December 14, 2001

Mr. J. Alan Price, Vice President -
Nuclear Technical Services - Millstone
C/O Mr. D. A. Smith, Process Owner - Regulatory Affairs
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, Connecticut 06385

SUBJECT: MILLSTONE UNITS 2 AND 3 - NRC INSPECTION REPORTS 50-336/01-08 AND 50-423/01-08

Dear Mr. Price:

On November 10, 2001, the NRC completed inspections at your Millstone Units 2 & 3 reactor facilities. The enclosed reports document the inspection findings which were discussed on December 7, 2001 with Mr. C. Schwarz and other members of your staff.

These 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.

No findings of significance were identified.

Since September 11, 2001, Millstone has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to Dominion Nuclear Connecticut, Inc. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures 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.html (the Public Electronic Reading Room).

Sincerely,

***/RA/***

Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

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

Enclosures:
(1) NRC Inspection Report 50-336/01-08
Attachment 1: Supplemental Information

(2) NRC Inspection Report 50-423/01-08
Attachment 1: Supplemental Information

cc w/encl: D. A. Christian, Senior Vice President - Nuclear Operations and Chief Nuclear Officer
W. R. Matthews, Vice President and Senior Nuclear Executive - Millstone
R. P. Necci, Vice President - Nuclear Operations - Millstone
J. A. Price, Vice President - Nuclear Technical Services - Millstone
G. D. Hicks, Master Process Owner - Training
C. J. Schwarz, Master Process Owner - Operate the Asset
P. J. Parulis, Process Owner - Oversight
D. A. Smith, Process Owner - Regulatory Affairs
L. M. Cuoco, Senior Nuclear Counsel
N. Burton, Esquire
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)
E. Woollacott, Co-Chair, NEAC
R. Shadis, New England Coalition Staff

Distribution w/encl: H. Miller, ORAI/J. Wiggins, ORA
E. Adensam, NRR (ridsnrrdipmlpdi)
T. Madden, OCA
T. Bergman, OEDO
J. Harrison, PM, NRR
V. Nerses, PM, NRR
S. Jones, SRI - Millstone Unit 2
A. Cerne, SRI - Millstone Unit 3
C. Cowgill, DRP
K. Jenison, RI
T. Haverkamp, DRP
D. Screnci, PAO
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**ENCLOSURE 1**

**U.S. NUCLEAR REGULATORY COMMISSION**
**REGION I**

| | |
|---|---|
| Docket No.: | 50-336 |
| License No.: | DPR-65 |
| Report No.: | 50-336/01-08 |
| Licensee: | Dominion Nuclear Connecticut, Inc. |
| Facility: | Millstone Power Station, Unit 2 |
| Location: | P. O. Box 128<br>Waterford, CT 06385 |
| Dates: | September 30, 2001 - November 10, 2001 |
| Inspectors: | B. J. Kemker, Acting Senior Resident Inspector, Unit 2<br>P. C. Cataldo, Resident Inspector, Unit 2<br>D. P. Beaulieu, Senior Resident Inspector, Calvert Cliffs |
| Approved by: | Curtis J. Cowgill, Chief<br>Projects Branch 6<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000336-01-08; on 09/30-11/10/01; Dominion Nuclear Connecticut, Inc., Millstone Power Station; Unit 2; Resident Inspection.

The inspection was conducted by resident and regional inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

### A. Inspector Identified Findings

No findings of significance were identified.

### B. Licensee Identified Violations

No licensee violations were identified.

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## Report Details

### SUMMARY OF UNIT 2 STATUS

The plant operated at or near 100 percent power throughout most of the inspection period. The plant operated at reduced power on October 20, 2001, for main condenser waterbox manway repairs.

### 1. REACTOR SAFETY
### (Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity)

1R01 Adverse Weather Protection

a. Inspection Scope

The inspector reviewed the licensee's preparation for adverse weather relative to the protection of safety-related structures, systems, and components from cold weather. This review included a walkdown of the condensate storage tank (CST) and service water (SW) pumps which are accident mitigating systems, to verify implementation of cold weather protection features to ensure continued operability during adverse weather. The inspector reviewed the licensee's Final Safety Analysis Report regarding system design features, and verified the adequacy of the following licensee procedures relative to cold weather protection for the CST and SW pumps:

- OP 2268, "Cold Weather Preparation and Operation,"
- OP 2331, "Plant Heating and Condensate Recovery System,"
- MP 2701P, "Outside Tank Freeze Protection Heat Trace Inspection,"
- OP 2319B, "Condensate Storage and Surge System," and
- OP 2315G, "Intake Structure Ventilation System."

The inspector reviewed deficiencies identified during the licensee's implementation of cold weather protection procedures, and verified these deficiencies were entered into the corrective action program for resolution.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspector performed the following partial system alignment checks:

- During preventive maintenance work and subsequent operational testing on the "A" high pressure safety injection (HPSI) system pump, the inspector verified that the "B" HPSI pump was correctly aligned for operation in accordance with Surveillance Procedure (SP) 2604E, "HPSI System Valve Alignment Check, Facility 1," and system piping and instrumentation diagram (P&ID) 25203-26015, Sheet 2.

- During preventive maintenance work and subsequent operational testing on the "C" reactor building closed cooling water (RBCCW) pump, the inspector verified that the "A" and "B" RBCCW pumps were correctly aligned for operation in accordance with Surveillance Procedure 2611D, "RBCCW System Alignment Checks, Facility 2;" Operating Procedure 2330A, "RBCCW System;" and Drawing 25203-26022, Sheet 1. This system was selected because it was identified as risk significant in the licensee's risk analysis. During this inspection, the inspector also assessed the material condition of system equipment and verified that identified discrepancies were properly captured in the licensee's corrective maintenance program.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector examined the following plant areas to observe conditions related to fire protection:

- Auxiliary Building General Area -5 Foot Elevation (Zone A-1G),
- "A" Diesel Generator (DG) Room (Zone A-15),
- "A" DG Day Tank Room (Zone A-16),
- "B" DG Room (Zone A-30), and
- "B" DG Day Tank Room (Zone A-31).

