



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415**

November 5, 2009

Mr. David A. Heacock  
President and Chief Nuclear Officer  
Dominion Resources  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

**SUBJECT:     MILLSTONE POWER STATION - NRC INTEGRATED INSPECTION REPORT  
                 05000336/2009004 AND 05000423/2009004**

Dear Mr. Heacock:

On September 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station Unit 2 and Unit 3. The enclosed inspection report documents the inspection results, which were discussed on October 7, 2009, with you and other members of your staff.

The inspection 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 two self-revealing findings of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. Additionally, two licensee-identified violations determined to be of very low safety significance are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, 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 Millstone. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Millstone. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

D. Heacock

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Sincerely,

**/RA/**

Ronald R. Bellamy, Ph.D., Chief  
Projects Branch 6  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000336/2009004 and 05000423/2009004  
w/ Attachment: Supplemental Information

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Sincerely,

**/RA/**

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## U.S. NUCLEAR REGULATORY COMMISSION

## REGION I

Docket No.: 50-336, 50-423

License No.: DPR-65, NPF-49

Report No.: 05000336/2009004 and 05000423/2009004

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Power Station, Units 2 and 3

Location: P. O. Box 128  
Waterford, CT 06385

Dates: July 1, 2009 through September 30, 2009

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Enclosure

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## SUMMARY OF FINDINGS

IR 05000336/2009004, 05000423/2009004; July 1, 2009 – September 30, 2009; Millstone Power Station Unit 2 and Unit 3; Refueling and Other Outage Activities and Follow-up of Events.

The report covered a three-month period of inspection by resident and region-based inspectors. Two Green findings, one of which was a non-cited violation (NCV), 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." Findings for which the significance determination process (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 4, dated December 2006.

### Cornerstone: Mitigating Systems

- Green. A violation of 10 CFR 50, Appendix B, Criteria V dispositioned as an NCV was identified for Dominion's failure to provide adequate operating procedures that were appropriate for the circumstances to operate the Unit 2 charging pumps during reactor shutdown. Specifically, on July 9, 2009, the operators were required to raise pressurizer level while drawing a bubble in the pressurizer in preparation for transitioning from mode 5 to mode 4. Dominion started the "B" positive displacement charging pump without first opening the charging header isolation valves and damaged two relief valves in the charging line. Neither of the operating procedures in use for this evolution required the charging header isolation valves to be opened.

This event was more than minor because if left uncorrected, the performance deficiency had a potential to lead to a more significant safety concern. This finding is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding has a cross-cutting aspect in the area of human performance, maintaining complete accurate and up-to-date procedures, because Dominion did not provide an operating procedure that was appropriate for accomplishing the task under the circumstances [H.2.c].

### Cornerstone: Initiating Events

- Green. A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to provide timely and effective corrective actions for known degraded conditions on the Unit 2 VR-11 and VR-21 120-volt AC non-vital instrument power supplies. Specifically, VR-11 and VR-21 were known to cycle on and off repeatedly whenever an electrical disturbance on the grid affected the input supply voltages from their respective regulating transformers. The degraded condition on the instrument buses had not been corrected despite numerous prior opportunities and ultimately led to a reactor trip on July 3, 2009. Dominion entered this issue into their corrective action program (CR340569 and CR340579). Interim corrective actions included the installation of dedicated uninterruptible power supplies (UPS) for the Electro-Hydraulic Control (EHC) system and feedwater level control system loads prior to reactor startup. Final

corrective actions to install a larger UPS to power the VR-11 and VR-21 DC buses are under engineering evaluation.

This finding is more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Dominion did not implement effective interim corrective actions, nor did they take timely final corrective actions to prevent recurrence of the power cycling of the VR-11 and VR-21 instrument buses in time to prevent a reactor trip on July 3, 2009. The inspectors performed a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity [P.1.d].

#### **Other Findings**

Two violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

**REPORT DETAILS**Summary of Plant Status

Units 2 & 3 operated at or near 100 percent power throughout the inspection period with the following exception. Unit 2 tripped from 100 % power on July 3, 2009, and returned to 100% power on July 26, 2009.

**1. REACTOR SAFETY****Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**1R01 Adverse Weather Protection (71111.01).1 Seasonal Site Inspectiona. Inspection Scope (1 Sample)

The inspectors reviewed the site's readiness for hurricane season. The inspectors reviewed applicable procedures and performed a partial walkdown of the Unit 2 service water (SW) system, walkdowns of the Unit 2 intake structure, fire pump house, flood doors, and reviewed preventive maintenance on selected hurricane and tornado doors to determine the condition of the installed equipment designed to protect the site from the effects of a hurricane and verify that the required emergency equipment for hurricanes and flooding was available. The inspectors reviewed the Unit 2 and Unit 3 Updated Final Safety Analysis Report (UFSAR) and Technical Specifications (TS) and compared the analysis with procedure requirements to ascertain that procedures were consistent with the UFSAR. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Impending Adverse Weather Conditions Inspectiona. Inspection Scope (1 Sample)

The inspectors reviewed the station's readiness for potential adverse weather conditions on August 21, 2009, due to the approach of Hurricane Bill. The most likely adverse weather conditions were high winds and high surf, flooding was not expected from this storm. The inspectors walked down both intake structures and the external areas inside the fence. The inspectors also reviewed Dominion's adverse weather preparation procedure and interviewed the shift managers to ensure that Dominion's preparations were consistent with Dominion's design requirements and risk analysis assumptions. Documents reviewed during the inspection are listed in the Attachment.



b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope (2 Samples)

The inspectors performed two partial system walkdowns during this inspection period. The inspectors reviewed the documents listed in the Attachment to determine the correct system alignment. The inspectors performed a walkdown of each system to determine if the critical portions of the selected systems were correctly aligned, in accordance with the procedures, and to identify any discrepancies that may have had an effect on operability. The walkdowns included selected switch and valve position checks, and verification of electrical power to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The following systems were reviewed based on their risk significance for the given plant configuration:

Unit 2

- On August 7, 2009, the "B" Emergency Diesel Generator (EDG) when the "A" EDG was out-of-service (OOS) for surveillance testing; and

Unit 3

- Waterford Domestic Water cross tied to Millstone Fire Protection Loop while all fire pumps were isolated for maintenance.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (1 Sample)

The inspectors completed a detailed review of the alignment and condition of the Unit 2 High Pressure Safety Injection (HPSI) system. The inspectors performed a walkdown of the system to determine whether critical portions, such as breakers and switches, were aligned in accordance with procedures and to identify any discrepancies that may have had an adverse effect on operability. The inspectors also reviewed the system health reports, Condition Reports (CRs), and maintenance rule evaluations to determine whether equipment 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 (71111.05Q)

a. Inspection Scope (3 Samples)

The inspectors performed walkdowns of three fire protection areas. 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 these 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 compared the existing conditions of the areas to the fire protection program requirements to determine if all program requirements were being met. Documents reviewed during the inspection are listed in the Attachment. The fire protection areas reviewed included:

Unit 3

- Turbine Building Basement Floor Area El. 7'-0" and 14'-6", Fire Area TB-2, Zone A;
- Main Steam Valve Enclosure El. 12'-6" through 70'-0", Fire Area MSV-1; and
- Turbine Building Mezzanine El. 38'-6", Fire Area TB-2, Zone C.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope (2 Samples)

The inspectors observed simulator-based licensed operator requalification training for Unit 2 on July 31, 2009, and for Unit 3 on July 28, 2009. The inspectors evaluated crew performance in the areas of clarity and formality of communications, ability to take timely actions, prioritization, interpretation, and verification of alarms, procedure use, control board manipulations, oversight and direction from supervisors, and command and control. Crew performance in these areas was compared to Dominion management expectations and guidelines as presented in OP-MP-100-1000, "Millstone Operations Guidance and Reference Document." The inspectors compared simulator configurations with actual control board configurations. The inspectors also observed Dominion evaluators discuss identified weaknesses with the crew and/or individual crew members, as appropriate. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (1 Sample)

The inspectors reviewed one sample of Dominion's evaluation of degraded conditions, involving the Unit 3 auxiliary building ventilation system for maintenance effectiveness during this inspection period. The inspectors reviewed Dominion's implementation of the "Maintenance Rule," 10 CFR 50.65. The inspectors reviewed Dominion's ability to identify and address common cause failures, the applicable maintenance rule scoping document for the auxiliary building ventilation system, the current classification of this system in accordance with 10 CFR 50.65 (a)(1) or (a)(2), and the adequacy of the performance criteria and goals established for the system, as appropriate. The inspectors also reviewed recent system health reports, CRs, apparent cause determinations, functional failure determinations, operating logs, and discussed system performance with the responsible system engineer. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope (7 Samples)

The inspectors evaluated online risk management for emergent and planned activities. The inspectors reviewed maintenance risk evaluations, work schedules, and control room logs to determine if concurrent planned and emergent maintenance or surveillance activities adversely affected the plant risk already incurred with out-of-service (OOS) components. The inspectors evaluated whether Dominion took the necessary steps to control work activities, minimize the probability of initiating events, and maintain the functional capability of mitigating systems. The inspectors assessed Dominion's risk management actions during plant walkdowns. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the conduct and adequacy of risk assessments for the following maintenance and testing activities:

Unit 2

- June 26 through July 1, 2009, high iron concentration detected in the containment atmosphere and a containment entry at power;
- July 3 through July 6, 2009, troubleshooting following the reactor trip on July 3, 2009;
- Shutdown risk assessment (yellow) during Reactor Coolant System (RCS) drain down into reduced inventory operations on July 10, 2009;

- July 18 through July 21, 2009, troubleshooting efforts to determine the cause of Emergency Building Filtration System (EBFS) Test failures;
- Online risk assessment (yellow) during "B" EDG Overhaul and "C" HPSI pump surveillance testing on August 21, 2009;
- July 29, 2009 loss of all Unit 2 instrument air compressors; and

### Unit 3

- September 11, 2009, the inspectors followed Dominion's efforts in response to valve 3HDL-V-271 ejecting its bonnet.

