

Millstone 3

1Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Oct 05, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Auxiliary Building Fire Safe Shutdown Procedure Lacked RCP Seal Thermal Shock Precautions

The team identified a Green NCV of the Millstone Unit 3 Technical Specification 6.8.1.g, in that the procedure for shutting down the plant in response to an auxiliary building fire scenario did not provide precautions to operators to prevent thermal shock to two reactor coolant pump (RCP) seal packages. This procedure deficiency was contrary to Westinghouse Technical Bulletin, TB-04-22, "Reactor Coolant Pump Seal Performance - Appendix R Compliance and Loss of All Seal Cooling," Rev. 1, which specifically recommended to all applicable licensees that if any plant specific procedure or guidance was not consistent with the Westinghouse recommendations, then the licensee should modify either the procedure or guidance to be consistent, or document the technical basis for any deviation. Dominion entered this issue into the corrective action program as CR-07-09685 and initiated corrective actions to expeditiously revise the procedure.

This finding was more than minor because it affected the procedure quality attribute of the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, not including precautions in EOP 3509.2, "Auxiliary Building Fire," Rev. 003-01, prior to RCP seal restoration does not limit the likelihood of an RCP seal loss of a coolant accident. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)." This finding affected post-fire safe shutdown procedures and systems. This finding screened to very low safety significance (Green) in phase one of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because the procedural deficiency was compensated by operator experience and familiarity. The team noted that several other operating procedures provided adequate precautions to prevent thermal shock to RCP seals. Operators were further instructed on RCP thermal shock considerations in the requalification training program. The team determined that this finding has a cross-cutting aspect in the area of human performance because Dominion did not provide procedure precautions to prevent thermal shock to RCP seals for an auxiliary building fire scenario. [H.2(c)]

Inspection Report# : [2007007 \(pdf\)](#)

Significance:  Sep 30, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Perform Fill and Vent of TPCCW Heat Exchanger Resulted in Loss of Two TPCCW Pumps

A self-revealing finding was identified for Dominion's failure to implement procedure OP 3330B, "Turbine Plant Component Cooling Water" during restoration of the "B" turbine plant component cooling water (TPCCW) heat exchanger on August 28, 2007. Specifically, following maintenance that left the heat exchanger shell in a partially drained condition, Dominion did not fill and vent the heat exchanger in accordance with OP 3330B. This resulted in two of the three TPCCW pumps receiving an automatic trip signal on low suction pressure. Loss of the remaining TPCCW pump would have required the operators to manually trip the reactor within three minutes per plant procedures. Dominion entered this issue into their corrective action program as CR-07-09057. Corrective actions included revising OP 3330B to require the fill and vent section be used following maintenance to ensure the TPCCW side of the heat exchanger is completely full of water, and revising the work planning procedure to request operations work planning provide restoration packages for all applicable work orders.

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 shutdown as well as power operations. Specifically, Dominion's failure to implement the fill and vent procedure, when required by heat exchanger conditions, could potentially have led to the loss of all TPCCW pumps and required operators to manually trip the reactor. This finding was determined

to be of very low safety significance (Green) by performing a Phase 1 evaluation in accordance with NRC IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," 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 finding has a cross-cutting aspect in the area of Human Performance, work practices component, because Dominion did not implement proper procedures for the restoration of the "B" TPCCW heat exchanger. [H.4(b)]

Inspection Report# : [2007004](#) (pdf)

Significance: **G** Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Evaluations on Boric Acid Leaks

The inspectors identified that Dominion did not follow Boric Acid Corrosion Control program procedures. Specifically, plant personnel failed to adequately perform boric acid leak evaluations as required by Dominion procedure DNAP-1004, "Boric Acid Corrosion Control Program." This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Dominion's corrective actions for this issue included a general area cleaning program to remove boric acid residue from target components and ensuring the Boric Acid Corrosion Control program includes clear documentation of evaluations for both the leaking component and any associated target component(s).

This finding was 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 shutdown as well as power operations. The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue did not result in exceeding the Technical Specification limit for identified reactor coolant system (RCS) leakage or affect other mitigating systems resulting in a total loss of their safety function. Additionally, this finding is similar to IMC 0612, Appendix E example 4a, in that the licensee routinely failed to perform engineering evaluations on similar issues; i.e., boric acid leaks. The performance deficiency had a cross-cutting aspect in the area of human performance, work practices component, because Dominion did not ensure personnel followed procedures. [H.4(b)]

Inspection Report# : [2007003](#) (pdf)

Mitigating Systems

Significance: **G** Nov 14, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Complete Specified Requirements (10CFR55.53(f)) Prior to Allowing the Operator to Resume Control Room Watch Standing Activities

Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 55.53(e) for the licensee's failure to complete the requirements of 10 CFR 55.53(f) prior to an inactive licensed operator resuming control room watchstanding duties. Specifically, because a Reactor Operator interrupted his shift for administrative functions (for over one hour) during one of five required proficiency watches in the first quarter of 2007, he did not fulfill the requisite number of 12 hour watches, and his license became inactive at the end of that quarter. When he subsequently stood Reactor Operator watches during the second and third quarters of 2007, prior to completing the requirements of 10 CFR 55.53(f), a violation of 10 CFR 55.53(e) requirements occurred. The licensee entered this deficiency into their corrective action program as CR-07-10776. The licensee completed a 100 percent review of all staff licensees for proficiency watches between July 2006 and September 2007 and found no further violations.

