May 26, 1998

Mr. Martin L. Bowling, Jr.
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Northeast Nuclear Energy Company
c/o Ms. Patricia A. Loftus
Director - Regulatory Affairs
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SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2 - ISSUANCE OF AMENDMENT (TAC NO. M99504)

Dear Mr. Bowling:

The Commission has issued the enclosed Amendment No. 215 to Facility Operating License No. DPR-65 for the Millstone Nuclear Power Station, Unit No. 2, in response to your application dated September 2, 1997.

The amendment changes the Technical Specifications (TSs) to correct several compliance issues as identified in Licensee Event Report 97-022-00 "Technical Specification Violations" dated July 9, 1997, by rewording the text; changing terminology and numbering; combining two TSs into one; changing allowed outage times; specifying guidance for entering TS 3.0.3; changing a definition; changing surveillance requirements; and updating the TS Bases section to reflect associated changes.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

Daniel G. McDonald Jr., Senior Project Manager
Special Projects Office - Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-336

Enclosures: 1. Amendment No. 215 to DPR-65
2. Safety Evaluation

cc w/encls: See next page

DOCUMENT NAME: G:\MCDONALD\99504.AMD *See previous concurrence

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHEAST NUCLEAR ENERGY COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 215
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Northeast Nuclear Energy Company (the licensee) dated September 2, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DP-65 is hereby amended to read as follows:

    (2) Technical Specifications

    The Technical Specifications contained in Appendix A, as revised through Amendment No. 215 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Phillip F. McKee

Phillip F. McKee
Deputy Director for Licensing
Special Projects Office
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 26, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 215

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following page of the Appendix A, Technical Specifications, with the attached page. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove	Insert
VII	VII
1-2	1-2
3/4 1-4	3/4 1-4
3/4 4-9	3/4 4-9
3/4 5-5a	3/4 5-5a
3/4 5-6	3/4 5-6
3/4 6-1	3/4 6-1
3/4 6-12	3/4 6-12
3/4 6-13	3/4 6-13
3/4 6-14	3/4 6-14
5-5	5-5
B 3/4 5-2	B 3/4 5-2
B 3/4 6-1	B 3/4 6-1
B 3/4 6-3	B 3/4 6-3
B 3/4 6-3a	B 3/4 6-3a *
B 3/4 6-3b	B 3/4 6-3b *
B 3/4 6-3c	B 3/4 6-3c *
B 3/4 6-3d	B 3/4 6-3d *
------------	B 3/4 6-3e *

* no changes - overflow

LIMITING CONDITION FOR OPERATION AND SURVEILLANCE REQUIREMENTS

CONTAINMENT INTEGRITY

1.8 CONTAINMENT INTEGRITY shall exist when:

1.8.1 All penetrations required to be closed during accident conditions are either:

a. Capable of being closed by an OPERABLE containment automatic isolation valve system,* or

b. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1,

1.8.2 The equipment hatch is closed and sealed, and

1.8.3 The airlock is OPERABLE pursuant to Specification 3.6.1.3.

CHANNEL CALIBRATION

1.9 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.10 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.11 A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

---

*In MODE 4, the requirement for an OPERABLE containment automatic isolation valve system is satisfied by use of the containment isolation trip pushbuttons.

BORON DILUTION

LIMITING CONDITION FOR OPERATION

3.1.1.3 The flow rate of reactor coolant through the core shall be ≥ 1000 gpm whenever a reduction in Reactor Coolant System boron concentration is being made.

APPLICABILITY: ALL MODES.

ACTION:

With the flow rate of reactor coolant through the core < 1000 gpm, immediately suspend all operations involving a reduction in boron concentration of the Reactor Coolant System.

SURVEILLANCE REQUIREMENTS

4.1.1.3* The reactor coolant flow rate through the core shall be determined to be ≥ 1000 gpm prior to the start of and at least once per hour during a reduction in the Reactor Coolant System boron concentration by either:

a. Verifying at least one reactor coolant pump is in operation, or

b. Verifying that at least one low pressure safety injection pump is in operation and supplying ≥ 1000 gpm through the core.

*When the plant is in MODE 1 or 2, reactor coolant pumps are required to be in operation. Therefore, Surveillance Requirement 4.1.1.3 does not have to be performed in MODES 1 and 2. This exception does not apply if operating in accordance with Special Test Exception 3.10.4.

REACTOR COOLANT SYSTEM LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.6.2 Reactor Coolant System leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 GPM UNIDENTIFIED LEAKAGE,

c. 1 GPM total primary-to-secondary leakage through both steam generators and 0.10 GPM through any one steam generator, and

d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, be in COLD SHUTDOWN within 36 hours.

b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE, reduce the leakage rate to within limits within 4 hours or be in COLD SHUTDOWN within the next 36 hours.

