May 11, 2005

Mr. David A. Christian
Sr. Vice President and Chief Nuclear Officer
Dominion Resources
5000 Dominion Boulevard
Glenn Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION UNIT 2 AND UNIT 3 - NRC INTEGRATED INSPECTION REPORT 05000336/2005002 AND 05000423/2005002

Dear Mr. Christian:

On March 31, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed inspections at your Millstone Power Station Unit 2 & Unit 3. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 21, 2005, with Mr. J. Alan Price and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents four NRC-identified and two self-revealing findings of very low safety significance (Green). Five of these findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as Non-cited Violations (NCVs), in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest any NCV in this report, you should provide a response within 30 days of the date of these inspection reports, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Millstone Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul G. Krohn, Chief
Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-336, 50-423
License Nos.: DPR-65, NPF-49

Enclosure: Inspection Report 05000336/2005002 and 05000423/2005002
w/Attachment: Supplemental Information

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REGION I

Docket No.:	05000336, 05000423
License No.:	DPR-65, NPF-49
Report No.:	05000336/2005002 and 05000423/2005002
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Unit 2 and Unit 3
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	January 1, 2005 - March 31, 2005
Inspectors:	S. M. Schneider, Senior Resident Inspector, Division of Reactor Projects (DRP) S. R. Kennedy, Resident Inspector, DRP K. A. Mangan, Resident Inspector, DRP K. M. Jenison, Senior Reactor Inspector, DRP M. X. Davis, Reactor Inspector, Division of Reactor Safety (DRS) K. S. Kolaczyk, Senior Resident Inspector, Ginna, DRP J. A. Krafty, Reactor Inspector, DRS T. A. Moslak, Health Physicist, DRS J. G. Schoppy, Senior Reactor Inspector, DRS
Accompanied by:	M. L. Heath, Nuclear Safety Professional
Approved by:	Paul G. Krohn, Chief Projects Branch 6 Division of Reactor Projects

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000336/2005002, 05000423/2005002; 01/01/2005 - 03/31/2005; Millstone Power Station, Unit 2 and Unit 3; Adverse Weather Protection, Heat Sink Performance, Post-Maintenance Testing, Temporary Plant Modifications, Other Activities.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by regional inspectors. Five (Green) NCVs and one (Green) finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Unit 2

- Green. The inspectors identified a self-revealing finding for the failure to adequately address issues related to the operation of an outdoor temporary air compressor and associated air dryer skid during cold weather conditions. On November 11, 2004, Dominion had identified that additional freeze protection actions were required to ensure the availability of the compressor during cold weather. Subsequently, the inspectors identified two occasions where actions taken to ensure availability of the compressor were not adequate. On December 17, 2004, the inspectors identified that a heat trace for the system dryer was deenergized. On February 1, 2005, the temporary air compressor failed causing the “B” instrument air compressor to start. Following the air transient, Dominion conducted an investigation and concluded that the cause of the temporary air compressor failure was freezing of the pre-filter on the air dryer skid. Dominion replaced the compressor, installed a tent around the air-dryer towers, and placed a heating unit inside the tent.

  The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. The performance issue associated with this finding was the failure to take adequate actions to ensure that adverse weather conditions did not affect the availability of the temporary instrument air system. The risk of this finding was determined to be of very low safety significance (Green), because, although the temporary air compressor system became unavailable, the standby instrument air compressor restored instrument air system pressure. The instrument air system pressure stabilized and recovered such that the instrument air header pressure did not cause a reactor trip. This finding was related to the cross-cutting area of Problem Identification

and Resolution in that Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.. (Section 1R01.2)

Cornerstone: Mitigating Systems

Unit 2

- Green. The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1a, "Procedures and Programs," for the failure to adequately implement the procedure for installing temporary ventilation through the East 480 volt vital switchgear room when normal cooling was disabled for maintenance. The procedure establishes the required flow path in the switchgear room when compensatory cooling measures were required. On January 12, 2005, operators failed to perform the procedure step that opens doors to provide for an exhaust path to allow warm air to leave the switchgear room.

  The finding was greater than minor because the failure to install the compensatory cooling system, per the procedure, caused the air flow through the East 480 volt switchgear room to be below the minimum required to support cooling of the 480 volt system for initiating events (transients), mitigating systems, and barrier integrity systems. The finding was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected, a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 volt AC system or electro hydraulic control functions. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for compensatory cooling. (Section 1R23)

Unit 3

- Green. The inspector identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take prompt and appropriate corrective actions to address a condition adverse to quality. Specifically, Dominion did not promptly evaluate and correct a degraded condition associated with the divider plate for all three reactor plant component cooling water (RPCCW) heat exchangers (HXs).

  The inspector determined that this issue was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone, and it potentially affected the objective to ensure the availability and reliability of the RPCCW HXs. The finding was of very low safety significance (Green), because the finding was a qualification deficiency confirmed not to result in loss of a function. The issue was similarly of very low risk in the Initiating Events cornerstone because the finding did not increase the likelihood

of a reactor trip or a loss of service water (SW) event. The finding was associated with the cross-cutting area of problem identification and resolution (PI&R) in that Dominion's inadequate evaluation and untimely corrective actions for a degraded condition potentially affected the RPCCW HXs. (Section 1R07.2)

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," for the failure to adequately implement post-maintenance test (PMT) procedures for restoring the "A" emergency diesel generator (EDG) to service following maintenance of the neutral breaker. On March 1, 2005, Dominion conducted maintenance and doble testing of the "A" EDG neutral breaker. The Maintenance Department turned the breaker over to Operations for final post-maintenance testing and restoration. After racking in the breaker, Operations noted that the red light on the front of the EDG neutral breaker panel did not light as expected. Contrary to the PMT acceptance criteria, Operations assessed that the PMT was satisfactorily completed and exited the EDG technical specification. The oncoming shift investigated and determined the red light was not lit because there was a problem with the neutral breaker trip circuit. Operations declared the EDG inoperable and re-entered the EDG technical specification.

  This issue was more than minor because it was associated with the reliability of the "A" EDG. The inspectors determined that the finding was of very low safety significance (Green) because it did not involve a design or qualification deficiency, represent an actual loss of safety function of the "A" EDG, or involve seismic, flooding, or severe weather initiating events. This finding was related to the cross-cutting area of Human Performance in that Dominion personnel signed the PMT as satisfactory and restored the EDG neutral breaker to an operable status although the acceptance criteria was not met. (Section 1R19.1)

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires, in part, that measures be established to assure that conditions adverse to quality are promptly identified and corrected. From May to October 2004, Dominion failed to properly assess and correct a degraded "A" Residual Heat Removal (RHR) system during an extent of condition examination for air found in the RHR discharge piping. Specifically, after discovering a significant amount of air in the "A" RHR piping system in May 2004, Dominion vented the system but did not adequately evaluate whether the corrective actions were effective in removing air from the RHR heat-exchanger tubing. As a result, Dominion did not evaluate the effect of the remaining air on the RHR and high pressure injection systems. Dominion subsequently instituted compensatory measures to vent the suction piping after every RHR pump run and performed a special procedure to flush the air out of the heat exchanger.

  This finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability objective of the Mitigating system cornerstone. Specifically, Dominion's extent of condition evaluation did not determine that a significant volume of air remained in the "A" RHR heat exchanger tubing even though air was found in several other sections

of piping subsequent to their initial corrective actions. This air could have caused the "A" RHR pump to become inoperable if enough air had migrated to the suction of the RHR pump and could have adversely affected high pressure injection pumps if air had migrated to crossover piping. This finding was determined to be of very low safety significance (Green) since an actual loss of RHR would not have occurred with the amount of air identified and no air pockets were subsequently identified in crossover piping to the charging and high pressure injection systems; the finding did not involve a design or qualification deficiency; or involve seismic, flooding, or severe weather initiating events. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to perform an adequate extent-of-condition review to fully evaluate the effect of air that had been introduced into the "A" RHR system. (Section 4OA5.2)

Cornerstone: Barrier Integrity

Unit 3

- Green. The inspectors identified a non-cited violation of Technical Specification (TS) 3.6.4.2, "Electric Hydrogen Recombiners," which requires that two independent hydrogen recombiner systems remain Operable. On February 22, 2005, Dominion performed maintenance on the "A" train hydrogen monitor. On February 23, 2005, Dominion identified that pipe fittings for the "A" train hydrogen monitor had been disassembled, however, a post-maintenance test had not been conducted to prove operability of the system. Dominion performed a leak test on February 24, 2005, however, the test failed. Dominions' investigation determined that the leakage was from a mechanical joint that had been worked on December 2, 2004, but that this joint had not been disturbed during the February 22, 2005, maintenance. Additionally, Dominion determined that following the work in December 2004 no post-maintenance leak test had been performed to verify system operability. The inspectors identified that the leakage would have resulted in the shutdown of the "A" hydrogen recombiner, under post-accident conditions. Therefore, the train would not have been considered operable from December 2, 2004 to March 1, 2005. Following the identification of the failed joint, Dominion repaired the joint, leak tested the system, and restored the "A" train hydrogen monitor to service.

  This issue was more than minor because it was associated with the Barrier Integrity cornerstone attribute of configuration control in that it affected containment boundary preservation and maintaining containment design parameters. The failure to specify adequate PMT resulted in loose mechanical joints in the system not being detected which would have allowed an open pathway to the atmosphere from containment during post accident conditions. Additionally, Dominion postulated that the post accident leakage from these joints would have caused a radiation monitor alarm which would have isolated the "A" hydrogen recombiner. This violation was evaluated using an IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," Phase 2 analysis, and was determined to be of very low safety significance (Green). Specifically, the leak was not of the magnitude to recycle the containment

atmosphere in a 24 hour period, post event. This finding was related to the cross-cutting issue of Human Performance in that Dominion failed to adequately perform post-maintenance testing to ensure incorrect maintenance activities were identified prior to returning the hydrogen monitor to service. (Section 1R19.2)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 2 operated at or near 100 percent power for the duration of the inspection period.

Unit 3 operated at or near 100 percent power for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - Two Unit 2 Samples and One Unit 3 Sample)

1. Onset of Adverse Weather Site Inspection (One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

The inspectors performed a review of adverse weather preparations during the onset of a winter snowstorm on January 22, 2005, to evaluate the site's readiness for the expected weather conditions. The inspectors reviewed Dominion's preparations/protection for the adverse weather and its impact on the protection of safety-related systems, structures and components. The inspectors verified that operator actions, taken in response to the adverse weather, maintained readiness of essential systems and that adequate operator and Site Emergency Response Organization staffing was specified. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

2. System Inspection (One Unit 2 Sample)

a. Inspection Scope

The inspectors reviewed the Unit 2 temporary instrument air system for extreme weather condition preparation. The inspection was intended to ensure that the indicated equipment, its instrumentation, and its supporting structures were configured in accordance with Dominion procedures and that adequate controls were in place to ensure functionality of the system. The inspectors reviewed licensee procedures and condition reports and walked down the system. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction. A Green self-revealing finding was identified for the failure to implement adequate actions to ensure the availability of a temporary instrument air compressor during cold weather conditions. This resulted in the failure of the compressor while it was required for operation.

Description. The inspectors reviewed Dominion's installation of a diesel-driven outdoor instrument air compressor (IAC) and associated air dryer skid used to provide air to the Unit 2 instrument air system. Unit 2 was designed with three IACs, however, a fourth temporary IAC was installed due to reliability issues associated with these compressors and the retirement of the "C" IAC. On January 30, 2005, the "A" instrument air compressor failed to load and was declared inoperable. The temporary instrument air compressor was placed in service as the lead compressor and the "B" instrument air compressor was placed in standby. On February 1, 2005, the temporary air compressor failed. The "B" instrument air compressor started on a low instrument air header pressure and restored the instrument air system pressure. Dominion determined that the prefilter for the outdoor air drying unit had frozen which had prevented the air compressor from providing air to the instrument air system.

The inspectors' review of licensee actions related to the temporary IAC found that Dominion had several opportunities to take measures to prevent cold weather from affecting the temporary air compressor. On November 11, 2004, an operator questioned what actions were required for freeze protection of the temporary air compressor and documented his concerns in CR-04-10102. Dominion addressed the concern by applying heat wrap to the air dryer and energizing the engine heater block. On December 17, 2004, the inspectors walked down the system and questioned the adequacy of the installation and the freeze protection methods since, for example, the dryer heat trace did not appear to be operating. Subsequently, Dominion's investigation identified the heat trace power supply breaker had tripped. Dominion addressed the specific concerns but did not perform an evaluation as to the adequacy of the entire system to operate during cold weather conditions. As a result, on February 1, 2005, the temporary air compressor failed when the prefilter for the outdoor air drying unit froze. The inspectors discussed the adequacy of the November 11, 2004, corrective actions with Operations. Following the second failure of the system, Dominion replaced the IAC, enclosed the dryer skid in a tent, and installed a heater inside the tent.

Analysis. The performance deficiency associated with this issue was that Dominion failed to adequately address issues related to freeze protection of the outdoor temporary air compressor, which subsequently resulted in a failure of the system when the prefilter on the air dryer skid froze. Traditional enforcement does not apply to this issue because there were no violations of NRC requirements, no actual safety consequences, and no impacts on the NRC's ability to perform its regulatory function. The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. Specifically, the failure to take measures to prevent the air compressor from freezing increased the likelihood of a loss of instrument air event and manual scram. If

the “B” instrument air compressor had failed, the instrument air system pressure would have fallen below the 80 psig limit, requiring operators to manually scram the reactor.

The inspectors determined that the finding was of very low safety significance (Green) through performance of a Phase 1 SDP in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," dated December 1, 2004. Specifically, the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available, or increase the likelihood of a fire or internal/external flood. The instrument air system remained operable during the duration of the transient. Therefore, the risk of this finding was determined to be of very low safety significance (Green).

This finding was related to the cross-cutting issue of problem identification and resolution because Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.

