

LETTER REPORT

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Material Transport in Nuclear Facilities

Subject of this Document: Progress reported for July 1982

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Author(s): M. Siman-Tov

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Responsible NRC Individual and NRC Office or Division

Steven Bernstein, Transportation and Materials Risk Branch, DPA/RES

Prepared by

Union Carbide Corporation  
Nuclear Division  
PO BOX X  
Oak Ridge, TN 37830

Prepared for

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

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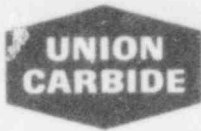
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LETTER REPORT

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UNION CARBIDE CORPORATION

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P.O. BOX X, OAK RIDGE, TENNESSEE 37830

August 17, 1982

Mr. S. Bernstein  
Transportation and Materials  
Risk Branch  
Division of Risk Analysis  
Office of Nuclear Regulatory  
Research  
Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Bernstein:

Attached is our monthly report for July 1982 activities of UF<sub>6</sub> Accident Analysis Handbook project (FIN B0495-2). During July \$26,126 were spent. Expenditures so far through the end of July total \$43,043.

Sincerely,

A handwritten signature in cursive script that reads "M. Siman-Tov".

M. Siman-Tov

MS/cw

Attachment

cc: W. R. Bibb, DOE-ORO  
G. F. Flanagan  
A. L. Lotts  
D. W. Sheffey, DOE-ORO  
E. O. Sternberg

cc/att: W. S. Gregory, LANL  
P. C. Owczarski, BPNL

PROGRAM TITLE: Definition of Scenarios and Evaluation of Methodologies for Analyzing Source Terms of Major Accidents Involving UF<sub>6</sub> at NRC-Licensed Fuel Cycle Facilities

PROJECT MANAGER: M. Siman-Tov

ACTIVITY NUMBER: ORNL #41 88 55 05 6 (189 B0495-2) NRC 60 19 21

TECHNICAL HIGHLIGHTS:

The final 189 for the project was completed and submitted to NRC by M. Siman-Tov on August 13, 1982. The title of the project has been slightly modified to emphasize evaluation of methodologies for analysis, and some task numbers have been rearranged. Task numbers used below reflect these modifications in the final 189.

Task 1. Literature Review and Scenario Identification

Task 1A. NRC accident information will be utilized for identifying bounding UF<sub>6</sub> releases at NRC facilities. Approximately 95% of the NRC documents requested from the NRC project contact, Steve Bernstein (NRC-RES), and the NRC Public Document Room were received by mid-July. Review of the documents (about 5,000 pages) reveals that detailed accident scenario information for UF<sub>6</sub> releases is generally not available in NRC public documents.

Accidents postulated by NRC licensees focus on UF<sub>6</sub> cylinder rupture or cylinder valve rupture/failure as bounding or maximum release events. With respect to postulated UF<sub>6</sub> incidents, the NRC-licensed facility documents rarely include considerations of health effects of UF<sub>6</sub> releases.

To gather additional information on potential UF<sub>6</sub> accident scenarios, visits by a three-man team from UCC-ND to four NRC-licensed facilities have been arranged with NRC assistance:

<u>Facility</u>	<u>Location</u>	<u>Date</u>
Allied Chemical Corporation UF <sub>6</sub> Production Plant	Metropolis, IL	8/10/82
Kerr-McGee Corporation UF <sub>6</sub> Production Plant	Gore, OK	8/12/82
Nuclear Fuel Service Fuel Fabrication Plant	Erwin, TN	8/19/82
Westinghouse Electric Company Fuel Fabrication Plant	Columbia, SC	8/24/82

Task 1C. UCC-ND project team members, J. Dykstra and J. L. Gamble, prepared a list of potential UF<sub>6</sub> accidents at UF<sub>6</sub> handling facilities which they compiled based on diffusion plant experience and safety evaluations. As in the NRC-literature review, cylinder integrity is the principal safety concern.

Task 3. Review of Analytical Models

Task 3A. D. D. Holt completed a letter for internal distribution entitled "Preliminary Review of NRC Accidental Analysis Handbook (AAH) Models for Accidental UF<sub>6</sub> Releases Simulation," which was distributed internally on July 14, 1982.

Task 3B. D. D. Holt (UCC-ND) is researching NRC literature for UF<sub>6</sub> release models. His review has identified only cursory and unsubstantiated modeling of UF<sub>6</sub> releases. Details of several studies performed by NRC licensees were not available at NRC; therefore, such details have to be obtained from the NRC licensees.

MEETINGS AND TRIPS:

J. Dykstra and M. Siman-Tov attended the Fuel Cycle Facility Safety Research Program Review Group Meeting #8 on July 21-22, 1982, at Norwood, Massachusetts. This meeting provided us an overview of the ongoing efforts of other NRC AAH contributors.

REPORTS, PAPERS AND PUBLICATIONS:

None.

PROBLEM AREAS:

None.

PDR

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M. Siman-Tov

5. NAME OF CONTRACTOR

Union Carbide Corporation

MAILING ADDRESS (Number and street, city, state and zip code)

Oak Ridge National Laboratory  
PO Box X Oak Ridge, TN 37830

TELEPHONE NO.

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