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127

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

July 31, 1989

MEMORANDUM FOR: James M. Taylor
Acting Executive Director for Operations

Raymond F. Fraley, Executive Director
Advisory Committee on Reactor Safeguards

FROM: Samuel J. Chilk, Secretary

SUBJECT: STAFF REQUIREMENTS - BRIEFING ON THE
APPLICATION OF THE SEVERE ACCIDENT POLICY
TO THE LEAD APPLICATION FOR ADVANCED LIGHT
WATER REACTORS, 10:00 A.M., TUESDAY, JUNE
20, 1989, COMMISSIONERS' CONFERENCE ROOM,
ONE WHITE FLINT NORTH, ROCKVILLE, MARYLAND
(OPEN TO PUBLIC ATTENDANCE)

The Commission was briefed by the staff on the review status of General Electric's (GE) submittal of an Advanced Boiling Water Reactor (ABWR) for design certification. The briefing included a discussion of proposed methods for resolving severe accident and other safety issues.

In order to assist the Commission in making policy decisions, the Commission requests the staff to:

- a. Submit to the Commission a paper describing the status of efforts to develop an updated source term analytical methodology that takes into account current knowledge on the subject. Discuss the extent to which the current deterministically-established source term (TID-14844) can be updated or otherwise improved, based upon the knowledge now available, while still adhering to the deterministic approach. Address constraints of any kind which preclude regulatory application of an updated, more realistic source term in the licensing basis for future reactors, including the GE ABWR, such as implication for other areas of the Commission's regulations currently based upon

or affected by the TID-14844 source term. Explain how the schedule for any update of the source term is tied to current containment performance studies. Where the staff is of the view that uncertainties in current knowledge exist, the staff should discuss these uncertainties and explain the significance of any such uncertainties with

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128

respect to potential regulatory applications of the updated source term information. If the existing source term (TID-14844) is used for the ABWR licensing basis, discuss the need for any departure from the approaches set forth in the Standard Review Plan or relevant Regulatory Guides for the calculation of offsite doses in licensing basis analyses (e.g., giving credit for non-safety related equipment for fission product retention).
(EDO) (SECY Suspense: 10/30/89)

b. Submit to the Commission a paper describing:

1. Developments since September 6, 1988, which have led the staff to conclude that establishing severe accident requirements for future reactors, including the ABWR, by generic rulemaking (as described in SECY-88-248 and staff's December 1, 1988 memorandum) is no longer the preferred approach. Include a summary of the two workshops that have been conducted on this subject. Describe how these developments have affected or otherwise altered each of the policy, technical, legal, and schedular considerations discussed in SECY-88-248. Address the impact of formally preparing a rule in parallel with the standard plant reviews. Include the updated schedules for review of the GE ABWR, the Combustion Engineering System 80+, and the Westinghouse SP/90.

2. The severe accident issues, based upon current knowledge including the staff's review of the GE ABWR to date, that staff is proposing to be addressed in the applications for future reactors. Include the criteria staff proposes to use to judge the acceptability of a future design with respect to each issue.

3. The measures to ensure that systems and equipment required only to mitigate severe accidents are

available to perform their intended function (e.g.,
environmental qualification, etc.).
(EDO) (SECY Suspense: 9/15/89)

c. Submit to the Commission a paper describing:

1. Those instances to date where, in the review of the GE ABWR and in the discussions with GE, the staff would propose to go beyond what is currently required by the regulations or the Standard Review Plan, as well as those instances where the staff would propose an approach that does not go as far as either current

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129

regulations or the Standard Review Plan would require (e.g., the relationship of the operating basis earthquake to the safe shutdown earthquake, station blackout requirements, etc.). In each such instance, the staff should explain whether the proposed approach involves an issue that is unique to the GE ABWR or that is generic in nature, and the basis for the staff's conclusion.

2. The proposed ABWR containment vent design. Would the ABWR meet the Commission's Safety Goal and the proposed ABWR severe accident goals without such a system? Had this design not been proposed, what is staff's thinking on the alternative means for assuring containment integrity per 10 CFR 50.34 (f)? Describe the pros and cons to staff's and applicant's proposals/options. Explain the pros and cons in terms of generic applicability for all future reactors. The paper should also describe the basis for, and value of, the proposed conditional containment failure probability criterion of 10^{-1} .

3. The status and schedule for GE's submittal of its reliability and maintenance criteria for the ABWR. Address the standards the staff intends to use in the review of such criteria. Provide thoughts and recommendations, beyond those documented in NUREG 1333, on options for improving maintenance and reliability for the future reactors, taking into consideration U.S. and foreign experiences, along the lines of the Japanese maintenance outage programs.

(EDO) (SECY Suspense: 10/30/89)

d. The Commission requests a copy of the safety evaluation report on the GE reliability and maintenance program prior to issuance.

(EDO) (SECY Suspense: When ready)

e. Keep the ACRS informed of ongoing activities in order to assure timely ACRS comments to the Commission.

(EDO) (SECY Suspense: As required)

The Commission requests the ACRS to submit a status report to the Commission which:

1. Describes the scope and schedule for the ACRS effort to develop criteria for containment designs for future reactors; and

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130

2. Compares the criteria under consideration by the ACRS with those that the staff would propose to apply, identifying any differences or inconsistencies.

(ACRS) (SECY Suspense: 10/13/89)

The staff outlined the following tentative schedule for its review of the GE ABWR certification application:

1. Issue in the Spring of 1990, a final draft safety evaluation report for review and comment by the Advisory Committee on Reactor Safeguards.

2. Issue in the Summer of 1990, a final safety evaluation report and a final design acceptance report.

3. Initiate in late Summer 1990, a hearing on the certification submittal.

4. Issue in October 1991, the design certification for the ABWR.

An updated schedule which incorporates the tasks outlined in this SRM will be provided in the Commission paper due 9/15/89 (item "b" above).

(EDO) (SECY Suspense: 09/15/89)

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cc: Chairman Carr
Commissioner Roberts
Commissioner Rogers
Commissioner Curtiss
OGC
GPA
PDR - Advance
DCS - P1-24