February 12, 2001

Mr. R. G. Lizotte, Master Process Owner - Assessment
C/O Mr. D. A. Smith, Process Owner - Regulatory Affairs
Northeast Nuclear Energy Company
P.O. Box 128
Waterford, Connecticut 06385

SUBJECT: NRC's MILLSTONE INSPECTION REPORT NOS. 05000336/2000-013 AND 05000423/2000-013

Dear Mr. Lizotte:

On December 30, 2000, the NRC completed inspections at your Millstone Units 2 & 3 reactor facilities. The enclosed reports document the inspection findings which were discussed on January 8, 2001 with Messrs. E. Grecheck and R. Necci 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.

Based on the results of this inspection, the inspectors identified two Unit 2 issues, one of which was determined to be of very low safety significance (Green). The other issue was found to affect the regulatory process and was not evaluated under the significance determination process (No Color). The second issue was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this Non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, 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 facility.

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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert J. Summers, Acting Chief
Projects Branch 6
Division of Reactor Projects

Docket Nos.: 05000336, 05000423
License Nos.: DPR-65, NPF-49

Enclosures:
(1) NRC Inspection Report 05000336/2000-013
(2) NRC Inspection Report 05000423/2000-013
(3) NRC's Revised Reactor Oversight Process

cc w/encl:
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ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	05000336
License No.:	DPR-65
Report No.:	05000336/2000-013
Licensee:	Northeast Nuclear Energy Company
Facility:	Millstone Nuclear Power Station, Unit 2
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	November 12, 2000 - December 30, 2000
Inspectors:	P. C. Cataldo, Resident Inspector, Unit 2 S. R. Jones, Senior Resident Inspector, Unit 2 L. Briggs, Senior Operations Engineer, Division of Reactor Safety (DRS) J. D'Antonio, Operations Engineer, DRS T. A. Moslak, Health Physicist, DRS
Approved by:	Robert J. Summers, Acting Chief Projects Branch 6 Division of Reactor Projects Region I

SUMMARY OF FINDINGS

IR 05000336/2000-013; on 11/12-12/30/00; Northeast Nuclear Energy Company, Millstone Nuclear Power Station; Unit 2. Licensed Operator Requalification, Maintenance Risk Assessment and Emergent Work Evaluation.

The inspection was conducted by resident and regional inspectors. The inspection identified one Green finding and one No Color finding, of which the latter was a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP) [see Enclosure 3 for a description of the NRC Revised Reactor Oversight Process]. The significance of findings for which the SDP does not apply is indicated by "No Color" or by the severity level of the applicable violation.

A. Inspector Identified Findings

Cornerstone: Initiating Events

- **Green.** The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered. (Section 1R13.1)

Cornerstone: Cross-Cutting Issues

- **No Color.** The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation. (Section 1R11.1).

B. Licensee Identified Violations

There were no violations identified by the licensee during this inspection.

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ATTACHMENT

Report Details

SUMMARY OF UNIT 2 STATUS

The plant operated at essentially 100 percent power throughout the inspection period, with the exception of minor power reductions for routine turbine control valve testing on November 18, 2000, and for condensate pump seal replacement on December 16, 2000.

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 to ensure cold weather protection for safety-related structures, systems and components (SSCs), as detailed in procedure OP 2268, "Cold Weather Preparation and Operation." The inspector performed a walkdown of selected SSCs and verified operation of heat trace circuits, steam or electric heaters, and special system alignments, such as reactor building closed cooling water heat exchanger operation in the "winter mode." In addition, the inspector reviewed licensee actions following recent cold weather conditions using procedure OP 2266, "Response to Low or High Outside Air Temperature." Also, the inspector evaluated the licensee's troubleshooting activities associated with the operation of the refueling water storage tank (RWST) heat exchanger, and the capability to maintain the RWST temperature above the technical specification requirement.

b. Findings

No findings of significance were identified during this inspection.

1R04 Equipment Alignment

a. Inspection Scope

The inspector performed the following partial system alignment checks:

1. The inspector verified that the swing "B" charging pump was correctly aligned electrically and mechanically for service as the "B" train charging pump in accordance with applicable portions of procedure SP 2601E, "Boric Acid Flowpath Verification, Facility 2;" procedure OP 2304E, "Charging Pumps;" and system piping and instrumentation diagram 25203-26017.

   This alignment was conducted while the "A" charging pump was in service and the "C" charging pump out of service for corrective maintenance to address evidence of leakage through a suction stabilizer weld.

2. The inspector verified that the refueling water storage tank (RWST) supply piping was correctly aligned to support operation of applicable emergency core cooling systems and components. The inspector verified system alignments with applicable portions of

Operating Procedure (OP) 2353A, "Filling and Venting Various Emergency Core Cooling System Piping and Components," OPS Form 2601B-1, "Boric Acid Flowpath Verification, Facility 1," and OPS Form 2601E-1, "Boric Acid Flowpath Verification, Facility 2."

b. Findings

No findings of significance were identified during this inspection.

