



cy. 18

3 4456 0509827 5

Radioisotope Distribution Program Progress Report for May 1977

E. Lamb



OAK RIDGE NATIONAL LABORATORY
CENTRAL RESEARCH LIBRARY
DOCUMENT COLLECTION

LIBRARY LOAN COPY

DO NOT TRANSFER TO ANOTHER PERSON

If you wish someone else to see this
document, send in name with document
and the library will arrange a loan.

UCN-7969
(3 3-67)

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION FOR THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the Energy Research and Development Administration/United States Nuclear Regulatory Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

Contract No. W-7405-eng-26

OPERATIONS DIVISION

RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR MAY 1977

E. Lamb

Work Sponsored by
ERDA Division of Biomedical and
Environmental Research

Date Published - June 1977

NOTICE This document contains information of a preliminary nature.
It is subject to revision or correction and therefore does not represent a
final report.

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
for the
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

LOCKHEED MARTIN ENERGY RESEARCH LIBRARIES



3 4456 0509827 5



CONTENTS

	<u>Page</u>
SUMMARY.	1
RADIOISOTOPE PRODUCTION AND MATERIALS DEVELOPMENT.	1
REACTOR-PRODUCED RADIOISOTOPES	1
Reactor Products Pilot Production.	1
ACCELERATOR-PRODUCED ISOTOPES.	1
Cyclotron Products Pilot Production.	1
FISSION PRODUCTS	1
Krypton-85 Enrichment Facility	1
Cesium-137 Pilot Production.	2
Strontium-90 Pilot Production.	3
Short-Lived Fission Production	4
RADIOISOTOPE SALES	4
PUBLICATIONS	5
REPORTS.	5

RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR MAY 1977

E. Lamb

SUMMARY

Information is reported on new production,
inventory status, operational problems,
and radioisotope sales.

RADIOISOTOPE PRODUCTION AND MATERIALS DEVELOPMENT

REACTOR-PRODUCED RADIOISOTOPES

Reactor Products Pilot Production (*R. W. Schaich*)
(Production and Inventory Accounts)

<u>Processed Units</u>	
<u>Radioisotope</u>	<u>Amount (mCi)</u>
Calcium-47	21

ACCELERATOR-PRODUCED ISOTOPES

Cyclotron Products Pilot Production (*M. R. Skidmore*)
(Production and Inventory Accounts)

The ORNL 86-Inch Cyclotron was shut down during the entire month of May 1977 for repairs and maintenance.

FISSION PRODUCTS

Krypton-85 Enrichment Facility (*R. W. Schaich*)

The ⁸⁵Kr enrichment columns were inoperative during the month of May. A maintenance program, initiated in January to upgrade the operational safety of the system, was completed in April but startup was delayed due to leakage problems. A helium leak testing program has been initiated to determine the leak points and repairs should be completed by June 15, 1977. Full operation of the columns should start by July 1, 1977.

Cesium-137 Pilot Production (*R. W. Schaiach*)
(Production and Inventory Accounts)

1. Process Status

Process equipment is in standby status.

2. Operational Summary

Product Inventory

(Decay calculated through August 31, 1976)

<u>Inventory Material</u>	<u>Amount (Ci)</u>
Cesium-137 chloride powder	35,450
<u>Total Inventory Material</u>	<u>35,450</u>
<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
Special Form cans	4,500
Material returned or stored for customer	
J. L. Shepherd	0
New England Nuclear Corporation	3,000
Puerto Rico sources	8,100
Lockheed	20,100
AECL powder	54,000
Radiation Resources	19,700
Minn. Mining & Mfg. Company	4,700
Gamma Industries	8,600
<u>Total Non-Inventory Material</u>	<u>122,700</u>
TOTAL INVENTORY AND NON-INVENTORY MATERIAL	158,150

Fabrication Summary

	<u>May 1977</u>		<u>CY 1977</u>		<u>FY 1977</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	0	0	5	15,846	22	16,146
Shipped	1	4,000	8	34,475	67	49,413
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	2	200	8	4,200	8	4,200

3. Current Orders

All orders on hand have been completed and the material placed into storage awaiting receipt of release for the material.

Strontium-90 Pilot Production (*R. W. Schleich*)
(Production and Inventory Accounts)

1. Process Status

The ^{90}Sr vacuum hot press testing has been completed and the unit will be installed by July 1, 1977 to fabricate three Sentinel-8 generators for Teledyne Energy Systems.

