

TERA

# NORTHEAST UTILITIES



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PROPOSED RULE

-50(43FR57157)



Secretary of the Commission  
Attention: Docketing and Service Section  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Reference: (1) Federal Register, Volume 43, Number 235, Pages 57157 - 57159  
dated December 6, 1978.

Dear Sir:

Northeast Utilities Service Company (NUSCO), on behalf of Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO), appreciates the opportunity to offer the following comments with regard to the proposed rulemaking on acceptance criteria for emergency core cooling systems for light-water-cooled nuclear power plants.

The specific questions posed on Page 57159 of Reference (1) are addressed as follows:

## Question (1)

Under what circumstances should corrections to ECCS models be used during licensing review without necessitating complete reanalysis of a given plant or an entire group of plants?

## Comment

NUSCO believes that corrections to ECCS models for operating plants should be deemed acceptable by NRC and considered applicable to appropriate dockets if, i) the licensee/vendor demonstrates on a generic basis that the model changes/corrections do not result in a decrease in margin relative to the \$50.46 criteria; and ii) existing plant Technical Specifications remain conservative. The applicability of the generic analysis to the specific plant must be justified. Peak clad temperature (PCT) should be used as the primary figure of merit.

Also, in this case, there should not be any requirement for operating plants to reanalyze. That is, plant operation with existing Technical Specifications should be allowed to continue since they would be conservative.

If the model changes/corrections result in a decrease in margin relative to the \$50.46 criteria but the change in PCT is less than 20°F, plants should be allowed to continue operation without plant specific analyses.

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Acknowledged by card. 2/12

To incorporate these comments, Paragraph 1.b on Page 57158 should be reworded along the following lines:

"Reanalysis Requirements for Operating License Applications and Licensed Plants. The changes to 10CFR§50.34 would dispense with ECCS performance recalculations in the event of corrections to vendor ECCS computer analysis codes if it is demonstrated, on a generic basis, that either, 1) the net effect of the combined model changes reduce the peak cladding temperature or 2) the net effect of the combined model changes do not increase the peak cladding temperatures by more than 20°F from that previously calculated with the last accepted model; and if no change in plant technical specifications is involved."

Question (2)

What would be the impact of the proposed procedure-oriented and certain specific technical rule changes?

Comment

The impact would be a direct function of the nature of the changes. The NRC is encouraged to implement procedural changes in the direction of creating flexibility to incorporate technical developments. Consideration should be given to procedural changes in Phase 1 which address flexibility, timing and optional nature of modeling changes while allowing Phase 2 efforts to also involve reexamination of the Acceptance Criteria.

Question (3)

How should safety margins be quantified and how can acceptable safety margins best be specified?

Comment

The current reference point for safety margins, etc., should be the §50.46 criteria during Phase 1. No additional margin beyond (below) the criteria is required since the analysis is performed with appropriately conservative methods as prescribed in Appendix K. NUSCO believes that the procedural approach to §50.46 criteria as well as defining margin to revised limits should be re-evaluated as part of Phase 1. Consideration should be given in Phase 2 to permitting the use of "Best Estimate" calculation which more accurately simulate the complex physical phenomenon involved in a postulated LOCA. The current Appendix K conservatisms result in analysis requirements in a manner so as to make the LOCA predicted results unrealistic. Likewise, such models are not capable of properly assessing the impact of changes in input assumptions on the final results.

"Best Estimate" or realistic analysis results should be compared against a re-examined set of acceptance criteria which are ultimately linked to radiation dose with concern over public health and safety. It is recognized that both

the "Best Estimate" results and the acceptance criteria are subject to uncertainty and statistical variations. For this reason, confidence bounds must be defined for both the results and criteria. An acceptable safety margin is obtained when the upper bound of the results confidence level is at or below the lower bound of the criteria confidence level. From a statistical perspective, zero or minimal overlap in the uncertainty populations of the results and criteria distributions results in insignificant radiological consequences to the public.

NUSCO also strongly believes that the NRC should further emphasize that the purpose of any rulemaking would be to update the rule to reflect current state-of-the-art advancements and knowledge in both modeling and acceptance criteria. The proposed rulemaking must be characterized as allowing for reductions of the level of conservatism as well as accomplishing the objectives outlined in Reference (1).

#### Question (4)

What phenomena have been identified since promulgation of the ECCS rule that are significant to ECCS performance and that are not adequately considered in the existing ECCS rule, in light of current knowledge and experience, or in current licensing practices?

#### Comment

NUSCO considers that the list on Page 57158 under Phase 2 Consideration 5 is an adequate starting point for proposed revision of Appendix K. At the same time, an equally comprehensive effort must be planned to incorporate new research information into a reexamination of the acceptance criteria.

#### Question (5)

How should the ECCS rule provide for the inclusion of new research information and operating experience? Can or should this be done on a continuing basis? How should provision of acceptable margins be handled in such a process?

#### Comment

It would appear to be premature to predict the potential significance of new research information and operating experience. The extent of technical significance of new information, as well as the operational impact of existing ECCS criteria, should contribute to motivating future changes to ECCS rules, on an as-necessary basis.

In any event, the NRC should establish at the outset of the rulemaking that changes to the rule identified during the rulemaking need not be required to be incorporated in the licensing basis of operating plants on a separate basis; rather, plant specific licensing changes should be made on the basis of, and after, an integrated assessment of all changes.

Because of the substantial variation in age, original design criteria, and actual ECCS systems, some pre-defined procedural approach to implementing future changes in ECCS/LOCA criteria must be developed. The approach of grouping plants by classes which has been used in the past by NRC, e.g., on various generic concerns, SEP, etc., should be employed. Whether a separate approach is appropriate

for a limited number of older, unique plants should be addressed.

The Commission's interest in proceeding with a two-phase approach is commendable. We support Phase 1 as modified by our comments above. On the other hand, we strongly recommend delaying the initiation of Phase 2 until the completion of Phase 1. This is based upon the following reasons:

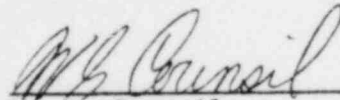
- (1) Successful completion of Phase 1 on a timely schedule will demonstrate that an ECCS rulemaking effort can be accomplished in an effective manner.
- (2) Phase 1 final findings will undoubtedly result in altering the approach to Phase 2 by clarifying the approach to questions related to margin of safety, and may direct more emphasis on reevaluating the 50.46 criteria.
- (3) Phase 2 is planned on being years in duration and waiting for completion of the six-month Phase 1 would not result in substantial delays.
- (4) Significant results are just being obtained from the NRC's sponsored LOFT program and a delay in initiation of Phase 2 would allow this program to have more effective impact on the proceedings.

Please be advised that NUSCO is encouraged that the NRC is considering a long awaited revision to the current ECCS Criteria in 10CFR50.46 as well as modeling requirements specified in Appendix K. Based upon our recollections of the rulemaking which yielded the current criteria, NUSCO is concerned that the proposed rulemaking is likely to be unnecessarily complicated and lengthy. Past maldirection of resources and resultant perception of risk with questionable contribution to health and safety of the public has resulted from undue emphasis on the LOCA as a DBA. Reinforcement of this misconception is most undesirable. Recognizing that the following comment departs dramatically from the suggestions noted above, it is nonetheless emphasized that there exists no justification for LOCA to be treated differently, either procedurally or technically, from other events analyzed in Chapter 15 of current format FSAR's.

We appreciate the opportunity to comment at this stage, and trust our remarks will be considered as these proceedings evolve.

Very truly yours,

NORTHEAST UTILITIES SERVICE COMPANY

  
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W. G. Council  
Vice President