

Sandia National Laboratories

Albuquerque, New Mexico 87185

May 3, 1985

Dr. Thomas J. Walker
Containment Systems Research Branch
U. S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, Maryland 20901

Dear Tom:

This letter summarizes the Severe Accident Sequence Analysis (SASA) program activities at Sandia during [REDACTED] *APRIL*

Programmatic Activities

D. B. King presented the status of the hydrogen transport calculations in a large dry containment at the mid-year review of the Hydrogen Behavior and Hydrogen mitigation and Prevention Schemes programs on April 15, 1985, in Silver Spring, Maryland.

A. C. Peterson attended the MELPROG-PWR/MODO workshop on April 24 and 25, 1985.

Thermal-Hydraulic Analysis Activities

PWR Large Dry Containments (Bellefonte): The HECTR computer code is being used to investigate the potential for local hydrogen detonations in the Bellefonte containment during arrested sequences having up to a 75% metal-water reaction. Additional HECTR calculations were performed to investigate the sensitivity of the calculated hydrogen concentration to the detail of the compartmentalization. The number of compartments near the source location for a TMLB sequence was increased from 1 to 4. The results from these calculations are still being analyzed.

The hydrogen and steam source terms for these arrested sequences have been calculated with MARCON 2.OP. All three HPI pumps were used to arrest the hydrogen generations. Additional MARCON calculations were performed to determine if the calculated hydrogen and steam flows were sensitive to the timing and magnitude of the injection of the HPI flow. The gas flow rates did not appear to be sensitive to the method of arresting the sequence.

A preliminary seven compartment CONTAIN model of the Bellefonte containment was completed and is being checked out by the Containment Modeling Division. This multi-compartment model will be used in the severe accident analysis for the Bellefonte plant.

BWR Mark II (La Salle): In support of the RMIEP program, front end thermal hydraulic calculations of several long duration (up to 30 hours) transients for the La Salle BWR will be calculated with the LTAS computer code. The LTAS computer code was developed by Oak Ridge National Laboratory (ORNL) SASA program for analyses of Browns Ferry Unit 1. Models specific to La Salle have been developed by SNL and ORNL. A version of LTAS containing models specific to La Salle was nearly completed. Some additional La Salle specific input and plotting capability remain to be completed. It is presently anticipated that calculations will be initiated early in May.

Upgraded Computational Capability Activities

MARCON 2.0B: The conversion of the ORNL tape for MARCON 2.0B to the CRAY was nearly completed. This version is being upgraded by SNL to include the models currently in our version of MARCON 2.0P.

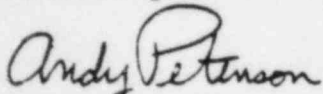
MARCON 2.0P: The degassing model for concrete is currently only available for BWR calculations in MARCON 2.0P. The inclusion of this model for PWR calculations was nearly completed this month. It was recently noted that a prereleased version of CORCON Mod 2 was linked to MARCH in MARCON. MARCON 2.0P is being updated to include the released version of CORCON Mod 2. This update should be completed in early May.

HECTR: Several models have been developed for HECTR as required for SASA analyses. The Hydrogen Behavior program has also developed models that are required for SASA analyses. A referencable version of HECTR for SASA analyses that includes all of these models and the supporting documentation is being developed.

Other Activities

In-house review of a report summarizing the contributions of the SNL SASA program to the Containment Loads Working Group continued this month. The review comments should be resolved and a letter report issued in May.

Sincerely,



Andrew C. Peterson
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