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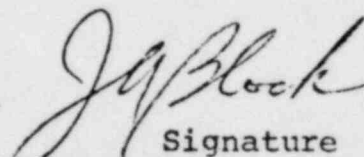
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March 5, 1979

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NRC Research and Technical  
Assistance Report

Dear Mr. Serkiz:

Subject: PROGRESS REPORT FOR FEBRUARY 1979; CREARE PROJECT  
345-10, NRC CONTRACT NRC-04-75-162

Principal activities during February included flashing experiments and analysis, PWR sensitivity studies for superheated wall effects, lower plenum voiding experiments and analysis, RIL Support and special Upper Plenum Studies and other technical assistance.

Under the Bypass task of the Creare program, lower plenum flashing experiments exploring the parameters of break size, initial pressure, initial liquid inventory, and reverse core steam flow were performed. Comparisons with key data from these experiments are being made with predictions using the RELAP computer code.

On the lower plenum voiding task, preliminary experiments were performed with transient flows of reverse core steam and with two-phase lower plenum liquid mixtures. These data are being analyzed and compared with equilibrium voiding data previously obtained.

On the flow topography task, testing continued with the simultaneous acquisition of analog and digital data. Tests involved using highly subcooled water at various injection rates. Penetration maps at each injection rate were produced and compared with the present Creare correlation. Using the analog and digital data acquired, we are attempting to correlate flow characteristics in the annulus, and lower plenum filling characteristics to pressure oscillations at various locations within vessel. Work continues in an attempt to define an interface and an interface velocity.

Mr. A. W. Serkiz

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March 5, 1979

A number of activities were undertaken to support preparation of the ECC bypass RIL. Several phone discussions were held with BCL covering their countercurrent flow data, their correlation findings, and wall temperatures in their superheated wall experiments. A draft of our RIL support report was submitted. We performed and reported full-scale sensitivity studies of downcomer superheated wall effects for input blowdown transients in our "hot-wall" analysis (Creare TN-287, NUREG/CR-0599). Countercurrent flow experiments at 1/30-scale were assessed by further scoping experiments. Finally, Paul Rothe met with Bill Beckner in Silver Spring on February 28, 1979 to discuss activities related to the RIL.

A special Technical Assistance activity was undertaken in February to address a list of questions on flow topography raised by the 3D group and to prepare for and attend a meeting where these areas were discussed. Limited additional Technical Assistance activities were undertaken to assess the NRC data bank, to interact with 3D (planned German visit to Creare) and to track Upper Plenum studies at Dartmouth.

Sincerely yours,

CREARE INCORPORATED

*Paul H. Rothe*

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