#### b. Findings

No findings of significance were identified.

### 1R15 Operability Evaluations (71111.15)

#### a. Inspection Scope (5 Samples)

The inspectors reviewed five operability determinations (OD). The inspectors evaluated the ODs against the guidance contained in NRC Regulatory Issue Summary 2005-20, Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability." The inspectors also discussed the conditions with operators and system and design engineers. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the adequacy of the following evaluations of degraded or non-conforming conditions:

### Unit 2

- CR341606, "SW leaking around bolt on X-53B EDG Lube Oil Heat Exchanger";
- CR342191, "Non-QA Caulk used on Enclosure Building";
- OD000319, Prompt Operability Determination for the "A" RCP RBCCW Cooling Coil Weld, dated August 20, 2009;
- CR345114, "A" Reactor Coolant Pump (RCP) RBCCW Cooling Coil Weld and Base Metal Repair Requires RT," this CR's focus on the ASME code and 10CFR50.55a compliance issue; and
- ODMI, installation of jumper for CEA-61 position indication and CMI.

#### b. Findings

No findings of significance were identified.

### 1R18 Plant Modifications (71111.18)

#### a. Inspection Scope (1 Sample)

To assess the adequacy of the modifications, the inspectors performed walkdowns of selected plant systems and components, interviewed plant staff, and reviewed

applicable documents, including procedures, calculations, modification packages, engineering evaluations, drawings, corrective action program documents, the UFSAR, and TS.

For Unit 2 temporary modification, "Installation of UPS for VR-11/21 FWCS", the inspectors determined whether selected attributes (component safety classification, energy requirements supplied by supporting systems, seismic qualification, instrument setpoints, uncertainty calculations, electrical coordination, electrical loads analysis, and equipment environmental qualification) were consistent with the design and licensing bases. Design assumptions were reviewed to verify that they were technically appropriate and consistent with the UFSAR, and the 10 CFR 50.59 screening was reviewed. The inspectors verified that procedures, calculations, and the UFSAR were properly updated with revised design information. In addition, the inspectors verified that the as-built configuration was accurately reflected in the design documentation and that post-modification testing was adequate to ensure the structures, systems, and components would function properly. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 Samples)

The inspectors reviewed post-maintenance test (PMT) 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 evaluate consistency with the associated design and licensing bases, as well as TS requirements. The inspectors also evaluated whether 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 PMTs were evaluated:

Unit 2

- "A" RCP vapor seal leakage/seal replacement;
- "A" RCP seal cooler weld repair;
- "A" EDG overhaul;
- EBFS filter replacement;
- Charging pump pulsation dampener replacement; and

Unit 3

- DRPI system control rod "P6" controller card repairs.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20).1 Millstone Unit 2 Unplanned Outagea. Inspection Scope (1 Sample)

Dominion began an unplanned outage on Unit 2 on July 3, 2009, when the reactor tripped from a grid disturbance. The outage was completed on July 25, 2009. The inspectors evaluated the outage plan and outage activities to determine if Dominion had considered risk, developed risk reduction and plant configuration control methods, considered mitigation strategies in the event of loss of safety functions, and adhered to licensee and TS requirements. The inspectors observed portions of the shutdown, cooldown, heat up, and start up processes. Additionally, the inspectors performed an initial containment Mode 3 walk down to evaluate the as-found condition of containment. The inspectors also performed a final Mode 3 walk down to ensure that no loose material or debris, which could be transported to the containment sump, were present. The inspectors reviewed CRs to determine if conditions adverse to quality were entered for resolution. Documents reviewed for the inspection are listed in the Attachment. Some of the specific activities the inspectors observed and performed included:

- Reactor shutdown and cooldown;
- Reactor water level drain down to the reactor flange;
- Midloop and reduced inventory operations;
- Containment as-found walk down;
- Review of outage risk plan;
- Yellow Risk – “A” RCP seal placement;
- RCS vacuum fill;
- Containment as-left walk down;
- Reactor Heat up;
- Reactor Startup;
- Reactor power ascension; and
- Unit 2 generator synchronization to the grid.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings for Dominion's failure to ensure that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. The operators started the “B” positive displacement charging pump while the header discharge valves were closed, causing two relief valves to lift and leading to the subsequent damage and leakage from both valves.

Description: On July 9, 2009, Millstone Unit 2 was shutdown in Mode 5, operators were drawing a bubble in the pressurizer, preparing to enter Mode 4, when the operators started the "B" positive displacement charging pump with both discharge header valves, 2-CH-518 and 2-CH-519, isolated. This action lifted the charging pump relief valve, 2-CH-325, and the regenerative heat exchanger thermal relief valve, 2-CH-986, rupturing the bellows assembly for valve 2-CH-986, and creating a leak from the charging header into the auxiliary building drains system.

Dominion did not provide the operators with written procedures that were appropriate for accomplishing the task under the circumstances. The operators were drawing a bubble in the pressurizer using OP-2301G, "Vacuum Fill of the Reactor Coolant system (ICCE)" at step 4.5.10. This step directs starting a charging pump to maintain pressurizer level between 35% and 45%. The operators transitioned to OP-2304E, "Charging System" and started the "B" charging pump using step 4.2, "Normal Charging Pump Operation" without first opening 2-CH-518 and 2-CH-519, which had been previously closed upon completion of the vacuum fill in step 4.3.36 of OP-2301G. The rapid spike in charging header pressure caused 2-CH-325 to lift and fail to reseal, and 2-CH-986 to lift and rupture the relief valve bellows assembly. Neither procedure in use directed the operators to first open 2-CH-518 and 2-CH-519 as either a step in the procedure or as a prerequisite to or precaution for using the procedure.

Analysis: This finding was associated with the procedure quality attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that mitigate plant transients and reactor accidents. This event was more than minor because if left uncorrected, the performance deficiency had a potential to lead to a more significant safety concern. The inspectors performed a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available.

The finding has a cross-cutting aspect in the area of human performance, maintaining complete, accurate and up-to-date procedures, because Dominion did not provide an operating procedure that was appropriate for accomplishing the task under the circumstances (H.2.b).

Enforcement: 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedure, Drawings" states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, on July 9, 2009, Dominion did not provide adequate procedural direction to accomplish the task of charging to the pressurizer while conducting a vacuum fill of the RCS. As a result, the charging discharge header thermal relief valve lifted and damaged the bellows assembly, resulting in a leak from the charging header into the auxiliary building drains system. Because this violation is of very low safety significance (Green) and Dominion entered this issue into their corrective action system (CR-340852), this violation is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000336/2009004-02 Inadequate Procedures Caused a Leak from the Charging Header into the Auxiliary Building Drain System)**

1R22 Surveillance Testing (71111.22)a. Inspection Scope (6 Samples)

The inspectors reviewed surveillance activities to determine whether the testing adequately demonstrated equipment operational readiness and the ability to perform the intended safety-related function. The inspectors attended pre-job briefings, reviewed selected prerequisites and precautions to determine if they were met, and observed the tests to determine whether they were performed in accordance with the procedural steps. Additionally, the inspectors reviewed the applicable test acceptance criteria to evaluate consistency with associated design bases, licensing bases, and TS requirements and that the applicable acceptance criteria were satisfied. The inspectors also evaluated whether 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

- OP-2301E, "Draining the RCS (ICCE)," Rev 024-02;
- SP-2609E, "Enclosure Building Negative Pressure Test," Rev 008-01;
- SP-2610BO, "TDAFW Tests, Operating", Rev 000-08;

Unit 3

- SP 3616A.1-003, "Stroke Time Test of SG Atmospheric Relief Valves, Relief Bypass Valves, and Relief Isolation Valves," Rev. 008-01;
- C SP 600.6-001, "Electric Fire Pump M7-8 Monthly Operability Demonstration," Rev. 003-01; and
- SP 3443D21-001, "Protection Set Cabinet IV Operational Test," Rev. 018-07.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness (EP)**1EP2 Alert and Notification System (ANS) Evaluation (71114.02)a. Inspection Scope (1 Sample)

An onsite review was performed to assess the maintenance and testing of Dominion's current ANS. During the inspection, the inspectors interviewed the EP staff who is responsible for overseeing the ANS testing and maintenance of the system. The inspectors reviewed ANS procedures and several versions of the ANS design report to ensure Dominion's compliance with design report commitments for system maintenance and testing. CRs pertaining to the ANS were reviewed for causes, trends, and corrective actions. The inspectors interviewed the EP staff responsible for the new ANS, which is scheduled to be placed in service on October 1, 2009. The inspection was performed in accordance with NRC Inspection Procedure 71114, Attachment 2.



