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Recovery Officer - Technical Services
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c/o Ms. Patricia A. Loftus
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P. O. Box 128
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May 27, 1998

SUBJECT: ISSUANCE OF AMENDMENT - MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3 (TAC NO. MA1421)

Dear Mr. Bowling:

The Commission has issued the enclosed Amendment No. 160 to Facility Operating License No. NPF-49 for the Millstone Nuclear Power Station, Unit No. 3, in response to your application dated April 7, 1998.

The amendment replaces the pressurizer maximum water inventory requirement with a pressurizer maximum indicated level requirement. The amendment also makes editorial changes and modifies the associated Bases section.

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:
James W. Andersen, Project Manager
Special Projects Office - Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 160 to NPF-49
2. Safety Evaluation

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

May 27, 1998

Mr. Martin L. Bowling, Jr.
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Northeast Nuclear Energy Company
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 160
License No. NPF-49

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

   A. The application for amendment by Northeast Nuclear Energy Company, et al. (the licensee) dated April 7, 1998, 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.

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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. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 160, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

for 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 27, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 160

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

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

Remove	Insert
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x	x
xiii	xiii
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-	3/4 4-11a
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REACTOR COOLANT SYSTEM

3/4.4.3 PRESSURIZER

STARTUP AND POWER OPERATION

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with:

a. at least two groups of pressurizer heaters supplied by emergency power, each having a capacity of at least 175 kW; and

b. water level maintained at programmed level +/-6% of full scale (Figure 3.4-5).

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With only one group of pressurizer heaters supplied by emergency power OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.

b. With pressurizer water level outside the parameters described in Figure 3.4-5, within 2 hours restore programmed level to within +/- 6% of full scale, or be in at least HOT STANDBY within the next 6 hours.

c. With the pressurizer otherwise inoperable, be in at least HOT STANDBY with the Reactor Trip System breakers open within 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water level shall be verified to be within programmed level +/- 6% of full scale at least once per 12 hours.

4.4.3.1.2 The capacity of each of the above required groups of pressurizer heaters supplied by emergency power shall be verified by energizing the heaters and measuring circuit current at least once each refueling interval.

