January 30, 2007

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 - NRC INTEGRATED INSPECTION REPORT 05000336/2006005 AND 05000423/2006005

Dear Mr. Christian:

On December 31, 2006, the US 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 January 10, 2007, with Mr. J. Alan Price 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 one NRC-identified finding and two self-revealing findings of very low safety significance (Green). Two of the findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low significance is 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 (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 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 the Millstone Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) 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
Reactor Projects Branch 6

Division of Reactor Projects

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

Enclosure: Inspection Report 05000336/2006005 and 05000423/2006005
w/Attachment: Supplemental Information

cc w/encl:
J. A. Price, Site Vice President, Millstone Station
C. L. Funderburk, Director, Nuclear Licensing and Operations Support
D. W. Dodson, Supervisor, Station Licensing
L. M. Cuoco, Senior Counsel
C. Brinkman, Manager, Washington Nuclear Operations
J. Roy, Director of Operations, Massachusetts Municipal Wholesale Electric Company
First Selectmen, Town of Waterford
B. Sheehan, Co-Chair, NEAC
E. Woollacott, Co-Chair, NEAC
E. Wilds, Director, State of Connecticut SLO Designee
J. Buckingham, Department of Public Utility Control
G. Proios, Suffolk County Planning Dept.
R. Shadis, New England Coalition Staff
G. Winslow, Citizens Regulatory Commission (CRC)
S. Comley, We The People
D. Katz, Citizens Awareness Network (CAN)
R. Bassilakis, CAN
J. M. Block, Attorney, CAN
P. Eddy, Electric Division, Department of Public Service, State of New York
P. Smith, President, New York State Energy Research and Development Authority
J. Spath, SLO Designee, New York State Energy Research and Development Authority

Distribution w/encl (VIA E-MAIL):
S. Collins, RA
M. Dapas, DRA
D. Lew, DRP
J. Clifford, DRP
B. Sosa, RI OEDO
H. Chernoff, NRR
V. Nerses, NRR
E. Miller, NRR
S. Schneider, Senior Resident Inspector
E. Bartels, Resident OA
P. Krohn, DRP
B. Norris, DRP
ROPreports@nrc.gov
Region I Docket Room (with concurrences)

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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.:	05000336/2006005 and 05000423/2006005
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Units 2 and 3
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	October 1, 2006 through December 31, 2006
Inspectors:	S. M. Schneider, Senior Resident Inspector, Division of Reactor Projects (DRP) J. C. Benjamin, Resident Inspector, DRP R. A. Fernandes, Resident Inspector, DRP S. R. Kennedy, Resident Inspector, DRP A. E. DeFrancisco, Reactor Inspector, Division of Reactor Safety (DRS) K. X. Diederich, Reactor Inspector, DRS E. E. Huang, Reactor Engineer, DRP K. A. Mangan, Senior Reactor Inspector, DRS M. C. Modes, Senior Reactor Inspector, DRS T. A. Moslak, Health Physicist, DRS N. S. Seiller, Reactor Engineer, DRP M. K. Klump, Nuclear Safety Professional Development Program (NSPDP) Intern, Headquarters A. X. Zografos, NSPDP Intern, Headquarters
Approved by:	Paul G. Krohn, Chief Projects Branch 6 Division of Reactor Projects

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000336/2006-005 05000423/2006-005; 10/01/2006 - 12/31/2006; Millstone Power Station, Unit 2 and Unit 3; Flood Protection, Refueling and Outage Activities, Surveillance Testing.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by regional inspectors. One Green NRC-identified finding and two Green self-revealing non-cited violations (NCVs) 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: Mitigating Systems and Barrier Integrity

Unit 2

- Green. The inspectors identified a Green finding because Dominion did not adequately control maintenance activities that degraded the Unit 2 storm drainage system, which blocked a credited surface area runoff flow path protecting the Unit 2 emergency diesel generator (EDG) rooms from flooding in the event of rain. Consequently, on August 28, 2006, during a brief period of heavy rains, the Unit 2 storm drain system became overwhelmed due to the blocked rainwater runoff flow path causing flooding outside of the EDG access doors, ultimately leading to one-half to two inches of standing water in both EDG rooms. Additionally, Dominion did not identify degraded and missing sealant associated with the EDG room removable equipment hatch following this event. This finding was entered into Dominion's corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drains, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be more easily closed, and evaluating the Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-06-09352 addresses corrective actions to maintain design assumptions for alternate rainwater runoff flow paths when degrading site storm drains.

  This finding is more than minor because it is associated with the Mitigating System external factors attribute (specifically, flood hazard) and affects the cornerstone objective of ensuring the availability, reliability, and capability of system's that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) by performing a Phase 1 evaluation in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, the water level in both EDG rooms did not reach an elevation that would result in a confirmed loss of EDG operability. This finding has a cross-cutting aspect in the area of

Human Performance, work control component, because Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions which resulted in unexpected flooding of both Unit 2 EDG rooms. (Section 1R06)

- Green. A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures," was identified because Operations did not adequately implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling water (RBCCW) outlet valve. This resulted in a temporary loss of RBCCW flow to the shutdown cooling heat exchanger which was aligned for cooling the spent fuel pool (SFP) while the reactor core was fully off-loaded. This issue has been entered into Dominion's corrective action program (CR-06-10565). Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations; and an action to create and implement required reading for all operators emphasizing diligence, controlled and deliberate actions, and proper place keeping and peer-checking during performance of any procedural guidance.

  This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspectors determined the NCV to be of very low safety significance based on NRC management review. Specifically, the finding represented a degradation in that spent fuel pool cooling was lost for four minutes, pool temperature did not significantly increase, and SFP cooling was promptly restored. This finding has a cross-cutting aspect in the area of Human Performance, Work Practice component, because Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded. (Section 1R20.1)

- Green. A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the Unit 2 #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function. Specifically, on August 29, 2006, Dominion constructed scaffolding adjacent to the MSIV to support replacing the operating cylinder. On October 7, 2006, the MSIV was declared inoperable after it failed to shut during the performance of MSIV stroke time testing. Dominion had multiple opportunities to identify the adverse consequences the scaffolding could have on the MSIV during scaffolding installation, engineering reviews prior to and following scaffolding installation, operations walkdowns of the area, and from site and industry operating experience available prior to the refueling outage. Corrective actions included removing a portion of the scaffolding to restore operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety-related structures, systems, and components (SSCs) potentially impacted by scaffolding installation.

  The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the

cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. A phase 2 and 3 SDP was performed by an NRC regional senior reactor analysis (SRA) based on the finding affecting multiple cornerstones and the large early release frequency (LERF) contributor. The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and a delta core damage frequency of less than E-7, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed. (Section 1R22)

B. Licensee-Identified Violations

Violations of very low safety significance, that 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

Unit 2 began the inspection period operating at 100 percent power. On October 6, 2006, the Unit performed a shutdown in preparation for Refueling Outage 17 (2R17). On November 18, 2006, the Unit achieved criticality and reached 100 percent power on November 21, 2006. From November 21, 2006, through the end of the inspection period, the Unit operated at or near 100 percent power.

Unit 3 began the inspection period at 100 percent power. On October 28, 2006, the unit performed an unplanned down power to 75 percent when adverse weather conditions caused an abnormal buildup of debris at the intake structure, challenging the circulating water system. The unit returned to 100 percent power on October 30, 2006, and remained there for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

System Inspection

a. Inspection Scope (71111.01 - 3 Samples)

The inspectors reviewed one sample of the readiness of the Unit 2 condensate storage tank, one sample of the readiness of the Unit 3 demineralized water storage tank, and one sample of the readiness of the Unit 3 service water intake structure for extreme weather conditions, specifically, hurricanes, high winds, high tides, cold temperatures, and other severe weather events. 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 conducted walkdowns the system. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope (71111.04 - 5 Samples)

The inspectors performed five partial system walkdowns during this inspection period. The inspectors reviewed the documents listed in the Attachment to ensure the correct

system alignment. The inspectors conducted a walkdown of each selected system to verify that the critical portions 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 reactor coolant system (RCS) level instrument (LE-112) inside containment on October 13, 2006;
- Partial equipment alignment of 14'6" service water system in turbine building on October 17, 2006; and
- Partial equipment alignment of letdown heat exchanger on December 18, 2006.

Unit 3

- Partial equipment alignment of “A” auxiliary feedwater system on October 19, 2006; and
- Partial equipment alignment of “B” emergency diesel generator during “A” train operability testing on December 5, 2006.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Quarterly Sample Review

a. Inspection Scope (71111.05Q - 17 Samples)

The inspectors performed seventeen 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 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 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

- Containment Building, -22'6" Elevation (Fire Area C-1);
- Containment Building, -3'6" Elevation (Fire Area C-1);
- Containment Building, 14'6" Elevation (Fire Area C-1);
- Containment Building, 36'6" Elevation (Fire Area C-1);
- Spent Fuel Pool Handling Area, 38'6" Elevation (Fire Area A-14C);
- Main Control Room, 36'7" Elevation (Fire Area A-25);
- Reserve Station Service Transformer, 14'6" Elevation (Fire Area XR-30); and
- Containment Spray & High Pressure Safety Injection / Low Pressure Safety Injection Pump Room, -45'6" Elevation (Fire Area A-8).

Unit 3

- Engineered Safety Features (ESF) Building, North Residual Heat Removal Heat Exchanger Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-3);
- ESF Building, South Residual Heat Removal Heat Exchanger Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-6);
- ESF Building, Refueling Water Storage Tank Recirculation Pumps Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-7);
- ESF Building, North Motor-Driven Auxiliary Feedwater Pump Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-8);
- ESF Building, South Motor-Driven Auxiliary Feedwater Pump Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-9);
- ESF Building, North Air Conditioning Cubicle, 36'6" Elevation (Fire Area ESF-10);
- ESF Building, South Air Conditioning Cubicle, 36'6" Elevation (Fire Area ESF-11);
- ESF Building, North Containment Recirculation Spray System Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-2); and
- ESF Building, South Containment Recirculation Spray System Cubicle, 21'6" and 36'6" Elevations (Fire Area ESF-1).

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation

a. Inspection Scope (71111.05A - 1 Sample)

Unit 3

The inspectors observed personnel performance during a fire brigade drill on December 20, 2006, to evaluate the readiness of station personnel to fight fires. The drill simulated a fire 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 observed the fire fighting directions and communications between fire brigade members. The inspectors verified that the pre-planned drill scenario was followed and observed the post-drill critique to evaluate if the drill objectives were satisfied and that any drill weaknesses were identified, discussed, and entered in the corrective action program.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

External Flooding Inspection

a. Inspection Scope (71111.06 - 1 Sample)

The inspectors evaluated Dominion's preparation for and protection from the effects of external flooding conditions for Unit 2. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and applicable procedures to determine the readiness of protection for applicable safety-related structures, systems, and components. The inspectors performed walkdowns of the Unit 2 emergency diesel generator (EDG) rooms and adjacent outside areas following the Unit 2 EDG room flooding event to verify the adequacy of the floodgates, flood doors, and temporary equipment. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Unit 2

Introduction. The inspectors identified a Green finding because Dominion did not adequately control maintenance activities which resulted in degrading the Unit 2 storm drainage system by blocking a credited surface area runoff flow path. As a result, both of the Unit 2 EDG rooms were flooded with between one-half inch to two inches of water.

Description. On August 28, 2006, at 3:40 a.m., Operations dispatched personnel to walk down outside areas adjacent to the auxiliary building after receiving various outside trench high level alarms. Operators discovered that both EDG rooms were flooded with water varying from one-half inch to 2 inches in depth, including areas around the electrical control panels.