SURVEILLANCE REQUIREMENTS

4.4.6.2 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by performance of a Reactor Coolant System water inventory balance at least once per 72 hours during steady state operation except when operating in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS (Continued)

5. Verifying a total leak rate less than or equal to 12 gallons per hour for the high pressure safety injection system in conjunction with the containment spray system (reference Specification 4.6.2.1.1.c) at:

    a) A high pressure safety injection pump discharge pressure of greater than or equal to 1125 psig on recirculation flow, for the parts of the system between the pump discharge and the header injection valves, including the pump seals.

    b) Greater than or equal to 22 psig at the pump suction for the piping from the containment sump check valve to the pump suction.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 18 months, during shutdown, by cycling each power operated valve in the subsystem flow path not testable during plant operation through one complete cycle of full travel.

e. By verifying the correct position of each electrical and/or mechanical position stop for each of the throttle valves in Table 4.5-1. This verification shall be performed:

1. Within 4 hours following the completion of each valve stroking operation,

2. Immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator or its control circuit, or

3. At least once per 18 months.

f. By conducting a flow balance verification immediately prior to returning to service any portion of a subsystem after the completion of a modification that could alter system flow characteristics. The injection leg flow rate shall be as follows:

1. HPSI Headers - the sum of the three lowest injection flows must be $\geq$ 471 gpm. The sum of the four injection flows must be $\leq$ 675 gpm.

2. LPSI Header - the sum of the three lowest injection flows must be $\geq$ 2850 gpm. The sum of the four injection flows must be

$$\leq 4500 + \left[\frac{RWST\ level\ (\%) - 10(\%)}{90\%} x\ 200\right]$$

g. At least once per 18 months, during shutdown, by verifying that on a Safety Injection Actuation test signal:

1. The valves in the boron injection flow path from the boric acid storage tank via the boric acid pump and charging pump actuate to their required positions, and

2. The charging pump and boric acid pump start automatically.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY*, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations** not capable of being closed by OPERABLE containment automatic isolation valves*** and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

b. At least once per 31 days by verifying the equipment hatch is closed and sealed.

c. By verifying the containment air lock is OPERABLE per Specification 3.6.1.3.

d. After each closing of a penetration subject to type B testing (except the containment air lock), if opened following a Type A or B test, by leak rate testing in accordance with the Containment Leakage Rate Testing Program.

---

*Operation within the time allowances of the ACTION statements of Specification 3.6.1.3 does not constitute a loss of CONTAINMENT INTEGRITY.

**Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed prior to entering MODE 4 from MODE 5, if not performed within the previous 92 days.

***In MODE 4, the requirement for an OPERABLE containment automatic isolation valve system is satisfied by use of the containment isolation trip pushbuttons.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY AND COOLING SYSTEMS

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two containment spray trains and two containment cooling trains, with each cooling train consisting of two containment air recirculation and cooling units, shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

Inoperable Equipment	Required Action
a. One containment spray train	a.1 Restore the inoperable containment spray train to OPERABLE status within 7 days or be in HOT SHUTDOWN within the next 12 hours.
b. One containment cooling train	b.1 Restore the inoperable containment cooling train to OPERABLE status within 7 days or be in HOT SHUTDOWN within the next 12 hours.
c. One containment spray train AND One containment cooling train	c.1 Restore the inoperable containment spray train or the inoperable containment cooling train to OPERABLE status within 48 hours or be in HOT SHUTDOWN within the next 12 hours.
d. Two containment cooling trains	d.1 Restore at least one inoperable containment cooling train to OPERABLE status within 48 hours or be in HOT SHUTDOWN within the next 12 hours.
e. All other combinations	e.1 Enter LCO 3.0.3 immediately.

SURVEILLANCE REQUIREMENTS

4.6.2.1.1 Each containment spray train shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Starting each spray pump from the control room,

2. Verifying, that on recirculation flow, each spray pump develops a discharge pressure of $\geq$ 254 psig,

*The Containment Spray System is not required to be OPERABLE in MODE 3 if pressurizer pressure is < 1750 psia.

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each spray pump operates for at least 15 minutes,

4. Cycling each testable, automatically operated valve in each spray train flow path through at least one complete cycle,

5. Verifying that upon a sump recirculation actuation signal the containment sump isolation valves open and that a recirculation mode flow path via an OPERABLE shutdown cooling heat exchanger is established, and

6. Verifying that all accessible manual valves not locked, sealed or otherwise secured in position and all remote or automatically operated valves in each spray train flow path are positioned to take suction from the RWST on a Containment Pressure--High-High signal.

b. At least once per 18 months, during shutdown, by cycling each power operated valve in the spray train flow path not testable during plant operation through at least one complete cycle of full travel.

c. At least once per 18 months by verifying a total leak rate less than or equal to 12 gallons per hour in conjunction with the high pressure safety injection system (reference Specification 4.5.2.c.5) at:

1) Discharge pressure of greater than or equal to 254 psig on recirculation flow for those parts of the system between the pump discharge and the header isolation valve, including the pump seals.