Planning Standard, 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System (71114.03)

a. Inspection Scope (1 Sample)

The inspectors performed a review of Dominion's ERO augmentation staffing requirements and the process for notifying and augmenting the ERO. This review was performed to ensure the readiness of key Dominion staff to respond to an emergency event and to ensure Dominion's ability to activate their emergency facilities in a timely manner. The inspectors reviewed the Dominion ERO roster, training records, and CRs related to the ERO staffing augmentation system. The inspection was performed in accordance with NRC Inspection Procedure 71114, Attachment 3. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04)

a. Inspection Scope (1 Sample)

Since the last NRC inspection of this program area, Dominion implemented various changes to different sections of their Emergency Plan. Dominion had determined that, in accordance with 10 CFR 50.54(q), any change made to the plan, and its lower-tier implementing procedures, had not resulted in any decrease in effectiveness of the plan, and that the revised plan continued to meet the standards in 10 CFR 50.47(b) and the requirements of 10 CFR 50 Appendix E. The inspectors reviewed EAL changes and emergency plan changes, including the changes to lower-tier emergency plan implementing procedures, to evaluate for any potential decreases in effectiveness of the emergency plan. However, this review by the inspectors was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. These changes remain subject to future NRC inspection in their entirety. The inspection was performed in accordance with NRC Inspection Procedure 71114, Attachment 4. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05)

a. Inspection Scope (1 Sample)

The inspectors reviewed a sampling of self-assessment procedures and reports to assess Dominion's ability to evaluate their EP performance and programs. The inspectors reviewed a sampling of CRs from September 2007 through August 2009, initiated by Dominion from drills and audits. Additionally, the inspectors reviewed two event reports for Unusual Events declared on April 6, 2008 and May 24, 2008 at Unit 2, 10 CFR 50.54(t) audits, and a self-assessment report. This inspection was performed in accordance with NRC Inspection Procedure 71114, Attachment 5, Planning Standard, 10 CFR 50.47(b)(14) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Combined Functional Drill

a. Inspection Scope (1 Sample)

The inspectors observed the conduct of a Unit 3 licensed operator training emergency planning drill on August 26, 2009. The inspectors observed the operating crew performance at the simulator and the emergency response organization performance at the emergency operations facility. The inspectors evaluated the classification, notification, and protective action recommendations for accuracy and timeliness. Additionally, the inspectors assessed the ability of Dominion's evaluators to adequately address operator performance deficiencies identified during the exercise.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

a. Inspection Scope (10 Samples)

During the period August 31, 2009 through September 3, 2009, the inspectors performed the following activities to verify that Dominion implemented the radiological environmental monitoring program (REMP), consistent with the Site TS and the Off-Site Dose Calculation Manual (ODCM) to validate that radioactive effluent releases met the design objectives of Appendix I to 10 CFR 50.

Additionally, the inspectors verified that radiological surveys and controls were adequate to prevent the inadvertent release of radioactive material into the public domain. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20 & 50, relevant TS, and with Dominion's procedures.

This inspection activity represents completion of ten samples relative to this inspection area.

REMP Inspections:

- (1) The inspectors reviewed the 2008 Annual Radiological Environmental Operating Report and the 2008 REMP Land Use Census Report to verify that the environmental monitoring programs were implemented as required by the ODCM (Revision 26).
- (2) The inspectors walked down eight of eight air sampling stations (Nos. 1-I, 2-I, 3-I, 4-I, 10-I, 11-I, 15-C, 27-I), two of five aquatic flora sampling stations (Nos. 33-X, 90-C), two of four oyster harvesting stations (Nos. 34-X, 88-X ), two of five seawater sampling locations (32-I, 37-C), and twelve of forty thermo luminescent dosimeter (TLD) monitoring stations listed in the Attachment. The inspectors determined if sampling was performed as described in the ODCM related procedures, and evaluated the sampling equipment material condition.
- (3) As part of the walk down, the inspectors observed the technician collect and prepare for analysis air particulate/iodine filter samples, oyster, and water samples, and verified that environmental sampling was representative of the release pathways as specified in the ODCM, and that sampling techniques were in accordance with procedures.
- (4) Based on direct observation and review of records, the inspectors verified that the meteorological instrumentation was operable, calibrated, and maintained in accordance with the guidance contained in the FSAR, NRC Safety Guide 23, and with Dominion's procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable for wind direction, wind speed, temperature, and delta temperature. The inspectors confirmed that redundant instrumentation was available and that the annualized recovery rate for meteorological data was greater than 90%.
- (5) The inspectors reviewed the calibration/maintenance records for eight air samplers and verified that the air flow calibration equipment was currently calibrated.
- (6) The inspectors reviewed CRs and Nuclear Oversight field observation reports and audits, relevant to the REMP requirements, to evaluate the threshold for which issues are entered into the corrective action program, the adequacy of subsequent evaluations, and the effectiveness of the resolution. The inspectors also reviewed monthly RETS/ODCM effluent occurrence reports to evaluate the adequacy and timeliness of performance indicator information.

- (7) The inspectors reviewed the results of Dominion's quarterly laboratory cross-check program to verify the accuracy of Dominion's environmental air filter, charcoal cartridge, water, biota, and milk sample analyses.
- (8) The inspectors reviewed changes made by Dominion to the ODCM as a result of changes to the land use census or sampler station modifications since the last inspection. The inspectors also reviewed technical justifications for any change in sampling location or frequency and verified that Dominion performed the reviews required to ensure that the changes did not affect its ability to monitor the radiological condition of the environment.

Unrestricted Release of Material from the Radiologically Controlled Area (RCA)

- (9) The inspectors reviewed the contamination control procedures and observed several locations in Unit 2 and Unit 3, where personnel monitored for potentially contaminated material leaving the RCA for unrestricted use.
- (10) The inspectors verified that the radiation monitoring instrumentation (SAM-9, SAM-11, Frisker) was appropriate for the radiation types potentially present and was calibrated with appropriate radiation sources. The inspectors reviewed Dominion's criteria for the survey and release of potentially contaminated material; verified that there was guidance on how to respond to an alarm which indicates the presence of contamination; and reviewed instrument alarm set points to ensure that radiation detection sensitivities are consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and Health Physics Position (HPPOS) 221 for volumetrically contaminated material. The inspectors also reviewed Dominion's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters, and verified that Dominion has not established a release limit by altering the instruments sensitivity through such methods as raising the energy discrimination level or locating the instrument in a high radiation background area.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator (PI) Verification (71151)

.1 Cornerstone: Mitigating Systems

a. Inspection Scope (10 Samples)

The inspectors reviewed Dominion submittals for the PIs listed below to verify the accuracy of the data reported during that period. The PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, were used to verify the basis for reporting each data element. The inspectors reviewed portions of the operations logs, monthly operating reports, and Licensee Event Reports (LER) and discussed the methods for compiling and reporting the PIs with cognizant licensing and engineering personnel. Documents reviewed during the inspection are listed in the Attachment.

Unit 2

- MSPI Auxiliary Feedwater System;
- MSPI Emergency AC Power System;
- MSPI Residual Heat Removal System;
- MSPI Support Cooling Water System;
- MSPI High Pressure Injection Systems;

Unit 3

- MSPI High Pressure Injection Systems;
- MSPI Auxiliary Feedwater System;
- MSPI Emergency AC Power System;
- MSPI Residual Heat Removal System; and
- MSPI Support Cooling Water System.

b. Findings

No findings of significance were identified.

.2 Cornerstone: Emergency Preparedness (EP)

a. Inspection Scope (3 Samples)

The inspectors reviewed data for the Dominion EP PIs, which are: (1) Drill and Exercise Performance (DEP); (2) Emergency Response Organization (ERO) Drill Participation; and, (3) Alert and Notification System (ANS) Reliability. The inspectors reviewed the PI data and its supporting documentation from the third quarter of 2008 through the second quarter of 2009 to verify the accuracy of the reported data. The review of these PIs was performed in accordance with NRC Inspection Procedure 71151, using the acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 5.

Additionally, the inspectors performed NRC Temporary Instruction (TI) 2515/175, ensured the completeness of Dominion's completed Attachment 1 from the TI, and forwarded the data to NRC Headquarters.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope (1 Sample)

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 follow-up, the inspectors performed a daily screening of items entered into Dominion's corrective action program. This was accomplished by reviewing the description of each new CR and attending daily management review committee meetings. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Annual Sample- Emergency Lighting Units (ELUs) High Failure Rate

a. Inspection Scope (1 Sample)

The inspectors reviewed Dominion's evaluation and corrective actions associated with the continued adverse failures of emergency lighting units. This trend was the subject of NCV 05000423/2007007-04 and has continued. The inspectors reviewed related CRs and associated actions against the requirements of Dominion's corrective action program to ensure that the full extent of the issues were identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized. The inspectors interviewed relevant station personnel, and reviewed applicable station procedures and surveillance test results. The inspectors reviewed the latest revision of Dominion's maintenance rule (a)(1) action plan and associated actions to ensure the extent of the failure information was incorporated and actions were prioritized and scheduled as appropriate. Documents reviewed during the inspection are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that Dominion's proposed corrective actions were reasonable with respect to the ELU issues. Dominion appropriately determined the causes of the failures and initiated actions that would address the causes. Dominion's implementation of the periodic replacement of station ELU batteries has been completed. The inspectors noted that Dominion's plan to move twelve ELUs with high failure rates out of their harsh environments has been deferred several times. This plan is an important part of reducing ELU failures and this should have been reflected in the prioritization of the corrective actions. Currently, the ELUs are scheduled to be moved in fiscal year (FY) 2010. During the review, the inspectors reviewed operating procedures OP-2344B and OP-3344B. These procedures disable

the ELUs when their power supply is isolated. The inspectors noted that the procedures did not include declaring these ELUs inoperable or implementing compensatory measures while the ELUs are disabled. Dominion has entered this into their corrective action program as CR 346470.

.3 Annual Sample- Unit 2, "A" Reactor Coolant Pump Seal Cooler Weld

a. Inspection Scope (1 Sample)

The inspectors interviewed several Dominion employees and reviewed a selection of documents associated with the repair of a Reactor Coolant System pressure boundary leak in the piping to the Millstone Unit 2, "A" Reactor Coolant Pump (RCP) seal cooler. The inspection was performed in accordance with Inspection Procedure 71152, Corrective Action Program Inspection and the related Sections of the ASME Code. This issue is being treated as an Unresolved Item (URI) pending completion of the NRC's inspection and assessment of Dominion's performance relative to this repair activity.

b. Unresolved Item

Introduction: During a recent Problem Identification and Resolution Inspection, the inspectors reviewed Dominion's conformance with the specifications of ASME Code Section XI and Section III relative to repair of a pressure boundary leak condition that affected the "A" RCP seal cooler piping, a ASME Class I component.

