Clinton
4Q/2006 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
THE INSPECTORS DETERMINED THAT THE FAILURE TO APPROPRIATELY IDENTIFY AND CORRECT THE CAUSE OF THE DIVISION 4 NSPS INVERTER IN MARCH WAS A PERFROMANCE DEFICIENCY.
A finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, was self revealed following a reactor scram on August 27, 2006, due to the licensee's failure to identify and correct a condition adverse to quality in March 2006. The licensee determined and corrected the actual cause of the failure and revised procurement procedures to disallow purchase of parts manufactured under the same process as the failed board. Additionally, the licensee commenced a common cause evaluation to assist in planning and developing additional corrective actions to address whether there are issues involving the licensee proficiency in identifying causes of operational occurrences.

The finding was more than minor because it resulted in a reactor scram and was associated with the equipment performance attribute of the initiating events cornerstone. The finding was of very low safety significance because it would not affect the availability of a mitigating system. The finding was also determined to affect the cross-cutting area of problem identification and resolution in that the actual cause of the March 26, 2006 failure was not properly identified, resulting in the corrective action not addressing the cause, and a more significant failure occurring in August 2006.
Inspection Report# : 2006007 *(pdf)*

Significance: G Mar 20, 2006
Identified By: Self-Revealing
Item Type: FIN Finding
INADEQUATE WORKMANSHIP RESULTED IN GENERATOR TRIP AND REACTOR SCRAM.
The inspectors considered the failure to adequately tighten terminal screws in the main generator output current transformer circuit a performance deficiency. This issue was caused by inadequate workmanship. The inspectors determined it was more than minor because the finding affected the reactor safety/initiating events cornerstone objective of limiting the likelihood of those events that upset plant stability. The finding also affected the cross-cutting area of human performance because the contract workers failed to tighten the terminal screws of the current transformer and the licensee failed to ensure the GE workers were using the appropriate lifted and landed leads documents to aid in performance of this job. Although this failure occurred in C1R08 in April, 2002, the inspectors determined this deficiency to be reflective of recent licensee performance because, up to the March 2006 scram event, there was no procedure or process in place to ensure GE followed the licensee's lifted and landed lead procedures. As a result of the root cause for this event, the licensee initiated a corrective action to revise the GE quality control check-list to confirm that requirements similar to wire removal/jumper installation procedures are incorporated. Although this finding did contribute to the likelihood of a reactor trip, it did not affect the function or availability of any mitigation equipment. Therefore, the inspectors concluded that this issue was a finding of very low safety significance (Green).
Inspection Report# : 2006004 *(pdf)*

Mitigating Systems

Significance: TBD Nov 17, 2006
Identified By: NRC
Item Type: AV Apparent Violation

HPCS OPERABILITY QUESTIONED DUE TO VORTEXING

A finding of greater than very low safety significance was identified by the inspectors for an apparent violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control” requirements. Specifically, the licensee failed to adequately address vortexing in the reactor core isolation cooling (RCIC) water storage tank. As a result, the setpoint for the high pressure core spray (HPCS) pump suction source to swap from the RCIC tank to the suppression pool may be too low and result in significant air entrainment such that the HPCS pump would not be capable of completing its safety function. As a corrective action, on December 1, 2005, the licensee shifted the HPCS and RCIC inventory source to the suppression pool as a conservative measure. Vortexing from the suppression pool should not occur due to the depth of the HPCS and RCIC suction lines and the use of the suppression pool as a qualified inventory source was allowed per Clinton’s Updated Safety Analysis Report (USAR) and Technical Specifications (TS).

The finding was greater than minor because if left uncorrected, could result in the HPCS system becoming inoperable due to air entrainment as the water level in the RCIC water tank decreased toward the swapover setpoint. This finding affected the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This finding was determined to be greater than Green based on the preliminary results of the Phase 2 and Phase 3 analyses
Inspection Report# : 2006011 *(pdf)*

Significance: G Nov 17, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

POTENTIAL INOPERABILITY OF RCIC DUE TO VORTEXING

A finding of very low safety significance was identified by the inspectors for an Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control” requirements. Specifically, in Calculation IP-M-0384, “Evaluation of Vortex in the RCIC [Water] Storage Tank,” Revisions 0 and 1, the licensee failed to adequately demonstrate that the RCIC pump would be capable of performing its safety function prior to swapping suction paths from the RCIC tank to the suppression pool. As an immediate corrective action, the licensee aligned the suction path of the RCIC system to the suppression pool.