These areas were selected for inspection because risk significant systems, structures, and components were located in the areas. During this inspection, the inspector assessed the licensee's control of transient combustibles and ignition sources, material condition, and operational status of fire barriers and fire protection equipment. The inspector reviewed applicable portions of the Millstone Unit 2 Individual Plant Examination for External Events, the Millstone Unit 2 Fire Hazard Analysis, and the Appendix R Compliance Report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspector assessed licensed operator performance and the training evaluators' critique during a licensed operator annual simulator evaluation in the Millstone Station Unit 2 operations training simulator on October 17, 2001. The inspector focused on alarm response, command and control of crew activities, communication practices, procedural adherence, and implementation of emergency plan requirements.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector evaluated the licensee's implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance issues with the following equipment:

- Emergency Diesel Generators, and
- Chemical and Volume Control System.

During this inspection, the inspector evaluated the licensee's monitoring and trending of performance data, verified that performance criteria were established commensurate with safety, and verified that equipment failures were appropriately evaluated in accordance with the maintenance rule. The inspector also verified that scoping tables associated with each system had appropriate performance criteria consistent with the plant configuration. The inspector interviewed system engineers and the Unit 2 maintenance rule coordinator and reviewed the following procedures:

- Engineering Department Instruction 30710, "Maintenance Rule Functional Failures;"
- Functional Administrative Procedure MP-24-MR-FAP700, "Maintenance Rule Unavailability Monitoring;"
- Guideline MP-24-MR-GDL700, "Determining Maintenance Rule, SSPI [Safety System Performance Indicators], NRC Performance Indicators, and PRA [Probabilistic Risk Assessment] Unavailability;"
- Technical Evaluation M2-EV-00-0058, "Maintenance Rule Functional Failure Performance Criteria Millstone Unit 2;" and
- Technical Evaluation M2-EV-00-0064, "Maintenance Rule Unavailability Performance Criteria Millstone Unit 2."

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

.1 Control Element Drive System (CEDS) System Modification

a. Inspection Scope

The inspector reviewed the licensee's on-line risk assessment concerning the pre-outage installation activities of the automatic CEDM [control element drive mechanism] timer module (ACTM) modification. The inspector reviewed the licensee's guidance contained in procedure MP-20-WM-FAP02.1, "Conduct of On-Line Maintenance," which implements the risk assessment requirements of the Maintenance Rule set forth in 10 CFR 50.65(a)(4). The inspector verified that the licensee managed risk at an acceptably low level during performance of pre-outage installation activities. The inspector verified that deficiencies identified during various installation activities were entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

.2 Emergency Diesel Generator (EDG) Output Breaker Failure-To-Close Troubleshooting

a. Inspection Scope

The inspector reviewed the licensee's control of integrated plant risk during troubleshooting activities following the failure of the "A" EDG output breaker to close during surveillance activities on November 7, 2001. The inspector verified that the licensee appropriately assessed and managed the plant's integrated risk during the troubleshooting activities while the "A" EDG was inoperable. The inspector verified that deficiencies identified during the troubleshooting activities were entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified during this inspection.

.3 Emergency Diesel Generator Fuel Oil Storage Tank Installation

a. Inspection Scope

The inspector reviewed the licensee's control of integrated risk during final piping system tie-in activities involving the new EDG fuel oil storage tank, T-148. The inspector reviewed the licensee's guidance contained in procedure MP-20-WM-FAP02.1, "Conduct of On-Line Maintenance," which implements the risk assessment requirements of the Maintenance Rule set forth in 10 CFR 50.65(a)(4). The inspector verified that the licensee managed risk at an acceptably low level during the final tie-in installation and testing activities, which the licensee conducted in accordance with special procedure SPROC ENG01-2-002, "MP2 EDG Bulk Fuel Oil Storage and Transfer System Testing and Tie-in." The inspector verified that deficiencies identified

during various installation and testing activities were entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

.4 Assessment of Risk Resulting from Performance of Maintenance Activities

a. Inspection Scope

The inspector compared the risk assessments listed below against the requirements of 10 CFR 50.65(a)(4) and the recommendations of NUMARC 83-02, Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities," to verify that risk assessments were performed when required and appropriate actions were taken. The associated work activities were reviewed with licensee risk assessment personnel to verify that threshold levels for risk management actions were correctly identified, and that risk management actions were appropriately taken. The inspector reviewed the assessed risk configurations against actual plant conditions that were reflected in the control room log to verify that the assessments were accurate, complete, and appropriate for the condition. The specific plant configurations included:

| | |
|---|---|
| September 27, 2001 | The reserve station service transformer (RSST) was removed from service during the performance of procedure 2403BB, "Facility 2, Engineered Safety Feature Actuation System Under Voltage, RSST, and Sequencer Calibration." |
| September 27, 2001 | The "C" HPSI pump was removed from service per automated work order (AWO) M2-99-12045, "'C' HPSI Breaker Preventive Maintenance" and the retest procedure SP 2604B-1, "'C' HPSI Pump Operability Test." |
| September 28, 2001 | The "A" RBCCW pump was removed from service to perform AWO M2-01-11090 "Change Oil and Sample 'A' RBCCW Outboard Pump Bearing." |

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

.1 Emergency Diesel Generator Service Water Supply Bypass Valve Failure

a. Inspection Scope

The inspector evaluated the adequacy of operability determination (OD) MP2-086-01, which was initiated following the failure of 2-SW-231A, the "A" EDG SW supply bypass valve, to fully close during recovery from a surveillance activity. The inspector reviewed the acceptability of the licensee's conclusion that the "A" EDG was operable with 2-SW-231A placed in the accident position (closed) and its associated air actuator isolated. The inspector verified that the licensee had entered the valve failure into the corrective action program for resolution.

b. Findings

No findings of significance were identified.