1R05 Fire Protection

a. Inspection Scope

The inspector reviewed the licensee's fire hazard analysis for the following plant areas: (1) Reactor Building Closed Cooling Water Pump and Heat Exchanger Area, Fire Area A-1B; (2) Charging Pump Room, Fire Area A-6A; and (3) Degasifier Area, Fire Area A-6B. These areas were toured to verify the correct operational alignment of the wet-pipe water curtain (credited for fire separation between Fire Area A-1B and A-6B), the integrity of penetration seals and other fire barriers, and the adequate control of transient combustible materials located in these areas.

b. Findings

No findings of significance were identified during this inspection.

1R11 Licensed Operator Requalification

.1 Annual Operator Requalification Examination

a. Inspection Scope

A review was conducted of operating history documentation from a sampling of inspection reports, licensee event reports, licensee condition reports (CRs), and the NRC plant issues matrix (PIM) from 1999 and 2000. The inspectors selected specific events which indicated possible performance deficiencies and verified that they had been appropriately addressed in training by review of appropriate lesson plans and scenario exercises.

Samples of the written and operating examinations used for licensed personnel during the weeks of November 6 and 13, 2000, were reviewed. These examinations were compared for duplication of questions and differences in level of difficulty. Content of the examinations was reviewed against the requirements of 10 CFR 55.59 and the NRC Examination Standards.

Observations were made of the licensee's practices in administration of the operating and written test to one shift crew and the facility's evaluation of crew and individual operator performance. The inspectors also assessed the simulator performance and fidelity to the reference plant during simulator scenarios and job performance measure (JPM) performance. The resident inspectors participated in observation of simulator

scenario examinations and provided comments on licensed personnel performance compared to everyday operations.

The inspectors reviewed training response to feedback by students and incorporation of plant and industry events into the training program for the two-year training cycle.

Also, the inspectors reviewed a sample of medical records, training attendance records, and other required documentation for maintaining an active license.

b. Findings

During performance of simulator JPMs the inspector noted that the first examinee following completion of performance of his JPM was allowed to return to the waiting area with the other examinees. The inspector questioned the training personnel about examination security requirements and how it was being maintained since personnel that had been examined were being allowed to return to the waiting area with personnel that had not yet been examined without a proctor present. The licensee noted that JPMs were not normally repeated during the day. A check of the schedule indicated that several JPMs would be repeated due to some last minute schedule changes that had not been evaluated by the training staff. The licensee revised the JPMs to be conducted during the day so they would not be repeated to ensure that exam compromise or the appearance of an exam compromise would not take place. The inspector determined that an exam compromise did not take place in this instance based on observations and because the JPM duplications were eliminated.

The inspector requested a copy of the examination JPM schedule for the previous week. On review, it indicated that several in-plant JPMs had been used on November 7, 2000, and then repeated on November 9, 2000. The inspector discussed this with the Millstone Unit 2 Continuing Training Supervisor. He stated that all remaining exams would not have overlap from one day to another day. A condition report (CR) was issued to enter this item into the licensee's corrective action system for resolution (CR M2-00-3138). The licensee's procedure NTP 122.1, "Developing, Administering, and Evaluating Operator Training Branch Written Examination Materials" addresses security of initial written examination material but does not address requalification examination material (except static exams) or their administration. This item has also been entered into the licensee's corrective action program as Condition Report M3-00-3447.

10 CFR 55.49 states that applicants, licensees, and facility licensees shall not engage in any activity that compromises or would compromise, but for detection, the integrity of any application, test or examination required by 10 CFR Part 55. The licensee did not have any procedural guidance to ensure examination integrity during the development and administration of requalification examinations, and they were not exercising sufficient control to preclude the potential for compromise of the examination. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to perform its regulatory function of accurately assessing licensed operator performance through facility licensee implementation of requalification examinations. This Severity Level IV violation of 10 CFR 55.49 is being treated as a non-cited violation (**NCV**

05000336/2000-013-01) consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25368), in that the associated condition was entered in the licensee's corrective action program.

.2 Quarterly Review of Requalification Examinations

a. Inspection Scope

On November 15, 2000, the inspector observed the conduct of a licensed operator requalification simulator examination. The inspector assessed licensed operator performance in areas such as: communications, implementation of normal and emergency procedures, command and control, technical specification compliance, and implementation of emergency plan actions. In addition, the inspector evaluated simulator fidelity compared with the actual control room, as well as the evaluator's critique of the examination. Also, the inspector verified that the licensee's evaluator addressed operator performance issues that were identified during the test, and that examination objectives had been achieved.

b. Findings

No findings of significance were identified during this inspection.

1R12 Maintenance Rule Implementation

Steam Generator Atmospheric Dump Valve Failures

a. Inspection Scope

The inspector reviewed maintenance rule implementation for the main steam system, including Condition Reports M2-99-3329, M2-00-0113, and M2-00-3099, which documented three occasions where the No. 2 steam generator atmospheric dump valve failed open and was subsequently manually isolated for repairs. The inspector verified that the conditions were correctly classified with respect to maintenance preventable functional failures based on Engineering Department Instruction 30710, "Maintenance Rule Functional Failures." The inspector also verified that the performance criteria for the risk-significant function of transferring heat from the steam generators to the atmosphere of less than 1 functional failure per 24 months for the system and less than 60 hours of unavailability per 24 months per train were consistent with the failure-to-operate frequency and the maintenance out-of-service probability used in the licensee's risk assessment model. Since the most recent failure resulted in exceeding the unavailability performance criterion and the functional failure performance criterion, the inspector confirmed that the licensee had initiated appropriate actions to place the system in maintenance rule a(1) status, and to establish performance goals.

b. Findings

No findings of significance were identified during this inspection.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

.1 Inadequate Control of Steam Generator Water Level Control System Work

a. Inspection Scope

The inspector reviewed work controls implemented under work order M2-00-20109, which involved the replacement of all six circuit cards in the water level control system for the No. 2 steam generator. This activity was conducted with the unit operating at 100 percent power.

