UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

August 10, 2015

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

SUBJECT: MILLSTONE POWER STATION – INTEGRATED INSPECTION REPORT 05000336/2015002 AND 05000423/2015002 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT 07200047/2015001

Dear Mr. Heacock:

On June 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station, Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on July 27, 2015, with Mr. John Daugherty, Site Vice President, 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.

Based on the results of this inspection, no violations of NRC requirements were identified.

In accordance with Title10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRCs "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

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Sincerely,

/RA/

Raymond R. McKinley, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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

Enclosure:
Inspection Report 05000336/2015002 and 05000423/2015002
w/Attachment: Supplementary Information

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REGION I

Docket Nos.	50-336 and 50-423
License Nos.	DPR-65 and NPF-49
Report Nos.	05000336/2015002 and 05000423/2015002
Licensee:	Dominion Nuclear Connecticut, Inc. (Dominion)
Facility:	Millstone Power Station, Units 2 and 3
Location:	P.O. Box 128 Waterford, CT 06385
Dates:	April 1 through June 30, 2015
Inspectors:	J. Ambrosini, Sr. Resident Inspector, Division of Reactor Projects (DRP) B. Haagensen, Resident Inspector, DRP L. McKown, Resident Inspector, DRP J. Richmond, Senior Reactor Inspector, Division of Reactor Safety (DRS) H. Anagnostopoulos, Health Physicist, DRS D. Kern, Senior Reactor Inspector, DRS O. Masnyk Bailey, Health Physicist, Division of Nuclear Materials Safety (DNMS) B. Bollinger, Health Physicist (training status), DNMS
Approved By:	Raymond R. McKinley, Chief Reactor Projects Branch 5 Division of Reactor Projects

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SUMMARY

Inspection Report 05000336/2015002, 05000423/2015002; 04/01/2015 – 06/30/2015; Millstone Power Station (Millstone), Units 2 and 3; Routine Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. No findings of significance were identified. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December, 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

REPORT DETAILS

Summary of Plant Status

Millstone Unit 2 and 3 began the inspection period operating at 100 percent power. On April 1, Unit 2 reduced power to approximately 70 percent power and Unit 3 reduced power to approximately 85 percent power in advance of planned maintenance on the 371 offsite power line. Both units returned to 100 percent power on April 4. On April 21, Unit 3 reduced power to approximately 67 percent in advance of planned maintenance on the 371 offsite power line. Unit 3 returned to 100 percent power on April 29. Both units remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Dominion's procedures affecting these areas and the communications protocols between the transmission system operator and Dominion. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Dominion established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system manager, reviewing condition reports (CRs) and open work orders, and walking down portions of the offsite and AC power systems. Documents reviewed for each section of the inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04 – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- Facility 2 of high pressure safety injection (HPSI) during facility 1 surveillance testing on June 30

Unit 3

- 'B' quench spray system (QSS) during 'A' QSS Quarterly Surveillance on May 7
- 'C' component cooling pump train following restoration of 'B' component cooling pump train following 'B' pump motor replacement on May 8

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Review (UFSAR), technical specifications (TS), work orders, CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Dominion staff had properly identified equipment issues and entered them into the corrective action program (CAP) for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 4 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Dominion controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

Unit 2

- Hydrogen Tank Farm Fire Area Y-10 and above ground emergency diesel generator (EDG) Fuel Oil Storage Tank Fire Area Y-12 on April 24
- Auxiliary Building 480 Volt Motor Control Center B51 and B61 Fire Area 2A13 on May 4
- Spent Fuel Pool (SFP) and Fuel Handling Area 2A-14 on May 15

Unit 3

- Turbine Building, Basement Floor Area, TB-2, Zone A & B following Trouble Common Troubles Annunciator on May 20

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on June 18 that involved a fire at the Unit 2 hydrogen seal oil skid. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Dominion personnel identified deficiencies, openly discussed them in a self-critical manner during the critique, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Dominion's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could affect risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including structures and underground cables located in manholes M33EMH*1A and M2MANHOLE 1, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. For those cables found submerged in water, the inspectors verified that Dominion had conducted an operability evaluation for the cables and were implementing appropriate corrective actions.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 5 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training (2 samples)

a. Inspection Scope

The inspectors observed a Unit 3 licensed operator simulator drill on April 1 which included a hostile action based scenario resulting in a plant shutdown and cooldown complicated by a loss of the turbine driven auxiliary feedwater pump, ‘B’ service water pump, ‘D’ circulating water pump, and both primary grade water storage tanks. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

The inspectors observed Unit 2 licensed operator simulator training on May 27, which included failures of feedwater heaters, nuclear instruments, pressurizer level control, and a station blackout coincident with a loss of coolant accident inside containment. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room (3 samples)

a. Inspection Scope

The inspectors observed the operators at Unit 2 conduct a power reduction to 90 percent power on May 29 to perform turbine control valve testing. The inspectors observed focus briefings and other control room communications to verify that activities were performed in accordance with procedures and that evolutions were controlled and coordinated in accordance with operations department standards and expectations.

