

Byron 1 4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Sep 27, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE IDENTIFICATION OF FIRE CURTAIN SPRINKLER DEGRADATION FOR AN AUXILIARY BUILDING STAIRWELL

The inspectors identified a finding of very low safety significance and an associated NCV of Byron Operating License (OL) Condition 2.C.6 for Unit 1 and 2.E for Unit 2 when licensee personnel failed to identify that a fire sprinkler curtain on Elevation 346' had degraded. Specifically, a ball valve had a twisted stem, which had the effect of indicating that an isolation valve was fully open, when in fact it was significantly closed. As part of their immediate corrective actions, the licensee declared the auxiliary building Elevation 346' fire curtain inoperable and initiated compensatory measures that included fire watches until the isolation valve stem was replaced. The licensee entered this issue into their CAP as IR 1560667, "Adverse Trend in Main Drain Results for 346 AB [Auxiliary Building] Sprinkler System."

The performance deficiency was determined to be more than minor because it was associated with the External Factors attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process," because it was associated with fire protection defense-in-depth strategies involving fire confinement. The inspectors determined that while flow to the sprinkler heads was significantly degraded, because less than 10 percent of the heads were obstructed or fouled, and no adjacent heads were fouled, the water curtain had a low degradation rating in accordance with IMC 0609, Appendix F, Attachment 2. Therefore, in accordance with IMC 0609, Appendix F, Attachment 1, Step 1.3.1.B, the finding was determined to be of very low safety significance (Green). This finding had a cross-cutting aspect in the CAP component of the PI&R cross-cutting area (P.1.(a)), because licensee personnel twice failed to identify the degraded sprinkler curtain and when NRC personnel identified the issue and informed licensee personnel, the issue was not entered into the licensee's CAP in a timely manner.

Inspection Report# : [2013007](#) (*pdf*)

Mitigating Systems

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Emergency Service Water Blowdown Isolation Valves Were Not Tested

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to demonstrate the ability to isolate the emergency service

water blowdown as credited in analysis described in the Updated Final Safety Analysis Report. Specifically, the licensee was not periodically testing the active function of the blowdown isolation valves. This finding was entered into the licensee's Corrective Action Program, in part, to periodically test the closing function of the blowdown isolation valves.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of the ultimate heat sink to respond to initiating events to prevent undesirable consequences. The finding screened as of very low safety significance because it did not result in the loss of operability or functionality. Specifically, the licensee reviewed recent history of the affected piping system and determined it opportunistically cycled the valves without incidents. The inspectors did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency.

Inspection Report# : [2013005](#) (pdf)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Intake Structure Silt Level Acceptance Criteria Were Non-Conservative

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to develop appropriate intake structure silt level acceptance criteria. Specifically, the licensee used a non-conservative river water low level value as an input when developing silt level acceptance criteria. This finding was entered into the licensee's CAP to correct the acceptance criteria and revise the affected surveillance procedures.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of the ultimate heat sink to respond to initiating events to prevent undesirable consequences. The finding screened as of very low safety significance because it did not result in the loss of operability or functionality. Specifically, a historic review did not find an example where the as-found silt level resulted in an inoperable condition. The inspectors did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency.

Inspection Report# : [2013005](#) (pdf)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Preventative Maintenance Procedure Replacement Schedules for Essential Service Water Makeup Pump Diesel Engine Hoses

. Inspectors identified a finding of very low safety significance and associated Non-Cited Violation of TS 5.4.1, "Procedures," for failure to establish and implement a preventive maintenance schedule to replace hoses on SX Make Up pump diesel engine. Specifically, the licensee failed to implement preventive maintenance procedures that require periodic replacement of hoses on pre-established schedules in accordance with vendor recommendation and corporate Performance Centered Maintenance (PCM) template. The finding was entered into the licensee's Corrective Actions Program, in part, to evaluate the current maintenance strategy for maintaining flexible hoses on the SX make-up pump diesel engines.

The performance deficiency was determined to be more than minor because if left uncorrected the failure of SX Make up pump engine hoses could result in the inoperability of the SX Make up pumps. The performance deficiency also screened as more than minor because it affected the Procedure Quality attribute of the Mitigating Systems

cornerstone and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as being of very low safety significance because it did not result in the loss of operability or functionality. Specifically, the licensee has reviewed the recent history of hose inspections and instances that required hose replacement and determined no failures have occurred that resulted in an inoperable condition. The inspectors did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency.

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Sep 27, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ASSESS OPERABILITY OF THE 2A EDG FOLLOWING POST-MODIFICATION TESTING

The inspectors identified a finding of very low safety significance and an associated NCV of Technical Specification (TS) 3.8.1 when licensee personnel failed to properly assess the operability of the 2A emergency diesel generator (EDG) following a post-maintenance test that rendered the 2A EDG ventilation fan, a credited support system, incapable of performing its auto-start support system function for a period of two days. As part of the licensee's immediate corrective actions, a trip signal that prevented the 2A EDG fan from starting was reset. The licensee entered this issue into their CAP as IR 1252529, "2A DG [EDG] Vent Fan Trip Signal Not Reset."

