May 12, 2003

EA 03-080

Mr. J. Alan Price, Site Vice President - Millstone
C/O Mr. D. W. Dodson, Acting Manager - Licensing
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, Connecticut 06385

SUBJECT: MILLSTONE POWER STATION UNIT 2 AND UNIT 3 - NRC INTEGRATED INSPECTION REPORTS 50-336/03-02 AND 50-423/03-02 EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Price:

On March 29, 2003, the Nuclear Regulatory Commission (NRC) completed inspections at your Millstone Power Station Unit 2 and Unit 3. The enclosed integrated inspection reports document the inspection findings, which were discussed on April 16, 2003 with you and members of your staff.

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

These reports document one NRC-identified finding at Unit 3 and one self-revealing finding at Unit 2, both of which were of very low safety significance (Green) and were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these two findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in Section 4OA7 of the enclosed reports. If you contest any NCV in this report, you should provide a response within 30 days of the date of these inspection reports, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Millstone Power Station.

In addition, the inspectors reviewed two licensee-identified events at Unit 2 concerning reactor coolant system (RCS) pressure boundary leakage in a reactor coolant pump seal cooler and in a pressurizer heater penetration. Each event was a violation of a Millstone Unit 2 technical specification, which prohibits operation in Modes 1 through 4 with RCS pressure boundary leakage. The inspectors have reviewed your root cause analyses of the events and concluded that the equipment failures were not avoidable by the implementation of reasonable quality assurance measures or other management controls. Therefore, after consultation with the

Director, Office of Enforcement, the NRC has chosen to exercise enforcement discretion and not issue a violation for these issues.

Since the terrorist attacks on September 11, 2001, the NRC has issued five Orders (dated February 25, 2002, January 7, 2003, and April 30, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over personnel access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25 Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants to pilot a long-term program that will test the adequacy of licensee security and safeguards strategies. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

A. Randolph Blough, Director
Division of Reactor Projects

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

Enclosures: NRC Inspection Report 50-336/03-02
w/Attachment: Supplemental Information

NRC Inspection Report 50-423/03-02
w/Attachment: Supplemental Information

cc w/encl:
D. A. Christian, Senior Vice President - Nuclear Operations and Chief Nuclear Officer
W. R. Matthews, Senior Vice President - Nuclear Operations
S. E. Scace, Assistant to the Site Vice President
G. D. Hicks, Director, Nuclear Station Safety and Licensing
A. J. Jordan, Jr., Director - Nuclear Engineering
S. P. Sarver, Director, Nuclear Station Operations and Maintenance
D. A. Smith, Manager, Licensing
P. J. Parulis, Manager, Nuclear Oversight
L. M. Cuoco, Senior Counsel
V. Juliano, Waterford Library
S. Comley, We The People
J. Buckingham, Department of Public Utility Control
E. Wilds, Director, State of Connecticut SLO Designee
First Selectmen, Town of Waterford
D. Katz, Citizens Awareness Network (CAN)
R. Bassilakis, CAN
J. M. Block, Attorney, CAN
J. Besade, Fish Unlimited
G. Winslow, Citizens Regulatory Commission (CRC)
J. Markowicz, Co-Chair, NEAC
E. Woollacott, Co-Chair, NEAC
R. Shadis, New England Coalition Staff
W. Meinert, Massachusetts Municipal Wholesale Electric Company
C. Brinkman, Manager, Washington Nuclear Operations

Distribution w/encl **(VIA E-MAIL)**:
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-336
License No.:	DPR-65
Report No.:	50-336/03-02
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Unit 2
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	December 29, 2002 - March 29, 2003
Inspectors:	S. M. Schneider, Senior Resident Inspector S. R. Kennedy, Resident Inspector P. C. Cataldo, Resident Inspector K. A. Mangan, Resident Inspector K. M. Jenison, Senior Project Engineer, DRP N. T. McNamara, Emergency Preparedness Specialist, DRS T. A. Moslak, Health Physicist, DRS D. M. Silk, Senior Emergency Preparedness Inspector, DRS
Approved by:	Robert J. Summers, Chief Projects Branch 6 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000336/03-02; Dominion Nuclear Connecticut, Inc.; on 12/29/02 - 03/29/03; Millstone Power Station, Unit 2; Other Activities.

The report covered a 13-week period of inspection by resident and regional inspectors. The inspection identified one green issue, which was a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after Nuclear Regulatory Commission (NRC) management review. The NRC 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. Inspector Identified and Self-Revealing Findings

Cornerstone: Public Radiation Safety

- Green. The licensee did not label a package containing radioactive waste prior to shipping the package to a low-level burial facility.

  This self-revealing NCV of 49 CFR 172.400 is greater than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further, program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements. This finding was of very low safety significance since the motor vehicle was properly placarded as a radioactive shipment, shipping documentation contained the information to identify the radioactive material, and emergency information was included with the shipping papers. (4OA5.1)

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number is listed in Section 4OA7.

REPORT DETAILS

Summary of Unit 2 Plant Status

The Unit operated at essentially 100% power for the duration of the inspection period with two exceptions. On March 3, 2003, the Unit downpowered to 88% power to support cleaning of the "A" condenser waterbox tubes and planned maintenance on the "A" circulating water bay. The Unit was restored to 100% power on March 6, 2003. On March 7, 2003, the plant tripped from 100% power due to an equipment (switch) failure during reactor protection system (RPS) testing. The reactor plant trip was complicated by subsequent equipment problems in the charging system and atmospheric and condenser steam dumps. Following significant investigation and system repairs, the Unit was restored to 100% power on March 28, 2003.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed three partial system walkdowns during this inspection period. The following systems were reviewed:

- "B" emergency diesel generator (EDG) during preventive maintenance activities on the "A" EDG on January 29
- "B" reactor building closed cooling water (RBCCW) during heat exchanger (HX) clean and inspect on "A" RBCCW HX on February 27
- "A" Diesel Generator while "B" Diesel Generator was inoperable due to maintenance on January 15

The inspectors evaluated system and component alignment to identify any discrepancies that would impact system operability. The inspectors reviewed selected valve positions, electrical power availability and the general condition of major system components. The inspectors reviewed the following related licensee documents:

- Surveillance procedure (SP) 2613B, Revision 016-02, "DG Valve Alignment Checklist, Facility 2"
- SP 2611D, Revision 029-04, "RBCCW System Alignment Checks, Facility 2"
- SP 2613A, Revision 016-00, "DG Valve Alignment Checklist, Facility 1"
- OPS Form 2346A, Revision 019-01, "'A' DG Pre-start Checklist"

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors performed six walkdowns of fire protection areas during the inspection period. The inspectors reviewed the licensee's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for selected areas. The inspectors walked down those areas to assess the licensee'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 also reviewed completed surveillances for selected areas. The fire areas reviewed included:

- "B" EDG Room - Auxiliary Building, 14'-6" Elevation (Fire Area A-16) on January 28
- Degasifier Area - Auxiliary Building, -25'-6" Elevation (Fire Area A-6, Zone B) on February 14
- East Piping Penetration Area - Auxiliary Building, -25'-6" and -5'-0"Elevations (Fire Area A-10, Zone A) on February 14
- Charging Pump Room - Auxiliary Building, -25'-6" Elevation (Fire Area A-6, Zone A) on February 14
- East Electrical Penetration Area - Auxiliary Building, 14'-6" (Fire Area A-10, Zone B) on February 14
- East Blowdown Tank Room, - Auxiliary Building, 38' 6" Elevation (Fire Area T-10C) on March 13

The inspectors reviewed the following related licensee documents:

- Unit 2 Fire Hazards Analysis
- Unit 2 Fire Hazards Analysis Boundary Drawings
- East Piping Penetration Area Combustible Loading Analysis
- East Electrical Penetration Area Combustible Loading Analysis
- Refer to Attachment for list of reviewed fire protection evaluations

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed the conduct of licensed operator simulator training on March 21, 2003. The inspectors observed licensed operator performance relative to the following activities: effective communications, implementation of normal, abnormal and emergency operating procedures, command and control, and technical specification (TS) compliance. In addition, the inspectors reviewed simulator physical fidelity to verify

similarity between the simulator and the unit control room. The inspectors verified that the training evaluators adequately addressed operator performance issues that were identified during the exercise, and that applicable training objectives had been achieved.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed the handling of two degraded safety systems and components (SSC) conditions for maintenance effectiveness during this inspection period. The inspectors reviewed licensee implementation of the maintenance rule, 10 CFR 50.65, in response to identified performance issues associated with the following condition reports (CRs):

- CR-03-02551, "B" Service Water Pump Failed Its Acceptance Criteria for D/P in SP 2612B-003. D/P Was Too High
- CR-03-02381, #3 Safety Injection Tank Level Going Down with Outlet Valve Closed

The inspectors verified that the issues were appropriately evaluated against applicable maintenance rule functional failure criteria, as set forth in Functional Administration Procedure MP-24-MR-FAP710, "Maintenance Rule Functional Failures & Evaluations." The inspectors also discussed the issues with the system engineer and verified that the issues were appropriately tracked against the system's performance criteria and that the systems were appropriately classified under 10 CFR 50.65.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed five maintenance risk assessments during the inspection period. The inspectors verified the conduct and adequacy of scheduled maintenance risk assessments for plant conditions affected by the conduct of the following scheduled maintenance and testing activities:

- Unit 2 Work Schedule for the week of 1/27/03 - maintenance and testing on the charging pump "A" outage, "A" emergency diesel generator (EDG) slow start test, 2-CN-29A suction valve manual stroke test.
- Unit 2 Work Schedule for the week of 2/10/03 - maintenance and testing on the "B" engineering safeguards actuation system (ESAS) undervoltage.

- Unit 2 Work Schedule for the week of 2/24/03 - maintenance and testing on the high pressure safety injection (HPSI) train "A" & "B" testing, "B" charging pump work
- Unit 2 Work Schedule for the week of 3/17/03 - troubleshooting and repair of the charging system.
- Unit 2 Work Schedule for the week of 3/24/03 - maintenance and testing on the "A" EDG slow start and charging pump in-service surveillance.

The inspectors utilized the Equipment Out of Service quantitative risk assessment tool to evaluate the risk of the above plant configurations and compared the result to the licensee's stated risk. The inspectors also verified that the licensee entered appropriate risk categories and implemented risk management actions as necessary. In addition, the inspectors reviewed the following related licensee documents:

- Major Equipment Schedule
- MP-14-OPS-GDL02, Revision 007, "Operations Standards"
- MP-20-MMM, Revision 001, "Work Management"
- MP-20-WM-FAP02.1, Revision 005-02, "Conduct of On-Line Maintenance"
- MP-20-WM-SAP02, Revision 1, "On-Line Maintenance"
- Control Room Logs
- CR-03-00941, P3 Plan for 1/29/03 Would Have Resulted in TSAS 3.0.3 Entry

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions

a. Inspection Scope

The inspectors reviewed personnel performance in coping with non-routine evolutions and transients described below:

- On February 24, 2003, operations personnel responded to the start of both backup charging pumps while at 100% power and in the pressurizer level program band. Instrumentation and Control (I&C) personnel were conducting a pressurizer level control circuit calibration when they entered the wrong panel and pulled the wrong card. This started both backup charging pumps when the controlling circuitry sensed program band deviation from the removed card. Operations personnel secured the backup charging pumps and I&C personnel replaced the card. I&C conducted a maintenance stand down and briefed the occurrence stressing 3-way communications.