The inspectors observed Unit 3 operators secure the 'A' motor driven main feedwater pump and start the turbine driven main feedwater pump to make repairs on the motor driven pump on April 1. The inspectors observed briefings to verify that the briefings met the criteria specified in Dominion's Operations Section Expectations Handbook. Additionally, the inspectors observed performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

The inspectors observed performance of a downpower to 66 percent power at Unit 3 on April 21 to meet station electrical output requirements associated with removal of the severe line outage detection system and the performance of offsite electrical grid maintenance. The inspectors observed focus briefings and other control room communications to verify that activities were performed in accordance with procedures and that evolutions were controlled and coordinated in accordance with operations department standards and expectations.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 2 circulating water system on June 16 to assess the effectiveness of maintenance activities on structure, system, or component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents to ensure that Dominion was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 and verified that the (a)(2) performance criteria established by Dominion staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that

Dominion staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Dominion performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Dominion personnel performed risk assessments as required by 10 CFR 50.65(a) (4) and that the assessments were accurate and complete. When Dominion performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Unit 2

- Planned Yellow Risk for SP 2604BO, HPSI Pump in-service testing (IST) on April 21 and SP 2402M Automatic Auxiliary Feedwater Initiation Test on April 22
- Execution of Risk Plan for Switchyard Scheduled Work Activities concurrent with 'B' EDG troubleshooting on June 1
- Elevated Procedurally Controlled Risk during Auto Auxiliary Feedwater Initiation Logic Testing on June 15

Unit 3

- Execution of risk plan associated with 'B' EDG two year maintenance overhaul on May 27
- Emergent risk associated with a balloon discovered in reserve station service transformer 'A' disconnect on May 29

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 9 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

Unit 2

- CR576963, 'C' reactor building closed cooling water pump oil leakage on April 17
- CR576783, Bus 24 short circuit analysis on April 20
- CR578991, Use of non-quality assurance material in vital switchgear cooler, M2A/C-2 on May 11
- CR579859, 2-FW-86 operability determination for containment leakage on May 19

Unit 3

- ETE-MP-2013-1234, Revision 2, service life of 3SWP*AOV39B, 'B' EDG service water heat exchanger outlet valve on April 9
- CR579049, QSS train 'A' seismic restraint bolt/nut thread engagement on May 12
- CR581001, impact of condensation on leak detection per OD 000607 at leakage mitigation device on service water pump to recirculation spray system 'D' heat exchanger piping on May 27
- CR582398, safety injection cooling water 'B' train service water pipe wall thinning on June 16
- CR582952 'B' EDG rocker arm pre-lubrication oil pump control power fuse failure on June 24

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to Dominion's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Dominion. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples)

.1 Temporary Modifications (1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 3 temporary modification TCC-MP-2015-004, "Temporary Installation of a Coated Valve Body for Restoration of Emergency Diesel Generator Service Water Throttle Valve," on June 4 to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

.2 Permanent Modifications (2 samples)

a. Inspection Scope

The inspectors evaluated a modification to fuse blocks in the Unit 3 EDG control circuit due to a vendor change in part specification evaluated in accordance with ETE-MP-2015-1059 on May 20. Additionally, inspectors reviewed a modification to the Charging and Component Cooling Water area supply fan motor control center starting wiring implemented by DCN MP3-13-01206 on June 3. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design change**,** including vendor technical manuals, electrical schematics and control logic diagrams, and component electrical response characteristic charts.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance testing (PMT) for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

Unit 2

- PMT following ‘C’ circulating water pump and variable frequency drive repairs on April 21
- PMT for replacement of reactor protection system (RPS) trip unit TU-A-5 on May 8
- PMT following repairs to containment spray recirculation line check valve 2-CS-6A on June 12

Unit 3

- PMT for ‘B’ service water strainer four year overhaul on May 1
- PMT for auxiliary building supplementary leak collection and release system 'B' train fan following surveillance failure on May 21
- PMT following two year overhaul of ‘B’ EDG on May 29
- PMT following repair of turbine driven auxiliary feedwater trip throttle valve linkage to mechanical turbine trip mechanism loose interference fitting on June 15

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TS, the UFSAR, and Dominion procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

Unit 2

- SP 2401D, Reactor Protective System Matrix Testing on April 9
- SP 2604BO, 'C' HPSI Pump IST on April 21
- SP 2604AO, ‘B’ HPSI Pump IST on June 9

Unit 3

- SP 3626.9, Control Building Air Conditioning Booster Pump, 3SWP*P2B, Operational Readiness Test on April 22
- SP 3609.1, Quench Spray Pump 3QSS*P3A Operational Readiness Test on May 7
- SP 3646A.2, Emergency Diesel Generator B Operability Test on May 29
- SP 3622.3, Turbine Driven Auxiliary Feedwater Pump Operational Readiness and Quarterly IST Group B Pump Test on June 15

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a Unit 2 off-year exercise on June 17 to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, operations support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Dominion staff in order to evaluate Dominion's critique and to verify whether the Dominion staff was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public and Occupational Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

The inspectors reviewed Dominion's actions in response to an increasing trend seen in the Unit 2 stack gaseous radiation monitor (RM-8132B) before and during activities related to loading spent fuel into a dry shielded canister (DSC)-21 in the Unit 2 SFP. The trend began on or about May 10, 2015.

Walk-downs and Observations

The inspectors walked down the Unit 2 RM-8132B and the associated Unit 2 SFP exhaust gaseous radiation monitor (RM-8145B). The inspectors observed the Unit 2 SFP ventilation configuration and the equipment used to remove moisture from the DSC. The inspectors reviewed a RM08132B troubleshooting report and associated calibration check. The inspectors evaluated process computer traces for the RM-8132B and RM-8145B monitors for multiple time periods related to the event. The inspectors attended two facility safety review committee meetings that were convened in response to the event.

Sampling and Analyses

The inspectors reviewed the results of Chemistry department compensatory sampling during the period when RM-8132B was declared non-functional. The inspectors reviewed the results of gamma spectroscopy analysis of a gas sample from DSC-21, confirming the presence of Krypton 85 (Kr-85). The inspectors reviewed Dominion's calculation of the public radiation exposure impact due to the release of Kr-85 gas during blow-down operations of DSC-21.

Problem Identification and Resolution

The inspectors evaluated Dominion's CRs associated with the event, and a subsequent Prompt Issue Review Team Report.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP) (71124.07 - 1 sample)

a. Inspection Scope

The inspectors reviewed the REMP to validate the effectiveness of the radioactive gaseous and liquid effluent release program. The inspectors used the requirements in 10 CFR 20; 40 CFR 190; 10 CFR 50, Appendix I; TSs; Offsite Dose Calculation Manual (ODCM); and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed: the Millstone 2013 and 2014 annual radiological environmental and effluent monitoring reports; REMP program audits; ODCM changes; land use census; and inter-laboratory comparison program results.