The performance deficiency was determined to be more than minor because it was associated with the Configuration Control and Human Performance attributes 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). Specifically, following an August 15, 2011, post-maintenance test of the 2A EDG room ventilation system high differential pressure (D/P) trip time delay, the licensee failed to implement the necessary procedural steps that ensured the high D/P trip signal was reset. This resulted in the 2A EDG room ventilation fan from auto-starting, resulting in the inoperability of the 2A EDG from August 15-17, 2011. The inspectors determined that this finding screened as having very low safety significance (Green) in accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions," as it did not represent an actual loss of function of at least a single train of safety-related equipment for greater than its Technical Specification (TS) allowed outage time and did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This issue had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area (H.4(a)), because licensee personnel failed to use appropriate human performance techniques to ensure that work tasks were performed safely and individuals do not proceed in the face of uncertainty.

Inspection Report# : [2013007](#) (*pdf*)

Significance:  Sep 27, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

ACCEPTANCE CRITERIA FOR BATTERY VOLTAGE IN TS SURVEILLANCE PROCEDURE FAILED TO ACCOUNT FOR TEST EQUIPMENT UNCERTAINTY

The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," when licensee personnel failed to account for test instrument uncertainty in the acceptance criteria for TS Surveillance procedure 2BOSR 8.6.1-2, "125VDC [Volt Direct Current] ESF [Engineered Safety Feature] Battery Bank and Charger 212 Operability Weekly Surveillance." As part of the licensee's immediate corrective actions, the voltage of the affected battery charger was adjusted. The licensee also

planned to perform a fleet-wide evaluation of the issue. The licensee entered this issue into their CAP as IR 0156440, “125 VDC Battery TS Surveillance Values.”

The performance deficiency was determined to be more than minor because it 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). Specifically, the acceptance criteria for the battery voltage did not assure the availability of the safety-related direct current (DC) batteries that would meet the minimum voltage as required by the TSs. This finding screened as having very low safety significance, in accordance with Exhibit 2 of IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings for At-Power,” because it was a design deficiency confirmed not to result in a loss of operability. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance. Specifically, the decision to not include the instrument uncertainty was made in 2003, as part of an evaluation for a previously identified issue.

Inspection Report# : [2013007](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

EMBEDMENT PLATE DESIGN DEFICIENCIES

The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” when licensee personnel failed to properly evaluate the structural steel embedment plate which supported Safety Injection (SI) pipe supports 1SI06025V and 1SI06030S. Specifically, the licensee failed to demonstrate compliance with the American Institute of Steel Construction (AISC) and Seismic Category I linear elastic requirements. The licensee entered this issue into their corrective action program (CAP) as Issue Report (IR) 1478188. As part of their immediate corrective actions, the licensee performed an operability evaluation and concluded the structural steel embedment plate was operable, but nonconforming.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Design Control 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). Specifically, the licensee failed to demonstrate compliance with AISC and Seismic Category I linear elastic requirements to ensure the structural steel embedment plate would maintain structural integrity when subjected to a design basis load. The inspectors determined that because the finding did not result in a loss of operability or functionality, the finding was of very low safety significance (Green). This finding did not have a cross-cutting aspect as it was not indicative of current performance.

Inspection Report# : [2013002](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: FIN Finding

FAILURE TO PROPERLY SCOPE ALL PERTINENT EXTERNAL FLOOD PROTECTION FEATURES INTO WALKDOWN LISTS IN ACCORDANCE WITH INDUSTRY GUIDANCE NEI 12-07

The inspectors identified a finding of very low safety significance (Green) when licensee personnel failed to develop inspection lists that included all external flood protection features credited in current licensing bases (CLB) documents as specified in Nuclear Energy Institute (NEI) 12-07, “Guidelines for Performing Walkdowns of Plant Flood Protection Features.” Specifically, concrete flood barriers in the fuel handling building (FHB) that protected

safety-related equipment in the auxiliary building and flood barriers for the spent fuel pool cooling pumps were not included in the licensee's flooding inspection lists, although these passive components were a critical element of the licensee's flood mitigation strategy. The licensee entered this issue into their CAP as IR 1466355. Corrective actions included plans to perform an inspection of the NRC-identified features that were omitted from the inspection lists and an extent-of-condition review.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Protection Against External Factors (Flood Hazard) 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). Because the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors), the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area because licensee personnel failed to properly apply human error prevention techniques such as peer checking and proper documentation of activities [H.4(a)].

Inspection Report# : [2013002](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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