The inspector also reviewed the licensee's event review team report regarding the unexpected closure of the feedwater regulating valve for the No. 2 steam generator resulting from this work activity.

b. Findings

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing operating conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance activities resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. Response by the maintenance technician and the plant operators to the unexpected condition successfully avoided a reactor trip. Although this condition created a potential for a plant transient, the failure to implement adequate work control of the activity was of very low safety significance because feedwater flow to the No. 1 steam generator was not affected.

Following a minor malfunction of the water level control system for the No. 2 steam generator on December 14, 2000, the control room operators placed feedwater control in manual to stabilize the plant and initiated preparation of a work order to correct the condition. Although permitted by procedure U2 WC 1, “Unit 2 Work Control Process,” preparation of the work order did not follow the licensee’s normal process in that the unit maintenance work manager, the operations work control group, and the engineering organization were not included in the preparation and review of the work order.

Based on a maintenance technician’s review of wiring diagrams and previous successful experience with replacement of one of the circuit cards with feedwater control in manual, the shift manager authorized replacement of all six circuit cards in the water level control system while feedwater control was in manual. However, the wiring diagram review was limited in that the diagrams showed only the interconnections between circuit modules without providing information regarding their function and operation. Additionally, the system training manual, which described that a high water level signal would initiate rapid closure of the feedwater regulating valve regardless of its operating mode, was not evaluated prior to authorization of work. Consequently, the feedwater regulating valve for the No. 2 steam generator unexpectedly closed when a circuit card associated with

the high water level signal was removed. Operators were able to avoid a reactor trip because the circuit card was promptly replaced with a new card, which allowed operators to reopen the feedwater regulating valve. The licensee documented this feedwater flow transient in Condition Report M2-00-3440.

The inspector evaluated this condition using the NRC's Significance Determination Process because the condition increased the potential for an initiating transient involving a loss of main feedwater to one steam generator. The NRC concluded that the condition was of very low safety significance (Green) because the exposure time was very short, main feedwater flow to one steam generator was not interrupted, and main feedwater flow to the affected steam generator was promptly recovered.

The licensee's event review team appropriately identified issues with the work planning process and human performance. No violations of NRC requirements were identified.

.2 Reactor Coolant System Leak Into The Reactor Building Closed Cooling Water System

a. Inspection Scope

The inspector reviewed the licensee's actions to locate and isolate the source of minor reactor coolant system (RCS) leakage (approximately 5 ml/minute with a peak of less than 15 ml/minute) into the reactor building closed cooling water (RBCCW) system, identified by the licensee on November 3, 2000. The inspector reviewed the troubleshooting plan implemented through work order M2-00-18624, which included the licensee's actions taken in accordance with abnormal operating procedure (AOP) 2568, "Reactor Coolant System Leak," and their response to a similar, but smaller magnitude leak that occurred in October 1999. Also, the licensee's work coordination and risk evaluations during the leak investigation was evaluated relative to the overall impact on plant operations. For example, the inspector evaluated troubleshooting plan revisions that, if implemented, could have potentially identified a leaking RCP thermal barrier. Leakage remained at a value too low to implement this portion of the troubleshooting plan. In addition, the inspector reviewed licensee plans to cross-connect RBCCW cooling headers in a manner that could have narrowed the possible leak source to a few components. As of December 13, 2000, all parameters that were monitored and considered primary indicators of RCS-to-RBCCW in-leakage (i.e., elevated RBCCW radiation monitor readings, short-lived radioisotopes, tritium, and boron) had returned to normal levels, but the inspector verified that the leak identification methods contained in the troubleshooting plan were available in the event the leak re-appears.

b. Findings

No findings of significance were identified during this inspection.

1R15 Operability Evaluations

.1 "A" Emergency Diesel Generator Sump Oil Leakage

a. Inspection Scope

The inspector reviewed the licensee's evaluation of operability following the identification of oil leakage possibly originating from the "A" emergency diesel generator is (EDG) crankcase sump welds, documented in Condition Report M2-00-3543. This review included an assessment of the licensee's basis for operability as documented in operability determination, MP2-047-00. The inspector verified that the licensee had an adequate basis for continued operability assuming weld flaws were present, and the inspector noted that subsequent magnetic particle and ultrasonic tests identified no cracks that could account for the oil identified in the weld area of the sump.

b. Findings

No findings of significance were identified during this inspection.