Onsite Inspection

The inspectors reviewed and/or observed the following items:

- Sample collection, monitoring, and dose measurement stations (e.g., thermoluminescent dosimeter, air monitoring, vegetation, milk)
- Calibration and maintenance records for air sample and dosimetry measurement equipment
- Environmental sampling of the effluent release pathways specified in the ODCM
- Meteorological tower and meteorological data readouts
- Meteorological instrument operability status and calibration results
- Missed and/or anomalous environmental samples identified, resolved, and reported in the annual radioactive environmental monitoring report
- Positive environmental sample assessment results
- The groundwater monitoring program as it applies to selected potential leaking SSCs
- 10 CFR 50.75(g) records of leaks, spills, and remediation since the previous inspection

- Changes to the ODCM due to changes to the land use census, long-term meteorological conditions, and/or modifications to the environmental sample stations
- Environmental sample laboratory analysis results and measurement detection sensitivities
- Results of the laboratory quality control program audit and the inter-and intra-laboratory comparison program results

Identification and Resolution of Problems

The inspectors evaluated whether problems associated with the REMP were identified at an appropriate threshold and properly addressed in Dominion's CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications (6 samples)

a. Inspection Scope

The inspectors reviewed Dominion's submittals for the following Initiating Events Cornerstone performance indicators for the period April 1, 2014, through March 30, 2015.

Unit 2

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Transients per 7000 Critical Hours

Unit 3

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Transients per 7000 Critical Hours

To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors reviewed Dominion's operator narrative logs, maintenance planning schedules, CRs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 5 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Dominion entered issues into their CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Dominion outside of the CAP, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed Dominion's CAP database for the first and second quarters of 2015 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed the Dominion quarterly CAP trend report for the fourth quarter of 2014 and the first quarter of 2015**,** conducted under PI-AA-200-2001, "Trending," to verify that Dominion's personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

The inspectors noted an increase in the number of times components reached minimum wall thickness prior to the expected end of service life. Examples include the Unit 2 copper nickel pipe wall thinning in the West 480V switchgear cooler discharge piping (CR 569509), Unit 3 safety injection cooling water wall thinning (CR 580145, 582398, 582456), Unit 3 wall thinning in the service water to the charging pump coolers (supply – CR 560387; discharge – CR 583128), and Unit 3 aluminum bronze de-alloying of the EDG service water heat exchanger outlet valve (CR 576166). While no individual issue challenged the operability of a safety system beyond its allowed outage time, collectively they point to a potential weakness in Dominion's corrosion monitoring programs.

Dominion assessed each issue individually and initiated apparent cause evaluation (ACE) 019955 to evaluate for potential organizational and programmatic shortfalls.

.3 Annual Sample: Review of RPS Module Failures

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's evaluations and corrective actions associated with multiple CRs which documented test and in-service failures of Combustion Engineering RPS modules. The affected modules included bistable trip modules and core protection calculator modules which performed analog signal processing and logic system functions.

The inspectors assessed Dominion's problem identification threshold, problem analysis, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR 50, Appendix B. The inspectors interviewed engineering and maintenance personnel to assess the effectiveness of the implemented corrective actions, the reasonableness of the planned corrective actions, and to evaluate the extent of any on-going problems.

In addition, the inspectors reviewed the Millstone module repair process and selected circuit card test results.

b. Findings and Observations

No findings were identified.

Dominion's review of recent Unit 2 RPS module failures identified the likely cause as end-of-service-life (e.g., age-related component failure). Dominion's near term corrective action for each module failure was replacement with a tested spare module. The inspectors noted that Dominion was in the process of procuring engineered replacement modules from a qualified third party vendor, with a corrective action plan to replace the most susceptible modules. As a compensatory correction measure, Dominion upgraded its Millstone electronic module repair facility by the addition of an automated circuit board tester and enhanced its module burn-in capability. In addition, the inspectors noted recent improvements in rework instruction details regarding post repair test acceptance criteria. The inspectors' review of selected maintenance and test records did not identify any additional issues. The inspectors determined that Dominion's recent actions to resolve apparent age-related failures were reasonable. However, the inspectors concluded that the timeliness of Dominion's longer term procurement strategy might pose a challenge to the Millstone electronic module repair facility's ability to maintain an adequate supply of spare modules.

.4 Annual Sample: Unit 2 'B' Power Operated Relief Valve (PORV) Leakage

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's corrective actions associated with CRs 548491, 548974, and 549797 which were generated to document leakage identified from the Unit 2 PORV coming out of the spring 2014 outage (2R22).

The inspectors assessed Dominion's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Dominion's corrective actions to determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR 50, Appendix B and assessed the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

In 2R21 (October 2012), Dominion made two attempts to overhaul and fix seat leakage from the 2-RC-404 (B PORV). Despite the efforts, the valve continued to leak after startup from the outage and Dominion closed the PORV block valve (2-RC-405) in accordance with guidance developed in an operational decision making document in December 2012 due to the continued leakage. Dominion generated CR 499792 (significance level 2) to document the leakage and initiated ACE 019355 to determine the cause and corrective actions. Dominion determined the apparent cause (AC-1) of the leakage was due to unmatched trim (mismatched valve seat/disc). Valve components are typically replaced as a matched set to ensure proper fit up within the manufactured tolerances. During the PORV overhaul in October 2012, Dominion identified an indication on the new seat ring and did not use the ring, resulting in the mismatched parts. Dominion implemented corrective action under work order 53102580984, a design change (MP2-13-01138, MP2 PORV Parts Upgrade) in 2R22 on May 2, 2014, which ensured that a matched set was installed.