Description: Dominion identified a weld leak affecting the Millstone Unit 2, "A" RCP seal cooler piping on July 13, 2009, an ASME Class I component. The affected piping is 1.5" OD and is part of the reactor coolant pressure boundary. The repair was initiated in accordance with ASME Section XI, which directed Dominion to ASME Section III for weld repair completion and post repair non-destructive examination. On July 17, 2009, Dominion completed the repair welding, and subsequently returned the plant to power on July 25, 2009. Aspects concerning Dominion's performance with regard to this repair activity remain to be reviewed and assessed to ascertain conformance with the applicable ASME Code and NRC regulatory requirements. **URI 05000336/2009004-03.**

4OA3 Follow-up of Events (71153)

.1 (Closed) LER 05000336/2009001-00, Unit 2 Reactor Trip due to High Pressurizer Pressure

- a. On July 3, 2009, Unit 2 tripped while at 100% power when a lightening strike caused a grid disturbance, the effects of which propagated into the on site electrical distribution system. Non-vital 120 volt AC instrument busses VR-11 and VR-21 cycled repeatedly which momentarily interrupted power to the Electro-Hydraulic Control (EHC) system. This caused the turbine stop valves to close without generating a turbine trip from the electrical transient. The reactor tripped on high RCS pressure after a five second delay from the RCS pressure increase (partial load rejection without a turbine trip signal). The pressurizer PORV lifted at 2397 psig as designed and the steam generator code safety valves also lifted momentarily. Following the reactor and turbine trip, off-site power

automatically swapped from the Unit 2 normal station service transformer (NSST) to the reserve station service transformer (RSST) as designed. Operations entered emergency operating procedure (EOP) 2525, "Standard Post Trip Actions." Operators also took action in accordance with station procedures to manually trip both SG feed pumps and closed the feed water block valves for both SGs due to main feed regulating valve lockup caused by the electrical transient on VR-11 and VR-21. Following the standard post trip actions and event diagnostic chart review, the operating crew transitioned to EOP 2526, "Reactor Trip Recovery." The operating crew determined that all safety functions were met.

The inspectors responded to the control room and evaluated the adequacy of operator actions in accordance with approved procedures and TS implications. The inspectors performed walk downs and interviewed personnel to verify that a lighting strike on-site had not occurred and the expected credited off-site power supplies were operable. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green finding for Dominion's failure to provide timely and effective corrective actions for known degraded conditions on the VR-11 and VR-21 120-volt AC non-vital instrument power supplies. Specifically, VR-11 and VR-21 were known to cycle on and off repeatedly whenever an electrical disturbance on the grid affected the input supply voltages from their respective regulating transformers. The degraded condition on the instrument buses had not been corrected despite numerous prior opportunities and ultimately led to a reactor trip on July 3, 2009. This degraded electrical system response had been previously observed during the Unit 2 reactor trip on May 22, 2008, and had caused a similar plant response, as well as during several other more recent electrical grid disturbances.

Description: On July 3, 2009, Millstone Unit 2 was operating at 100% power when lightning struck an offsite power line approximately 10 miles from the plant, causing an offsite grid disturbance. At 13:04, the grid disturbance propagated through the high voltage distribution system and caused internal voltage fluctuations on 120-volt AC non-vital instrument power supplies, VR-11 and VR-21, causing the turbine stop valves to close without an accompanying turbine trip signal. This load rejection caused the reactor to trip five seconds later from a valid high RCS pressure signal. The electrical transient on VR-11 and VR-21 also caused the main feedwater regulating valves to lock up in the 100% power position, which subsequently caused both SG levels to rapidly rise beyond the high level alarm setpoints. The operators responded by tripping the turbine-driven main feedwater pumps prior to exceeding 100% level in the SGs.

The Dominion Event Review Team (ERT) concluded that the probable cause of the July 3 event was the degraded cycling response of VR-11 and VR-21 to an offsite grid disturbance. This issue had most recently been identified on May 22, 2008, when an offsite grid disturbance caused VR-11 and VR-21 to exhibit a similar degraded system response. The basic problem with VR-11 and VR-21 had been identified and entered into the corrective action process as early as 2001. The long-term corrective actions for this adverse condition, to power VR-11 and VR-21 from a large uninterruptable power supply (UPS) to prevent the rapid cycling between the normal and alternate power



supplies, UAC1 and UAC3 for VR-11, and UAC2 and UAC4 for VR-21 has still not been implemented. This corrective action had been deferred to June 2010, six months beyond the next refueling outage, 2RFO19. Interim corrective actions, including disabling the normal supply regulated transformer supplies UAC1 and UAC2 to prevent the automatic transfer switches RS-1 and RS-2 (on VR-11 and VR-21) from rapidly cycling between the normal and alternate regulated transformers as well as temporarily removing some important loads from VR-11 and VR-21, did not prevent the July 3 reactor trip.

Previously, grid disturbances on June 28, 2008, February 2, 2009, and April 30, 2009, continued to challenge the Unit 2 operators' ability to maintain positive plant control because of degraded system responses from the cycling of VR-11 and VR-21. These actions included the main feedwater regulating valves lockup, isolation of the letdown system, unexpected steam dump response, and automatic startup of all three charging pumps. In each case, the previous interim corrective actions were ineffective in preventing VR-11 and VR-21 from rapidly cycling and disrupting plant system equipment alignments. Despite the ineffectiveness of the short term corrective actions, Dominion did not schedule the long-term corrective action to install a UPS as the normal power source for VR-11 and VR-21 by the next refueling outage.

Analysis: This finding is more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Dominion did not effectively implement interim corrective actions, nor did Dominion take timely long-term corrective actions to prevent recurrence of the power cycling of the VR-11 and VR-21 instrument buses in time to prevent a reactor trip on July 3, 2009. The inspectors performed a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available.

The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1.d).

Enforcement: No violation of regulatory requirements occurred, because the electro-hydraulic control (EHC) and the main feedwater regulating valve control systems are not safety-related. Because this finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding. Dominion took immediate action to provide dedicated UPS power supplies to the EHC system (DCN DM2-00-0141-09), and to main feedwater regulating valve control system (DCN DM2-00-0143-09), and entered this issue into their corrective action system (CR340569 and CR340579). **(FIN 05000336/2009004-01 Inadequate and Untimely Corrective Actions Causes Reactor Trip)**

#### 4OA5 Other Activities

##### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

###### a. Inspection Scope (1 Sample)

During the inspection period, the inspectors performed the following observations of security force personnel and activities to ensure they were consistent with Dominion security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. Specifically, the inspectors:

- Observed operations within the central and secondary alarm stations;
- Observed security officers on compensatory posts and in ready rooms;
- Observed security force shift turnover activities; and
- Observed security officers conducting access control activities.

###### b. Findings

No findings of significance were identified.

##### .2 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Controls (60855.1)

###### a. Inspection Scope (1 Sample)

The inspectors reviewed routine operations and monitoring of the ISFSI. The inspectors walked down the ISFSI with a Senior Radiation Protection Technician and a Plant Equipment Operator. The inspectors performed independent dose rate measurements of the storage modules, and confirmed module temperatures were within the required limits. The inspectors also reviewed plant equipment operator logs for ISFSI surveillances and environmental (ISFSI) dosimetry records. Radiological control activities for the ISFSI were evaluated against 10 CFR 20, ISFSI Technical Specifications, and Dominion's procedures.

###### b. Findings

No findings of significance were identified.

#### 4OA6 Meetings, including Exit

##### Exit Meeting Summary

On October 7, 2009, the resident inspectors presented the overall inspection results to you and members of your staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

#### 4OA7 Licensee Identified Violations

The following violations of very low safety significance (1 Green and 1 Severity Level IV) were identified by Dominion and are violations of NRC requirements which meet the

criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- 10 CFR Part 50.54(q), "Conditions of licenses," states in part, "A holder of a nuclear power reactor operating license under this part, or a combined license under part 52 of this chapter after the Commission makes the finding under 52.103(g) of this chapter, shall follow and maintain in effect emergency plans which meet the standards in 50.47(b) and the requirements in Appendix E of this part." Contrary to this requirement, on several occasions in December 2008 and January 2009, the Emergency Medical Technician (EMT) position was not staffed as required by the Emergency Plan. Prior to 2007, the Millstone Power Station fire brigade was an independent organization responsible for meeting the qualified EMT Emergency Plan requirement. In 2007, the site fire brigade became part of the Operations Department and Plant Equipment Operators (PEO) became responsible for meeting the EMT requirement. This change to the organizational structure impacted the Emergency Plan in that some of the PEOs did not maintain their EMT qualifications. This resulted in the EMT position not being staffed on multiple occasions in December 2008 and January 2009. The Dominion Emergency Plan requires the EMT position to be staffed on a continuous basis. This finding is of very low safety significance based on a SDP Phase 1 screen utilizing IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process." Upon identifying the issue, Dominion entered the issue into their corrective action program as CR 07-12258 to capture the non-compliance with the Emergency Plan. The finding is licensee-identified because it was discovered by Dominion during a self evaluation in 2007 (CR-07-12258).
- 10 CFR Part 50.54(q), "Conditions of licenses," states in part, "The nuclear power reactor licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of 50.47(b) and the requirements of Appendix E to this part." Contrary to this requirement, Dominion's replacement of the dedicated site fire brigade with designated personnel with collateral duties was not evaluated for a possible decrease in effectiveness of the Emergency Plan. This change impacted the Emergency Plan in that it facilitated the EMT position not being staffed on multiple occasions. Therefore, Dominion should have performed a 50.54(q) screening to evaluate the potential impact to the Emergency Plan. The finding is licensee-identified because it was discovered by Dominion during an audit in 2008. Upon identifying the issue, Dominion entered the issue into their corrective action program as CR 08-00691. The deficiency was evaluated using the traditional enforcement process since the failure to screen the organizational change could adversely impact the NRC's ability to carry out its regulatory mission. Because this finding is of very low safety significance and has been entered into the corrective action program this finding is being treated as a Severity Level IV Non-Cited Violation of 10 CFR 50.54(q).