.2 Hardened Grease In Safety Related Beakers

a. Inspection Scope

The inspector evaluated the potential effects of hardened grease in safety related 4160 volt breakers described in the following condition reports (CRs):

- CR-01-10062, "Twelve Quality Assurance 4160 Volt Breakers at Millstone Unit 2 Are Suspected to Have Grease Issues," October 10, 2001;
- CR-01-10318, "A310 Breaker Has Mixed Grease," October 18, 2001; and
- CR-01-10344, "Notification of Impact to T12 Schedule Processed to Include Performance of Breaker Preventive Maintenance to 'B' High Pressure Safety Injection Pump Breaker and Installation in 'A' Containment Spray Pump Breaker Cubicle Due to Failed Preventive Maintenance of Containment Spray Pump Breaker," October 18, 2001.

The inspector interviewed engineering and maintenance personnel following the licensee's identification that twelve 4160 volt breakers installed in the plant were susceptible to the affects of hardened grease. The affected breakers were overhauled prior to 1993 using a grease which subsequently has been known to harden over time. The inspector evaluated the licensee's assessment of the affected breakers and the licensee's tentative schedule for correcting the potentially degraded condition. The inspector also verified that the current condition of the breakers did not render the involved equipment inoperable, would not have prevented the breakers from fulfilling their safety function, or result in an unrecognized increase in plant risk.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspector reviewed the licensee's current listing of active operator workarounds. The inspector reviewed procedures MP-14-OPS-GDL02, "Operations Standards," and C OP 200.9, "Operational Performance Status," and verified these procedures provide the necessary guidance to the licensee to adequately address the cumulative effects operator workarounds have on the operation, reliability, and availability of affected systems. Additionally, the inspector verified that the cumulative effects of active operator workarounds do not adversely impact the ability of the operators to implement emergency procedures or respond to plant transients. The inspector reviewed various CRs regarding operator workarounds, and verified that workarounds were being identified at the appropriate threshold, and were being tracked via the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

Emergency Diesel Generator Fuel Oil Storage Tank Installation

a. Inspection Scope

The inspector reviewed the design, implementation, testing, and document update activities associated with design change DM2-00-0065-01 and DCR M2-00031, and implemented, in part, through work orders M2-01-06551 and M2-01-06642. This modification involved the installation of a new, above ground storage tank (T-148) to supply fuel oil to the EDGs, replacing the underground storage tank (T-47A). The inspector also reviewed (1) calculations in support of the concrete support base for the tank, (2) tank remediation issues and resulting impacts on surrounding structures, (3) post-installation tank testing data, and (4) on-line risk assessments to determine the relative impact the testing had on overall plant operations. The inspector reviewed selected sections of SPROC ENG01-2-002, "MP2 EDG Bulk Fuel Oil Storage and Transfer System Testing and Tie-in," and verified that selected acceptance criteria were met through performance of the testing, and that these criteria were consistent with the applicable licensing and design bases. The inspector also verified that the licensee had initiated applicable changes to affected operating, licensing, and surveillance procedures, including:

- SP 2613A, "Diesel Generator Operability Tests, Facility 1,"
- OP 2346A, "Emergency Diesel Generators,"
- OPS Form 2346A-002, "'A' DG Pre-start Checklist,"
- Technical Requirements Manual Section 6.0, "Emergency Diesel Generator Fuel Oil Supply," and
- OPS Form 2619A-001, "Control Room Daily Surveillance, MODES 1 & 2."

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

.1 "A" High Pressure Safety Injection (HPSI) Pump Minimum Flow Recirculation Line Check Valve Repair

a. Inspection Scope

The inspector observed maintenance activities during the repair of 2-SI-424, the "A" HPSI pump minimum flow recirculation line check valve. The inspector reviewed work order M2-01-37550, and verified that the selected post-maintenance tests adequately demonstrated the "A" HPSI pump would continue to perform its required safety function. The inspector reviewed post-maintenance test results, and verified the acceptability of applicable acceptance criteria contained in SP 2604U.1, "HPSI System Check Valve IST, Facility 1." The inspector verified that identified deficiencies were entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

.2 "B" High Pressure Safety Injection Pump Breaker Maintenance and Testing

a. Inspection Scope

The inspector evaluated post maintenance testing performed on the "B" HPSI pump breaker in accordance with work order M2-99-00781 and maintenance procedure MP 2720C3, "General Electric Model AM Magne-Blast Circuit Breaker Maintenance," Revision 008-06. The inspector selected this post maintenance test activity because the HPSI system was identified as risk significant in the licensee's risk analysis.

The inspector reviewed the scope of the work performed and evaluated the adequacy of the specified post maintenance testing. The inspector verified that the post maintenance testing was performed in accordance with approved procedures, that the procedures clearly stated acceptance criteria, and that the acceptance criteria were met. During this inspection activity, the inspector interviewed electrical maintenance personnel and reviewed the completed post maintenance testing documentation.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

.1 Channel "D" Spec 200 Safety Parameter Functional Test

a. Inspection Scope

During the performance of Surveillance Procedure SP 2402 PD, "Channel 'D' Spec 200 Safety Parameter Functional Test," for steam generator pressure, on October 3, 2001, the inspector observed selected portions of the surveillance test from the control room, and reviewed the test results. The inspector compared the test results to the applicable technical specification criteria to verify that the tested systems and components were capable of performing their intended safety functions.

The test observed or reviewed included:

b. Findings

No findings of significance were identified.