.2 Reactor Coolant Pump Thermal Barrier Integrity

a. Inspection Scope

The inspector evaluated the licensee's actions following their identification that a potential source of the reactor coolant system (RCS) leakage into the reactor building closed cooling water (RBCCW) system could be from a reactor coolant pump (RCP) thermal barrier or the associated heat exchanger (See Section 1R13.1). The inspector reviewed a structural integrity calculation that applied leak-before-break (LBB) criteria identified in NUREG-0800, "Standard Review Plan for the Review of Safety Analyses of Nuclear Power Plants," and NUREG 1061, Volume 3, "Evaluation of Potential for Pipe Breaks." Although the inspector did not address the acceptability of LBB criteria as it relates to the design and licensing basis aspects of a RCP thermal barrier and its associated heat exchanger, the inspector did evaluate the impact on the RCS pressure boundary integrity from a potential flaw in a RCP thermal barrier. Specifically, the inspector verified that a flaw size corresponding to the calculated leak rate of about 5 ml/minute was approximately a factor of 100 smaller than the smallest flaw that would threaten the thermal barrier integrity.

b. Findings

No findings of significance were identified during this inspection.

1R19 Post-Maintenance Testing

.1 Corrective Maintenance on the Turbine-Driven Auxiliary Feedwater Pump

a. Inspection Scope

The inspector reviewed post-maintenance testing associated with work orders M2-00-16914, M2-00-17695, M2-00-18175, and M2-00-18176, which involved various corrective maintenance activities associated with the turbine-driven auxiliary feedwater (TDAFW) pump. The inspector evaluated various attributes of the post-maintenance tests including the adequacy of acceptance criteria consistent with licensing and design basis documents, and the licensee's evaluation of the impact of equipment testing on the plant. The inspector also verified that the post-maintenance tests for the applicable work orders were adequate, given the scope of the maintenance activities, and provided adequate assurance that the TDAFW pump would meet its design basis.

b. Findings

No findings of significance were identified during this inspection.

.2 Corrective Maintenance on the "A" Charging Pump

a. Inspection Scope

The inspector reviewed post-maintenance testing associated with work order M2-00-19196, which involved replacement of the internal suction and discharge check valves in the "A" positive-displacement charging pump. As part of this review, the post-maintenance tests were evaluated to identify pump performance attributes encompassed by the testing. The inspector verified that the post-maintenance tests provided adequate assurance that the "A" charging pump would meet its design bases.

b. Findings

No findings of significance were identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

The inspector reviewed in-service testing performed using the following test procedures:

1. SP 2610B for the Turbine-Driven Auxiliary Feedwater Pump
2. SP 2601I for the "A" Charging Pump at Normal Operating Pressure

The review included an assessment of the testing methods, a review of the acceptance criteria against applicable licensing and design bases values, and an evaluation of the results against reference values for the measured parameters.

b. Findings

No findings of significance were identified during this inspection.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspector reviewed the licensee's use of a temporary demineralizer skid to reduce the boron concentration in the reactor building closed cooling water (RBCCW) system headers, following the identification of in-leakage from the reactor coolant system (See Section 1R13.1). The inspector reviewed the safety evaluation, S2-EV-99-0119, which supported the skid connection to the RBCCW system, as well as details of the skid installation and operation detailed in Temporary Modification M2-00-0016. The inspector verified the temporary modification design was consistent with applicable licensing and design bases, and that operability of the RBCCW system was not affected.

b. Findings

No findings of significance were identified during this inspection.

(Cornerstone: Emergency Preparedness)

1EP6 Drill Evaluation

a. Inspection Scope

The inspector observed performance of an emergency preparedness drill on December 18, 2000, which the licensee designated for inclusion in their emergency preparedness performance indicators. The drill involved the Unit 2 Shift Manager and the Shift Communications Technician. The inspector evaluated the scope of the drill against criteria specified in Section 2.4 of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 0, for inclusion of drill results in the performance indicator calculation. The inspector verified that the classification and notification elements were completed in a timely and accurate manner in accordance with emergency plan procedures EPIP 4400, "Event Assessment, Classification, and Reportability," and EPIP 4404, Notifications and Communications."

b. Findings

No findings of significance were identified during this inspection.

2. RADIATION SAFETY

Public Radiation Safety [PS]

2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

During the period November 13 - 16, 2000, the inspector conducted the following activities to verify that the licensee's radioactive material processing and transportation programs complied with the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation (DOT) regulations contained in 49 CFR Parts 170-189.

The inspector conducted a walk-down, with cognizant system engineers, of liquid and solid radioactive waste processing systems installed in Unit 2 and Unit 3 to verify that the current systems' configuration and operation agree with the descriptions contained in the Final Safety Analysis Report and the Process Control Plan. Tours and independent radiological surveys were made of the Radwaste Bunker and Condensate Polishing Facility to confirm the accuracy of material inventories and posted survey results. Tours were also conducted in the Millstone Radwaste Reduction Facility and Warehouse No. 9 to verify that the radiologically controlled areas were properly posted, access was appropriately controlled, and that radioactive material containers were properly labeled.

The inspector reviewed the radio-chemical analysis results for each of the licensee's radioactive waste streams including dry active waste, spent resin, mechanical filters, and contaminated water to determine if scaling factors for difficult-to-measure radionuclides were properly developed and correctly applied in classifying the waste.