Enforcement. There were no violations of NRC regulatory requirements since the instrument air system is not safety-related. However, the instrument air system functions have an impact on the overall plant risk, and the inspectors determined that Dominion was ineffective in taking corrective actions to prevent failure of the temporary air compressor. The issues relating to this inspection were documented by the Dominion corrective action program under CR-05-00922. **(FIN 05000336/2005002-01)**

1R04 Equipment Alignment (71111.04)

1. Partial System Walkdowns (71111.04Q - Three Unit 2 Samples and Three Unit 3 Samples)

a. Inspection Scope

The inspectors performed six partial system walkdowns during this inspection period. The inspectors reviewed the documents listed in the Attachment to determine the correct system alignment. The inspectors conducted a walkdown of each system to verify that the critical portions of selected systems were correctly aligned in accordance with these procedures and to identify any discrepancies that may have had an effect on operability. The inspectors verified that equipment alignment problems that could cause initiating events, impact mitigating system availability or function, or affect barrier functions, were identified and resolved. The following systems were reviewed based on their risk significance for the given plant configuration:

Unit 2

- Partial equipment alignment of the "B" train of the auxiliary feedwater (AFW) system during maintenance on the "A" train of the AFW system, January 25, 2005;

- Partial equipment alignment of the “A” motor-driven auxiliary feedwater pump (MDAFW) during maintenance and testing on the turbine-driven auxiliary feedwater (TDAFW) pump, February 4, 2005; and
- Partial equipment alignment of the TDAFW system during maintenance on the "B" train of the AFW system, March 7, 2005.

Unit 3

- Partial equipment alignment of the “A” and “B” motor driven auxiliary feedwater trains while turbine driven AFW train was out for maintenance, March 9, 2005;
- Partial equipment alignment of offsite electrical distribution system due to Montville-Haddam Neck line out of service, March 10, 2005; and
- Partial equipment alignment of auxiliary steam system during power supply replacement, March 21, 2005.

b. Findings

No findings of significance were identified.

2. Complete System Walkdown. (71111.04S - One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

Unit 2

The inspectors completed a detailed review of the alignment and condition of the Unit 2 control room air conditioning (CRAC) system. The inspectors conducted a walkdown of the system to verify that the critical portions, such as valve positions, switches, control room heat loads and breakers, were in accordance with procedures and any discrepancies that may have had an effect on operability were resolved.

The inspectors also conducted a review of outstanding maintenance work orders to verify that the deficiencies did not significantly affect the CRAC system function. The inspectors discussed system health with the system engineer and reviewed the condition report database to verify that equipment alignment problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

Unit 3

The inspectors completed a detailed review of the alignment and condition of the Unit 3 post accident control room ventilation envelope. The inspectors conducted a complete control room verification and/or walkdown of critical system functions, alignments, valve positions, switches, and breakers, to ensure correct alignment in accordance with procedures and to determine if any identified conditions affected operability. The inspectors also conducted a review of outstanding maintenance work orders to verify

that existing deficiencies did not significantly affect the system operability. The inspectors reviewed control room ventilation system health documents and related condition reports to verify that equipment alignment, temporary modifications, operator workarounds and other problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

1. Quarterly Sample Review (71111.05Q - Six Unit 2 Samples and Six Unit 3 Samples)

a. Inspection Scope

The inspectors performed twelve walkdowns of fire protection areas during the inspection period. The inspectors reviewed Dominion's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the selected areas. The inspectors walked down those areas to assess Dominion's control of transient combustible material and ignition sources. In addition, the inspectors evaluated the material condition and operational status of fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors then compared the existing conditions of the inspected fire protection areas to the fire protection program requirements to ensure all program requirements were being met. Documents reviewed during the inspection are listed in the Attachment. The fire protection areas reviewed included:

Unit 2

- West Pipe Penetration, -5' Elevation (Fire Area A-8C);
- West Electric Penetration, 14'6" Elevation (Fire Area A-8D);
- Upper 4160 Volt Switchgear Room - Turbine Building, 31'-6" Elevation (Fire Area T-7);
- Lower 4160 Volt Switchgear Room - Turbine Building, 56'-6" Elevation (Fire Area T-10);
- “A” and “B” Motor Driven Auxiliary Feedwater Pump Cubicle - Turbine Building, 1'-6" Elevation (Fire Area T-3); and
- Turbine Driven Auxiliary Feedwater Pump Cubicle - Turbine Building, 1'-6" Elevation (Fire Area T-4).

Unit 3

- Instrument Rack Room - Control Building, 47'-6" Elevation - (Fire Area CB-11, Zones A and B);
- North Floor Area - Auxiliary Building, 4'-6" Elevation - (Fire Area AB-1, Zone A);
- South Floor Area - Auxiliary Building, 4'-6" Elevation - (Fire Area AB-1, Zone B);

- East Floor Area, 4'-6" Elevation - (Fire Area ESF-4, Zone N/A);
- Southeast Floor Area - Auxiliary Feed Pump Cubicle, 4'-6" & 24'-6" Elevation - (Fire Area ESF-5, Zone N/A); and
- South Air Conditioning Unit Cubicle- Engineered Safety Features Building, 36'-6" Elevation - (Fire Area ESF-11, Zone N/A).

b. Findings

No findings of significance were identified.

2. Annual Fire Drill Observation (71111.05A - One Unit 3 Sample)

a. Inspection Scope

Unit 3

The inspectors observed personnel performance during a fire brigade drill on March 16, 2005, to evaluate the readiness of station personnel to prevent and fight fires. The drill simulated a fire on the Turbine Deck in the Unit 3 Turbine Building. The inspectors observed the fire brigade members using protective clothing, turnout gear, and self-contained breathing apparatus and entering the fire area in a controlled manner. The inspectors also observed the fire fighting equipment brought to the fire scene to evaluate whether sufficient equipment was available to effectively control and extinguish the simulated fire. The inspectors evaluated whether the permanent plant fire hose lines were capable of reaching the fire area and whether hose usage was adequately simulated. The inspectors observed the fire fighting directions and communications between fire brigade members. The inspectors verified that the pre-planned drill scenario was followed and reviewed the post drill critique to ensure that the drill objectives were satisfied and that any drill weaknesses were discussed.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Internal Flooding Inspection (One Unit 3 Sample)

a. Inspection Scope

The inspectors reviewed one sample of flood protection measures for equipment in the safety related room listed below. This review was conducted to evaluate Dominion's protection of the enclosed safety-related systems from internal flooding conditions. The inspectors performed a walkdown of the area and reviewed the Final Safety Analysis Report, the internal flooding evaluation and related documents. The inspectors compared the as-found equipment and conditions to ensure they remained consistent with those indicated in the design basis documentation, flooding mitigation documents,

and risk analysis assumptions. Documents reviewed during the inspection are listed in the Attachment.

Unit 3

- "B" Residual Heat Removal (RHR) Cubicle.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 - One Unit 2 Sample and Five Unit 3 Samples)

1. Annual Heat Sink Performance (71111.07A - One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

The inspectors reviewed two samples of safety related heat exchanger testing to identify any degraded performance or potential for common cause problems that could increase plant risk. The inspectors reviewed the results of inspections performed in accordance with Dominion procedures. The inspectors reviewed the inspection results against the acceptance criteria contained within the procedure, and verified that all acceptance criteria had been satisfied. The inspectors also reviewed the Final Safety Analysis Report to ensure that heat exchanger inspection results were consistent with the design basis. The inspectors verified that adverse conditions identified by Dominion were appropriately entered into Dominion's corrective action program. Documents reviewed during the inspection are listed in the Attachment.

Unit 2

- "A" Reactor Building Closed Cooling Water System Heat Exchanger.

Unit 3

- Engineered Safety Features Building Ventilation Heat Exchanger.

b. Findings

No findings of significance were identified.

2. Biennial Heat Sink Performance (71111.07B - Four Unit 3 Samples)

a. Inspection Scope

Based on a plant specific risk assessment, resident inspector input, and the last biennial inspection, the inspector selected the "B" RPCCW, "B" containment recirculation spray

system (RSS), "B" emergency diesel generator jacket water (JW), and "B" EDG intercooler HXs for this biennial review. Each of these HXs transfers its heat load directly to the SW system. The SW system was designed to supply cooling water from Long Island Sound (the ultimate heat sink) to various heat loads to ensure a continuous flow of cooling water to systems and components necessary for plant safety both during normal operation and under abnormal or accident conditions.

The inspector reviewed Dominion's inspection, cleaning, chemical control, and performance monitoring methods and frequency for the selected components to ensure alignment with Dominion's response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspector compared surveillance test and inspection data to the established acceptance criteria to verify that the results were acceptable and that operation was consistent with design. The inspector walked down the selected HXs, the sodium hypochlorite system, and the SW system to assess the material condition of these systems and components. In addition, the inspector walked down control room instrumentation panels, viewed several SW intake inspection videos, reviewed work order history for the selected HXs, and discussed system health with the respective system engineers.

The inspector also reviewed a sample of condition reports (CRs) related to the selected HXs and the SW system to ensure that Dominion was appropriately identifying, characterizing, and correcting problems related to these essential systems and components. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction. The inspector identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take prompt and appropriate corrective actions to evaluate and correct a degraded condition associated with the divider plate for all three RPCCW HXs.

Description. On May 20, 2003, engineering identified a bent divider plate in the B RPCCW HX. The divider plate was deflected approximately ½ inch from centerline to the outlet SW side. The divider plate separates the inlet SW flow from the outlet SW flow and ensures that the incoming SW flow is routed to the tube side of the two-pass RPCCW HXs. Engineering initiated CR-03-04924 that included actions to straighten the divider plate, inspect the "A" and "C" RPCCW HXs, modify their HX inspection form to include a divider plate inspection step, and to develop and implement a modification to strengthen the divider plate.

On June 9, 2003, engineering found a deflected divider plate in the "C" RPCCW HX and a deflected divider plate in the "A" RPCCW HX on June 25, 2003. Engineering determined that high differential pressure (d/p) across the divider plates due to tube plugging caused the plates to bend. In addition, Engineering reviewed the May 2003 operating experience (OE) information from D.C. Cook that discussed catastrophic failure of a component cooling water HX divider plate due to repeated divider plate deflections (OE16319). Based on the above information, engineering proposed a

modification to stiffen the RPCCW HX divider plates through their Engineering Level of Effort (LOE) process. Maintenance used mechanical means to straightened the divider plate in each HX; however, engineering found the divider plate deflected again on subsequent HX inspections ("A" HX on May 23, 2004; "B" HX on September 9, 2004 and December 1, 2004).

The inspector noted that engineering had treated each of the six instances of deflected divider plates discovered since May 2003 in a "broke-fixed" manner without evaluating the degraded condition for continued operability of the RPCCW HXs. Given the degraded condition of the divider plates deflecting over time and potentially causing fatigue failure of the divider plate welds, and the industry OE documenting the failure of a similar HX under operating conditions, the inspector determined that engineering should have promptly evaluated and documented their basis for a reasonable expectation of operability.

Engineering designated the divider plate stiffening modification as a low priority item. The inspector noted that Engineering extended the due date for the associated LOE review seven times since August 2003, and in March 2004 deferred the activity out to 2005. Presently, the Engineering portion of the modification package is scheduled to be completed by September 2005. The inspector determined that the timeliness of Dominion's corrective actions were not commensurate with the potential safety significance of the issue. The inspector found no evidence that Dominion evaluated the effects on operability or the significance of the degraded condition when extending the corrective actions well beyond their first opportunity to correct.

The inspector also identified that Dominion failed to implement their corrective action assignment (CR-03-04924/03003369-05) to revise the SW cooled HX inspection form, although they closed out this action as complete in September 2003 (CR-05-01233). On February 10, 2005, Engineering initiated CR-05-01281 to evaluate additional information concerning the RPCCW HX divider plates. Subsequently, on February 25, Engineering initiated CR-05-01767 to evaluate an elevated RPCCW HX DP (23 psid as compared to a 20 psid design) observed by the RPCCW system engineer during two SW pump operation during SW surveillance testing. Engineering performed an operability determination (MP3-004-05) and concluded that the RPCCW HXs were operable but not fully qualified. Engineering's determination was based on recent HX inspections, a structural evaluation of the divider plate (conservatively assuming 35 psid), and a flow and heat transfer analysis (including surveillance testing trends). Engineering also documented their evaluation of OE16319 in CR-05-01767. Engineering determined that the RPCCW HXs would be able to remove the required heat loads during accident events.

Analysis. The inspector considered Dominion's failure to take timely and adequate corrective actions for the degraded RPCCW HX divider plates a performance deficiency since Dominion's corrective action program should correct conditions adverse to quality in a timely manner. Given the repeated nature of the adverse condition (deflected divider plates) and industry OE relative to an in-service failure, the deficiency was

reasonably within Dominion's ability to appropriately evaluate and correct prior to February 2005.

The inspector determined that the issue was more than minor because it was associated with the Mitigating Systems cornerstone attribute for equipment performance and potentially affected the objective to ensure the availability and reliability of the RPCCW HXs. The RPCCW system mitigates initiating events as it supplies cooling to the residual heat removal pumps and HXs in the shutdown cooling mode. The degraded RPCCW HX divider plates, if left uncorrected, would result in a more significant safety concern should a divider plate fail catastrophically while in service. The inspector determined the issue to be very low safety significance (Green) using the Phase 1 SDP worksheet for at power situations for the Mitigating Systems cornerstone. This was because the finding was a qualification deficiency confirmed not to result in loss of function. The issue was similarly of very low risk in the Initiating Events cornerstone because the finding did not increase the likelihood of a reactor trip or a loss of SW event.

The finding was associated with the cross-cutting area of PI&R based on Dominion's inadequate evaluation and untimely corrective actions for this identified deficiency potentially affecting the RPCCW HXs.

