

Millstone 3

2Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: FIN Finding

FIN 05000423/2009002-01, Failure to Control Steam Generator Water Levels Results in Automatic Reactor Trip

Green. A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to control Unit 3 Steam Generator (SG) levels while operating at power. Specifically, Dominion's failure to control SG levels resulted in a reactor trip while reducing power for a plant shutdown. Dominion entered this issue into their corrective action program (CR113512) and corrective actions included conducting just-in-time (JIT) training on low power feed station operation for licensed operators prior to reactor start up.

This finding is more than minor because it was associated with the Human Performance Attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors conducted a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors determined that this finding had a cross cutting aspect in the area of Human Performance, Work Control, because Dominion did not coordinate work activities, consistent with nuclear safety, to minimize distractions to control room personnel and to provide sufficient support to ensure adequate control of SG levels during low power operations. [H.3.(b)] (Section 4OA3.1).

Inspection Report# : [2009002](#) (*pdf*)

Mitigating Systems

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Performance Testing of Safety Related Batteries

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that, Unit 2 and Unit 3 written test procedures for battery performance testing were not adequate and did not ensure that test results were properly documented and evaluated to assure that the test requirements were satisfied. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating

events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Human Performance, Resources Component, because Dominion did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control for Potential Air Entrapment in Recirculation Spray System Heat Exchangers

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that Dominion did not ensure the adequacy of the recirculation spray system heat exchanger design. Specifically, Dominion had not performed analyses or testing to evaluate the potential of air entrapment in the recirculation spray system heat exchangers under post-accident conditions. In response, Dominion entered this issue into their corrective action program and performed analyses to demonstrate that this condition did not render associated equipment inoperable.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in a loss of recirculation spray system operability or functionality. This finding did not have a cross-cutting aspect because it does not reflect licensee performance.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Oct 20, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000423/2008010-01, RHR pumps inoperable in the event of a LLOCA, due to a suction air void

• Green. The team identified a noncited violation (NCV) of Technical Specification (TS) 3.5.2.d which requires an operable residual heat removal (RHR) pump for each train of the emergency core cooling system (ECCS). The team found that Dominion did not maintain the 24-inch outside diameter piping connecting the refueling water storage tank (RWST) to the suction of the ECCS pumps sufficiently full of water to ensure operability of the RHR pumps following a large break loss-of-coolant accident (LLOCA). Additionally, the team determined that TS Surveillance 4.5.2.b requires that every 31 days Dominion verify the ECCS piping full of water but this section of piping was not checked. While performing actions to address NRC Generic Letter 2008-001, Dominion identified the air void and determined the piping did not have sufficient slope to allow venting back to the RWST. The team concluded the air void had the potential to air bind and make the RHR pumps inoperable during a LLOCA event. Following identification of the air void during the 2008 refueling outage, Dominion isolated and drained the piping, installed a vent valve, refilled the piping, and confirmed that the piping was full using an ultrasonic testing (UT) measurement.

The performance deficiency was a failure to maintain the common ECCS suction piping sufficiently full of water, as required by TS surveillance 4.5.2.b, to ensure RHR pump operability in the event of a LLOCA, as required by TS

3.5.2.d. The finding is more than minor because it is associated with the design control attribute of the Mitigating Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the Phase 1 screening identified that this issue was a design/qualification deficiency which resulted in the loss of the RHR system low pressure injection (LPI) safety function and required a Phase 2 evaluation.

In accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," a Region I senior reactor analyst determined that the finding was of very low safety significance (Green) using a modified Phase 2 analysis and the MP3 plant-specific Phase 2 Notebook worksheet for a LLOCA. This assessment resulted in an increase in the core damage frequency on the order of low E-8 per year, which was dominated by the LLOCA frequency of E-5 per year and the probability of high pressure injection (HPI) failure, due to some other unrelated cause. The safety injection, charging and recirculation spray systems were still available to prevent core damage following a LLOCA initiating event, by performing the HPI and high pressure recirculation safety functions.

The finding did not have a crosscutting aspect.

Inspection Report# : [2008010](#) (*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 : August 31, 2009