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel**

G. Auria	Nuclear Chemistry Supervisor
B. Bartron	Supervisor, Licensing
P. Baumann	Manager, Security
C. Chapin	Supervisor, Nuclear Shift Operations Unit 2
A. Chyra	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
L. Crone	Supervisor, Nuclear Chemistry
J. Dorosky	Health Physicist III
M. Finnegan	Supervisor, Health Physics, ISFSI
R. MacManus	Director, Nuclear Station Safety & Licensing
A. Gharakhanian	Nuclear Engineer III
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
J. Hoagland	Operations SPROC Coordinator
C. Houska	I&C Technician
A. Jordan	Site Vice President
J. Kunze	Supervisor, Nuclear Operations Support
B. Krauth	Licensing, Nuclear Technology Specialist
J. Laine	Manager, Radiation Protection/Chemistry
B. Barron	Manager, Nuclear Oversight
P. Luckey	Manager, Emergency Preparedness
C. Maxson	Director, Engineering
S. Smith	Manager, Engineering
J. Semancik	Plant Manager
M. Roche	Senior Nuclear Chemistry Technician
M. O'Connor	Manager, Operations
A. Smith	Asset Management
R. Riley	Supervisor, Nuclear Shift Operations Unit 3
J. Spence	Manager, Training
H. Thompson	System Engineer
S. Turowski	Supervisor, Health Physics Technical Services
C. Vournazos	IT Specialist, Meteorological Data

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened and Closed

05000336/2009004-01	FIN Inadequate and Untimely Corrective Actions Causes Reactor Trip
05000336/2009004-02	NCV Inadequate and Procedures Caused a Leak from the Charging Header into the Auxiliary Building Drain System

#### Closed

05000336/2009001-00	LER Unit 2 Reactor Trip due to High Pressurizer Pressure
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#### Opened

05000336/2009004-03	URI Unit 2 "A" Reactor Coolant Pump Seal Cooler Weld
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### BASELINE INSPECTION PROCEDURES PERFORMED

71122.03 Radiological Environmental Monitoring Program and Radioactive Material Control Program 2PS3

06855.1 Operation of an Independent Spent Fuel Storage Installation 4OA

### LIST OF DOCUMENTS REVIEWED

#### **Section 1R01: Adverse Weather Protection**

AOP 2560, "Storms, High Winds and High Tides," Rev. 010-04

AOP 3569, "Severe Weather Conditions," Rev. 016-00

Building Structures System Health Report, 1<sup>st</sup> Quarter 2009

Fire Doors & Barriers System Health Report, 1<sup>st</sup> Quarter 2009

C OP 200.6, "Storms and Other Hazardous Phenomena (Preparation and Recovery)," Rev. 002-01

MP 2721C, "Protection and Restoration of SW Pump Motor during a PMH," Rev. 007-02

MRULE-RTF-07-017, "Run-to-Failure Evaluation for Structures: Doors and Barriers 3900," Rev. 0

SP 2665, "Building Flood Gate Inspections," Rev. 005-02

CR324762

CR343918

CR343511

53M30703488

53M30704265

53M30704358

53M30708926

53M30805046

5310225078, Perform Quarterly Run of the Volvo DG

C OP 200.6, "Storms and Other Hazardous Phenomena (Preparation and Recovery)," Rev. 002-01

**Section 1R04: Equipment Alignment**

SFP 31, "Fire Water System Back-up Supply Plan," Rev. 004-01  
25203-26011 Sheet 1, "Fire Protection," Rev. 50  
25212-26970 Sheet 1, "Fire Protection System," Rev. 6  
High Pressure Safety Injection (HPSI) System Health Report, 2<sup>nd</sup> Quarter 2009  
Maintenance Rule Functional Failure Evaluation CR-08-02045, CR-08-03534, CR-08-03535  
M2-EV-08-0027, "Generic Letter 2008-01 Response Millstone Unit 2," Rev. 0  
OP 2308-001, "HPSI System Valve Alignment, Facility 1," Rev. 000-00  
OP 2308-002, "HPSI System Valve Alignment, Facility 2," Rev. 000-01  
OP 2346C-004, "B" DG Service Water Valve Alignment, Rev. 000-03  
OP 2346C-005, "B" DG Starting Air Valve Alignment, Rev. 0000-00  
OP 2346C-006, "B" DG Jacket Water Valve Alignment, Rev. 000-01  
OP 2346C-007, "B" DG Lube Oil Valve Alignment, Rev. 000-01  
CR-08-02045  
CR-08-05137  
CR-08-07885  
CR113720

**Section 1R05: Fire Protection**

Millstone Unit 2 Fire Hazards Analysis, Rev. 9  
Millstone Unit 3 Firefighting Strategies, April 2002  
Millstone Unit 3 Fire Protection Evaluation Report

**Section 1R11: Licensed Operator Requalification Program**

Evaluated Simulator Exam (ES09501B)  
LORTSE59, "MP3 LOIT/LORT Operational Exam #59," Rev. 1

**Section 1R12: Maintenance Effectiveness**

Auxiliary Building Ventilation System Health Reports 1<sup>st</sup> Quarter 2008 and 2009  
Auxiliary Building Ventilation Unavailability July 2007 to July 2009  
DM3-00-0314-08, "Abandon Temporary Fan Doors M33HVR-FN18A/B Replace with Suitable Portable Fans"  
Maintenance Rule Evaluations for the following, CR-07-09177, CR-07-10163, CR-07-11424  
OP 3314J, "Auxiliary Building Emergency Ventilation and Exhaust," Rev. 005-05  
T-01657S3, "MP3 Auxiliary building Loss of Ventilation Analysis – CCP, CHS and CCE Equipment Areas," Rev. 1  
25212-ER-07-0082, "Temperature Rise of MP3 CCP pumps are subsequent to loss of normal ventilation"  
CR-05-01699  
CR-07-10163  
MRE007027  
MRE007109  
MRE007111  
MRE010748  
53M30409799  
53M30409800

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

AOP-2563, "Loss of Instrument Air," Rev. 009-06  
 OP-2264, "Conduct of Outages," Rev. 012-00  
 OP-2264, Attachment 2, "Shutdown Safety Checklist," Rev. 012-00 completed 7/8/2009  
 MP-20-OM-FAP02.1, "Shutdown Risk Management"  
 Drawing 25203-26009 MP2 Station Air System  
 Drawing 25213-26807 MP2 Instrument Air System  
 Drawing 2503-26938-sheet 1 - MP3 Station Air System  
 MP-CHEM-09-018, Bases for MP2 Containment Air Calculations" dated 7/30/09  
 EOOS Operator Risk Report of Record for 8/21/2009  
 EOOS Operator Risk Report – "what if" scenario for "B" EDG and "C" HPSI header valve  
 FSAR Section 6.7.1, "Enclosure Building Filtration System", Rev. 22.2  
 CR339580, "Detectable Iron on Unit 2 containment air particulate filter" dated 6/26/2009  
 CR340010, "Track from Robotic Crawler left on -22' of Unit 2 CTMT" dated 7/1/09  
 CR3400030, "D" Fan Cooler leakage noted during containment entry" dated 7/1/09  
 CR3400035, "Results of containment inspection on -3' and -22' elevation" dated 7/1/09  
 CR342867, "D" IAC tripped shortly after being placed in lead" dated 7/29/09  
 CR342871, "E" IAC tripped while starting from standby" dated 7/29/09  
 CR342874, "Entered AOP-2563 due to Instrument Air Header Pressure Degrading" dated 7/29/09  
 CR343031, "Corroded pipe at the discharge of IA Compressor F3D" dated 7/29/09  
 CR343120, "Field Change issued for AOP 2563, "Loss of Instrument Air" dated 7/31/09  
 CR344801, "EBFS charcoal laboratory results do not meet acceptance criteria" dated 8/13/09  
 CR344961, "F Instrument Air Compressor Trip shortly after placing in standby" dated 8/15/09  
 CR344972, ""F" Instrument Air Compressor After-cooler cooling fins clogged" dated 8/15/09  
 CR345019, "Enclosure Building D/P went below -0.4 inH2O for Several Seconds during EB Purge" dated 8/16/09

**Section 1R15: Operability Evaluations**

OD000319 A" RCP RBCCW Cooling Coil Weld is NON-Compliant with ASME Code" dated 8/20/09  
 OP-AA-101 ODMI, "Installation of Temporary Modification 2-09-001 for CEA-61" dated 9/14/2009  
 SP-2619A-001, "Control Room Operations Daily Surveillance Mode 1 and 2"  
 FSRC Summary memo for OD000319 dated 8/20/2009  
 ASME Letter to Dominion Subject: "ASME BPVC Section XI, IWA-442.2.2(e) and IWA-4520, 1998 edition through 2007 Edition with 2009 Addenda" dated 8/17/2009  
 CRED-342312, "Use of Non-QA Dow Corning Sealant Materials for Cosmetic Enclosure Building Repairs" dated 12/21/05  
 CRED-342445, "Use of Non-QA Dow Corning Sealant Materials for Closure Sealant Associated with Enclosure Building gate #11 and Skin Restoration" dated 12/21/05  
 CR342191, "Non-Q Caulk used on Enclosure Building" dated 7/22/09  
 CR342312, "Request Use as is CRED fir Non-QA Caulk used for Enclosure Building" dated 7/22/09  
 CR342329, "Caulk applied to bottom lap (interior) of EAST Encl Bldg Blowout Panel" dated 7/22/09  
 CR345114, ""A" RCP RBCCW Cooling Coil Weld and Base Metal Repair Requires RT" dated 8/17/09