2) Greater than or equal to 22 psig at the pump suction for the piping from the containment sump check valve to the pump suction.

d. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

4.6.2.1.2 Each containment air recirculation and cooling unit shall be demonstrated OPERABLE at least once per 31 days on a STAGGERED TEST BASIS by:

a. Starting, in low speed, each unit from the control room,

b. Verifying that each unit operates for at least 15 minutes, and

c. Verifying a cooling water flow rate of $\geq$ 500 gpm to each cooling unit.

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VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is a nominal 10,981 ft^3.

5.5 EMERGENCY CORE COOLING SYSTEMS

5.5.1 The emergency core cooling systems are designed and shall be maintained in accordance with the design provisions contained in Section 6.3 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 a) The new fuel (dry) storage racks are designed and shall be maintained with sufficient center to center distance between assemblies to ensure a $k_{eff} \leq .95$. The maximum nominal fuel enrichment to be stored in these racks is 4.50 weight percent of U-235.

b) Region A of the spent fuel storage pool is designed and shall be maintained with a nominal 9.8 inch center to center distance between storage locations to ensure a $K_{eff} \leq .95$ with the storage pool filled with unborated water. Fuel assemblies stored in this region must comply with Figure 3.9-4 to ensure that the design burnup has been sustained.

c) Region B of the spent fuel storage pool is designed and shall be maintained with a nominal 9.8 inch center-to-center distance between storage locations to ensure $K_{eff} \leq .95$ with a storage pool filled with unborated water. Fuel assemblies stored in this region may have a maximum nominal enrichment of 4.5 weight percent U-235. Fuel assemblies stored in this region are placed in a 3 out of 4 STORAGE PATTERN for reactivity control.

d) Region C of the spent fuel storage pool is designed and shall be maintained with a 9.0 inch center to center distance between storage locations to ensure a $K_{eff} \leq .95$ with the storage pool filled with unborated water. Fuel assemblies stored in this region must comply with Figures 3.9-1a or 3.9-1b to ensure that the design burn-up has been sustained. Additionally, fuel assemblies utilizing Figure 3.9-1b require that borated stainless steel poison pins are installed in the fuel assembly's center guide tube and in two diagonally opposite guide tubes. The poison pins are solid 0.87 inch O.D. borated stainless steel, with a boron content of 2 weight percent boron.

e) Region C of the spent fuel storage pool is designed to permit storage of consolidated fuel and ensure a $K_{eff} \leq 0.95$. The contents of consolidated fuel storage boxes to be stored in this region must comply with Figure 3.9-3.

The purpose of the ECCS throttle valve surveillance requirements is to provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

Verification of the correct position for the mechanical and/or electrical valve stops can be performed by either of the following methods:

1. Visuallly verify the valve opens to the designated throttled position, or

2. Manually position the valve to the designated throttled position and verify that the valve does not move when the applicable valve control switch is placed to "OPEN."

Only one HPSI pump may be OPERABLE in MODE 4 with RCS temperatures less than or equal to 275°F due to the restricted relief capacity with Low-Temperature Overpressure Protection System. To reduce shutdown risk by having additional pumping capacity readily available, a HPSI pump may be made inoperable but available at short notice by shutting its discharge valve with the key lock on the control panel.

3/4.5.4 REFUELING WATER STORAGE TANK (RWST)

The OPERABILITY of the RWST as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

Primary CONTAINMENT INTEGRITY is required in MODES 1 through 4. This requires an OPERABLE containment automatic isolation valve system. In MODES 1, 2, and 3 this is satisfied by the automatic containment isolation signals generated by low pressurizer pressure and high containment pressure. In MODE 4 the automatic containment isolation signals generated by low pressurizer pressure and high containment pressure are not required to be OPERABLE. Automatic actuation of the containment isolation system in MODE 4 is not required because adequate time is available for plant operators to evaluate plant conditions and respond by manually operating engineered safety features components. Since the manual actuation (trip pushbuttons) portion of the containment isolation system is required to be OPERABLE in MODE 4, the plant operators can use the manual pushbuttons to rapidly position all automatic containment isolation valves to the required accident position. Therefore, the containment isolation trip pushbuttons satisfy the requirement for an OPERABLE containment automatic isolation valve system in MODE 4.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to $< 0.75\ L_a$ during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates is in accordance with the Containment Leakage Rate Testing Program.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and leak rate given in Specifications 3.6.1.1 and 3.6.1.2. The limitations on the air locks allow entry and exit into and out of the containment during operation and ensure through the surveillance testing that air lock leakage will not become excessive through continuous usage.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY AND COOLING SYSTEMS

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses. The leak rate surveillance requirements assure that the leakage assumed for the system outside containment during the recirculation phase will not be exceeded.

The OPERABILITY of the containment cooling system ensures that 1) the containment air temperature will be maintained within limits during normal operation, and 2) adequate heat removal capacity is available when operated in conjunction with the containment spray system during post-LOCA conditions.

To be OPERABLE, the two trains of the containment spray system shall be capable of taking a suction from the refueling water storage tank on a containment spray actuation signal and automatically transferring suction to the containment sump on a sump recirculation actuation signal. Each containment spray train flow path from the containment sump shall be via an OPERABLE shutdown cooling heat exchanger.

