

INTERIM REPORT

ACCESSION NO. _____
ORNL/HASRD-79 _____

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
April 1980

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

Date of Document: May 15, 1980

NRC Individual and NRC Office or Division
to Whom Inquiries Should be Addressed: Dr. George H. Gardes
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.

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
operated by
Union Carbide Corporation
for the
U. S. Department of Energy

INTERIM REPORT

NRC Research and Technical
Assistance Report

8006200 021

MONTHLY PROGRESS REPORT
FOR APRIL 1980

SAFEGUARDS ANALYSIS FOR BYPRODUCT MATERIALS
AND SMALL QUANTITIES OF SNM

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 1 of this study was an initial screening of these materials. From this screening, candidates for further consideration were identified. In the course of Phase 2, a detailed examination will be made of the conditions of possession, use, and shipment of the materials identified in Phase 1. 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 1.a(1) Description of various possible delivery methods. This subtask has been completed.

Subtask 1.a(2) Description of adversary capabilities and resources. Work on this subtask is scheduled to start in November 1980.

Subtask 1.a(3) Analysis and description of the material conditions and processing operations necessary. This subtask has been completed. Review at ORNL of formal documentation on this topic is nearing completion.

Subtask 1.a(4) Analysis and description of the impact of meteorology. This subtask has been completed.

Subtask 1.b. Perform a literature review of the acceptable/unacceptable threshold level of consequences. This subtask has been completed.

Subtask 1.c. Project status reports, monthly, interim and final. This series of reports is up-to-date.

Subtask 2.a. Update the material screening list of Phase 1 using the results of Task 1. This subtask is complete with ORNL review of formal documentation nearing completion.

Subtask 2.b. Develop a plan to obtain the necessary information for characterizing the conditions of possession and shipment of potentially hazardous radionuclides. This subtask has been completed.

Subtask 2.c. Upon NRC approval or modification of the plan developed in subtask 2.b., gather the needed data from the docket files. Data gathered during visits by ORNL staff to NRC docket files is being assessed in preparation for finishing this subtask in June.

Subtask 2.d. Prepare a list of industry contacts for formal survey and specify information to be collected.

Subtask 2.e. Upon NRC approval of contacts, obtain the information.

Subtask 2.f. Analyze results of information gathering effort and produce an updated list of hazardous radionuclides.

These subtasks which will require close cooperation with NRC are scheduled to start in mid-May.

Subtasks 2.g. and 2.h. These subtasks are not scheduled to start until later.

Subtasks 3.a. and 3.b. These subtasks are not scheduled to start until later.