Five recent radioactive material shipments were reviewed to determine that the packages complied with applicable NRC and DOT requirements. Included in this review were shipments of dewatered resin and mechanical filters (Manifest Nos. 00-051-3 and 00-046-3), dry active waste (Manifest No. 00-025-3), contaminated water (Manifest No. 00-047-2), and laundry (Manifest No. 00-079-2).

A Nuclear Oversight Department audit (MP-00-A07), surveillances, and field observation reports for various radwaste processing/transportation program activities were reviewed. Radiation Protection Department self-assessments of the radioactive waste management program (MP-SA-00-023) and of the control of radioactive material (MP-SA-00-041) were reviewed. Problems identified during these audits and assessments were confirmed to be entered into the corrective action program.

The inspector reviewed the following condition reports relating to the control of radioactive material and work activities to determine if the issues were identified in a timely manner and appropriate actions were taken to evaluate and resolve the issues.

- M3-00-2651, Truck monitor alarmed for clean trash
- M3-00-2630, A magenta tube-lock stand was found in a lay-down area

- M3-00-2569, A piece of tube-lock, painted magenta was found in a lay-down area
- M3-00-2843, Areas for improvement identified in self-assessment MP-SA-00-41
- M3-00-2924, Questionable practice of storing rad materials in CPF
- M3-00-1803, Yellow and magenta painted material found in dumpster during routine survey
- M3-00-1517, Areas for improvement identified in self-assessment MP-SA-00-023
- M3-00-0370, Resources needed for increased radwaste workload
- M3-00-3291, Error identified on manifest for Unit-3 resin shipment 00-051-3

b. Findings

No findings of significance were identified during this inspection.

4. OTHER ACTIVITIES [OA]

4OA4 Cross-cutting Issues

Human Performance Issues Related to Maintenance on In-service Equipment

a. Inspection Scope

The inspector reviewed human performance issues related to maintenance on in-service equipment.

b. Findings

In section 1R13 of this report, the NRC identified inadequate human performance in evaluating whether maintenance work could be performed on the steam generator water level control system with the system in-service. Specifically, operators authorized work on the steam generator water level control system without a complete review of the effect the work could have on system operation. As a result, the “B” feedwater regulating valve unexpectedly closed during the maintenance work and two-thirds of the margin between normal steam generator water level and the reactor trip setpoint was lost (Section 1R13.1).

4OA5 Other

.1 (Closed) LER 50-336/2000-015-00: On October 25, 2000, with the unit at 100% power in Mode 1 and one emergency diesel generator (EDG) inoperable for planned testing, the licensee identified the failure to perform a technical specification (TS) required verification of offsite power sources. The failure to perform the TS 3.8.1.1 action existed for approximately two hours and 40 minutes beyond the one hour requirement. The root cause of the event was attributed to personnel error in that neither the TS nor the associated testing procedures that contained the necessary guidance were reviewed. Corrective actions included the generation of condition report (CR) M2-00-2945, the immediate verification of offsite power sources in accordance with the applicable TS action statement, and to prevent recurrence, coaching and counseling for the operator responsible for the personnel error. Because of the successful offsite power verification,

the short time during which the surveillance was not implemented, and the availability of alarms that would have alerted the operator if an actual unavailability or loss of required offsite power sources had occurred, the missed TS surveillance was considered minor. Although this issue should be corrected, it constitutes a violation of minor significance that is not subject to the enforcement action in accordance with Section IV of the NRC's Enforcement Policy.

4OA6 Meetings, including Exit

.1 Regional Inspector Exit Meeting

The inspector presented the inspection results to members of the licensee management in a pre-brief at the conclusion of the inspection on November 16, 2000.

.2 Resident Inspector Exit Meeting

The inspectors presented the inspection results to the Vice President - Generation and the Vice President - Nuclear Technical services and other members of the licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

ITEMS OPENED AND CLOSED

Opened

Opened and Closed During this Inspection

05000336/2000-013-01	NCV	Potential Compromise of Annual Requalification Examination (1R11.1)

Previous Items Closed

50-336/2000-015-00	LER	Failure To Comply With Technical Specification Action Statement For One Diesel Generator Inoperable (4OA5.1)

Discussed

See attached Simulator Facility Report.

LIST OF ACRONYMS USED

AOP	abnormal operating procedure
CR	condition report
DOT	Department of Transportation
EDG	emergency diesel generator
JPM	job performance measures
LBB	leak-before-break
OP	operating procedure
NCV	non-cited violation
PIM	plant issues matrix
RBCCW	reactor building closed cooling water
RCP	reactor coolant pump
RCS	reactor coolant system
RG	regulatory guide
RWST	refueling water storage tank
SDP	significance determination process
SSCs	structures, systems and components
TDAFW	turbine-driven auxiliary feedwater
TR	trouble report
TS	technical specification

ATTACHMENT

ES501 Simulation Facility Report

Facility Licensee: Millstone Unit 2

Facility Docket No.: 05000336

Operating Tests Administered on: November 14 and 16, 2000

This form is to be used to report observations. These observations do not constitute audit or inspection findings and, without further verification and review, are not indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, and during discussions with the resident inspector, the inspector/examiner observed the following general conditions.