**Section 1R18: Plant Modifications**

AWO53102265869

DCN DM2-00-0143-09, "Temporary Design Change to Repower VR-11 Feedwater Regulating Valve Circuitry from UPS" dated 7/7/2009

Drawing M2104-09-98 87000445, Rev. 1

ETAP-040142E, "MP2 Electrical Distribution System Analysis"

PA-79-129-01027E, "MP2 EDG Loading Calculation"

**Section 1R19: Post Maintenance Testing**

OP-2304E, "Charging Pumps", Rev. 016-05

SPROC OPS-09-2-01, "Post-Modification Test of Unit 2 Charging Pumps after Pulsation Dampener Installation (ICCE)", Rev. 000-00

Dominion Nuclear Connecticut Memo OT2-09-29 SUBJ: "C" Charging Pump Solid Dampener DM2-00-0221-08" dated 7/28/2009

OD MP2-002-06, "Charging Pump Nitrogen-filled Pulsation Dampeners"

DCN DM2-00-0220-08, "Replacement of Unit 2 Charging Pump Pulsation Dampeners", Rev. 0

AWO 53102228014 Attachment 2, "Post Maintenance Test Plan SPROC OPS 09-2-01"

CEN 110-001, "Post Repair/Replacement Component Leakage Test" dated 9/17/09

SP 2601K-001, ""B" Charging Pump and Discharge Check IST, Operating" Rev. 000-02 dated 9/17/2009

OP 2304E51-001, ""B" Charging Pump Post Maintenance testing" Rev. 000-03 dated 9/17/2009

NERF No. 2009030 (Echo)

CR340417, "Inspection of Unit 2 RCP motor, motor connection box" dated 7/6/09

CR304829, "Boric acid "as left" on M2P40Am visual inspection results" dated 7/9/09

CR341079, "MP2 P40A RCP as-found motor pump alignment out of spec" dated 7/11/09

CR341123, ""A" RCP oil filter dp high alarm locked in" dated 7/11/09

CR341137, ""A"&"B" RCP Operated in Seal Wear Region Greater than 8 hours" dated 7/12/09

CR341171, "Several "A" RCP alarms received with stable conditions" dated 7/12/09

CR341193, ""A" RCP RBCCW Cooling Coil Leak discovered during NOP/NOT walkdown" dated 7/13/09

CR341911, "RCE Team for "A" RCP Seal Leakage Identified Deficiencies Requiring Resolution" dated 7/19/09

AWO 5310226694, "Repair Cracked Weld on P40A Seal Cooler IAW CRED CR341193" dated 7/17/2009

CRED 341193

ER-AA-NDE-PT-301, "Solvent Removable Liquid Penetrant Data Sheet" dated 7/17/2009

Millstone Unit 2, "A" Reactor Coolant Pump Seal Cooler Flaw Characterization

RCE000983, "A" RCP RBCCW Cooling Leak"

CR343956, "Diesel Surveillance needs enhancement to ensure meeting Tech Spec Criteria", dated 8/6/2009

CR344273, "MRule Unavailability Time for "A" EDG during the "A" SW Pump Motor Bump Check", dated 8/9/2009

CR344801, "EBFS charcoal laboratory results do not meet acceptance criteria" dated 8/13/09

CR344924, "Fluid is leaking out of PI-7985A Gauge", dated 8/14/2009

CR344982, "Unnecessary Unavailability Time is accruing during the EDG Pre-lube and Air Roll", dated 8/16 /2009

CR345019, "Enclosure Building D/P went below -0.4 inH2O for Several Seconds during EB Purge" dated 8/16/09



CR345127, "EDG Unavailability Gap to Excellence", dated 8/17/2009  
 CR345329, "'B" Diesel Generator Local Gauge Board Reset Pushbutton has high resistance" dated 8/19/2009  
 CR345355, "New switches from warehouse for U2 D/G do not meet test criteria" dated 8/19/2009  
 CR345345, "Bolts specified in VTM not long enough to allow installation" dated 8/19/2009  
 CR345354, "Missing tube plug noted at inlet end of X53B (B EDG Lube Oil Cooler)" dated 8/19/2009  
 CR345347, "Interference noted when installing "B" EDG Air Cooler SW inlet Pressure Gauge" dated 8/19/2009  
 CR345457, "Inadequate tagging boundary for "B" EDG jacket water heat exchanger work" dated 8/19/2009  
 CR345458, "Part issued to the field does not match part in the field" dated 8/19/2009  
 CR345583, "Found Control Rack on U2 "B" EDG Fuel pump Sticking when Exercised" dated 8/20/2009  
 SP-2619G-002, "TS3.8.1.1.b - One EDG Inoperable", Rev. 001-08 dated 8/21/2009  
 SP-2624B-001, "'B" EDG Starting Air Vent Valve IST", Rev. 000-03 dated 8/21/2009  
 SP-2613L-001, "Periodic DG Slow Start Operability Test, Facility 2 (Loaded Run)", Rev. 003-05 dated 8/21/2009  
 SP31031, "Flux Mapping System Operation", Rev. 002-01, dated 8/29/2009  
 SP3602A.1, "Rod Cluster Control Assembly Exercise" Rev. 008-05 dated 10/22/2008  
 CR346527, "No Procedure to Implement Tech Spec Action Statement Requirement", dated 8/28/09  
 OP-2346C-002, "'B" DG Data Sheet", Rev. 001-04, dated 8/21/2009  
 OP-2346C-003, "'B" DG Air Roll", Rev. 000-00, dated 8/21/2009

#### **Section 1R20: Refueling and Other Outage Activities**

OP-2202, "Reactor Startup ICCE", Rev. 021-06 dated 7/12/09  
 RCE000981, "A" Reactor Coolant Pump Seal Leakage"  
 CR340316, "CEA A-47 drop time observed during July 3, 2009 reactor trip" dated 7/3/09  
 CR340386, "Bolt Found on Floor of Containment under the "A" RCP" dated 7/6/09  
 CR340398, "#1 and #2 SG Secondary Side Manway leaks" dated 7/6/09  
 CR340415, "The Unit 2 Containment Hatch Outer O-Ring needs to be replaced" dated 7/6/09  
 CR340430, "S/G #1 (X25) secondary manway gasket is leaking (North side)" dated 7/6/09  
 CR340432, "S/G #2 (X26) secondary manway gasket is leaking (South side)" dated 7/6/09  
 CR340468, "Unidentified material identified in -22 ft containment trough" dated 7/6/09  
 CR340852, "Charging pump started with no discharge path aligned" dated 7/9/09  
 CR340932, "Performed Troubleshooting on waste gas system pressure trend" dated 7/9/09  
 CR340936, "Vacuum Fill of RCS Increased RCS Boron Concentration by ~660 ppm" dated 7/9/09  
 CR341172, "OPS experienced trouble with "C" RCP seal during heatup" dated 7/11/09  
 CR341173, "RCP seal bleed off pressure controller PIC-215 controls erratically" dated 7/12/09  
 CR341194, "During NOP/NOT walkdown, discovered Quench Tank relief leaking by the seat" dated 7/13/09  
 CR341911, "RCE Team for "A" RCP Seal Leakage Identified Deficiencies Requiring Resolution" dated 7/19/09  
 CR341970, "Higher than expected dose rates encountered on clean waste temp filters" dated 7/20/09

CR342071, "Too much water processed to the "A" CWMT" dated 7/21/09  
CR342305, "An increase in config control events has occurred during the forced outage" dated 7/22/09  
CR342376, "Controller for 2-AC-11 goes into saturation when Main Exhaust System is shutdown" dated 7/23/09

**Section 1R22: Surveillance Testing**

OP-2301E, "Draining the RCS (ICCE)," Rev. 024-02  
OP-2310D, "SDC Operation for Reduced Inventory," Rev. 000-03  
RCE000984, "Enclosure Building Filtration System (EBFS) Negative Pressure Test Failed Acceptance Criteria", dated 8/11/2009  
SP-2609C, "Enclosure Building Operability," Rev. 007-05  
SP-2609E-001, "Enclosure Building Negative Pressure Test, Facility 1," Rev. 008-01  
SP-2609E-002, "Enclosure Building Negative Pressure Test, Facility 2," Rev. 001-02  
SP-2610BO, "TDAFW Tests, Operating", Rev. 000-08  
OD000323, "Prompt Operability Determination for EBFS CR346097", dated 8/26/2009  
CR341915, "SP2609E EBFS Negative Pressure Test, failed acceptance criteria for Z1 and Z2" dated 7/19/09  
CR342176, "EBFS Discharge Path to the Stack may have a plugged drain header" dated 7/21/09  
CR342178, "EBFS Negative Pressure Test surveillance failure" dated 7/21/09  
CR342191, "Non-Q Caulk used on Enclosure Building" dated 7/22/09  
CR342312, "Request Use as is CRED fir Non-QA Caulk used for Enclosure Building" dated 7/22/09  
CR342327, "Review of Enclosure Building Damage - Sequence of Events" dated 7/22/09  
CR342329, "Caulk applied to bottom lap (interior) of EAST Encl Bldg Blowout Panel" dated 7/22/09  
CR342367, "2-AC-11, Purge Exhaust Filter Outlet Damper fails to OPEN" dated 7/22/09  
CR342414, "SP2609E Requires enhancement" dated 7/23/09  
CR342415, "2R19 as-found EBFS DRAWDOWN test request" dated 7/23/09  
CR342430, "EBFS boundary walkdown observations" dated 7/23/09  
CR342438, "Procedure Change Request to SP2609E and associated forms" dated 7/23/09  
CR342483, "Design Change Request to Increase EBFS Fan Capacity" dated 7/23/09  
CR346097, "Postulated Condition Raises Question Whether Unit 2 EBFS Can Meet its Function" dated 8/17/09