On May 11, 2014, Dominion wrote CR 548491 (significance level 3) to document elevated tail pipe temperature on the B PORV, indicative of potential leakage. Unit 2 was still in the 2R22 outage at the time (Mode 5), so Dominion cycled the PORV to try and reseat the valve. Temperatures appeared to stabilize, so Dominion changed modes and continued monitoring tail pipe temperatures. On May 14, Dominion noticed another temperature rise and documented this in CR 548974 (significance level 3). On May 27, Dominion developed an operational decision making guide (ODM 000329) in CR 549797 to determine when the leakage increased to the point where the PORV block valve would again have to be closed. On October 16, 2014, Dominion closed the block valve (2-RC-405) in accordance with ODM 000329.

At this point, the CRs from the 2R22 leakage were all linked back to ACE 019355, generated to evaluate the cause of the 2R21 leakage. Dominion did not make any changes to the ACE to consider adding additional actions or performing additional causal analysis even though apparent cause AC-1 was changed during 2R22. There is an effectiveness review for ACE 019355, due in December 2015 following 2R23. The

effectiveness review is based upon the recurrence of Unit 2 PORV seat leakage during 2R22 startup, Cycle 23, and 2R23 and the resultant impact to the plant.

Dominion is tracking work order 53102730091 to repair the leaking PORV in 2R23 (October 2015), but this work order is a contingency work order from 2R22, and still has open holds before it is ready to be worked. Additionally, there is a request for engineering assistance to change the design of the PORVs in 2R24 (2017) that is still in the early planning stages. Without a completed causal analysis to explain the 2R22 leakage, it is unsure if the design change is necessary or sufficient to solve the problem.

After discussions with the inspectors, Dominion generated CR 581395 to evaluate the equipment issues causing leakage and determine appropriate corrective actions as well as CR 581392 to review the CAP issues that resulted in a missed causal evaluation.

.5 Annual Sample: Unit 3 Residual Heat Removal Heat Exchanger Boric Acid Leakage

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's corrective actions associated with CRs, evaluations, and corrective actions generated from 1985 through 2015 to identify and mitigate persistent boric acid wetting observed at both residual heat removal system (RHS) heat exchanger bottom head flanges varying from a few drops per minute to a steady stream.

The inspectors assessed Dominion's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Dominion's corrective actions to determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR 50, Appendix B and assessed the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

On September 23, 1985, the licensee first identified a condition adverse to quality associated with boric acid leakage at bottom head flange connections at both of the Millstone Unit 3 Residual Heat Removal System Heat Exchangers (3RHS*E1A and 3RHS*E1B) in AWO M3-85-29817. The licensee generated corrective actions to repair leaking gaskets at these flanged locations (M3-85-37453). However in 1989, the licensee implemented preventive maintenance activities to periodically inspect the joint for leakage and cancelled corrective maintenance on the gaskets (M3-89-03347 and M3-90-05582).

The purpose of RHS is to support unit cool down and provide the low pressure safety injection emergency core cooling system source from the refueling water storage tank. When supporting cool down, the system is placed into service at reactor coolant temperatures and pressures at or below 350°F and 375 psig. The RHS heat exchangers are vertically oriented U-tube heat exchangers located outside of containment in the Engineered Safety Features building. The bottom head flange is a series of two mating

interfaces surrounded by carbon steel bolting. The first mating interface is carbon steel to carbon steel between the upper shell material and the tube sheet sealing in the reactor plant component cooling water on the heat exchanger shell side. The second mating interface is stainless steel to stainless steel between the tube sheet and the bottom head bowl sealing in the borated reactor coolant system inventory on the tube side. A divider plate separates the inlet and outlet regions of the bottom head. From 1985 through present day, persistent boric acid wetting has been observed at both RHS heat exchanger bottom head flanges varying from a few drops per minute to a steady stream. Greater leakage (steady stream) is observed at elevated reactor coolant system temperatures above 200°F when the system is placed into service during reactor cooldown.

As the leakage continued into 1996, the licensee performed a causal evaluation of the susceptibility of the carbon steel bolting to boric acid wastage (ACR M3-96-0391). This resulted in a four year preventive maintenance to remove and evaluate a sample of five bolts. Evaluation of bolts in 1996 found minor general corrosion but no boric acid wastage at the sample locations. The inspectors found upon review of the remaining preventive maintenance activities only one instance where the bolts were replaced due to degradation on the ‘B’ heat exchanger in 2005. Dominion determined the cause of the degradation to be general corrosion not boric acid damage. In 2014, during 3R16, Dominion replaced 33 of 44 bolts on the ‘A’ RHS heat exchanger finding no indication of thread degradation.

In 2004, CR-04-01858, Dominion identified that previous reviews had not assessed the adequacy of the design of the joint against the service conditions. Dominion found that the high temperatures and pressures experienced during RHS operation can cause significant deflection of the tube sheet resulting in loads in excess of flange preload. In consultation of the original equipment manufacturer, Dominion chose to raise bolting preload by more than 100 percent. Since raising bolting preload in 2004 and again in 2014, the leak rate has reduced; however, persistent boric acid wetting through steady stream leakage continues to be observed at both safety-related heat exchangers when in standby and in service.

Inspectors found that since 2000, more than 30 CRs have been generated documenting discolored boric acid leakage and residue at the RHS heat exchanger flanges. The inspectors also discovered that since 2001 discolored brown and black crystalized and liquid boric acid wastage has been observed at the heat exchanger indicating lost material without associated boric degradation of the flange bolting. In August 2008, Dominion created work orders to repair the leaking heat exchanger flanges at the next opportunity during refueling outage 3R12 in fall 2008. In a 2009 CR, having not performed corrective maintenance during 3R12, Dominion identified that “the most important corrosion issue with this leakage is not the bolting which is being managed by the removal and inspections but the corrosion damage to the outer diameter of tube sheet and shell flanges which are carbon steel.” Dominion closed this CR to future repair under the work orders generated in 2008 which were scheduled for execution during the next outage.