Enforcement. Code of Federal Regulations 10 CFR Part 50, Appendix B, "Criterion XVI," Corrective Action, requires, in part, that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, Dominion failed to take prompt and appropriate corrective actions to address a condition adverse to quality. Specifically, since May 2003, Dominion failed to promptly evaluate and correct a degraded condition associated with the divider plate for all three RPCCW HXs. However, because of the very low safety significance and because the issue was entered into Dominion's corrective action program (CR-05-01281 & CR-05-01767), this finding is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy, issued May 1, 2000 (65FR25368). **(NCV 05000423/2005002-02)**

1R11 Licensed Operator Requalification Program (71111.11Q - Two Unit 2 Samples and One Unit 3 Sample)

a. Inspection Scope

The inspectors observed two samples of Unit 2 licensed operator requalification training on March 30, 2005, and March 31, 2005. The inspectors observed one sample of Unit 3 licensed operator requalification training on February 1, 2005. The inspectors verified that the training evaluators adequately addressed that the applicable training objectives had been achieved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Maintenance Effectiveness Inspection (71111.12Q - Two Unit 2 Samples and Two Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed four samples of Dominion's evaluation of degraded conditions, involving safety related structures, systems and/or components (SSC) for maintenance effectiveness during this inspection period. The inspectors reviewed licensee implementation of the Maintenance Rule (MR), 10 CFR 50.65, and verified that the conditions associated with the referenced CRs were appropriately evaluated against applicable MR functional failure criteria as found in licensee scoping documents and procedures. The inspectors also discussed these issues with the system engineers and maintenance rule coordinators to verify that they were appropriately tracked against each system's performance criteria and that the systems were appropriately classified in accordance with MR implementation guidance. Documents reviewed during the inspection are listed in the Attachment. The following conditions were reviewed:

Unit 2

- Failure of B51 Motor Control Center Air Conditioning System (CR-04-11119); and
- Facility 2 Control Room Air Conditioning failure (CR-05-00638).

Unit 3

- Station Blackout Diesel Uninterruptible Power Supply Battery Failed Voltage Testing (CR-05-00127); and
- Engineered Safety Features Building Ventilation Filter Clogged Due to Snow (CR-05-00617).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13 - Four Unit 2 Samples and Six Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed ten samples of the adequacy of maintenance risk assessments of emergent and planned activities on Unit 2 and Unit 3 during the inspection period. The inspectors utilized the Equipment Out of Service quantitative risk assessment tool to evaluate the risk of the plant configurations and compared the results to Dominion's stated risk. The inspectors verified that Dominion entered appropriate risk categories and implemented risk management actions as necessary. Documents reviewed during

the inspection are listed in the Attachment. The inspectors verified the conduct and adequacy of scheduled maintenance risk assessments for plant conditions affected by the following maintenance and testing activities:

Unit 2

- Work schedule for the week of January 17, 2005, including maintenance and testing on the containment sump/shutdown cooling heat exchanger valve;
- Work schedule for the week of February 28, 2005, including maintenance on the "A" circulating water bay;
- Work schedule for the week of March 7, 2005, including maintenance and testing on emergency safeguards actuation system, reserve station service transfer, and sequencer; and
- Work schedule for the week of March 14, 2005, including maintenance and testing on the "B" high pressure safety injection pump.

Unit 3

- Work schedule for the week of January 3, 2005, including maintenance and testing on the "A" circulating water pump;
- Emergent risk assessment of "A" EDG sequencer inoperability on January 21, 2005;
- Work schedule for the week of January 31, 2005, including maintenance and testing on the "A" circulating water bay outage, switchyard breaker, and "C" service water strainer;
- Work schedule for the week of February 28, 2005, including maintenance and testing on the "B" EDG;
- Work schedule for the week of March 21, 2005, including maintenance and testing on the supplementary leak collection and release system, quench spray system pump, and power operated relief valves relays; and
- Work schedule of the week of March 28, 2005, including maintenance and testing on "A" safety injection pump, "A" train ESF air conditioning, and "A" train emergency diesel fuel oil pump

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions and Events (71111.14 - Three Unit 2 Samples and Two Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed five samples of events that demonstrated personnel performance in coping with non-routine evolutions and transients on Unit 2 and Unit 3. The inspectors observed operations in the control room and reviewed applicable operating and alarm response procedures, technical specifications, plant process

computer indications, and control room shift logs to evaluate the adequacy of Dominion's response to these events. The inspectors also verified the events were entered into the corrective action program to resolve identified adverse conditions. Documents reviewed during the inspection are listed in the Attachment.

Unit 2

- On January 12, 2005, the inspectors observed Dominion's actions following the identification of a defective cable insulation on one of the two offsite power supplies to Unit 2. During unrelated maintenance, Dominion observed a partial phase to phase ground between the "A" and "C" phases of the backup offsite power supply to Unit 2. This fault also prevented the station blackout diesel from supplying Unit 2 loads. Dominion entered the appropriate Technical Specification, de-energized the cable, and completed repairs. Additionally, Dominion took appropriate actions to minimize risk to the plant while the power supply was unavailable.

- On January 14, 2005, Operations personnel responded to a fire in an electrical panel in the Unit 2 turbine building. Dominion declared an Unusual Event since the fire lasted greater than 15 minutes and was located in an area of concern for safe shutdown (the Unit 2 turbine building). The resident inspectors responded and Region I staffed the Incident Response Center. A special inspection team was chartered to conduct an investigation and evaluation of this event which will be documented in Inspection Report 05000336/2005009.

- On January 22, 2005, Operations personnel notified the inspectors regarding their actions taken in response to an impending snowstorm. See Unit 3 discussion for details.

Unit 3

- On January 20, 2005, Operations personnel responded to the unexpected start of the "A" auxiliary building filter fan and an "A" EDG sequencer alarm. Operations bypassed the "A" EDG sequencer and entered Technical Specification 3.3.2, "Engineered Safety Features Actuation System Instrumentation," which specifies a six hour shutdown action statement. Instrumentation and Controls personnel commenced troubleshooting and determined that the "A" EDG sequencer circuitry was not resetting an automatic test signal. An operability determination was generated that determined the function of the sequencer was not impacted. The EDG sequencer automatic testing function was removed from service by placing the EDG sequencer automatic tester switch in "RESET" and TS 3.3.2 was exited.

- On January 22, 2005, Operations personnel notified the inspectors of an impending snowstorm and of the actions they had taken in preparation for the snowstorm. These actions included notifying Site Emergency Response Organization members to ensure each position had staffing available (two people

deep) who lived between the I-95 bridges. This ensured their ability to respond to the plant even if the bridges were closed. On January 23, 2005, Operations personnel notified the inspectors that they had entered Technical Specification 3.0.3, Limiting Condition For Operation, due to snow loading which affected the inlets of both trains of emergency safeguards features (ESF) building ventilation. Maintenance personnel were called in, the filter elements were changed out, and the ESF ventilation was restored in approximately one hour.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - Four Unit 2 Samples and Six Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed ten operability determinations associated with degraded or non-conforming conditions to ensure that operability was justified and that mitigating systems or those affecting barrier integrity remained available and no unrecognized increase in risk had occurred. The inspectors also reviewed compensatory measures to ensure that the compensatory measures were in place and were appropriately controlled. The inspectors reviewed licensee performance to ensure all related TS and Final Safety Analysis Report (FSAR) requirements were met. The inspectors reviewed the following degraded or non-conforming conditions:

Unit 2

- Failure of the Facility 2 Control Room Air Conditioning system (CR-05-00638);
- Loss of Remote Shutdown Panel Steam Generator Pressure Indication (CR-05-01336);
- Failure of the Pressurizer Power Operated Relief Valve acoustic monitor and tail pipe temperature indication (CR-05-00748); and
- "B" Charging Pump/Train metallic noise (CR-05-02350).

Unit 3

- “A” Service Water Header Brazed Joint Leak (MP3-002-05);
- Non-Safety Related Valve Seat Material Used in a Safety Related Application (CR-05-01213);
- “A” Hydrogen Recombiner Leakage (CR-05-01689);
- “A” Emergency Generator Loading Sequence Autotest Circuit Failed, Resulting in Auto Start of 3HVR*FN6A (CR-05-00550)
- Station Blackout Failed Battery Surveillance (CR-05-00127); and
- Leakage Detection Systems Unidentified Leakage Sump Pump (CR-05-02751).

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

1. Selected Operator Work-arounds (One Unit 2 Sample)

a. Inspection Scope

The inspectors reviewed one risk significant operator work-around (OWA) for Unit 2 during the inspection period. The inspectors evaluated the condition to determine if there was any effect on human reliability in responding to an initiating event or any adverse effects on the function of mitigating systems. The work-around was also reviewed to ensure compliance with licensee documents which administratively control OWAs. Documents reviewed during the inspection are listed in the Attachment.

- Inoperable Automatic Steam Dump Valve Pressure Control Function

b. Findings

No findings of significance were identified.

2. Cumulative Effects of Operator Work-Arounds (One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

The inspectors reviewed the current listing of active OWAs for Millstone Unit 2 and Unit 3. The review was conducted to verify that Dominion procedures and practices provided the necessary guidance to plant personnel, that the cumulative effects of the known OWAs were addressed, and that the overall impact on the affected systems was assessed by Dominion. The inspectors independently assessed the cumulative impact of known OWAs to determine if they adversely affected the ability of plant operators to implement emergency procedures, respond to plant transients, or perform normal functions within the expectations of the established Dominion risk models. In support of this assessment, the inspectors reviewed various condition reports regarding OWAs and verified that OWAs were being identified, tracked, and resolved in Dominion's corrective action program.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - Five Unit 2 Samples and Six Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed eleven samples of PMTs during this inspection period. The inspectors reviewed these activities to determine whether the PMT adequately demonstrated that the safety-related function of the equipment was satisfied given the scope of the work specified and that operability of the system was restored. In addition, the inspectors evaluated the applicable test acceptance criteria to verify consistency with the associated design and licensing bases, as well as Technical Specification requirements. The inspectors also verified that conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following maintenance activities and their post maintenance tests were evaluated:

Unit 2

- "A" Train of the Auxiliary Feedwater system (M2-00-19686);
- “D” Instrument Air compressor (DM2-00-0363-04);
- Containment Radiation Monitor (RM-8123) (M2-04-06866);
- UAC4 Transformer Replacement (M2-03-00711); and
- "B" Charging Pump/Train Metallic Noise (M2-05-02151).

Unit 3

- Auxiliary feed pump cubicle ventilation intake filter replacement (M3-05-010226);
- “A” EDG Sequencer (M3-05-04081);
- BYS*CHGR7 Battery Charger Leakage Test (M3-01-09552);
- ACUS2A ESF Air Conditioning Maintenance (M3-04-15984);
- “A” EDG Neutral Breaker Preventive Maintenance (M3-02-16737); and
- Hydrogen Recombiner (M3-05-04144)

b. Findings

Unit 2

No findings of significance were identified.

Unit 3

1. “A” Emergency Diesel Generator Neutral Breaker

Introduction. The inspectors identified a green NCV of Appendix B, Criterion XI, “Test Control,” for the failure to adequately implement PMT procedures for restoring the “A” EDG to service following maintenance of the neutral breaker.

Description. On March 1, 2005, Dominion conducted maintenance and doble testing of the "A" EDG neutral breaker. After Operations racked down the breaker, the electricians removed the breaker from its cubicle. The Maintenance Department conducted planned maintenance on the breaker and then performed doble testing. After completing doble testing, the Maintenance Department returned the breaker to its cubicle in the seismic position (racked out), and turned the breaker over to Operations for final post-maintenance testing and restoration.

Operations racked in the breaker in accordance with OP 3370A, "Electrical Breaker Procedure." After the breaker was racked in, Operations noted that the red light on front of the EDG neutral breaker panel did not light as expected. Operations confirmed that the breaker closed electrically and assessed that the close and trip fuses were not blown. Additionally, the plant equipment operator stated that the red flag properly indicated the breaker was closed. Satisfied the breaker was closed, Operations returned the EDG to operable status and exited the EDG technical specification. The oncoming shift investigated and determined the red light was not lit because there was a problem with the neutral breaker trip circuit. An auxiliary circuit contact did not make up properly when the breaker was racked in. Operations declared the EDG inoperable and re-entered the EDG technical specification.

The inspectors reviewed the work order and determined Operations did not adequately implement the post-maintenance test procedure. The post-maintenance test directed by the work order was to cycle the breaker in accordance with MP-20-WP-GDL40, Attachment 4. Specifically, MP-20-WP-GDL40, paragraph 2.3.6, stated in part, "Direct performance of PMT as described in Work Order/PMT Plan, to include the following, as appropriate: PMT results reviewed against the acceptance criteria." Attachment 4 stated that acceptance criteria for electrical breakers included verifying "local/remote indications function properly, and correctly indicate component position/status." Despite this acceptance criteria, Dominion signed the PMT as satisfactory and restored the EDG neutral breaker to an operable status although the acceptance criteria was not met. Specifically, the neutral breaker trip circuitry indication did not indicate as expected. This resulted in restoration of the "A" EDG with the neutral breaker trip circuitry inoperable.

Additionally, the inspectors noted a deficiency in OP 3370A, Electrical Breaker Procedure," which was used for racking and testing electrical breakers. Although Operations used this procedure to implement the PMT requirements, the procedure lacked steps to ensure that all indications were properly checked for the racking of breakers.

Analysis. The performance deficiency was Dominion's failure to adequately implement testing procedures for restoring the "A" EDG to service following maintenance and doble testing of the neutral breaker. Dominion returned the EDG to an operable status although the position indication for the neutral breaker did not indicate in accordance with the acceptance criteria. This resulted in restoration of the EDG with the neutral breaker inoperable. This issue was more than minor because it was associated with the reliability of the "A" EDG. On phase-to-ground faults initiating in the emergency system,

the generator neutral breaker trips first to attempt to isolate the fault while continuing to supply vital loads powered from the emergency bus. Thus, during an event requiring emergency diesel generator operation with the neutral breaker inoperable, a ground on the emergency bus or diesel could cause the diesel to trip prematurely. The inspectors determined that the finding was of very low safety significance (Green) through performance of a Phase 1 SDP in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Specifically, this finding did not involve a design or qualification deficiency, represent an actual loss of safety function of the "A" EDG, or involve seismic, flooding, or severe weather initiating events.