The inspector compared the number of control room trouble report (TR) tags and other information tags to the number of tags on the simulator panels. There were significantly more tags on the control room panels. The inspector noted that some of the control room deficiency tags had existed for an extended period (up to two years) but were not replicated on the simulator. Not having the same deficiencies modeled on the simulator makes the simulator easier to operate under both normal and emergency situations when compared to the reference facility. The inspector agreed that exact duplication of the control room tags and equipment deficiencies on a daily basis would not be possible. However, the long standing deficiencies could be reflected to more accurately simulate the actual plant system and control room operation. The licensee issued a CR (M2-00-3182) to address this issue.

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 05000423

License No.: NPF-49

Report No.: 05000423/2000-013

Licensee: Northeast Nuclear Energy Company

Facility: Millstone Nuclear Power Station, Unit 3

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

Dates: November 12, 2000 - December 30, 2000

Inspectors: A. C. Cerne, Senior Resident Inspector, Unit 3
B. E. Sienel, Resident Inspector, Unit 3
J. G. Caruso, Operations Engineer, Division of Reactor Safety (DRS)
T. Fish, Operations Engineer, DRS
T. A. Moslak, Health Physicist, DRS

Approved by: Robert J. Summers, Acting Chief
Projects Branch 6
Division of Reactor Projects
Region I

SUMMARY OF FINDINGS

IR 05000423/2000-013; on 11/12-12/30/00; Northeast Nuclear Energy Company, Millstone Nuclear Power Station; Unit 3.

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) [see Enclosure 3 for a description of the NRC Revised Reactor Oversight Process]. The significance of findings for which the SDP does not apply is indicated by "no color" or by the severity level of the applicable violation.

A. Inspector Identified Findings

There were no significant findings identified during this inspection.

B. Licensee Identified Violations

There were no violations identified by the licensee during this inspection.

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Report Details

SUMMARY OF UNIT 3 STATUS

The plant began the inspection period on November 12, 2000, operating at approximately 100 percent power. On December 24, due to nearing the end of the fuel cycle, the unit began coastdown operations with all control rods fully withdrawn from the core. At the end of the inspection period on December 30, the plant was operating at approximately 95% power.

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

1R04 Equipment Alignment

a. Inspection Scope

During planned maintenance on the “A” train of the service water system, the inspector verified the correct alignment of the “B” train equipment. The inspector performed the partial walkdown by comparing actual equipment alignment to approved licensee operating procedure OP 3326, Service Water System, and Piping and Instrumentation Diagram EM-133, Service Water, to confirm correct system lineup.

b. Findings

No findings of significance were identified during this inspection.

1R05 Fire Protection

a. Inspection Scope

The inspector performed walkdowns of the “A” and “B” service water cubicles, fire zones CSW-4 and CSW-3, respectively; the main steam valve enclosure, fire area MSV-1, at all floor elevations; and the station blackout (SBO) diesel generator enclosure, fire area SBO-1. The inspector confirmed that the fire detection and suppression equipment was located and functionally aligned, as specified in the Millstone 3 Fire Protection Evaluation Report. The inspector noted proper entry into the Unit 3 Technical Requirements Manual for degraded or out-of-service equipment in these areas.

Additionally, the inspector verified that the tools, materials, and equipment were removed or properly stored at the completion of the shift work in the SBO diesel enclosure, where new Appendix "R" emergency lighting components were being installed. This ensured that the functionality of both the SBO diesel generator and its fire protection capability were maintained. The inspector also confirmed that the control room operators were cognizant of both the equipment status and the alarms generated by the ongoing modification activities.

b. Findings

No findings of significance were identified during this inspection.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspector observed the conduct of a graded requalification session in the Unit 3 simulator. The performance of one operating shift crew was evaluated by operations department personnel during the training scenario, which involved equipment malfunctions, plant transients, a subsequent manual trip of the reactor, emergency operating procedure usage by the operators, and event classification by the shift manager.

Regional-based operator licensing examiners also conducted a review of the operating history documentation from a sample of inspection reports, licensee event reports, licensee condition reports, and the NRC plant issues matrix. The review also included Millstone 3 plant safety analysis risk insights and licensee procedures NTP 151P, Processing Training Feedback, and TPD-7.080, Licensed Operator Requalification Training.

The examiners reviewed a sample of the written and operating examinations for licensed personnel for the current examination cycle and remedial training activities for the past two years. These examinations were compared for level of difficulty and duplication of questions from year to year. Content of the examinations was reviewed against the requirements of 10 CFR 55 (c) and the NRC Examiner Standards.

Observations were made of operating test administration to one shift crew and one staff crew and the licensee's evaluation of crew and individual operator performance.

A review was conducted of response to training feedback by students and incorporation of plant and industry events into the training program for the two year training cycle.

A sample of medical records, training attendance records, and documentation on maintaining and active license was reviewed.

The backlog of simulator deficiencies/required modifications was also reviewed.

b. Findings

No findings of significance were identified during this inspection.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspector reviewed licensee actions taken in response to condition report (CR) M3-00-2995, Local Station Blackout Diesel Computer Trouble Alarms Reoccurring. The inspector reviewed the maintenance rule functional failure determination, which documented that a failure had occurred, and noted a revision to the a(1) action plan previously in place for the system was under consideration to reflect the new failure.