The inspectors reviewed design change notice DM2-00-0480-05 which, in part, established soil erosion and sediment control measures to support construction activities associated with the Millstone Unit 2 Generator Step-up replacement project. The soil erosion and sediment control measures included installing filters on the outlet of the site’s storm drain system. The inspectors conducted interviews with the engineering

staff associated with the modification and determined that the engineering staff had considered the potential effects installing these filters could have on the normal storm runoff flow path and thereby could affect the EDG rooms. The inspectors determined that engineering had evaluated heavy rain conditions with the storm drainage system degraded and determined that water would not impact the EDG rooms since the rain water would have an adequate surface drainage flow path through the existing grade by flowing past the area between the maintenance building and the auxiliary building. However, on August 28, 2006, this drainage flow path was blocked by a flat-bottomed tank. During the subsequent rain storm on August 28, 2006, storm runoff was redirected (due to the tank) toward the maintenance building and toward the EDG rooms flooding both areas. Inspection of the EDG room identified that both EDG room were flooded with from one-half to two inches of water. The inspectors determined that Dominion did not control the design change notice assumption for the runoff flowpath; therefore, the subsequent installation of the flat-bottomed tank resulted in the flooding of both EDG rooms during the rain storm.

Additionally, on October 9, 2006, the inspectors identified that the “A” EDG removable equipment hatch was missing caulking at a low point on an inside seam. Dominion entered this condition into their corrective action program, (CR-06-09352), and determined the following: this hatch was designed to be leak tight against a flood crest of 22 feet, three different sealant materials had been used (none of which was specified in the current design drawing), and the sealant was poorly applied as evidenced by poor adhesion exposing gaps and voids. Based on these discoveries, Dominion declared the “A” EDG inoperable on October 10, 2006, and took corrective action to repair the door seal. The performance deficiency associated with this issue is that Dominion did not effectively control maintenance activities that degraded the Unit 2 storm drainage system which redirected rainwater runoff causing EDG room flooding.

Analysis. The inspectors concluded that Dominion did not control maintenance activities so that predetermined design change notice assumptions remained valid. Through interviews, the inspectors determined that Dominion had considered that rain would not cause localized EDG room flooding since the existing plant grade would naturally divert water away from this area. However, this assumption was not properly controlled once the tank was subsequently installed that blocked this assumed flowpath. In addition, Dominion did not identify missing and poorly applied sealant material in the "A" EDG room following this event, though they did conduct inspections of these areas. This finding is more than minor because it is associated with the Mitigating System’s protection against external factor’s (specifically, flood hazard) attribute and affected the cornerstone’s objective to ensure the availability of system’s (EDGs) that respond to initiating events to prevent undesirable consequences. 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 finding was determined to be of very low safety significance (Green) by performing a Phase 1 evaluation in accordance with NRC IMC 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations.” The finding was related to a design qualification deficiency confirmed not to result in a loss of operability;

did not screen as potentially risk significant due to external factors; and did not result in a loss of operability or the safety system function, Specifically, the water level in both EDG rooms did not reach an elevation that resulted in a confirmed loss of EDG operability. This finding has a cross-cutting aspect in the area of human performance, work control component, because Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions that resulted in unexpected flooding of both Unit 2 EDG rooms.

Enforcement. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. Dominion has entered this issue into their corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drain, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be closed easier, and evaluating Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-07-00475, addresses corrective actions to maintain design assumptions for alternate rainwater runoff flowpaths when degrading site storm drains. Because this violation does not involve a violation of regulatory requirements and has a very low safety significance, it is identified as **FIN 05000336/2006005-01, Inadequate Control of Outside Maintenance Activities That Resulted in Unexpected Flooding of Both EDG Rooms**.

1R08 Inservice Inspection

Unit 2

a. Inspection Scope (71111.08 - 4 Samples)

Due to physical constraints in containment caused by the replacement of the pressurizer, Dominion took advantage of inspection program latitude in Electric Power Research Institute (EPRI) Technical Report 1003138, "Pressurized Water Reactor Steam Generator Examination Guidelines: Revision 6, Requirements," October 2002, and EPRI Technical Report 1012987, "Steam Generator Integrity Assessment Guidelines, Revision 2," July 2006, to defer the eddy current testing of the steam generators until the next outage. The inspector reviewed Dominion's supporting rational documented in M2-EV-06-0014, Revision 0, "Degradation Assessment and Technical Review and Justification for not Performing Primary or Secondary Inspections of the Generators During 2R17," dated October 1, 2006, and compared the evaluation against the NRC accepted EPRI guideline documents above. Dominion's justification that the previously calculated steam generator tube wear rate of effectively zero, coupled with an aggressive loose part removal campaign during the last outage along with no identifiable loose parts from loose parts monitoring, justified skipping the eddy current this outage and satisfied the guideline thresholds.

The inspector reviewed the resolution of condition report CR-06-09372, "Boric Acid Residue Detected on Alloy 600 Weld." The discovery of white residue on the Unit 2

reactor vessel o-ring leakage monitor tube welds was thoroughly evaluated by boroscopic examination and disposed of as liquid penetrant examination developer residue. The inspector reviewed the video tapes of the examination and interviewed cognizant personnel. During a prior outage, the line had been modified to change its route to avoid an obstruction and an examination had been undertaken even though the weld type: socket, and size: under one inch, is excluded from American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section XI, requirements. The disposition of the residue was acceptable.

The inspector witnessed the ultrasonic examination of 4" Schedule 120 (Dwg 25203-29527 Sh 26) stainless steel pipe weld as part of the Pressurizer replacement project. The examination was compared against the requirements of ASME Section XI, Millstone procedures MP-PDI-UT-2, Revision 000-03, and MP-PDI-GEN-1, Revision 000-02.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

Resident Inspector Quarterly Review

a. Inspection Scope (71111.11Q - 2 Samples)

The inspectors observed one sample of Unit 2 licensed operator simulator training on November 29, 2006, and one sample of Unit 3 licensed operator simulator training on November 22, 2006. The inspectors verified that the training evaluators adequately addressed that the applicable training objectives had been achieved, that the operator performance was adequate, and that the evaluators were identifying and documenting crew performance problems. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

.1 Routine Maintenance Effectiveness Inspection

a. Inspection Scope (71111.12Q - 2 Samples)

The inspectors reviewed two samples of Dominion's evaluation of degraded conditions, involving safety-related structures, systems and components 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 condition reports (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 the issues 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

- #4 Safety Injection Tank In-Leakage (CR-06-12142).

Unit 3

- Service Water Pump Strainer Inoperable Due to Failure to Blowdown in Auto or Manual (CR-06-11755).

b. Findings

No findings of significance were identified.

.2 Triennial Periodic Evaluation Inspection

a. Inspection Scope (71111.12T - 4 Samples)

The inspector reviewed and assessed the effectiveness of Dominion's 10 CFR 50.65 (a)(3) periodic evaluation, and the resulting adjustments or corrective actions performed since the last inspection. The period evaluated was from July 2003 to January 2005. The inspector confirmed that it met the periodicity requirements, and that it adequately evaluated performance monitoring activities, associated goals, and preventive maintenance activities.

To aid in determining the effectiveness of Dominion's (a)(3) activities, four maintenance rule in-scope structures, systems, and components (SSCs) that had suffered degraded performance or condition were reviewed, based on SSC performance or condition, plant specific risk assessment, past inspection results, and operating experience. These were:

- 480 Volt AC Load Centers (Sys 2344A);
- Feed Water Control (Sys 2410);
- Inadequate Core Cooling Monitoring System (ICCMs) (Sys 2415); and
- Containment Isolation (Sys 3312A).

The inspector conducted the review to verify that: required SSCs were included in the scope of the program; that performance of SSCs were being effectively monitored against licensee-established goals which took into account industry operating

experience where practical; that goals and performance criteria were appropriate; that balancing of reliability and availability was given adequate consideration; that corrective action plans were adjusted appropriately when performance of SSCs did not meet established goals; that the monitoring was sufficient to provide reasonable assurance that SSCs are capable of fulfilling their intended functions; that monitoring plans were appropriately closed; that performance of SSCs was being effectively controlled through the performance of appropriate preventive maintenance; and that problem identification and resolution of maintenance rule-related issues were addressed.

The inspector walked down accessible portions of the selected SSCs, interviewed the maintenance rule coordinator and system engineers, and reviewed documentation for applicable systems. The documents that were reviewed are listed in the Attachment.

The inspector reviewed a sample of condition reports related to maintenance effectiveness and to selected SSCs to ensure that problems were identified at an appropriate threshold, characterized, and that adequate corrective actions were implemented.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope (71111.13 - 9 Samples)

The inspectors reviewed nine samples of the adequacy of maintenance risk assessments for emergent and planned activities 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 performance of the following maintenance and testing activities:

Unit 2

- Risk assessment of Unit 2 refueling mid-loop operations, October 13, 2006;
- Risk assessment of core-off load, October 15, 2006 to October 18, 2006;
- Risk assessment associated with the safe load path for the pressurizer replacement project, October 23, 2006 to October 27, 2006;
- Aggregate Risk Assessment prior to reactor startup on November 18, 2006; and
- Emergent risk assessment of Unit 2 inoperable auxiliary feedwater due to blocked high energy line break panel on December 21, 2006.

Unit 3

- Emergent risk assessment due to “B” motor-driven auxiliary feedwater pump recirculation line leak, October 18, 2006;
- Risk assessment during grid maintenance and Unit 2 reserve service station transformer maintenance, October 26, 2006;
- Risk assessment during the replacement of the “C” service water strainer cover, December 4, 2006; and
- Risk assessment due to "F" circulation water pump outage and "B" emergency diesel generator outage on December 19, 2006.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope (71111.15 - 2 Samples)

The inspectors reviewed two 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 FSAR requirements were met. The inspectors reviewed the following degraded or non-conforming conditions:

Unit 2

- “B” EDG Flood Door Gaps (CR-06-09597, CR-06-09756).

Unit 3

- “C” Safety Injection Accumulator In-leakage (CR-06-09518).

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope (71111.17A - 3 Samples)

The inspectors reviewed three samples of permanent plant modifications on Unit 2. The inspectors performed a walkdown of the areas and reviewed the Final Safety Analysis

Report (FSAR), licensing and design basis documents, and engineering dispositions. These reviews were conducted to ensure the modified components remained consistent with the assumptions indicated in the design basis documents, that system availability, reliability, and functional capability were maintained, and no unrecognized conditions that significantly affected risk or could place the plant in an unsafe condition were introduced as a result of the modifications. Documents reviewed during the inspection are listed in the Attachment.

Unit 2

- Nitrogen Fill Line Servicing Charging System Pulsation Modification (DM2-00-0102-06);
- Turbine-Driven Auxiliary Feedwater Pump Governor Replacement (DCM 03-007A); and
- Power-Operated Relief Valve (2RC-402,-404) Replacement (DCM-3-2A).

b. Findings

No findings of significance were determined.

1R19 Post-Maintenance Testing

a. Inspection Scope (71111.19 - 5 Samples)

The inspectors reviewed five samples of post-maintenance tests (PMT) 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 TS 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

- RBCCW Control Rod Drive Element Inlet Relief Valve Overhaul (M2-05-1959-20);
- “D” Reactor Coolant Pump Seal Replacement (M2-04-09251);
- Reserve Station Service Transformer Replacement Project (M2-03-11011); and
- Reactor Protection System Trip Circuit Breaker #5 Clean and Inspect (M2-05-03755).

Unit 3

- “B” Motor-Driven Auxiliary Feedwater Train Recirculation Line Repair (M3-06-11311).

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope (71111.20 - 1 Sample)

Dominion began a Unit 2 refueling outage (2R17) on October 7, 2006. The inspectors evaluated the outage plan and outage activities to confirm that Dominion had appropriately considered risk, had developed risk reduction and plant configuration control methods, had considered mitigation strategies in the event of loss of safety functions, and had adhered to license and technical specification requirements. The inspectors observed portions of the shutdown, cooldown, heatup, and startup processes. Additionally, the inspectors conducted an initial containment walkdown to evaluate the as-found condition of the containment to ensure no loose material or debris which could be transported to the containment sump were present. The inspectors verified that conditions adverse to quality were entered into the corrective action program for resolution. Some of the specified activities the residents observed and performed included:

- Reactor Shutdown and Cooldown;
- Steam Generator Safety Valve simmer Testing;
- Reactor Water Level Drain Down to the Reactor Flange;
- Reduced Inventory Operations;
- Fuel Handling, Core Loading, and Fuel Element Assembly Tracking;
- RCS Pressure, Level, and Temperature Instrumentation Operability;
- Pressurizer Block House and Pressurizer Removal;
- RCS Vacuum Fill;
- Containment As-Left Walkdown;
- Reactor Heatup;
- Reactor Startup;
- Low Power Physics Testing;
- Reactor Power Ascension;
- Main Turbine Over Speed Testing;
- Unit 2 Connection to the Grid; and
- Reactor Building Component Cooling Water Valve Manual Cycle Tests (SP-2611E).

b. Findings

Unit 2

.1 Reactor Building Component Cooling Water Surveillance Procedure

Introduction. A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, “Procedures,” was identified because Operations did not adequately

implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling water (RBCCW) heat exchanger outlet valves.

