

INTERIM REPORT

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Monthly Highlights

for

October 1982*

Thermal-Hydraulic LMFBR and LWR Safety Experiments
FIN No. A-3024

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1.1 Heat Transfer in Core-Concrete Interactions: Coolant Layer Heat Transfer
(G. A. Greene)

Analysis of experimental measurement of surface temperature of the liquid metal pool has shown the measurements to be accurate. An extrapolation technique has been devised to alleviate any future problems. The data have demonstrated that the critical heat flux (CHF) for a liquid-liquid boiling system occurs at much greater ΔT_{sat} than for boiling off a solid surface.

1.2 Heat Transfer in Core-Concrete Interactions: Liquid-Liquid Interfacial Heat Transfer (G. A. Greene)

Entrainment experiments with Freon-11 and water were performed. Appropriate fluid properties were measured. Analysis of the data and finalization of a first order entrainment rate model are underway.

1.3 Core Debris Thermal Hydraulic Phenomenology: Ex-Vessel Quenching
(T. Ginsberg)

Coding of an analytical model for debris bed quench with internal heating of the bed particles was completed. Calculations have been made using both the Lipinski and Ostenson formulations for the bed hydrodynamics.

The measured steam flowrates in the quench experiments are high by about 20-25% based upon comparison of total steam produced with the initial particle bed stored energy. Work is underway to resolve this discrepancy.

1.4 Core Debris Thermal Hydraulic Phenomenology: In-Vessel Quenching
(N. K. Tutu)

Design of a new test section to study the quenching of a debris bed with bottom injection was completed. The particle bed will be heated in place.

1.5 Basic Porous Bed Two Phase Flow Phenomenology
(N. K. Tutu, T. Ginsberg)

An informal report entitled, "Two Phase Flow Through Porous Beds - A Preliminary Investigation" was completed, and should be ready for distribution in the near future. Further experiments to study the two phase pressure drop through porous beds were begun.

Monthly Distribution List

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