

THIRTY-FIFTH MONTHLY REPORT

CONTRACT NO. AT(49-24)-0215

BWR Blowdown/Emergency Core Cooling Program

September, 1978

Summary

An alternate design concept was developed to improve the volume scaling in the TLTA annulus. Several blowdown/ECC injection tests were completed including a peak power, maximum ECC temperature, low ECC flow combination test. After much test service the current bundle has reached the end of its useful life. A PMG meeting was held during the month and several decisions were made regarding program direction.

Task AA - Program Planning and Administration

A PMG Meeting was held on September 21 & 22, 1978 in Silver Springs, MD. In addition to regular PMG members, other organizations represented were: EG&G and NRC-NRR. Principal PMG decisions affecting program direction were: (1) a deferral of plans for Test Series 1B (long term refill/reflood), pending completion of ongoing scaling improvement studies, (2) use of TRAC for analysis of TLTA, and (3) a deferral of testing in the current configuration except for completing the high-power, low ECC flow test and a small break scoping test.

Task CC - Test Facility Design Fabrication

An alternate concept to provide scaled fluid volumes in the TLTA downcomer was developed during the month. This concept would be used in conjunction with the planned full reflood height jet pumps in the BD/ECC 1B Test Phase. PMG approval was obtained for detailing this design, which would have two components in place of the single-component central zone of the TLTA pressure vessel. Use of two component design eliminates a number of assembly problems and minimizes the effects of excess stored heat in the walls and internals.

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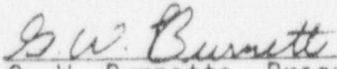
Task FF - TLTA Testing

Matrix Test 6406 (the scaling basis test) of the BD/ECC 1A Test Plan was repeated except that no ECC was injected. The purpose of this test was to assure that observed differences in pressure response between tests with and without ECC injection are entirely attributable to ECC injection. The repeated test confirmed the observed trend and reproduced the earlier results without ECC injection.

Matrix Test 14 (peak power, maximum ECC temperature, low ECC flow) was also executed. While preparing to run Matrix Test 7 (average power, low ECC temperature, low ECC flow), a significant steam leak developed at the thermocouple ports at the top of the test section. The leaking steam placed some of the bundle temperature measurements in jeopardy, so a thermal hydraulic test was executed in which the high pressure core spray injection location was varied from the reference position. A cursory review of these data show the system pressure response to be unchanged, but some minor differences in inventory distribution were indicated. This bundle has been used for several BDHT tests and all of the BD/ECC 1A injection tests and is probably at the end of its useful life.

Task GG - Analysis

Data reduction, measurement verification and evaluation of the ECC injection data continued during the reporting period, with emphasis placed on understanding the phenomena in the TLTA and the observed differences between the tests with and without ECC injection.


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INTERIM REPORT

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