

Sandia National Laboratories

Albuquerque, New Mexico 87185

April 5, 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]

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Programmatic Activities

A. C. Peterson attended the overview portion of the CONTAIN 1.0 workshop on March 4 and 5, 1985.

A. C. Peterson and D. King visited J. Travis at LANL on March 13, 1985 to discuss the potential use of the HMS computer code to benchmark the HECTR hydrogen transport calculations during degraded core sequences.

SNL SASA personnel met with P. Bieniarz and C. Shaffer of Risk Management Associates to discuss the possible use of the MCT computer code for the analyses of the primary system fission products behavior and removal for the Bellefonte severe accident analyses. (The MCT computer code is a linking of the MERGE, CORSOR and TRAP-MELT codes and includes a modification to TRAP-MELT to calculate the effects of fission product heating and heat losses through the primary system insulation.)

A copy of MARCON 2.0P was sent to Battelle Columbus Laboratories.

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. The transient calculations for a loss of offsite power (TMLB) sequence both with and without the fan coolers operating were completed. The peak hydrogen concentration for these transients was 15% and occurred in the compartment with the source. The compartment with the peak hydrogen concentration was also calculated to have a steam concentration greater than 30%, which indicates it would be steam inerted and not a detonable mixture. As expected, the overall hydrogen concentrations were slightly higher with the fan coolers operating, due to the condensation of steam by the fan coolers.

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Mr. T. J. Walker

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The development of a seven compartment CONTAIN model of the Bellefonte containment was initiated. This multicompart-ment model will be used in conjunction with the single compartment model in the severe accident analyses for Bellefonte.

BWR Mark II (LaSalle): In support of the RMIEP program, front end thermal hydraulic calculations of several long duration (up to 30 hours) transients for the LaSalle BWR will be calculated with the LTAS computer code. The LTAS computer code was developed by Oakridge National Laboratory (ORNL) SASA program for analyses of Browns Ferry Unit 1. Models specific to La Salle have been developed by SNL and ORNL. The ORNL developed models were received and integrated with our models into a version of LTAS. The development of the code input will be completed and calculations initiated by mid-April.

Upgraded Computational Capability Activities:

MARCON 2.0B: A new version of MARCON 2.0B that includes all of there latest BWR models was received during March from ORNL. This version of MARCON 2.0B is being modified by SNL to include the models currently in our version of MARCON 2.0P.

Other Activities

A draft of a summary of the analyses performed by the SNL SASA project in support of the Containment Loads Working Group was completed and is being reviewed in-house. This summary should be issued as a letter report in April 1985.

Sincerely,

Andy Peterson

A. C. Peterson
Reactor Safety Technology
Division 6411

ACP:6411:cgt

Copy to:

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