The containment cooling system consists of two containment cooling trains. Each containment cooling train has two containment air recirculation and cooling units. For the purpose of applying the appropriate action statement, the loss of a single containment air recirculation and cooling unit will make the respective containment cooling train inoperable.

Either the containment spray system or the containment cooling system has sufficient heat removal capability to handle any design basis accident. However, the containment spray system is more effective in dealing with the superheated steam from a main steam break inside containment. Therefore, at least one train of containment spray is always required to be OPERABLE, when pressurizer pressure is $\geq$ 1750 psia.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The Technical Requirements Manual contains the list of containment isolation valves (except the containment air lock and equipment hatch). Any changes to this list will be reviewed under 10CFR50.59 and approved by the Plant Operations Review Committee (PORC).

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within

3/4.6.3 CONTAINMENT ISOLATION VALVES (continued)

the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

The containment isolation valves are used to close all fluid (liquid and gas) penetrations not required for operation of the engineered safety feature systems, to prevent the leakage of radioactive materials to the environment. The fluid penetrations which may require isolation after an accident are categorized as Type P, O, or N. The penetration types are listed with the containment isolation valves in the Technical Requirements Manual.

Type P penetrations are lines that connect to the reactor coolant pressure boundary (Criterion 55 of 10CFR50, Appendix A). These lines are provided with two containment isolation valves, one inside containment, and one outside containment.

Type O penetrations are lines that are open to the containment internal atmosphere (Criterion 56 of 10CFR50, Appendix A). These lines are provided with two containment isolation valves, one inside containment, and one outside containment.

Type N penetrations are lines that neither connect to the reactor coolant pressure boundary nor are open to the containment internal atmosphere, but do form a closed system within the containment structure (Criterion 57 of 10CFR50, Appendix A). These lines are provided with single containment isolation valves outside containment. These valves are either remotely operated or locked closed manual valves.

Locked or sealed closed containment isolation valves may be opened on an intermittent basis provided appropriate administrative controls are established. The position of the NRC concerning acceptable administrative controls is contained in Generic Letter 91-08, "Removal of Component Lists from Technical Specifications," and includes the following considerations:

(1) stationing an operator, who is in constant communication with the control room, at the valve controls,

(2) instructing this operator to close these valves in an accident situation, and

(3) assuring that environmental conditions will not preclude access to close the valve and that this action will prevent the release of radioactivity outside the containment.

3/4.6.3 CONTAINMENT ISOLATION VALVES (continued)

The appropriate administrative controls, based on the above considerations, to allow locked or sealed closed containment isolation valves to be opened are contained in the procedures that will be used to operate the valves. Entries should be placed in the Shift Manager Log when these valves are opened and closed. However, it is not necessary to log into any Technical Specification Action Statement for these valves, provided the appropriate administrative controls have been established.

If a locked or sealed closed containment isolation valve is opened while operating in accordance with Abnormal or Emergency Operating Procedures (AOPs and EOPs), it is not necessary to establish a dedicated operator. The AOPs and EOPs provide sufficient procedural control over the operation of the containment isolation valves.

Opening a locked or sealed closed containment isolation valve bypasses a plant design feature that prevents the release of radioactivity outside the containment. Therefore, this should not be done frequently, and the time the valve is opened should be minimized. As a general guideline, a locked or sealed closed containment isolation valve should not be opened longer than the time allowed to restore the valve to OPERABLE status, as stated in the action statement for LCO 3.6.3.1 "Containment Isolation Valves."

A discussion of the appropriate administrative controls for the containment isolation valves, that are expected to be opened during operation in MODES 1 through 4, is presented below.

Manual containment isolation valve 2-SI-463, safety injection tank (SIT) recirculation header stop valve, is opened to fill or drain the SITs and for Shutdown Cooling System (SDC) boron equalization. While 2-SI-463 is open, a dedicated operator, in continuous communication with the control room, is required.

When SDC is initiated, SDC suction isolation remotely operated valves 2-SI-652 and 2-SI-651 (inside containment isolation valve) and manual valve 2-SI-709 (outside containment isolation valve) are opened. 2-SI-651 is normally operated from the control room. It does not receive an automatic containment isolation closure signal, but is interlocked to prevent opening if Reactor Coolant System (RCS) pressure is greater than approximately 275 psia. When 2-SI-651 is opened from the control room, either one of the two required licensed (Reactor Operator) control room operators can be credited as the dedicated operator required for administrative control. It is not necessary to use a separate dedicated operator.

When valve 2-SI-709 is opened locally, a separate dedicated operator is not required to remain at the valve. 2-SI-709 is opened before 2-SI-651. Therefore, opening 2-SI-709 will not establish a connection between the RCS and the SDC System. Opening 2-SI-651 will connect the RCS and SDC System. If a problem then develops, 2-SI-651 can be closed from the control room.