**Section 1EP2: Alert and Notification System (ANS) Evaluation**

MP-PROC-EP-MP-26-EPI-EPMP, Millstone Power Station Emergency Plan, Rev. 38  
Millstone FEMA Approved Design Report, 1984  
Siren Public Alerting System, 1998  
Siren Public Alerting System Update, 2006  
Millstone Power Station Emergency Planning Services Department – Siren System Replacement Evaluation, June 28, 2001  
MP-26-EPA-FAP08, Public Alerting System Administration, Rev. 3  
MP-26-EPA-FAP09, Public Alerting System Test and Maintenance, Rev. 4  
ANS Monthly Maintenance Logs, 2007-2009

**Section 1EP3: Emergency Response Organization (ERO) Staffing and Augmentation System**

MP-26-EPA-FAP101, Management Program for Maintaining Emergency Preparedness, Rev. 3  
 C-OP 606, Communications – Radiopaging and Callback Monthly Operability Test and SERO Testing, Rev. 005-04  
 C-SP 600.2, Communications – Radiopaging and Callback Monthly Operational Test, Rev. 0000  
 C-SP 600.4, ENRS Weekly Operability Test, Rev. 1  
 EP-00003, Director of Station Emergency Operations Training, Rev. 13  
 EP-00008, Manager of Operations; Support Center and Assistants, Rev. 12  
 EP-00159, Meteorological Assistant Training, Rev. 3  
 TRG-7.212, Emergency Plan Training, Training Program Guide, Rev. 22  
 Monthly Communication Drill Records, 2007-2009

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

Millstone Power Station Emergency Plan, Rev. 38  
 EP-AA-101, 10 CFR 50.54 (q) Change Evaluation, Rev. 1  
 MP-26-EPA-FAP06, Emergency Plan Changes, Rev. 4  
 DNAP-3004, Dominion Program for 10 CFR 50.59 and 10 CFR 72.48 – Changes, Tests, and Experiments, Rev. 4  
 10 CFR 50.54 (q) screening and reviews: MP-08-49, MP-08-50, MP-08-51, MP-08-52, MP-08-53, MP-08-54, MP-08-37, MP-08-38, MP-08-39, MP-08-40, MP-08-41, MP-08-42, MP-08-43, MP-08-44, MP-08-45, MP-08-46, MP-08-47, MP-08-48, MP-08-26, MP-08-27, MP-08-28, MP-08-29, MP-08-30, MP-08-31, MP-08-32, MP-08-33, MP-08-34, MP-08-35, MP-08-36, MP-08-13, MP-08-14, MP-08-15, MP-08-16, MP-08-17, MP-08-18, MP-08-19, MP-08-20, MP-08-21, MP-08-22, MP-08-23, MP-08-24, MP-08-01, MP-08-02, MP-08-03, MP-08-04, MP-08-05, MP-08-06, MP-08-07, MP-08-08, MP-08-09, MP-08-10, MP-08-11, MP-08-12, MP-09-01, MP-09-02, MP-09-03, MP-09-04, MP-09-05, MP-09-06, MP-09-07, MP-09-08, MP-09-09, MP-09-10, MP-09-11, MP-09-12, MP-09-13, MP-09-14, MP-09-15, MP-09-16, MP-09-17, MP-09-18, MP-09-19, MP-09-20, MP-07-37, MP-07-38, MP-07-39, MP-07-40, MP-07-41, MP-07-42, MP-07-43, MP-07-44, MP-07-45, MP-07-46, MP-07-47, MP-07-25, MP-07-26, MP-07-27, MP-07-28, MP-07-29, MP-07-30, MP-07-31, MP-07-32, MP-07-33, MP-07-34, MP-07-35, MP-07-36, MP-07-13, MP-07-15, MP-07-16, MP-07-17, MP-07-18, MP-07-19, MP-07-20, MP-07-21, MP-07-22, MP-07-23, MP-07-24, MP-07-01, MP-07-02, MP-07-03, MP-07-04, MP-07-05, MP-07-06, MP-07-07, MP-07-08, MP-07-09, MP-07-10, MP-07-11, MP-07-12

**Section 1EP5: Correction of Emergency Preparedness Weaknesses**

PI-AA-200, Corrective Action, Rev. 7  
 MP-26-EPA-FAP03, Drill and Exercise Manual, Rev. 1  
 Audit 08-03 Emergency Preparedness  
 Audit 09-02: Emergency Preparedness  
 Audit 09-03 Emergency Preparedness  
 SAR000879, 2009 NRC Emergency Preparedness Baseline Inspection Readiness Review  
 CRD 09-01, Dominion Nuclear Connecticut Millstone Station Unit 3 Drill Report  
 CFD 08-04, DNC Millstone Station Ongoing Self-Assessment Drill Report, Unit 2 Training Drills  
 CFD 08-02, DNC Millstone Station Unit 3, NRC/FEMA Evaluated Exercise Report, Rev. 1  
 CFD 07-04, DNC Millstone Station On-going Self-Assessment, Drill Report, Unit 2 Training Drills

Millstone Unit 2, EP Evaluation, Unusual Event Declaration – May 24, 2008 Final Report  
Millstone Unit 2, EP Evaluation, Unusual Event Declaration – April 6, 2008 Final Report

Condition Reports

07-12258, 08-08911, 08-02605, 08-06220, 08-07513, 08-00691, 08-08911, 08-02605, 07-09859, 08-07513, 08-00178, 08-06220 126570, 137328, 137413, 137414, 320120, 325719, 325731, 331221, 332509, 336280, 342095, 342393, 342394, 337461, 338263, 338321, 338323, 341505, 342393, 325731, 325719, 325579, 344585, 327221,

**Section 1EP6: Emergency Preparedness**

Millstone Unit 3 Training Drill CFD 09-04

**Section 2PS3: Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program**

Procedures

RPM 2.5.9, Dry Shielded Canister (DSC) Surveys (ISFSI)  
RPM 1.3.9, Area Monitoring  
MP-22-REC-BAP01, Radiological Effluent Monitoring –Site Dose Calculation Manual  
MP-22-GWP-PRG, Groundwater Protection Program  
REMP-2.8, Groundwater Sampling  
REMP 1.1, Environmental Collection Schedule  
REMP 1.2, Radiological Environmental Monitoring (REMP) Sampling & Analysis  
REMP 1.3, Land Use Census  
REMP 1.4, Quality Control of the Radiological Environmental Monitoring Program  
REMP 1.5, Annual Radiological Environmental Operating Report  
REMP 2.1, Sample Identification and Transmittal to the Contractor for Analysis  
REMP 2.2, Environmental TLD Collection and Distribution  
REMP 2.3, Airborne Particulate and Iodine Sampling  
REMP 2.4, Soil Sampling  
REMP 2.5, Milk Sampling  
REMP 2.6, Terrestrial Biota Sampling  
REMP 2.7, Terrestrial Water Sampling  
ENV 2003, Aquatic Sampling for Radiological Environmental Monitoring Program  
REMP 2.8, Groundwater Sampling  
C SP 400.2/.3, Meteorological Tower Instruments Calibration  
RPM 4.6.24, Small Articles Monitor Calibration  
RPM 4.7.3, Small Articles Monitor Operation  
RPM 2.4.2, Radiological Control of Material & Vehicles

Sampling Sites

Air Particulate/Iodine 1-I, 2-I, 3-I, 4-I, 10-I, 11-I, 15-C, 27-I  
Sea Water Nos. 32-I, 37-C  
Aquatic Flora Nos. 33-X, 90-C  
Oyster Sampling Trays Nos. 34-X, 88-X  
Thermo luminescent Dosimeters Nos. 1-I, 2-I, 3-I, 4-I, 7-I, 10-I, 11-I, 13-C, 15-C, 27-I, 45-I, 57-I

Nuclear Oversight (NO)/Self-Assessment Reports

Audit NO-07-10, ODCM/REMP/EPP

Audit SA-08-02, Emergency Preparedness

Nuclear Oversight Observation Log Reports regarding environmental monitoring/effluent releases

Condition Reports

08-01091, 07-10892, 07-111966, 07-11682, 08-00801, 08-07950, 07-09900, 07-10019, 07-10474,

07-10892, 07-11036, 07-11196, 08-001091, 08-06305, 08-06339, 07-10176, 07-10419, 07-10740, 346931, 107038, 344605, 340635, 326342, 326337, 121248, 121237, 113223, 08-18 (AREVA)

Instrument Calibration Records

Air Sampler Nos. 6084, 6385, 6298, 6280, 6083, 6386, 6277, 6384

Meteorological Instrumentation (Primary & Backup) dated 8/11/2009

Small Article Monitors Nos. 65, 70, 71, 72, 129, 135, 140, 145, 150, 156, 160, 182, 185, 493, 494, 495, 497, 498, 537, 597

Ludlum 177: 208778, 105091, 208812

Miscellaneous Reports

2007 and 2008 Annual Radiological Environmental Operating Reports

Environmental Cross-Check Results of AREVA Environmental Laboratory 4<sup>th</sup> quarter 2007 – 2<sup>nd</sup> quarter 2008

Unit 2 Operator Rounds Log for ISFSI

2009 1<sup>st</sup> and 2<sup>nd</sup> Quarter Meteorological Data Certification

2009 2<sup>nd</sup> Quarter Area (ISFSI) TLD Monitoring Report

**Section 40A1: Performance Indicator (PI) Verification**

NEI 99-02, "Regulatory Assessment Performance Indicator", Rev. 5

ER-AA-SPI-1001, "Implementation of the Consolidated Data Entry (CDE) Reporting for Mitigating System Performance Index (MSPI)" Rev. 1

