

GENERAL ELECTRIC

NUCLEAR ENERGY
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MFN-127-77

April 1, 1977

The Honorable Marcus A. Rowden
Chairman, U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: INTERPRETATION OF 10 CFR §50.46 AND APPENDIX K

Dear Mr. Rowden:

We wish to communicate to you General Electric's experience with the overly conservative interpretation of 10 CFR §50.46 and Appendix K by the NRC Staff and its impact on construction permit licensing proceedings. We do not believe that the original intent in drafting 10 CFR §50.46 and Appendix K was to virtually stop project licensing whenever amendments to loss-of-coolant-accident (LOCA) evaluation models were proposed or made. However, we have found this to be the case in recent reviews of LOCA computer code QA audits. Policy guidance by the Commission is necessary in order to ameliorate the restrictive climate under which the Appendix K licensing actions are conducted. This letter reviews our recent experience and requests that the Commission provide guidance to the NRC Staff on this subject.

Applicants, vendors and the NRC have had over two years of experience with LOCA analysis since the ECCS rule making was completed. Although LOCA evaluation models with their numerous computer codes and analytical models were approved following the promulgation of the ECCS rules, we have found that the evaluation models require periodic audits in order to check the literally hundreds of parameters and inputs connected with each LOCA analysis. These audits are to guarantee conformance of evaluation models and inputs with the physical and nuclear properties of plants being analyzed.

Pursuant to Paragraph 1.b. of Part II of Appendix K, it is, of course, necessary to amend evaluation models to reflect significant changes that result in calculated fuel-clad temperatures different by more than 20°F from the temperature calculated in a previously accepted model. We have found in practice that the Staff believes it necessary to interrupt ongoing construction permit licensing proceedings whenever significant or potentially

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significant evaluation model changes are identified. These interruptions can result even though the change: (1) on final analysis does not result in a temperature exceeding 20°F, (2) results in a lowering of the calculated peak-clad temperature, or (3) will clearly result in a peak-clad temperature well below the 2200°F criterion. The interruption can continue until corrections are incorporated in the LOCA model, a new acceptable evaluation model is approved, and plant specific calculations based on the new model are run.

This Staff practice has recently delayed construction permit licensing and hearings on two projects. In these specific situations, both General Electric and the NRC Staff had concluded that the resultant temperature change would be minor, that in any event the calculated result would certainly not approach any of the licensing limits set forth in 10 CFR §50.46, and that the conclusions regarding issuance of construction permits would not be altered.

This Staff position appears to follow from its belief that it is necessary, prior to issuing a construction permit, to have an approved evaluation model on file, reflecting all potentially significant (i.e., having an effect greater than 20°F) information and detailed calculations with that model. While General Electric concurs with revising the LOCA models to reflect significant new information, it believes that a model revision can be accomplished without the frantic effort on the part of both General Electric and the NRC Staff with the concurrent project disruption that has accompanied these recent efforts. Certainly if the new information is so significant that its inclusion will in all probability result in calculations exceeding regulatory limits, prompt action may be dictated for operating license applications. But to date the new information has generally been preliminary and has not resulted in violation of regulatory limits; however, it has produced significant disruption of projects in the construction permit phase of licensing.

General Electric believes that these matters can be handled on an orderly basis in full compliance with all regulatory requirements. In construction permit proceedings, a commitment by the applicant to meet all ECCS criteria requirements before approval of the operating license should be sufficient to permit continuation of licensing where:

1. The applicant has demonstrated conformance to ECCS criteria using the previously or currently approved evaluation model.
2. The NRC Staff has reached a reasonable judgment that

either:

- a. The evaluation model change will not result in calculated temperatures exceeding regulatory criteria, or
 - b. There is reasonable assurance that other changes to the evaluation model or proposed equipment modifications (i.e., offsetting benefits) will result in the evaluation model change with calculated temperatures satisfying regulatory criteria.
3. An amendment of the evaluation model, or performance of calculations in accordance with a newly amended evaluation model, would interrupt or delay licensing proceedings.

Commission regulations [10 CFR §50.35(a)(2)] provide that a construction permit may be issued when all required technical information has not been supplied if such information will be supplied in the final safety analysis report and there is reasonable assurance that any safety questions will be satisfactorily resolved prior to completion of construction.

A second area of concern is the Staff determination that LOCA calculations must be repeated for operating plants each time an evaluation model is amended. As a result, expensive and time-consuming calculations are required, although the approximate magnitude of the result is already known and it is within regulatory limits (2200°F). Individual LOCA calculations cost about \$50,000, and with 35 operating BWR plants, the overall cost and time expended by General Electric and its customers becomes unreasonable. We would recommend that the Staff be permitted to exercise discretion in such cases to permit delay in performance of recalculations using new models until regulatory limits are approached. When offsetting changes are under review and likely to be approved, delay in calculations should be permitted until such changes can be taken into account.

General Electric requests that the Commission review the language of 10 CFR §50 and provide policy guidance to the NRC Staff in the areas discussed above. In particular, we recommend that this guidance provide the Staff with an opportunity for technical judgment which can permit the continuation of construction permit activities, with approved models to be required before operating licenses are issued. With regard to operating licenses, it would appear that recalculations are not required if the technical staff does not believe that model changes involved will result

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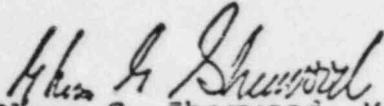
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in calculated peak-clad temperature in excess of 2200^oF.

We would be pleased to discuss any of these details more fully with you and look forward to your response on this issue.

Respectfully submitted,


Glenn G. Sherwood, Manager
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es

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Date
MARCH 2, 1977

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Increased emphasis is being put on ECCS Standard Problems by the NRC now as evidenced by this latest letter (attached) from D. F. Ross. This emphasis is partly due to the LOFT (non-nuclear) experiment which will be the next Standard Problem (#7) and will be performed about May, 1977.

A draft document, "Standard Problem Program" (attached) includes the future role of the Standard Problem Program in licensing. The NRC has requested comments on this document at the next Standard Problem meeting on March 17 and 18, 1977. Your comments are requested by March 14.

HAB:dsf

Attachments

cc: G. E. Kulynych
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Abstract

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