Enforcement. Code of Federal Regulations 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," states in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents." Contrary to this requirement, on March 1, 2005, Dominion failed to implement testing procedures for returning the "A" EDG neutral breaker to an operable status following completion of electrical breaker maintenance. This violation has been determined to have a very low safety significance and is in Dominion's corrective action program as CR-05-03569. Therefore, this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy **(NCV 05000423/2005002-03)**.

2. Hydrogen Recombiner

Introduction. A non-cited violation of TS 3.4.6.2, "Electric Hydrogen Recombiners," was identified for the failure to perform post maintenance tests of the hydrogen recombiner following intrusive testing on the piping system which disturbed piping joints. Subsequent testing found leakage from the system which would have affected operability of the "A" hydrogen recombiner during a design basis event.

Description. On December 2, 2004, Dominion performed maintenance on the "A" hydrogen recombiner which included disassembly and reassembly of mechanical joints. Following the maintenance, the associated TSs were exited and the system was returned to service without performing a post maintenance leak test. Subsequently, on February 22, 2005, Dominion performed maintenance on the "A" hydrogen monitor. Following the maintenance, the system was returned to service and the TS action statement was exited without performing the required post-maintenance test. Dominion then determined that pipe fittings for the "A" hydrogen monitor had been disassembled and, therefore, a PMT was required to show the joints were reassembled correctly. Since this test was required to assure operability of the system, Dominion declared the hydrogen monitor inoperable and re-entered the associated TS. The "A" hydrogen recombiner was also declared inoperable in order to support the test boundaries for the hydrogen monitor PMT.

The inspectors observed that a leak tightness surveillance test was conducted to verify the integrity of the disturbed joints for the hydrogen monitor. The test results found that there was an approximately 11,000 standard cubic centimeter per minute (SCCM) leak on the system. This exceeded the 2000 sccm limit established in the surveillance. Dominion investigation found that the leak was not on a mechanical joint disturbed during the February 22, 2005, maintenance. A review of previous maintenance activities determined that work performed on December 2, 2004, disturbed the joint that had failed and the leaking joints remained unidentified until a post-maintenance test was conducted on February 23, 2005.

The inspectors determined that the leak would impact both the integrity of containment and operability of the “A” hydrogen recombiner. When the hydrogen recombiner would be placed in service following a design basis event, the air inside containment would have had an open path to atmosphere through the hydrogen recombiner room and ventilation train via the loose mechanical joints. As a result, radiation levels inside the “A” hydrogen recombiner room would increase and cause the ventilation radiation monitor to alarm which would shut down the hydrogen recombiner. Operators following their alarm response procedure would then isolate the recombiner which would stop the leak.

Analysis. The performance deficiency associated with this issue was that Dominion failed to adequately perform post-maintenance testing to ensure incorrect maintenance activities were identified prior to declaring the “A” hydrogen recombiner system Operable, exiting TS, and returning the system to service. Traditional enforcement does not apply to this issue because there were no actual safety consequences, impacts on the NRC’s ability to perform its regulatory function, or willful aspects to the violation. This issue was more than minor because it is associated with the Barrier Integrity cornerstone of configuration control for containment boundary preservation and ensuring containment design parameters are maintained. The failure to specify adequate PMT resulted in loose mechanical joints in the system not being detected which would have allowed an open pathway to atmosphere from containment. Additionally, Dominion postulated that the post accident leakage from these joints would have caused a radiation monitor alarm which would have isolated the “A” hydrogen recombiner during an event. This condition existed from December 2, 2004, through March 1, 2005.

The inspectors performed a Phase 1 SDP in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations" which required that an Appendix H, “Containment Integrity Significance Determination Process” of IMC 0609 be used because there was a direct path from containment to atmosphere. The Appendix H analysis for large dry and sub-atmospheric containment types determined that, since the leak was of a small enough magnitude (11,000 SCCM), the entire containment atmosphere would not leak to the environment over a 24 hour period. Therefore, the risk of this finding was determined to be of very low safety significance (Green).

Enforcement. Technical Specification 3.6.4.2, “Electric Hydrogen Recombiners,” requires that two independent hydrogen recombiner systems remain Operable. Contrary to this, on December 2, 2004, Dominion exited the associated TS action statement with an inoperable system. As a result, Dominion did not comply with the required TS action statement which states “restore the inoperable system to Operable status within 30 days or be in at least HOT STANDBY within the next 6 hours,” an action required on January 1, 2005. Dominion continued in this condition until March 1, 2005, when the system was repaired, tested, and restored to an Operable status. This violation has been determined to be of very low safety significance and was entered into Dominion's corrective action program (CR-05-01713 and CR-05-03896). Therefore, this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000423/2005002-04)**.

1R22 Surveillance Testing (71111.22 - Five Unit 2 Samples and Five Unit 3 Samples)

a. Inspection Scope

The inspectors reviewed ten samples of surveillance activities to determine whether the testing adequately demonstrated the equipments' operational readiness and its ability to perform its intended safety-related function. The inspectors attended pre-job briefs, verified that selected prerequisites and precautions were met and that the tests were performed in accordance with the procedural steps. Additionally, the inspectors evaluated the applicable test acceptance criteria to verify consistency with associated design basis, licensing bases and Technical Specification requirements, and to ensure that the applicable acceptance criteria were satisfied. The inspectors also verified that conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following surveillance activities were evaluated:

Unit 2

- “B” Low Pressure Safety Injection (LPSI) In-Service Test (IST) (SP-2604D);
- “B” Containment Spray (CS) Pumps IST (SP-2606B);
- Facility 2 Control Room Ventilation Filter Testing IST (SP-2609F);
- "B" AFW Pump Testing IST (SP-2605F); and
- AFW/Fire System Cross Connects 2-Fire-94A/B/C Testing (SP-2605R).

Unit 3

- Steam Generator Water Level Channel Calibration Channel 3 (SP-3444A01);
- Sweep of Train “A” RHR to Refueling Water Storage Tank (SP-3610A.3);
- “A” Quench Spray Pump Operational Readiness Test (SP-3609.1);
- “B” RPCCW Operational Test IST (SP-3630A.5); and
- RHR “A” Pump Operational Readiness Test IST (SP-3610A.1).

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

The inspectors reviewed two samples of temporary modifications to verify that the temporary modifications did not affect the safety function of important safety systems. The inspectors reviewed the temporary modifications and their associated 10 CFR 50.59 screening against the FSAR and Technical Specifications to ensure the modifications did not affect system operability or availability. Documents reviewed during the inspection are listed in the Attachment.

Unit 2

- Installation and operation of compensatory cooling to East 480 Volt Switchgear (OP-2315D)

Unit 3

- "B" Circulating Water Pump Proceduralized Temporary Modification (OP-3225A).

b. Findings

Unit 2

Introduction. A green self-revealing NCV of TS 6.8.1, Procedures and Programs, was identified for the failure to correctly install temporary cooling to the East 480 volt switchgear room. Dominion failed to perform all required steps in the procedure resulting in insufficient cooling to the room.

Description. On January 12, 2005, Dominion installed temporary cooling to the East 480 volt switchgear room. The safety-related cooler in the East 480 volt switchgear room was removed from service to perform preventive maintenance. Compensatory cooling measures to the switchgear room were installed per Operating Procedure (OP) 2315D - "Vital Electric Switchgear Room Cooling". The temporary cooling system consisted of two Appendix R air blowers and a ventilation lineup which including positioning room doors and securing fans external to the room. The procedure was completed and the vital switchgear cooling system was removed from service. Subsequent to the installation of the equipment, the system engineer walked down the compensatory measures installation and found that door 203-31-008 was closed. This door was required to be open per the procedure to provide a discharge path for the compensatory fans. The engineer reported the discrepancy to the control room. The switchgear was declared inoperable until the door was opened and the complete lineup verified.

The inspectors noted that prior to this failure Dominion had taken numerous corrective actions to ensure proper implementation of the compensatory cooling. Non-cited Violation 05000336/2003010-03 discussed a similar violation related to the installation of this equipment and subsequent corrective actions. More recently, Dominion required that the system engineer review the procedure with the Operating crew to ensure the system was properly installed to address confusion with the use of the procedure. In this case, the engineer discussed the procedure with the implementing operations crew over the phone. Procedure step 4.9.9.c states: "Open the following doors: Door 203-31-007, 203-31-008, 105-36-112. As required, station security guards and fire watches". The discussion between the Operation's crew and the engineer determined that operation of these doors was "as required" and, therefore, only door 203-45-003 was opened. The inspectors determined that all the doors were required to be opened and the statement "as required" only applied to the stationing of security guards and fire watches. Dominion's corrective actions include a revision to the procedure to remove all "as required" statements.

Analysis. The performance deficiency associated with this issue was that Dominion failed to implement procedures to correctly install temporary cooling to the East 480 volt switchgear. The finding was more than minor because, if left uncorrected, one division of the 480 volt vital AC system (480VACS) may not be available to respond to design basis events due to increasing room temperatures exceeding the switchgear design temperature limits and subsequent failure of the switchgear In addition, the equipment performance attribute of the mitigating systems cornerstone and the objective of ensuring the availability of systems that respond to initiating events to prevent undesirable circumstances was affected, since the 480VACS provided vital power to a number of safety-related systems designed to mitigate design basis events. The finding also affected the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone and the objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events, because hydrogen recombiners and containment air recirculation fans are also powered from the 480VACS. Finally, the finding impacted the equipment performance attribute of the initiating events cornerstone objective of limiting the likelihood of those events that upset plant stability since temperature sensitive electro hydraulic control (EHC) equipment was located in this room. The failure of this equipment would result in a turbine trip. Traditional enforcement did not apply to this issue because there were no actual safety consequences, impacts on the NRC's ability to perform its regulatory function, or willful aspects to the violation.

Manual Chapter 0609, Appendix A , was used to determine the risk associated with this finding. Phase 1 of the Appendix requires that a Phase 2 analysis be performed because three cornerstones were affected. The entry into the tables associated with the Phase 2 analysis assumed that the 480VACS is inoperable. However, this finding concerned the support room cooling system for the 480VACS, therefore, an evaluation of the impact on this system due to the degraded cooling system was performed. Since the actual room temperature did not exceed 104 degrees Fahrenheit, it was reasonable

to conclude that although the compensatory measures for the 480VACS room cooling system were not properly implemented, the 480VACS remained operable. This evaluation also applied to the EHC equipment located in this room. Since both trains of the 480VACS and the EHC equipment remained operable, there was no entry condition for evaluating this in the Phase 2 Tables. Therefore, the safety significance of this issue is very low (Green).

This finding was related to the Human Performance cross cutting area because of the failure of Engineering and Operations to correctly implement the procedure for compensatory cooling.

Enforcement. Technical Specification 6.8.1 requires, in part, that written procedures shall be established and implemented as recommended in Appendix "A" of Regulatory Guide 1.33. Contrary to this requirement, on January 12, 2005, Dominion failed to correctly establish temporary cooling with the correct flow path in accordance with procedure OP-2315D which affected safety-related equipment in the East 480 volt switchgear room. However, the failure to establish the correct ventilation path was determined to be of very low safety significance and has been addressed in Dominion's Corrective Action Program (CR-05-00370). Therefore, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000336/2005002-05)**.

Unit 3

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP4 Emergency Action Level and Emergency Plan (E-PLAN) Changes (IP 71114.04 - 1 Sample)

a. Inspection Scope

During the period of January 11, 2005, through March 31, 2005, the NRC has received and acknowledged the changes made to Millstone's E-Plan in accordance with 10 CFR 50.54(q), which Dominion Nuclear had determined resulted in no decrease in effectiveness to the Plan and which have concluded to continue to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The inspector conducted a sampling review of the Plan changes which could potentially result in a decrease in effectiveness. This review does not constitute an approval of the changes and, as such, the changes are subject to future NRC inspection. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4, and the applicable requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - One Unit 2 Sample and One Unit 3 Sample)

a. Inspection Scope

The inspectors observed one sample of the conduct of Unit 2 licensed operator simulator training on January 24, 2005. The inspectors evaluated the Operations crew activities related to evaluating the scenario related to a loss of off site power, during a reduced inventory plant configuration, and making proper classification determinations. Additionally, the inspectors assessed the ability of Dominion's evaluators to adequately address operator performance deficiencies identified during the exercise. Documents reviewed during the inspection are listed in the Attachment.

The inspectors observed one sample of the conduct of a Unit 3 licensed operator simulator training on February 1, 2005, including assessment of Emergency Planning for performance indicator submittals. The inspectors observed the Operations crew performance at the simulator and emergency response organization performance at the site emergency operations center and technical support center. The inspectors verified that the classification, notification, and protective action recommendations were accurate and timely. Additionally, the inspectors assessed the ability of Dominion's evaluators to adequately address operator performance deficiencies identified during the exercise. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Controls to Radiologically Significant Areas (71121.01)

a. Inspection Scope (Eleven Samples)

During the period February 28, 2005, through March 3, 2005, the inspector conducted the following activities to verify that Dominion was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, Technical Specifications, and Dominion's procedures. This inspection activity represents completion of eleven (11) samples relative to this inspection area.

Plant Walkdown and Radiation Work Permits (RWP) Reviews

- The inspector identified areas in Units 2 and 3 where radiologically significant work was being performed. These areas included the Unit 2 spent fuel pool, where diving operations were being conducted to repair fuel transfer system components, and the Unit 3 containment building, where entries were being made for steam generator blow-down system valve realignments and component inspections. The Unit 3 containment entry involved personnel entering a potentially very high radiation area (VHRA), the moveable in-core detector (MIDS) area. The inspector reviewed RWPs associated with these activities, RWP Nos. 74 and 90/91, respectively, and the radiation survey maps of the work areas to determine if the radiological controls were acceptable. Additionally, the inspector reviewed the procedural controls implemented for personnel entry into a potential VHRA in the Unit 3 containment.