- On February 27, 2003, operations personnel entered TS 3.0.5, Operability When Emergency Power Supply Is Unavailable, for both containment radiation monitors being inoperable. On this day, the "A" EDG emergency power supply for the "A" containment radiation monitor was inoperable for surveillance activities. The "B" containment radiation monitor was then taken out of service (inappropriately) for filter

replacement. With the emergency power supply for the "A" containment radiation monitor inoperable and its redundant system ("B" containment radiation monitor) inoperable, TS 3.0.5 applied. When this was recognized, operations personnel entered TS 3.0.5 and restored the "B" containment radiation monitor to service within the two-hour shutdown action statement time limit.

- On March 7, 2003, during RPS testing, operations personnel responded to an automatic reactor trip from 100% power. The apparent cause was a switch failure during RPS testing. Complications following the trip involved secondary system performance and the normal charging system. Two standby charging pumps automatically started to restore pressurizer level. A pressure spike in the charging system caused three charging pump discharge relief valves to lift. The pressure spike damaged the relief valves and resulted in leakage from the charging system into the auxiliary building and the loss of charging to the primary. Operators responded by establishing charging to the primary via the alternate injection path. Operations personnel entered TS 3.0.3 and commenced a normal reactor plant cooldown to mode 5.

The inspectors observed control room operator response and reviewed operator logs, plant computer data, and response procedures. The inspectors also reviewed the following related licensee documents:

- Refer to Attachment for list of reviewed personnel performance during non-routine plant evolutions documents

b. Findings

No findings of significance were identified for the February 24 and 27 events. A Special Inspection Team was chartered to review the licensee response to the March 7 event.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five 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 the following degraded or non-conforming conditions:

- Enclosure Building Filtration System Boundary Doors Degraded
- "A" and "B" Charging Pump Soft Foot Condition
- "B" RBCCW HX Service Water Relief Valve Failure
- Minor Through-Wall Service Water Piping Leak Upstream of 2-SW-87A
- EDG Service Water Bypass Valve Operability

The inspectors reviewed the following related licensee documents:

- Refer to Attachment for a list of documents reviewed under operability evaluations

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed five post-maintenance test activities during the inspection period. The inspectors reviewed post-maintenance test (PMT) activities to determine whether the tests were performed in accordance with the approved procedures. The inspectors assessed the test's adequacy by comparing the test methodology to the scope of maintenance work performed. In addition, the inspectors evaluated the test acceptance criteria to verify whether the test criteria demonstrated that the tested components satisfied the applicable design and licensing bases and the TS requirements. The inspectors reviewed the recorded test data to determine whether the acceptance criteria were satisfied. In addition, the inspectors verified that any identified deficiencies were entered into the licensee's corrective action program. The following maintenance activities and specified post-maintenance tests were evaluated:

- "A" Charging Pump Low Speed Coupling
- "B" EDG Service Water Supply Valve
- "A" Charging Pump Repack
- "A" MDAFW Pump
- "B" Charging Pump Discharge Relief Valve

The inspectors reviewed the following related licensee documents:

- Refer to Attachment for list of reviewed post-maintenance testing documents.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspector reviewed areas related to a forced outage following a complicated reactor trip on March 7, 2003 for conformance to TS requirements and approved procedures. The inspectors also reviewed risk reduction methodologies for configuration control and

scheduling and mitigation strategies for affected key safety functions. Selected activities were verified for the following evolutions:

- Shutdown risk evaluations
- Startup Scheduling
- Plant heatup
- Criticality
- Power ascension

The inspectors also reviewed the following related licensee documents:

- Refer to Attachment for list of reviewed refueling and outage activities documents

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed six surveillance activities, including one Inservice Testing (IST) activity, during this inspection period. The inspectors reviewed licensee performance of surveillance testing of structures, systems, and components to ensure these systems are capable of performing their intended safety functions and to ensure related TS requirements are met. The inspectors reviewed surveillance testing activities associated with the following:

- "A" Service Water Pump Operability
- "B" Service Water Pump Operability
- "B" Service Water Pump Facility 1, IST
- "C" Service Water Pump
- "A" Charging Pump
- Containment Spray System

The inspectors attended test briefs, verified selected prerequisites and precautions, and verified the tests were performed in accordance with the procedural steps. The inspectors also reviewed completed data sheets and verified that TS requirements were met. The inspectors also reviewed the following related licensee documents:

- Refer to Attachment for list of reviewed surveillance testing documents

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed a temporary modification for an emergency safety features test pump assembly to verify that the temporary modification did not affect the safety function of important safety systems. The inspectors reviewed the temporary modification and its associated 10 CFR 50.59 screening against the Final Safety Analysis Report (FSAR) and Technical Specifications to ensure the modification did not affect system operability or availability. The inspectors also reviewed the following related licensee documents:

- Work Control -10, Revision 004-01, Temporary Modifications
- FSAR, Chapter 6, Engineered Safety Features System
- SP 2605P, Revision 000-05, RWST Valves Backleakage IST
- Low Pressure Safety Injection System Drawing No. 25203-26015, Sheet 1

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP3 Site Emergency Response Organization (SERO) Augmentation Testing

a. Inspection Scope

An EP program inspection was conducted in August 2001 and documented in NRC Inspection Reports 50-336,423/01-07. The subject inspection resulted in the issuance of Unresolved Item (URI) 50-336,423/01-07-02, related to Dominion's utilization of pager notification test data to assess the capability of SERO to respond to an event and the implementation of corrective actions to resolve test data deficiencies.

The inspectors assessed Dominion's corrective actions for historical SERO notification test deficiencies, which included: (1) a review of the pager test data for accuracy; (2) an evaluation of SERO participants; (3) an implementation of a new call-out pager system that was intended to improve the activation of SERO pagers; and (4) performance of an unannounced come-in drill on January 23, 2003, that was conducted off-hours to ensure the current SERO would meet the staffing requirements. In addition, the inspectors reviewed come-in test results that were documented in a Dominion Report dated January 23, 2003, as well as corrective actions associated with CR-03-00822, CR-03-00899, and CR-03-00900. The review was performed to ensure that the Millstone emergency facilities were staffed within the allotted time, all drill objectives were met and Dominion's corrective actions were adequate. Based on these inspection activities, URI 50-336,423/01-07-02 is closed.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

During the period February 10-13, 2003, the inspector conducted the following activities to verify that Dominion Nuclear was properly implementing physical, engineering, and administrative controls for access to radiologically controlled areas, and that workers were adhering to these controls when working in these areas.

- Keys to TS Locked High Radiation Areas and other High Radiation Areas located in Units 2 and 3 were inventoried. These areas were verified to be properly secured and posted during plant tours.

- The inspector verified that highly activated materials stored in the Unit 2 and Unit 3 spent fuel pools were properly secured.

- Independent radiation surveys were performed in radiologically controlled areas in Units 2 and 3 to confirm the accuracy of posted survey results and assess the adequacy of radiation work permits (RWP) and associated controls. Areas surveyed included the Unit 2 Auxiliary and Fuel Handling Buildings and the Unit 3 Auxiliary Building, Waste Building, Fuel Handling Building, and Engineered Safeguards Building.

- The inspector attended pre-job RWP briefings, reviewed the exposure controls specified in the RWPs, and observed workers perform the following associated jobs:

  - The transfer of spent resin from the Unit 2 Spent Resin Tank to a waste container, and subsequent resin liner de-watering performed on February 12, 2003. (RWP 17, Job Step 2)

  - The taking of a Unit 3 reactor coolant system sample from the Post-Accident Sampling System (PASS) on February 13, 2003. (RWP 4, Job Step 1)

- The inspector interviewed technicians regarding their knowledge of applicable RWPs, electronic dosimetry set points, and work area radiological conditions for the following jobs:

  - Thermography performed on sections of the Unit 2 Charging System (RWP 30, Job Step 1)

- Snubber repair in the Unit 3, B-Residual Heat Removal System Cubicle (RWP12)

- The inspector reviewed pertinent information regarding Radiation Protection/Chemistry Department cumulative exposure history, exposure trends, and plant survey records to assess the licensee's effectiveness in establishing exposure goals, and in limiting and equalizing worker dose.

The evaluation of Dominion Nuclear Connecticut's performance and implementation of the access control program in the above areas was reviewed against criteria contained in 10 CFR 20, the respective unit's technical specifications, and the licensee's procedures.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection [PP]

3PP4 Security Plan Changes

a. Inspection Scope

An in-office review was conducted of changes to the Physical Security Plan identified as Revision 41, 42, 43, and 44, changes to the Training & Qualification Plan identified as Revision 16 and 17, and the licensee's Contingency Plan identified as Revision 4 and 5, in accordance with the provisions of 10 CFR 50.54(p). The review was conducted to confirm that the changes were made in accordance with 10 CFR 50.54(p), and did not decrease the effectiveness of the above listed plans. The NRC recognizes that some requirements contained in these program plans may have been superceded by the February 2001 Interim Compensatory Measures Order.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 Emergency Preparedness (EP)

a. Inspection Scope

The inspector reviewed the licensee's process for identifying the data that is utilized to determine the values for the three EP performance indicators (PIs), which are: 1) Drill and Exercise Performance, 2) Emergency Response Organization (ERO) Participation, and 3) Alert Notification System Reliability. The review assessed data from the second, third and fourth quarters of 2002 (since the last EP PI verification inspection). Classification, notification and protective action opportunities were reviewed from licensed operator requalification simulator sessions and site ERO drills and exercises. Attendance records for drill and exercise participation was reviewed for completeness and accuracy. Test records were reviewed and details of the siren testing and data collection were discussed with individuals responsible for that program. The inspector reviewed this data using the criteria of Nuclear Energy Institute (NEI) 99-02, Revision 2, "Regulatory Assessment PI Guideline."

b. Findings

No findings of significance were identified.

.2 Physical Protection

a. Inspection Scope

The inspectors reviewed the licensee's programs for gathering, processing, evaluating, and submitting data for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment Performance Indicators (PIs) to verify these PIs had been properly reported as specified in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 1 and Rev. 2. The review included the licensee's tracking and trending reports, personnel interviews, and security event reports for the PI data collected from the 2nd quarter of 2002 through February 2003.

b. Findings

No findings of significance were identified.