Description. On October 30, 2006, Operations was planning to manually cycle the "C" RBCCW heat exchanger outlet valves (2-RB-4.1E and 2-RB-4.1F) in accordance with surveillance procedure SP-2611E, "RBCCW Valve Manual Cycle Tests," Revision 007-02. The purpose of the surveillance was to verify that selected air operated RBCCW valves could be operated manually to support Technical Requirements Manual, Section 7.1, "Appendix R Safe Shutdown Requirements."

During the conduct of the surveillance, the operations place keeper in the Control Room closed out the procedure step which would have closed 2-RB-4.1F; however, 2-RB-4.1F had not been closed by the operator in the field. The subsequent step that opened 2-RB-4.1E resulted in the RBCCW headers being cross-tied, since 2-RB-4.1F had not been closed. This caused the operating "A" RBCCW pump to trip off on low suction pressure. Operators took prompt action to restore RBCCW flow and restore SFP cooling in approximately four minutes. Spent fuel pool temperature did not increase by any measurable amount. The performance deficiency is that Dominion did not properly implement a safety-related surveillance procedure to manually cycle RBCCW heat exchanger outlet valves.

Analysis. This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. 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. The inspectors determined the NCV to be of very low safety significance (Green) based on NRC management review. Specifically, the finding represented a minimal degradation to the radiological barrier of the spent fuel pool in that pool cooling was lost for only four minutes, spent fuel pool temperature did not increase by any measurable amount, and cooling to the SFP was promptly restored. This finding has a cross-cutting aspect in the area of Human Performance, Work Practice component, because Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded.

Enforcement. TS 6.8.1, requires, in part, that written procedures be implemented covering surveillance activities on safety-related equipment. Contrary to the above, on October 30, 2006, Operations did not adequately perform Surveillance Procedure SP-2611E, "RBCCW Valve Manual Cycle Tests," Revision 007-02. This resulted in a loss of the running safety-related RBCCW pump and the consequential loss of spent fuel pool cooling for approximately four minutes. Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations, implementing required reading for all operators describing this event with emphasis on diligence, controlled and deliberate actions, and following proper place keeping and peer-checking during performance of any procedural

guidance. The violation has been determined to be of very low safety significance (Green) and has been entered into Dominion's corrective action program (CR-06-10565). Therefore, this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000336/2006005-02, Failure to Implement Surveillance Procedures Resulted in a Temporary Loss of Spent Fuel Pool Cooling)**

.2 Entry into TS 3.0.3 based on Operations Declaring B51 and B61 Inoperable.

On November 19, 2006, during a plant walkdown, the inspectors identified that the temperature in the safety-related B61 motor control center (MCC) enclosure appeared to be abnormally high. The inspectors notified Operations (Control Room and Outage Control Center) of this condition. Operations indicated that the air conditioning (A/C) unit would operate satisfactorily to maintain the B61 enclosure temperature less than the operability limit. On November 20, 2006, the inspectors notified Operations and Maintenance management of their concern that the A/C unit associated with the B61enclosure did not appear to be operating properly. On November 21, 2006, Operations declared both the B51 and B61 A/C units inoperable and entered TS 3.0.3 based on Engineering's determination that neither B51 or B61 A/C units were functioning properly.

Dominion determined that both A/C units had been given an insufficient freon charge following equipment restoration during the 2R17 refueling outage. Dominion entered this condition into their corrective action program (CR-06-11638). Corrective actions included restoring both A/C units by adding the proper amount of freon. Additional corrective actions include performing an apparent cause evaluation, a reportability determination, and a past operability determination. The issue remains unresolved pending an NRC review of Dominion's corrective actions and evaluations, including Dominion's review of a prior issue associated with these A/C units initially discussed in URI 05000336/2004008-02 and closed out in NRC Inspection Report 05000336/2005004. **(URI 05000336/2006005-03, Failure to Identify a Condition Adverse to Quality affecting the B51 and B61 Enclosures)**

1R22 Surveillance Testing

a. Inspection Scope (71111.22 - 5 Samples)

The inspectors reviewed five samples of 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 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 bases, licensing bases, and TS requirements and 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

- Turbine-Driven Auxiliary Feedwater Pump Full Flow In-service Testing (SP-2610BS);
- Facility 1, Loss of Normal Power: Integrated Engineered Safety Features Test (SP-2613G); and
- Main Steam Isolation Valve Testing (SP-2730B).

Unit 3

- Emergency Diesel Generator "A" Operability Test (SP-3646A.1); and
- Safety Injection Pump "A" Operational Readiness Test (SP-3608.1).

b. Findings

Unit 2

Introduction. A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function.

Description. On August 29, 2006, scaffolding was constructed adjacent to the #1 MSIV (2-MS-64A) to support replacing the MSIV's operating cylinder during the 2R17 refueling outage. The scaffold was suspended and built below the operating cylinder to facilitate access. A scaffolding evaluation was performed on June 6, 2006, to support building of the scaffolding. Supplementary instructions were provided since the evaluation noted that the scaffold would be erected over or within 10 feet of safety-related equipment. On August 30, 2006, a post installation inspection was performed and the scaffolding was determined to be acceptable.

On October 7, 2006, 2-MS-64A was determined to be inoperable when it failed to fully close during the performance of MSIV stroke time testing. Specifically, the scaffold decking interfered with the full travel of the operating cylinder spring nut and plate preventing the valve from fully closing. Operations removed one scaffolding deck plate to clear the interference and then satisfactorily stroked the valve.

The inspectors determined that Dominion had multiple opportunities to identify that the scaffolding had the potential to impact the #1 SG MSIV's ability to isolate the #1 SG. Specifically;

- Personnel constructing the scaffolding had the opportunity to identify the scaffold could obstruct the full travel of the operating cylinder just above the scaffold platform;

- Engineering personnel had the opportunity to identify the scaffolding would impact safety-related equipment during both the scaffolding evaluation in June 2006, and the subsequent post installation inspection in August 2006;
- Operations personnel had multiple opportunities to identify this problem during plant and system walkdowns which include inspection of existing scaffolding interferences; and
- Maintenance, Operations, and Engineering personnel had the opportunity to identify this during pre-outage operating experience training sessions which specifically discussed scaffolding interferences. Specifically, a Beaver Valley operating experience became available just prior to this event which discussed a similar type of scenario.

The performance deficiency was that Dominion did not identify that scaffolding built on August 29, 2006, would interfere with the #1 SG MSIV's (2-MS-64A) ability to shut.

Analysis. The performance deficiency resulted in the inability of the control room operators to remotely close the MSIV in response to certain initiating events (i.e. steam generator tube ruptures, main steam line breaks). Traditional enforcement does not apply because this condition did not have any actual safety consequence, or potential for impacting the NRC's regulatory function, and is not the result of any willful violation of NRC requirements. The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective as providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was evaluated in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The Phase 1 screen determined that a Phase 2 approximation was required because this finding affected multiple cornerstones.

The Phase 2 approximation of this finding was conducted using the "Risk-Informed Inspection Notebook for Millstone Nuclear Power Station Unit 2," Revision 2. As determined by the resident inspector staff, the scaffolding was erected prior to the unit being shutdown for the refueling outage. The exposure time was determined to be 40 days. Consistent with IMC 0609, Appendix A, implementation guidance, the >30 days Initiating Event Likelihood values were used to solve the Table 3 Worksheets. Operator recovery credit was provided for the steam generator tube rupture SGTR sequences, but not the main steam line break sequence, based upon Dominion's engineering analysis.

The dominant Phase 2 core damage sequence solutions were as follows:

SGTR (3) + EQ/ISO (0) + SDC (2) + REC (1) = 6
SGTR (3) + HPI (2) + EQ/ISO (0) + REC (1) = 6
MSIB (3) + MSIV2 (0) + MSIV1 (2) = 5

The inspectors noted that the Phase 2 Notebook conservatively identifies that the large early release frequency (LERF) factors for the SGTR sequences are 1.0. Accordingly, the potential risk significance of this finding may be characterized as being more significant as a LERF contributor than a core damage frequency (CDF) contributor.

In recognition of the generally conservative Phase 2 Notebook results, the Senior Reactor Analyst (SRA) performed a Phase 3 risk assessment for this finding. The Millstone Unit 2 Standardized Plant Analysis Risk Model and Graphical Evaluation Model, Revision 3.21, were used to evaluate the risk impact due to internal events. In addition, the SRA worked with the licensee's probability risk assessment staff to more accurately characterize the risk significance of this finding. The SRA made the following modeling assumptions:

a. Exposure time was 40 days (960 hours), consistent with the above stated Phase 2 exposure time assumption.
b. The basic event of MSS-VCF-HW-ISOL, ruptured steam generator isolation fails, was left at its nominal failure probability of 0.01 in recognition that operator action could be credited to remove the scaffolding interference. OPR-XHE-XM-MSLISO, operator fails to isolate/terminate the steam line break, was revised from its nominal failure probability of 0.01 to 0.1, to recognize that potentially smaller steam line breaks (< 6-inches in diameter) downstream of the MSIVs, would not develop sufficient differential pressure across the valve to overcome the actuator/scaffolding interference.
c. The sequence quantification truncation limit was set at 1E-14.

The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and <1E-7 delta core damage frequency, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). The licensee's risk assessment compared favorably with this Phase 3 result.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed.

Enforcement. Code of Federal Regulations 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations,

defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to this requirement, from August 29 to October 7, 2006, Dominion had multiple opportunities to identify that scaffolding built adjacent to the Unit 2 #1 SG MSIV had the potential to impact the valve's intended safety function. Corrective actions included promptly removing a portion of the scaffolding, thus restoring #1 SG MSIV operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety related SSC(s) potentially impacted by scaffold installation. This issue was determined to be of very low safety significance (Green) and has been entered into Dominion's corrective action program (CR-06-09203). This violation is being treated as a non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000336/2006005-04, Failure to Identify Scaffolding Rendered the #1 SG MSIV Inoperable)**

Unit 3

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope (71111.23 - Two Samples)

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

Unit 2

- Containment Spray Credited As A Backup Method for Spent Fuel Pool Cooling; and
- SFP Cooling Cask Laydown Pit used for Early Reactor Coolant System Boration.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope (71121.01 - 10 Samples)

During the period November 13 - 16, 2006, 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 during the Unit 2 (2R17) refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, Unit 2 Technical Specifications, and Dominion's procedures.

Plant Walkdown and Radiation Work Permit (RWP) Reviews

- During the Unit 2 refueling outage, the inspector identified exposure significant work areas in the auxiliary and containment buildings. The inspector reviewed radiation survey maps and RWPs associated with these areas to determine if the radiological controls were acceptable. Work areas reviewed included the "A" shutdown cooling heat exchanger (SDCHX) and various elevations in the containment building.

- With the assistance of the ALARA [As Low as Reasonably Achievable] Supervisor, the inspector performed independent surveys of selected areas in the Unit 2 auxiliary and containment buildings to confirm the accuracy of survey maps, the adequacy of postings, and that Technical Specification locked high radiation areas (TSLHRA) were properly secured and posted. Areas surveyed included the steam generator loops and the regenerative heat exchanger cubicle in containment, and the "A" and "B" SDCHX cubicles in the auxiliary building.