.2 Auto-Auxiliary Feedwater System Initiation Logic Testing

a. Inspection Scope

The inspector evaluated the licensee's performance of SP 2402M, "Functional Test of Steam Generator Level and Auto-Auxiliary Feedwater Initiation Logic," to verify that the testing demonstrated the equipment was capable of performing its intended function. The inspector selected this surveillance test activity because the system function was identified as risk significant in the licensee's risk analysis. The inspector observed the pre-job briefing and conduct of testing, interviewed instrument maintenance and engineering personnel, reviewed the acceptance criteria and completed test documentation, and reviewed applicable portions of the Technical Specifications (TS).

b. Findings

No findings of significance were identified.

.3 Power Range Monitor Channel "D" Testing

a. Inspection Scope

The inspector evaluated the licensee's performance of SP 2401KD, "Reactor Protection System Channel 'D' Power Range Monitor Drawer Calibration," Revision 001-01, to verify that the testing demonstrated the equipment was capable of performing its intended function. The inspector selected this surveillance test activity because the component was credited as operable in the licensee's safety analysis to mitigate the consequences of a potential accident. The inspector observed the pre-job briefing and selected portions of the testing, interviewed instrument maintenance personnel, reviewed the acceptance criteria and completed test documentation, and reviewed applicable portions of the TS.

b. Findings

No findings of significance were identified.

**Emergency Preparedness [EP]**

1EP6 Drill Evaluation

a. Inspection Scope

The inspector evaluated event classifications that occurred during an annual licensed operator simulator examination conducted on October 17, 2001. The inspector verified that the simulator training scenario utilized for the examination was of appropriate scope and that the classifications were evaluated against appropriate criteria, consistent with EPDI-18, "Administration of NRC Performance Indicators," and NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines."

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 Safety System Unavailability - Auxiliary Feedwater (AFW) System

a. Inspection Scope

The inspector reviewed operating logs, maintenance history and surveillance test history for unavailability information for the AFW system from July 2000 to June 2001. The inspector also verified the licensee's calculation of critical hours and evaluated AFW system equipment unavailability against the performance indicator definition.

b. Findings

No findings of significance were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspector reviewed events or conditions reported in Licensee Event Reports from July 2000 to June 2001, that prevented, or could have prevented, the fulfillment of a safety function and verified the Safety System Functional Failures performance indicator.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. C. Schwarz and other members of licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT 1

## SUPPLEMENTAL INFORMATION

a. List of Items Opened, Closed and Discussed

None

b. List of Acronyms Used

| | |
|---|---|
| ACTM | automatic CEDM timer module |
| AFW | auxiliary feedwater |
| AWO | automated work order |
| CEDM | control element drive mechanism |
| CEDS | control element drive system |
| CRs | condition reports |
| CST | condensate storage tank |
| DG | diesel generator |
| EDG | emergency diesel generator |
| HPSI | high pressure safety injection |
| OD | operability determination |
| P&ID | piping and instrumentation diagram |
| RBCCW | reactor building closed cooling water |
| RSST | reserve station service transformer |
| SP | surveillance procedure |
| SW | service water |
| TS | technical specification |

**ENCLOSURE 2**

**U.S. NUCLEAR REGULATORY COMMISSION**
**REGION I**

| | |
|---|---|
| Docket No.: | 50-423 |
| License No.: | NPF-49 |
| Report No.: | 50-423/01-08 |
| Licensee: | Dominion Nuclear Connecticut, Inc. |
| Facility: | Millstone Power Station, Unit 3 |
| Location: | P. O. Box 128<br>Waterford, CT 06385 |
| Dates: | September 30, 2001 - November 10, 2001 |
| Inspectors: | A. C. Cerne, Senior Resident Inspector, Unit 3<br>B. E. Sienel, Resident Inspector, Unit 3<br>T. F. Burns, Reactor Inspector, Division of Reactor Safety (DRS)<br>J. E. Carrasco, Reactor Inspector, DRS |
| Approved by: | Curtis J. Cowgill, Chief<br>Projects Branch 6<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000423-01-08; on 09/30-11/10/01; Dominion Nuclear Connecticut, Inc., Millstone Power Station; Unit 3; Resident Inspection.

The inspection was conducted by resident and regional inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

### A. Inspector Identified Findings

No findings of significance were identified.

### B. Licensee Identified Violations

No licensee violations were identified.

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## Report Details

### SUMMARY OF UNIT 3 STATUS

The plant operated at approximately 100% power from the beginning of the inspection period on October 1, 2001, through November 7. On November 7, operators commenced a reactor power reduction to facilitate inspection and repair of a letdown isolation valve, located inside containment, which failed closed on November 4. (See Sections 1R13 and 1R14 for further details.) The reactor was stabilized at 30% power on November 8. Following inspection and repair of the valve, operators returned the reactor to 100% power on November 10, the last day of the inspection period.

### 1. REACTOR SAFETY
### (Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity)

1R01 Adverse Weather Protection

a. Inspection Scope

The inspector assessed the licensee's protection of the safety related service water (SWP) and auxiliary feedwater (AFW) systems against adverse weather conditions. The inspector performed walkdowns of selected portions of these systems to confirm the weather protection-related portions of the systems were as described in the Updated Final Safety Analysis Report (UFSAR) and applicable system piping and instrumentation diagrams (P&IDs). During these inspections SWP and AFW portions of abnormal operating procedure 3569, "Severe Weather Conditions", and SP 3670.5, "Cold Weather Protection", were verified to ensure referenced actions could be taken or were complete, as applicable. For example, the inspector verified heat tracing was provided to the weather-affected portions of the demineralized water storage tank, which is the primary water source for the AFW pumps, and verified the space heaters in the SWP pump cubicles were properly placed in service. The inspector also verified that preventive maintenance (PM) was completed on AFW tornado doors and SWP cubicle flood doors and appropriate corrective actions were initiated where problems were identified during the PMs. Discrepancies identified by the inspector were discussed with and corrected by operations and maintenance personnel and documented in the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

c. Inspection Scope

The inspector conducted a partial system walkdown of the boration flow paths of the Chemical and Volume Control (CHS) system associated with the following emergency and abnormal operating procedures (EOP/AOPs):

- EOP 35 FR-S.1, "Response to Nuclear Power Generation/ATWS"

- AOP 3566, "Immediate Boration"
- AOP 3575, "Rapid Downpower"

During the walkdown, the inspector checked the material condition of piping and components and verified the system valves to be in their normal position for power operations. The inspector also confirmed accessibility of certain system components for realignment by the operators during plant conditions requiring the usage of the referenced EOP/AOPs. The surveillance activities for operable boration flow paths and the procedural requirements for verification of dilution pathway isolation were discussed with operations department personnel.