.3 Reactor Safety

a. Inspection Scope

The inspectors sampled PI information provided to the NRC to ensure the PIs were complete and accurate and in accordance with the guidance contained in NEI 99-02,

"Regulatory Assessment Performance Indicator Guidelines," Revision 2. The following licensee PIs were reviewed:

- RCS Activity
- Reactor Coolant System Leakage

The RCS activity PI was verified by the inspectors by reviewing the results of daily reactor coolant system dose equivalent Iodine-131 measurements, as logged in the licensee's chemistry data management system. Additionally, the inspectors verified the equipment used to measure the activity was properly calibrated. The inspectors verified the RCS leakage PI by reviewing the results of daily reactor coolant system identified leakage measurements. The inspectors sampled the January through December 2002 data by reviewing three months of data for each PI.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed seven CRs, three Radiological Protection Department Self-Assessments, and three Nuclear Oversight Department Surveillance Reports relating to the implementation of radiological controls for performing work in radiologically significant areas. This review assessed the licensee's threshold for identifying problems, the comprehensiveness of the cause evaluation, and the promptness/effectiveness of the resulting corrective actions.

The evaluation of Dominion Nuclear Connecticut's performance was against the criteria contained in 10 CFR 20, Technical Specifications, and the station procedures.

b. Findings

In reviewing CR-02-13322, a self-revealing finding, related to the proper labeling of a shipping package containing radioactive waste, was identified. Refer to Section 4OA5.1 for details.

4OA3 Event Followup

a. Inspection Scope

On March 7, 2003, the inspectors observed the licensee's response to an unplanned reactor trip, which was complicated by charging system and secondary plant problems. The inspectors observed the implementation of emergency operating procedures, as well as emergency plan implementation following the declaration of an Unusual Event, due to indications and subsequent diagnosis of an RCS leak, and exceeding the

shutdown time requirement of TS 3.0.3. The inspectors reviewed licensee event notification information, observed several shift briefs during the event, observed the transition to an alternate charging flowpath for RCS makeup, and reviewed the licensee's response to the radiological conditions resulting from the event. The inspectors also evaluated the licensee's transition to plant cooldown and compliance with applicable cooldown rates. Information from this event response was utilized to determine the level of investigatory response by the NRC. A Special Inspection Team was chartered on March 12, 2003 to review the licensee response to this event.

b. Findings

A more detailed assessment of licensee activities during and following the event will be captured under separate title by a forthcoming Special Inspection Team Inspection Report, NRC Inspection Report 50-336/03-06.

4OA4 Cross-Cutting Findings

A finding discussed in Section 4OA5.1 of this report had as its primary cause a human performance deficiency, in that, Dominion Nuclear-Connecticut attributed the cause of an incorrectly labeled radiological shipping package to human error and inadequate instructions contained in shipping procedures.

4OA5 Other Activities

.1 Transportation Violation Issued by a Third Party

a. Inspection Scope

The inspector reviewed a Notice of Infraction dated February 3, 2003 issued by the State of South Carolina to Dominion Nuclear Connecticut, involving one package of unlabeled radioactive waste (de-watered filters) transported in a shipment (No. 1202-11638) from the Millstone Station to the Barnwell Low-Level Waste Burial Ground. Also, reviewed was Chem-Nuclear Systems Condition Report (CR) No. B-02-069 and Dominion Nuclear's CR No. 02-13322, which documented that incident.

b. Findings

Introduction. A Green, self-revealing finding was identified involving the requirement to properly label, in accordance with 49 CFR 172.400, a shipping package containing Low Specific Activity radioactive waste, greater than a Type A quantity, prior to shipping the material to the disposal facility.

Description. On December 13, 2002, a Chem-Nuclear site inspector, performing a receipt inspection of a shipment (No. 1202-11638) of radioactive waste from the Millstone Station, at the Barnwell Low-Level Waste Burial Facility, identified that the shipping package was not labeled as required by 49 CFR 172.400. The package containing de-watered filters did not have "Radioactive Yellow -III" labels affixed to

opposite sides of the shipping package. Additionally, the shipping manifest incorrectly stated that shipping labels were not required for the package. Subsequently, Chem-Nuclear Systems, LLC, issued a CR No. B-02-069 to the Millstone Power Station on December 15, 2002 requesting that the licensee identify the cause for the non-compliance and the actions that would be taken to prevent a recurrence. On February 3, 2003, the Department of Health and Environmental Control issued Dominion Nuclear Connecticut a notice of infraction for this incident.

Analysis. The transportation of non-labeled radioactive material is a performance deficiency because it was a violation of a regulatory requirement contained in 49 CFR 172.400, and was reasonably within the licensee's ability to foresee and correct (e.g., via quality assurance processes). Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements or licensee's procedures. The finding was more than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further, program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements. Dominion Nuclear-Connecticut attributed the cause to human error and inadequate instructions contained in shipping procedures. This finding is related to the cross-cutting issue of Human Performance.

Dominion Nuclear Connecticut's failure to label a radioactive material package prior to shipping the package to a low-level burial facility was determined to have very low safety significance (Green) using the Public Radiation Safety Significance Determination Process. Specifically, the issue involved Dominion not meeting a regulatory requirement; however, this issue did not involve the package exceeding a radiation limit; did not involve a package breach; did not involve the Certificate of Compliance; did not involve non-conformance with low level burial ground access requirements; and did not involve emergency notification information. The inspector determined that there was no actual safety consequence associated with this condition in that the vehicle was appropriately placarded, the documentation accompanying the shipment contained information to identify the radioactive material contained in the shipping package, and the emergency instructions were present.

Enforcement. 49 CFR 172.400 requires that each licensee who transports a hazardous material shall label the package with labels specified in the regulations. The licensee entered the issue into the corrective action program as CR No. 02-13322 and initiated an investigation into the causes. The requirement for placing radioactive labels, per 49 CFR 172.400, was specified in various procedures, but the format of the procedures did not organize the information by package type, causing two authorized shippers to miss the need for attaching the required label as discovered by Chem-Nuclear on December 13, 2002. Because this failure to comply with 49 CFR 172.400 is of very low safety significance and has been entered into the corrective action program, this violation is

being treated as an **NCV 50-336/03-02-01**, consistent with Section VI.A of the NRC Enforcement Policy.

.2 (Closed) URI 50-336/02-06-02 RCS Pressure Coolant System (RCS) Pressure Boundary Leakage, EA 03-080

Description. This unresolved item was opened to complete an evaluation of two licensee-identified reactor coolant system (RCS) pressure boundary leakage conditions. These leaks were located in a reactor coolant pump (RCP) seal cooler and in a pressurizer heater penetration. The conditions represented a violation of Technical Specification (TS) 3.4.6.2, which prohibited operation in Modes 1-4 with RCS pressure boundary leakage. Both leaks were minor in nature and well below the TS limit of one gpm for unidentified RCS leakage.

Analysis. The inspectors reviewed the licensee's evaluation and circumstances associated with the leakage conditions to determine whether a performance deficiency existed and to determine the safety significance of the leakage. Based on this review, the inspectors determined that each occurrence of leakage resulted from an equipment failure that was not avoidable using reasonable quality measures or management controls established by the licensee. Although the leakage was very low, the inspectors determined that the leakage was of greater than minor significance because the RCS pressure boundary, which is designed to be leak-free, was affected.

During the safety significance assessment, which was qualitative in nature, the inspectors focused on two primary criteria which were (1) whether the leakage conditions could have reasonably resulted in an increase in the loss of coolant accident (LOCA) frequency (small, medium, or large as appropriate based on the characteristics of the mechanism that caused the leakage) and (2) whether the leakage could have resulted in the failure of other mitigating systems to perform their intended safety function. The safety assessment of the pressurizer heater penetration leakage was in part based on the resident inspector's review of industry operating experience. This review indicated that there have been similar small leaks in the industry caused by primary water stress corrosion cracking (PWSCC) of pressurizer heater sleeve penetrations manufactured with alloy 600 stainless steel. All previous leaks had been identified and corrected before a failure of the heater penetration occurred. Based on this operating experience and the nature of the leakage mechanism (i.e., maximum leak size potential and likelihood of complete failure of the penetration sleeve) the inspectors concluded that the leakage would not likely result in increasing the frequency of a small LOCA. For the RCP seal cooler leakage, the licensee determined that the maximum leak rate that could be achieved was less than one gpm, and the likelihood of a complete failure of the RCP seal cooler cover, which was the most likely affected component, had not measurably increased. Based on this information and the nature of the leakage condition, the inspectors concluded that the leakage was insufficient to increase the small LOCA frequency or have an appreciable impact on the interfacing system LOCA event. In both cases, the inspectors determined that the leakage would not impact other mitigating systems resulting in a loss of function. Additionally, for each case the inspectors determined that the licensee had mitigating procedures, routine

inspection activities, operable leakage detection equipment and TS requirements designed to detect low levels of leakage from the RCS and minimize the potential that a flaw could remain undetected and result in failure of the associated RCS boundary. Based on the above, the inspectors determined, qualitatively, that both RCS pressure boundary leakage conditions were of very low safety significance.

Enforcement. The staff concluded that each occurrence of RCS pressure boundary leakage resulted from an equipment failure that was not avoidable by the implementation of reasonable quality measures or management controls. The staff further concluded that Dominion appropriately identified and corrected the conditions, implemented measures to preventive recurrence and adequately characterized the extent of condition and safety significance associated with each RCS pressure boundary leak. Accordingly, although RCS pressure boundary leakage is a violation of NRC requirements, the NRC has decided to exercise enforcement discretion in accordance with VII.B.6 of the NRC Enforcement Policy and refrain from issuing enforcement action for these violations. URI 50-336/02-06-02 is closed.

4OA6 Meetings, including Exit

.1 Occupational Radiation Safety

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on February 13, 2003.

.2 Resident Exit Meeting Summary

The inspectors presented the inspection results to Mr. Alan Price and other members of licensee management on April 16, 2003. The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

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

- On February 6, 2003, a worker entered into the Unit 2 Auxiliary Building, a radiological controlled area (RCA), and did not properly log onto the applicable RWP and did not wear an electronic dosimeter. Failure to log onto the RWP and wear an electronic dosimeter when entering the RCA is contrary to procedure RPM 5.2.2, Basic Radiation Worker Responsibilities. This finding is of very low safety significance and is being treated as an NCV since the individual was wearing a thermoluminescent dosimeter and did not receive any unplanned exposure. This deficiency was entered into the corrective action program as CR-03-01260. Note that the licensee is reviewing this matter in conjunction with a similar occurrence which occurred at Unit 1 on January 28, 2003. (See NRC Inspection Report No. 50-245/2002-013.)

