

August 31, 1976

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

THE CONNECTICUT LIGHT AND POWER COMPANY,
THE HARTFORD ELECTRIC LIGHT COMPANY,
WESTERN MASSACHUSETTS ELECTRIC COMPANY, AND
NORTHEAST NUCLEAR ENERGY COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 13
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Connecticut Light and Power Company, The Hartford Electric Light Company, Western Massachusetts Electric Company, and Northeast Nuclear Energy Company (the licensees), dated May 26, 1976 and supplements dated June 14, 1976 and June 22, 1976, 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; and
 - 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.
 - 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 a change to the Technical Specifications as indicated in the attachment to this license amendment.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Operating Reactors

Attachment:
Changes to the
Technical Specifications

Date of Issuance: August 31, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 13

TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace pages 3/4 3-15, 3/4 3-17, 3/4 3-20,
and 3/4 3-24 with the attached revised pages.
No change has been made on pages 3/4 3-16,
3/4 3-17, 3/4 3-19 and 3/4 3-23.

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TABLE 3.3-3 (Continued)

TABLE NOTATION

- (a) Trip function may be bypassed when pressurizer pressure is < 1750 psia; bypass shall be automatically removed when pressurizer pressure is ≥ 1750 psia.
- (b) An SIAS signal is first necessary to enable CSAS logic.
- (c) Trip function may be bypassed below 600 psia; bypass shall be automatically removed at or above 600 psia.
- (d) Each channel has two sensors, high radiation level on either sensor will initiate containment purge valve isolation.
- (e) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.

ACTION STATEMENTS

- ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in COLD SHUTDOWN within the next 36 hours.
- ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels and with the pressurizer pressure:
- a. < 1750 psia; immediately place the inoperable channel in the bypassed condition; restore the inoperable channel to OPERABLE status prior to increasing the pressurizer pressure above 1750 psia.
 - b. ≥ 1750 psia, operation may continue with the inoperable channel in the bypassed condition, provided the following conditions are satisfied:
 - 1. All functional units receiving an input from the bypassed channel are also placed in the bypassed condition.
 - 2. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 2 hours for surveillance testing per Specification 4.3.2.1 provided one of the inoperable channels is placed in the tripped condition.

TABLE 3.3-3 (Continued)

ACTION 8 - With one or more channels inoperable, operation may continue provide the containment purge valves are maintained closed.

MILLSTONE - UNIT 2

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TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 5 psig	≤ 5 psig
c. Pressurizer Pressure - Low	≥ 1600 psia	≥ 1600 psia
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High-High	≤ 27 psig	≤ 27 psig
3. CONTAINMENT ISOLATION (CIAS)		
a. Manual CIAS (Trip Buttons)	Not Applicable	Not Applicable
b. Manual SIAS (Trip Buttons)	Not Applicable	Not Applicable
c. Containment Pressure - High	≤ 5 psig	≤ 5 psig
d. Pressurizer Pressure - Low	≥ 1600 psia	≥ 1600 psia
4. MAIN STEAM LINE ISOLATION		
Steam Generator Pressure - Low	≥ 500 psia	≥ 500 psia

TABLE 3.3-4 (Continued)ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
5. ENCLOSURE BUILDING FILTRATION (EBFAS)		
a. Manual EBFAS (Trip Buttons)	Not Applicable	Not Applicable
b. Manual SIAS (Trip Buttons)	Not Applicable	Not Applicable
c. Containment Pressure - High	≤ 5 psig	≤ 5 psig
d. Pressurizer Pressure - Low	≥ 1600 psia	≥ 1600 psia
6. CONTAINMENT SUMP RECIRCULATION (SRAS)		
a. Manual SRAS (Trip Buttons)	Not Applicable	Not Applicable
b. Refueling Water Storage Tank - Low	30 inches above tank bottom	30 inches above tank bottom
7. CONTAINMENT PURGE VALVES ISOLATION		
a. Manual CIAS (Trip Buttons)	Not Applicable	Not Applicable
b. Manual SIAS (Trip Buttons)	Not Applicable	Not Applicable
c. Automatic CIAS Actuation Logic	Not Applicable	Not Applicable
d. Containment Radiation - High		
Gaseous Activity	9100 cpm	9100 cpm
Particulate Activity	1.0×10^6 cpm/hr	1.0×10^6 cpm/hr

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
8. LOSS OF POWER		
a. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level one	≥ 2912 volts	≥ 2912 volts
b. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level two	≥ 3700 volts with an 8.0 ± 2.0 second time delay	≥ 3700 volts with an 8.0 ± 2.0 second time delay

