Sandia National Laboratories

Albuquerque, New Mexico 87185

January 31, 1984

Dr. Thomas J. Walker
Containment Systems Research Branch
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Springs, Maryland 20910

Dear Tom:

This letter summarizes the Severe Accident Sequence Analysis (SASA) Program activities at Sandia during January, 1984.

Programmatic Activities

A. L. Camp was hired by Division 6411. He will begin assuming SASA program management on April 2, 1984. J. H. Linebarger will phase out by June 1, 1984.

C. J. Shaffer, V. L. Behr, and J. H. Linebarger participated in the SASA program review meeting held in Silver Springs, Maryland on January 10 & 11, 1984.

Thermal Hydraulic Analysis Activities

PWR Large Dry Containments (Bellefonte): The preliminary Bellefonte TMLB' MARCH 2.0 - CORCON 1.0 (modified) calculations were presented at the SASA program review meeting. CORCON replaces the INTER subroutine in MARCH 2.0. The important differences between comparative calculations using MARCH 2.0 and INTER were highlighted. Work is continuing on the Bellefonte CONTAIN model. The soft link between CORCON and CONTAIN has been designed to use the currently released version of CONTAIN, version 705. Thus additional CONTAIN development will not be needed to calculate TMLB' in Bellefonte. Arrangements have been made to obtain reactor coolant system source term information from the MELCOR program. Thus the MARCH code will not be needed to calculate TMLB' for Bellefonte. Work to prepare a HECTR model of Bellefonte has started. Both HECTR and CONTAIN will be used to calculate S_2D in Bellefonte.

PWR Ice-Condenser Containments (Watts Bar/Sequoyah): A significant number of comments have been received on the preliminary NUREG draft summarizing the MARCH-HECTR Watts

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Bar Sequoyah calculations. The results are evoking interest. An additional follow on study to explain the hydrogen burn induced peak pressure as a function of % zircaloy oxidation is being considered. Two other investigations have begun outside the SASA program as a result of the ice-condenser work. One investigation addresses the effectiveness of vents larger than used in the original study on containment pressure during hydrogen burns. The other investigation concerns equipment survivability.

Structural Analysis Activities

The first draft of the NUREG documenting the Watts Bar, Maine Yankee, and Bellefonte structural analysis was issued for internal Sandia review early this month. Comments will be resolved and the modified draft will be transmitted to the NRC for review and comment before the end of February. The analysis to study the structural interface between man-ways and equipment hatches and the containment shell has begun. The analysis of Bellefonte should be completed early in May. That analysis will be followed by a Sequoyah analysis if appropriate arrangements can be made with the Tennessee Valley Authority (TVA).

Upgraded Calculational Capability Activities

General: The upgraded calculational capability plan was presented at the SASA program review meeting. The details of the plan are continuing to evolve as the particular needs for an enhanced, phenomenologically based calculational capability are defined and as more experience is gained applying the evolving capability.

MARCH-CORCON: The coding and output have been cleaned up and a short description of the resulting code and how to use it is being prepared. The SASA program at Oak Ridge National Laboratories has asked for MARCH-CORCON so they can link CORCON to their BWR version of MARCH 1.1. Consideration is being given to releasing this capability for general use. The name MARCON has been suggested.

Sincerely,

John H. Linebarger

John H. Linebarger
Reactor Safety Technology
Division 6411

JHL:6411:cgt