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

A. Price, Site Vice President - Millstone
D. Hicks, Director, Nuclear Safety and Licensing
A. Jordan, Director, Engineering
S. Sarver, Director, Nuclear Station Operations & Maintenance
S. Scace, Assistant to the Site Vice President
A. Armagno, Unit 2 Health Physics Shift Supervisor
M. Birch, Emergency Planning Staff
R. Bracal, Manager, Maintenance
P. Calandra, On-Line ALARA Coordinator
T. Delgoto, Radiation Protection Technician
D. Dodson, Acting Manager, Licensing
M. Finnegan, Unit 3 Health Physics Shift Supervisor
D. Glover, Manager, Nuclear Outage & Planning
R. Griffin, Manager, Radiological Protection & Chemistry
W. Hoffne, Operations Manager
S. Horner, ALARA Planner
A. Johnson, Supervisor, Radiation Protection Support (Technical)
M. Jaworsky, Licensing Engineer
J. Joswick, Radiation Protection Technician
E. Laine, Supervisor, Health Physics
R. Leach, Staff Health Physicist
P. Luckey, Manager, Emergency Preparedness
F. Matovic, Radiation Protection Technician
S. Matthess, Supervisor, Chemistry
S. Mazolla, Emergency Planning Staff
F. Neff, Nuclear Oversight Assessor
F. Perry, Unit 1 Health Physics Supervisor
D. Regan, Supervisor, Radiation Protection Support (ALARA)
T. Reyher, Supervisor, Nuclear Maintenance (I&C)
G. Stearns, Radiation Protection Technician
P. Tulba, Supervisor, Waste Services
P. Willoughby, Supervisor, Licensing
M. Wynn, Health Physicist

NRC personnel:

S. M. Schneider, Senior Resident Inspector
S. R. Kennedy, Resident Inspector
P. C. Cataldo, Resident Inspector
K. A. Mangan, Resident Inspector
A. J. Blamey, Senior Operations Engineer, Division of Reactor Safety (DRS)
D. C. Caron, Physical Security Inspector, DRS
P. R. Frechette, Physical Security Inspector, DRS
N. T. McNamara, Emergency Preparedness Specialist, DRS
T. A. Moslak, Health Physicist, DRS
D. M. Silk, Senior Emergency Preparedness Inspector, DRS

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed During this Inspection

50-336/03-02-01	NCV	Failure to label a radioactive material package prior to shipping the package to a low-level burial facility (4OA5.1)

Closed

50-336,423/01-07-02	URI	Augmenting SERO in a Timely Manner (1EP3)
50-336/02-06-02	URI	RCS Pressure Boundary Leakage, EA 03-080 (4OA5.2)

LIST OF DOCUMENTS REVIEWED

Section 1R05: Fire Protection

FP-EV-98-0008, Technical Evaluation of the Separation Between Appendix R Fire Areas R-2, R-3 and R-17 at the Containment Enclosure Building
FP-EV-98-0010, Technical Evaluation of the Water Curtain used to Provide Separation between Appendix R Fire Areas R-1 and R-4 at the Entrance to the Charging Pump Room
FP-EV-98-0024, Technical Evaluation for the Lack of an Operable Fire Damper in Ductwork Penetrating the Appendix R Fire Wall between the East Electrical Penetration Room and the Enclosure Building Filtration System Room
FP-EV-98-0025, Technical Evaluation for the Inadequate Blockout in the Appendix R Fire Wall between the East Electrical Penetration Room and the Enclosure Building Filtration System Room
FP-EV-98-0041, Technical Evaluation for Metal Partition Wall in the Charging Pump Cubicle
FP-EV-99-0003, Technical Evaluation for the Configuration of Fire Dampers 2-EB-157 and 2-EB-158 in Auxiliary Building 14’-6" Elevation East Electrical Penetration Room
FP-EV-98-0004, "Lack of a Rated Fire Door in the Appendix R Wall Between the East Main

Steam Safety Valve Area (App. R Area R-17) and the Auxiliary Building Refueling Floor (App. R Area R-1)," (Revision 0)
FP-EV-98-0008, "The Separation Between Appendix R Fire Areas R-2, R-3 and R-17 at the Containment Enclosure Building," (Revision 0)
FP-EV-98-0020, "The Lack of Fire Dampers in Ductwork Penetrating the Appendix R Wall Between the East Main Steam Safety Valve Area and the Auxiliary Building Refueling Floor," (Revision 0)
FP-EV-98-0022, "The Lack of a Full Height Appendix R Fire Wall Between the East and West Main Steam Safety Valve Rooms," (Revision 0)
FP-EV-98-0030, "The Improperly Installed Fire Dampers in the Appendix R Fire Wall Between the East Main Steam Safety Valve/Blowdown Tank Room and the Air Handling Units," (Revision 0)
FP-EV-99-0003, "The Configuration of Fire Dampers 2-EB-157 and 2-EB-158 in Auxiliary Building 14'-6" Elevation East Electrical Penetration Room, (Revision 1)
CR-03-01655, Pen Seal Found with Void 14.5" Deep, 3" Long, 3" Wide
CR-03-01546, Poor Housekeeping Practices. Combustible Material Found in the MP2 Aux Building RCA
CR-03-00901, External Corrosion Discovered on Fire Protection Drain Piping in Unit 2 EBFAS Equipment Area

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

Control Room Operator Log
Unit 2 FSAR, Chapter 7.4.4, Pressurizer Level Regulating System
CR-03-01988, Filters Were Changed in Rad Monitor 8262 When the Filter Housing Broke Causing Entry into T.S. 3.0.5 ("A" EDG was INOP [connected to grid])
CR-03-01885, During Recalibration of LT-110Y per SP2402E I&C Technicians Pulled the Wrong
Weidmuller Pin Resulting in an Inadvertent Charging/Letdown Response
T.S. 3.0.5, SSC Operability When Emergency Power Supply is Unavailable
T.S. 3.4.6.1, Reactor Coolant System Leak Detection Systems
T.S. 3.0.3, Inability to Meet a Limiting Condition for Operation
OP-2207, Revision 025-00, Plant Cooldown
T.S. 3.4.6.2, RCS Leakage

Section 1R15: Operability Evaluations

Enclosure Building Filtration System Boundary Doors Degraded
RP-5, Revision 002-04, "Operability Determinations"
OP-2356, Revision 001-03, Section 4.9, "Enclosure Building Filtration System Boundary Doors"
TS 3.6.5.2, Enclosure Building
SP-2609C, Revision 6, "Enclosure Building Operability"
CR-03-00245, EBFS Boundary Door #205-38-004 Has Degrading Components and Conditions
Control Room Logs

"A" and "B" Charging Pump Soft Foot Condition

RP-5, Revision 002-04, "Operability Determinations"
CR-03-01437, P18B Pump Needs to be Checked for Soft Foot
CR-03-01440, P18A Pump Needs to be Checked for Soft Foot
OD MP2-037-03, "'B' Charging Pump Soft Foot Condition"
OD MP2-038-03, "'A' Charging Pump Soft Foot Condition"

"B" Reactor Building Closed Cooling Water (RBCCW) Heat Exchanger (HX) Service Water Relief Valve Failure
RP-5, Revision 002-04, "Operability Determinations"
OD MP2-036-03, "Failure of "B" RBCCW HX Service Water Relief Valve 2-SW-92B"

Minor Through-Wall Service Water Piping Leak Upstream of 2-SW-87A
RP-5, Revision 002-04, "Operability Determinations"
OD MP2-041-03, Revision 0, "Minor Through-Wall Service Water Piping Leak (1 to 2 drops/min) Upstream of 2-SW-89A"
CR-03-01781, Minor Through-Wall Piping Leak (1 to 2 drops/min) Upstream of 2-SW-89A

Emergency Diesel Generator Service Water Bypass Valve Operability
RP-5, Revision 002-04, "Operability Determinations"
CR-03-00163, 2-SW-231A was considered operable following a satisfactory retest, however the work did not fix the reason for it being declared inoperable.
"A" Diesel Generator Heat Exchanger Service Water Bypass Valve Assembly Maintenance Rule
Functional Failure Evaluation
Control Room Logs

Section 1R19: Post-Maintenance Testing

"A" Charging Pump Low Speed Coupling
Automated work order (AWO) M2-03-01158, "Replace Low Speed Coupling"
MP-20-WP-GDL40, Revision 001, Pre- and Post-Maintenance Testing
CR-03-00867, Low Speed Coupling on P18A Needs to be Replaced
AWO M2-02-09583, "'A' Charging Pump Coupling Inspection/Lubrication"
MP 2703L7, Revision 001, "Horizontal Shaft Alignment Using Optalign"
CBM 104, Revision 003-01, "Vibration Data Acquisition and Overall Vibration Analysis"
OPS Form 2601I, Revision 001-05, "'A' Charging Pump IST, NOP"
CR-03-01912, Perform a Review of the PMT Development and Documentation Process
SP-2601G, Revision 009-01, "'A' Charging Pump Operability Test"
50.59 Screen for CRED CR-03-00867, "'A' Charging Pump Low Speed Coupling Replacement "
CR-03-01907, Documentation Issues Associated with AWO M2-03-01158
For "A" Charging Pump
Training Information Management System Printout for Mechanic Qualifications

B" Diesel Generator Service Water Valve
AWO M2-02-15405, "'B' Header to 'B' Diesel Generator Heat Exchanger Supply Valve"
MP-2702E5, Revision 0, Norris Butterfly Valve Overhaul
CR-02-13474, 2-SW-12C Won't Close

CR-03-00494, 2-SW-12C Leaks Past Seat

Repack “A” Charging Pump
AWO M2-03-02834, “Charging Pump P18AP Liquid End Requires Repack"
SP 2601G, Revision 012-01, “‘A’ Charging Pump Operability Test, Facility 1"
SP 2601G-001, Revision 009-01, “‘A’ Charging Pump Operability Test”
OPS Form 2601I-001, Revision 001-05, “‘A’ Charging Pump Operability Test, Facility 1"
SP-2601I, Revision 001-05, "Charging Pump Inservice Test”
CR-03-02355, “P18A Top Cap Stud Nut does not have Full Thread Engagement”

"A" MDAFW Pump
AWO M2-03-00959, "Unit 2 AFW Pump Modifications""
SP 2610A, Revision 010-04, “Motor Driven AFP Test”

"B" Charging Pump Discharge Relief Valve”
AWO M2-03-03044, “‘B’ Charging Pump Discharge Relief Valve”
SP 2601K-004, Rev 000, “‘B’ Charging Pump Operability Test, Mode 5, 6, or Defueled, Facility 2"
MP 2702F3, Revision 006-03, “Testing and Setting Pressure Relieving Valves”
MP 2702F15, Revision 000, “Crosby Style JOS/JBS/JLT and JRAK Pressure Relief Valve Maintenance”
CR-03-02725, Bent Nozzle Retainers Found on 2-CH-324, 2-CH-325, and 2-CH-326 needs Engineering Evaluation
CR-03-02812, During Performance of DCN DM2-00-0073-03, Found Lower Surface of Spring Washers Out of Square”
CR-03-02885, Valves 2-CH-324, 2-CH-325, and 2-CH-326 Flanges are not Being Torqued
CR-03-02992, Good Mechanical Practice may not Achieve Desired Preload on Torqued Flanges

