

INTERIM REPORT

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Contract Program or Project Title: Fission Product Transport Analysis

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Fuel Behavior Research Branch  
Division of Reactor Safety Research

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Washington, D.C. 20555

INTERIM REPORT

NRC Research and Technical  
Assistance Report

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June 12, 1979

Mr. Richard Sherry  
Fuel Behavior Research Branch  
Division of Reactor Safety Research  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555

Dear Rick:

Program Title/Activity Identification

Fission Product Transport Analysis.

Current Progress and Technical Highlights

During April, measurements of aerosol deposition from turbulent flow were continued, TRAP-MELT calculations for TLMB' and AB accident sequences were attempted, and fabrication and checkout of experimental equipment for the vapor deposition studies were initiated. In addition, a meeting among Sandia, NRC, and BCL participants was held at Battelle to discuss and plan complementary efforts on fission product vapor properties, reactions, and deposition.

Some minor problems were encountered in the particle deposition experiments that were traced to unstable aerosol generation. These were corrected such that normal operation was again achieved and additional data were accumulated.

Efforts were made to determine the source of problems in TRAP-MELT calculations for the TLMB' and AB sequences. The difficulties were traced to an instability in the algorithms employed to account for particle size distribution development with time. Methods to circumvent the problem were identified and it is expected that the calculations can now proceed.

Preparations for the vapor deposition experiments progressed satisfactorily with space for the experiments being allocated and completion (for BCL approval) of a safety analysis report. Methods for generating iodine as a source in the experiments were established and chemical procedures for producing a supply of radiochemically traced iodine were checked through in the laboratory. Deposition coupons of stainless steel and Inconel were prepared and surface conditioning of the coupons initiated (oxide film development in an autoclave). Other portions of the apparatus are being prepared on schedule.

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Anticipated Accomplishments for May

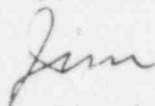
It is expected that the vapor deposition experimental apparatus should be nearly completed during May. The TRAP-MELT calculations for baseline cases should continue. Much of the data required for the second tube size being employed in the aerosol deposition experiments should be obtained during May.

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

Sincerely,



James A. Gieseke, Research Leader  
Physico-Chemical Systems, Atmospheric  
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JAG:ld

Attachment

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