PRESSURIZER LEVEL CONTROL

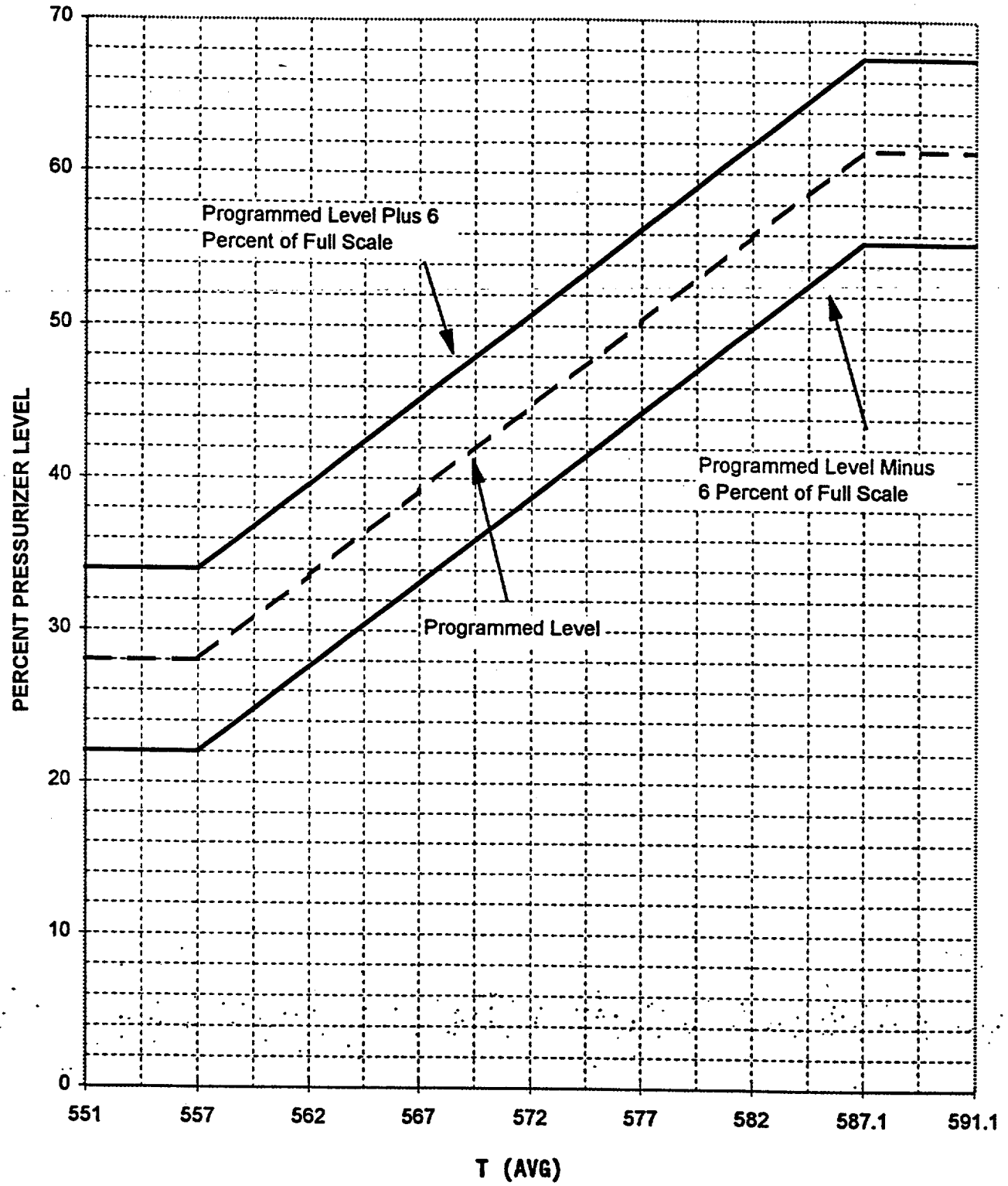

FIGURE 3.4-5

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.3.2 The pressurizer shall be OPERABLE with:

a. at least two groups of pressurizer heaters supplied by emergency power, each having a capacity of at least 175 kW; and

b. water level less than or equal to 89% of full scale.

APPLICABILITY: MODE 3

ACTION:

a. With only one group of pressurizer heaters supplied by emergency power OPERABLE, restore at least two groups to OPERABLE status within 72 hours of being declared inoperable, or be in HOT SHUTDOWN within the following 6 hours.

b. With the pressurizer otherwise inoperable, be in HOT SHUTDOWN within 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The pressurizer water level shall be determined to be less than or equal to 89% of full scale at least once per 12 hours.

4.4.3.2.2 The capacity of each of the above required groups of pressurizer heaters supplied by emergency power shall be verified by energizing the heaters and measuring circuit current at least once each refueling interval.

3/4.4.2 SAFETY VALVES

The pressurizer Code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2750 psia. Each safety valve is designed to relieve 420,000 lbs per hour of saturated steam at the valve Setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Cold Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperatures.

During operation, all pressurizer Code safety valves must be OPERABLE to prevent the RCS from being pressurized above its Safety Limit of 2750 psia. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss-of-load assuming no Reactor trip until the first Reactor Trip System Trip Setpoint is reached (i.e., no credit is taken for a direct Reactor trip on the loss-of-load) and also assuming no operation of the power-operated relief valves or steam dump valves.

Demonstration of the safety valves' lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

3/4.4.3 PRESSURIZER

The pressurizer provides a point in the RCS when liquid and vapor are maintained in equilibrium under saturated conditions for pressure control purposes to prevent bulk boiling in the remainder of the RCS. Key functions include maintaining required primary system pressure during steady state operation and limiting the pressure changes caused by reactor coolant thermal expansion and contraction during load transients.

