

INTERIM REPORT

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

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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.

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for the
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INTERIM REPORT
NRC Research and Technical
Assistance Report

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MONTHLY PROGRESS REPORT
FOR OCTOBER 1979

SAFEGUARDS ANALYSIS FOR BYPRODUCT MATERIALS
AND SMALL QUANTITIES OF SNM
(189 No. B6108)

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)

Discussions are being continued with local specialist on health effects of inhalation of aerosols.

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

Further documentation is being sought.

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

A more extensive draft is being prepared.

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

Discussions with local meteorology specialist are being continued.

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

Table and description of Phase 1 screening results was delivered several months ago. Re-examination of Phase 1 criteria led to development of health oriented indices and a table of maximum potential revised screening radiation hazards of radioisotope shipments. A draft of revised Phase 1 screening is in progress.

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

Project status report based on the June and September program reviews is in progress.

Subtask 1g (Develop plan for obtaining information from sources/licensees)

An intensive interaction with NRC on this plan has been initiated. Steps taken this month include the following. A listing of desired characteristics of radionuclides has been prepared and sent to NRC. Comments on the listing have been received from NRC in the light of which a revised listing has been returned to NRC. A draft of "Plan for Obtaining Information from Sources/Licensees" and a questionnaire for the same purpose have been initiated.

Subtask 2a (Clearances to contact sources/licensees)

Results of current subtask 1g need to be reviewed and approved by NRC before clearances can be processed.

Subtask 2b (Prepare list of sources/licensees)

Original list given in October 30, 1978 letter to Holz is being re-examined.

Subtasks 2c and 2d (Complete contacts with sources/licensees; prepare updated list of materials to be analyzed)

The subtasks cannot be started until subtasks 1g, 2a, 2b are well underway or complete.

Subtasks 2e, 3a, and 3b (Analyze possible threat of materials on updated list; identify feasible malevolent deployment; characterize candidate materials for reconsideration of physical protection)

The subtasks are not scheduled to start yet.

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BUDGET AND TECHNICAL MANPOWER EXPENDITURES (FY 1980)

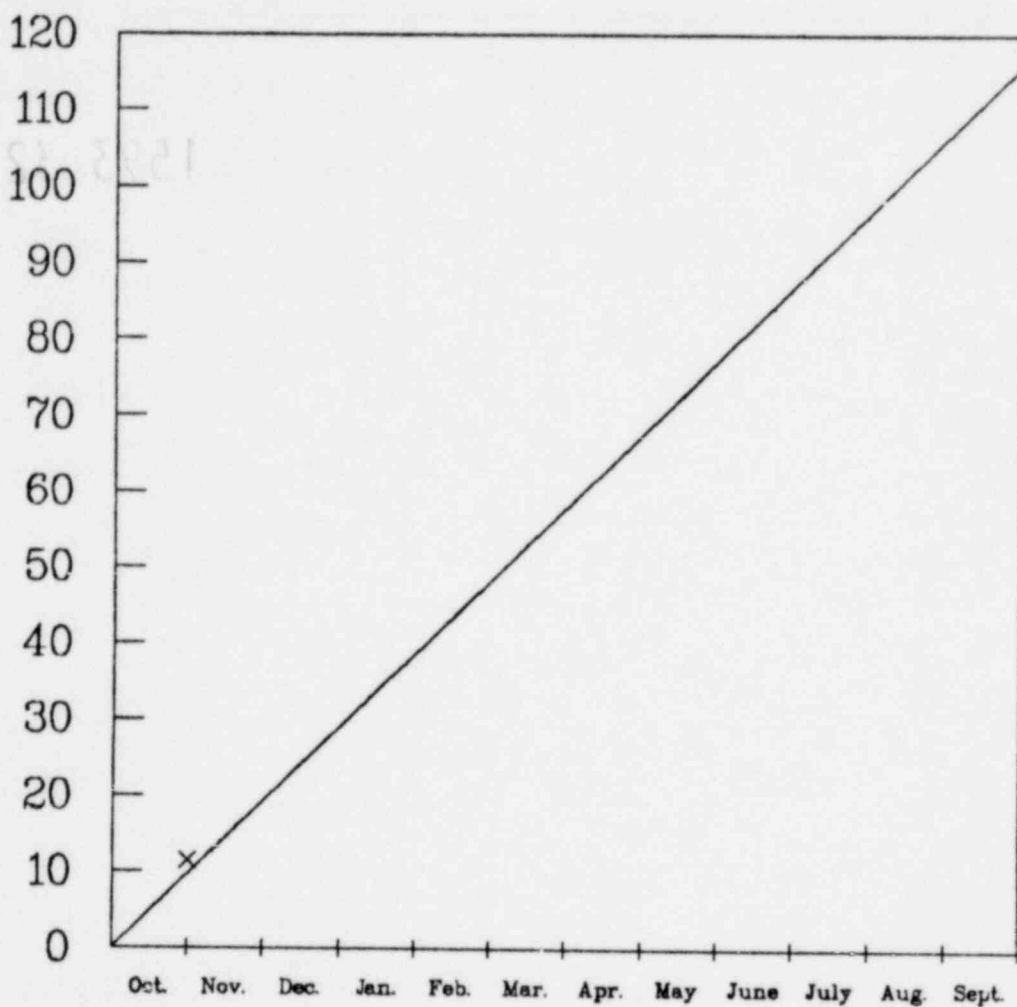
<u>Reporting Period</u>	<u>Project Costs, \$</u>	<u>Technical Support, Man-months</u>
October 1979	11,459	1.5
Total to Date	11,459	1.5
Estimated Cost to Completion	104,541	17.0

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MONTHLY EXPENDITURES FY 1980 (\$1000)

	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

Total Expenditures**
(thousands of dollars)



1979

1980

Months FY 1980

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

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