- In evaluating RWPs, the inspector reviewed electronic dosimeter dose/dose rate alarm reports to determine if the setpoints were consistent with the survey indications and plant policy. The inspector verified that workers were knowledgeable of the actions to be taken when a dosimeter alarmed or malfunctioned for tasks being conducted under selected RWPs. Work activities reviewed included the "A" SDCHX internal inspections (RWP 2-06-0256) and pre-startup containment entries (RWP 2-06-0391).

- The inspector reviewed the RWPs and associated engineering controls for potential airborne radioactivity areas located in the Unit 2 containment building. The inspector examined the airborne samplers locations in containment and reviewed airborne sample results for various outage tasks including the alloy 600 half nozzle repairs and various pressurizer replacement tasks.

- The inspector reviewed Personnel Contamination Reports (PCR) and whole body counting results for personnel contaminations to evaluate the assessment methods. PCR Nos. M2-06-002 through M2-06-006 were reviewed. No level 3 (>50,000 cpm) personnel contaminations occurred. No contaminated individual had a committed effective dose equivalent (CEDE) in excess of 50 mrem.

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

- The inspector inventoried keys to locked high radiation areas stored at the Unit 2 control point to verify that all keys were accounted for.

- The inspector verified that TSLHRA, such as the under vessel access door were properly secured and posted and that surrounding area dose rates met regulatory criteria.

Radiation Worker Performance

- The inspector observed radiation worker and radiation protection technician performance for selected tasks. Tasks observed included internal inspection of the "A" SDCHX, containment demobilization, and pre-startup tasks performed in containment.

- The inspector reviewed condition reports, related to radiation worker and radiation protection technician errors, and personnel contamination reports to determine if an observation traceable to a common cause was evident.

Problem Identification and Resolution

- The inspector reviewed elements of Dominion's corrective action program related to controlling access to the radiation controlled 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.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope (71121.02 - 5 Samples)

During the period November 13-16, 2006, 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 achieveable (ALARA) for tasks conducted during the Unit 2 refueling outage (2R17). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Dominion's procedures.

Radiological Work Planning

- The inspector reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities to assess current performance and outage exposure challenges. The inspector determined the site's 3-year rolling collective average exposure and compared it to recent trends.

- The inspector reviewed the ALARA Reviews (AR), ALARA Challenge Board meeting presentations, Work-In-Progress (WIP) ALARA evaluations, and ALARA council meeting minutes that addressed estimating and controlling dose for specific outage

activities. Work activities reviewed included pressurizer replacement, emergency core cooling system (ECCS) sump modifications, and Alloy 600 repairs.

- The inspector reviewed the 2R17 dose summary reports, detailing worker estimated and actual exposures, through November 15, 2006, for jobs performed during the refueling outage to compare actual exposures with forecasted data.

- The inspector evaluated exposure mitigation requirements specified in ARs and associated RWPs. Jobs reviewed included pressurizer replacement (AR 2-06-20, RWP-2-06-0400/401/402), ECCS sump modifications (AR 2-06-30, RWP-2-06-0354), and Alloy 600 repairs (AR 2-06-23, RWP-2-06-0311).

- 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 supervisor and the Radiation Protection Manager, and reviewing ALARA Council meeting minutes, WIP reviews, and Challenge Board presentations. The inspector also attended two (2) pre-job briefings to assess inter-departmental coordination regarding internal inspections of the "A" shutdown cooling heat exchanger and Unit 2 pre-startup containment entries.

- The inspector determined if work activity planning included the use of temporary shielding, system flushes, and operational considerations; i.e., scheduling work when the RCS and SGs were water filled, to further minimize worker exposure.

Verification of Dose Estimates and Exposure Tracking Systems

- The inspector reviewed the assumptions and basis for the annual site collective exposure estimate and the Unit 2 refueling outage dose projection.

- The inspector reviewed personnel contamination reports for selected personnel to evaluate the cause of the contamination and the effectiveness of control measures.

- The inspector reviewed Dominion's method for adjusting exposure estimates, and replanning work, when actual dose approached estimated dose. The inspector reviewed WIP dose evaluations for tasks whose actual collective dose approached the estimated forecast, including pressurizer replacement, ECCS sump modifications, and Alloy 600 repairs.

- The inspector reviewed Dominion's exposure tracking system to determine whether the level of dose tracking detail, exposure report timeliness, and exposure report distribution was sufficient to support the control of collective and individual exposures. Included in this review were departmental dose compilations and selected individual exposure records.

Job Site Inspection and ALARA Controls

- The inspector observed maintenance activities being performed for containment demobilization, SDCHX internal inspections, and preparations for restarting the plant. The inspector verified that the appropriate radiological controls were implemented including radiation protection technician coverage, proper electronic dosimeter dose/dose rate setpoints, contamination mitigation, and that pre-job briefings were conducted to assure that workers were knowledgeable of radiological conditions at the job site.

Source Term Reduction and Control

- The inspector reviewed the current status and historical trends of the Unit 2 source term. Through interviews with the Radiation Protection and Chemistry Manager and the ALARA Supervisor, the inspector evaluated Dominion's source term measurements and control strategies. The inspector reviewed reactor coolant chemistry data to evaluate the effectiveness of post-shutdown source term reduction efforts. Specific strategies being employed included system flushes, installation of temporary shielding, and chemistry controls.

Radiation Worker Performance

- The inspector observed radiation worker and radiation protection technician performance for selected tasks. Tasks observed included SDCHX internal inspections and containment demobilization, i.e., removal of temporary shielding, installation of insulation, and equipment removal. The inspector determined whether the individuals were aware of radiological conditions, access controls, and that the skill level was sufficient with respect to the radiological hazards and the work involved.

- The inspector reviewed condition reports, related to radiation worker and radiation protection technician errors, and personnel contamination reports (PCR) to determine if an observable pattern traceable to a common cause was evident.

Declared Pregnant Workers

- The inspector determined that no declared pregnant workers (DPW) were employed to perform outage related activities in the radiologically controlled areas. The inspector reviewed the exposure records for a DPW that supported non-outage activities to determine if exposure controls were appropriately implemented.

Problem Identification and Resolution

- The inspector reviewed elements of Dominion's corrective action program related to implementing the radiological controls program to determine if problems were being entered into the program for timely resolution. Details of this review are contained in Section 4OA2 of this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator (PI) Verification

.1 Safety System Functional Failures

a. Inspection Scope (71151 - 2 Samples)

The inspectors sampled Dominion submittals for the one PI listed below for Unit 2 and Unit 3. The inspectors reviewed data from the first quarter 2005 through the third quarter 2006. To verify the accuracy of the PI data reported during these periods, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the reporting basis for each data element.

Unit 2

- Safety System Functional Failures.

Unit 3

- Safety System Functional Failures.

The inspectors reviewed portions of the operations logs and raw PI data developed from monthly operating reports and discussed the methods for compiling and reporting the PIs with cognizant licensing and engineering personnel. The inspectors compared graphical representations from the most recent PI report to the raw data to verify that the data was correctly reflected in the report. The inspectors reviewed licensee event reports issued during this period to ensure that any safety system functional failures had been reported and the information reported in the NRC Performance Indicator is accurate. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Occupational Exposure Control Effectiveness

a. Inspection Scope (71151 - 1 Sample)

The inspector reviewed implementation of Dominion's Occupational Exposure Control Effectiveness PI Program. Specifically, the inspector reviewed condition reports, and

associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators.

b. Findings

No findings of significance were identified.

.3 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope (71151 - 1 Sample)

The inspector reviewed relevant effluent release reports for the period October 1, 2005, through September 30, 2006, for issues related to the public radiation safety performance indicator, which measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents, 5mrads/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrads/qtr for organ dose for gaseous effluents.

The inspector reviewed the following documents to ensure Dominion met all requirements of the performance indicator from the fourth quarter 2005 to the third quarter 2006:

- monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- dose assessment procedures.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program (71152)

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 was accomplished by reviewing the description of each new CR and attending daily management review committee meetings.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope (71152 - 1 Sample)

The inspectors performed a semi-annual review to identify trends that might indicate the existence of a more significant safety issue. The inspectors reviewed Unit 2 and Unit 3 performance indicator monthly reports, condition reports, system health reports, quality assurance audits, self-assessment reports, maintenance reports, and NRC inspection reports and interviewed key personnel to evaluate if a trend existed.

b. Findings and Observations

Operability Determinations

No findings of significance were identified. The inspectors continued to evaluate Dominion's improvement initiatives in the area of Operability Determination quality and process implementation.

The inspectors have noted improved Operations performance in the area of Operability Determination quality and process implementation. The inspectors consider that the progress made by Operations in improving this program has resulted in higher quality operability determinations, improved documentation of the basis for operability decisions, and a better understanding of the impact of degraded conditions on mitigating equipment. The inspectors consider the progress made by Operations to be indicative of the effectiveness of their corrective actions and this trend review is considered complete. The inspectors will continue to evaluate operability determination quality and engineering evaluation support of degraded conditions as part of the standard baseline inspection program.

Scaffold Installation

The inspectors have noted an increase in scaffold installation deficiencies. During the most recent inspection period, a Green self-revealing non-cited violation was generated when scaffolding prevented a main steam isolation valve from closing during surveillance testing (Section 1R22). In addition, a licensee-identified violation (Section 4OA7) was generated when it was discovered that plant personnel had constructed a scaffold over a safety-related blow out panel. The resident inspectors will continue to follow these issues and Dominion's broader corrective actions to improve scaffolding program performance, within the framework of the baseline inspection program.

.3 Annual Sample Review

Unit 2 - Loose Parts Monitoring System

a. Inspection Scope (71152 - 1 Sample)

The inspector reviewed the actions taken by Dominion to identify the cause(s) and effects of the false alarms on the Unit 2 RCS Loose Parts Monitoring System (LPMS) that have occurred several times in 2006 and have been a documented issue since 2002. The majority of the false alarms have been on Steam Generator "A," channel 1, but were not necessarily associated with a particular channel (there are 2 channels in each steam generator and 2 in the reactor vessel head). The inspector reviewed various condition reports, and reviewed site operating procedures and the most recent system testing results for the LPMS to assess if corrective actions were taken and/or planned to correct identified problems. Additionally, the inspector conducted interviews with plant personnel, including operations, Instrumentation & Control, and engineering staff, and walked down the LPMS in the control room. The inspector reviewed operator logs and the archived annunciator records on the date of the last loose parts alarm, to confirm the details of the most recent condition report and whether Dominion's initial operability assessment was adequate. Finally, the inspector reviewed additional condition reports written by Dominion before and during the inspection to ensure they adequately captured the problems identified.

b. Findings and Observations

No findings of significance were identified. NRC Regulatory Guide 1.133, "Loose Part Detection Program for the Primary System," and NRC Information Notice 2004-10, "Loose Parts in Steam Generators," indicate that NRC is concerned as to the functionality of pressurized water reactor sites' loose parts monitoring systems. Industry experience shows that loose parts are common on the primary and secondary sides of steam generators and in the RCS, and that LPMSs have been used to aid plant staff in determining whether a shutdown is necessary to investigate the possible presence of a loose part and whether it has damaged pressure boundary components.

The inspector concluded that Dominion had various methods of assuring steam generator primary side pressure boundary integrity, including regularly performed eddy current testing and the presence of a foreign material exclusion program. However, the inspector noted the lack of a loose parts monitoring program at Millstone Unit 2, having compared the practices there to the other operating unit as well as the industry norm. The LPMS operation has been unreliable at Unit 2, and the inspector observed that the spurious alarms are distracting to control room operators, especially during mode change in start-up. There is also a lack of documented evaluation criteria for interpretation of recorded loose parts data. Dominion staff acknowledged these observations during the inspector debrief.

