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Mr. Mel Silberberg, Chief
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Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Dear Mel:

Program Title/Activity Identification

Aerosol Measurements and Modeling for Fast Reactor Safety/

Current Progress and Technical Highlights

Major activities during May were concerned with completing the HAARM-3 validation plan, evaluating resuspension by incorporating this mechanism into the HAARM-3 code, recalibrating the spiral centrifuge, checking out procedures for producing Na_2O_x and UO_2 aerosols simultaneously, and performing comparison calculations with the CRAB, QUICK, HAARM-3, and PARDISEKO-III codes. In addition, the CRAB code users manual was completed and submitted for publication.

The model for resuspension added to the HAARM-3 code arbitrarily assumes that the resuspension rate is proportional to deposited mass. This assumption has been made to facilitate estimations of resuspension significance and will be checked further by experiments. However, with this resuspension term added the effect on airborne concentration is that after some initial decrease in airborne concentration by deposition, the resuspension rate balances the deposition rate and a steady state airborne concentration is reached. Although the general shape of the concentration time curve is consistent with the very limited data available, the level of the steady state concentration varies with an assumed proportionality constant in the resuspension term and cannot be adequately predicted without experimental results of the type currently scheduled and being initiated.

Anticipated Accomplishments for June

During June, it is anticipated that data on mixed aerosol properties will be obtained, the matrix of code comparison runs will be formalized by interaction with NRC, the validation plan will be submitted to NRC for initial comments, and the topical report on resuspension will be completed.

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The estimated and actual cumulative costs are shown in Figure 1.

Sincerely,

Jim

James A. Gieseke, Research Leader
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