Product Inventory

(Decay calculated through August 31, 1976)

<u>Inventory Material</u>	<u>Amount (Ci)</u>
^{90}Sr titanate powder ($\pm 5\%$)	77,000
Sources in fabrication	0
RCA source	57,300
^{90}Sr silicate powder (est.)	28,000
Stock powder cans	<u>3,780</u>
<u>Total Inventory Material</u>	<u>166,080</u>

<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
Calorimeter Standards	4,900
FPDL recovery material	19,700
Quehanna recovery material	44,000
Weather Bureau source	11,700
SNAP-7B	160,200
SNAP-7C	25,200
SNAP-7D	146,600
SNAP material purchase ^a	<u>254,500</u>
<u>Total Non-Inventory Material</u>	<u>666,800</u>

TOTAL INVENTORY AND NON-INVENTORY MATERIAL	<u>832,880</u>
--	----------------

^aStrontium-90 purchased under DRRD program.

Fabrication Summary

	<u>May 1977</u>		<u>CY 1977</u>		<u>FY 1977</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	0	0	0	0	0	0
Shipped	0	0	1	20,000	1	20,000
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	0	0	1	10	1	10

Short-Lived Fission Production (*R. W. Schleich*)
(Production and Inventory Accounts)

<u>Isotope</u>	<u>Number of Batches</u>	<u>Amount (Ci)</u>
Xenon-133	3	1800
Iodine-131	1	50

RADIOISOTOPE SALES

J. E. Ratledge

Shipments made during the month that may be of interest are listed below:

<u>Customer</u>	<u>Isotope</u>	<u>Amount</u>
<u>Large Quantities</u>		
New England Nuclear Corporation	Tritium	10,000 Ci
American Atomics Corporation	Tritium	8,000 Ci
Saunders-Roe Development, Ltd., England	Tritium	10,000 Ci
ICN Pharmaceuticals	Tritium	1,000 Ci

Withdrawn Items

Cleveland Metropolitan General Hospital	Iodine-131	50 mCi
---	------------	--------

Items Used in Cooperative Programs

University of Southern California	Platinum-195m	10 mCi
Mary Hitchcock Memorial Hospital	Platinum-195m	20 mCi

The radioisotope sales and shipments for October 1975 through May 1976 and the first eight months of fiscal year 1977 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	10-1-75 thru 5-31-76	10-1-76 thru 5-31-77
Inventory items	\$ 206,521	\$ 267,947
Major products	38,028	75,732
Radioisotope services	48,562	144,884
Cyclotron irradiations	139,921	170,551
Miscellaneous processed materials	37,609	47,561
Packing and shipping	82,307	129,699
Total	\$ 552,948	\$ 836,374
Number of shipments	1,417	1,633

PUBLICATIONS

REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for April 1977*, ORNL/TM-5925, Oak Ridge National Laboratory (May 1977).

6.

5

4

3

2

1

0

INTERNAL DISTRIBUTION

- | | |
|----------------------|--------------------------------------|
| 1. E. E. Beauchamp | 12. M. E. Ramsey |
| 2. T. A. Butler | 13. J. E. Ratledge |
| 3. F. N. Case | 14. C. R. Richmond |
| 4. W. R. Casto | 15. R. W. Schaich |
| 5. J. A. Cox | 16. M. R. Skidmore |
| 6. R. F. Hibbs | 17. M. J. Skinner |
| 7. E. Lamb | 18-19. Central Research Library |
| 8. H. H. Nichol | 20-21. Laboratory Records Department |
| 9. C. L. Ottinger | 22. Laboratory Records - RC |
| 10. J. K. Poggenburg | 23. Document Reference Section |
| 11. H. Postma | |

EXTERNAL DISTRIBUTION

- 24. B. J. Dropesky, LASL, Los Alamos, New Mexico
- 25-26. J. H. Jarrett, PNL, Richland, Washington
- 27. D. K. Jones, Richland Operations Office, Richland, Washington
- 28. J. N. Maddox, ERDA-DBER, Washington, D.C.
- 29. H. A. O'Brien, LASL, Los Alamos, New Mexico
- 30. F. J. Skozen (Krizek), Argonne Cancer Research Hospital, Chicago
- 31. L. G. Stang, Jr., BNL, New York
- 32. W. H. Weyzen, ERDA-DBER, Washington, D.C.
- 33-34. R. W. Wood, ERDA-DBER, Washington, D.C.
- 35. Donner Laboratory Library, Univ. of California, Berkeley, Calif., 94720
- 36. Research and Technical Support Division, ORO
- 37-38. Technical Information Center