

INTERIM REPORT

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Prepared for
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

INTERIM REPORT

NRC Research and Technical
Assistance Report

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GENERAL ELECTRIC

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March 13, 1980

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SUBJECT: BWR REFILL/REFLOOD PROGRAM
CONTRACT NO. NRC-04-79-184
INFORMAL MONTHLY PROGRESS REPORT FOR FEBRUARY 1980

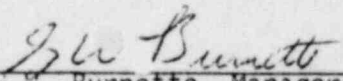
Gentlemen:

The following summarizes the subject matter covered in the attached report:

Several experimental task plan documents have been completed and submitted for sponsor review. The model qualification plan was also completed and submitted to the PMG. Pre-test predictions for the 30° Sector BWR/4&5 core spray distribution have been completed and are currently under internal review. These predictions will be submitted to the PMG prior to running the full header tests in steam at the Lynn Facility. A meeting was held with EPRI, NRC & EG&G to discuss model qualification plans.

Distribution of this report is being made in accordance with the "Monthly Distribution List" provided with W.D. Beckner's letter of September 6, 1979.

Very truly yours,


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NRC Research and Technical
Assistance Report

BWR REFILL - REFLOOD PROGRAM
SEVENTH MONTHLY REPORT
FEBRUARY 1980

Prepared for:

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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN No. B5877

and

Electric Power Research Institute
3412 Hillview Avenue
Palo Alto, CA. 94303
EPRI Project No. RP-1477-1

and

General Electric Company
175 Curtner Avenue
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By

General Electric Company

under

Contract No. NRC-04-79-184

BWR REFILL REFLOOD PROGRAM

FEBRUARY 1980

Summary

Several experimental task plan documents have been completed and submitted for sponsor review. The model qualification plan was also completed and submitted to the PMG. Pre-test predictions for the 30° Sector BWR/4&5 core spray distribution have been completed and are currently under internal review. These predictions will be submitted to the PMG prior to running the full header tests in steam at the Lynn Facility. A meeting was held with EPRI, NRC & EG&G to discuss model qualification plans.

Core Spray Distribution (Task 4.2)

Planning for the BWR/4&5 core spray distribution tests was completed. The task plan document was submitted to the program sponsors for review & comment.

Additional single nozzle tests at the Steam Sector Test Facility (SSTF) were completed and the results are being analyzed. It is anticipated that the previously reported differences will be resolved during March.

Pre-test calculations to predict the BWR/4&5 core spray distribution in steam for the 30° Sector have been completed and are undergoing internal review and verification. The SSTF is being prepared for the 30° Sector steam tests which are expected to begin during the latter part of March, pending PMG approval of the task plan.

Single Heated Bundle (Task 4.3)

Planning for the initial single heated bundle tests was completed and the draft of the task plan document is being reviewed by the program sponsors.

Stage One tests (scaling and reference system response) with the Single Heated Bundle (SHB) test section at the ECC Test Loop were completed. These tests confirmed the pressure scaling technique and established the reference data for comparison with data to be obtained with the Lynn Adiabatic Bundle (LAB) during Stage Two testing. Preliminary evaluation of the Stage One results indicates that the core steam to be injected during an adiabatic bundle test is a function of the core power and vaporization caused by stored energy removal from the bundle. The latter quantity can be calculated from the injected steam flows, the measured steam separator flow rate, and the steam condensed by the injected ECC fluid. An adiabatic test was conducted with the Stage One bundle and the refill/reflood response which resulted was very similar to the response obtained in the comparable heated bundle test.

The SHB test section has been removed and the LAB test section is being installed. The Stage Two testing is scheduled to begin by the end of March. Hardware for the Stage Three Separate Effects Tests (SET) is being procured with bundle assembly scheduled for April.

CCFL/Refill System Effects [30° Sector] (Task 4.4)

A draft of the CCFL/Refill System Effects Task Plan document has been completed and is under internal review. This document will be submitted to the sponsors during March for their review & comment.

Preparation of functional specifications for the facility modifications continued through February. Specifications that were issued included loop requirements, blowdown tank, initial condition requirements, and separate effects test requirements. Instrumentation, process control, and data acquisition system design tasks are underway and currently in the initial design stage. Organizational meetings were conducted in San Jose in February to coordinate the Lynn, Mass. and San Jose activities during the modification period.

Model Development (Task 4.7)

The implementation of the earlier developed basic models, correlations, and component models for TRAC into the two-fluid model was completed. These models have been delivered to EG&G.

Basic Models and Correlations (Task 4.7.1)

The assessment of the heat transfer correlations as well as the other constitutive correlations continued during this period.

Single Channel Code (Task 4.7.2)


A revised task plan for the development of the single channel code was completed during this period.

TRAC BWR Support (Task 4.7.3)

The development of models for the simulation of the BWR components continued during this period.

Model Qualification (Task 4.8)

The model qualification approach has been developed and is documented in a draft of the Model Qualification Task Plan document which was submitted for sponsor review. A meeting was held in San Jose during the month to discuss this subject with representatives from EPRI, NRC and EG&G.



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