Section 1R20: Refueling and Outage Activities

MP-14-OPS-GDL02, Revision 012, Operations Standards
MP-20-OM-GDL01, Revision 000, Forced Outage Management Guidelines
MP-20-OM-FAP02.1, Revision 000-02, Shutdown Risk Management
MP-20-MMM, Revision 001, Work Management
MP-20-WM-FAP02.1, Revision 006, Conduct of On-Line Maintenance
MP-20-OM-FAP01.1, Revision 000-02, Outage Management
OP 2264, Revision 009, Conduct of Outages
OP 2202, Revision 020-02, Reactor Startup IPTE
OP 2203, Revision 016-02, Plant Startup
OP 2201, Revision 029-02, Plant Heatup
OP 2208-001, Revision 007, ECP Data and Analysis Sheet
Control Room Logs

Section 1R22: Surveillance Testing

TS Surveillance Requirements
Individual Surveillance Test Procedure Data Forms
TS 3.4.7.4, Service Water System and Bases
OPS Form 2612F-001, Revision 000-4, "'B' Service Water Pump Operability Test, Facility 1"
OPS Form 2612F-002, Revision 000-07, "'B' Service Water Pump IST, Facility 1"
OPS Form 2612A-001, Revision 008-04, "'A' Service Water Pump Operability Test"
SP-2612A, Revision 008-08, "'A' Service Water Pump Tests"
SP-2612F, Revision 000-08, "'B' Service Water Pump Tests"
SP-2612C-001, Revision 030-05, "Service Water, Facility 1"
SP 2612B, Revision 008-08, "C" Service Water Pump Test"
SP 2601G, Revision 011-03, "Charging Pump Operability Test, Facility 1"
SP 21198, Revision 003, "Containment Spray System Leakage Test"

Section 2OS1: Occupational Radiation Safety

Procedures:

RPM 1.1.1, Rev 6	Health Physics Organization and Responsibilities of Key Radiological Personnel
RPM 1.3.8, Rev 7	Criteria for Dosimetry Issue
RPM 1.3.14, Rev 5	Personnel Dose Calculations and Assessments
RPM 1.4.1, Rev 6	ALARA Reviews and Reports
RPM 1.4.2, Rev 1	ALARA Engineering Controls
RPM 1.5.1, Rev 8	Routine Survey Frequency
RPM 1.5.2, Rev 4	High Radiation Area Key Control
RPM 1.5.5, Rev 4	Guidelines for Performance of Radiological Surveys
RPM 1.5.6, Rev 3	Survey Documentation and Disposition
RPM 2.1.1, Rev 4	Issuance and Control of RWPs
RPM 2.1.2, Rev 1	ALARA Interface with the RWP Process
RPM 5.2.2, Rev 9	Basic Radiation Worker Responsibilities
RPM 5.2.3, Rev 3	ALARA Program and Policy
RPM 5.2.6, Rev 4	Guidelines for Radiological Controls of Radiography
RPM 2.10.2, Rev 8	Air Sampling Counting and Analysis
RPM 2.11.1, Rev 8	Survey and Decontamination of Personnel and Clothing
SP 3885, Rev 7-6	PASS RCS Sample Operability Test
RW 46004, Rev 8	Shipment of Radioactive Material - Low Specific Activity
RW 46005, Rev 3	Shipment of Radioactive Material - Surface Contaminated Object
RW 46016, Rev 7	Shipment of Radioactive Waste - Waste Processing Facility
RW 46021, Rev 10	Shipment of Radioactive Waste - Barnwell Waste Management Facility

Radiation Protection Department Self-Assessments:

MP-SA-02-017	Human Performance
MP-SA-02-042	ALARA
MP-SA-02-071	Contaminated Laundry Service

Nuclear Oversight Surveillance Reports:

MPS-OP-02-025	Unitect Protective Clothing Laundry Facility Radiological Practices
MPS-OP-02-021	Review of why ALARA goal was exceeded for Unit 2 oil addition/modification to the "A" reactor coolant pump motor on 11/07/03
MPS-OP-02-019	3RO8 Radiation Control Surveillance

Condition Reports:

CR-03-01260, 03-00902, 03-01113, 03-00233, 02-13322, 02-13809, 02-13799

Section 4OA1: Performance Indicators

MP-26-EPA-GDL01, Revision 001, Emergency Planning Performance Indicators

LIST OF ACRONYMS

ALARA	as low as reasonably achievable
AWO	automated work order
CR	condition report
EDG	emergency diesel generator
EP	emergency preparedness
ERO	emergency response organization
FSAR	Final Safety Analysis Report
HX	heat exchanger
I&C	instrumentation & control
IST	in-service testing
LOCA	loss of coolant accident
MPF	maximum possible failure
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PI	performance indicator
PASS	post-accident sampling system
PMT	post-maintenance test
RBCCW	reactor building closed cooling water
RCA	radiological controlled area
RCS	reactor coolant system
RPS	reactor protection system

RWP	radiation work permit
SDP	significance determination process
SERO	Site Emergency Response Organization
SP	surveillance procedure
SSC	safety systems and components
TS	technical specification
URI	unresolved item

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-423
License No.:	NPF-49
Report No.:	50-423/03-02
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Unit 3
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	December 29, 2002 - March 29, 2003
Inspectors:	S. M. Schneider, Senior Resident Inspector P. C. Cataldo, Resident Inspector K. A. Mangan, Resident Inspector S. R. Kennedy, Resident Inspector B. E. Sienel, Resident Inspector A. J. Blamey, Senior Operations Engineer, Division of Reactor Safety (DRS) D. C. Caron, Physical Security Inspector, DRS P. R. Frechette, Physical Security Inspector, DRS T. P. Hipschman, Reactor Inspector, DRS N. T. McNamara, Emergency Preparedness Specialist, DRS G. W. Morris, Reactor Engineer, DRS T. A. Moslak, Health Physicist, DRS D. M. Silk, Senior Emergency Preparedness Inspector, DRS
Approved by:	Robert J. Summers, Chief Projects Branch 6 Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS

IR 05000423/03-02; Dominion Nuclear Connecticut, Inc.; on 12/29/02 - 03/29/03; Millstone Power Station, Unit 3; Surveillance Testing.

The report covered at 13-week period of inspection by resident and regional inspectors. The inspection identified one green issue, which was a non-cited violation (NCV). The significance of most findings is indicated by the 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 Nuclear Regulatory Commission (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. Inspector Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion III, for inadequate design control measures to provide for the verification of a design and for failure to assure that regulatory requirements were correctly translated into procedures. Specifically, the licensee failed to identify a calculation error from 1992 and 1993 regarding technical specification (TS) fuel oil storage tank levels, and then failed to prevent the error from being translated into the TS surveillance procedure that demonstrates emergency diesel generator (EDG) operability.

  This finding is more than minor because required EDG fuel oil storage tank levels were incorrectly translated into TS surveillance procedures and the actual tank level calculations had to be reperformed to assure historical TS requirements were met. This is similar to example 3.i in Appendix E of Manual Chapter 0612, Power Reactor Inspection Reports. The finding was determined to be of very low safety significance (Green), and is being dispositioned as a Non-Cited Violation, based on licensee analysis that determined no loss of safety function for the EDGs. This finding regarding the failure to identify the incorrect calculations and the subsequent error in the TS surveillance procedure is related to the licensee's Problem Identification and Resolution process. (Section 1R22.1)

B. Licensee-Identified Violations

One violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number is discussed in Section 4OA7.

REPORT DETAILS

Summary of Unit 3 Plant Status

The Unit tripped on December 23, 2002 due to a main generator fault from a stator cooling water leak. Following repairs, the Unit was restarted and restored to 100% power on January 4, 2003. The Unit operated at essentially 100% power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed Dominion's preparations for adverse weather, relative to the protection of safety-related systems, structures, and components (SSCs) from low temperatures. This review focused on the protection of the charging system, and included a walkdown of the system on March 25, 2003 to ensure that the equipment was adequately protected from the indicated extreme conditions. The inspectors verified that adequate controls were in place to ensure system operability, which included the necessity of operational safety-related heaters, as well as adequate procedural controls. The following were reviewed to support this inspection:

- Millstone Unit 3 Final Safety Analysis Report (FSAR), Section 9.4
- Millstone Unit 3 Technical Requirements Manual, Section 3.1.2
- OP 3314A, Revision 022-08, "Auxiliary Building Heating, Ventilation Air Conditioning"
- Calculation 3-92-103-191M3, Revision 1, "CCP & CHS Pump Area Ventilation"

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed two partial system walkdowns during this inspection period. The following systems were reviewed:

- "B" Train Recirculation Spray System (RSS) during preventive maintenance activities on the "A" Train RSS system on March 26, 2003.
- "B" Train Control Building air-conditioning Unit, HVK*CHL1B, during "A" Train maintenance outage on HVK*CH1A on March 24, 2003.

The inspectors evaluated system and component alignment to identify any discrepancies that would impact system operability. The inspectors reviewed selected valve positions,

electrical power availability and the general condition of major system components. The inspectors reviewed the following related licensee documents:

- OP 3314F-008, Revision 006, "Control Building HVC, HVK Valve Lineup"
- OP 3326-010, Revision 006-02, "Service Water System - Control Building Air Cond. B Supply"
- Piping and Instrumentation Diagram (P&ID) EM-151D, Revision 22, "Control Building Heating, Ventilation and Air Conditioning"
- P&ID EM-133D, Revision 35, "Service Water"

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors performed six walkdowns of fire protection areas during the inspection period. The inspectors reviewed the licensee's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for selected areas. The inspectors walked down those areas to assess the licensee'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 also reviewed completed surveillances for selected areas. The fire areas reviewed included:

- Cable Spreading Area, CB-8 on February 4
- Control Room, CB-9 on February 9
- Instrument Rack Room, CB-11B on February 9
- South Containment Recirculation Cooler Cubicle, ESF-1 on February 12, 2003
- North Motor-Driven Auxiliary Feed Pump Cubicle, ESF-8 on February 13, 2003
- South Motor-Driven Auxiliary Feed Pump Cubicle, ESF-9 on February 13, 2003

The inspectors reviewed the following related licensee documents:

- Millstone Unit 3 Fire Protection Evaluation Report
- FSAR
- Surveillance procedure (SP) 3641D.6, Revision 009-03, "Fire Rated Assemblies," completed surveillances from April 5, 2002, May 17, 2002, and November 20, 2002.

