could lose some of their efficiency in their ability to absorb contaminants and result in additional radiation doses to the users. The finding was assessed using the Occupational Radiation SDP and was determined to be of very low safety significance because these problems were not as-low-as-is-reasonably-achievable (ALARA) planning issues, there were no overexposures, nor substantial potential for overexposures and the licensee’s ability to assess dose was not compromised. Corrective actions planned by the licensee included replacing the expired cartridges and adding guidance to procedures for checking expiration dates during routine inventories. The inspectors determined that the cause of this incident involved a cross-cutting component in the human performance area for inadequate resources. Specifically, the licensee did not have complete, accurate and up-to-date procedures.

Inspection Report# : 2011002 *(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

Significance: SL-IV Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedures for Implementing FSAR Required Annulus Cooling (Section 4OA5.2.b.1)
The inspectors identified a Severity Level IV NCV of very low safety significance of 10 CFR 72.150, "Instruction, Procedures, and Drawings." Specifically, the licensee failed to have procedures in place to ensure that the design basis peak fuel cladding limit would not be exceeded during canister loading operations. The licensee entered this issue into their corrective action program and revised the procedure to provide monitoring criteria.

The violation was determined to be of more than minor significance using IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” Example 2c, in that the procedures failed to incorporate thermal acceptance criteria established by the Holtec Final Safety Analysis Report and that the failure to incorporate thermal acceptance criteria was repetitive. Although the violation contributed to the likelihood of peak fuel cladding temperatures exceeding the safety limit, subsequent analysis by the licensee determined that fuel cladding temperature limits were not exceeded. The violation screened as having very low safety significance. (Section 4OA5.2)
Inspection Report# : 2010005 *(pdf)*

Significance: SL-IV Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedural Guidance for Heavy Loads Operations (Section 4OA5.2.b.2)
The inspectors identified a Severity Level IV NCV of very low safety significance of 10 CFR 72.150, "Instructions, Procedures, and Drawings." Specifically, the licensee failed to have procedures in place to ensure that heavy loads were operated safely in the Fuel Handling Building. The licensee entered this issue into their corrective action program and revised the procedure to provide monitoring criteria.

The violation was determined to be of more than minor significance because if left uncorrected, it could lead to a more significant safety concern. Consistent with the guidance in Section 2.6.D of the NRC Enforcement Manual, if a violation does not fit an example in the Enforcement Policy Violation Examples, it should be assigned a severity level: (1) commensurate with its safety significance; and (2) informed by similar violations addressed in the Violation Examples. The violation screened as having very low safety significance. (Section 4OA5.2)
Inspection Report# : 2010005 *(pdf)*

Significance: SL-IV Sep 17, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate procedures for Implementing FSAR Required Annulus Cooling.
The inspectors identified a Severity Level IV NCV of 10 CFR 72.150, "Instructions, Procedures, and Drawings." Specifically, the licensee failed to have procedures in place to ensure that the design basis peak fuel cladding temperature limit would not be exceeded during vacuum drying operations. The licensee entered this issue into its

corrective action program and revised the procedure to provide monitoring criteria.

The violation was determined to be of more than minor significance because, if left uncorrected, it could lead to a more safety significant event. Although the violation contributed to the likelihood of peak fuel cladding temperatures exceeding the safety limit, subsequent analysis by the licensee and the NRC determined that fuel cladding temperature limits were not exceeded during this event; therefore, the violation screened as having very low safety significance. (Section 4OA5.2)
Inspection Report# : 2010007 *(pdf)*

Last modified : June 07, 2011