Unit 3 - Failure of Turbine-Driven Auxiliary Feedwater (TDAFW) Pump Due to Turbine Overspeed

a. Inspection Scope (71152 - 1 Sample)

The inspector reviewed the actions taken by Dominion to identify and correct the cause(s) for two overspeed trips of the TDAFW pump. The first overspeed trip occurred in April 2005 following a reactor trip and automatic auxiliary feedwater (AFW) start signal following a steam generator low level initiation signal (Inspection Report 05000336,423/2005012). The second failure occurred during a scheduled surveillance test in January 2006 (Inspection Report 05000336,423/2006006). In both cases the overspeed trip occurred within ten seconds of the TDAFW pump receiving the start signal. Dominion concluded that both trips occurred because the TDAFW throttle valve stuck in the full open position following the start signal. This caused turbine speed to continue to increase due to the oversupply of steam to the turbine until the electrical overspeed trip signal was received. Dominion's root cause evaluation found several possible failure mechanisms that could have caused the overspeed condition. Because they could not determine the actual cause of the failure, corrective actions were taken to address each possible cause. After the corrective actions were completed, Dominion concluded the throttle valve stuck open due to mechanical binding of the linkage between the governor and the throttle valve stem.

The inspector reviewed Dominion's condition reports and associated root cause evaluations to determine what Dominion concluded that caused the trip of the equipment, and what corrective actions were recommended and taken to correct the problem. The inspector also conducted interviews with plant personnel, walked down the TDAFW pump, and reviewed operating experience associated with turbine overspeed trips to determine if the problems identified by Dominion adequately explained the cause of the failures. Finally, the inspector verified that Dominion had taken the corrective actions recommended in the root cause evaluation. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified. The inspector concluded that Dominion's investigation was adequate and corrective actions taken would correct the problems identified in the root cause analysis. Subsequent testing and corrective actions taken to correct these deficiencies found that the problem was corrected when a modification to the linkage bolting was performed.

.4 ALARA Planning and Controls

a. Inspection Scope

The inspector reviewed twenty-one (21) Condition Reports, eight (8) Nuclear Oversight Department Field Observation reports, relating to maintaining personnel exposure ALARA during the Unit 2 refueling outage, and a recent Nuclear Oversight Audit report

of site radiological protection, to evaluate the threshold for identifying, evaluating, and resolving radiological control problems. This 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.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Inspection Scope

On October 7, 2006, at 3:30 a.m., while Unit 2 was in Mode 3, Operations commenced infrequently performed test or evolution (IPTE) Operating Procedure (OP)-2304H, "Boric Acid Addition to Chemical and Volume Control System from Spent Fuel Pool (SFP) Cask Laydown Pit," to borate the reactor coolant system following a planned refueling reactor shutdown (2R17). At 4:53 a.m., with the Unit in Mode 4, while pumping boric acid out of the cask laydown pit using a submersible pump, a dedicated watchstander identified that the SFP level in the SFP was dropping. At the same time, the control room received a SFP cooling pump low suction flow alarm. The watchstander noticed that there was a chugging of water at the suction of the SFP cooling pumps for the SFP. The control room dispatched a second operator to investigate the SFP cooling pumps and noticed the flow was oscillating between 400 and 800 gpm. The control room directed the running SFP pump secured. The early boration IPTE was terminated and Operations entered Abnormal Operating Procedure (AOP)-2582, "Loss of Spent Fuel Pool Cooling" and AOP-2578, "Loss of Refuel Pool and Spent Fuel Pool Level." The SFP level had dropped approximately 6-8 inches after equalizing with the SFP cask laydown pit and did not drop below the suction of the common SFP cooling suction line. At 5:46 a.m., Operators took action to restore SFP cooling by filling, venting, then starting the "B" SFP cooling pump. After verifying the expected flow parameters, AOP-2582 was exited at 5:51 a.m. At 6:41 a.m., 11,012 gallons of primary makeup water were added to the SFP to restore level and AOP-2578 subsequently exited. No noticeable increase in spent fuel pool temperature occurred during the event. The inspectors reviewed AOP-2582 and AOP-2578, control room logs, technical specifications, and evaluated the adequacy of operator actions.

Findings

No findings of significance were identified.

.2 Inspection Scope

On October 28, 2006, the inspectors observed operator actions and evaluated overall crew performance during a rapid downpower of Unit 3 in accordance with AOP-3575, "Rapid Downpower," any equipment or human performance complications. The downpower was conducted when high winds caused debris to build up at the Unit 3 intake, challenging the circulating water system. Unit 3 was downpowered from

100 percent to 75 percent at a rate of 3 percent per minute in accordance with AOP-3575, "Rapid Downpower." The inspectors reviewed AOP-3575 and control room operator actions.

Findings

No findings of significance were identified.

.3 Inspection Scope

On October 30, 2006, at 1:26 a.m., with Unit 2 de-fueled in Mode 0, Operations responded to a loss of reactor building component cooling water (RBCCW) flow while attempting to cycle the "C" RBCCW outlet valve, 2-RB-4.1E, as part of a scheduled surveillance. During the surveillance, Operations missed a step in the procedure resulting in aligning the running “A” RBCCW pump to both RBCCW headers. The misalignment caused the “A” RBCCW pump to trip off on low suction pressure. Since the “A” RBCCW pump was the only pump supplying spent fuel pool (SFP) cooling, via the shutdown cooling (SDC) heat exchanger, SFP cooling was lost. Operations entered abnormal operating procedure (AOP) 2564, “Loss of RBCCW Flow.” At 1:30 a.m., Operations started the “B” RBCCW pump thereby restoring RBCCW flow and SFP cooling. Operations exited AOP-2564 at 1:45 a.m. No noticeable increase in SFP temperature occurred during this event. The inspectors reviewed AOP-2564, control room logs, technical specifications, and evaluated the adequacy of operator actions.

Findings

No findings of significance were identified in this section of the report. Section 1R20.1 dispositions the performance deficiency associated with this event. (NCV 05000336/2006005-02)

.4 Inspection Scope

On November 18, 2006, the Unit 2 East direct current (DC) switchgear cooling non-vital chiller (X196B) was found not operating and its respective supply breaker was found in the tripped free position. Operations attempted to start the redundant non-vital chiller X196A but the chiller failed to start. Operations then attempted to start both trains’ vital chillers (X169A and X169B). X169B started and operated as expected. X169A started but cycled off about once every ten seconds. At 1:45 a.m., Operations entered TS 3.0.3 based on loss of cooling to the east DC switchgear room since vital chiller X169A was declared inoperable and the reactor trip circuit breakers are located in this area. At 2:52 a.m., Operations exited TS 3.0.3 after compensatory cooling had been established to the East DC switchgear room in accordance with OP 2315D, “Vital Electrical Switchgear Cooling System." On November 20, 2006, at 4:52 p.m., vital chiller X196A was repaired and normal DC switchgear ventilation established. The inspectors reviewed operator logs, technical specifications, and evaluated the adequacy of operator actions.

Findings

No findings of significance were identified.

.5 Inspection Scope

On November 19, 2006, the inspectors identified that room temperature within the B61 motor control center room was significantly higher than normal or expected. The inspectors contacted Operations who indicated that the B61 air conditioning unit would operate to restore room temperature before an operability limit would be reached. The inspectors informed Operations that the room temperature still appeared significantly higher than normal and that the margin to the operability limit was significantly less than normally expected. In addition, the inspectors informed the Outage Control Center of these observations. On November 20, 2006, the inspectors informed Dominion management of their concerns relative to the effectiveness of B61 room cooling. On November 21, 2006, Engineering and Operations determined that local air temperatures inside the safety-related motor control center (MCC) enclosures B51 and B61 were 90 degrees Fahrenheit and 98 degrees Fahrenheit respectively, as compared to a maximum operating limit of 104 degrees F. In addition, the local air conditioning (AC) units associated with these enclosures were not blowing out cool air. At 2:24 p.m., Operations entered TS 3.0.3 after declaring both B51 and B61 inoperable based on the local AC units not operating properly. The shift technical advisor performed an emergent risk assessment and calculated the overall plant risk to be elevated based on conservatively taking the B51 and B61 enclosures out of service within the risk model. Operations took action to implement compensatory cooling to the B51 and B61 enclosures. These actions consisted of:

- Opening the B51 and B61 egress doors;
- Securing auxiliary steam to the auxiliary building;
- Installation of auxiliary building floor plugs; and
- Opening doors between the auxiliary building and the enclosure building.

At 2:55 p.m., Operations entered TSAS 3.6.5.2, “Enclosure Building Integrity,” since opening doors between the auxiliary building and the enclosure building negate the assumptions of the enclosure building filtration system test program (i.e., test program assumes both sets of doors are closed). At 4:05 p.m., Operations exited TS 3.0.3 after all compensatory cooling actions were in place. At 9:40 p.m., the AC units associated with B51 and B61 were repaired, normal cooling established, and the compensatory cooling actions and TSAS 3.6.5.2 exited. Dominion determined that the AC unit failures were due to insufficient refrigerant charging following the last maintenance evolution. The inspectors observed the control room’s response to the abnormally high switchgear room temperatures and reviewed control room logs, technical specifications, performed a walkdown for areas associated with the compensatory cooling actions, and evaluated the adequacy of operator actions.

Findings

No findings of significance were identified in this section of the report. An unresolved item (URI 05000336/2006005-03, Failure to Identify a Condition Adverse to Quality affecting the B51 and B61 Enclosures) has been opened pending NRC review of Dominion's corrective actions and evaluations (1R20.2).

.6 Inspection Scope

On November 28, 2006, at 10:52 a.m., with Unit 2 at 99.6 percent power, Operations responded to a higher than expected increase in primary plant temperature and corresponding pressurizer level during the performance of an isothermal temperature coefficient (ITC) test. During the ITC test, Operations raised and lowered reactor coolant system (RCS) temperature by changing main turbine loading. While reducing the turbine load, Operations saw a rise in RCS Tcold and pressurizer level to values of 549.4 degrees Fahrenheit and 70.4 percent respectively. These values exceeded the Core Operating Limits Report Departure from Nucleate Boiling Tcold limit of 549 degrees Fahrenheit and the Technical Specification (TS) limit for pressurizer volume of 70 percent. Operations entered TS 3.2.6, "Departure from Nucleate Boiling Margin," and TS 3.4.4, "Pressurizer." Operations took action to restore the limits to within allowable values by raising turbine load and reducing RCS temperature and pressurizer level. This action was completed within one minute, and both TSs were exited at 10:53 a.m. Dominion entered this condition into their corrective action program (CR-06-11823). The inspectors reviewed control rooms logs, technical specifications, and evaluated the adequacy of operator actions.

Findings

No findings of significance were identified.

.7 (Closed) Licensee Event Report (LER) 05000336/2006-002-00

Manual Reactor Trip Due to Trip of Both Feed Pumps Following a Loss of Instrument Air

On February 23, 2006, a manual reactor trip was initiated due to a trip of both feed pumps following a loss of instrument air. The loss of instrument air was caused by the failure of a weak solder joint which was disturbed while attempting to repair an incorrectly installed clamp, not designed for instrument air piping. This resulted in a one-half inch copper line separating from a tee connection causing a partial loss of the instrument air system in the turbine building. Dominion took corrective actions to prevent recurrence of this condition. The LER was reviewed and no findings of significance were identified and no violation of NRC requirements occurred.

.8 (Closed) LER 05000423/2006-001-00/01

Loss of Safety Function of the Control Room Emergency Ventilation System

On March 1, 2006, with the plant in Mode 1 at 100 percent power, both trains of the Control Room Emergency Ventilation System (CREVS) were unavailable as a result of the valve air actuator and manual actuator being removed from one of the two in series air-operated control room air inlet isolation valves. The valves are required to open during manual alignment of the CREVS, which permits control room pressurization using filtered outside air in the emergency recirculation mode. Dominion took corrective actions to prevent recurrence of this condition. The LER was reviewed and no findings of significance were identified. No violation of NRC requirements occurred since the time that both trains were unavailable did not exceed the TS allowed outage time.