- SP 3641D.3, Revision 010-01, "Fire Detection And Control System Operability Check, completed surveillances performed on June 28, 2002, and October 9, 2002.
- Millstone Unit 3 Fire Fighting Strategies

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the results of the licensee's inspection of the "A" EDG jacket water and engine air cooler heat exchangers conducted on February 4, 2003. The review included evaluation of inspection results against applicable acceptance criteria, and verified that all acceptance criteria had been satisfied. The inspectors verified that adverse conditions identified by the licensee were appropriately entered into the licensee's corrective action program. The following documents were reviewed during the inspection:

- EN 31084, Revision 006, "Operating Strategy For Service Water System At Millstone Unit 3"
- Automated Work Order M3-02-11074, "PM, 3 Month -- Jacket Wtr Cooler & Eng Air Cooler H/X Inspection (3EGS*E1A & 3EGS*E2A Visual Inspection)"
- Technical Evaluation M3-EV-02-0031, Revision 0, "Service Water Heat Exchanger Monitoring, Millstone Unit 3"

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed the conduct of licensed operator requalification training conducted in the facility's simulator on March 24, 2003. The inspectors observed licensed operator performance relative to the following activities: effective communications, implementation of normal, abnormal and emergency operating procedures, command and control, TS compliance, and emergency plan implementation. The inspectors evaluated simulator fidelity relative to the configuration of the control room boards to ensure significant differences were captured by the licensee's training program for resolution. The inspectors also observed the training at the site emergency operations facility (EOF), which involved the activation of the site emergency response organization and included
participation of limited off-site organizations. The inspectors evaluated the training scenario for identified deficiencies in operator performance, licensee's evaluation of the scenario, and verified that any identified conditions adverse to quality were appropriately entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed the handling of two degraded SSC conditions for maintenance effectiveness during this inspection period. The inspectors reviewed the licensee's implementation of the maintenance rule 10 CFR 50.65 in response to identified performance issues associated with the following:

- The service water system maintenance rule action plan submittal
- CR-03-01027, "3BDG*CTV22D Did Not Open When Operated from MB1"

The inspectors attended a maintenance rule expert panel that the licensee convened to address ongoing issues that are challenging the service water system, and to update the maintenance rule action plan regarding the resolution of those issues. The inspectors verified that the failure associated with the referenced condition report (CR) was appropriately evaluated against applicable maintenance rule functional failure criteria. The inspectors also discussed these issues with the system engineer and verified that they were appropriately tracked against each system's performance criteria and that the systems were appropriately classified under 10 CFR 50.65. The following documents were reviewed during the inspection:

- MP-24-MR-FAP710, Revision 000-02, "Maintenance Rule Functional Failures & Evaluations"
- Maintenance Rule (a)(1) Evaluation for the Service Water System (3326)
- MP-24-MR-FAP700, Revision 000-02, "Maintenance Rule Unavailability Monitoring"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed five maintenance risk assessments during the inspection period. The inspectors verified the conduct and adequacy of scheduled and emergent maintenance risk assessments for plant conditions affected by the conduct of the following scheduled and emergent maintenance and testing activities:

- Unit 3 Schedule for week of January 5, 2003: extension of recirculation spray system (RSS) maintenance activities from January 9 to January 10, 2003
- Unit 3 Schedule for week of February 9, 2003: scheduled RSS work activities on February 12, 2003.
- Unit 3 Schedule for week of February 9, 2003: scheduled risk evaluation associated with feedwater isolation valve testing on February 12, 2003.

- Unit 3 Schedule for week of February 9, 2003: scheduled "Yellow" risk evaluation involving the "B" motor-driven auxiliary feedwater pump on February 12, 2003.
- Unit 3 Schedule for week of February 9, 2003: emergent risk evaluation during post-maintenance testing of starting air system on February 12, 2003.

The inspectors utilized the Equipment Out of Service quantitative risk assessment tool to evaluate the risk of the above plant configurations and compared the result to the licensee's stated risk. The inspectors also verified that the licensee entered appropriate risk categories and implemented risk management actions as necessary. In addition, the inspectors reviewed the following related licensee documents:

- MP-14-OPS-GDL02, Revision 007, "Operations Standards"
- MP-20-MMM, Revision 001, "Work Management"
- MP-20-WM-FAP02.1, Revision 005-02, "Conduct of On-Line Maintenance"
- MP-20-WM-SAP02, Revision 1, "On-Line Maintenance"
- Control Room Logs

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

.1 EDG, Service Water, and Safety Injection

a. Inspection Scope

The inspectors reviewed three 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 also reviewed the common cause failure determination for the EDG operability evaluation. The inspectors reviewed the following degraded or non-conforming conditions:

- EDG Service Water Outlet Valve Stroke Failure
- Service Water (SW) System Wall Thinning located in the Control Building Enclosure Tube
- Safety Injection (SI) System Minimum Flow Line Flange Leak

The inspectors reviewed the following related licensee documents:

- Refer to Attachment for list of reviewed licensee documents related to these operability evaluations

b. Findings

No findings of significance were identified.

.2 EDG Fuel Oil Storage Tank Minimum TS Level Error

a. Inspection Scope

The inspectors reviewed operability determination MP3-029-03 associated with a calculation error that resulted in the translation of a non-conservative TS requirement for fuel oil storage tank levels into a surveillance procedure. The inspectors evaluated the adequacy of the licensee's assessment of operability to ensure that operability of the EDGs was justified, that no loss of function occurred as a result, and that no unrecognized increase in risk had occurred. The inspectors reviewed the adequacy of compensatory measures implemented as a result of the translation error, which were instituted until procedures are revised. See Section 1R22.1 for more details. The inspectors reviewed the following related licensee documents:

- Reportability Determination associated with CR-03-01881, "Minimum Fuel Oil Storage Tank Levels May Be Non-Conservative"
- Calculation 91-019-152M3, Revision 0, and Changes 001 and 002, "Identification of EDG Run Times Under Varying Fuel Oil Storage Levels"
- Millstone Unit 3 FSAR, Section 8.3
- Millstone Unit 3 Technical Specifications, Section 3.8.1

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed five post-maintenance test (PMT) activities during this inspection period. The inspectors reviewed these PMT activities to determine whether the PMT adequately demonstrated that the safety-related function of the equipment was satisfied given the scope of the work activities. 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 reviewed the completed test results and verified that applicable acceptance criteria were satisfied. In addition, the inspectors verified that conditions adverse to quality were entered into the corrective action program for resolution. The following maintenance activities and specified post-maintenance tests were evaluated:

- Charging Pump Oil Pump Replacement
- Charging Pump Cooling Service Water Leak Repairs
- Residual Heat Removal Valve Actuator Overhaul
- "B" EDG Air System Check Valve Replacement
- "B" Motor-Driven Auxiliary Feedwater Pump Maintenance

The following related licensee documents were reviewed:

- Refer to Attachment for list of reviewed post maintenance test documents

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

.1 "A" EDG Operability Surveillance

a. Inspection Scope

The inspectors observed an operability surveillance for the "A" EDG conducted on February 4, 2003 to determine whether the testing adequately demonstrated the ability of the EDG to perform its intended safety function. The inspectors evaluated the applicable test acceptance criteria to verify consistency with the associated design and licensing bases, as well as TS requirements, and that applicable acceptance criteria were satisfied. In addition, the inspectors verified that conditions adverse to quality were entered into the corrective action program for resolution. The inspectors attended the pre-job brief, verified selected prerequisites and precautions, and verified the test was performed in accordance with the procedural steps. The following related licensee documents were reviewed:

- Calculation 91-019-152M3, Revision 0, and Supplements 001 and 002, "Identification of EDG Run Times Under Varying Fuel Oil Storage Levels"
- SP 3646A.1, Revision 014-05, EDG "A" Operability Test
- Millstone Unit 3 FSAR, Section 8.3
- Millstone Unit 3 Technical Specifications, Section 3.8.1

b. Findings

Introduction. The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion III, for inadequate design control measures, which involved an inadequate verification of the design to assure that regulatory requirements were correctly translated into procedures. Specifically, the licensee failed to identify a calculation error from 1992 and 1993 regarding fuel oil storage tank levels and then, subsequently, failed to prevent the error from being translated into the TS surveillance procedure that demonstrates EDG operability. The finding was determined to be of very low safety significance (Green) and is being dispositioned as a non-cited violation (NCV).

Description. Following a review of TS acceptance criteria related to an operability surveillance on the "A" EDG, the inspectors identified a discrepancy regarding the minimum volume required for the fuel oil storage tanks (EGF-25A & B). Subsequently, the licensee determined that the source of the error was the original 1992 calculation,

and two subsequent revisions in 1993, which resulted in the incorrect TS value for storage tank level to be translated into applicable surveillance procedures. The licensee initiated an operability determination, established compensatory actions to ensure TS compliance, and entered the issue into its corrective action program for resolution.

The inspectors reviewed SP 3646A.1, Revision 014-05, "EDG A Operability Test," and the associated test data sheet, for compliance with TS acceptance criteria and consistency with the design and licensing basis. During this review, the inspector identified that the data sheet established a TS acceptance criteria for the "A" EDG fuel oil storage tank, that was inconsistent with TS 3.8.1.1.b.2, which requires a minimum volume of 32,760 gallons of fuel. Specifically, instructions on the test data sheet indicated that the combination of fuel oil day tank level of $\geq$278 gallons plus fuel oil storage tank levels of $\geq$90.5% (together equivalent by calculation to 32,760 gallons) would satisfy the TS-required volume of 32,760 gallons for the fuel oil storage tank alone.

During discussions with the licensee, the basis for the 90.5% TS-required storage tank level was questioned as well as how the licensee was in compliance with the TS value for minimum fuel oil storage tank volume. The TS bases and FSAR discussion support separate TS values for day tank and storage tank based on minimum usable volumes to permit EDG operation at specific time intervals and at the associated 2000 hour rating. The licensee has since determined that an error had occurred in the calculation of the TS-required minimum volume for the fuel oil storage tanks which combined both tank volumes. This error was subsequently repeated in two later revisions to the calculations and was ultimately translated incorrectly into the EDG surveillance procedure.

Analysis. The failure to provide adequate design control measures to ensure verification of a design and the failure to assure that regulatory requirements were correctly translated into procedures was considered more than minor because it was consistent with example 3.i, of Appendix E to Manual Chapter 0612, "Power Reactor Inspection Reports" and is related to the Mitigating Systems cornerstone. The licensee's TS surveillance procedure was not consistent with the technical specifications and the FSAR and the licensee had to re-perform calculations to assure TS requirements were met. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements or licensee's procedures. This finding is related to the cross-cutting issue of Problem Identification and Resolution. This finding was evaluated using Manual Chapter 0609, Appendix A, "Significant Determination of Reactor Inspection Findings for At-Power Situations." This finding was determined to be of very low risk (Green) since further licensee analysis concluded that the design calculation deficiency did not result in a loss of EDG function.