ER-AA-SPI-1002, "Maintaining the MSPI Basis Document", Rev. 0

Mitigating System Performance Index (MSPI) Basis Document, Millstone Unit 2, Rev. 2

MSPI CDE MP2 AFW Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI CDE MP2 EDG Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI CDE MP2 HPSI Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI CDE MP2 RBCCW Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI CDE MP2 SW Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI CDE MP2 RHR, LPSI and CS Spreadsheet, Millstone Unit 2, August 2008 to August 2009

MSPI MP3 AFW Spreadsheet, July 2008 to June 2009

MSPI MP3 EDG Spreadsheet, July 2008 to June 2009

MSPI MP3 HPSI Charging Spreadsheet, July 2008 to June 2009

MSPI MP3 HPSI SIH Spreadsheet, July 2008 to June 2009

MSPI MP3 RSS Spreadsheet, July 2008 to June 2009

MSPI MP3 SW Spreadsheet, July 2008 to June 2009

M3-EV-08-0035, Evaluation of Gas Void Discovered in the 24" RWST ECCS Supply Line

(CR115088)

ACE014107, Gas Void in RWST ECCS Supply Line (CR115088)

CR349396

MRE006941

MRE007000

MRE007066

MRE007163

MRE007165

MRE007167

MRE007168

MRE007202

MRE007208

MRE007223

MRE007235

MRE007243

MRE007349

MRE010177

MRE010255

MRE010266

MRE010543

MP-PROC-000-DNAP-2605, Emergency Preparedness Performance Indicators, Rev. 8

LI-AA-500, NRC/INPO/WANO Performance Indicator and MOR Reporting, Rev. 0

MP-16-PI-GDL01, Maintenance of NRC Performance Indicators, Rev. 2

Performance Indicator Data, 3<sup>rd</sup> quarter 2008 – 2<sup>nd</sup> quarter 2009

#### **Section 40A2: Identification and Resolution of Problems**

##### CRs

07-09034

07-09319

07-11743

136897

346470

##### Miscellaneous

List of ELU Failures since 04/01/09

Maintenance Rule (a)(1) Evaluation for the Emergency Lighting System, Rev. 2

System Health Reports, Safe Shutdown Lighting, 2008 Q4, 2009 Q1, 2009 Q2

##### Procedures

C-MP-790, "Emergency Light Inspection and Testing", Rev. 3

MP-24-MR-FAP730, "Maintenance Rule (a)(2) Disposition", Rev. 1

OP-2344B, "480 Volt Motor Control Centers", Rev. 013-02

OP-3344B, "480 Volt Motor Control Centers", Rev. 8

PI-AA-200, "Corrective Action", Rev. 5

##### Vendor Manuals

BIRNS Emergency Lighting Fixture Model 4701, Rev. 3

Exide Lightguard F100 Emergency Lighting Units, Rev. 1

Work Orders

M2-07-02847  
M2-08-02457  
M3-06-00018  
M3-08-04959  
53102181290  
53102196284  
53102209384  
53M20806994  
53M30808168

Notifications/Condition Reports

CR341193  
CR340803  
CR340840  
CR348595  
CR348595\*  
CR348678\*

\* Indicates this was generated as a result of this inspection.

Condition Report Engineering Disposition Form

Form DE2-DT-0473-09 dated 7/16/09

Root Cause Evaluation Reports

RCE000983, 'A' RCP RBCCW Cooling Leak, Millstone Unit 2, 7/28/09  
RCE000981, 'A' Reactor Coolant Pump Seal Leakage, Millstone Unit 2

Procedures

"Radiographic Examination Procedure for ASME Boiler and Pressure Vessel Code RT010",  
Rev. 001-01, 9/8/09  
Procedure PI-AA-200, Rev. 8, "Corrective Action Process"

NDE Examination Reports (Data Sheets)

Liquid Penetrant Data Sheet, ECW 1, 2, 3, 4 Seal Cooler, dated 7/15/09 (acceptable)  
Liquid Penetrant Data Sheet, ECW 2 Seal Cooler, dated 7/15/09 (unacceptable)  
Liquid Penetrant Data Sheet, ECW 2 Seal Cooler partial exam, dated 7/15/09 (acceptable)  
Liquid Penetrant Data Sheet, ECW 1, 3, 4 Seal Cooler, dated 7/15/09 (acceptable)  
Liquid Penetrant Data Sheet, ECW 3 Seal Cooler, dated 7/15/09 (unacceptable)  
Liquid Penetrant Data Sheet, ECW 3 re-exam Seal Cooler, dated 7/15/09 (acceptable)  
Liquid Penetrant Data Sheet, ECW 1, 2, 4 Seal Cooler, dated 7/15/09 (acceptable)  
Radiographic Report M2-2453, A RCP seal cooler leak repair, 7/17/09 (info report only)  
Radiographic Report M2-2452, A RCP seal cooler leak repair, 7/16/09 (info report only)

Repair-Replacement Work Order

Weld Data and Inspection Map – WO 53102266944, 9/16/09

Miscellaneous Documents

Dominion Letter (no number) to ASME, Section XI, dated 7/30/09; "Examination Requirements following Defect Removal and Weld Repair, IWA-4422.2.2 (e) and IWA-4520 (1998 Edition with the 2000 Addenda)"

Dominion Letter 09-ZZZ to ASME, Section XI, dated 8/11/09; "Examination Requirements following Defect Removal and Weld Repair, IWA-4422.2.2 (e) and IWA-4520 (1998 Edition)"

ASME, Section XI Letter 09-1315 dated 8/17/09; "ASME BPVC Section XI, IWA-4422.2.2(e) and IWA-4520, 1998 Edition with the 2009 Addenda"

Dominion Letter 09-474, dated 9/22/09; DOMINION NUCLEAR CONNECTICUT, INC. MILLSTONE POWER STATION UNIT 2 ALTERNATE REQUEST RR-89-67 FOR THE P40A RCP SEAL COOLER RETURN TUBING

**Section 4OA3: Event Follow-up**

EOP-2525, "Standard Post Trip Actions," Rev. 022

EOP-2526, "Reactor Trip Recovery," Rev. 18

EOP-2541, Appendix 4, "Follow-up Actions," Rev. 000

EOP-2541, Appendix 8, Plant Cooldown," Rev. 000

RCE000980, Automatic Reactor Trip of July 3, 2009" dated 7/17/09

CR340244, "Millstone Unit 2 experienced a momentary loss of VR11 at 1605 on 7/3/09" dated 7/3/09

CR340326, "VR-21 transfer switch RS-2 has the Retransfer Blocked light in" dated 7/3/09

CR340569, "WO Require to Implement Temporary VR11 UPS Power Supply to EHC" dated 7/7/09

CR340579, "WO Require to Implement Temporary VR11 UPS Power Supply to Unit 2 Feed Reg Valves" dated 7/7/09

Drawing M2 04-09-98 87000451, "Non-Vital AC"

Drawing M2 04-09-98 87000446, "120 VAC One Line Drawing"

Drawing M2 10-29-01 98000017, "Feedwater System"

FWC-01-C, "Feedwater Control System" Lesson Plan dated 3/22/2004

TRM Table 3.6-1, "Containment Isolation Valve List"

FSRC Restart Readiness Review Package dated 7/9/2009

OP-AP-105, "Reactor Shutdown and Trip Report, Millstone Unit 2" dated 7/3/09

OT2-09-023, "Subj: Repower VR-11 Feed Reg Vlv circuitry from UPS" dated 7/8/09

OT2-09-024, "Subj: Install UPS to power the EHC Cabinet (C-40)" dated 7/8/09



## LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
AOP	Abnormal Operating Procedure
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
ASP	Auxiliary Shutdown Panel
CBM	Condition Base Monitoring
CCP	Component Cooling Pump
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Condition Report
DEP	Drill and Exercise Performance
DG	Diesel Generator
DNB	Departure from Nucleate Boiling
DNC	Dominion Nuclear Connecticut
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
DSC	Dry Shielded Canister
EAL	Emergency Action Level
EBFS	Enclosure Building Filtration System
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EHC	Electro-Hydraulic Control
ELU	Emergency Lighting Units
EMP	Emergency Medical Technician
EOP	Emergency Operating Procedure
EP	Emergency Preparedness
EPP	Environmental Protection Program
ERO	Emergency Response Organization
ERT	Event Review Team
ESAS	Engineered Safety-Feature Actuation System
ESF	Engineered Safety Feature
FSAR	Final Safety Analysis Report
FY	Fiscal Year
HPSI	High Pressure Safety Injection
HRA	High Radiation Areas
I&C	Instrumentation and Control
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
JPM	Job Performance Measures
LER	Licensee Event Reports
mrem	millirem
MSPI	Mitigating System Performance Indication
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute

NO	Nuclear Oversight
NRC	Nuclear Regulatory Commission
NSST	Normal Station Service Transformer
OD	Operability Determinations
ODCM	Off-Site Dose Calculation Manual
OOS	Out Of Service
PARS	Publicly Available Records System
PEO	Plant Equipment Operator
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post Maintenance Testing
PORV	Power Operated Relief Valve
RBCCW	Reactor Building Closed Cooling Water
RCA	Radiologically Controlled Area
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal
RSS	Recirculation Spray System
RSST	Reserve Station Service Transformer
SAM	Small Articles Monitor
SDP	Significance Determination Process
SG	Steam Generator
SIH	Safety Injection High
SW	Service Water
TEDE	Total Effective Dose Equivalent
TI	Temporary Instruction
TLD	Thermo Luminescent Dosimeter
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UPS	Uninterruptable Power Supply
URI	Unresolved Item
VHRA	Very High Radiation Areas
WO	Work Order