Inspectors discovered that in spite of multiple tracking systems, including the CAP, boric acid program health reports, engineering technical evaluations, and plant health issues lists, Dominion has not corrected conditions adverse to quality associated with persistent boric acid leakage at bottom head flanges of both unit 3 RHS heat exchangers in a

timely manner. Inspectors determined that Dominion has successively moved repair of each heat exchanger to the 'next opportunity' from refueling 3R12 in 2008 through 3R16 in 2014. Dominion has scheduled repair of the 'B' RHS heat exchanger for refuel outage 3R17 in 2016 and 'A' for 3R18 in 2017.

The inspectors identified a performance deficiency against 10 CFR 50, Appendix B, Criterion XVI associated with Dominion's failure to correct conditions adverse to quality associated with the Unit 3 RHS heat exchangers in a timely manner. However, this performance deficiency is not considered more than minor as if left uncorrected, the condition does not have the potential to lead to a more significant safety concern provided it is monitored and restored in accordance with Dominion analyses, programs, and work control plans.

.6 Annual Sample: Component Tagging and Mispositioning Performance Issues

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's causal analysis, trend reviews, and corrective actions associated with a group of component tagging and mispositioning deficiencies. Specifically, over the period September 2014 to January 2015, station personnel experienced an increased number of tagging errors and component mispositionings which either challenged personal safety or resulted in unplanned TS limiting conditions for operation (LCO) entries. The majority of the errors were associated with maintenance or operational activities during the fall 2014 Unit 3 refueling outage. In each case, upon discovery, immediate corrective action promptly restored appropriate component tagging and configuration control. Station personnel entered each issue into the CAP individually for evaluation and corrective action. Additionally, Dominion staff performed a common cause evaluation CR 567121 and common cause assessment (CCA) 000328 to identify and resolve the underlying causes.

The inspectors screened the CR database for the period of January 2012 to April 2015 to identify tagging and component mispositioning-related performance trends. The inspectors selected 10 CRs, 7 ACEs, and CCA 000328 for detailed review. The inspectors independently reviewed tagging and configuration control procedures, tagging and mispositioning event station performance indicators, training lesson plans, and selected records. Additionally, the inspectors interviewed station personnel to assess current practices and programs for equipment tagging and component configuration control. The inspectors discussed tagging lessons-learned and associated plans for the upcoming 2015 Unit 2 refueling outage with the Operations manager, the Nuclear Oversight manager, and the Operations Human Performance Coordinator. The inspectors also observed in-plant operator training activities focused on independent verification of component positioning and tagging. The inspectors assessed Dominion's problem identification threshold, documentation of the issues, causal analyses, extent-of-condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to evaluate whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors also assessed whether Dominion had identified associated lessons learned and communicated the results to appropriate staff. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR Part 50, Appendix B.

b. Findings and Observations

No findings were identified.

The inspectors noted that no one was injured due to these errors and no TS LCO allowed outage times were exceeded. Notwithstanding, Dominion staff determined that relaxed adherence to the Operations Department Human Performance (OPS HU) Excellence Plan was the underlying cause of the increased number of tagging and mispositioning events. Specifically, during the 2014 Unit 3 refueling outage, operators did not consistently perform supervisor field observations, peer coaching, briefs, task previews, peer checking of decisions, and use human error prevention tools as specified in the plan. Extent-of-condition reviews noted that similar performance deficiencies were observed in 2014 among maintenance staff (CR 561783). Specifically, second-line supervisors seldom mentored and coached to develop first-line supervisors. First-line supervisors did not consistently enforce high standards and behaviors for performing important maintenance activities.

Based on staff interviews, the inspectors determined that relaxation of the OPS HU Excellence Plan was not intended or directed. The operations and maintenance activity workload significantly increased during the refueling outage. Faced with the increased workload, plant staff reallocated their time to perceived priorities. Operators and supervisors rationalized that in some instances the priority of implementing elements of the OPS HU Excellence Plan, including field supervision and use of human performance observations, did not warrant performance. Similar decision making continued for several months following completion of the refueling outage until addressed by Operations management.

Corrective actions to improve tagging and component configuration control included the following:

- The OPS HU Excellence Plan was revised to more fully emphasize engaged senior reactor operator (SRO) field supervision, enhanced crew performance monitoring, and improved availability of human performance tools such as the shift work list.
- Each individual SRO acknowledged and approved the OPS HU Excellence Plan in writing.
- Operations management emphasized lessons-learned and specific elements of the OPS HU Excellence Plan during Operations department training.
- Training department staff developed and facilitated dynamic learning training activities such as an Independent Verification module for plant equipment operators and a Tagging module for maintenance staff.
- Tagging and Independent Verification were highlighted on both the Operations and Maintenance Department Self-Evaluation Matrices as performance gaps or performance improvement focus areas. Department management evaluates Department Self-Evaluation Matrix focus areas monthly.
- Tagging was identified as a key focus area for operations staff to explore for best-practices during benchmarking visits to other nuclear sites.

The inspectors determined that Dominion staff adequately evaluated the tagging and component mispositioning issues, identified reasonable primary and contributing causes, established and implemented adequate corrective actions, and effectively communicated

the results to plant staff. However, during staff interviews the inspectors observed that the Operations Department Human Performance Coordinator was assigned several competing duties (department human performance coordinator, site check operator, and on-shift outage SRO) for the Fall 2015 Unit 3 refueling outage. The inspectors noted this could challenge his effectiveness at championing consistent implementation of the OPS HU Excellence Plan. The inspectors discussed this observation with the Operations manager, who said he intended to assign a different operator to the Operations Human Performance Coordinator role prior to the refueling outage.

