

"Verification of the Source Term Code Package
and Related Calculations"

(FIN A-3290)

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1. Scope/Purpose:

Updated fission product source term methods were developed under the direction of the Accident Source Term Program Office (ASTPO) and published in BMI-2104. The several computer codes developed as part of this effort are being integrated at BCL into a self-consistent Source Term Code Package (STCP). The objective of this BNL project is to provide quality assurance of the BCL code package and related calculations. BNL will obtain the code package from BCL and install it on the BNL computing system. The code package will be reviewed to ensure correct implementation of the models and options. In addition, BNL will provide quality assurance of the specific STCP accident sequence calculations which will be performed by BCL for the RES/DRAO risk updating of five representative reactor designs.

2. Work Performed During Period:

Task 1: The following STCP programs, with test problems, were received from BCL: VANESA, NAUA, and SPARC. All three have been compiled and have executed the test problems successfully. The VANESA run agrees exactly with the corresponding BCL run. SPARC and NAUA outputs were not included on the file tape from BCL and these runs have not yet been verified.

Peach Bottom TRAPMERGE runs have been redone by BCL after correcting several errors in the program. Outputs from these new runs together with program updates which include corrections identified by BNL will be sent to BNL.

Furthermore, BNL has identified very serious problems with the MARCH3 computer code. These problems appear to exist in the MARCH-CORCON interface and are related to the numerical and modeling aspect of concrete degassing. BNL staff has communicated these findings to BCL and is awaiting their resolution, which appear to be very slow. BNL is also investigating ways in which it can resolve some of these serious problems.

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2. Work Performed During Period: (Cont.)

report Table 5
In order to reduce the cost associated with data management and storage, two dedicated disk-packs have been obtained to replace the use of the expensive system disks. This should reduce our file storage charges significantly.

Task 2: None.

Task 3: The Peach Bottom TC sequence is being reviewed at BNL.

Task 4: Due to problems encountered with MARCH3.169, Peach Bottom calculations cannot be verified at this time. The TRAPMERGE calculations are being repeated to reflect the corrections made to the code since the original results were completed.

3. Problems/Delays:

See Item 2.

4. Summary of Progress to Date/Milestones:

Task 1: A preliminary meeting was held at BCL to develop the scope of the STCP. The code package was received at BNL and made operational. A number of errors/problems have been identified and were communicated to BCL.

5. Next Reporting Period:

Work will continue on the numerical/modeling problems associated with MARCH3. In addition, the latest version of MARCH3 and TRAPMERGE have been requested and are expected.