Byron 2
3Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO FIRE PROOF STRUCTURAL STEEL BEAMS TO ACHIEVE A 3-HOUR FIRE RATING.
The inspectors identified an NCV of Byron Station's Operating License Condition 2.C.6 for failure to maintain a 3-hour rated firewall in the control room heating, ventilation and air conditioning (HVAC) equipment room. Specifically, the walls between the upper cable spreading rooms and the control room HVAC equipment were not fireproofed to achieve a 3-hour rating as required by the fire protection report and applicable plant drawings. The licensee entered this issue into its corrective action program for resolution and implemented compensatory measures that included hourly fire watches.

This finding was more than minor because it was associated with the external factor attribute of the Initiating Events cornerstone related to fire and it affected the cornerstone's objective to limit the likelihood of fire that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was of very low safety significance because there were no fire ignition source scenarios that would have caused the structural steel beams to weaken and the ceiling to collapse.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM A MT EXAMINATION IN ACCORDANCE WITH ASME SECTION XI.
The inspectors identified an NCV of 10 CFR 50.55(a)(g)(4) for failure to perform a Magnetic Particle (MT) examination of the full required exam surface on a steam generator (SG) main feedwater nozzle weld (2RC01BA) in accordance with the American Society of Mechanical Engineers (ASME) Section XI Code. The examiners subsequently completed the MT examination of the required area and the issue was entered into the licensee's corrective action program.

This finding was greater than minor significance because it was associated with the Initiating Events cornerstone attribute of "Equipment Performance," and affected the cornerstone objective to limit those events (reactor coolant system barrier failure) which upset plant safety and challenge safety systems. Absent NRC intervention, the licensee would not have performed the full Code-required exam of the weld for an indefinite period of service which would have placed the reactor coolant pressure boundary at increased risk for undetected cracking, leakage, or component failure. This finding was of very low safety significance because a qualified examination was subsequently performed with no relevant indications detected. In particular, it did not result in the loss of function of the mitigating system.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
DESIGN BASIS ANALYSIS FOR THE POSTULATED DROP OF A REACTOR VESSEL HEAD DURING REFUELING WAS NOT UP-TO-DATE.
The inspectors identified a finding of very low safety significance and associated NCV for a failure to establish measures to assure that regulatory requirements and the design basis were correctly translated into procedures as required by 10 CFR 50 Appendix B Criterion III. Specifically, the procedures related to the reactor vessel head lift did not correctly reflect in a non conservative direction the design lift height. As immediate corrective actions, the

licensee incorporated compensatory measures to lower reactor cavity water level during the head lift to ensure the actual airdrop distance was bounded by the analysis.

It was more than minor because it involved the equipment performance attribute of the Initiating Events Cornerstone Objective. The finding was determined to be of very low safety significance (Green) because as part of the additional corrective actions, the licensee's subsequent calculations showed the lift height was acceptable due to margin gained from the much heavier head weight assumed in their analysis.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, operating experience because the licensee failed to implement and institutionalize operating experience through changes to their procedures (P.2(b)).
Inspection Report# : 2007003 *(pdf)*

Mitigating Systems

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)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
ALTERNATIVE SHUTDOWN USING THE REMOTE SHUTDOWN PANEL.
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,” for failure to ensure that all testing necessary to demonstrate that the Unit 1 and 2 remote shutdown panels (RSPs) will perform satisfactorily in-service be identified and conducted. Specifically, the licensee failed to periodically test applicable (i.e., important to safety) components (e.g., control switches) on the RSPs to ensure the operability and functional performance of the RSP components and the operability of their associated systems as a whole. The licensee’s corrective actions were to immediately begin testing of the instrumentation and controls located at the RSP and to continue the testing in accordance with a schedule that would allow timely completion.

The finding was more than minor 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). The finding was of very low safety significance because the finding did not represent an actual loss of the instrumentation indications and control functions at the RSP, since the 1B0A PRI-5 and 2B0A PRI-5 procedures’ “Response Not

Obtained" column provided an alternative shutdown capability method using local manual actions and the Fire Hazards Panel.
Inspection Report# : 2007003 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: FIN Finding
INADEQUATE SETPOINT CONTROL OF THE OIL LEVEL TO SAFETY RELATED PUMPS.
The inspectors identified a finding for the licensee's failure to maintain setpoint control of the constant level oilers. Specifically, the licensee did not incorporate the vendor's recommendation on setting the oil level for the essential service water pumps. This condition increased the challenges to the proper functioning of the lubricating oil and thus to the bearings of the safety-related pumps. The licensee subsequently reset the oil level for the pumps to the recommended setting and entered this issue into their corrective action program.