MODES 1 AND 2

The requirement for the pressurizer to be OPERABLE, with pressurizer level maintained at programmed level within ± 6% of full scale is consistent with the accident analysis in Chapter 15 of the FSAR. The accident analysis assumes that pressurizer level is being maintained at the programmed level by the automatic control system, and when in manual control, similar limits are established. The programmed level ensures the capability to establish and maintain pressure control for steady state operation and to minimize the consequences of potential overpressure and pressurizer overfill transients. A pressurizer level control error based upon automatic level control has been taken into account for those transients where pressurizer overfill is a concern (e.g., loss of feedwater, feedwater line break, and inadvertent ECCS actuation at power). When in manual control, the goal is to maintain pressurizer level at the program level value. The ±6 % of full scale acceptance criterion in the Technical Specification establishes a band for operation to accommodate variations between level measurements. This value is bounded by the margin applied to the pressurizer overfill events.

3/4.4.3 PRESSURIZER (cont'd.)

The 12-hour periodic surveillances require that pressurizer level be maintained at programmed level within ± 6% of full scale. The surveillance is performed by observing the indicated level. The 12-hour interval has been shown by operating practice to be sufficient to regularly assess level for any deviation and to ensure that the appropriate level exists in the pressurizer. During transitory conditions, i.e., power changes, the operators will maintain programmed level, and deviations greater than 6% will be corrected within 2 hours. Two hours has been selected for pressurizer level restoration after a transient to avoid an unnecessary downpower with pressurizer level outside the operating band. Normally, alarms are also available for early detection of abnormal level indications.

Electrical immersion heaters, located in the lower section of the pressurizer vessel, keep the water in the pressurizer at saturation temperature and maintain a constant operating pressure. A minimum required available capacity of pressurizer heaters ensures that the RCS pressure can be maintained. The capability to maintain and control system pressure is important for maintaining subcooled conditions in the RCS and ensuring the capability to remove core decay heat by either forced or natural circulation of the reactor coolant. Unless adequate heater capacity is available, the hot high-pressure condition cannot be maintained indefinitely and still provide the required subcooling margin in the primary system. Inability to control the system pressure and maintain subcooling under conditions of natural circulation flow in the primary system could lead to a loss of single-phase natural circulation and decreased capability to remove core decay heat.

The LCO requires two groups of OPERABLE pressurizer heaters, each with a capacity of at least 175 kW, capable of being powered from either the offsite power source or the emergency power supply. The minimum heater capacity required is sufficient to maintain the RCS near normal operating pressure when accounting for heat losses through the pressurizer insulation. By maintaining the pressure near the operating conditions, a wide margin to subcooling can be obtained in the loops. The emergency power supply requirements for the heaters provides assurance that the heaters can be energized during a loss of offsite power condition to maintain natural circulation at HOT STANDBY.

If one required group of pressurizer heaters is inoperable, restoration is required within 72 hours. The Completion Time of 72 hours is reasonable considering that a demand caused by loss of offsite power would be unlikely in this time period. Pressure control may be maintained during this time using normal station powered heaters.

MODE 3

The requirement for the pressurizer to be OPERABLE, with a level less than or equal to 89%, ensures that a steam bubble exists. The 89% level preserves the steam space for pressure control. The 89% level has been established to ensure the capability to establish and maintain pressure control for MODE 3 and to ensure a bubble is present in the pressurizer. Initial pressurizer level is not significant for those events analyzed for MODE 3 in Chapter 15 of the FSAR.

3/4.4.3 PRESSURIZER (cont'd.)

The 12-hour periodic surveillance requires that during MODE 3 operation, pressurizer level is maintained below the nominal upper limit to provide a minimum space for a steam bubble. The surveillance is performed by observing the indicated level. The 12-hour interval has been shown by operating practice to be sufficient to regularly assess level for any deviation and to ensure that a steam bubble exists in the pressurizer. Alarms are also available for early detection of abnormal level indications.

The basis for the pressurizer heater requirements is identical to MODES 1 and 2.

3/4.4.4 RELIEF VALVES

The power-operated relief valves (PORVs) and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the PORVs minimizes the undesirable opening of the spring-loaded pressurizer Code safety valves. Each PORV has a remotely operated block valve to provide a positive shutoff capability should a relief valve become inoperable. Requiring the PORVs to be OPERABLE ensures that the capability for depressurization during safety grade cold shutdown is met.