This finding was more than minor because the issue was associated with the human performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

Specifically, licensed operators that are not current in watchstanding proficiency may commit operator errors that could cause mitigating systems to fail to respond properly. The finding is of very low safety significance because, per the SDP Appendix I flowchart, more than 20 percent of records reviewed (1 out of 2 staff licensed Reactor Operators) had deficiencies.

Inspection Report# : [2007005](#) (pdf)

Significance:  Oct 05, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Auxiliary Shutdown Panel Reactor Head Vent Valves Not Isolated from Effects of a Control Room Fire

The team identified a Green NCV of Millstone Unit 3 operating license condition 2.H, "Fire Protection," in that Dominion did not ensure for a control room fire that the control circuits for the reactor head vent valves would not be damaged by fire when control was transferred to the auxiliary shutdown panel (ASP). As a result, the valves were subject to spurious failure even after ASP control was established. Immediate corrective actions included: fire protection compensatory measures were initiated to minimize the potential for a fire in the areas of concern; an extent of condition review was performed for other potential circuit issues for credited equipment operated from the ASP; and the affected control circuit seal-in relays were relocated outside of the control room. Dominion entered this issue into the corrective action program as CR-07-09905.

This team 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, a letdown path necessary to achieve cold shutdown boron conditions would be subject to spurious isolation during a control room fire. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected post-fire safe shutdown procedures and systems. This finding screened to very low safety significance (Green) in phase 1 of the SDP because it only affected the ability to reach and maintain cold shutdown conditions. The reactor vessel head vent valves are also credited for hot standby conditions to maintain inventory control, but uncomplicated operator actions to reduce charging flow will maintain adequate inventory control during hot standby conditions.

Inspection Report# : [2007007](#) (pdf)

Significance:  Oct 05, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Emergency Light Unit High Failure Rate

The team identified a Green NCV of the Millstone Unit 3 operating license condition 2.H, "Fire Protection," in that Dominion failed to correct an adverse trend in emergency lighting unit (ELU) performance. Dominion entered this issue into the corrective action program as CR-07-09034 and CR-07-09319 and initiated corrective actions to: revise the ELU maintenance rule action plan; reevaluate and implement an accelerated battery replacement interval; consider additional actions for ELU batteries located in high temperature areas; and benchmark ELU preventive maintenance with other utilities.

This performance deficiency is more than minor because it affected 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 reliability and availability of the ELUs were affected. ELUs illuminate access and egress paths for safe shutdown operations as well as areas where safe shutdown manual actions are performed. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected post-fire safe shutdown. This finding screened to very low safety significance (Green) in phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because the issue did not have a significant impact on safe shutdown operations: operators as a good operating practice carry flashlights and the ELU failures were generally random in location, i.e., no plant areas had widespread ELU outages at any one time. The team determined that this finding has a cross-cutting aspect in the area of problem identification and resolution because Dominion did not correct a long standing ELU high failure rate. [P.1(d)]

Inspection Report# : [2007007](#) (pdf)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Safety-Related Surveillance Procedure Resulted in 'A' Safety Injection Accumulator Inoperability

A self-revealing finding was identified when Dominion incorrectly performed a safety-related surveillance procedure. Specifically, Operations mistakenly performed a biennial surveillance test that verified remote vent valve position by opening a nitrogen vent path and verifying a decrease in accumulator pressure for the Unit 3 'A' safety injection (SI) accumulator instead of the planned quarterly surveillance. As a result, the 'A' SI accumulator was inadvertently depressurized to below the Technical Specifications value. This finding was determined to be an NCV of TS 6.8.1, "Procedures." Dominion's corrective actions for this issue included restoring accumulator pressure, performing an apparent cause evaluation to determine the underlying causes associated with the error, training the personnel involved, and scheduling human performance training for Operations during training cycle 07-03.

The finding was more than minor because it was associated with the human performance 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 inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross cutting aspect in the area of human performance, work practice component, because Dominion's human error prevention techniques such as holding a pre-job brief and peer checking were not used to ensure the surveillance was properly performed. [H.4(a)]

Inspection Report# : [2007003](#) (*pdf*)

Barrier Integrity

Significance:  Nov 14, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain Core Thermal Power at or below 3411 MWTH

Green. A Green self-revealing non-cited violation (NCV) of Dominion Nuclear Connecticut (DNC), Inc.'s Unit 3 License, Number NPF-49, Section 2.C.(1) was identified for Dominion's failure to maintain reactor core thermal power less than or equal to 3411 megawatts thermal (MWTH). Specifically, during performance of turbine overspeed protection system testing, the Unit 3 reactor's four minute power average exceeded 3479 MWTH. The power transient was due, in part, to Dominion's continuance of the surveillance following an unexpected plant response after turbine control was transferred to "load set." Corrective actions for this issue include performing the surveillance at a lower power and providing just-in-time training to operating crews prior to performing the surveillance.

The finding was more than minor because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (i.e., fuel cladding) protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance (Green) because it only involved the potential to affect the fuel cladding barrier. This finding has a cross-cutting aspect in the area of Human Performance, Decision-making, because Dominion did not use conservative assumptions in decision making in proceeding with turbine control valve testing after an unexpected plant response had a significant effect on reactivity [H.1(b)].

Inspection Report# : [2007005](#) (*pdf*)

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

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