Enforcement. 10 CFR 50, Appendix B, Criterion III states, in part, that design control measures shall provide for verifying the adequacy of design and that measures shall be established to assure applicable regulatory requirements and the design basis are correctly translated into procedures. The failure of the licensee to identify the error in the design calculations involving the TS for emergency diesel fuel oil storage tank level, and the failure to prevent translation of this error into surveillance procedure acceptance

criteria in 1992 and subsequently in 1993, is considered a violation of 10 CFR 50, Appendix B, Criterion III, "Design Control." (**NCV 50-423/03-02-02**). This violation is associated with an inspection finding that is characterized by the significance determination process as having very low safety significance (Green) and is being treated as a non-cited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as CR-02-01729 and CR-03-01881.

.2 Routine Surveillance Testing

a. Inspection Scope

The inspectors reviewed five additional surveillance activities, including an In-Service Test (IST), to determine whether the testing adequately demonstrated that ability of the equipment to perform its intended safety-related function. 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, and that applicable acceptance criteria were satisfied. In addition, the inspectors verified that conditions adverse to quality were entered into the corrective action program for resolution. The following surveillance activities were evaluated:

- Turbine-Driven Auxiliary Feedwater Pump Operational Test
- Charging Pump Cooling Valve Stroke and Timing In-Service Testing
- Charging Pump Cooling Operational Test
- Steam Generator Blowdown Analog Channel Operational Test
- Auxiliary Feedwater System Check Valve Ultrasonic Testing

The inspectors attended pre-job briefs, verified selected prerequisites and precautions, and verified the tests were performed in accordance with the procedural steps. The inspectors also reviewed completed data sheets and verified that TS requirements were met. The inspectors also reviewed the following related licensee documents:

- Refer to Attachment for surveillance testing documents

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed one temporary plant modification this inspection period. The inspectors reviewed the proceduralized temporary modification associated with the charging system. Specifically, a procedure change implemented to address the necessity for portable heaters located in the boric acid tank rooms to ensure charging system operability in cold weather. The inspectors reviewed the modification and the

adequacy of the associated 10 CFR 50.59 evaluation to ensure the temporary modification did not affect the safety function of the charging system. The inspectors reviewed the adequacy of administrative controls for the modification and associated document changes. The inspectors also reviewed the following related licensee documents:

- WC-10, Revision 004-02, "Temporary Modifications"
- Millstone Unit 3 FSAR
- OP 3314A, Revision 022-08, "Auxiliary Building Heating, Ventilation Air Conditioning"
- Millstone Unit 3 Technical Requirements Manual
- MP-14-OPS-GDL02, Revision 012, "Operations Standard"

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP3 Emergency Response Organization Augmentation Testing

Refer to NRC Inspection Report 50-336/03-02, Section 1EP3, for specific details.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas

Refer to NRC Inspection Report 50-336/03-02, Section 2OS1, for specific details.

3. SAFEGUARDS

Physical Protection [PP]

3PP4 Security Plan Changes

Refer to NRC Inspection Report 50-336/03-02, Section 3PP4, for specific details.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 Emergency Preparedness (EP)

Refer to NRC Inspection Report 50-336/03-02, Section 4OA1.1, for specific details.

.2 Physical Protection

Refer to NRC Inspection Report 50-336/03-02, Section 4OA1.2, for specific details.

.3 Safety System Functional Failures Performance Indicators

a. Inspection Scope

The inspectors reviewed the information presented in the licensee's December 2002 Safety System Functional Failures performance indicator. The inspectors reviewed licensee event reports submitted between January 1 and December 31, 2002. The data was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline," to verify that all conditions meeting the outlined criteria were reported.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Annual Sample Review

a. Inspection Scope

An NRC Region 1 specialist inspector reviewed the licensee's response to the problems related to the station blackout (SBO) diesel identified in three 10 CFR 21 notifications received by Dominion and documented in condition reports (CRs) 02-08134, 02-08179, and 02-11967. Other recent CRs related to the SBO, the emergency diesel generators (EDGs) and the 480 Volt circuit breakers were also reviewed. These CRs were reviewed to determine the timeliness and effectiveness of corrective actions. The inspectors interviewed engineering and other support personnel, reviewed licensee's corrective action procedure guidance and reviewed the licensee's corrective actions and supporting data to ensure they had adequately addressed the problems related to the SBO diesel, the EDG and the 480 Volt breakers.

b. Findings

No findings of significance were identified.

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

A finding discussed in Section 1R22.1 of this report is related to the licensee's implementation of the Problem Identification and Resolution process. The finding involves the failure to identify a calculation error that was subsequently translated into a surveillance procedure utilized for demonstrating EDG operability.

4OA3 Event Followup

.1 (Closed) LER 50-423/2002-003 supplement 01: Inadequate Validation of Fire Safe Shutdown Analysis (hot short) Assumptions.

On October 21, 2002, the licensee updated the previous version of this LER which identified errors in a post fire safe shutdown analysis provided to the NRC in a letter dated July 1, 1985. The original supplement of the LER addresses only the susceptibility of the power operated relief valves (PORV) This LER expands the scope of equipment, corrective actions and compensatory actions related to an ongoing validation of the Unit 3 fire safe shutdown analysis. The original supplement of the LER was closed in NRC Inspection Report 423/2002005 and **URI 05000423/02-05-07** was opened to account for the system described in the original supplement of the LER (PORVs) with respect to existing hot short industry initiatives. The URI was narrow in its scope and addressed only the PORVs. Supplement 1 to this LER identified the atmospheric dump valves (ADV) as additional equipment with inadequate analysis assumptions and typified the review of analysis assumptions as an ongoing activity. The safety consequences, corrective actions and compensatory actions applied to the ADVs are consistent with those applied to the PORVs and appear to be adequate. **URI 50-423/03-02-01** is opened to assess all identified conditions, corrective actions and compensatory measures related to Fire Safe Shutdown at Millstone Unit 3. This URI will remain open pending generic industry resolution of the issue and the issuance of generic NRC guidance. Subsequent to these two activities assessment of the safety significance of specific equipment and conditions at Millstone Unit 3 will be performed. **URI 05000423/02-05-07** is administratively closed.

4OA5 Other Activities

.1 Closed Unresolved Item (URI) 50-423/01-05-03 (Quench Spray Manual Valve Misalignment)

Inspection Report 50-423/01-05, Section 4OA3 documented an in-office review of licensee event report (LER) 50-423/2001-001. The LER described quench spray system (QSS) manual valve misalignment due to incorrectly set valve position indicators. During the previous LER review, the inspector agreed with the conclusions made by the licensee's engineering technical analysis of the event that the mispositioned valves did not significantly reduce the amount of QSS flow to the containment structure and closed the LER. However, the inspector was not able to confirm the licensee's conclusions regarding the offsite dose consequences of the event, because the licensee used an analysis methodology that was under license amendment review by the Office of Nuclear Regulatory Regulation (NRR). Therefore, this issue remained unresolved pending (1) completion of the NRR review of the licensee's accident analysis; (2) verification that the offsite and control room doses were bounded by the revised analysis; and (3) evaluation of this event through the SDP. NRR issued license amendment No. 211 on September 16, 2002. The inspector reviewed the accident analysis and, based upon follow-up discussion with engineering personnel, determined that the dose consequences were not

actually bounded by the revised analysis methods approved by the license amendment. Specifically, the inspector noted that the exclusion area boundary (EAB), low-population zone (LPZ), and control room thyroid doses would have increased (albeit by less than 0.3 percent) during the period of reduced QSS flow. However, the inspector concluded that the 0.3 percent increase in calculated dose would not have resulted in exceeding the off-site or control room dose limits per 10 CFR 100 or 10 CFR 50, Appendix A, General Design Criteria (GDC) 19.

b. Findings

Introduction. License-identified violation of very low safety significance (Green) regarding the discharge valves on the "A" and "B" QSS pumps that were found in the locked closed position instead of the required locked open position.

Description. On February 1, 2001, the licensee discovered that the discharge valves on the "A" and "B" QSS pumps were in the locked closed position instead of the required locked open position. The licensee's investigation concluded that the improper valve alignment had probably existed since the start of commercial plant operation in 1986.

The QSS provides for containment heat removal, fission product cleanup, and the establishment of sufficient containment water sump level to support operation of the containment RSS after an accident. The mispositioned QSS valves (3QSS*V945 and 3QSS*V946) were twelve inch, manually operated butterfly valves. These valves were originally installed in the QSS as motor operated valves (MOVs) that were designed to close when a low level was reached in the refueling water storage tank (RWST). QSS flow to containment would then continue via two six-inch lines that bypassed the valves until the RWST was empty. During construction, an automatic trip was added to the QSS pumps eliminating the need for the valve closure logic. The licensee removed the MOVs and installed manual butterfly valves in their place. During the installation process, workers incorrectly set the valve position indicators so the valves appeared to be open when they were actually closed. The incorrect valve position was not detected during the monthly QSS pump surveillance test because enough flow passed through the six-inch bypass lines to demonstrate pump operability. Following discovery of the closed valves, the licensee took appropriate corrective actions (CR-01-0085) to correct the condition and to prevent recurrence.

The licensee's assessment of this event concluded that the valve mispositioning was not risk significant because the six-inch bypass lines around valves 3QSS*V945 and 3QSS*V946 allowed 91 percent of the QSS flow assumed in the accident analysis to reach the containment structure and the system would satisfy its intended safety functions. Initially, the licensee determined that the impact of this flow reduction on the dose consequences of the limiting design basis accident were bounded by a revised dose analysis. The dose analysis was revised during 10 CFR 50.54(f) recovery efforts when the licensee discovered that the previous dose analysis was invalid. At the time of the event, the revised dose analysis was being reviewed by NRR staff for license amendment No. 211. Engineering determined that the dose consequences were bounded by the revised dose analysis because the off-setting increase in mixing rates

and decrease in particulate removal rates showed approximately a 4 percent reduction in EAB and LPZ doses. However, to resolve issues raised during the NRR staff review of the license amendment, engineering staff changed the methodology used to determine the revised dose analysis. Following NRR approval of license amendment No. 211, the inspector reviewed the approved analysis in order to verify that the offsite and control room doses were bounded. The inspector questioned engineering personnel to determine if the dose consequences referenced in the LER remained valid, considering that the methodology to determine the dose analysis had changed. Upon further review, engineering personnel determined that the EAB, LPZ and control room thyroid dose consequences of the limiting design basis accident would have increased by less than 0.3 percent over the dose analysis approved by license amendment No. 211. However, the 0.3 percent increase in doses would not have caused any off-site or control room dose limits per 10 CFR 100 or 10 CFR 50, Appendix A, General Design Criteria (GDC) 19, to be exceeded.

Analysis. The licensee's failure to verify the correct position of the QSS pump discharge valves was considered to be a performance deficiency because operating procedures are expected to assure correct plant system configuration in accordance with the Technical Specifications. TS 6.8.1, "Procedures and Programs," requires that written procedures be established, implemented, and maintained covering the applicable procedures in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33 requires procedures for startup, operation and shutdown of safety-related systems, such as the QSS. The finding was considered more than minor because it was associated with the configuration control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the capability of systems, such as the QSS, that respond to initiating events to prevent undesirable consequences, such as the reduced ability to remove heat in containment or fission product cleanup.

