

OAK RIDGE NATIONAL LABORATORY

OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION



POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

June 19, 1979

*NRC Research and Technical
Assistance Report*

Mr. Gladstone S. Lewis, Jr.
Office of Nuclear Material Safety and Safeguards
Mail Stop SS-881
Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Lewis:

Enclosed is the monthly progress report (May 1 through May 31, 1979) on the NMSS project entitled, "Safeguards Analysis for Byproduct Materials and Small Quantities of SNM" (189 No. B6108).

Sincerely,

A handwritten signature in cursive script that reads "Rowena O. Chester".

Rowena O. Chester
Technology Assessments Section
Health and Safety Research Division

ROC/bv

enclosure

*NRC Research and Technical
Assistance Report*

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INTERIM REPORT

ACCESSION NO. _____
ORNL/HASRD-40

Contract Program or Project Title: Safeguards Analysis for Byproduct Materials and Small Quantities of SNM

Subject of this Document: Technical Progress

Type of Document: Monthly Progress Report
May 1979

Author(s), Affiliation and Address: R. O. Chester, K. A. Kirkscey,
and M. L. Randolph
Health and Safety Research
Division*

Date of Document: June 19, 1979

NRC Individual and NRC Office or Division
to Whom Inquiries Should be Addressed: Mr. Gladstone S. Lewis, Jr.
Office of Nuclear Material
Safety and Safeguards

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

NRC Research and Technical
Assistance Report

Prepared for
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
Under Interagency Agreement DOE #40-549-75
NRC FIN No. B6108

*Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830
operated by
Union Carbide Corporation
for the
U. S. Department of Energy

INTERIM REPORT

571 032

MONTHLY PROGRESS REPORT
FOR May 1979

SAFEGUARDS ANALYSIS FOR BYPRODUCT MATERIALS
AND SMALL QUANTITIES OF SNM
(189 No. 36108)

Health and Safety Research Division
Oak Ridge National Laboratory

PRINCIPAL SCIENTIST: R. O. Chester

OBJECTIVE:

The principal objective of this analysis is to examine the question of whether the risk and consequences of theft or sabotage of facilities or vehicles containing small quantities of special nuclear materials (SNM), and byproduct materials are such that licensees should be required to adopt further measures to safeguard them. Phase one of this study was an initial screening of these materials. From this screening, candidates for further consideration were identified. In the course of phase two, a detailed examination will be made of the conditions of possession, use, and shipment of the materials identified in phase one. The characterization of the conditions of possession, use, or shipment will identify any current conditions of the referenced materials that contribute significantly to either the protection from or vulnerability to potential attempts at theft, diversion, or sabotage.

TECHNICAL PROGRESS:

Subtask 1a (Calculate health effects for materials identified in Phase 1)

On schedule. Review of R. K. Mullen's manuscript on health effects completed.

Subtask 1b (Detailed description of delivery methods and conditions in Phase 1)

On schedule.

Subtask 1c (Literature review of acceptability of involuntary risk of cancer induction)

First draft report prepared.

Subtask 1d (Description of impact of meteorology on threat)

Consultation with local meteorology specialist initiated.

Subtask 1e (Table of Phase 1 material screening results)

On original schedule.

Subtask 1f (Project status reports, quarterly and final)

For this quarter, report is planned in light of June program review meeting by NRC-ORNL staff on topical and technical results.

Subtasks 1g, 2a and 2b (Develop plan for obtaining information from sources/ licensees; clearance to contact sources/licensees; prepare list of sources/licensees)

These subtasks are closely interrelated. A preliminary plan and list of sources/licensees was prepared last fall but now needs to be updated and reviewed by NRC before clearances can be processed.

Subtasks 2c, 2d and 2e (Initiate contact with sources/licensees; prepare updated list of materials to be analyzed; and analyze possible threat of materials on updated list)

These subtasks are not scheduled to start until later.

BUDGET AND TECHNICAL MANPOWER EXPENDITURES (FY 1979)

<u>Reporting Period</u>	<u>Project Costs, \$</u>	<u>Technical Support, Man-months</u>
May 1979	8,064	1.4
Total to Date	35,678	6.7
Estimated Cost to Completion	74,322	10.1

571 035

INTERNAL DISTRIBUTION

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