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Amendment No. 13

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. SAFETY INJECTION (SIAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Pressurizer Pressure - Low	S	R	M	1, 2, 3
d. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure -- High - High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
3. CONTAINMENT ISOLATION (CIAS)				
a. Manual CIAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Manual SIAS (Trip Buttons)	N.A.	N.A.	R	N.A.
c. Containment Pressure - High	S	R	M	1, 2, 3
d. Pressurizer Pressure - Low	S	R	M	1, 2, 3
e. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
4. MAIN STEAM LINE ISOLATION				
a. Steam Generator Pressure - Low	S	R	M	1, 2, 3
b. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
5. ENCLOSURE BUILDING FILTRATION (EBFAS)				
a. Manual EBFAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Manual SIAS (Trip Buttons)	N.A.	N.A.	R	N.A.
c. Containment Pressure - High	S	R	M	1, 2, 3
d. Pressurizer Pressure - Low	S	R	M	1, 2, 3
e. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
6. CONTAINMENT SUMP RECIRCULATION (SRAS)				
a. Manual SRAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Refueling Water Storage Tank - Low	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
7. CONTAINMENT PURGE VALVES ISOLATION				
a. Manual CIAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Manual SIAS (Trip Buttons)	N.A.	N.A.	R	N.A.
c. Automatic CIAS Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
d. Containment Radiation - High Gaseous Monitor	S	R	M	ALL MODES
Particulate Monitor	S	R	M	ALL MODES
8. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level one	S	R	M	1, 2, 3
b. 4.16 kv Emergency Bus Undervoltage (Undervoltage relays) - level two	S	R	M	1, 2, 3

MILLSTONE - UNIT 2

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Amendment No. 13



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 TO LICENSE NO. DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

Introduction

By application for license amendment dated May 26, 1976, Northeast Nuclear Energy Company (NNECO) requested a change to the Technical Specifications for Millstone Unit No. 2. The proposed change would eliminate the required use of the Turbine Runback feature of the Engineered Safety Feature Actuation System.

In reviewing the application for license amendment dated May 26, 1976, we found it necessary to modify the proposed Technical Specifications in order to meet our requirements. The changes in the proposed Technical Specifications were made with the concurrence of NNECO.

Discussion

The Turbine Runback feature is part of a safety system designed to mitigate the consequences of a control rod drop. The control rod drop incident, analyzed in Section 14 of the Millstone Unit No. 2 Final Safety Analysis Report (FSAR), assumes that the single most reactive Control Element Assembly (CEA) accidentally drops to its fully inserted position. The reactor, which has been operating at full power, experiences a highly skewed (and hence a highly peaked) radial power distribution and also a power reduction. If the dropped CEA were to go undetected, the auto-sequential mode of the reactor control system* would attempt to return the reactor to full power by withdrawing available CEA's since the turbine demand would still be set at full power. The coincidence of full power conditions and a highly skewed power distribution might lead to violation of the DNB design limit.

Under expected operating conditions, a dropped CEA would not result in the violation of the DNB design limit since (1) a dropped CEA would be detected, (2) CEA withdrawal would be inhibited, and (3) the turbine

*Under auto-sequential control, the reactor control system automatically adjusts the control rods so that reactor power matches turbine demand via the preprogrammed linear relationship between average reactor coolant temperature, T avg., and turbine power demand. Thus, a decrease in reactor power, with consequent decrease in T avg., will cause the reactor to automatically withdraw CEA's, in a predetermined order, to increase T avg. to match turbine power. We refer to this as "the reactor following the turbine".

would be "runback" (power demand decreased) to 70% power. Although a skewed power distribution would still result, its occurrence at the decreased power level prevents violation of the DNB design limit.

However, actual operating experience with the turbine runback feature has proved unsatisfactory. Spurious dropped rod signals have resulted in turbine runbacks during normal full power operation. The resulting transients have resulted in curtailed power generation and also cause the nuclear steam supply system to undergo unnecessary thermal and pressure stresses. Accordingly, NNECC has proposed that required use of the Turbine Runback feature be deleted from the Technical Specifications.

Evaluation

In support of their application for license amendment dated May 26, 1976, NNECO presented a new dropped rod analysis which updates the analysis contained in Section 14 of the FSAR. This revised analysis assumed that the reactor was initially operating under steady state conditions with a Peak Linear Heat Generation Rate (PLHGR) of 16.5 kW/ft. During the subsequent dropped rod transient, the minimum DNBR was calculated to be 1.34 as compared with a DNBR design limit of 1.30. It is significant that this transient yielded acceptable results (no violation of the DNB safety limit) even though the Turbine Runback feature was not utilized. By letter dated June 22, 1976, NNECO informed us that this revised dropped rod transient was performed prior to receipt of Operating License No. DPR-65 although not formally submitted. Thus, there presently exists an inconsistency between the Technical Specifications and the most recent dropped rod analysis; the Technical Specifications require the operability of the Turbine Runback feature for which credit was not taken in the more recent analysis.

Elimination of the Turbine Runback feature will not reduce safety margin since the supporting analysis, described above, did not take credit for this feature. Moreover, since the Turbine Runback feature was intended only to mitigate the consequences of a dropped rod, elimination of this feature will not effect the probability of occurrence of a dropped rod or the ability to detect a dropped rod should it occur. Accordingly, it is appropriate to delete the operability and surveillance requirements for the Turbine Runback instrumentation channels, contained in Technical Specifications 3.3.2.1 and 4.3.2.1.1, respectively.

Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 13 TO LICENSE NO. DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

Introduction

By application for license amendment dated May 26, 1976, Northeast Nuclear Energy Company (NNECO) requested a change to the Technical Specifications for Millstone Unit No. 2. The proposed change would eliminate the required use of the Turbine Runback feature of the Engineered Safety Feature Actuation System.

In reviewing the application for license amendment dated May 26, 1976, we found it necessary to modify the proposed Technical Specifications in order to meet our requirements. The changes in the proposed Technical Specifications were made with the concurrence of NNECO.

Discussion

The Turbine Runback feature is part of a safety system designed to mitigate the consequences of a control rod drop. The control rod drop incident, analyzed in Section 14 of the Millstone Unit No. 2 Final Safety Analysis Report (FSAR), assumes that the single most reactive Control Element Assembly (CEA) accidentally drops to its fully inserted position. The reactor, which has been operating at full power, experiences a highly skewed (and hence a highly peaked) radial power distribution and also a power reduction. If the dropped CEA were to go undetected, the auto-sequential mode of the reactor control system* would attempt to return the reactor to full power by withdrawing available CEA's since the turbine demand would still be set at full power. The coincidence of full power conditions and a highly skewed power distribution might lead to violation of the departure from nucleate boiling (DNB) design limit.

Under expected operating conditions, a dropped CEA would not result in the violation of the DNB design limit since (1) a dropped CEA would be detected, (2) CEA withdrawal would be inhibited, and (3) the turbine

*Under auto-sequential control, the reactor control system automatically adjusts the control rods so that reactor power matches turbine demand via the preprogrammed linear relationship between average reactor coolant temperature, T avg., and turbine power demand. Thus, a decrease in reactor power, with consequent decrease in T avg., will cause the reactor to automatically withdraw CEA's, in a predetermined order, to increase T avg. to match turbine power. We refer to this as "the reactor following the turbine".

would be "runback" (power demand decreased) to 70% power. Although a skewed power distribution would still result, its occurrence at the decreased power level prevents violation of the DNB design limit.

However, actual operating experience with the turbine runback feature has proved unsatisfactory. Spurious dropped rod signals have resulted in turbine runbacks during normal full power operation. The resulting transients have resulted in curtailed power generation and also cause the nuclear steam supply system to undergo unnecessary thermal and pressure stresses. Accordingly, NNECO has proposed that required use of the Turbine Runback feature be deleted from the Technical Specifications.

Evaluation

In support of their application for license amendment dated May 26, 1976, NNECO presented a new dropped rod analysis which updates the analysis contained in Section 14 of the FSAR. The analysis presented in Section 14 of the FSAR indicated that with turbine runback, the accidental drop of the most reactive control rod yields a minimum DNBR of 1.66. NNECO's revised analysis assumed that the reactor was initially operating under steady state conditions with a Peak Linear Heat Generation Rate (PLHGR) of 16.5 kW/ft. In NNECO's analysis of the subsequent dropped rod transient, which we evaluated and found to be acceptable, the minimum DNBR was calculated to be 1.34 as compared with the DNBR design limit of 1.30. It is significant that this transient yielded acceptable results (no violation of the DNB design limit) even though the Turbine Runback feature was not utilized.

Since the previous analysis presented in Section 14 of the FSAR did not consider a dropped rod without turbine runback, it is not possible to compare the decrease in DNBR between the two analyses. However, based upon the acceptable results presented in support of the application for license amendment dated May 26, 1976, it is appropriate to delete the operability and surveillance requirements for the Turbine Runback instrumentation channels, contained in Technical Specifications 3.3.2.1 and 4.3.2.1.1, respectively.

Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5 (d)(4), that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: August 31, 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-336

NORTHEAST NUCLEAR ENERGY COMPANY
THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY, AND
WESTERN MASSACHUSETTS ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 13 to Facility Operating License No. DPR-65 issued to Northeast Nuclear Energy Company, The Connecticut Light and Power Company, The Hartford Electric Light Company, and Western Massachusetts Electric Company, which revised Technical Specifications for operation of the Millstone Nuclear Power Station, Unit No. 2, located in the Town of Waterford, Connecticut. The amendment is effective as of its date of issuance.

The amendment modifies the Technical Specifications to eliminate the required operability and surveillance of the Turbine Runback feature of the Engineered Safety Feature Actuation System.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Notice of Proposed Issuance of Amendment to Facility Operating License in connection with this action was published in the FEDERAL REGISTER on July 22, 1976 (41 FR 30225). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

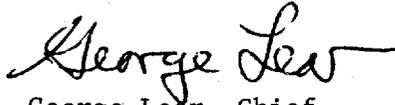
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR 851.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated May 26, 1976 and supplements dated June 14, 1976 and June 22, 1976, (2) Amendment No. 13 to License No. DPR-65, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Waterford Public Library, Rope Ferry Road, Route 156, Waterford, Connecticut 06385.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 31 st day of August, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors