

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
NEW YORK WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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August 7, 1990

Docket No. 50-336
B13577

Re: 10CFR50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
Proposed Change to Technical Specifications
Refueling Operations

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Operating License No. DPR-65 by incorporating the changes identified in Attachment 1 into the Technical Specifications of Millstone Unit No. 2.

Specifically, the proposed Technical Specification change to Section 3.9.3.2 will require that the Spent Fuel Pool (SFP) bulk temperature be maintained below 140°F at all times. This proposed Limiting Condition for Operation (LCO) would be applicable at all times as compared to the existing specification only being applicable in Modes 5 and 6 for 504 hours from subcriticality following a 1/3 core offload. Action statements will be added to require immediate actions to restore the temperature below 140°F and to record SFP temperature at least once per 4 hours if the Limiting Condition for Operation is not satisfied. The surveillance requirement will also be revised to monitor the SFP temperature every 12 hours. Also, the Bases Section 3/4.9.3 will be modified to reflect these proposed changes to Technical Specification 3.9.3.2.

Discussion

The existing Technical Specification 3/4.9.3.2, "Decay Time," states that two trains of SFP cooling must be operable whenever the most recent 1/3 core offload has decayed less than 504 hours (21 days) from subcriticality. It also states that this specification is not applicable if shutdown cooling (SDC) is being used to cool the spent fuel pool.

The existing Technical Specification requires that both trains of SFP cooling be operable because the highly conservative assumptions made in the design basis analysis for the latest spent fuel pool reracking showed that both trains were required to maintain SFP temperature below 140°F. SDC was required to cool the SFP if one train of SFP cooling was inoperable because

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this conservative analysis showed that the other train of SFP cooling was incapable of maintaining the pool below 140°F with the most recent 1/3 core offload decayed less than 504 hours.

Based on operational experience, the SFP can, at most times, be maintained below 140°F using only one train of SFP cooling with the most recent 1/3 core decayed less than 504 hours. The ability to maintain cooling with only one train is a function of the number and residence time of the fuel assemblies in the pool and the temperature of the cooling water. Because of the conservative nature of the analysis, it overestimates heat loads, underestimates cooling capabilities and does not account for passive cooling mechanisms.

The proposed technical specification requires that the SFP be maintained below 140°F in lieu of specifying train availability. Only one train of SFP cooling could be operating if conditions allow that train to maintain the temperature below 140°F. To ensure that a single failure would not result in inadequate cooling to the SFP, the proposed Technical Specification further requires that the plant immediately take actions to restore the SFP to 140°F or less, if the temperature limit is exceeded. Technical Specification 3/4.9.3.3, which requires that the plant remain in Mode 5 or 6 for at least 504 hours from subcriticality after the most recent 1/3 core offload, remains unchanged, thus assuring that the SDC system can be made available to cool the SFP, if needed. After 504 hours, even the conservative analysis shows that one train of SFP cooling is able to maintain the pool at below 140°F.

The proposed modification to Technical Specification provides needed operational flexibility since it allows removal of one train of SFP cooling from service for maintenance of the system or supporting systems, if the other train can maintain pool temperature. For example, in a refueling outage, critical path time could be lost because one train of SFP could be out of service and Technical Specification 3.9.3.2 would not permit SDC to be isolated from the SFP. In this scenario, the refueling cavity could not be lowered for reactor vessel work, even though the one train of SFP cooling in service could maintain SFP temperature below 140°F.

Both the existing and proposed Technical Specifications require that fuel movement be suspended and the pool purification demineralizers be isolated whenever the LCO is not met. The surveillance requirement to monitor the SFP temperature at least once per 12 hours whenever the pool is less than or equal to 140°F provides assurance that this Technical Specification will be met.

Significant Hazards Consideration

The proposed technical specification change has been reviewed against the criteria of 10CFR50.92 and it has been determined not to involve a significant hazards consideration. Specifically, the proposed change does not:

- 1) Involve a significant increase in the probability or consequences of any accident previously analyzed.

The current Technical Specification LCO is applicable in Modes 5 and 6 with the most recent 1/3 core offload decayed less than 504 hours from subcriticality. There is no LCO on SFP cooling for times greater than 504 hours or in other modes. Since the proposed change requires that the SFP temperature be maintained below 140°F at all times, this LCO is more restrictive for times greater than 504 hours in Modes 5 and 6, or at any times in all other modes.

The only design basis accident considered for the SFP is the fuel-handling accident. The proposed changes do not affect the consequences of a fuel-handling accident. The other relevant event analyzed in the design basis of the SFP cooling system is a complete loss of SFP cooling (Final Safety Analysis Report [FSAR] Section 9.5.3.3). Two trains of the SFP cooling system can maintain the SFP temperature below 131°F. However, even assuming the initial pool temperature is at 140°F when the SFP cooling is lost, the minimum time to boiling (212°F) is estimated to be 8.5 hours. This estimation assumes a normal 1/3 core off-load and does not credit any passive heat losses. With the emergency heat load (i.e., complete core off-load) on the SFP under the same circumstances, the minimum time to boiling is estimated to be 3.5 hours. Both times to boiling (8.5 and 3.5 hours) are sufficient for the operator to reinitiate the SFP cooling or line-up SDC. It should be noted, Technical Specification 3.9.3.3 requires that the reactor be maintained in Modes 5 and 6 for at least 504 hours from subcriticality. Therefore, the SDC system would remain available for at least 504 hours for SFP cooling.

The SFP liner, building structures, and racks have been qualified for a maximum water temperature under accident conditions of 212°F. The SFP cooling system is qualified for a design temperature of 200°F. Therefore, even in the worst-case scenario, the proposed change would allow sufficient time to ensure the design limits of the SFP, spent fuel racks, or associated cooling systems are not exceeded.

The existing one-hour action statement to isolate the SFP cleanup demineralizers is still applicable and will protect the demineralizers from the increased temperature. Since there is no fuel movement permitted during this time period, the SFP area can be evacuated to ensure personnel safety in case of SFP heat-up.

The proposed Technical Specification will mitigate the thermal consequences of an SFP cooling system failure to the spent fuel racks by requiring immediate action, thereby reducing the duration of the event and restoring the temperature in the SFP to less than or equal to 140°F. Also, the proposed Technical Specification does not significantly increase the probability of a loss of cooling event to the spent fuel pool due to the continued availability of the SDC system within the 504 hours from reactor shutdown (subcriticality).

As stated in the proposed Bases for the proposed Technical Specification, limiting the SFP temperature to 140°F preserves personnel comfort and safety and prevents degradation of demineralizer resins. This Technical Specification has no impact on the design limits since the SFP structure, racks and all components of the SFP main cooling loop are designed to withstand temperature of at least 200°F. The requirement to immediately initiate corrective action in all modes to restore pool temperature to 140°F, if the limit is exceeded, assures that corrective actions will be taken to maintain the SFP temperature below the design limits.

- 2) Create the possibility of a new or different kind of accident. The proposed change does not affect the way the plant is operated or alter its response to any accident. The current Technical Specification specifies no temperature limit for the SFP; whereas the proposed Technical Specification limits the temperature to 140°F. The pool temperature may exceed 140°F for a short period of time, while the corrective actions are being taken. However, because of slow heat-up rate of the SFP cooling even in the worst case, there would be sufficient time available to reinitiate pool cooling which assures that pool design limits will not be exceeded. Therefore, the proposed change does not create the possibility of a new or different kind of accident.
- 3) Involve a significant reduction in margin of safety. As stated above, the current Technical Specification has no requirement that assures SFP cooling in Modes 1 through 4, or greater than 504 hours after subcriticality in Modes 5 and 6. The proposed change would specify that the SFP be maintained below 140°F at all times. The pool temperature may exceed 140°F for a short period of time if a failure occurs in the SFP cooling system; however, the existing actions specified in the proposed change assure that temperature is maintained below the design temperature of the pool, its components, fuel racks and the SFP cooling system. There is no increase in the consequences of any accident and therefore no significant reduction in the margin of safety.

The Commission has also provided guidance concerning the application of the standards in 10CFR50.92 by providing examples (51 F.R. 7751, March 6, 1986). The proposed changes described herein, in some respects, resemble example (vi). This example involves a change which either may result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component as specified in the Standard Review Plan (e.g., a change resulting from the application of a small refinement to a previously used calculational model or design method). As with this example, NNECO's proposed amendment involves no significant hazards consideration.

The Millstone Unit No. 2 Nuclear Review Board has reviewed and approved the attached proposed revision and has concurred with the above determinations.

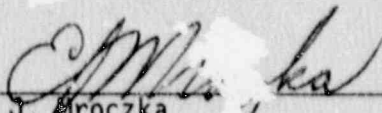
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NNECO respectfully requests that this proposed change be issued during the next refueling outage, currently planned to commence on September 15, 1990, but prior to October 1, 1990 to avoid a similar situation as noted above. NNECO also requests this license amendment be effective as of the date of its issuance, to be implemented within 30 days of issuance.

In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this proposed amendment application.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

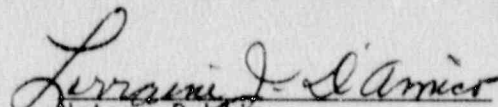

E. J. Mroczka
Senior Vice President

cc: Mr. Kevin McCarthy
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STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me, E. J. Mroczka, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensee herein, and that the statements contained in said information are true and correct to the best of his knowledge and belief.


Notary Public
My Commission Expires March 31, 1993