



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

JAN 8 1977

Mr. Myer Bender, Chairman
Advisory Committee on Reactor
Safeguards
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Bender:

REQUEST FOR INTERPRETATION OF THE COMMITTEE COMMENTS ON DAVIS BESSE
UNIT 1

It is the staff's practice to address in a Supplement to its Safety Evaluation Report the formal comments on a specific application made by the Advisory Committee on Reactor Safeguards, and as presented in the Committee's report to the Chairman of the Nuclear Regulatory Commission. In accord with this practice, we have reviewed the Committee's comments on its review of the Davis Besse Nuclear Power Station, Unit 1; these comments are presented in your report dated January 14, 1977. In order that the staff's response to the Committee's comments are consistent with the Committee's intent, it is essential that the staff's interpretation of that intent be correct. The degree of uncertainty in the staff's mind as to the correctness of the interpretation it has made of two of the Committee's comments in its January 14, 1977 report is sufficient to warrant a request to the Committee to verify the correctness of those interpretations.

The first matter involves the following comment relating to seismic design margins:

The structures and components of Davis-Besse, Unit 1, were designed for a Safe Shutdown Earthquake (SSE) acceleration of 0.15g at the foundation level. Because of changes in the regulatory approach to selection of seismic design bases, the Committee believes that an acceleration of 0.20g would be more appropriate for the SSE acceleration at a site such as this in the Central Stable Region. The Applicant presented the results of preliminary calculations concerning the safety margins of the plant for an SSE acceleration of 0.20g. The Committee recommends that the

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NRC Staff review this aspect of the design in detail and assure itself that significant margins exist in all systems required to accomplish safe shutdown of the reactor and continued shutdown heat removal, in the event of an SSE at this higher level. The Committee believes that such an evaluation need not delay the start of operation of Davis-Besse, Unit 1. The Committee wishes to be kept informed.

We are uncertain of the Committee's intent with respect to its recommendation that the staff review the design in detail and assure itself that significant margins exist in all systems in the event of an SSE of 0.20g. One interpretation that could be made of this recommendation would involve an extensive analysis program by the licensee to assess the response of all structural components, mechanical components, and electrical and instrumentation components to a 0.20g seismic event. This program, and the staff involvement in it, would involve a costly undertaking that would not likely be completed until a year or two after commercial operation. We hesitate to accept this interpretation, because we view the value of such an undertaking not to warrant the impact or cost to the staff and licensee. However, it is difficult to develop an alternative interpretation that would be consistent with the Committee's terminology; i.e., review the design in detail, significant margins, all systems, SSE of 0.20g. We believe an examination of the stresses in selected components in essential systems for the 0.15g design basis earthquake with a determination of the importance of the SSE-induced stress (or OBE-induced stress if it is controlling) to the overall stress, and a qualitative assessment of the adequacy of those resultant margins for a slightly increased seismic event, taking into account important effects such as those associated with deconvolution, spectra, damping, etc., should be sufficient to provide adequate assurance of safety. We attempted to orally provide this type of assessment to the Committee at its January 6, 1977 meeting, but, on the basis of the Committee's letter, failed to provide an entirely convincing argument. However, on the basis of all our discussions with the Committee on the Davis Besse application, we believe an interpretation of the Committee's report that expands somewhat on this latter approach is more consistent with the Committee's intent than one that is based on a literal reading of the Committee's statement. Accordingly, we have asked the applicant to assume an SSE of 0.20g at the surface, currently accepted procedures for deconvolution, and response spectra and damping values in accordance with current staff practice, and then to calculate the response of selected components in systems needed for safe shutdown. The components would

be selected on the basis of previous calculations as those likely to envelope the response of all system components. If the results of the calculation are within current acceptance limits for the loading condition analyzed it will be concluded that an adequate safety margin exists. We expect this task will require several weeks work.

The second matter involves the following comment relating to means for evaluating accidents:

The Committee recommends that, prior to commercial power operation of Davis-Besse, Unit 1, additional means for evaluating the cause and likely course of various accidents, including those of very low probability, should be in hand in order to provide improved bases for timely decisions concerning possible off-site emergency measures. The Committee wishes to be kept informed.

We are uncertain of the intent of the Committee's comment. We are interpreting it to be consistent with the discussions initiated by J. Ebersole on recent operating license applications reviewed by the Committee. The matter initially raised by Mr. Ebersole relates to system or plant conditions that are beyond the design basis conditions that the staff currently requires to be addressed. For example, the staff does not require the condition of loss of all alternating current power to be addressed in an application. The Committee's comment is being interpreted to require that events of this type, which the staff has heretofore not required be considered because of the low likelihood of occurrence in situations which could lead to serious safety problems, be analyzed by the applicant and additional means be in hand, prior to commercial operation, to evaluate the cause and likely course of such events (or accidents, in the words of the Committee). There are an unlimited number of degraded situations of low probability that can occur in a power plant. Our current staff policy is not to require consideration of any of these low probability events. We believe that the practice followed by the staff, currently and in the past, and approved by the Committee in the past, provides an adequate degree of safety. In view of this we are interpreting the Committee's comment to relate to those specific degraded plant conditions, beyond the staff's requirements, that were identified by Committee members during its January meeting. Further, we will assume that the development of written procedures by the applicant to be available to the operating staff will constitute acceptable "additional means." The applicant

expects to have procedures available prior to commercial operation for (1) total loss of alternating current power, (2) momentary loss of direct current power, (3) short-term loss of all service water, and (4) degraded steam generator level control.

This second matter, unlike the first matter, is applicable to all plants. Surely the matter is not of major safety significance since plants other than Davis Besse, Unit 1, are currently being licensed without the matter being addressed at all, or in a less rigorous manner than required of the Davis Besse, Unit 1, applicant. In view of the lack of justified immediate safety concern and the general applicability of the matter, it would appear that this matter could be more efficiently considered as a generic item than one that might be addressed on some plants late in their review schedules. We would appreciate the Committee's view on this consideration.

If either of the interpretations we have made of the two Committee comments discussed above are counter to the intent of the Committee, we would appreciate prompt notification to this effect along with a more definitive description of the Committee's true intent.

Sincerely,

Original Signed by
Ben C. Rusche

Ben C. Rusche, Director
Office of Nuclear Reactor Regulation

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