The finding was greater than minor because the calculation of record was not adequate and there was reasonable doubt of the successful outcome of a re-analysis. The finding was determined to be of very low safety significance because the inspectors answered “no” to all five screening questions in the Phase 1 Screening Worksheet under the Mitigating Systems column. After further analysis, the inspectors concluded that the RCIC pump was operable.
Inspection Report# : 2006011 *(pdf)*

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL DURING REVIEW OF ENGINEERING CHANGE PACKAGE 356820 "SHUTDOWN COOLING HEADER LEAK-OFF LINE".

In February 2006, a finding of very low safety significance involving a Non-Cited Violation of 10 CFR 50, Appendix B, Criteria III, "Design Control," was identified. During a review of Engineering Change Package 356820, "Shutdown Cooling Header Leak-off line," the inspectors identified that the design change, as installed, would adversely impact the functionality of both the Division 2 residual heat removal system's water leg (keep-fill) pump and the C residual heat removal pump. This adverse condition would be caused by the introduction of high temperature water on the suction side of both pumps. The design change was being installed to prevent pressurization of the shutdown cooling header due to leakage through the reactor coolant system pressure isolation valves.

This issue was more than minor because the finding affected the Mitigating Systems cornerstone objective of ensuring the availability of mitigating systems to prevent undesirable consequences (Design Control attributes). The finding was of very low safety significance because, with the expected operator actions, this condition would not result in a loss of operability. This conclusion was made based on the flow limiting characteristics of the leak-off line orifice with the suction cooling header volume at saturated conditions in conjunction with the subsequent operator alarm response requirements. Corrective actions by the licensee included procedure revisions and local monitoring of the C residual heat removal suction line temperature once the leak-off line was placed in service.
Inspection Report# : 2006002 *(pdf)*

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
INADEQUATE TEST CONTROL DURING THE REVIEW OF THE LICENSEE'S SURVEILLANCE TEST TO DETERMINE OPERABILITY OF THE SHUTDOWN SERVICE WATER SYSTEM.
On February 2, 2006, the inspectors identified a finding involving a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Controls." During a review of the licensee's surveillance test to determine the operability of the shutdown service water system, the inspectors identified that the system's leakage could exceed both the administrative and operability limits established by design basis documents, without the test detecting the actual leak rate. This condition was caused by an inadequate test connection.

This issue was more than minor because the finding affected the Mitigating Systems cornerstone objective of ensuring the availability of mitigating systems to prevent undesirable consequences. An adverse condition would have been masked by leakage that exceeded both administrative and operability limits, and would not have been identified under testing conditions mandated by the licensee's testing program. the finding was of very low safety significance because the actual measured leakage was well below the capability of accurately being measured, and this issue did not result in a system operability concern. As part of the corrective actions, the licensee planned to performed an extent of condition review to ensure that no other system leakage tests were affected by this issue.
Inspection Report# : 2006002 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: FIN Finding
FAILURE TO MAINTAIN COLLECTIVE RADIATION DOSE TO OCCUPATIONAL WORKERS INVOLVED IN REFUEL FLOOR WORK ALARA.
An inspector-identified finding of very low safety significance was identified for the failure to maintain the collective dose As-Low-As-Is-Reasonably-Achievable (ALARA) for refuel floor non-cavity work that was conducted during the February 2006 refueling outage. The additional, unintended dose was attributable to deficiencies in both work planning and work execution. The actual collective dose for this work activity was approximately 14 person-rem compared to the licensee's initial dose estimate of 4.4 person-rem. A revised dose estimate of about 7 person-rem was determined by the inspectors based on reasonably unexpected changes in radiological conditions and equipment problems. Consequently, the collective dose for this work exceeded 5 rem and exceeded the revised dose projection by more than 50 percent.

The issue was more than minor because it was associated with the Program/Process (ALARA planning) attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. This issue represents a finding of very low safety significance because it involved ALARA planning; however, the Clinton plant's current 3-year rolling average collective dose does not exceed 240 person-rem. The licensee entered this radiological work planning/dose performance problem into its outage lessons learned database to allow the development of measures to better plan and execute refuel floor work during future refueling outages.
Inspection Report# : 2006002 *(pdf)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

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