this finding is more than minor because of the potential for degradation of oil and bearings to safety related components, which could adversely affect their availability and reliability. This finding is of very low safety significance because no bearings had been damaged due to the high oil levels despite operating in this condition for many years and no significant oil degradation had occurred. The inspectors did not identify a violation of regulatory requirements. However, the cause of the finding is related to the cross-cutting element of problem identification and resolution, particularly the thoroughness of the extent of condition review. (Section 1R04.2)

Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
ADEQUACY OF SAFE SHUTDOWN PROCEDURES TO ADDRESS DRAINING OF THE RWST.
The inspectors identified a Non-Cited Violation (NCV) of the Byron Station Operating License for the failure to have adequate alternate safe shutdown procedure. Specifically, licensee's procedure BOP FR-1, "Fire Response Guidelines," did not include adequate steps and instructions to prevent the draining of the refueling water storage tank (RWST) into the containment sump in the event of a fire in the auxiliary electrical equipment room (AEER) or the control room. The licensee implemented appropriate procedure changes for both the AEER and control room fire zones to isolate all potential RWST drain paths.

The finding is greater than minor because it affected the attribute of procedure quality for protection against external factors and it impacted the objective of the mitigating systems cornerstone. The failure to provide adequate instructions in the alternate shutdown procedure to promptly prevent the draining of the RWST to the containment sump could have adversely impacted the operators' ability to promptly take appropriate actions and could have complicated safe shutdown in the event of a fire. The finding was of very low safety significance based on Phase 2 and Phase 3 SDP evaluations completed by the Region III senior reactor analyst (SRA) in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process." (Section 1R05.2)

Inspection Report# : 2007002 *(pdf)*

Significance: G Jan 16, 2007
Identified By: NRC
Item Type: FIN Finding
FAILURE TO HAVE SETPOINT CONTROL OF THE CONSTANT LEVEL OILERS ON SAFETY-RELATED PUMPS
The inspectors identified a finding of very low safety significance associated with the failure to maintain control of the setpoints for constant level oilers. This condition increased the challenges to the proper functioning of the lubricating oil and thus to the bearings to the safety-related pumps.

This finding was considered more than minor because of the potential for the degradation of oil/bearings to safety-

related components which would increase their unavailability and unreliability. This finding was of very low safety significance because no bearings had been damaged due to the high or low oil levels despite operating in this condition for many years and the oild had only been moderately impacted. The licensee's corrective actions included assessing the setpoints of other safety related and non-safety related pumps, verifying no pumps had been damaged, and revising the work order template to include the reference to the corporate procedure for the setting of constant level oilers. No violation of NRC requirements occurred.
Inspection Report# : 2006005 *(pdf)*

Significance: G Dec 01, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Non-Conservative Errors in Unverified Design Input Data Used to Determine the Impact of Core Power Uprate on Medium Voltage Loads
Green. The team identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” having very low safety significance. The power uprate electrical loading calculation used incorrect design input for the 4160 Vac engineered safety features (ESF) distribution system load analysis. Specifically, the licensee’s contract engineering organization failed to adequately verify design input data used to determine brake horsepower loading. The incorrect horsepower values were subsequently used in revising the 4160 Vac ESF distribution system power analysis. The licensee’s acceptance review did not identify the problem. Using corrected values, the licensee determined that the reduction in load margin was acceptable based on a revised loading calculation prepared informally during the inspection.

The finding was more than minor because failing to correctly identify, verify, and input the correct design data into the electrical power analysis program resulted in the load conditions not being adequately evaluated, resulting in inaccurate and non-conservative determination of loading and load margin for the 4160 Vac ESF buses. The finding was of very low safety significance based on the results of the licensee’s analysis and screened as Green using the SDP Phase 1 screening worksheet.
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 01, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Acceptance Criteria for Safety Injection Pump NPSH Not Met
Green. The team identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” having very low safety significance. Specifically, the calculation for evaluating the net positive suction head (NPSH) for the safety injection pump contained errors and failed to demonstrate that the acceptance criteria was met. To demonstrate operability, the licensee performed a preliminary calculation, using a less conservative pump flow value along with correcting the identified errors.

The finding was more than minor because the calculation of record was not adequate and failed to demonstrate that the NPSH available met design basis requirements. The finding was of very low safety significance based on the results of the licensee’s corrected analysis and screened as Green using the SDP Phase 1 screening worksheet. The cause of the finding was related to the cross-cutting aspect of human performance.
Inspection Report# : 2006009 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

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 : December 07, 2007