3/4.6.3 CONTAINMENT ISOLATION VALVES (continued)

The administrative controls for valves 2-SI-651 and 2-SI-709 only apply during SDC operation. They are acceptable because RCS pressure and temperature are significantly below normal operating pressure and temperature (the RCS is administratively required to be < 300 °F and < 265 psia before shutdown cooling flow is initiated), the penetration flowpath can be isolated from the control room by closing either 2-SI-652 or 2-SI-651, and the manipulation of these valves, during this evolution, is controlled by plant procedures.

The pressurizer auxiliary spray valve, 2-CH-517, can be used as an alternate method to decrease pressurizer pressure, or for boron precipitation control following a loss of coolant accident. When this valve is opened from the control room, either one of the two required licensed (Reactor Operator) control room operators can be credited as the dedicated operator required for administrative control. It is not necessary to use a separate dedicated operator.

The exception for 2-CH-517 is acceptable because the fluid that passes through this valve will be collected in the Pressurizer (reverse flow from the Pressurizer to the charging system is prevented by check valve 2-CH-431), and the penetration associated with 2-CH-517 is open during accident conditions to allow flow from the charging pumps. Also, this valve is normally operated from the control room, under the supervision of the licensed control room operators, in accordance with plant procedures.

A dedicated operator is not required when opening remotely operated valves associated with Type N fluid penetrations (Criterion 57 of 10CFR50, Appendix A). Operating these valves from the control room is sufficient. The main steam isolation valves (2-MS-64A and 64B), atmospheric steam dump valves (2-MS-190A and 190B), and the containment air recirculation cooler RBCCW discharge valves (2-RB-28.2A-D) are examples of remotely operated containment isolation valves associated with Type N fluid penetrations.

Local operation of the atmospheric steam dump valves (2-MS-190A and 190B), or other remotely operated valves associated with Type N fluid penetrations, will require a dedicated operator in constant communication with the control room. Even though these valves can not be classified as locked or sealed closed, the use of a dedicated operator will satisfy administrative control requirements. Local operation of these valves with a dedicated operator is equivalent to the operation of other manual (locked or sealed closed) containment isolation valves with a dedicated operator.

The main steam supplies to the turbine driven auxiliary feedwater pump (2-MS-201 and 2-MS-202) are remotely operated valves associated with Type N fluid penetrations. These valves are maintained open during power operation. 2-MS-201 is maintained energized, so it can be closed from the control room, if necessary, for containment isolation. However, 2-MS-202 is deenergized

3/4.6.3 CONTAINMENT ISOLATION VALVES (continued)

open by removing the valve closing coil to satisfy Appendix R requirements. Therefore, 2-MS-202 cannot be closed immediately from the control room, if necessary, for containment isolation. The closing coil for 2-MS-202 is stored in the Unit 2 control room, and can be installed to close the valve from the control room. It is not necessary to maintain a dedicated operator at 2-MS-202 because this valve is already in the required accident position. Also, the steam that passes through this valve should not contain any radioactivity. The steam generators provide the barrier between the containment and the atmosphere. Therefore, it would take an additional structural failure for radioactivity to be released to the environment through this valve.

Steam generator chemical addition valves, 2-FW-15A and 2-FW-15B, are opened to add chemicals to the steam generators using the Auxiliary Feedwater System (AFW). When either 2-FW-15A or 2-FW-15B is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of these valves is expected during plant startup and shutdown.

The bypasses around the main steam supplies to the turbine driven auxiliary feedwater pump (2-MS-201 and 2-MS-202), 2-MS-458 and 2-MS-459, are opened to drain water from the steam supply lines. When either 2-MS-458 or 2-MS-459 is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of these valves is expected during plant startup.

The containment station air header isolation, 2-SA-19, is opened to supply station air to containment. When 2-SA-19 is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of this valve is only expected for maintenance activities inside containment.

The backup air supply master stop, 2-IA-566, is opened to supply backup air to 2-CH-517, 2-CH-518, 2-CH-519, 2-EB-88, and 2-EB-89. When 2-IA-566 is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of this valve is only expected in response to a loss of the normal air supply to the valves listed.

The nitrogen header drain valve, 2-SI-045, is opened to depressurize the containment side of the nitrogen supply header stop valve, 2-SI-312. When 2-SI-045 is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of this valve is only expected after using the high pressure nitrogen system to raise SIT nitrogen pressure.

The containment waste gas header test connection isolation valve, 2-GR-63, is opened to sample the primary drain tank for oxygen and nitrogen. When 2-GR-63 is opened, a dedicated operator, in continuous communication with the control room, is required. Operation of this valve is expected during plant startup and shutdown.

3/4.6.3 CONTAINMENT ISOLATION VALVES (continued)

The determination of the appropriate administrative controls for these containment isolation valves included an evaluation of the expected environmental conditions. This evaluation has concluded environmental conditions will not preclude access to close the valve, and this action will prevent the release of radioactivity outside of containment through the respective penetration.

