

INTERIM REPORT

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Highlights on
LWR Plant Analyzer Project
for
October 1982*

PROGRAM: LWR Plant Analyzer Development
FIN #A-3227

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This letter covers the highlights of the LWR Plant Analyzer Development Program for the month of October 1982. The program is budgeted under the activity number 601901-10.

The High-Speed Interactive Plant Analyzer program HIPA-PB2 for the pressure vessel thermohydraulics in the Peach Bottom-II BWR power plant has been implemented earlier on the AD10 special-purpose peripheral processor for the purpose of demonstrating the AD10's computing capacity, accuracy and speed. It has been shown that the AD10 is capable of producing accurate thermohydraulic transients at ten times real-time computing speeds. Current activities center around the expansion of HIPA-PB2, to also accommodate neutron kinetics, thermal conduction in fuel elements, steam line dynamics, recirculation loop dynamics and control systems for the nuclear steam supply system.

1. Software Developments (H. S. Cheng, S. V. Lekach, A. N. Mallen and W. Wulff)

The Bus-to-Bus Interface Processor has been programmed to synchronize the two sets of six parallel processors in BNL's AD10 system. The AD10 program segments CREATE and RELATE are being divided into two partitions for the two consoles with six processors each for the purpose of utilizing both consoles for the expanded program.

An automatic plotting package is being implemented to produce report-quality hard copies of AD10 results, using available printing facilities.

Scaling has been initiated for the model equations of steam line dynamics.

2. Other Activities (H. S. Cheng and W. Wulff)

Formal program reviews with emphasis on the completed feasibility demonstration have been presented at the Tenth Light Water Reactor Safety Information Meeting in Germantown and before NRC/NRR staff in Bethesda. A departmental seminar on the plant analyzer has been presented at BNL for the DNE staff.

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