Corrective actions, implemented since December 2014, had not been in place for sufficient duration for the inspectors to fully assess their effectiveness. Notwithstanding, the inspectors review of station performance indicators, the corrective action database, and the shift operating logs indicated a reduced rate of tagging and mispositioning events from February to May 2015. Furthermore, action to perform an effectiveness review of tagging and mispositioning corrective actions is scheduled for late 2015.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations Report Review

a. Inspection Scope

The inspectors reviewed the final report for the World Association of Nuclear Operators (WANO) peer review of Millstone conducted in August 2014. The inspectors evaluated these reports to ensure that NRC perspectives of Dominion performance were consistent with any issues identified during the assessments. The inspectors also reviewed these reports to determine whether WANO identified any significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

.2 Operation of an ISFSI at Operating Plants (60855 and 60855.1)

a. Inspection Scope

On May 4–8, 2015, the inspectors observed and evaluated Dominion's loading of DSC-20, the second canister to be loaded during their Independent Spent Fuel Storage Installation (ISFSI) dry cask campaign. The inspectors reviewed Dominion's activities associated with the loading of DSC-21. The inspectors also reviewed Dominion's activities related to long-term operation and monitoring of the ISFSI. The inspectors verified compliance with the Certificate of Compliance (CoC), TS, regulations, and station procedures.

The inspectors observed the heavy load movement of the transfer cask (TC) and the empty DSC to the SFP and loading of fuel assemblies into DSC-20. The inspectors also observed DSC processing operations including: installation of the DSC inner top cover, removal of the annulus seal, installation of the automated welding system**,** welding, non-destructive weld examinations, draining, vacuum drying, helium backfill, and surveying. The inspectors observed the down-ending of the TC/DSC, movement of the TC/DSC to

the ISFSI pad, and alignment of the TC/DSC with the horizontal storage module (HSM) for insertion. During performance of these activities, the inspectors verified that procedure use, communication, and coordination of ISFSI activities met Dominion's established standards and requirements.

The inspectors reviewed Dominion's program associated with fuel characterization and selection for storage. The inspectors reviewed the fuel selection package for the first and second casks loaded during the current campaign, including alternate fuel assemblies, to verify that Dominion was loading fuel in accordance with the CoC, TS, and procedures. The inspectors reviewed recordings made of the fuel assemblies loaded into the first and second DSC's to ensure the loading was in accordance with Dominion's loading plan.

The inspectors observed radiation protection technicians as they provided job coverage for the cask loading workers. The inspectors reviewed survey data maps and radiological records from the DSC loading to confirm that radiation survey levels measured were within limits specified by the TS and consistent with values specified in the final safety analysis report.

The inspectors performed a walk-down of the heavy haul path and toured the ISFSI pad to assess the material condition of the pad and the HSMs. The inspectors also verified that transient combustibles were not being stored on the ISFSI pad or in the vicinity of the HSMs. The inspectors also confirmed that transient combustible material entry onto the ISFSI pad was controlled in accordance with procedures.

On May 12, 2015, during processing of the third canister (DSC-21) of the ISFSI dry cask campaign, Dominion received local radiation alarms and experienced elevated readings on their Unit 2 stack gaseous radiation monitor (RM-8132B) during preparation of vacuum drying operations (CR 579441 and 579522). In response to the alarms, Millstone terminated processing activities and placed the DSC in a safe condition (backfilling the DSC with helium). Dominion personnel investigated the issue and upon completion of their review, DSC processing operations resumed on May 28, 2015, and the DSC was subsequently transported and placed into a HSM. Additional information is contained in Section 2RS6 of this report.

The inspectors with assistance from technical experts from the NRC's Office of Nuclear Materials Safety and Safeguards reviewed engineering evaluation, ETE-NAF-2015-0070, "Post Loading Fuel Selection and Clad Storage Re-Assessment for NUHOMS Canister MPS32PT-L125-A224-HZ02," and the results of gamma spectroscopy analysis of a gas and water sample from DSC-21. Prior to the DSC being placed on the ISFSI pad, the inspectors verified that DSC- 21 met the requirements of the CoC, TS, regulations, and site procedures. The inspectors also confirmed that Millstone's characterization of the condition of the spent fuel in the DSC met NRC Interim Staff Guidance-1, "Classifying the Condition of Spent Nuclear Fuel for Interim Storage and Transportation Based on Function."

The inspectors reviewed corrective action reports and the associated follow-up actions that were generated since Dominion's last loading campaign to ensure that issues were entered into the CAP, prioritized, and evaluated commensurate with their safety significance.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 27, 2015, the inspectors presented the inspection results to Mr. John Daugherty, Site Vice President, and other members of the Millstone staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Adams	Plant Manager
L. Armstrong	Director, Performance Recovery
J. Ashburn	Unit 2 Shift Manager
R. Ashey	Senior Nuclear Instructor
G. Baker	Unit 2 Senior Reactor Operator/Unit Supervisor
S. Baker	Engineering Consultant, BDB
B. Bartron	Supervisor, Licensing
T. Berger	Unit 3 Shift Manager
D. Blakeney	Director Safety and Licensing
A. Bonamarte	Unit 2 Control Operator
B. Bowen	Supervisor Health Physics
D. Brown	Supervisor Nuclear Operations Support
J. Brown	Unit 2 Shift Manager
W. Browning	Licensing Specialist
D. Bucheit	Manager, BDB and Cyber Security
K. Carberry	Maintenance Engineer
R. Castillo	Emergency Preparedness Specialist / Communications Controller
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
G. Closius	Licensing Specialist
W. Cote	Senior Instructor, Nuclear Operation
L. Crone	Supervisor, Nuclear Chemistry
J. Curling	Manager, Protection Services
G. D'Auria	Nuclear Chemistry Supervisor
D. Daugherty	Nuclear Engineer III
G. Decker	Environmental Lab Technician
D. Dodson	Engineering Supervisor
J. Dorosky	Health Physicist III
E. Dundon	System Engineer
B. Ekenrode	Unit 2 Plant Equipment Operator
B. Ferguson	Unit 2 Shift Manager
M. Finnegan	Supervisor, Health Physics, ISFSI
P. Fizgerald	Unit 2 Control Operator (Under Instruction)
S. Franzcek	Security Shift Supervisor
A. Gharakhanian	Nuclear Engineer III
C. Flory	Supervisor, Nuclear Chemistry
M. Fortner	Unit 3 Emergency Communicator
M. Furiosi	Senior Nuclear Instructor
M. Gagnon	Unit 2 Balance of Plant Operator
J. Glaub	REMP Sample Technician
J. Go	Unit 3 Senior Reactor Operator/Station Duty Officer
M. Goebeli	Unit 2 Shift Technical Advisor
W. Gorman	Supervisor, Instrumentation & Control
M. Greaney	Supervisor, Nuclear Maintenance
J. Grogan	Supervisor, Nuclear Training