4OA5 Other Activities

.1 (Open) NRC Temporary Instruction (TI) 2515/166 - Pressurized Water Reactor Containment Sump Blockage

a. Inspection Scope

The inspectors performed the inspection in accordance with TI 2515/166, "Pressurized Water Reactor Containment Sump Blockage," for Millstone Unit 2. The TI was developed to support the NRC review of Dominion activities in response to NRC Generic Letter (GL) 2004-02, “Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors.” The inspectors reviewed a sample of the licensing and design documents to verify that they were either updated or in the process of being updated to reflect the modifications. A sample of material specifications, testing and surveillance procedures, and calculations were reviewed to verify that they were updated to reflect the effects of the modification, and the new requirements for the containment sumps and debris generation sources. The inspectors performed a walkdown of the strainer installation to verify it was performed in accordance with the approved design change package. Additionally, the inspectors verified that work was in progress to remove and replace CalSil insulation in containment that could be dislodged during a loss of coolant accident. Finally, the inspectors verified that there were no choke-points that could prevent water from reaching the recirculation sump during a design basis accident.

b. Evaluation of Inspection Requirements:

The TI requested the inspectors to evaluate and answer the following questions:

1. Did Dominion implement the plant modifications and procedure changes committed to in their GL 2004-02 response?

   The inspectors verified that actions implemented by Dominion as described in response to GL 2004-02 were complete as it related to the installation of the sump

screen, removal of insulation, evaluation of potential debris sources and the potential for clogging of downstream components due to debris bypass. Additionally, the inspectors found that procedures to programmatically control potential debris generation sources were updated. The inspectors noted that the sump surface area that was installed had a smaller surface area than was discussed in the GL response and the current net positive suction head available margin calculations have more margin than that which was submitted in the response. Dominion entered these issues into their corrective action program and intends to update the GL response. The inspectors noted that Dominion had not competed the long term downstream effects evaluation or the effects of chemical precipitants on the strainer head loss at the time of the inspection.

2. Has Dominion updated its licensing basis to reflect the corrective actions taken in response to GL 2004-02?

   The inspectors verified that changes to the facility or procedures, as described in the Updated Final Safety Analysis Report, that were identified in Dominion's GL 2004-02 response were reviewed and documented in accordance with 10 CFR 50.59 and Dominion had obtained NRC approval prior to implementing those changes that require such approval as stated in 10 CFR 50.59. The inspectors noted that Dominion had submitted a TS amendment to change the inspection surveillance required by TS 4.5.2j. The amendment was under review by the NRC at the time of the inspection. Finally, the inspectors verified that Dominion intends to update the Millstone Unit 2 licensing bases to reflect the final modification and associated procedure changes taken in response to GL 2004-02. Dominion intends to update the Millstone Unit 2 GL 2004-02 response to reflect these changes.

The TI will remain open to allow for the review of portions of the GL response that have not been completed. Specifically, Dominion had not completed their downstream effects analysis or chemical precipitant analysis. The results of these analyses have the potential to impact the final size of the strainer, licensing basis and programmatic procedures. Therefore, the inspection will be considered incomplete until the results are reviewed. Dominion plans to evaluate the strainer for adequacy once the test results that quantify the head loss are known. The NRC has set a December 2007 deadline for the completion of these evaluations.

c. Findings

No findings of significance were identified.

.2 (Closed) NRC Temporary Instruction (TI) 2515/169 - Mitigating Systems Performance Index Verification

a. Inspection Scope (2 Samples)

The inspectors performed TI 2515/169, "Mitigating Systems Performance Index (MSPI) Verification," for Millstone Units 2 and 3. The inspectors collected and reviewed

Dominion procedures and supporting information pertaining to MSPI for both units. The inspectors reviewed the data submitted by Dominion to Nuclear Energy Institute (NEI) against actual plant system performance and plant conditions. The inspectors interviewed system engineers and the plant's MSPI coordinators. Dominion's procedures and data collection were reviewed against the TI and NEI 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guideline."

b. Findings and Observations

No findings of significance were identified. The inspectors identified several examples of significant transposition errors between the data Millstone has in their MSPI documents and the data submitted to NEI via the Consolidated Data Entry (CDE) system. Though several of the errors were significant (for example, "0" hours reported versus 50 hours of unavailability), MSPI thresholds were not exceeded.

CR-06-09021 was initiated and Dominion audited all of their MSPI document data against the CDE data entries. Dominion determined that no thresholds requiring additional actions were crossed following their data correction. In addition, the inspectors noted that during emergency diesel generator thermal performance testing, it was not clear what operator actions were being credited for the purpose of the MSPI. CR-06-08884 was initiated to document this condition and to track completion of actions to update the MSPI basis document and the thermal performance testing procedure.

4OA6 Meetings, Including Exit

Section 2OS1: Access Control to Radiologically Significant Areas and Section 2OS2: ALARA Planning and Controls

On November 16, 2006, the inspector presented the overall inspection results to Mr. J. Alan Price, and members of his staff, who acknowledged the findings. The inspector determined that no material examined during the inspection was considered proprietary by Dominion.

Inservice Inspection

On November 27, 2006, the inspector presented the overall inspection results to Dominion staff. The inspector reviewed some information that Dominion considered proprietary, however, that information was not retained and is not included in this report.

Triennial 10 CFR 50.65 (a)(3) Periodic Evaluation Inspection

On December 1, 2006, the inspectors presented the overall inspection results to Mr. Richard MacManus, and members of his staff. The inspectors reviewed some information that Dominion considered proprietary, however, that information was not retained and is not included in this report.

Integrated Report Exit Meeting Summary

On January 10, 2007, the resident inspectors presented the overall inspection results to Mr. J. Alan Price, and members of his staff, who acknowledged the findings. The inspectors determined that no material examined during the inspection was considered proprietary by Dominion.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Dominion and is a violation of NRC requirements which meets the criteria of Section VI.A.1 of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCV.

- 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires in part, that in the case of significant conditions adverse to quality measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to this requirement, Dominion did not take adequate corrective action to prevent scaffolding from being constructed on top of the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump high energy line break (HELB) blowout panel following two prior scaffolding events. Dominion identified this condition on December 21, 2006, during an Operations Shift Manager tour. Previously, on June 28, 2005, the inspectors had identified that a security fence had been constructed over the same TDAFW HELB blowout panel in a manner that had not been properly evaluated (CR-05-07367). In addition, on October 7, 2006, scaffold constructed adjacent to the #1 main steam isolation valve prevented the valve's operation during surveillance testing (CR-06-09203). The inspectors determined that Dominion had reasonable opportunity from both of these prior occurrences to specify corrective action to prevent scaffolding from being constructed on top of the TDAFW blowout panel. Dominion entered this finding in their corrective action program (CR-06-12526).

  The Region I Senior Reactor Analyst (SRA) conducted a risk assessment of the condition and made the following assumptions: the approximate length of steam supply piping in the turbine-driven auxiliary feedwater (TDAFW) pump room is twenty feet and the diameter of the pipe is four inches; the duration of the condition (scaffolding interference) was nine days; and, no operator recovery credit to isolate the steam break prior to damage to the adjacent motor-driven auxiliary feedwater (AFW) pumps was given. Based upon these assumptions, the SRA used a generic carbon steel pipe rupture failure rate (>3 inch diameter, 5E-11/hour/foot) and estimated the failure probability of the steam pipe in the TDAfW pump room, over the assumed nine day period to be, 2.2E-7. Based upon the pipe failure probability alone, this condition is considered to be very low safety significance. The SRA notes that for this condition to contribute to core damage probability, the pipe rupture must be coincident with an initiating event which requires the mitigation function of the AFW system. Accordingly, the increase in conditional core damage probability associated with this condition is considerably less than the probability of failure of

the pipe, by itself, over the nine day exposure period. Therefore, this condition is considered to be very low safety significance (Green).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel
F. Cietek, Equipment Reliability Engineer
T. Cleary, Licensing
D. Delcore, Supervisor, Health Physics Operations
D. Dodson, Supervisor, Station Nuclear Licensing
R. Griffin, Director, Nuclear Station Safety & Licensing
P. Grossman, Manager, Nuclear Design Engineering
C. Janus, Equipment Reliability Engineer
A. Jordan, Director, Nuclear Station Operations and Maintenance
E. Laine, Manager, Radiological Protection & Chemistry
J. Langan, Manager, Nuclear Oversight
D. Lowell, Feedwater Control System Engineer
R. MacManus, Director, Nuclear Engineering
M. Nappi, Supervisor, Radiation Protection - ALARA
A. Price, Site Vice President - Millstone
S. Turowski, Supervisor-HP Technical Services

NRC personnel
J. C. Benjamin, Resident Inspector, Division of Reactor Projects (DRP)
A. E. DeFrancisco, Reactor Inspector, Division of Reactor Safety (DRS)
K. X. Diederich, Reactor Inspector, DRS
R. A. Fernandes, Resident Inspector, DRP
E. E. Huang, Reactor Engineer, DRP
S. R. Kennedy, Resident Inspector, DRP
M. K. Klump, Nuclear Safety Professional Development Program (NSPDP) Intern, Headquarters
K. A. Mangan, Senior Reactor Inspector, DRS
M. C. Modes, Reactor Inspector, DRS
T. A. Moslak, Health Physicist, DRS
S. M. Schneider, Senior Resident Inspector, DRP
N. S. Seiller, Reactor Engineer, DRP
A. X. Zografos, NSPDP Intern, Headquarters

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000336/2006005-03	URI	Failure to Identify a Condition Adverse to Quality Affecting the B51 and B61 Enclosures (Section 1R20.2)
05000336,423/2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (Section 4OA5.1)

Opened and Closed

05000336/2006005-01	FIN	Inadequate Control of Outside Maintenance Activities That Resulted in Unexpected Flooding of Both EDG Rooms (Section 1R06)
05000336/2006005-02	NCV	Failure to Implement Surveillance Procedures Resulted in a Temporary Loss of Spent Fuel Pool Cooling (Section 1R20.1)
05000336/2006005-04	NCV	Failure to Identify Scaffolding Rendered the #1 SG MSIV Inoperable (Section 1R22)

Closed

05000336/2006-002-00	LER	Manual Reactor Trip Due to Trip of Both Feed Pumps Following a Loss of Instrument Air (Section 4OA3.7)
05000423/2006-001-00/01	LER	Loss of Safety Function of the Control Room Emergency Ventilation System (Section 4OA3.8)
05000336,423/2515/169	TI	Mitigating Systems Performance Index Verification (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

C OP 200.13, Revision 000-05, Cold Weather Preparations
Unit 2 Technical Specification
Unit 3 Technical Specification
Unit 2 UFSAR
Unit 3 UFSAR
Unit 2 Lesson Plan AFW-00-C, Revision 5 Change 3, Auxiliary Feedwater System
Unit 3 Lesson Plan FWA061C, Revision 5 Change 1, Auxiliary Feedwater System
IC 2429D4, Revision 001-07, CST Pipe Trench Heat Tracing and Sump Level Instrument Calibration
Unit 2 PEO Outside Rounds Daily Logsheet
OP-3352, Revision 013-01, Heat Tracing
Operator Work Around, Burdens, and Distractions for October 21, 2006
CR-05-03086, CST Protection Trouble Annunciator Received
CR-03-02708, Trending Up CST Temp due to 2-AS-20 Leaking By Shut Seat
SP-3665.2, Intake Structure Condition Determination
OP-3215, Response to Intake Structure Degraded Conditions

Section 1R04: Equipment Alignment

OPS-OP-2326A, Revision 022-04, Service Water System
EM-130B, Revision 35, Piping and Instrumentation Diagram, Auxiliary Feedwater System
SP-3622.4-001, Revision 005-02, Auxiliary Feedwater System (MDAFW Train A)
SP-3670.1-008, Revision 003-00, Plant Equipment Rounds-Outside
OP-2330A-002, Revision 000-02, RBCCW System Alignment, Facility 2
OP-2304A-001, Revision 016-08, Placing the CVCS in Operation from Reactor Coolant Loop to VCT
OP-3346A-015, Revision 011-02, EDG "B" Operating Log
OPS-OP-2301E, Revision 023-01, Draining the RCS IPTE
OPS-OP-2218, Revision 008-02, Reduced Inventory Operation
CR-06-11749, Changes in Letdown Temperature Affected Reactivity Rapidly Increasing Reactor Power
P&ID 25203-26022, Sheet 5 of 6, Revision 24, RBCCW System, Containment Air Recirculation and Coolant Unit
P&ID 25203-26017, Sheet 2 of 3, Revision 31, Deborating & Purification System

