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# Radioisotope Distribution Program Progress Report for April 1977

E. Lamb



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OPERATIONS DIVISION

RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR APRIL 1977

E. Lamb

Work Sponsored by  
ERDA Division of Biomedical and  
Environmental Research

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RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR APRIL 1977

*E. Lamb*

SUMMARY

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

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RADIOISOTOPE PRODUCTION AND MATERIALS DEVELOPMENT

REACTOR-PRODUCED RADIOISOTOPES

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

<u>Processed Units</u>	
<u>Radioisotope</u>	<u>Amount (mCi)</u>
Calcium-47	33

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 April 1977 for repairs and maintenance.

FISSION PRODUCTS

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

The <sup>85</sup>Kr enrichment columns were inoperative during the month of April. 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 May 15, 1977. Full operation of the columns should start by June 1, 1977.

Cesium-137 Pilot Production (R. W. Schleich)  
(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	4,000
New England Nuclear Corporation	3,200
Puerto Rico sources	8,100
Lockheed	20,100
AECL powder	54,000
Radiation Resources	19,700
Minn. Mining & Mfg. Company	4,700
Gamma Industries	<u>8,600</u>
<u>Total Non-Inventory Material</u>	<u>126,900</u>
<b>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</b>	<b>162,350</b>

Fabrication Summary

	<u>Apr. 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	0	0	7	30,475	66	45,413
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	2	1,900	6	4,000	6	4,000

## 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. Schaich*)  
(Production and Inventory Accounts)

## 1. Process Status

The  $^{90}\text{Sr}$  vacuum hot press will be installed by June 1, 1977 to fabricate three sources for Sentinel-8 generators for Teledyne Energy Systems in July, 1977.

Product Inventory

(Decay calculated through August 31, 1976)

<u>Inventory Material</u>	<u>Amount (Ci)</u>
$^{90}\text{Sr}$ titanate powder ( $\pm 5\%$ )	77,000
Sources in fabrication	0
RCA source	57,300
$^{90}\text{Sr}$ 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 <sup>a</sup>	<u>254,500</u>
<u>Total Non-Inventory Material</u>	<u>666,800</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>832,880</u>

<sup>a</sup>Strontium-90 purchased under DRRD program.

Fabrication Summary

	<u>Apr. 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	2	1050
Ruthenium-103	1	20
Niobium-95	1	4

## 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>		
American Atomics Corporation	Tritium	10,000 Ci
New England Nuclear Corporation	Tritium	10,000 Ci
Self-Powered Lighting	Tritium	2,500 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
Mine Safety Appliance Company	Iodine-131	71 mCi

Items Used in Cooperative Programs

University of Southern California	Platinum-195m	10 mCi
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The radioisotope sales and shipments for October 1975 through April 1976 and the first seven months of fiscal year 1977 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	10-1-75 thru 4-30-76	10-1-76 thru 4-30-77
Inventory items	\$ 159,468	\$ 228,089
Major products	31,112	66,878
Radioisotope services	43,287	137,245
Cyclotron irradiations	117,200	170,551
Miscellaneous processed materials	29,489	41,265
Packing and shipping	66,485	114,434
Total	\$ 447,041	\$ 758,462
Number of shipments	1,219	1,441

## PUBLICATIONS

### REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for March 1977*, ORNL/TM-5891, Oak Ridge National Laboratory (April 1977).

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