

# Millstone 3

## 1Q/2009 Plant Inspection Findings

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### 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*)

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### Mitigating Systems

**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*)

**Significance:**  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Fire Protection Deficiency Resulting in Potential Loss of All Charging Pumps**

The inspectors identified a Green, NCV of the Millstone Unit 3 operating license condition 2.H, "Fire Protection," in that Dominion failed to correct a fire protection program deficiency and assure that one train of charging would remain free of fire damage for fire scenarios that could produce spurious closure of a Volume Control Tank (VCT) outlet or charging pump suction motor operated valve. This issue was first identified by Dominion on September 16, 2004, but corrective actions to thoroughly evaluate the issue relative to the fire protection program were extended on several occasions. For this issue Dominion initiated corrective actions to implement fire protection program compensatory measures, maximize the availability of the C charging pump, and identify and implement a long term resolution.

The inspectors determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the availability of the charging system for nine fire scenarios was not ensured. Phase 1, and a combination of Phase 2 and 3 of the NRC's IMC 0609, Appendix F, "Fire Protection Significance Determination Process" were used to determine that this finding was of very low safety significance (Green), with an estimated total core damage frequency (CDF) of 1 in 1,400,000 years in the range of 7E-7 per reactor operating year. The inspectors determined that this finding has a cross-cutting aspect in the area of problem identification and resolution because Dominion, since September 16, 2004, did not thoroughly evaluate the issue regarding potential fire induced spurious closure of charging pumps suction valves which could cause damage to the running charging pump and potentially impact post-fire safe shutdown operation. This issue is reflective of current licensee performance because Dominion recently extended corrective action due dates to perform a thorough safe-shutdown evaluation of the issue. [P.1(c)]. (Section 1R05)

Inspection Report# : [2008003](#) (*pdf*)

## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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.

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## Miscellaneous

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