INTERIM REPORT

Accession No._____

Contract Program or Project Title: Light Water Reactor Thermal Hydraulic Development Program

Subject of this Document: May Monthly Highlight Letter

Type of Document: Monthly Highlight Letter

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Date of Document: May 1979

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U.S. Department of Energy

Prepared for
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555
Under Interagency Agreement EY-76-C-02-0016
NRC FIN No. A- 3045

Monthly Highlights

for

May 1979*

Light Water Reactor Thermal Hydraulic Development Division

Budget Activity 60-19-10-01

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*Work carried out under the auspices of the United States Nuclear Regulatory Commission.

1.1 Analytical Modeling (B.J.C. Wu, N. Abuaf, and P. Saha)

The computer program for the determination of net vapor generation rate Γ from the experimental pressure p and the void fraction α distributions is now operational. Given a set of p and α distributions, it determines the optimum multi-piece, least-squares cubic spline fit to the data, calculates Γ and plots p, α and Γ as functions of the axial coordinate.

Computer modeling of our flashing experiments with TRAC code continued. Moreover, calculations were made for inviscid expansions of initially subcooled water under local thermodynamic equilibrium conditions. Frictional effects are approximately accounted for in these calculations by using the effective instead of the geometrical nozzle area distribution from single phase hydrodynamic calibration.

1.2 Flashing Experiments (G. A. Zimmer, N. Abuaf, B.J.C. Wu and J. H. Klein)

The precision Cox flow meters (one-half percent of reading) have been installed. The primary loop pump has been replaced with a larger model (rated capacity 2271 liters per minute at 91 meters) to improve the loop flow stability at flow rates in excess of 750 liter per minute.

Installation of the multibeam gamma densitometer is progressing slowly due to unexpected noise problems in the preamplifiers. Five sources will be activated in early June for the next phase of testing.

1.3 Data Acquisition and Analysis Software (G. A. Zimmer and L. Sweeney)

Calibration of the pressure transducers is complete. Work is continuing on multiplexing the output of the gamma densitometer.

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