The inspector also reviewed the licensee evaluation of the 120 volt instrument ac system, including the 10 CFR 50.65 (a)(1) action plan, the documented corrective actions, and the evaluation to return the system to (a)(2) status. The inspector observed the maintenance rule expert panel meeting that assessed and approved the (a)(2) disposition for this system. The cognizant system engineer was interviewed regarding the causal analyses for previous inverter failures (reference: CRs M3-98-4224, 4308, & 4630) and the system performance during the two-year period since the problems were first identified and addressed.

During a control room walkdown, the inspector noted the discharge dampers for all four battery rooms (i.e, both dc power trains) were closed and caution tagged for a planned corrective maintenance activity. The maintenance rule system basis document for the affected control building heating, ventilation, and air conditioning (HVAC) system was reviewed to assess the impact of the observed alignment on any safety related or risk significant system functions. The inspector interviewed the system engineer regarding both the battery room ventilation status and the overall risk assessment for this safety related system. The inspector also reviewed the relevant final safety analysis report (FSAR) sections and the maintenance rule expert panel documentation, which justified the non-risk significant determination for the control building HVAC system, in order to verify the acceptability of the observed system status.

b. Findings

No findings of significance were identified during this inspection.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

On November 27, 2000, the “B” emergency diesel generator (EDG) was declared inoperable upon identification of a pinhole leak (reference: CR M3-00-3380) in the orificed bypass line around the discharge isolation valve for the service water cooling to the EDG. A 72-hour limiting condition for operation was entered while repairs were made to the 2" diameter pipe. The inspector examined the repair activities implemented on November 28, 2000, which included replacing the leaking copper-nickel elbow with one of similar material in accordance with ASME Section XI. The inspector evaluated the socket weld requirements, the nondestructive examination and post-maintenance testing criteria, and the material specification controls. Subsequently, the inspector examined the leaking elbow, which had been sectioned to establish the cause of the leak as erosion/ corrosion, and discussed further longer-term corrective actions with a cognizant licensee metallurgical engineer and the service water system engineer.

On November 30, 2000, while switching a 120 volt instrument ac bus (VIAC 6) from its battery backup power supply to the alternate ac (maintenance) power supply for planned maintenance of inverter 6, a loss of the plant process computer (PPC) was experienced. The cause of this event was determined to be one bad power phase on the alternate ac supply line. While the affected bus remained at power, the bad phase adversely affected the output such the PPC load could not be sustained.

The inspector evaluated the plans and preparations by operations and maintenance personnel to switch the VIAC 6 back to the normal inverter lineup. The actions to reset lost PPC-supported equipment, to manually isolate systems that might spuriously realign with a loss of power, and to enter the appropriate technical specification action statements were reviewed and discussed with the operators on shift. The inspector evaluated the procedural controls and discussed operator contingency actions with the cognizant system engineer. The inspector confirmed that the PPC was restored and that the normal power supply from the inverter supply to VIAC 6 was returned to service without any transient impact upon the plant.

b. Findings

No findings of significance were identified during this inspection.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspector reviewed the cumulative effects of the six open operator work-arounds on mitigating system reliability, availability, and potential for misoperation of a system, as well as operator ability to respond to events and transients. In addition the inspector reviewed the Millstone 3 Operations Impact Assessment for the Nuclear Safety Assessment Board Quarterly Meeting in November. This report assessed the impact of Technical Specification action statements in effect, active tagouts, operator work-arounds, lit control board annunciators, alternate plant configurations, control panel deficiencies, temporary logs, and operability determinations on individual systems and operations watchstanders.

b. Findings

No findings of significance were identified during this inspection.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspector witnessed post-maintenance testing (PMT) activities for the following work in progress in the plant, as controlled by the associated automated work orders (AWOs):

- AWO M3-99-18984 for the hydrostatic leak testing of the encapsulated enclosures around the recirculation spray system valves that take suction from the emergency core cooling system (ECCS) sump inside containment.

- AWO M3-00-14572 for the heat exchanger efficiency testing associated with the performance of the “B” train emergency diesel generator maintenance and monthly operability surveillance.

- AWO M3-00-16489 for the “B” safety injection pump cooling heat exchanger testing, in conjunction with the safety injection pump and cooling pump operational tests.

In assessing the PMT activities, the inspector interviewed plant equipment operators, maintenance personnel, and system engineers in their performance of the scheduled tests and system restoration activities. The affected components and work areas were examined to verify the as-left system alignments that were required to establish full system functionality. The inspector also sampled the applicable operating logs, surveillance tests, and in-service test data sheets for test results consistent with both the observed field readings and safety-related system operability criteria.

The inspector reviewed the completed documentation for AWO M3-00-15850, preventive maintenance to verify/adjust spring tension on the turbine driven auxiliary feedwater trip throttle valve. The inspector reviewed the scope of the work activities and verified that the PMT planned and performed was appropriate to restore the operability of the component.

b. Findings

No findings of significance were identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

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

- OP 3670.1 Mode 1-4 Daily and Shiftly Control Room Rounds
- SP 3604A.3 Charging Pump "C" Operational Readiness Test
- SP 3855 Reactor Coolant Analysis for Dose Equivalent Iodine-131
- SP 3621.1 Main Feedwater Valve Operability Test
- SP 3646A.1 Emergency Diesel Generator "A" Operability Test

The inspector reviewed the completed data sheets for selected August, September, November, and December 2000 reactor coolant analysis surveillance tests, and selected November and December 2000 identified leakage portion of the daily control room rounds surveillance tests. OP 3670.1 references SP 3601F.6, Reactor Coolant Water Inventory Measurement, to obtain identified leakage information using either the plant computer or manual calculation.