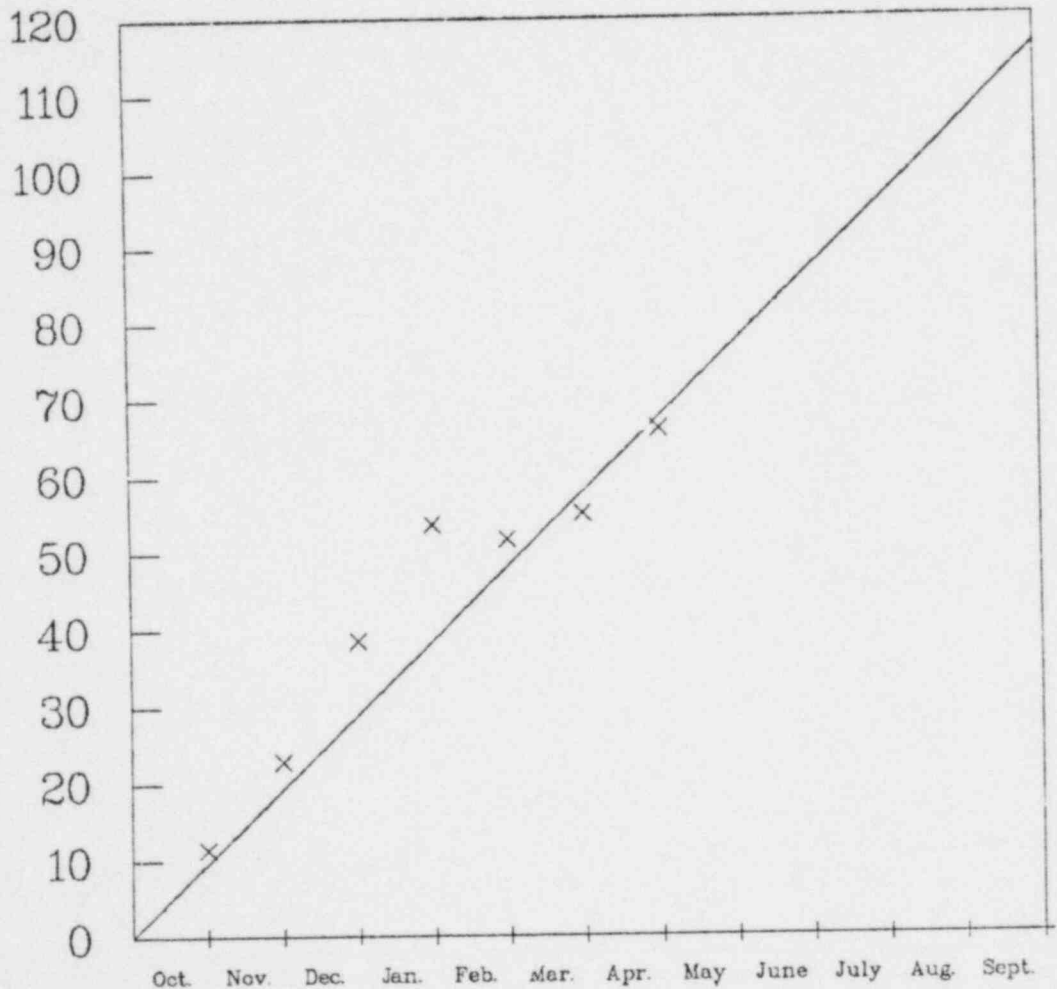
BUDGET AND TECHNICAL MANPOWER EXPENDITURES (FY 1980)

<u>Reporting Period</u>	<u>Project Costs, \$</u>	<u>Technical Support, Man-months</u>
April 1980	11,049	1.7
Total to Date	66,223	7.8
Estimated Cost to Completion	49,777	10.7

MONTHLY EXPENDITURES FY 1980 (\$1,000)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Monthly Projected:	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Monthly Actual:	11	11	16	15	-2*	3	11					

Total Expenditures**
(thousands of dollars)



1979

1980

Months FY 1980

*Inadvertent overcharges were corrected with a credit in February.

**Solid line represents projected costs; x marks represent actual costs.

INTERNAL DISTRIBUTION

1. D. L. Anderson, Bldg. 7505
2. R. O. Chester, Bldg. 7509
3. K. K. Kanak, Bldg. 7509
4. S. V. Kaye, Bldg. 4500S
5. F. R. Mynatt, Bldg. 9204-1, Y-12, MS 9
6. M. L. Randolph, Bldg. 7509
7. M. T. Ryan, Bldg. 7509
8. P. S. Rohwer, Bldg. 7509
9. N. K. Slice, Bldg. 7509
10. Laboratory Records - RC

EXTERNAL DISTRIBUTION

- 11-12. George H. Gardes, Office of Nuclear Material Safety and Safeguards,
Mail Stop SS-881, Nuclear Regulatory Commission, Washington, D.C. 20555
13. Office of the Director, Nuclear Material Safety and Safeguards, Nuclear
Regulatory Commission, Washington, D.C. 20555
(Attn: Program Support)
- 14-15. Division of Technical Information and Document Control, NRC
- 16-17. Technical Information Center, DOE-ORO