

Contract Program or Project Title: Thermal Hydraulic LMFBR Safety Experiments

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Author(s): Owen C. Jones, Jr.  
Department of Nuclear Energy  
Brookhaven National Laboratory  
Upton, New York 11973

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Responsible NRC Individual and NRC Office or Division:  
Dr. Melvin Silberberg  
Division of Reactor Safety Research  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

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Brookhaven National Laboratory  
Upton, NY 11973  
Associated Universities, Inc.  
for the  
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INTERIM REPORT

NRC Research and Technical Assistance Report

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Monthly Highlights

for

June 1979\*

Thermal Hydraulic LMFBR Safety Experiments  
Budget Activity 60-19-20-01

Owen C. Jones, Jr., Head  
Thermal Hydraulic Development Division  
Department of Nuclear Energy  
Brookhaven National Laboratory  
Upton, New York 11973

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

1.1 Hydrodynamic Dispersal (T. Ginsberg, G. A. Zimmer, J. J. Barry;  
and J. C. Chen, Lehigh University)

Installation of the compressor for the hydrodynamic dispersal experimental program is well underway.

Difficulties with the gamma densitometer traversing apparatus were encountered. The two carriages which hold the bearings are being refabricated. New bearings will be pressed into place.

1.2 Dispersion in Boiling Pools (T. Ginsberg and J. C. Chen, Lehigh Uni.)

The Raytheon Corporation of Waltham, MA has proposed a microwave supply system which appears to satisfy the objective of providing a source of power whose spatial distribution can be quantified.

1.3 Heat Transfer in Boiling Pools (G. A. Greene)

Analysis of the local heat transfer data from volume-heated boiling and nonboiling pools began.

1.4 Two-Phase Solidification (G. A. Greene)

A summary of fuel freezing experiments performed with thermite and  $UO_2$  has been performed. Comparison to analytical models demonstrated that prediction of fuel flow and freezing with stable crusts ( $UO_2$  test) was satisfactory. However, there is still considerable uncertainty in the prediction of thermite freezing tests which are performed with wall melting and ablation. Additional data with low void fraction and low pressure thermite would be helpful.

1.5 Technology Assessment Review (G. A. Greene, T. Ginsberg; and  
M. S. Kazimi, M.I.T.)

Work has continued on an assessment of the existing thermal hydraulic technology related to accident sequence analysis of the transition phase.

Distribution Thermal Hydraulic LMFBR Development Program

BNL RSP Division Heads  
BNL RSP Group Leaders  
BNL RSE Personnel

P. Abramson, ANL  
D. Basdekas, NRC  
J. Boudreau, LASL  
I. Catton, University of California  
J. C. Chen, Lehigh University  
R. T. Curtis, NRC  
W. Gammill, NRC (2)  
D. T. Eggen, Northwestern University  
H. H. Hummel, ANL (2)  
W. Y. Kato, BNL  
M. S. Kazimi, MIT  
H. J. Kouts, BNL  
J. T. Larkins, NRC  
A. Reynolds, University of Virginia  
M. Silberberg, NRC  
M. Stevenson, LASL  
T. G. Theofanus, Purdue University  
J. C. Walker, Sandia Laboratory  
R. W. Wright, NRC

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