The containment purge supply and exhaust isolation valves are required to be closed and electrically deactivated during plant operation since these valves have not been demonstrated capable of closing during a LOCA or steam line break accident. Such a demonstration would require justification of the mechanical operability of the purge valves and consideration of the appropriateness of the electrical override circuits. Maintaining these valves closed during plant operations ensures that excessive quantities of radioactive materials will not be released via the containment purge system.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 215

TO FACILITY OPERATING LICENSE NO. DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY

THE CONNECTICUT LIGHT AND POWER COMPANY

THE WESTERN MASSACHUSETTS ELECTRIC COMPANY

MILLSTONE NUCLEAR POWER STATION, UNIT NO.2

DOCKET NO. 50-336

1.0 INTRODUCTION

By letter dated September 8, 1997, the Northeast Nuclear Energy Company (NNECO, the licensee), et al., submitted a request for changes to the Millstone Nuclear Power Station, Unit No. 2, Technical Specifications (TSs). The requested changes would modify the TSs to correct several compliance issues as identified in Licensee Event Report 97-022-00 "Technical Specification Violations," dated July 9, 1997, by rewording the text; changing terminology and numbering; combining two TSs into one; changing allowed outage times; specifying guidance for entering TS 3.0.3; changing a definition; changing surveillance requirements; and updating the associated TS Bases sections to reflect the changes.

Specifically, NNECO proposes to: (1) Combine TS 3.6.2.1, "Containment Spray System," and TS 3.6.2.2, "Containment Air Recirculation System," into one specification, which would reduce the allowed outage time for one inoperable containment spray (CS) train or one inoperable containment air recirculation (CAR) cooler from 30 days to 7 days; increase the allowed outage time for two inoperable CAR coolers from 48 hours to 7 days; add an allowed outage time of 48 hours (instead of entering TS 3.0.3) for one inoperable CS train and two inoperable CAR coolers or three or four inoperable CAR coolers; provide specific guidance on when to enter TS 3.0.3; and expand the applicable TS Bases to reflect these changes; (2) Modify the definition of containment integrity and TS 3.6.1.1, "Containment Integrity," to indicate that the operability of the automatic isolation valve system is satisfied by the use of the containment isolation trip push buttons in Mode 4, and expand the TS Bases to reflect these changes; (3) Add an exception to the reactor coolant flow rate surveillance requirement, TS 4.1.1.3, whenever there is a reduction in reactor coolant system (RCS) boration while in Modes 2 and 3 because the reactor coolant pumps (RCPs) are required to be in operation; (4) Delete the RCS leakage surveillance requirements, TS 4.4.6.2.a and TS 4.4.6.2.b, which require monitoring the containment particulate radioactivity and containment sump inventory, respectively; (5) Modify the emergency core cooling system (ECCS) surveillance requirement; TS 4.5.2.e, to allow the use of alternative methods to verify that the throttle valves in Table 4.5-1 are in the correct position and expand the TS Bases to address the alternative methods; (6) Modify TS 5.5.1, "Emergency Core Cooling

Systems," by deleting the word "original" since the design has been modified; and (7) Make editorial changes to terminology and item numbering.

2.0 EVALUATION

Request No. 1: Combine TS 3.6.2.1, "Containment Spray System," and TS 3.6.2.2, "Containment Air Recirculation System."

Following a limiting design basis loss-of-coolant accident (LOCA) or a main steamline break (MSLB), the containment pressure and temperature are maintained within their design limits by the CS System, which consists of two trains and the CAR and Cooling System, which consists of four CAR coolers. The combination of the two systems provides approximately 200 percent of the required heat removal capability necessary to maintain the containment within its design basis following a LOCA or an MSLB. However, the CS System is more effective at removing the energy contained in superheated steam and at lest one train of the CS System is needed to mitigate the consequences of an MSLB inside containment. Thus, the loss of one CS System train and two CAR coolers or the loss of four CAR coolers is the equivalent of the loss of one train of containment cooling if the cooling functions of the two systems were combined into a single TS as proposed by the licensee.

The current TSs do not address the loss of one CS System train and two CAR coolers, which has occurred and resulted in a TS violation as reported in LER 97-022-00. As noted in the LER, since a TS limiting condition for operation (LCO) does not exist for this situation, TS 3.0.3 should have been entered, which requires that action be initiated within 1 hour to place the unit in Hot Standby within the next 6 hours and Hot Shutdown in the following 6 hours.

Combining TS 3.6.2.1 and TS 3.6.2.2 into one TS, "Containment Spray and Cooling System," results in two CS trains and two Containment Cooling (CC) trains (each CC train will consist of two CAR cooling units). The descriptive information in the existing TS 3.6.2.1 LCO would be relocated in the associated Bases section of the TSs and the existing TS 3.6.2.1, Applicability, footnote would be reworded for clarity.

The Action portion of TS 3.6.2.1 would be changed to account for the capacity of approximately 200 percent provided by the combined systems. The enhanced capability of the CS System for mitigating an MSLB inside containment is accounted for in that immediate shutdown is required if both CS trains are lost. The inoperable equipment and proposed actions are:

a. one CS train inoperable - restore within 7 days or be in Hot Shutdown in 12 hours.

b. one CC train inoperable - (same as a.)

c. one CS and one CC train inoperable - restore either train within 48 hours or be in Hot Shutdown in 12 hours.

d. two CC trains inoperable - (same as c.)

e. all other combinations - enter LCO 3.0.3 immediately.