- The inspector toured accessible radiologically controlled areas in Units 2 and 3, and with the assistance of a radiation protection technician, performed independent radiation surveys of selected areas to confirm the accuracy of survey data and the adequacy of postings.

- In reviewing various RWPs, the inspector reviewed electronic dosimeter dose/dose rate alarm setpoints to determine if the setpoints were consistent with the survey indications and plant policy. The inspector verified that the workers were knowledgeable of the actions to be taken when the electronic dosimeter alarms or malfunctions for tasks being conducted under selected RWPs. Work activities reviewed included Unit 2 spent fuel pool diving operations (RWP 74), Unit 3 steam generator blowdown system valve realignment (RWP 90), and Unit 3 in-containment inspections of the MIDS (RWP 91).

- The inspector reviewed the RWPs and associated instrumentation and engineering controls for potential airborne radioactivity areas. Through review of relevant condition reports and supporting documentation, the inspector reviewed the dose assessment methodology and corrective actions for airborne incidents that occurred during 2004, resulting in an internal dose in excess of 50 mrem.

- The inspector reviewed the physical and procedural controls for highly activated/contaminated materials stored in the Unit 2 and 3 spent fuel pools.

Problem Identification and Resolution

- The inspector reviewed elements of Dominion's Corrective Action Program related to controlling access to radiologically significant areas, completed since the last inspection of this area, to determine if problems were being entered into the program for resolution. Details of this review are contained in Section 4OA2 of this report.

Jobs-In-Progress Review

- The inspector observed aspects of various maintenance activities being performed during the inspection period to verify that radiological controls, such as required pre-job surveys, area postings, job coverage, and pre-job RWP briefings were conducted; personnel dosimetry was properly worn; and that workers were knowledgeable of work area radiological conditions. The inspector attended the pre-job RWP briefings and observed selected aspects of Unit 2 spent fuel pool diving operations and a Unit 3 containment entry.

High Risk Significant, High Dose Rate High Radiation Area and VHRA Controls

- The inspector discussed with Radiation Protection Supervision the adequacy of physical and procedural controls for performing work in potential VHRAs. Specific VHRA controls were reviewed for ongoing work performed in the MIDS area in the Unit 3 containment building (during power operations) and diving operations performed in the Unit 2 spent fuel pool. Safety measures reviewed included use of remote dosimetry, multi-badging, pre-job removal of radioactive sources, confirmatory surveys, video cameras, management authorizations, and key controls.

- Keys to Unit 2 and 3 locked high radiation areas (LHRA) and VHRAs were inventoried and accessible LHRAs were verified to be properly secured and posted during plant tours.

- The inspector discussed with the project lead and cognizant radiation protection staff the radiological controls to be implemented for replacement and storage of the Unit 2 reactor head during the upcoming spring 2005 refueling outage.

Radworker and Radiation Protection Technician Performance

- The inspector evaluated radiation worker and radiation protection technician performance by observing various jobs-in-progress, reviewing daily log entries, attending pre-job RWP briefings, and attending outage challenge board and daily departmental meetings.

- The inspector reviewed condition reports related to radiation protection technician and radiation worker errors to determine if an observable pattern traceable to a similar cause was evident.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (Four Samples)

During the period February 28, 2005, through March 3, 2005, the inspector conducted the following activities to verify that Dominion was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as-low-as-is-reasonably-achievable (ALARA) for activities performed in 2004 and in preparing for the upcoming Unit 2 refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Dominion's procedures. The inspection represents completion of four samples relative to this inspection area.

Radiological Work Planning

- The inspector reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities to assess current performance and the challenges for the upcoming Unit 2 refueling outage.

- The inspector reviewed the projected Unit 2 (spring 2005) refueling outage work schedule and the associated work activity exposure estimates. Scheduled work reviewed included reactor head replacement, permanent cavity pit seal installation, Alloy 600 mitigation activities, and primary systems equipment changeouts.

- The inspector evaluated the departmental interfaces between radiation protection, operations, maintenance crafts, and engineering to identify missing ALARA program elements and interface problems. The evaluation was accomplished by interviewing the ALARA Coordinator and Radiation Protection Manager, reviewing station ALARA Council meeting minutes, attending the Unit 2 Outage Schedule Review meeting, and attending Unit 2 Outage Project Challenge Board meetings. Challenge Board meetings attended included primary systems equipment changeout and Alloy 600 mitigation activities.

- The inspector reviewed the assumptions and basis for the annual site collective exposure projections for site power operations and for the Unit 2 and Unit 3 refueling outages, scheduled later this year. Additionally, the inspector reviewed the 2005-2006 Station Exposure Reduction Plan.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA2 Identification and Resolution of Problems (71152)

1. Daily Review of Problem Identification and Resolution

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems", and in order to help identify repetitive equipment failures or specific human performance issues for followup, the inspectors performed a daily screening of items entered into Dominion's corrective action program. This review was accomplished by reviewing summary lists of each condition report, attending screening meetings, and accessing Dominion's computerized condition report database.

b. Findings

No findings of significance were identified.

2. Annual Sample Review (One Unit 3 Sample)

Unit 3

a. Inspection Scope

The inspectors completed one Unit 3 sample by selecting condition report CR-04-01569, EDG exhaust temperature spread, for a detailed review. The deficiency report was associated with exhaust temperatures on the “B” EDG and a technical evaluation M3-EV-04-002, EDG Exhaust Temperature Spread performed by Dominion. The specific CR and CR history were reviewed to ensure that the full extent of the issue was identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized. The inspectors also evaluated the reports against the requirements of Dominion’s corrective action program.

b. Findings

No findings of significance were identified.

3. Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

The inspector reviewed ten (10) Condition Reports, recent ALARA Council Meeting minutes, and Nuclear Quality Assessment field observation reports to evaluate the threshold for identifying, evaluating, and resolving occupational radiation safety

problems. This review included a check of possible repetitive issues such as radiation worker and radiation protection technician errors.

The review was conducted against the criteria contained in 10 CFR 20, Technical Specifications, and Dominion's procedures.

b. Findings

No findings of significance were identified.

4. Cross-References to PI&R Findings Documented Elsewhere

Section 1R01 describes a failure to take adequate actions to prevent the air dryer skid from freezing following identification of an inadequate freeze protection system. The inspectors determined that the Dominion extent of condition review was not adequate to ensure Dominion assessed and corrected the degraded condition in a timely manner.

Section 1R07.2 describes a failure to promptly identify and take actions to address a condition adverse to quality concerning a degraded condition associated with all three RPCCW HXs.

Section 4OA5.2 describes a failure to take effective corrective actions to identify air entrapped in the residual heat removal heat exchanger. The inspectors determined that the extent-of-condition review was not adequate to ensure Dominion assessed and corrected the degraded condition in a timely manner.

4OA3 Event Followup (71153)

1. Unit 2 Unusual Event Declared Due To Fire

a. Inspection Scope

On January 14, 2005, Operations personnel responded to a fire in an electrical panel in the Unit 2 turbine building. Dominion declared an Unusual Event since the fire lasted greater than 15 minutes and was located in an area of concern for safe shutdown (the Unit 2 turbine building). The resident inspectors responded and Region 1 staffed the Incident Response Center. A special inspection team was chartered to conduct an investigation and evaluation of this event which will be documented in NRC Inspection Report 05000336/2005009.

b. Findings

Refer to Special Inspection Report Number 05000336/2005009.

2. (Closed) Licensee Event Report (LER) 0500423/2004-002-00, Inoperable Motor Driven Auxiliary Feedwater (MDAFW) Pump Resulting From A Degraded Service Water System Brazed Joint

The inspectors interviewed Dominion personnel and reviewed this LER with its associated condition reports to verify that the root cause and corrective actions related to the event described in the LER was adequate. No findings were identified during the inspector's review. This LER is closed.

4OA4 Cross Cutting Aspects of Findings

Cross-Reference to Human Performance and PI&R Findings Documented Elsewhere

Section 1R19.1 describes a failure to implement testing procedures for returning the "A" EDG to an operable status following completion of electrical breaker maintenance. The finding was related to the cross cutting area of human performance in that Dominion signed a PMT as satisfactory and restored the EDG neutral breaker to an operable status although the acceptance criteria was not met. .

Section 1R19.2 describes a failure to implement testing procedures for maintenance performed on the "A" hydrogen recombiner and which would have made the hydrogen recombiner inoperable during an actual event. This finding was related to the cross-cutting issue of Human Performance in that Dominion failed to adequately perform post-maintenance testing to ensure incorrect maintenance activities were identified prior to returning the hydrogen monitor to service.

Section 1R23 describes a failure to implement compensatory cooling measures as required by procedure when normal cooling to the East 480VACS was not available. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for East 480 volt swithcgear room compensatory cooling.

Section 4OA5.2 describes a failure to properly assess and correct degraded conditions in the "A" RHR discharge piping. This finding was related to the cross cutting area of Problem Identification and Resolution in that Dominion failed to perform an adequate extent-of-condition review to fully evaluate the effect of air that had been introduced into the "A" RHR system.

4OA5 Other Activities

1. (Closed) URI 05000336/2004007-01, Adequacy of the Enclosure Building Filtration System (EBFS) Operability Determination And The Potential Risk Significance Of Any Degradation in EBFS Function

This URI was opened to assess the impact of a steam and debris laden atmosphere on the post accident operation of the EBFS. Based on Dominion Engineering Technical

Evaluation M2-EV-04-0024, Evaluation of Pressure Entering the EBFS Region, the inspectors determined that there was no operability impact on the EBFS. This URI is closed.

2. (Closed) URI 05000423/2004008-01, Air Entrainment of Residual Heat Removal System

This URI was opened to assess the impact of additional air found in the “A” residual heat removal system heat exchanger. The inspectors reviewed the operability determinations and Technical Evaluations associated with the degraded condition of the RHR system to ensure that operability was justified and that mitigating systems or those affecting barrier integrity remained available and no unrecognized increase in risk had occurred. The inspectors also reviewed compensatory measures to ensure that the compensatory measures were in place and were appropriately controlled. The inspectors reviewed licensee performance to ensure all related TS and FSAR requirements were met. Documents reviewed are listed in the Attachment.

Introduction. A green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” was identified for failure to determine the extent of condition of air found in the RHR discharge piping. Specifically, after discovering and subsequently venting a significant amount of air in the “A” RHR system in May 2004, Dominion did not adequately investigate to determine if air remained in the RHR heat exchanger tubing.

Description. Following the Spring 2004 refueling outage, NRC inspectors questioned why Dominion had found air in the RHR discharge piping. The inspectors determined that the build-up of air in the "A" RHR train occurred when Dominion secured the "A" RHR pump during the reactor coolant system sweep and vent evolution during the Spring outage. Additionally, contrary to procedure requirements, Dominion had decided not to vent the “A” RHR train while coming out of the outage. This issue was dispositioned as an NCV in Inspection Report 05000423/2004007.

Dominion performed a root cause evaluation to determine the cause of the air intrusion and to recommend actions to prevent recurrence. One of the corrective actions that was recommended by the root cause team was to add an RHR suction piping vent valve to the monthly venting surveillance of the system. The root cause evaluation was completed in August 2004 and concluded that there was no air remaining in the RHR system. Subsequently, additional air was found in July 2004 and again in October 2004 during RHR system venting (CR-04-09306) following quarterly RHR pump runs.

The inspectors questioned Dominion as to the source of this additional air discovered in July and again in October 2004. Dominion suspected that the source of air was the “A” RHR heat exchanger and determined that this amount of additional air did not impact “A” RHR pump operability. However, during the subsequent November vent and valve lineup of the "A" train of the RHR system, air was again vented from the suction piping of the "A" RHR pump. Operations determined that this amount of air was excessive, declared the "A" RHR train inoperable, and entered the appropriate limiting condition of operation. Dominion instituted a troubleshooting plan consisting of running the “A” RHR

pump several times to strip the air out of the system, performing ultrasonic tests to identify voids, and running full recirculation flow through the "A" RHR heat exchanger. Based on this troubleshooting effort, Dominion confirmed that the source of air was the "A" RHR heat exchanger and was part of the original volume of air first identified in the "A" RHR system following the Spring outage. When the "A" RHR pump was run on recirculation, air was swept out of the "A" RHR heat exchanger and relocated to a horizontal run of pipe at the "A" RHR pump suction. Dominion determined that it would take running the "A" RHR pump approximately 1.5 hours to build up enough air to make the RHR pump inoperable. According to Dominion, the mission time of the RHR pump for a design basis loss of coolant accident (LOCA) is 30 minutes. Dominion evaluated whether the air in the "A" RHR heat exchanger would adversely affect any emergency core cooling system (ECCS) pumps and wrote an operability determination (OD) to support continued operability of the "A" RHR system. Operations then declared the "A" RHR train operable and exited the associated technical specification.

Analysis. The performance deficiency was the failure to take prompt corrective actions to determine the extent of condition of air that was introduced into the "A" RHR system during the Spring 2004 outage. Dominion's extent-of-condition review did not determine that a significant volume of air remained in the RHR heat exchanger after finding and venting air in the "A" RHR system during subsequent venting evolutions conducted in July and October of 2004. Specifically, Dominion did not recognize the need to expand and accelerate their extent of condition corrective actions following the identification that air remained in the "A" RHR system in July and subsequently again in October of 2004.

This finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability objective of this mitigating system. However, subsequent analysis determined that for a large break LOCA, the air would be swept into the core without affecting the RHR pump, and for small break LOCAs, the air would not have affected the operability of the RHR pump within its required mission time, and for all accidents the air would not have migrated to a section of crossover piping that could affect other ECCS equipment. Therefore, this finding, assessed in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, "Significance Determination Process for Reactor Inspection Findings for At-Power Situations," was determined to be of very low safety significance (Green) because it did not involve a design or qualification deficiency, represent an actual loss of safety function, or involve seismic, flooding, or severe weather initiating events.

