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RSR

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June 7, 1979

Mr. A. W. Serkiz
Acting Branch Chief
Separate Effects Branch
Div. of Reactor Safety Research
U.S. Nuclear Regulatory Commission
Willste Building, 7915 Eastern Ave.
Silver Spring, Maryland 20910

Dear Mr. Serkiz:

Subject: PROGRESS REPORT FOR MAY 1979; CREARE PROJECT 345-10, NRC CONTRACT NO. NRC-04-75-162

Principal activities during May included analysis of flashing experiments, special tests in support of RIL preparation and CIT analysis, lower plenum voiding, flow topography, and technical assistance.

Under the Bypass task of the Creare program, work was begun on a simplified analysis which will be used to calculate behavior in flashing transient experiments, especially those tests with ECC injection where RELAP4/MOD5 has been unsuccessful in calculating the results. We have continued to use RELAP to predict tests without ECC injection, specifically those tests with core steam. Initial flashing experiments investigating the effects of separator pressure and ECC injection with hot leg breaks were postponed until June due to special testing of break pressure drops in countercurrent flow (to assist in the development of the CIT analysis), special 1/30-scale vessel tests with subcooled ECC (to follow up analysis beyond the RIL), and the annual boiler inspection and maintenance.

Considerable effort in May was directed to planning activities so that various subtasks can be phased out in a timely manner and technical effort focused on flashing/refill studies as agreed in the mid-year review.

In support of the ECC bypass RIL, we have used our transient analysis of superheated wall and countercurrent flow effects in the downcomer to calculate the timing and rate of filling of the lower plenum in LOFT. The results of these calculations are currently being documented in an Appendix to the RIL support report.

Paul Rothe attended an ECC Bypass Workshop on May 16 which reviewed the RIL and he met with Bill Beckner and Al Serkiz on May 17 to follow up the RIL discussion.

Under the lower plenum voiding task, a hiatus was taken on all testing and analysis. The only effort on this topic was documentation of some of the previous results as part of the draft of the final report.

On the flow topography task, efforts continued on the Fourier analysis and mean liquid position calculation with refinements to the display format.

Technical Assistance activities during May included:

1) Condensation Workshop...Jim Block made a presentation and chaired a discussion and Paul Rothe also attended meetings on May 24 and 25 to discuss condensation modeling in TRAC.

2) Cold Leg Behavior...Paul Rothe worked briefly to summarize knowledge of water plug formation at low ECC flow rates typical of HPST.

3) Hot Wall...a few special calculations were carried out on request.

4) Upper Plenum...tracking Dartmouth studies, they are now in the process of preparing a report.

Sincerely yours,

CREARE INCORPORATED

Paul H. Rothe
Project Director

Christopher J. Crowley
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PHR/CJC/sr
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