K. Hajnal	Unit 3 Shift Technical Advisor
W. Harreslon	Unit 3 Unit Supervisor
B. Hayes	Nuclear Oversight Engineering Specialist
J. Hoagland	Unit 2 Unit Supervisor
R. Hoffmann	Instrument and Control Supervisor
C. Houska	I&C Technician
J. Huff	Unit 2 Unit Supervisor/WCSRO
T. Ickes	Program Engineer
R. Kastner	Unit 2 Unit Supervisor/STA
D. Landers	Supervisor, Environmental Laboratory
R. Kasuga	Nuclear Engineer III
J. Laine	Manager, Radiation Protection/Chemistry
J. Langan	Manager, Nuclear Oversight
M. Letterich	Unit 2 Control Operator
D. Lowell	System Engineer
D. MacNeil	Supervisor, Nuclear Engineering
G. Marshall	Manager, Outage and Planning
H. McKinney	Supervisor, Operations Support
M. McLay	Electrical Supervisor
S. Minogue	Unit 2 Control Operator (Test Coordinator)
M. Morrissette	Unit 2 Control Operator
R. Parrette	Unit 2 Operations Advisor
T. Perkins	Operations Unit Supervisor
B. Pinkowicz	Senior Instructor, Nuclear Operations
T. Quinley	Nuclear Technical Specialist III
D. Reed	Shift Manager
J. Rein	Emergency Preparedness Specialist
J. Rigatti	Manager, Nuclear Site Engineering
M. Roche	Senior Nuclear Chemistry Technician
P. Russell	Shift Manger
L. Salyards	Licensing, Nuclear Technology Specialist
R. Schmidt	Unit 3 Reactor Operator
P. Scott	Shift Manager
R. Schonenberg	Program Engineer
J. Shaffer	Chemistry Technician
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Nuclear Operations
A. Stachowiak	Unit 2 Control Operator
S. Stanley	Director of Engineering
J. Stoddard	Supervisor, Nuclear Shift Operations Unit 3
S. Torf	Nuclear Engineer
S. Turowski	Supervisor, Health Physics Technical Services
K. Truesdale	Senior Nuclear Instructor
C. Vournazos	IT Specialist, Meteorological Data
M. Watson	Unit 2 Unit Supervisor
M. Wise	Unit 2 Senior Reactor Operator
K. Wood	Unit 3 Control Operator/BOP
W. Woolery	Unit 2 Shift Manager
C. Wooten	Maintenance Department Human Performance Coordinator

Others

M. Firsik, Connecticut DEEP
D. Galloway, Connecticut DEEP
J. Semancik, Director, Bureau of Air Management, Connecticut DEEP

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
SP 2665, Building Flood Gate Inspections, Revision 005-05
COP 200.8, Response to ISO New England/Convex Notifications and Alerts, Revision 005-01
AOP 2557, Emergency Generation Reduction, Revision 007-01
AOP 2575, Rapid Downpower, Revision 004-11
AOP 3575, Rapid Downpower, Revision 020
C OP 200.6, Storms and Other Hazardous Phenomena (Preparation and Recovery), Revision 003-01 and Revision 003-02
AOP 2560, Storms, High Winds and High Tides, Revision 010-17 and Revision 012-00
AOP 2560 Attachment 6, Response to a Local Intense Precipitation (LIP) Event, Rev. 012-00
AOP 2560 Attachment 7, Response to Tsunami Warning, Rev. 012-00
AOP 2565, Loss of Service Water, Rev. 004-05
AOP 2565, Loss of Service Water, Rev. 004-05 (*Draft Change)
AOP 3560, Loss of Service Water, Rev. 009-00
AOP 3569, Severe Weather Conditions, Revision 020
C OP 200.16, Beyond Design Basis Operator Aids, Rev. 000
Dominion HRP-N, Hurricane Response Plan (Nuclear), Rev. 12
EOP 25 FSG-16, Alternate Service Water Supply, Rev. 0 (Draft)
EOP 35 FSG-16, Alternate Service Water Supply, Rev 0 (Draft)
MP 2601E, Unit 2 Flood Gates Installation and Removal, Rev. 000-01

Miscellaneous
ETE-CEP-2012-003, Design and Licensing Basis Review of Millstone Seismic and Flooding Requirements Related to the March 12 NRC 50.54(f) Request for Information
1Q2015 System health report – U2 EDG and fuel oil
1Q2015 System health report – U3 EDG and fuel oil

Condition Reports

541855	370288	548459	536556
570724	571759	576113	576569
576827	576828	577950	578913
578974	579004	581747	582665
582664	582002		

