

August 15, 2001

MEMORANDUM TO: Stuart A. Richards, Director  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: Michael L. Scott, Project Manager, Section 2  
Project Directorate IV */RA/*  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JULY 17, 2001, MEETING WITH WESTINGHOUSE ON  
WESTINGHOUSE 3D ROD EJECTION ANALYSIS METHODOLOGY

On July 17, 2001, the NRC staff met with representatives of the Westinghouse Electric Company (W) at W's request. The purpose of the meeting was for W to provide an overview of its three-dimensional (3D) rod ejection analysis methodology and to share with the staff their schedule for implementation of the methodology. The attachment contains a list of meeting attendees. Copies of the nonproprietary slides used during the meeting are available under ADAMS accession number ML01199089.

The W presenters began by stating that W plans to submit a topical report (TR) to the NRC in the near future to seek acceptance of the new 3D methodology. They added that the TR would not define limits for the event. The staff participants responded that, to be approved, the TR must have limits associated with it. They added that a fuel enthalpy limit of 200 cal/g would not be approved if submitted as part of the TR. An industry participant at the meeting stated that a working group led by the Electric Power Research Institute (EPRI) and the Nuclear Energy Institute (NEI) is close to proposing new limits.

W noted that the proposed methodology would not involve any computer code reviews. The staff, however, responded that computer codes for use with the methodology, even those previously accepted by the NRC for other applications, will need to be considered as part of the staff's review of the proposed methodology.

The staff asked why a "best-estimate" approach was not used. W replied that they are not sure what that means for rod ejection accidents, but that they expect results of such an approach would not be significant. The staff responded that, because of the recent control rod drive mechanism (CRDM) cracking issue, people are starting to worry about rod ejection. It would be nice to have a more rigorous method to show that the reactivity insertion from a rod ejection accident would not be significant.

W noted that they would like to submit the generic TR soon, then submit plant-specific 3D analyses in the first quarter of 2002. The staff responded that this appeared to be a very ambitious schedule and would be tough to accomplish in the planned time frame. The staff asked what the consequences of not meeting the schedule are. W responded that plants could

restart using the old methodology but that some plants are close to their limits with the extremely conservative one-dimensional (1D) methodology. They added that rod ejection is not as big a concern for 4-loop plants, but it is more of a concern for 3-loop plants with "heavier" D banks.

In response to a staff question, W stated that the 1D and 3D methodologies will not be used concurrently at a given plant.

The staff pointed out that the General Design Criteria (GDC) contain requirements for rod ejection, which are that it shall not cause uncoolable fuel geometry or endanger the coolant pressure boundary. They asked whether W had considered dealing directly with these requirements rather than the surrogate calories per gram. W responded that this was an interesting point to consider, because, using the 3D method, results will come nowhere near fuel melt or challenging the pressure boundary.

The staff asked if W had looked at the effects of fewer rods inserted and stated that this was of interest because of the CRDM cracking issue. The reply was that the net impact is very small.

At the conclusion of the meeting, W noted that the meeting had given them several points to ponder regarding their planned approach.

Project No. 700

Attachment: Meeting Attendees

cc w/attachment: See next page

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Westinghouse Electric Company

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**MEETING WITH WESTINGHOUSE  
ON WESTINGHOUSE THREE-DIMENSIONAL  
ROD EJECTION ANALYSIS METHODOLOGY**

**JULY 17, 2001**

**ATTENDANCE LIST**

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Y. Sung  
J. Akers  
S. Lider

**SOUTHERN NUCLEAR OPERATING COMPANY**

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