Additionally, where the subject CHS system interconnected with the safety injection system, the inspector verified the field configuration to be consistent with the piping and instrumentation drawing details. The system design was discussed with the cognizant system engineers; and the inspector verified the appropriate engineering evaluation (i.e., condition report, CR-01-11174) of the impact of non-safety component controls on the safety-related system operability.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspector performed walkdowns of the areas of the engineered safety features (ESF) building housing safe shutdown equipment including the "B" quench spray, safety injection, and residual heat removal system air conditioning unit (Fire Area ESF-10) and the complementary "A" train equipment and the safety injection pump cooling surge tank (Fire Area ESF-11). The inspector confirmed that fire detection and suppression equipment located in the areas were as specified in the Millstone 3 Fire Protection Evaluation Report (FPER). The inspector examined the common wall between these two adjacent fire areas to verify the piping and electrical penetrations conformed with the fire-rated design/construction requirements. The inspector also verified that the fire detector units, hose stations and other suppression equipment, located within or in proximity to these areas, were as specified in the FPER.

During the tour of the two fire areas, the inspector checked for degraded component conditions, transient combustible materials, and any configuration details that would adversely affect the capability of the fire brigade to respond to potential fire scenarios. The inspector also specifically reviewed the fire fighting strategy for Fire Area ESF-10 to ensure appropriate direction was given for the use of a hose station in another fire area. The provisions of the Unit 3 Technical Requirements Manual (TRM) regarding fire protection systems were reviewed, as applicable, to determine if the field conditions were consistent with the Unit 3 FPER and in compliance with TRM requirements.

Additionally, during the period of time that the Condensate Storage Tank was out of service as a backup water supply for the auxiliary feedwater system, the inspector

performed a fire protection walkdown of the demineralized water storage tank (DWST) enclosure. While not addressed as a FPER area, the inspector checked this safety-related DWST enclosure for combustible material controls and confirmed the proximity of an outside-yard fire hose station for any required fire fighting response. The inspector also discussed with the responsible operations and maintenance personnel the licensee corrective actions (CR-01-09986) to address operations and fire responder access to the fire water deluge valve providing the fire suppression capability for the "B" emergency diesel generator enclosure.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspector selected the AFW system, including the three pump cubicles and DWST block house, to evaluate the licensee's protection of this system from internal and external flooding conditions. The ESF building, which houses most of the AFW system, is located above the flood line of the plant and as a result is subject only to internal flooding. The DWST block house floor is located below the natural flood level of the plant and was therefore reviewed for internal flooding as well.

Through inspections of this system in the plant, the inspector confirmed the system was configured as described in the UFSAR and P&IDs. The inspector also reviewed flooding calculations P(R) 1194, ESF Building Flood Study: Maximum Flood Height in the ESF Building Due to a Pipe Break, and P(R) 1196, Potential For Cross Cubicle/Building Flooding Via the Equipment and Floor Drainage Systems for ESF, Auxiliary, Fuel, Waste Disposal, Diesel Generator, Service, Control, and Intake Buildings to confirm there was no communication between the two trains of AFW which could cause flooding of one train to render the other train inoperable. In addition the inspector observed the licensee inspection of safety related manholes 3EMH*3B and 3EMH*4, which contain power cables for both trains of the AFW system. Safety related manholes are opened and pumped out, if required, yearly and structurally inspected every three years. The flood calculations and manhole inspection program were discussed with the responsible system and design engineers.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspector reviewed the performance monitoring of all heat exchangers (HXs) supplied by the service water system, which is the ultimate heat sink at Millstone Unit 3. As part of this review, the inspector assessed the adequacy of the testing, maintenance, and surveillance activities to ensure that the HX heat transfer capability was maintained. In addition, the inspector reviewed the water chemistry for the tube side and the shell side of the HXs. The inspector also reviewed the licensee's problem identification and resolution regarding heat sink performance.

The inspector reviewed the licensee's action in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspector focused on the Reactor Plant Component Cooling Water (CCP) heat exchangers for which the licensee originally committed to perform thermal performance tests on the heat exchangers. However, the licensee determined the thermal performance test results for the "A" and "B" CCP heat exchangers were inconclusive, and identified alternative performance monitoring activities which were formally communicated to the NRC in a letter dated February 28, 2001. These activities included quarterly visual inspections of the CCP heat exchanger tubes, annual cleaning of the heat exchangers, and biennial eddy current testing of the heat exchanger tubes. The inspector reviewed various records (as listed in Attachment 1, Supplemental Information, of this report), interviewed engineering personnel, and performed walkdowns of the system to verify the alternative activities were performed in an acceptable manner.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspector observed a simulator exam conducted as part of licensed operator requalification training. The inspector observed operator use of emergency and abnormal operating procedures in response to a steam line break outside containment with a failure of the plant to automatically trip. The inspector discussed the scenario and training objectives with training personnel and attended the trainees' critique following the scenario.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed licensee actions taken in response to the following condition reports (CRs).