This finding was related to the cross-cutting issue of problem identification and resolution because Dominion failed to perform an adequate extent of condition review to fully evaluate the effect of air that was introduced into the "A" RHR system.

Enforcement. Code of Federal Regulations 10 CFR Part 50 Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, from May to October 2004, Dominion failed to properly assess and correct degradation of the "A" RHR system caused by air introduction during the Spring 2004

refueling outage. Because subsequent evaluation of the air void determined that the system retained operability, the issue was determined to be of very low safety significance and has been addressed by Dominion's CAP (CR 04-10129), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000423/2005002-06)**

4OA6 Meetings, Including Exit

Heat Sink Performance Exit Meeting Summary

On February 11, the inspector presented the inspection results to members of Dominion management led by Mr. Alan Price. Dominion management stated that none of the information reviewed by the inspector was considered proprietary. The inspector also discussed Dominion's associated operability determination and OE evaluation during a conference call on March 21, 2005.

Occupational Radiation Safety Exit Meeting Summary

On March 3, 2005, the inspector presented the inspection results to Mr. Skip Jordan, and other members of the Dominion staff, who acknowledged the findings.

Integrated Report Exit Meeting Summary

On April 21, 2005, the resident inspectors presented the overall inspection results to Mr. J. Alan Price and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

A. Airas, System Engineer
S. Alligood, Radiation Protection Technician
T. Armagno, Supervisor, Health Physics
B. Bartron, Licensing
B. Bowen, Radiation Protection Technician
P. Calandra, ALARA Coordinator
W. Collins, Radiation Protection Technician
D. DelCore, Shift Supervisor, Health Physics, Unit 2
E. Dundon, System Engineer
I. Haas, Acting Supervisor Exposure Control
A. Johnson, Supervisor, Radiation Protection Support, (Technical)
A. Jordan, Director, Nuclear Engineering
J. Joszick, Radiation Protection Technician
B. Kaufman, (Acting) Manager, Nuclear Quality Assurance
R. King, ALARA Coordinator
E. Laine, Manager, Radiological Protection & Chemistry
J. Langan, Site Engineering Manager
L. Loomis, System Engineer
F. Mueller, System Engineer
F. Perkins, System Engineer
A. Price, Site Vice President - Millstone
D. Regan, Supervisor, Radiation Protection Support (ALARA)
S. Sarver, Director, Nuclear Station Operations & Maintenance
S. Scace, Director, Nuclear Station Safety and Licensing
W. Spahn, Site Engineering Supervisor
M. Wood, Health Physicist
M. Wynn, Health Physicist

NRC personnel

M. X. Davis, Reactor Inspector, Division of Reactor Safety (DRS)
M. L. Heath, Nuclear Safety Professional
K. M. Jenison, Senior Reactor Inspector, Division of Reactor Projects (DRP)
S. R. Kennedy, Resident Inspector, DRP
K. S. Kolaczyk, Senior Resident Inspector, Ginna, DRP
J. A. Krafty, Reactor Inspector, DRS
K. A. Mangan, Resident Inspector, DRP
T. A. Moslak, Health Physicist, DRS
S. M. Schneider, Senior Resident Inspector, DRP
J. G. Schoppy, Senior Reactor Inspector, DRS

Attachment

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000336/2005002-01	FIN	Failure to adequately address concerns related to freeze protection of an outdoor temporary instrument air compressor (1R01.2)
05000423/2005002-02	NCV	Failure to promptly evaluate and correct a degraded condition associated with the divider plate for all three RPCCW HXs (Section 1R07.2)
05000423/2005002-03	NCV	Failure to adequately implement testing procedures for restoring the "A" EDG to service (1R19.1)
05000423/2005002-04	NCV	Failure to adequately perform post-maintenance testing on hydrogen recombiner (1R19.2)
05000336/2005002-05	NCV	Failure to implement procedures to correctly install temporary cooling to the East 480 volt switchgear (1R23)
05000423/2005002-06	NCV	Failure to take prompt corrective actions to determine the extent of condition of air trapped in the RHR suction and discharge piping (4OA5.2)

Closed

05000423/2004-002-00	LER	Inoperable Motor-Driven Auxiliary Feedwater Pump Resulting From A Degraded Service Water System Brazed Joint (4OA3.2)
05000336/2004007-01	URI	Adequacy of the Enclosure Building Filtration System Operability Determination And The Potential Risk Significance Of Any Degradation in EBFS Function (4OA5.1)
05000423/2004008-01	URI	Air Entrainment of Residual Heat Removal System (4OA5.2)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

CR-05-00633, Organization Response to Weekend Snowstorm
CR-05-00922, Temporary Air Compressor Dryer Prefilters High DP and Lowering Air Pressure
TS 3.0.3, Limiting Condition For Operation
C OP 2006, Revision 001-02, Storm and Other Hazardous Phenomena (Preparation and Recovery)

Section 1R04: Equipment Alignment

Major Equipment Schedule
Electrical On-Line Diagrams
OPS Form 2610C-002, Revision 019-05, Auxiliary Feedwater System Lineup Verification
OP-3314F, Unit 2 Control Building HVC HVK Valve Lineup
OP-2322, Revision 025-02, Auxiliary Feedwater System
OP-2315A, Revision 014-03, Control Room Air Conditioning System
SP-2610C, Revision 012-08, AFW System Lineup Valve Operability and Operational Readiness Tests
SP-3670.1, Revision 010-10, Control Room Surveillances
SP-3670.2, Revision 010-06, Technical Specification Related PEO Rounds (Mode 1 to 4)
SP-3670.1-002, Revision 010-03, SP-3670.1 Surveillance Form
SP-3670.2-002, Revision 013-05, SP-3670.2 Surveillance Form
SP-2669A-002, Revision 034, Unit 2 Aux Building Rounds
SP-2610CO, Revision 000-00, Auxiliary Feedwater Flow-Path Lineup Verification
SP-2609B, Revision 016-01, EBFS and Control Room Ventilation Operability Test, Facility 2
SP-3622.4-002, Revision 005-02, Auxiliary Feedwater System Lineup (MDAFW Train B)
SP-3622.4-001, Revision 005-02, Auxiliary Feedwater System Lineup (MDAFW Train A)
SP-3622.4, Revision 005-02, Auxiliary Feedwater System Lineup Verification
PI&D 25203-26005, Sheet 3 of 4, Revision 46, Condensate Storage and Auxiliary Feedwater
P&ID 25203-26027, Sheet 3 of 4, Revision 28, Control Room Air Conditioning System
DCM 05-5A, Revision 010, MP2 Control Room, Heating, Cooling & Ventilation Requirements Calculations
DCM Form 5-1A, Revision 05, Control Room HVAC Regain, Pressure Drop and Flowrate
FSAR, Table 9.9-11, Revision 21, Control Room Air Conditioning System
EOP 2541, Appendix 43, Revision 000, Operating Control Room Emergency Air Intakes
Millstone Nuclear Power Station Unit 2 Technical Specifications 4.7.1.2.a
Millstone Nuclear Power Station Unit 2 Technical Specifications 3/4 3-33, Table 3.3-11
Millstone Nuclear Power Station Unit 2 (MNPS-2) Final Safety Analysis Report (FSAR)
CR-05-00638, The Facility 2 Control Room Air Conditioning System is not Maintaining Control Room Temp. And it Appears that the Compressor is Tripped

CR-04-01743, The “A” Vital Chiller (X169A) Tripped During its Surveillance Run Via SP-2604T
CR-04-11217, The Facility 1 Control Room Air Conditioning System is not Maintaining Control Room Temp. And it Appears that the Compressor is Tripped
CR-05-00769, The Vital Chillers (X169A/B) Require a Maintenance Rule (a)(1) Evaluation due to Repetitive Failures
CR-05-02072, Discovered Montville-Haddam Neck 364 Line Out of Service Which is the Same as Millstone-Montville 371 Line Out
CR-05-02873, MP2 Control Room HVAC System Calculation Changes
Drawing 25203-32023, Sheet 55, Revision 6, Control Room A/C Air Cool Condenser MF36A
Drawing 25203-32023, Sheet 53, Revision 8, Control Room A/C System Refrig. Compressor MF22A
Maintenance Rule (a)(1) Evaluation, Revision 0, Control Room Air Conditioning System (2315A)
COP 200.8, Revision 002-01, Response to ISO New England/Convex Emergencies & Alerts
Unit 3 Final Safety Analysis Report
EM-135B&C, Auxiliary Steam System

Section 1R05: Fire Protection

SP-3641B.2, Revision 013-00, Functional Check of the Fire Protection Halon System
SP-3641D.5-001, Revision 008-4, Fire Damper Operability Verification
CR-04-02019, Incorrect reference in MP3 Fire Protection Evaluation Report
CR-04-02202, Audit 04-04 Hourly Fire Watch for MP3 impairment #23534-01-H exceeded 25% grace period
CR-04-02762, Fire Protection: Tank inspections not performed as required by procedure
CR-04-07072, During fire protection inspection, identified slight difference in component name between label and procedure
CR-04-07377, Fire protection cleaned up small oil spill
CR-04-07430, During NRC fire protection inspection, apparent inconsistency between fire shutdown action matrix and EOP direction
CR-04-08275, Excessive leakage from fire protection water system
CR-04-08399, Review of OE-18887 unanalyzed condition related to fire protection cable separation
S&W Drawing No. 12179 Piping and Instrument Diagram Fire Protection
Millstone Unit 3 Fire Protection Evaluation Report, Revision 17
Millstone Unit 3 Updated Final Safety Analysis Report
Millstone Unit 3 Licensed Operator Training Manual
Millstone Unit 3 Technical Requirements Manual
FPI 50-001, Revision 010-00, Fire Brigade Drill Assessment Data Sheet
Millstone Unit 2 Individual Plant Examination for External Events
Millstone Unit 2 Fire Hazards Analysis
Millstone Unit 2 Fire Hazard Analysis Boundary Drawing Area Figures
Unit 3 Fire Hazards Analysis

Section 1R06: Flood Protection Measures

Millstone Unit 3 PSD Civil/Mechanical Design Calculation No. P®) 1194, ESF Bldg Flood Study: Maximum Flood Height in the ESF Bldg due to a Pipe Break
Calculation No. 12179-P®)-1194, Revision 2, Change No. 1, ESF Building Flood Study: Maximum Flood Height in the ESF Building due to a Pipe Break
Calculation No. 12179-P®)-1194, Revision 2, Change No. 2, ESF Building Flood Study: Maximum Flood Height in the ESF Building due to a Pipe Break
Calculation No. 12179-P®)-1194, Revision 2, Change No. 3, ESF Building Flood Study: Maximum Flood Height in the ESF Building due to a Pipe Break
Calculation No. P®)-1038, Revision 0, Change No. 1, Fuel Bldg. Flood Study: Determination of Maximum Height of Water in Fuel Bldg. Due to Pipe Crack

Section 1R07: Heat Sink Performance

MP-2701J-096, Revision 007, Service Water Cooled Heat Exchangers Subject to GL-89-13
M2-EV-99-0103, Revision 03, MP2 Service Water System Operability for Increase in Ultimate Heat Sink Temperature to 77 Degrees F.
NRC Generic Letter 89-13 dated July 18, 1989, Service Water System Problems Affecting Safety-Related Equipment
M2-04-10878, “A” RBCCW Heat Exchanger Inspection

89-13 Program and Design Basis Documents

Millstone Unit 3 Generic Letter 89-13 Responses and Updates, January 1990 - February 2001
EN 31084, Revision 006-02, Operating Strategy For Service Water System At Millstone Unit 3
M3-EV-02-0031, Technical Evaluation for Service Water Heat Exchanger Monitoring Millstone Unit 3, dated 3/4/04
EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991
EPRI TR-107397, Service Water Heat Exchanger Testing Guidelines, March 1998

Corrective Action Documents

PIR 3-93-056	03-05653	04-03673	04-09608
AR 97000674	03-05942	04-04036	04-10667
01-10079	03-06070	04-06364	04-10672
02-03287	03-06080	04-06977	05-01227*
03-04802	03-08587	04-05227	05-01233*
03-04924	03-08729	04-06364	05-01278*
03-05524	03-08819	04-08539	05-01281*
03-05528	03-09039	04-08578	05-01767*
03-05615	03-09241	04-09331	

* Initiated in response to inspector concerns.