Section 1R04: Equipment Alignment

Procedures
OP 3330A-003, Reactor Plant Component Cooling Water Train A, Revision 010-00
OP 3330A-016, Reactor Plant Component Cooling Water Train B, Revision 007-00
OP 3309, Quench Spray, Revision 013-09
OP 2308, High Pressure Safety Injection System, Revision 012-02
OP 2308-002, HPSI System Valve Alignment, Facility 2, Revision 000-05
OP 2307-004, Common ECCS Suction Header Valve Alignment, Facility 2, Revision 000-02

Condition Reports
579048
579049

Miscellaneous
25212-26921, P&ID Reactor Plant Component Cooling Water, Sheet 1, Revision 32
25212-26915, Sheet 1, P&ID Quench Spray and Hydrogen Recombiners, Revision 37
25203-26015, Sheet 2, P&ID High Pressure Safety Injection, Revision 047
EE 14 – E16, Dominion Flooding Hazard Reevaluation Report for Millstone Power Station Units 2 and 3, Rev. 1
ISO New England Inc. 2015 RTMKTS.0120.0010, Procedure: Implement Operations during Abnormal Conditions, Rev. 21
SO-15-016
SO-15-013

Section 1R05: Fire Protection

Procedures
AOP 2579A, Fire Procedure for Hot Standby Appendix R Fire area R-1, Revision 010-06

Miscellaneous
CM-AA-FPA-100, Fire Protection/Appendix R (Fire Safe Shutdown) Program, Revision 10
U2-24-FPP-FHA, Millstone Unit 2 Fire Hazards Analysis, Revision 12
U2-24-FFS, Millstone Unit 2 Firefighting Strategies BAP-01 480V, Revision 000-00
U3-24-FFS, Millstone Unit 3 Fire Fighting Strategies, Revision 0

Condition Reports
582652
582667
580036

Section 1R06: Flood Protection Measures

Procedures
C EN 104I, Condition Monitoring of Structures, Revision 008-01

Condition Reports
389423 472437 510695 580419
1002855

Work Orders
53102530745
53102770075

Miscellaneous
DCN MP3-14-01023, Cable Vault (Manhole) Water Level Monitoring, Millstone Unit 3, Revision 0

Section 1R11: Licensed Operator Requalification Program

Procedures
AOP 2575, Rapid Downpower, Revision 04-11
AOP 2585, Immediate Operator Actions, Revision 001-01
C OP 200.3, Response to Medical Emergency, Revision 004-00
CPE 15403, CPE SBO with Subsequent LOCA, Revision 2
EOP 2525, Standard Post Trip Actions, Revision 026-01
EOP 2528, Loss of Offsite Power/Loss of Forced Circulation, Revision
EOP 2530, Station Blackout, Revision 012-00
EOP 2540, Functional Recovery, Revision 24-00
OP-AA-1300, Quarantine, Revision 001
OP 2204, Load Changes, Revision 026-01
OP 3321, Main Feedwater, Revisions 019-06 and 019-07
OP 3204, At Power Operation, Revision 019-02
OP 3319A, Condensate System, Revision 019-06
SP 2651N, Main Control Valve Operability Test, Revision 005-03
SP 2651N-001, Main Control Valve Operability Test, Revision 003-01
SP 2651L, Main Stop Valve Operability Testing, Revision 004-01
SP 2651M, Control Intercept Valve Operability Testing, Revision 004-02
SP 2651N, Main Control Valve Operability Testing, Revision 005-03
SP 31002, Plant Calorimetric, Revision 013-04
C OP 200.2, Response to Security Events, Revision 5
EOP 35 E-0, Reactor Trip and Safety Injection, Revision 29
EOP 35 E-0.1, Reactor Trip Response, Revision 026-02
OP 3208, plant Cooldown, Revision 022-09
EPI-FAP01, Control Room Emergency Operations, Revision 006-00
EPI-FAP06, Classification and PARs, Revision 010-00
EPI-FAP07, Notifications and Communications, Revision 022-00

Condition Reports
573431 573644 567876 581016
581019

Miscellaneous
Reactivity plan for main feedwater pump swap, dated March 13, 2015

Section 1R12: Maintenance Effectiveness

Procedures
ER-AA-MRL-100, Implementing Maintenance Rule, Revision 8
ER-AA-MRL-10, Maintenance Rule Program, Revision 6
PI-AA-200, Corrective Action, Revision 24

Condition Reports

575488	582366	544517	545471
545647			

Miscellaneous
1Q2015 System health report 2325A, 2325B, 2327 – Circulating water, waterbox priming, and screenwash

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
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576783	579859	579049	566507

578477	581001*	582952	582996*
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580784	581731		

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578401	578370	579085	581891
581911	582297	580230	581048
580983	580987	580949	580938
580795	580705		

Maintenance Orders/Work Orders

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569043	571495	571719	572530
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576269*	569509	580145	582398
576166	499792	581392	581395
442835	549797	574360	526708
538196	541436	547651	547691
557607	561725	561738	562346
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569520	570688	571238	582126*
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LIST OF ACRONYMS

AC	alternating current
ACE	apparent cause evaluation
CAP	corrective action program
CCA	common cause assessment
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
CR	condition report
DNMS	Division of Nuclear Materials Safety
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
DSC	dry shielded canister
EDG	emergency diesel generator
HPSI	high pressure safety injection
HSM	horizontal storage module
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
IST	in-service test
LCO	limiting condition for operation
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OPS HU	operations department human performance
PMT	post-maintenance test(ing)
PORV	power operated relief valve
QSS	quench spray system
REMP	Radiological Environmental Monitoring Program
RHS	residual heat removal system
RPS	reactor protection system
SFP	spent fuel pool
SRO	senior reactor operator
SSC	structure, system, or component
TC	transfer cask
TS	technical specifications
UFSAR	Updated Final Safety Analysis Report
WANO	World Association of Nuclear Operators