

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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Prepared for  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

INTERIM REPORT

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NRC Research and Technical  
Assistance Report

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July 23, 1979

Mr. Richard Sherry  
Fuel Behavior Research Branch  
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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 June efforts were concentrated on the vapor deposition experiments, aerosol deposition experiments, TRAP-MELT calculations, and Three Mile Island (TMI) analyses. The efforts related to analyses of fission product transport and deposition for the TMI accident centered on reviewing available data and analyzing them in terms of previous MARCH code calculations to select representative conditions for use in making TRAP-MELT calculations.

The measurements of aerosol deposition in a second flow tube were completed and analysis of the results was begun.

The previously noted inability of the TRAP-MELT code to successfully calculate the AB base case was traced to a specific mismatch of condensation and coagulation of the aerosol. This problem, which occurs for the AB case when material condensed onto particles is subsequently evaporated, is being resolved.

The schedule for vapor deposition experiments was maintained with the flow components of the experimental apparatus being checked and the final assembly begun. The vapor injection apparatus and the furnace are to be tested next. Final approval for the experimental procedures by Battelle's safety committee will await final assembly of the apparatus; however, approval appears certain.

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25 Years of  
1954-1979

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Anticipated Accomplishments for July

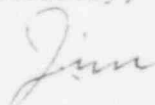
During July it is anticipated that the vapor deposition apparatus will be completed. Efforts will continue on analyzing the particle deposition data, on performing calculations for the TRAP-MELT uncertainty analysis, and on evaluating fission product transport and deposition under TMI accident conditions.

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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  
Science & Aerosol Technology Section

JAG:ld

Attachment

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