Engineering Evaluations and Calculations

DCR M3-97045, Revision 1, RSS Pump Restriction Orifices to Prevent Suction Line Flashing
DCR M3-00029, Revision 0, Operation with the MP3 Ultimate Heat Sink Temperature below the Design Basis Low Temperature of 33^0F
CALC No. 03-059, Revision 0, Analysis of the Emergency Diesel Generator Jacket Water Cooler Thermal Performance Test Results
CALC No.03-060, Revision 0, Emergency Diesel Generator Intercooler Water Cooler Proto-HX Benchmark and Analysis of the Thermal Performance Test Results
Calculation No. 90-069-1130 M3, Revision 0, Millstone Unit 3 - Service Water System - Summary of Westinghouse Heat Exchanger Calculations
Calculation No. 90-069-01065M3, Revision 1, MP3 SW System - Service Water System - NRC Generic Letter 89-13, Item No. IV, Design Basis Summary Report
Operability Determination MP3-004-05, Revision 0

EDG Testing and Inspections

SP 3646A.2, Emergency Diesel Generator B Operability Tests, dated 12/21/04
PD04266.02, Record of Eddy Current Inspection of Emergency Diesel Generator - B Air Cooler 3EDS-1B and Water jacket Cooler 3EDS-2B, May 1999
Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3GS-E1B & E2B; dated 10/26/04
SP 3626.13, CCI and EGS Train B Heat Exchanger Fouling Determination, dated 1/31/05
SP 3626.13, CCI and EGS Train B Heat Exchanger Fouling Determination, dated 2/7/05

Miscellaneous

Risk-Informed Inspection Notebook for Millstone Nuclear Power Plant, Unit 3, Revision 1
Millstone Unit 3 Individual Plant Examination for Severe Accident Vulnerabilities (NUSCO 171)
S & W DWG. No. 12179-EM-133D, Piping & Instrumentation Diagram Service Water Intake Structure Information Book
System Operability Determination Notebook (MP3-065-01, MP3-072-04, MP3-079-04)
Request for Engineering LOE Support, dated 12/8/04
Millstone Power Station Unit 3 2003 Annual Environmental Protection Plan Operating Report
Intercooler Water Cooler Heat Exchanger Specification Sheet, dated 7/28/75
Jacket Water Cooler Heat Exchanger Specification Sheet, dated 7/28/75
Containment Recirculation Coolers Tubular Heat Exchanger Data, dated 2/10/74
D.C. Cook Nuclear Power Plant, Units 1 and 2 NRC Special Inspection Report 50-315/03-08; 50-316/03-08, dated 7/3/03

Operating Experience

NRC Information Notice 94-59: Accelerated Dealloying of Cast Aluminum-Bronze Valves Caused by Microbiologically Induced Corrosion, dated 8/17/94
NRC Information Notice 96-36: Degradation of Cooling Water Systems Due to Icing, dated 6/12/96

NRC Information Notice 98-02: Nuclear Power Plant Cold Weather Problems and Protective Measures, dated ½1/98
Millstone Unit 3 Response to NRC IN 94-59, NRC IN 96-36, and NRC IN 98-02
NUREG-1275, Vol. 3 - Operating Experience Feedback Report - Service Water System Failures and Degradations
Ice Blockage of Water Intakes, NUREG/CR-0548
Generic Service Water System Risk-Based Inspection Guide, NUREG/CR-5865 EGG-2674
NRC Generic Letter 96-06, Supplement 1: Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions, dated 11/13/97
Millstone Unit 3 Generic Letter 96-06 Responses and Updates, May 1998 - December 2000

Procedures

AOP 3560, Revision 007, Loss of Service Water
AOP 3569, Revision 015-02, Severe Weather Conditions
OP 3326, Revision 021-15, Service Water System
OP 3306, Revision 008-03, Containment Recirculation Spray System
OP 3330A, Revision 015-08, Reactor Plant Component Cooling Water
OP 3353.WTC, Revision 1, Chlorine Panel Annunciator Response
OP 3353.MBIB, Revision 002-06, Chlorination System Trouble
OP 3353.MBIC, Revision 005-04, RPCCW HX SW FLOW HI/LO
OP 3353.MBIC, Revision 005-04, CTMT RECIRC CLR SW FLOW HI/LO
OP 3353.MBIC, Revision 005-04, DG B COOLER SW FLOW HI
OP 3353.MBIC, Revision 005-04, DG B COOLER SW FLOW LO
OP 3353.MBIC, Revision 005-04, Service WTR PP Strainer DIFF Pres HI
OP 3353.MBIC, Revision 005-04, Service WTR Pump DIS Pres LO
OP 3353.MBIC, Revision 005-04, RPCCW HX OUT TEMP HI/LO
OP 3353.MBID, Revision 002-04, CTMT RECIRC Spray System
OP 3353.MBID, Revision 002-04, Service Water System
Op 3346A, Revision 021-02, Emergency Diesel Generator
SP 3626.13, Revision 019-04, Service Water Heat Exchangers Fouling Determination
SP 3626.14, Revision 001-01, RSS Heat Exchanger SW Supply Piping Flush

RPCCW Testing and Inspections

Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3CCP*E1A; dated 2/6/02, 4/29/02, 6/25/03, 5/24/04
Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3CCP*E1B; dated 9/3/02, 11/25/02, 5/14/03, 9/8/03, 9/20/04
Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3CCP*E1C; dated 7/27/01, 7/2/02, 6/9/03
Longview Inspection damaged Tube/Condition Report for RPCCW “E1-B,” dated 9/28/01
PD04573, Record of Eddy Current Inspection of RPCCW Heat Exchanger 3CCP-E1B, September 2003

RSS Testing and Inspections

Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3RSS*E1B; dated 12/15/04
Service Water Cooled Heat Exchangers Inspection Form (EN31084 Attachment 2) for 3RSS*E1D; dated 12/16/04
SP 3626.14, RSS Train B Heat Exchangers SW Supply Piping Flush, dated 12/15/04 & 12/17/04

SW Testing and Inspections

SP-3626.3, 3SWP*MOV71B, TPCCW HX SW Supply, Stroke Test; dated 12/20/04
SP-3626.3, 3SWP*MOV50A and MOV50B, CCP HXs Train A and Train B SW Supply, Stroke Test; dated 4/24/04
SP-3626.3, 3SWP*MOV54B and MOV54D, RSS Coolers B and D SW Supply, Stroke Test; dated 12/15/04
SP-3626.3, 3SWP*AOV39B, EDG B Service Water HX Outlet, Stroke Test; dated 10/26/04
SP-3626.4, Service Water Pump 3SWP*P1A Operational Readiness Test, dated 11/09/04
SP-3626.5, Service Water Pump 3SWP*P1B Operational Readiness Test, dated 12/23/04
SP-3626.6, Service Water Pump 3SWP*P1C Operational Readiness Test, dated 11/10/04
SP-3626.7, Service Water Pump 3SWP*P1D Operational Readiness Test, dated 12/20/04
SP-3626.6, Service Water Pump 3SWP*P1C Operational Readiness Test, dated 11/10/04
SP 3626.13, Service Water Heat Exchangers Fouling Determination, dated ½9/05, 2/6/05

System Health Reports and Trending Data

B EDG Service Water Flow and Differential Temperature, 09/28/04 - 01/18/05
B EDG Lube Oil & Jacket Water Temperatures, 09/28/04 - 01/18/05
B EDG JW and Intercooler, B RSS, and B RPCCW HX Flow & D/P Trending, 1/7/02 - 1/10/05
Emergency Diesel Generator and EDG Fuel Oil System Health Report (Third Quarter 2004)
Service Water System Health Report (Third Quarter 2004)
Containment Recirculation Spray System Health Report (Third Quarter 2004)
Reactor Plant Component Cooling Water System Health Report (Third Quarter 2004)

Work Orders

M30106969	M30206235	M30307754	M30416542
M30202096	M30206237	M30308193	M39803648
M30202098	M30206239	M30310919	M39804420
M30206009	M30206241	M30407936	M39804423
M30206010	M30206243	M30413782	
M30206233	M30307593	M30414020	

Section 1R11: Licensed Operator Requalification Program

2R16 Outage Modification Lesson Plan
2R16 Shutdown Cooling on Containment Spray SPROC Lesson Plan
LORTSE11, Revision 5, Change 3, Unit 3 Simulator Exam Overview
Emergency Action Level Tables

Section 1R12: Maintenance Effectiveness

CR-05-00638, The Facility 2 Control Room Air Conditioning System is not Maintaining Control Room Temp. And it Appears that the Compressor is Tripped
CR-04-01743, The "A" Vital Chiller (X169A) Tripped During its Surveillance Run Via SP-2604T
CR-04-11217, The Facility 1 Control Room Air Conditioning System is not Maintaining Control Room Temp. And it Appears that the Compressor is Tripped
CR-05-00769, The Vital Chillers (X169A/B) Require a Maintenance Rule (a)(1) Evaluation due to Repetitive Failures
CR-04-10911, MCC B51 Air Conditioning Unit A/C-3 Making High Pitched Whistle
CR-04-1119, MCC B51 Enclosure Air Conditioner Not Working
CR-03-06001, A/C-3 (MCC B51 AC Unit) TRS not Resolved in a Timely Manner
CR-04-08032, AC-4 not Operating Properly
CR-04-02083, Air bubbles Noted in B51 Enclosure Cooler Sight Glass
CR-04-00969, B61 Enclosure Cooling Unit A/C-4, Operating with Bubbles in the Liquid Line Sightglass
CR-03-00634, The Air Conditioner for MCC B61 was not Maintaining Temperature
CR-05-00127, SBO Diesel UPS Battery #1 Failed Voltage Testing
CR-05-00617, Received HI DP on HVQ*PDIS47, HVQ*FLT3 Closed due to Snow; Required Entry into TS 3.0.3 to Restore
SP-M2-ME-018, Vital MCC Coolers
MP-24-MR-FAP710, Revision 000, Maintenance Rule Functional Failure Evaluation
MP-24-MR-FAP710, Revision 000-02, Maintenance Rule Functional Failures and Evaluations
IM-034060-1, Revision 0, March 1998, Installation, Operation & Maintenance Manual for Air-conditioning Unit EEI P/N: 394
DCM Form 5-1A, Revision 05, Auxiliary Building - MCC B51, B61 Enclosures - Vital Cooling System
Maintenance Rule Functional Failure Evaluation dated January 27, 2005
Drawing 25203-32023, Sheet 55, Revision 6, Control Room A/C Air Cool Condenser MF36A
Drawing 25203-32023, Sheet 53, Revision 8, Control Room A/C System Refrig. Compressor MF22A
Maintenance Rule (a)(1) Evaluation, Revision 0, Control Room Air Conditioning System (2315A)
Maintenance Rule Scoping Table, Vital SWGR Emergency Cooling
Unit 3 Control Room Logs

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

MP-13-PRA-FAP01.1, Revision 000, Performing Risk Reviews
MP-20-OM-FAP02.1, Revision 001-02, Shutdown Risk Management

MP-20-WM-FAP02.1, Revision 009-00, Conduct of On-Line Maintenance
NUMARC 93-01, Revision 2, NEI Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
Millstone Nuclear Power Station Unit 3 Technical Specifications L.C.O 3.3.2 (Table 3.3-3)
Millstone Nuclear Power Station Unit 3 (MNPS-3) Final Safety Analysis Report (FSAR)
CR-05-00550, Unplanned LCO Entry (3.3.2) due to 3HVR*FN6A starting Unexpectedly, followed by MB2B 2-4A Sequencer A Trouble
CR-04-09890, 3SIH*PIA oil leakage will exceed the oil reservoir capacity within the SIH pump design mission run time
Major Equipment Schedule
Equipment Out of Service Quantitative Risk Assessment Tool
Unit 2 Control Room Logs
Unit 3 Control Room Logs

Section 1R14: Personnel Performance During Non-Routine Plant Evolutions and Events

Technical Specification 3.0.3, Limiting Condition for Operation
C OP 200.6, Revision 001-02, Storms and Other Hazardous Phenomena (Preparation and Recovery)
CR-05-00633, Organization Response to Weekend Snowstorm
CR-05-00399, Unusual Event Declared Due to Fire
Incident Report Forms
Unit 2 Control Room Logs
Unit 3 Control Room Logs
DNAP-2000, Troubleshooting Sheet
Equipment Out of Service Risk Tool
RP-5, Revision 004-00, Operability Determinations
RECO MP3-001-05, “A” EDG Autotest Circuit Failed, Resulting in Auto Start of 3HVR*FN6A
ISO-New England, Master/Local Control Center Procedure No. 2, Abnormal Conditions Alert
TS 3.3.2, Engineered Safety Features Actuation System Instrumentation
Trouble Shooting Plan, “A” Diesel Sequencer is Displaying a Failure Code and Needs to be Troubleshot to Determine Operability
OP-3250.46A, Revision 006-01, Diesel Sequencer Bypass Procedure
SP-3448E31, Revision 006-02, Train A - diesel Sequencer Actuation Logic Test

Section 1R15: Operability Evaluations

MP2-003-05, On second sound cut of pulsation dampener surveillance SP2664, a rattling noise was detected by accelerometers from the “B” charging pump pulsation dampener
MP3-002-05, Service water brazed joint leak in drain line for “A” train
CR-05-01960, TE-107 Spiking at C03F
CR-05-01959, TE-106 Operation is Erratic
CR-05-01336, Alternate Plant Configuration was Established by Isolating Steam to #2 Steam Generator Pressure Instrument Loop
CR-05-02655, Backup Measurement Method Required for TI-106
CR-05-00748, TI-106 PORV Discharge Temp Appears to be Drifting High

CR-05-02359, Acoustic Valve Monitor for RC-404 Reading 15%
CR-05-00127, SBO Diesel UPS Battery #1 Failed Voltage Testing
CR-05-02751, Unplanned LCO entry TS Section 3.4.6.1, Leakage Detection Systems, Action Statement B
CR-05-02350, Impact of LER 2004-002-00, Inoperable EDG
CR-05-01213, 3CDS*CTV38A T-Ring (Seat) Requires Upgrade to Safety Related Per DCM03 (MEPL) Procedure
CR-05-01689, Retest for Hydrogen Monitor Maintenance Needs Resolution
CR-05-00550, Unplanned LCO Entry (3.3.2) due to 3HVR*FN6A Starting Unexpectedly, Followed by MB2B 2-4A Sequencer A Trouble
RECO MP3-001-05, “A” EGLS Autotest Circuit Failed, resulting in Auto Start of 3HVR*FN6A
RECO/OD MP3-003-05, During a Review of the bill of materials for 3CDS*CTV38A-B, 3CDS*CTV39A-B, 3CDS*CTV91A-B, and 3SWP*ADV39A-B, it was discovered that the T-ring (valve seat) had been improperly evaluated by previous MEPL determinations as being non-safety related (NSR)
RP-5, Revision 004-00, Operability Determinations
OD MP3-001-05, Revision 1, Autotest Circuit Failed, Resulting in Auto Start of 3HVR*FN6A
Millstone Unit 3 Risk Informed Inspection Notebook - Brookhaven
IC-3471A01, Revision 002, Station Blackout Diesel Uninterruptable Power Supply Testing
AMP-24-MR-GDL700, Revision 003, Attachment 3, Availability Assessment for Emergent Conditions
Unit 3 Technical Specifications Section 3.4.6.1, Leakage Detection Systems
TS 3.3.2, Engineered Safety Features Actuation System
Unit 3 Control Room Logs

Section 1R16: Operator Work-Arounds

Unit 2 and 3 Operator Workaround Management Summaries dated 3/11/05
MP-14-OPS-GDL600, Revision 001, Plant Status and Configuration Control
MP-14-OPS-GDL400, Revision 002, Operations Administrative Procedures