The Phase 1 of the At-Power Reactor Safety Mitigation Systems Cornerstone SDP screened this finding to very low safety significance (Green) because it did not result in any actual loss of safety function of a system, it did not result in an actual loss of safety function of a single train greater than its TS allowed outage time, it did not represent an actual loss of one or more non-TS trains of equipment designated as risk significant per 10 CFR 50.65, and it did not screen as potentially risk significant due to seismic, fire, flooding, or severe weather initiating event.

Enforcement. This licensee-identified violation of TS 6.8.1, "Procedures and Programs," is discussed in Section 4OA7. **URI 50-423/01-05-03** is closed.

4OA6 Meetings, including Exit

.1 Occupational Radiation Safety

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on February 13, 2003.

.2 Resident Exit Meeting Summary

The inspectors presented the inspection results to Mr. Alan Price and other members of licensee management on April 16, 2003. The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV. Section 4OA5 discusses a violation of very low safety significance (Green) which was identified by the licensee and meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- TS 6.8.1, Procedures, requires, in part, that written procedures be established, implemented and maintained covering the activities described in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Item 3.f of Appendix A addresses procedures for startup, operation and shutdown of safety-related pressurized water reactor systems for containment. Contrary to the above, the licensee discovered on February 1, 2001 that valves 3QSS*V945 and 3QSS*V946 were not locked in the correct position as required by licensee surveillance procedures intended to verify the QSS system configuration. The licensee documented this event and the associated corrective actions in LER 50-423/2001-001-00 and CR-01-00851. Inspector analysis of the significance of this violation is included in Section 4OA5.1 of this report. Because this violation was of very low safety significance and the licensee has entered this finding into its corrective action program, this violation was treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

A. Price, Site Vice President - Millstone
D. Hicks, Director, Nuclear Safety and Licensing
A. Jordan, Director, Engineering
S. Sarver, Director, Nuclear Station Operations & Maintenance
S. Scace, Assistant to the Site Vice President
P. Atkinson, Auxiliary Systems Engineer Supervisor
W. Eakin, Supervisor, Radiological Engineering
P. Dillon, SBO System Engineer
D. Fredericks, Licensing
F. Perkins, EDG System Engineer
J. Plourde, 480 Volt System Engineer
S. Miller, Outage Planning Supervisor
V. Wessling, Corrective Action Program Supervisor
J. Wheeler, Health Physicist, Radiological Engineering

NRC personnel:

S. M. Schneider, Senior Resident Inspector
P. C. Cataldo, Resident Inspector
K. A. Mangan, Resident Inspector
S. R. Kennedy, Resident Inspector
B. E. Sienel, Resident Inspector
A. J. Blamey, Senior Operations Engineer, Division of Reactor Safety (DRS)
D. C. Caron, Physical Security Inspector, DRS
P. R. Frechette, Physical Security Inspector, DRS
T. R. Hipschman, Reactor Inspector, DRS
N. T. McNamara, Emergency Preparedness Specialist, DRS
G. W. Morris, Reactor Engineer, DRS
T. A. Moslak, Health Physicist, DRS
D. M. Silk, Senior Emergency Preparedness Inspector, DRS

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed During this Inspection

50-423/03-02-02	NCV	Failure of the licensee to identify an error in design calculations involving the TS for emergency diesel fuel oil storage tank level, and failure to prevent translation of this error into surveillance procedure acceptance criteria (1R22.1)

Closed

50-336,423/01-07-02	URI	Augmenting SERO in a Timely Manner (1EP3)
50-423/02-05-07	URI	Power Operated Relief Valve Specific Fire Safe Shutdown Issues (4OA3)
50-423/2002-003, Sup 1	LER	Inadequate Validation of Fire Safe Shutdown Analysis (hot short) Assumptions (4OA3)
50-423/01-05-03	URI	Quench Spray Manual Valve Misalignment (4OA5)

Opened During this Inspection

50-423/03-02-01	URI	Generic Industry and NRC Resolution of Fire Safe Shutdown Issues (4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R15: Operability Evaluations

EDG, Service Water, and Safety Injection

RP-5, Revision 002-04, "Operability Determinations"
OD MP3-031-03, "A" EDG Service Water Outlet Valve Failed Surveillance
OD MP3-026-03, Wall Thinning on "B" Train SW Piping
OD MP3-027-03, Boric Acid Leakage on SI Pumps Minimum Flow Line
MP-24-ENG-FAP947, Revision 000-01, "Non-Code Repairs in Safety Class 3 Piping"
Technical Evaluation M3-EV-980114, Revision 0, "Service Water Thinning Evaluation Line 3-SWP-006--50-03"
Structural Integrity Calculation 03-CP-04002M3, Revision 0, "Evaluation of Service Water Pipe Located on Line 3-SWP-006-050-03"
CEN 109, Revision 001, "Inspection of Components Exposed to Boric Acid"
Section XI, IWB-3517 of the American Society of Mechanical Engineers Boiler & Pressure Vessel Code.

Section 1R19: Post-Maintenance Testing

SP 3622.2, Revision 015-03, "Auxiliary Feedwater Pump 3FWA*P1B Operational Test
MP-20-WP-GDL40, Revision 002, "Pre- and Post-Maintenance Testing"
Engineering Record Correspondence ER-96-0398, Revision 1, "MP3 Auxiliary Feedwater System - Transmittal for AFW Flow Rates For Safety Re-Analysis Effort"
Millstone Unit 3 Safety Functional Requirements Manual, Revision 4
ENG Form 31121-019, Revision 004, "IST Pump Test Plan"
Design Change DM3-00-0232-01, "MP3 - AFW System, Pump Minimum Flow Requirement"
Calculation 01-ENG-01858M3, Revision 0, "MP3 - AFW System, AFW Pumps (3FWA*P1A, PiB, P2), Minimum Flow Requirement"
Vendor Calculation (Proto-Power) No. 96-056, Revision 0, "MP3 - Auxiliary Feedwater System; Determination Of Degraded And Maximum Pump Curves"
SP 3646A.22-002, Revision 001, "Train B EDG Air System Check Valve Test"
SP 3646A.22-006, Revision 001-01, "Train B EDG Air System Check Valve Leak Test"
Automated work order (AWO) M3-02-07005, Replacement of EDG Air System Check Valve, 3EGA*V030
AWO M3-02-00186, "PM, 78 Month Overhaul of Bettis Actuator for 3RHS*HCV606
SP 3604A.1-001, Revision 013-02, "3CHS*P3A Operational Readiness test (Two Charging Pumps Aligned For Service)"
OPS Form 3630D.1-1, Revision 8, "CCE Pump Operational Readiness Test - Train A"

Section 1R22: Surveillance Testing

TS Surveillance Requirements
Individual Surveillance Test Procedure Data Forms
MP-24-IST-FAP01.2-1, Revision 0, Pump Test Data Evaluation Form
Pump Historical Test Data
FSAR
Millstone Unit 3 Pump and Valves Bases Document CVCS System
Millstone Unit 3 Inservice Pump and Valve Testing Bases Document, Revision 3, Change 8
SP 3450K11, Revision 4, "Steam Generator Blowdown Monitor (3SSR-RIY08) Analog Channel Op Test"
IC 3408A09, Revision 6, "Maintenance of Radiation Monitoring Data Base"
MP-24-IST-FAP01.2, Revision 0, "Pump Test Data Evaluation Form"
SP 3622.3, Revision 016-03, "Auxiliary Feedwater Pump 3FWA*P2 Operational Readiness Test
SP 3630D.3-003, Revision 005-02, "3CCE*TV37A Failure Test and Stroke Time Test"
AWO M3-02-10895, Verify Disc Position Via Ultrasonic Exam for 3FWA*V039

Section 4OA2: Identification and Resolution of Problems

Condition Reports

CR-02-00174	SBO Inverter Battery Failure
CR-02-07612	SBO Right Bank Air Start System Slow Deterioration
CR-02-08134	Part 21 on Piston Flashing
CR-02-08179	Part 21 on Norgren Regulating Valves
CR-02-11941	480 Volt Breaker Worm Gear Shaving

CR-02-11967	Part 21 on Engine Driven Water Pump Assemblies
CR-03-00182	Large MVAR Oscillations While Testing EDG “A”

Procedures

MP-16-CAP-FAP01.1	CR Screening and Review
MP-16-MMM	Corrective Action
MP-24-ENG-GDL01	System Engineer Performance Monitoring and Trending
MP 3782CC	480 Volt Load Center Breaker Overhaul (Partial)
MP 3782CC	480 Volt Load Center Breaker PM (Partial)

Operating Experience Reports (OE)

02005796-01	10 CFR Part 21 Report on Piston Flashing
02005801-01	10 CFR Part 21 Report on Norgren Regulating Valves
02008292-01	10 CFR Part 21 Report on Engine Driven Water Pump Assemblies

Design Change Notices (DCN)

DM3-00-0184-02	Replacement of SBO Diesel Uninterruptible Power Supply

Calculations

SBO-BAT-01208E3	SBO AAC and UPS Battery Sizing, CCN 01 & 03

Trouble Reports (TR)

06M3150354	Part 21 on Piston Flashing

Work Orders (WO)

M3-02-010626	Replace Norgren Regulating Valve 3BGA-PCV81
M3-02-10708	Check for Metallic Parts in SBO Engine Oil

Performance Monitoring and Trending Plans

3346C	Station Blackout Diesel Generator

Vendor Technical Manuals (VTM)

25212-972-001A	MKW Power Systems, Installation, Operation and Maintenance, Vol. 2 - Diesel, Vol. 4 - UPS Inverter

Factory Test Results (FTR)

6091 (9/16/92)	MKW Power Systems, 2260 kW SBO Diesel

Section 4OA3: Event Followup

NE-02-F-251, Revision 1
M3LOCA-01855R3
NRC License Amendment No. 211 to NPF-49
Safety Evaluation Report License Amendment No. 211 to NPF-49
LER 2001-001-00, QSS Manual Valve Misalignment
CR-01-00851, During Surveillance SP3609.1-1, Quench Spray Pump P 3QSS*P3A Operational Readiness Test An Intermitt NT Metallic Sound Was Heard In The Discharging Pipe

LIST OF ACRONYMS

AWO	automated work order
CR	condition report
EAB	exclusion area boundary
EDG	emergency diesel generator
FSAR	Final Safety Analysis Report
IST	In-Service Test
LPZ	low-population zone
NEI	Nuclear Energy Institute
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
P&ID	piping and instrumentation diagram
PMT	post-maintenance testing
QSS	quench spray system
RSS	recirculation spray system
RWST	refueling water storage tank
SBO	station blackout
SDP	significance determination process
SI	safety injection
SP	surveillance procedure
SSCs	safety-related systems, structures & components
SW	service water
TS	technical specification
URI	unresolved item