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INTERIM REPORT

Accession No. _____

Contract Program or Project Title: Thermal Hydraulic LMFBR and LWR Safety Experiments

Subject of this Document: Monthly Highlight Letter for September 1982

Type of Document: Monthly Highlight Letter

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Date of Document: September 1982

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U.S. Department of Energy

Prepared for
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Under Interagency Agreement DE-AC02-76CH00016
NRC FIN No. A-3024

Monthly Highlights

for

September 1982*

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

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*Work carried out under the auspices of the U.S. Nuclear Regulatory Commission

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

Data reduction of the initial experiments indicated that measurement of the liquid metal surface temperature may be in error. Plans are being formulated to correct this deficiency.

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

Modeling of interfacial entrainment continued.

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

A series of debris bed quench experiments with 1/2 inch spheres was carried out. All interior bed thermocouples were operational following the drop of the spheres into the test vessel. Preliminary analysis of the results indicate that water penetrates the bed immediately upon introduction into the vessel. Downward and upward fronts apparently propagate simultaneously.

Work is continuing on the analytical model for debris bed quench with internal heating of the spheres.

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

Preliminary experiments to study the quenching of a superheated debris bed with bottom injection were conducted under various boundary conditions. The particle bed could either be free (to fluidize), or it could be locked in place. Also, the particle bed could be formed inside a cylindrical screen so as to leave an annular gap between itself and the test vessel.

1.5 General Programmatic Activities

G. A. Greene presented a paper at the Seventh International Heat Transfer Conference in Munich and visited the Nuclear Research Center at Karlsruhe, Germany.

Monthly Distribution List

Thermal Hydraulic LMFBR Development Program

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