Section 1R05: Fire Protection

Unit 2 Fire Protection Evaluation Report
Unit 3 Fire Protection Evaluation Report
Unit 3 Fire Fighting Strategy, Fire Areas ESF-1, ESF-2, ESF-3, ESF-6, ESF-7, ESF-8, ESF-9, ESF-10, ESF-11

Section 1R06: Flood Protection Measures

Unit 2 Control Room Logs
Unit 2 eSOMS
DM2-00-0480-05, MP2 Main GSU Replacement Project-345 KV Tower and Transformer Foundations (Civil)
M2-EV-970072, Revision 0, Emergency Diesel Generator Building Floor Drains Backflow Prevention
MP-26-EPA-REF02, Revision 009, Millstone Unit 2 Emergency Action Level
RP-5, Revision 003, Attachment 6, Operability Determination
CR-06-07890, Heavy Rain Causes Local Flooding Issues
CR-06-09352, "A" Diesel Removable Cement Wall (on East Side of Diesel Room - Inside) Needs to be Recaulked
CR-06-09446, U2 "A" EDG Removable Block Wall
CR-06-09991, During Disassembly of "A" EDG Removable Wall Corrosion Noted on Some Surface Where Caulk Must Be Applied
CR-06-10191, Stripped Anchor Bolt on North Angle Bracket of "A" EDG Wall Second Hole from Top
CR-06-10325, Flood Gate #9 for the "A" diesel Generator has a Bent Retaining Hook
CR-06-10266, Non-Design Compliant Concrete Anchors are Supporting EDG Removable Panels Inner Vertical Gasket Angle Iron Strong Backs
CR-07-00475, NRC-Identified Potential Finding Associated with MP2 EDG Room Flooding Event in 2006
SP-2615, Revision 006-01, Flood Level Determination
AOP-2560, Revision 010-01, Storms, High Winds and High Tides

Section 1R08: Inservice Inspection
Dwg 5046388E, "Millstone Unit 2 Lead-Off Line Reroute"

Section 1R11: Licensed Operator Requalification Program
MS2 Simulator Regulating System Post Outage Follow-up Lesson Plan S06702
AOP-2557, Revision 006-01, Emergency Generation Reduction
Unit 3 Licensed Operator Simulator Training Lesson Plan on November 22, 2006

Section 1R12: Maintenance Effectiveness
Routine Maintenance Effectiveness Inspection
CR-06-11922, Lessons Learned from A & B HPSI Pump IST and Affect on #4 SIT
CR-06-11514, All Four SIT Low Pressure Alarms are Locked In
CR-06-12142, 2-SI-245, #4 SIT Outlet Check Valve Leaks by Seat
CR-06-12072, "A" HPSI Pump Run to Fill #4 SIT Causes SI to RCS Check Valve 2-SI-247 to Leak By
CR-04-04960, #4 SIT Level Slowly Rising
CR-04-06372, Samples of #4 SIT Show a Lowering Boron Concentration Trend Over Last 6 Months. (Boron Levels Remain Well Above TS Minimum
CR-06-05743, #4 SIT Tank Level Rate of Increase Doubled Since Last Sample (June 3, 2006)
CR-06-03049, Separate Strainer Elements had a Missing Weld in the "C" Strainer
CR-05-12544, Unplanned LCO "B" SWP Strainer would not Blow Down Automatically or Manually
CR-05-08722, "B" Service Water Strainer Failed to Backwash after 4 Hours
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Section 1R13: Maintenance Risk Assessments and Emergent Work Control

MP-13-PRA-FAP01.1, Revision 002-01, Performing (a)(4) Risk Reviews
MP-20-WM-FAP02.1, Conduct of On-Line Maintenance
AWO-M3-04-14417, Replacement of 3SWP*STR1C Strainer Cover Equipment Out of Service Risk Model

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Risk-Informed Inspection Notebook for Millstone Nuclear Power Station, Unit 2
CR-06-12526, Scaffold Impair Terry Turbine Room Blow Out Panel
Unit 2 Control Room Logs
Unit 3 Control Room Logs

Section 1R15: Operability Evaluations

RECO MP2-009-006, "B" Emergency Diesel Generator Flood Door Gaps
CR-06-09756, "B" EDG Room Removable Wall inside Lower Seal Has 3 Small Defects Associated With the Vertical Seams
CR-06-09518, "C" Low Pressure Safety Injection Accumulator Sample Results Reported as 2603 ppm
Reasonable Expectation of Continued Operability, MP3-018-06, "C" Accumulator Boron Concentration Decreased to 2603ppm
DNAP-2000, Revision 5, "C" Accumulator Troubleshooting Plan
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Section 1R17: Permanent Plant Modifications

DCN DM2-00-0102-06, Installation of Nitrogen Fill Line Servicing Charging System Pulsation Dampeners
DCM 03-007A, Revision 015-02, Turbine-Driven Auxiliary Feedwater Pump Governor Replacement
50.59/72.48 Evaluation, DNAP-3004, Attachment 6
DCM-3-2A, Revision 011-01, MP2 Power-Operated Relief Valve (2RC-402,-404) Replacement

Section 1R19: Post-Maintenance Testing

M2-05-1959-20, 2-RB-342 Overhaul
M2-04-09251, New "D" RCP Seal
M2-03-11011, RSST Replacement
M2-05-03755, #5 TCB Clean and Inspect
M3-06-11311, Leak on "B" AFW Pump 3FWA*P1B Recirculation Line
CR-06-11528, TCB-5 Opening Spring had become Dislodged and had Fallen into the Breaker Mechanism

Section 1R20: Refueling and Other Outage Activities

OP-2272C, Revision 001-02, Plant Operation in Mode 3 Prior to a Reactor Startup
OP-2205, Revision 014-03, Plant Shutdown
OP-2201, Revision 030-07, Plant Heatup
OP-2202, Revision 021-00, Reactor Startup
OP-2203, Revision 017-02, Plant Startup
OP-2207, Revision 026-04, Plant Cooldown
OP-2264, Revision 009-10, Conduct of Outage
OP-2216, Revision 003-06, End of Cycle Coastdown
OP-2260F-006, Revision 005-05, Outage Surveillance Checklist Entry into Mode 3 and Mode 3*
OP-2353A, Revision 006-01, Filling and Venting Various Emergency Core Cooling System

Piping and Component
OP-2209B, Revision 001-01, RCS Inventory Tracking
OP-2310, Revision 023-00, Shutdown Cooling System
OP-2310MAINT, Revision 000-05, Shutdown Cooling Support Systems
OP-2218, Revision 008-01, Reduced Inventory Operation
OP-2314F, Revision 013-03, Fuel Handling Area Ventilation System
OP-2301D, Revision 027-03, Filling and Venting the RCS
OP-2301E, Revision 022-02, Draining the RCS
OP-2209B, Revision 000-01, RCS Inventory Tracking
OP-2209A, Revision 023-02, Refueling Operations
OP-2310, Revision -23-00, Shutdown Cooling System
ENG-EN 21008, Revision 013-01, Refueling Work List Administrative Controls
FH-210, Revision 000-00, Spent Fuel Pool Operation
FH-216, Revision 000-02, SFP Fuel Handling Operation
SP-2619D, Revision 008-00, Reactor Startup Surveillances
SP-2610BS, Revision 000-06, TDAFP Tests, Shutdown
SP-2610G, Revision 002, PORV Stroke Test IST
SP-2609E, Revision 008-05, EBFS Negative Pressure Test
WM-MP-20-OM-FAP-02.1, Revision 001-05, Shutdown Risk Management
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AOP-2578, Revision 006-02, Loss of Refuel Pool & Spent Fuel Pool Level
AOP-2582, Revision 002-02, Loss of Spent Fuel Pool Cooling
AOP-2583, Revision 002-02, Loss of all AC During Shutdown Conditions
MP-2704C, Revision 018-01, Reactor Vessel Head Removal
MP-2704A, Revision 012-00, Preparation for Reactor Vessel Head Removal
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SPR-SPROC OPS03-2-03-001, Revision 000-01, Vacuum Fill of RCS
RP-5, Revision 003, Attachment 5, Basis for initial Reasonable Expectation of Continued Operability or Reasonable Assurance of Safety for Non-Technical Specification SSC's
M2-EV-06-0022, Revision 01, Moving Light Loads Over the Millstone Unit 2 Spent Fuel Pool with the Control Room Emergency Ventilation System Inoperable
CR-06-09143, Weekly 3BGF-TK2 Station Black Out (SBO) Diesel Fuel Storage Tank Particulate Results are 2.1 MG/L
CR-06-09005, With a Diesel Storage Tank Empty or Inop How Are We meeting the Basis of TS 3.8.1.1
CR-06-09840, Two Events Have Occurred During 2R17 that Adversely Impacted Critical Parameters during Periods of Lower RCS Level
CR-06-09749, Additional Information Related to Loss of RCS Level Indication on October 13, 2006
CR-06-09261, Unplanned TSAS Entry
CR-06-09257, Charging Pumps Cycled Off Then On Twice While Performing Plant Shutdown
CR-06-09240, Boric Acid Deposit on Inlet to 2-RC-73
CR-06-10153, Near Miss Related to Release of Work
CR-06-09210, Spent Fuel Pool Lowered During Early Boration Due to Pit Gate Seal Leakage
CR-06-10484, During ESAS Testing An Unexpected Response Occurred
CR-06-09518, "C" LPSI Accumulator Sample Results Reported as 2603 PPM (Tech Spec

Limits 2600-2900 PPM)
CR-06-10844, Foreign Material Found in Channel Head of X23B, "B" Shutdown Cooling Heat Exchanger
CR-06-10030, Two Fuel Assemblies from Cycle 17 Found to be Leaking During Core Offload
CR-06-10062, Fuel Pin Missing Upper End Plug and About 1 to 2 Inches of Cladding
CR-06-09601, RCS Level Sensing Instrumentation Removal
CR-06-11289, Debris (FME) Found in the Inlet Channel of the "A" shutdown Cooling Heat Exchanger X23A
CR-06-09571, Indication Failure and Unexpected Main Board Annunciators During Removal of Pressurizer Level Recorder LR-110
CR-06-08361, Found A/C-3 (B51 Cooler) running with Bubbles Evident in the Fluid Sightglass
CR-06-10565, The A-RBCCW Pump Tripped on Low Suction Pressure, Resulting in Loss of Cooling to the SFP with the Core Off-Loaded

Section 1R22: Surveillance Testing

SP-2613G, Revision 011-00, Integrated Test of Facility 1 components (IPTE)
SP-2610BS, TDAFP Tests, Shutdown
SP-2730B, Revision 012-02, Main Steam Safety Valve Testing (IPTE)
SP-3646A.1, Revision 016-03, Emergency Diesel Generator “A” Operability Test
SP-3608.1, Revision 010-03, Safety Injection Pump “A” Operational Readiness Test
TRM Table 7.1.20-1, Service Water System Components Operability Requirements and Compensatory Measures
CR-06-09203, Scaffolding Built for Work on 2-MS-64A Prevented the Valve from Closing
CR-03-09678, SG MSIV Non-return Valve 2-MS-1A) Operating Arm obstructed by Scaffolding Maintenance Rule Functional Failure Evaluation dated October 11, 2006
Root Cause Evaluation —06-09203, Temporary Scaffold Renders "A" MSIV Inoperable
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Section 1R23: Temporary Plant Modifications

ENG-04223M2, Revision 0, 50.59 Crediting the Containment Spray Pumps for Decay Heat Removal in Mode 6
NRC Inspection Manual, Part 9900, 10 CFR Guidance, Changes, Tests and Experiments
NRC Draft Regulatory Guide DG-1162, Spent Fuel Storage Facility Design Basis
CR-06-09210, Spent Fuel Pool Lowered During Early Boration Due to Pit Gate Seal Leakage
Unit 2 Control Room Logs
Unit 2 ESOMS
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AOP-2578, Revision 006-02, Loss of Refuel Pool and Spent Fuel Pool Level
50.59 Evaluation Form
MP-2721W, Revision 007-04, Spent Fuel Pool Gate Maintenance and Movement
OP-2304H, Revision 000-00, Boric Acid Addition to CVCS from Spent Fuel Pool Cask Laydown Pit (IPTE)
OP-2304H, Revision 000-01, Boric Acid Addition to CVCS from Spent Fuel Pool Cask Laydown Pit (IPTE)
SPROC-OPS04-2-03, Revision 000-02, Boric Acid Addition to the Spent Fuel Pool Cask Laydown Area
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Laydown Pit