Section 1R19: Post-Maintenance Testing

AWO M2-00-19686, "A" Auxiliary Feedwater (AFW) Pump
AWO M2-05-00565, NT
AWO M2-00-12762, Removal/Re-Install Elbow in TDAFW PMP Suction Line
M2-02009, Replacement of Non Vital Transformer
M3-02-06072, 18 Month Battery Charger Load Test
M3-03-13876, “A” EDG Sequence Troubleshooting Plan
AWO M3-05-010226, Auxiliary Feed Pump Cubicle Vents
M3-03-05461, Train “A” Hydrogen Recombiner Instrumentation
M3-05-04144, Replace Leaking Tubing and Fittings per C MP 721A
OP-3314D, Revision 010-12, ESF Building Ventilation and Air Conditioning
CR-05-00617, Received Hi Dip on HVQ*PDIS47, HUQ*FLT3 Clogged due to Snow, Required Entry into TS 3.0.3 to Restore
CR-03-00712, M&TE QA-3000-17G (AEMC Corp Clamp-on Model MN-115) Was Lost

CR-05-03569, PMT Requirements of OP3370A not Consistent with Those in MP-20-GDL40
CR-05-01713, “A” Hydrogen Recombiner Failed the Leak Tightness Verification (SP-3613A.2-01)
CR-05-01689, Retest for Hydrogen Monitor Maintenance Needs Resolution
CR-05-03896, “A” Hydrogen Recombiner may have been Inoperable for Greater than the Tech Spec Allowed Outage Time
SP-2610AO-001, Revision 000-00, "A" AFW Pump and Recirc Check Valve IST, Facility 1
MP-20-WP-GDL40, Revision 03, "Pre and Post Maintenance Testing"
MP-20-WP-GDL40, Revision 002-01, Pre and Post Maintenance Testing C PT 1405, Revision 000, 4.16KV and 6.9KV Motor and Surge Capacitor
DM2-02-0237-03, Replacement Containment Air Radiation Monitor, RM-8123
DM2-00-0363-04, Instrument Air Compressor F3C Replacement, Electrical and I&C Changes
Unit 3 Control Room Logs
DWG EM115A, rev 33, Quench Spray and Hydrogen Recombiner
SP-2664, Charging Pump Pulsation Dampner
SP-3448E31, EDG Sequencer Actuation Logic Test
SP-3646A.1, EDG Operability Test
SP-2402M, Function Test of AFW Ignition
SP-3448
SPROC 6T503-2-01, Mag-Amp Regulating Transformers
NRC IEN 85-91, Load Sequencers for EDG
M3-02-16737, “A” EDG Neutral Grounding Breaker Preventive Maintenance and Doble Testing
CR-05-01888, 15G-14U-2N, “A” EDG Ground Neutral Breaker, Red “Closed” Light on Breaker Cabinet Not Lit.
OP 3370A, Revision 013-07, Electrical Breaker Maintenance

Section 1R22: Surveillance Testing

SP-2606B, Revision 013-01 Containment Spray Pump Operability and Inservice Testing
SP-2604D, Revision 011-00, LPSI Pump Tests
SP-3444A01, Revision 006-02, Steam Generator Water Level Channel Calibration
SP-3444A01-003R, Revision 000-01, Steam Generator Water Level Channel 3 Calibration - Rack Instrumentation Data Sheet
SP-3609.1, Revision 009-03, Quench Spray Pump 3QSS*P3A Operational Readiness Test
SP-3610A.3-001, Revision 005, RHR System Venting & Valve Lineup-Train A
SP-3610A.3-002, Revision 006, RHR System Valve Lineup Verification Train A and Common Header
SP-2609F-004, Revision 001-01, Control Room Ventilation System Filter Testing Efficiency, Facility 2
SP-2609F-002, Revision 011-01, Control Room Ventilation System Filter Testing, Flow and D/P, Facility 2
SP-3630A.5, Revision 008-005, Reactor Plant Component Cooling Water Pump 3CCP*P1B Operational Readiness Test
SP-3630A.5-002, Revision 006-04, Reactor Plant Component Cooling Water Pump 3CCP*P1B Operational Test

SP-3626.7-001, Revision 013-04, Service Water Pump 35SWP*PID Operational Readiness Test
SP-3646A.1, Revision 015-07, Emergency Diesel Generator A Operability Test
SP-2619A-001, Channel Check of Radiation Monitoring Systems
SP-2730B, Main Steam Safety Valve Testing (IPTE)
SP-2605R, 2-Fire-34/94A/94B/94C Stroke Time Test IST
SP-3610A.1, Residual Heat Removal Pump 3RHS*P1A Operational Readiness Test
SPROC OPS04-2-04, Revision 000-01, Sweep of "A" Train RHR to RWST
Surveillance Form SP-3609.1-001, Revision 011-01, Quench Spray Pump 3QSS*P3A Operational Readiness Test
Surveillance Form SP-3610A.1-001, Revision 010-02, 3RHS*P1A Operational Readiness Test in Mode 1, 2, 3, or 4 (when aligned for injection)
MP-UT-5, Revision 000-03, UT Examination Straight Bean Measurements
CR-04-03611, TDAFW Pump Control Valve Failed Stroke Time Test
CR-04-03491, Failed Operations Surveillance on 3CCP*V060
CR-04-03348, Diesel Surveillance Step Could Not Be Performed
CR-04-09799, Failed Surveillance SP-31029 Channel 4ªT
CR-04-10217, Incorrect Revision of Procedure Form Used to Complete Surveillance
CR-04-10814, Surveillance SP-3604C.7 Requires Addition of 2 Valves for Non Operating Boric Acid Pump
CR-05-00281, CCP OP Test Surveillance Requires Additional Steps to Establish Minimum Flow While Shifting Pumps
CR-05-02888, QSS Pump Surveillance Procedures Need to be Revised to be Consistent with RHR and SIH Surveillance Procedures regarding the Auto-Start of 3HVQ*ACUS1A/B
PI&D 25203-26015, Revision 28, Low Pressure Safety Injection System
TS 3/4.6.2, Containment Quench Spray System
TS 4.0.5, IST Test Program
TS 3.5.2, ECCS SubsystemsTarg greater than or equal to 350EF.
FSAR Chapter 6.2, Containment Systems
FSAR Chapter 9.2, Service Water System
OPS Form 3609.1-1, IST Pump Test Plan
Millstone Nuclear Power Station Unit 2 Technical Specifications 3.5.2.a, 4.0.5, and 4.5.2.d
Millstone Nuclear Power Station Unit 2 Technical Specifications 3.3.2.1 and 4.6.2.1.1.b
Millstone Nuclear Power Station Unit 2 (MNPS-2) Final Safety Analysis Report (FSAR), Sections 6.3 and 6.4.
SV-138, (Excerpted) Hydroset Analysis - Dresser Safety Valve Report
MP-05-DC-REF02, Verification Determination and Standards
M3-EV-98-0183, MSSV Set Pressure Test Validation
Dresser Letter dated 2/14/2005, Certificate of Compliance
MTDI 4.02, MTE Calibration
Calibration Verification of Hydroset 1566-2, dated 2/9/2000
MTE-HEI-004, Heise Pressure Gauge
10CFR Part 21, Notification 1566 Hydroset Constant dated August 3, 1990
WC-10, Revision 005-01, Temporary Modifications
WC-10-006, Revision 000, Equipment Used For Testing and Maintenance Design Configuration Review

Section 1R23: Temporary Plant Modifications

CR-05-01595, Negative Trend Identified Regarding Compensatory Cooling of Vital Electrical Equipment Rooms
CR-05-00360, During the Implementation of Comp Cooling for the East 480V Switchgear Room (OP-2315D), Door 203-31-008 (#229) was Improperly Left Closed
CR-05-00370, Follow Up Details for CR-05-00360 Related to Performance of OP-2315D Compensatory Cooling Section for East 480 Volt Switchgear Room
CR-05-00922, Temporary Air Compressor Dryer Prefilters High DP and Lowering Air Pressure
CR-04-10102, Freeze Protection not Apparent on Temporary Air Compressor Dryer Assy.
OP-2332B, Revision 019-08, Instrument Air System
OP-2315D, Revision 012-03, Vital Electrical Switchgear Room Cooling Systems
OP-3225A, Revision 022-01, Circulating Water
Unit 2 Shift Orders
MP3 Shift Turnover Report
WC-10, Revision 005-02, Temporary Modification
MP-14-OPS-GDL200, Revision 009, Attachment 2, MP2 Shift Turnover Report (Sheet 6 of 10)

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan (E-Plan) Changes

Millstone Emergency Plan and Implementing Procedures

Section 1EP6: Drill Evaluation

NEI 99-01, Revision 4, Permanently Defueled Station IC/EALs
Simulator Exercise Guide Approval Sheet, Operational Exercise #3, Loss of All AC Power During Shutdown Conditions, Abnormal Events During RIO, Fuel Handling Accident
MP-26-EPA-REF02, Revision 005, Millstone Unit 2 Emergency Action Level (EAL) Technical Basis Document
Emergency Action Level Tables
LORTSE11, Revision 5, Change 3, Unit 3 Simulator Exam Overview
DNAP-2605, Revision 0, Emergency Preparedness Performance Indicators
MP-26-EPA-GDL01, Revision 002, Attachment 1, Drill and Exercise Performance Indicator Evaluation Form
Millstone Emergency Plan, Revision 30, December 2003, Page I-2 of 8

Section 2OS1: Access Control to Radiologically Significant Areas

Procedures

RPM 1.3.8, Revision 8, Criteria for Dosimetry Issue
RPM 1.4.1, Revision 7, ALARA Reviews and Reports
RPM 1.4.2, Revision 2, ALARA Engineering Controls
RPM 1.4.4, Revision 2, Temporary Shielding
RPM 1.5.2, Revision 4, High Radiation Area Key Control
RPM 1.5.5, Revision 4, Guidelines for Performance of Radiological Surveys

RPM 1.5.6, Revision 3, Survey Documentation and Disposition
RPM 2.1.1, Revision 5, Issuance and Control of RWPs
RPM 2.1.2, Revision 2, ALARA Interface with the RWP Process
RPM 2.2.8, Revision 2, Underwater Radiological Surveys
RPM 2.4.1, Revision 3, Posting of Radiological Control Areas
RPM 2.5.1, Revision 1, Health Physics Requirements for Diving Operations
RPM 2.5.2, Revision 2, Guidelines for Spent Fuel Pool & Flooded Reactor Cavity Work
RPM 2.5.7, Revision 0, SAIC Underwater Personnel Dosimetry Operation
RPM 2.5.8, Revision 2, Staytime Tracking & Multi-badging for Special Work
RPM 5.2.2, Revision 10, Basic Radiation Worker Responsibilities
RPM 5.2.3, Revision 3, ALARA Program and Policy
RPM-GDL-008, Revision 0, Electronic Dosimeter Alarm Setpoints
MP-02-NO-GDL110, Revision 0, oversight by Nuclear Specialists
EN 31013, Revision 2, Spent Fuel Pool Operations

Nuclear Oversight Field Observations (QCFOB):

05-006, 04-04204-036, 04-034, 04-031

Condition Reports:

05-01236, 05-01614, 05-01631, 04-11038, 04-11230, 04-11288, 04-09849, 04-10328, 04-09176, 04-07577

ALARA Council Meeting Notes:

Meetings conducted on: 02/08/2005, 02/16/2005

Section 4OA3: Event Followup

CR-05-00399, Unusual Event Declared Due to Fire
Incident Report Forms

Section 4OA5: Other Activities

NUREG/CR-2792, An Assessment of Residual Heat Removal and Containment Spray Pump Performance Under Air and Debris Ingesting Conditions
PI&D 12179-EM-112A, Revision 42, Low Pressure Safety Injection
SP-3610A.3, Revision 005-03, RHR System Vent and Valve Lineup Verification
MP3-EV-04-0021, Revision 1, Assessment for as Accumulations in the RHR “A” Train Piping as Documented in CR-04-05384, CR-04-05822, and CR-04-06615
M3-EV-04-0021, Revision 2, Assessment for Gas Accumulations in the RHR “A” Train Piping as Documented in CR-04-05384, CR-04-05822, CR-04-0-06615, CR-04-6697 and CR-04-10129
CR-05-00835, Small Amount of Air Found at 3SIL*V875 Following Run on Miniflow Recirculation

MP3-080-04, Revision 0, Operability Determination for CR-04-10129
MP3-080-04, Revision 1, Operability Determination for CR-04-10129

LIST OF ACRONYMS

AC	alternating current
AFW	auxiliary feedwater
ALARA	as low as reasonably achievable
CFR	Code of Federal Regulations
CR	condition report
CRAC	control room air condition
CS	containment spray
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
E-PLAN	emergency plan
EBFS	enclosure building filtration system
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
EHC	electro hydraulic control
EP	emergency preparedness
ESF	emergency safeguards features
FSAR	Final Safety Analysis Report
HX	heat exchanger
IAC	instrument air compressor
IMC	Inspection Manual Chapter
IST	in-service testing
JW	jacket water
LCO	limiting condition of operations
LER	Licensee Event Report
LHRA	locked high radiation area
LOCA	loss of coolant accident
LOE	level of effort
LPSI	low pressure safety injection
MCC	motor control center
MDAFWP	motor-driven auxiliary feedwater pump
MIDS	moveable-in core detector
MR	Maintenance Rule
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
OD	operability determination
OE	operating experience
OP	operating procedure
OWA	operator workaround
PI&R	problem identification and resolution
PM	planned maintenance

PMT	post maintenance testing
RHR	residual heat removal
RPCCW	reactor plant component cooling water
RSS	recirculation spray system
RWP	radiation work permits
SCCM	standard cubic centimeter per minute
SSC	structures, systems and components
SDP	significance determination process
SW	service water
TDAFW	turbine-driven auxiliary feedwater
TS	technical specification
480VACS	480 volt vital AC system
VHRA	very high radiation area