In addition, portions of the referenced charging pump test were observed in the control room to confirm the test was conducted in accordance with a recently approved change to the procedure. The completed data sheets were reviewed for the referenced tests to verify the data and equipment met procedural acceptance criteria and was operable consistent with technical specification requirements.

While inspecting the condition of the four main feedwater system (FWS) isolation valves, 3FWS*CTV41A, B, C, & D, the inspector noted a pressurized nitrogen bottle for the maintenance of the fail-safe accumulator supply to these valves with a pressure less than the normal nitrogen operating pressure. This observation was discussed with the FWS system engineer and evaluated in conjunction with review of the alarm response

procedure guidance for the nitrogen accumulator low pressure alarm setpoint. The inspector reviewed the most recent FWS valve stroke operability test records and verified the consistency of the acceptance criteria to confirm that these containment isolation valves met the design limits established in FSAR Table 6.2-65.

The inspector also examined the existing lubricating oil and jacket water temperature indications for both the "A" and "B" emergency diesel generators (EDGs) for operation within the pre-start criteria delineated in the EDG operating procedure, OP 3346A. Selected EDG operating logs associated with OP 3346A were reviewed for data consistent with EDG pre-start checks required for the train "A" EDG operability test, SP 3646A.1. By reviewing the surveillance records for the "A" EDG for the past year, the inspector verified that the diesel generator test runs resulted in lubricating oil and jacket water operating temperatures within the expected range to establish EDG operability during the monthly testing required by the Unit 3 technical specifications.

b. Findings

No findings of significance were identified during this inspection.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspector reviewed the implementation details and controls for temporary modification 3-99-026, involving a "B" train service water system check valve, 3SWP*V109, installed without its internals. The safety evaluation, S3-EV-99-0074, associated with this temporary modification documents the engineering acceptability of this condition since a backflow prevention capability was analyzed to be not required in the affected control building air conditioning chiller line. The inspector verified during a field inspection that the pressure boundary function of this safety-related valve is unaffected by the removal of the internal flapper plates.

The existing nonconforming condition for 3SWP*V109 is documented in condition report, CR M3-99-1933. The corresponding "A" train service water system check valve, 3SWP*V104, is also the subject of a condition report, CR M3-99-1613, documenting degraded conditions of the valve internal flapper plates. The inspector interviewed the service water system engineer regarding the timing and actions to restore these valves to their full design-basis qualification.

b. Findings

No findings of significance were identified during this inspection.

2. RADIATION SAFETY

Public Radiation Safety [PS]

2PS2 Radioactive Material Processing and Transportation

Refer to NRC Inspection Report 05000336/2000-013, Section 2PS2 for specific details.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 Reactor Coolant System Activity

a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the licensee's September 2000 Reactor Coolant System Activity performance indicator (PI) was complete and accurate. The inspector reviewed the results of daily reactor coolant system dose equivalent Iodine-131 measurements for the period of April 2 through September 30, 2000, as logged in the licensee's chemistry data management system (CDMS). In addition, the inspector verified the data recorded in several August and September reactor sample surveillance data sheets was consistent with the data logged in the CDMS. Reported plant information was compared against industry guidance provided by NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and discussed with chemistry personnel and the licensee analyst responsible for the PI.

b. Findings

No findings of significance were identified during this inspection.

.2 Reactor Coolant System Leakage

a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the licensee's September 2000 Reactor Coolant System Leakage PI was complete and accurate. The inspector reviewed the results of daily reactor coolant system identified leakage measurements for the period of July 1 through September 30, 2000. Reported plant information was compared against industry guidance provided by NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and discussed with operations personnel and the licensee analyst responsible for the PI.

b. Findings

No findings of significance were identified during this inspection.

4OA6 Meetings, including Exit

.1 Regional Engineering Inspection Exit Meeting

The inspector presented the inspection results to members of the licensee management in an exit meeting on November 16, 2000.

.2 Resident Inspector Exit Meeting

The inspectors presented the inspection results to the Vice President - Generation and the Vice President - Nuclear Technical Services and other members of the licensee management at the conclusion of the inspection. The licensee acknowledged the findings presented.

ITEMS OPENED AND CLOSED

Opened and Closed During this Inspection

None

Previous Items Closed

None

LIST OF ACRONYMS USED

AWOs	automated work orders
CDMS	chemistry data management system
CR	condition report
ECCS	emergency core cooling system
EDG	emergency diesel generator
FSAR	final safety analysis report
FWS	feedwater system
HVAC	heating, ventilation, and air conditioning
PI	performance indicator
PMT	post maintenance testing
PPC	plant process computer
SBO	station blackout
SDP	significance Determination Process (SDP)
VIAC	volt instrument ac bus

ENCLOSURE 3

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	**Radiation Safety**	**Safeguards**
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.