Section 2OS1: Access Control to Radiologically Significant Areas and Section 2OS2: ALARA Planning and Controls

Procedures
RPM 1.3.8, Revision 8, Criteria for Dosimetry Issue
RPM 1.3.13, Revision 6, Bioassay Sampling and Analysis
RPM 1.3.14, Revision 7, Personnel Dose Calculations and Assessments
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 1.6.4, Revision 3, Siemens Electronic Dosimetry System
RPM 2.1.1, Revision 5, Issuance and Control of RWPs
RPM 2.1.2, Revision 2, ALARA Interface with the RWP Process
RPM 2.4.1, Revision 3, Posting of Radiological Control Areas
RPM 2.7.1, Revision 4, Entry to Unit 2 Containment
RPM 5.2.2, Revision 10, Basic Radiation Worker Responsibilities
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Nos. M2-06-002, M2-06-003, M2-06-004, M2-06-005, M2-06-006

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November 1, 6, 7, of 2006

Nuclear Oversight Department Field Observation (NODFOB) Reports
Nos. 06-049, 06-058, 06-061, 06-062,06-063, 06-064, 06-067, 06-068
Audit No. 06-08

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2-06-05, In-Service Weld Inspections
2-06-06, Snubber Inspections
2-06-13, Scaffolding, Erection/Removal
2-06-14, Insulation, Removal/Installation
2-05-20, Pressurizer Replacement

2-05-23, RCS Penetration Half Nozzle Repair (10RTD & 9PDT)
2-06-30, Emergency Core Cooling System Sump Modification

Miscellaneous Reports
Millstone Station 5-Year Exposure Reduction Plan (2006-2010)

Section 4OA1: Performance Indicator (PI) Verification
NUREG 1022, Revision 2, Event Reporting Guideline 10 CFR 50.72 and 50.73
CR-06-05351, Unplanned Entry into Tech Spec 3.0.3 for Enclosure Building Filtration
CR-06-05202, Larger Wattage Bulbs Installed in DC Lighting Then Called for in Drawings
Letter from Dominion to NRC dated June 6, 2005 re: Licensee Event Report 2005-002-00, Reactor Coolant system Pressure Boundary Leakage from PWSCC in a Pressurizer Heater Sleeve
Letter from Dominion to NRC dated March 17, 2005 re: Nonconformance with Surveillance Requirements
Letter from Dominion to NRC dated September 20, 2005 re: Licensee Event Report 2005-003-01, Non-Compliance with Technical Specifications due to Installation of Unqualified Test Equipment
Letter from Dominion to NRC dated May 26, 2006 re: Licensee Event Report 2006-001-01, Loss of Charging Function
Letter from Dominion to NRC dated April 21, 2006 re: Licensee Event Report 2006-002-00, Manual Reactor Trip due to Trip of Both Feed Pumps Following a Loss of Instrument Air
Letter from Dominion to NRC dated May 31, 2006 re: Licensee Event Report 2006-003-00, Technical Specification Required Shutdown
Letter from Dominion to NRC dated June 9, 2006 re: License Event Report 2006-004-00, Failure to Enter the Technical Specification Action Statement for Inoperable Reactor Protection System Trips
Letter from Dominion to NRC dated June 30, 2006 re: Licensee Event Report 2006-005-00, Inadvertent Actuation of "A" Motor Driven Auxiliary Feedwater Pump
Nuclear Energy Institute (NEI) 99-02, Revision 4, Regulatory Assessment Indicator Guideline

Section 4OA2: Identification and Resolution of Problems

Loose Parts - Annual Sample

Condition Reports
06-11925, 06-11513, 06-07302, 06-03474, 06-03081, 06-03051, 06-02973, 06-02969, 06-02965, 06-01313, 05-14254, 06-00192, 05-14205, 05-14194, 05-14185, 05-13104, 05-14275, 05-13098, 05-13089, 05-12607, 05-14294

Procedures
IC 2418A Loose Parts Monitoring System Functional Test
IC 2418Z Loose Parts System Calibration
OP 2387B Loose Parts Monitoring System
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Other

Loose Parts Detection Calibration Data Sheet, dated November 10, 2006
Loose Parts Monitoring System Functional Test Data Sheet, dated November 10, 2006
MNPS-2-FSAR, Section 7.5.7, Loose Parts Monitoring
MP2 Loose Parts Monitoring System Upgrade REA
OD No: MP2-004-02
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Regulatory Guide 1.133, Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors
NRC Information Notice 2004-10: Loose Parts in Steam Generators

Failure of Turbine-Driven Auxiliary Feedwater (TDAFW) Pump Due to Turbine Overspeed
05000423/2006006, Millstone Power Station - NRC Problem Identification and Resolution Inspection Report and associated findings
05000423/2005012, Millstone Power Station Unit 3 - NRC Special Inspection Report and associated findings
06-380, Dominion Nuclear Connecticut, Inc. Millstone Power Station Units 2 and 3 NRC Problem Identification and Resolution Inspection Report Clarification Associated with a Non-Cited Violation 05000423/2006006-04
CR-05-04012, While Performing Overhaul of 3MSS*MCV5 Found Stuffing Box Worn Away
CR-06-00244, 3FWA*P2, Turbine Driven Auxiliary Feedwater Pump, Started From Slave Relay per 3622.3 3MSS*V005 tripped during start-up.
CR-06-02039, The Unit 3 Turbine Drive Aux Feed pump (3PWA*P2) Steam control valve stuffing box ID is larger than specified in the Technical Manual
CR-06-02607, CM3-01-046-99 Revised VTM 25212-041-003 with EPRI Information that was not complete
DM3-00-0245-06, Revision 0, Terry Turbine Throttle Valve Linkage
DM3-01-0046-99, Revision 0, Revision to Vendor Technical Manual 25212-041-003VTM (3MSS*MCV5)
DWG. 2275-200-736-010A, Revision 0, Section Governor Level and Valve
EPRI Terry Turbine Maintenance Guide, AFW Application
CR-06-00244, Unit 3 Turbine Driven Auxiliary Feedwater Pump Trip Root Cause Evaluation, Completed on February 1, 2006
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MP 3704A-304, Preventive Maintenance Technique Terry Turbine Governor to Governor Control Valve Linkage Adjustment, Revision 002-02
MP 3762AB, Terry Turbine Governor Control Valve Maintenance, Revision 001-02
NRC Information Notice 94-66, Overspeed of Turbine-Driven Pumps caused by Governor Valve Stem Binding
NRC Information Notice 94-66, Supplement 1, Overspeed of Turbine-Driven Pumps caused by Binding in Stems of Governor Valves
NRC Information Notice 98-24, Stem Binding in Turbine Governor Valves in Reactor Core Isolation Cooling (RCIC) and Auxiliary Feedwater (AFW) Systems

Section 4OA3: Followup of Events and Notices of Enforcement Discretion
OP-2304H, Revision 000-00, Boric Acid Addition to CVCS from Spent Fuel Pool Cask Laydown Pit (IPTE)

CR-06-09210, Spent Fuel Pool Lowered During Early Boration Due To Pit Gate Seal Leakage
CR-06-11525, x196B Trip, “B” Non Vital Chiller
CR-06-11526, X196A (A Non Vital Chiller) will Not Start
CR-06-11638, A/C-3 B51 Air Conditioner and A/C-4 B61 Air Conditioner are not Working
CR-06-11540, A/C-4 Not Cooling Room
CR-06-11530, Unable to Obtain Appropriate Compensatory Equipment
CR-06-11643, A/C-3 and A/C-4 Air Flow Short Cycles Between Discharge and Inlet, Which Results in the Room Not Being Uniformly Cooled
AOP-2582, Revision 002-03, Loss of Spent Fuel Pool Cooling
AOP-2578, Revision 006-02, Loss of Refuel Pool and Spent Fuel Pool Level
AOP-3575, Revision 013, Rapid Downpower
EN-21004E, Revision 006-04, ITC Measurements
EN-21004K, Revision 002-01, Cycle 18, Low Power Physics Test
EN-21004J, Revision 000-05, Cycle 18, Power Ascension Testing

Section 4OA5: Other Activities

Temporary Instruction (TI) 2515/166 - Pressurized Water Reactor Containment Sump Blockage
96020-1367-M2, Revision 01-01, Insulation Debris Transport and Head Loss
C-EN-115, Revision 000, Inspection and Condition Assessment of Coating Material on Components Within the Containment
CR-06-10639, Unit 2 Containment Sump Design Change Observations from NRC
DCM 03 Attachment 9, Revision 014-03, Design Engineering Screening Evaluation
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ENG-04154M2, Revision 0, Latent Debris Accumulation in Millstone 2 Containment
GSI-191-ECCS-04161M2, Revision 0, Debris Generation Due to LOCA Within MP2 Containment for Resolution of GSI-191
GSI-191-ECCS-04162M2, Revision 0, Post LOCA Debris Transport Head Loss Across Containment Sump Screen & NPSH Evaluation for Resolution of GSI-191
GSI-191-ECCS-04186M2, Revision 0, Millstone 2 GSI-191 Downstream Effects - Flow Clearances
M2 Technical Specifications- Emergency Core Cooling Systems, Amendment 283
M2-05009, Revision 0, Replacement of ECCS Sump Strainer per Generic Letter 2004-02
MIL2-34325-77-1-GA-E, Revision 0, Module Layout General Arrangement
MIL2-34325-TR-001, Revision 0, Reduced-Scale Testing for Millstone 2 Replacement Containment Sump Strainers
MIL2-34325-TR-001 Revision 0, AELC Test Report – Reduced-Scale Testing for Millstone 2 Replacement Containment Sump Strainers

MNPS- 2 FSAR, Chapter 6
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LIST OF ACRONYMS

AC	air conditioning
ALARA	as low as reasonable achievable
AOP	abnormal operating procedure
AR	ALARA reviews
ASME	American Society of Mechanical Engineers
AWO	automated work orders
CDE	consolidated data entry
CDF	core damage frequency
CEDE	committed effective dose equivalent
CFR	Code of Federal Regulations
CR	condition report
CREV	Control Room Emergency Ventilation System

DC	direct current
DRP	Division of Reactor Projects
DPW	declared pregnant worker
DRS	Division of Reactor Safety
ECCS	emergency core cooling system
EDG	emergency diesel generator
EPRI	Electric Power Research Institute
ESF	engineered safety features
FSAR	Final Safety Analysis Report
GL	generic letter
HELB	high energy line break
IMC	Inspection Manual Chapter
IPTE	infrequently performed test or evolution
ITC	isothermal temperature coefficient
LER	licensee event report
LERF	large early release frequency
LPMS	loose parts monitoring system
MCC	motor control center
MR	maintenance rule
MRFF	maintenance rule functional failure
MSIV	main steam isolation valve
MSLB	main steam line break
MSPI	mitigating systems performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PCR	personnel contamination reports
PI	performance indicator
PMP	probable maximum precipitation
PMT	post-maintenance test
RBCCW	reactor building component cooling water
RCE	root cause evaluation
RCS	reactor coolant system
RWP	radiation work permits
SDC	shutdown cooling
SDCHX	shutdown cooling heat exchanger
SDP	significance determination process
SFP	spent fuel pool
SG	steam generator
SGTR	steam generator turbine rupture
SRA	senior reactor analyst
SSC	structures, systems, and components
TDAFW	turbine-driven auxiliary feedwater
TI	temporary instruction
TS	technical specification
TSAS	technical specification action statement
TSLHRA	technical specification locked high radiation areas

UFSAR	Updated Final Safety Analysis Report
WIP	work-in-progress