All of the proposed LCOs consider the overall redundancy of the combined systems as previously discussed. Where the proposed LCO is less than the current LCO, a higher priority will be placed on restoring the equipment to an operable status, thus, enhancing the overall reliability of the combined CS and CC systems. Items c. and d. are not addressed in the current TSs. The proposed changes are also consistent with the guidance provided in NUREG-1432, Rev. 1, "Standard Technical Specifications Combustion Engineering Plants," dated April 1995.

The only increase in the proposed LCOs is for one CC train inoperable, which will increase from 48 hours to 7 days. This proposed change reflects the amount of cooling, about 25 percent, that is unavailable, which is the equivalent of losing one CS train. The current TSs allow an LCO of 30 days for one CS train, which the licensee proposes to reduce to 7 days. Thus, the LCOs for the loss of combinations of equipment resulting in the loss of one train of CS or CC will be the same and still maintain a high priority for restoration of the inoperable equipment.

Thus, the proposed LCOs account for the combined capacity of the CS and CC systems, and are also consistent with support systems, such as the service water and reactor building closed cooling water systems. The specific directions to enter LCO 3.0.3 for combinations of inoperable equipment not specifically addressed, which includes two CS trains for reasons previously discussed, provides needed clarification. Combining the TSs for the CS and CC systems results in changes to the TS index, renumbering of TS requirements, and minor word changes to reflect the CS and CC system trains. Therefore, the proposed changes to TS 3/4.6.2, "Depressurization and Cooling Systems," and the supporting TS Bases are acceptable.

Request No. 2: Modify the definition of containment integrity and TS 3.6.1.1, "Containment Integrity."

The proposed changes would modify TS Definition 1.8, "Containment Integrity," by adding a footnote indicating that when in Mode 4 the requirement for an operable containment automatic isolation valve system is satisfied by the use of the containment isolation trip pushbuttons.

Primary containment integrity is required by TS 3.6.1.1 in Modes 1 through 4. Technical Specification 3/4.3.2, "Engineered Safety Features Actuation System Instrumentation," does not require that the automatic functions of the Engineered Safety Features Actuation System (ESFAS) instrumentation, including the automatic containment isolation actuation signals (CIAS) generated by high containment pressure and low pressurizer pressure, to be operable in Mode 4. The manual functions, including the CIAS trip pushbuttons, are required to be operable in Mode 4. In addition, the low pressurizer pressure signal is blocked during plant cooldown.

The automatic ESFAS functions are not required in Mode 4 because adequate time is available for the plant operators to evaluate adverse conditions and to manually initiate any ESF equipment including containment isolation valves. Thus, using the CIAS manual pushbuttons would result in remote manual isolation of the containment, if needed, while in Mode 4, by closing all of the containment isolation valves. The proposed changes are also consistent with the guidance provided in NUREG-1432, Rev. 1, "Standard Technical Specifications Combustion Engineering Plants," dated April 1995.

An additional footnote is also proposed for TS Surveillance Requirement 4.6.1.1.a, which is identical to the footnote added to TS Definition 1.8, "Containment Integrity." TS Bases Section 3/4.6.1.1, "Containment Integrity," will be expanded to discuss the operability of the containment isolation valves in Mode 4 by using the CIAS manual pushbuttons for initiating closure of the containment isolation valves, if needed. Therefore, since the automatic ESFAS functions are not required in Mode 4, the proposed changes to TS Definition 1.8, TS 4.6.1.1.a, and TS Bases Section 3/4.6.1.1 are acceptable.

Request No. 3: Add a footnote to TS Surveillance Requirement 4.1.1.3, "Reactivity Controls Systems Boron Dilution."

This added footnote provides an exception to the reactor coolant flow rate surveillance requirement whenever there is a reduction in RCS boration being performed while in Modes 2 and 3. The footnote also indicates that the exception is not applicable if operating in accordance with Special Test Exception 3.10.4, " Special Test Exception - Physics Test."

Technical Specification 3.4.1.1, "Reactor Coolant System Coolant Loops and Coolant Circulation Startup and Power Operation," requires that both RCS loops and both RCPs in each loop (four RCPs) be operable in Modes 2 and 3. The Reactor Protection System will initiate an automatic trip if one RCP is lost during plant operation in Modes 1 and 2. Thus, there is no need to verify that there is sufficient reactor coolant flow when a reduction in boron concentration is being performed when in Modes 1 and 2.

The requirement that all four RCPs be operable in Modes 1 and 2 exceeds the requirement of TS 4.1.1.3 to verify that a least one RCP or one low pressure safety injection pump is operable when boron reduction is being performed. Therefore, the proposed footnote indicating that the surveillance requirement of TS 4.1.1.3 is not required when operating in Modes 1 and 2, unless performing physics testing in accordance with TS 3.10.4, is acceptable.