Action statements a, b, and c distinguishes the inoperability of the power operated relief valves (PORV). Specifically, a PORV may be designated inoperable but it may be able to manually open and close and therefore, able to perform its function. PORV inoperability may be due to seat leakage, instrumentation problems, automatic control problems, or other causes that do not prevent manual use and do not create a possibility for a small-break LOCA. For these reasons, the block valve may be closed but the action requires power to be maintained to the valve. This allows quick access to the PORV for pressure control. On the other hand if a PORV is inoperable and not capable of being manually cycled, it must be either restored or isolated by closing the associated block valve and removing power.

The prime importance for the capability to close the block valve is to isolate a stuck-open PORV. Therefore, if the block valve(s) cannot be restored to operable status within 1 hour, the remedial action is to place the PORV in manual control (i.e. the control switch in the "CLOSE" position) to preclude its automatic opening for an overpressure event and to avoid the potential of a stuck-open PORV at a time that the block valve is inoperable. The time allowed to restore the block valve(s) to operable status is based upon the remedial action time limits for inoperable PORV per ACTION requirements b and c. These actions do not specify closure of the block valves because such action would not likely be possible when the block valve is inoperable.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 160

TO FACILITY OPERATING LICENSE NO. NPF-49

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated April 7, 1998, the Northeast Nuclear Energy Company, et al. (the licensee), submitted a request for changes to the Millstone Nuclear Power Station, Unit No. 3 Technical Specifications (TS). The requested changes would replace the pressurizer maximum water inventory requirement with a pressurizer maximum indicated level requirement. The proposed amendment would also make editorial changes and modify the associated Bases section.

2.0 EVALUATION

TS 3.4.3 specifies the maximum pressurizer water level to preserve the necessary steam space for pressure control during steady state plant operation and to minimize the consequences of potential overpressure and pressurizer overfill transients. Specifically, TS 3.4.3, in part, requires a pressurizer water volume of less than or equal to 92 percent (1656 cubic feet) and is applicable to Modes 1, 2, and 3. However, the accident analyses in Chapter 15 of the Final Safety Analysis Report (FSAR) assume that the pressurizer level is being maintained at the programmed level, which is a curve that varies linearly from 28 percent for hot zero power to 61.5 percent for full power operations at Millstone Unit 3. Therefore, TS 3.4.3, as currently written is not consistent with the safety analyses assumptions documented in Chapter 15 of the FSAR. In its April 7, 1998, letter, the licensee proposed changes to TS 3.4.3 to resolve this inconsistency. The second part of TS 3.4.3 discusses requirements for the pressurizer heaters and is not changed in the proposed amendment request.

In the April 7, 1998, letter, the licensee proposed to expand the current TS 3.4.3 into two separate TS (TS 3.4.3.1 and TS 3.4.3.2). TS 3.4.3.1 will be applicable to Modes 1 and 2. TS Figure 3.4-5 provides the curves of programmed pressurizer level and the operational limits (programmed level +/- 6 percent) for power operation. Limiting Condition for Operation (LCO) 3.4.3.1 requires that the pressurizer water level be maintained at a programmed level +/-6 percent of full scale. This proposed TS will bound the assumed initial conditions for those transients where pressurizer overfill is a concern (e.g., loss of feedwater, feedwater line break,

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and inadvertent actuation of safety injection system at power). The +/- 6 percent of full scale acceptance criterion in the TS covers the instrumentation uncertainties.

Proposed TS 3.4.3.2 will be applicable to Mode 3. LCO 3.4.3.2 will require that the pressurizer be operable with a water level less than or equal to 89 percent of full scale. This requirement provides indication that a steam bubble in the pressurizer exists and it also perserves the necessary steam space for pressure control in Mode 3. There is no significant concern regarding the initial pressurizer level in Mode 3 with respect to the safety analyses.

The staff has reviewed the licensee's request and finds that proposed TS 3.4.3.1 and TS 3.4.3.2 are conservative and consistent with the safety analyses documented in Chapter 15 of the Millstone Unit 3 FSAR. Therefore, the staff has concluded the changes are acceptable. The staff has also reviewed the editorial changes and finds them 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 (63 FR 20219 dated April 23, 1998). 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.

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