- CR-01-06308 "C" Steam Generator Feedwater Bypass Level Control Valve Shows Dual Indication When Full Open
- CR-01-06364 Service Water Strainer Blowdown Did Not Occur as Expected Every Four Hours
- CR-01-08295 "A" Traveling Water Screen Needed to be Removed From Service
- CR-01-10253 "A" Emergency Diesel Generator Engine Control Switch Stuck in the Closed Position during a Local Start Surveillance

For each of the first three CRs identified, the inspector reviewed the applicable system's maintenance rule scoping document, the applicable quarter's system health report, and maintenance rule functional failure determination. The inspector confirmed that the licensee appropriately tracked the occurrences against the systems' performance criteria, both for functional failures and unavailability time.

For the last CR noted above, the inspector reviewed the applicable surveillance procedure (SP 3646A.1) and discussed the subject deficiency with the emergency diesel generator (EDG) system engineer. The inspector verified that the identified switch problem did not adversely affect the adequate performance of the EDG surveillance test or otherwise impact the "A" EDG operability.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspector reviewed the work planning and corrective maintenance activities for two emergent work items documented in the following condition reports:

- CR-01-10370 & CR-01-10407 "C" Service Water Pump discharge strainer problems

- CR-01-10894 Failure of Letdown Isolation Valve 3RCS*LCV460

For both issues, the inspector evaluated the impact of the identified component problems on the affected system operability. For the first work item, the inspector confirmed that the operators appropriately effected the actions delineated in Technical Requirements Manual Section 3.7.4 for one service water pump strainer inoperable. The possible reasons for the strainer blowdown problems (i.e., CR-01-10370) were discussed with operations personnel, as was the advisability of continuing to monitor the

strainer operation after the initial repairs. Subsequently, after returning the discharge strainer blowdown to a functional status, the mechanical binding of the strainer baskets (i.e., CR-01010407) was identified to be the cause of the spurious operation. The inspector verified that corrective actions were taken to restore the "C" service water pump discharge strainer to an operable status on October 22, 2001.

For the failure of the letdown isolation valve (CR-01-10894) on November 4, 2001, the immediate and subsequent operator actions are discussed in Section 1R14 of this inspection report. With respect to the corrective maintenance activities, the inspector observed several licensee planning meetings involving the discussion of repair options and reviewed the 10 CFR 50.59 Screen Form and Technical Evaluation (M3-EV-01-0045) for the change to operating procedure OP 3304A required to support the 3RCS*LCV460 valve repair. The inspector confirmed that the licensee engineering and licensing personnel had reviewed and considered the guidance delineated in USNRC Regulatory Guide 1.182 for "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants". The inspector also verified that as low as reasonably achievable (ALARA) planning activities were effected for decisions on the reactor power level for the containment entries to scope and conduct the valve repairs and checked some ALARA work-in-progress reviews that were conducted.

Two containment entries were conducted on November 8, 2001. The first, to inspect the valve, identified that a blown diaphragm was the cause of the failure of this air-operated, fail-closed valve. During the second containment entry later that afternoon, the diaphragm was replaced in accordance with the controls established in automated work order (AWO) M3-01-19594. Subsequent to the valve repair and reassembly, the inspector witnessed the successful conduct of the post maintenance test valve strokes by the control room operators, in accordance with surveillance procedure SP 3604A.5. With the restoration of this letdown isolation valve, the operators were then able to establish normal letdown and charging flows and commence reactor power escalation back to full power.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The failure (i.e., fail-safe, closed) of letdown isolation valve 3RCS*LCV460 occurred on November 4, 2001. The inspector confirmed that the operators appropriately entered Technical Specification (TS) 3.4.3.1 when the pressurizer level increased beyond its programmed level. After the excess letdown flow path was established to balance the reactor coolant pump seal injection flow into the reactor coolant system, the operators were able to maintain the pressurizer level stable, within the required band, and therefore exit the TS limiting condition for operation and its applicable action statement.

The inspector observed stable at-power operations with the excess letdown flow path in service, noting a slight power "coastdown" in progress because the normal dilution flow

path was unavailable to the operators in the charging/letdown alignment established in accordance with operating procedure (OP) 3304A. The inspector verified that the licensee operations and chemistry department personnel were tracking the hydrogen concentration in the reactor coolant system to ensure compliance with industry/vendor guidelines. On November 7, after the operators realigned the excess letdown flow path to the top of the Volume Control Tank in accordance with a temporary change to OP 3304A, as authorized and controlled by Technical Evaluation M3-EV–1-0045, a reactor downpower to 30% power commenced. The inspector witnessed various portions of this load reduction (3%/hour), with the operators controlling the evolution using the applicable sections of OP 3204 and following the reactivity plan for boric acid injection and control bank insertion.

The inspector also discussed with operations management and regulatory affairs personnel the requirements of TS 3.4.11, relative to the use of the reactor pressure vessel head vent for the excess letdown flow path, noting that the engineering justification associated with the Technical Evaluation was corrected (CR-01-11056) to address and properly interpret all relevant technical specifications. On November 8, after the conduct of the repairs, the inspector witnessed the conduct of the surveillance tests (SP 3604A.5-002 & 00003) require to establish valve 3RCS*LCV460 operability. Subsequent to the realignment of the normal charging and letdown flow paths, the operators commenced a load increase (5%/hour) in accordance with OP 3204, returning the unit to 100% power on November 10, 2001.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspector evaluated the licensee's actions following the identification that service water (SWP) pump packing leakoff rate assumptions used in calculation P(T)-1124 were lower than actual. The calculation was done to support the ability of non-safety related sump pumps to maintain the SWP pump cubicle sumps dewatered during the worst case flood at which time the cubicles would be watertight and inaccessible. Inoperable or inadequate capacity of the sump pumps to remove packing leakoff could result in damage to safety related equipment in the SWP cubicles during an external flood event. The licensee concluded that the SWP pump cubicle sumps would be maintained in an acceptable, drained condition during normal operation via gravity through an installed drain path. In the event of a worst case flood, the sump would be maintained dewatered by the installed sump pump. Therefore, there is no adverse impact on safety related equipment installed in the SWP cubicles. The inspector reviewed operability determination OD MP3-064-01, which addressed this operability concern for the SWP system. The inspector verified that the licensee provided an adequate basis for the continued operability in that:

- A dedicated Quality Assurance (QA) Category 1 electrical receptacle was installed for each sump pump;

- A drain path was installed and provided with a QA-1 isolation valve; and
- A storage box with a spare pump and extension cord was installed in each cubicle

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspector reviewed the completed documentation for post maintenance testing (PMT) performed in accordance with the following AWOs:

- M3-99-12546 Replace 3CCP*M1C reactor plant component cooling pump motor
- M3-01-18854 Repairs to existing lining of 3CCP*E1C Inlet/outlet (Includes disposition of CR-01-10551, lining repair)
- M3-01-18452 Unplanned LCO entry - 3SWP*AOV39B cooling supply to "B" EDG does not indicate full open in the control room

The inspector reviewed the scope of the work activities and verified that the PMTs planned and performed were appropriate to restore the operability of the components and associated system.

For the first two AWOs, the inspector examined the lining repairs of the channels, covers and gasket seating surfaces of the "C" reactor plant CCP HX. In addition, the inspector visually examined the condition of the exposed tube sheet surfaces and tube ends. The inspector observed the post maintenance conditions of the work area and care and protection afforded to the repaired components.

The inspector reviewed the PMT plans, acceptance criteria and test results. The inspector verified the flow, differential pressure and pump vibration test results were within the normal range and the heat exchanger exhibited no visible leakage during the performance of the "General Leakage Test".

For the SWP valve AWO, the inspector verified operator actions consistent with the TS 3.8.1.1.b action statements, the conduct of valve limit switch adjustments, and the performance of the required testing in accordance with surveillance procedure SP 3626.3. A review of the Valve Test Data Evaluation Form confirmed the establishment of new stroke time (open) acceptance criteria, in accordance with the in-service testing program requirements.

The inspector also reviewed the completed documentation for PMT performed on the "B" control building ventilation (HVK) water chiller, worked under AWO M3-01-10887, 3HVK-060B Loop Calibration. The inspector reviewed the scope of the work activities to determine whether the PMTs planned and performed were appropriate to restore the operability of the chiller. The inspector also reviewed work planning procedure U3 WPC 3, Unit 3 Pre- and Post-Maintenance Testing, Rev. 001-02, and Instrumentation and Control (I&C) procedure IC 3408A12, I&C Retest Guidelines. In addition, the PMT and

AWO and general I&C PMT practices were discussed with a work planner, the I&C Process Owner and the Maintain the Asset Master Process Owner.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspector reviewed licensee performance related to the following surveillance tests:

- SP 3446B12 Train B Solid State Protection System Operational Test
- SP 3616A.1 Main Steam System Valve Operability Tests
- SP 3626.13 Service Water Heat Exchangers Fouling Determination

The inspector observed the pre-job briefing and conduct of portions of the solid state protection system test to confirm performance in accordance with the approved procedure. The inspector verified that test results for the operability surveillance were in accordance with the TS and surveillance test procedure acceptance criteria and that performance of the test adequately demonstrated equipment operability. Surveillance test results which did not initially meet the acceptance criteria were identified, documented and retested in accordance with the test procedure. A condition report identifying the retested switch positions was initiated and entered into the licensee's corrective action program.

Stroke time and failure mode tests of main steam valves 3MSS*AOV31A, B, & D and 3MSS*MOV17A, B, & D, in accordance with SP 3616A.1, were conducted on October 3, 2001. Subsequent to this testing, in which the valves all performed satisfactorily, a plant equipment operator performing shiftly radwaste rounds identified the turbine driven auxiliary feedwater (TDAFW) pump governor rack position to be outside the established acceptance criteria. The inspector confirmed that the operators appropriately declared the TDAFW pump inoperable, entered the applicable action statement for TS 3.7.1.2, and restored the correct rack position shortly thereafter. The inspector reviewed the surveillance procedure, SP 3622.3, used to restore the governor rack position and also verified that this issue was documented in a condition report, CR-01-09839. Potential enhancements of the affected surveillance procedures were discussed with operations department personnel.

With regard to SP 3626.13, the inspector examined the surveillance test set-up, which was performed in conjunction with the special procedure (SPROC 95-3-26) for thermal performance testing of the "B" EDG HXs. The inspector discussed the temporary equipment connections to the EDG, as well as the surveillance data collection and records, with plant equipment operators preparing for the test in the field. The subject surveillance activities were coordinated with a "B" EDG operability test (SP 3646A.2) performed later the same day. Following completion of the noted surveillance and SPROC activities, the inspector verified that the temporary equipment was removed and the "B" EDG was restored to an operable status.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspector reviewed Temporary Modification (TM) 3-01-023, authorizing a setpoint change for the upper bearing oil low level alarm for reactor coolant pump (RCP), 3RCS*P1C. The impact of this setpoint change on the volume of oil that would remain in the RCP's upper oil reservoir at the revised, lower-level setting was evaluated with respect to analysis provided by the pump vendor (Westinghouse) regarding oil losses affecting the RCP bearing temperatures.

The inspector noted that the implementation of this TM eliminated a potentially "masking" alarm condition and provided the control room operators with new indication of any further decreases in the "C" RCP oil level. The cognizant licensee engineers were interviewed regarding the TM approval, the safety screening evaluation, and plans for removal of the TM at the next unit refueling outage, unless forced-outage, plant conditions permitted earlier access to the "C" pump. The inspector verified continued control of this TM in accordance with the work control (WC 10) procedure for "Temporary Modifications".

b. Findings

No findings of significance were identified.