Request No. 4: Delete the RCS leakage surveillance requirements, TS 4.4.6.2.a and TS 4.4.6.2.b, which require monitoring the containment particulate radioactivity and containment sump inventory, respectively.

Technical Specification 4.4.6.2.a, the surveillance requirement tor the containment atmosphere particulate radioactive monitors, and TS 4.4.6.2.b, the surveillance requirement for the containment sump inventory monitor, do not measure the amount of RCS leakage, which is necessary to make a determination that the RCS is being operated within its allowed leakage limits required by TS 3.4.6.2, "Reactor Coolant System Leakage." These two systems are leakage detection systems, which provide early indication that the RCS is leaking. The current surveillance requirement, TS 4.4.6.2.c, which requires that an RCS water inventory balance be performed during steady state operation at least once per 72 hours except when operating in the shutdown cooling mode, provides the means necessary to measure the amount of leakage to assure that the RCS is being operated within its leakage limits. Technical Specification 4.4.6.2.c would become TS 4,4.6.2 as the result of this proposed change.

The containment atmosphere particulate radioactive monitors and the containment sump inventory monitor have surveillance requirements in, TS 4.4.6.1.a and 4.4.6.1.b, respectively, which will continue to assure the operability of these leakage detection systems. The proposed changes are also consistent with the guidance provided in NUREG-1432, Rev. 1, "Standard Technical Specifications Combustion Engineering Plants," dated April 1995. Therefore, the proposed deletion of TSs 4.4.6.2.a and 4.4.6.2.b and the identification of the requirements of TS 4.4.6.2.c as TS 4.4.6.2 are acceptable.

Request No. 5: Modify the ECCS surveillance requirement, TS 4.5.2.e, to allow the use of alternative methods to verify that the throttle valves in TS Table 4.5-1 are in the correct position and expand the applicable TS Bases section to address the alternative methods.

Technical Specification 4.5.2.e currently requires that ECCS throttle valves be determined operable by performing "...a visual verification that each of the throttle valves in Table 4.5-1 will open to the correct position."

The proposed change would verify the correct position of each electrical and/or mechanical position stop for each of the throttle valves in Table 4.5-1. In addition, the supporting TS Bases section would be modified by adding:

> Verification of the correct position for the mechanical and/or electrical valve stops can be performed by either of the following methods:
>
> 1. Visually verify the valve opens to the designated throttle position; or,
>
> 2. Manually position the valve to the designated throttle position and verify that the valve does not move when the applicable valve control switch is placed to "OPEN."

The purpose of the throttle valves in the ECCS is to assure proper flow resistance and pressure drop in the system piping. This is necessary to prevent pump flow from exceeding pump runout conditions and provide proper flow split and total flow at all injection points in accordance with that assumed in the LOCA analyses.

The proposed change clarifies the surveillance requirement and would allow the use of other means than only visually verifying that the valves open to their throttled positions. The TS requirement to assure the proper positions of the throttle valves is retained while not specifying the method. The TS Bases section will be updated to identify two acceptable methods of confirming the correct positions of the ECCS throttle valves. The proposed changes are also consistent with the guidance provided in NUREG-1432, Rev. 1, "Standard Technical Specifications Combustion Engineering Plants," dated April 1995. Therefore, the proposed change to TS 4.5.2.e and the supporting TS Bases section are acceptable.

Request No. 6: Modify TS 5.5.1, "Emergency Core Cooling Systems," by deleting the word "original" since the design has been modified.

The Design Features TS 5.5, "Emergency Core Cooling Systems," indicates that the ECCSs are designed and shall be maintained in accordance with the original design provisions contained in Section 6.3 of the Final Safety Analysis Safety Report (FSAR).

The licensee has modified the ECCS in accordance with approved processes as allowed by the regulations. Title 10 of the Code of Federal Regulations (10 CFR), Section 50.59 (10 CFR 50.59), "Changes, tests and experiments," describe how changes can be made in the design of a facility, as described in its FSAR, and what should be considered in making a determination if prior NRC approval is required. Section 50.90, "Application for amendment of license or construction permit," describes how a license or construction permit can be amended if prior NRC approval is required. Since the regulations allow changes to the design provisions contained in the FSAR and the licensee has modified the ECCS, the deletion of "original" from the Design Features is appropriate. Therefore, the proposed change to TS 5.5 is acceptable.

In summary, the NRC staff has determined that the proposed changes to the Millstone Nuclear Power Station, Unit No. 2, TS Index: Definition, TS 1.8; TS 4.1.1.3, TS 4.4.6.2, TS 4.5.2, TS 4.6.1.1, TS 3.6.2.1, TS 4.6.2.1, TS 3.6.2.2, TS 4.6.2.2, TS 5.5.1; and TS Bases 3/4.5.2, 3/4.5.3, 3/4.6.1.1, 3/4.6.2.1, and 3/4.6.2.2 are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (62 FR 50008 dated September 24, 1997). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: D. McDonald

Dated: May 26, 1998