**Emergency Preparedness [EP]**

1EP6 Drill Evaluation

a. Inspection Scope

The inspector observed a licensed operator requalification exam which the licensee had preselected to be included in the emergency preparedness drill performance indicator (PI). The inspector reviewed the licensee's Emergency Planning Services Department Instruction 18, Administration of NRC Performance Indicators, and industry guidance provided by NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and discussed the performance expectations and results with the evaluator to confirm proper implementation of the PI program. The inspector verified the licensee appropriately applied one incorrect event classification to their PI data.

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the following licensee September 2001 performance indicators (PIs) was complete and accurate.

- Reactor Coolant System (RCS) Activity
- Reactor Coolant System Leakage

To verify the RCS activity PI, the inspector reviewed the results of daily reactor coolant system dose equivalent Iodine-131 measurements for the period of October 2000, through September 2001, as logged in the licensee's chemistry data management system. This time frame was selected as the last confirmation of this PI was performed for data through September 2000.

To verify the RCS leakage PI, the inspector reviewed the results of daily reactor coolant system identified leakage measurements for the period of October 1, 2000, through September 30, 2001. This time frame was selected as the last confirmation of this PI was performed for data through September 30, 2000.

Reported plant information for the RCS activity and leakage PIs was compared against the industry guidance provided by NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and discussed with the licensee analysts responsible for the PIs. Discrepancies which did not affect the color of the PIs were appropriately documented in the licensee's corrective action program.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. C. Schwarz and other members of licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any material examined during this inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT 1

## SUPPLEMENTAL INFORMATION

a. List of Items Opened, Closed and Discussed

None

b. Partial List of Documents Reviewed

Millstone Unit 3 - Maintenance Support - Work Order M3 01 01569, "Repair Flange on Heat Exchanger 3CCP*E1C per CR-00666," dated January 3, 2001.

Millstone Unit 3 - Water Systems - Work Order M3 01 10682, "PM, Annual -- Heat Exchanger, Mechanical Cleaning," for Heat Exchanger 3CCP*E1B, dated August 2, 2001.

Millstone Unit 3 - Water Systems - Work Order M3 01 12900, "PM, 1 Year -- Heat Exchanger, Mechanical Cleaning," for Heat Exchanger 3CCP*E1C, dated August 2, 2001.

Millstone Unit 3 - Water Systems - Work Order M3 01 13378, "PM, 3 Months -- Heat Exchanger, Inspection/Cleaning," for Heat Exchanger 3CCP*E1C, dated September 10, 2001.

Millstone Unit 3 -- Work Order M3 01 18854, "Perform Coating Repairs," for Heat Exchanger 3CCP*E1C, dated October 26, 2001.

Technical Evaluation for 3CCP*E1B -- M3-EV-99-0080, Revision 00 -- "Reactor Plant Component Cooling Water Heat Exchanger Thermal Performance Test," dated February 5, 2001.

Assessment Number MP-SA-01-0883 -- "Chemistry Department Performance Self-Assessment," dated July 23, 2001 to July 27, 2001.

Engineering Procedure EN 31084, Rev. 5 "Operating Strategy for Service Water System at Millstone Unit 3," dated May 24, 2001.

Millstone Unit 3 -- Response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." dated February 28, 2001.

Millstone Unit 3 -- Document Action Request No. CP3804 "Operation of the Sodium Hypochlorite," Rev. 0, dated April 3, 2000.

Millstone Unit 3 -- Service Water Heat Exchangers Fouling Determination SP 3626.13-001, Rev. 020-02, dated October 29, 2001.

Millstone Unit 3 -- Service Water Heat Exchangers Fouling Determination SP 3626.13-001, Rev. 020-02, dated October 17, 2001.

Millstone Unit 3 -- Service Water Heat Exchangers Fouling Determination SP 3626.13-001, Rev. 020-02, dated September 27, 2001.

Millstone Unit 3 -- Inspection Summary of the Eddy Current Component Cooling Heat Exchanger RPCCW-C, dated October 2001

Millstone Unit 3 -- Inspection Summary of the Eddy Current Component Cooling Heat Exchanger RPCCW-B, dated September 28, 2001

Millstone Unit 3 -- Status Summary of the Service Water System RSS Cooler Water Column Rejoin Transient - Memo, dated October 31, 2001.

Millstone Unit 3 -- Northeast Nuclear Energy updated response to GL 89-13 dated May 6, 1998

Millstone Unit 3 -- Service Water Heat Exchangers Fouling Determination SP 3626.13, Revision 19, dated August 10, 2000.

c. List of Acronyms Used

| | |
|---|---|
| AFW | auxiliary feedwater |
| ALARA | as low as reasonably achievable |
| AWO | automated work order |
| CCP | reactor plant component cooling water |
| CHS | chemical and volume control |
| CRs | condition reports |
| DWST | demineralized water storage tank |
| EDG | emergency diesel generator |
| EOP/AOPs | emergency and abnormal operating procedures |
| ESF | engineered safety features |
| FPER | fire protection evaluation report |
| HVK | control building ventilation |
| HXs | heat exchangers |
| I&C | instrumentation and control |
| OD | operability determination |
| OP | operating procedure |
| P&IDs | piping and instrumentation diagrams |
| PI | performance indicator |
| PM | preventive maintenance |
| PMT | post maintenance testing |
| QA | quality assurance |
| RCP | reactor coolant pump |
| RCS | reactor coolant system |
| SWP | service water |
| TDAFW | turbine driven auxiliary feedwater |
| TM | temporary modification |

| | |
|---|---|
| TRM | technical requirements manual |
| TS | technical specification |
| UFSAR | Updated Final Safety Analysis Report |