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# Radioisotope Distribution Program Progress Report for June 1977

E. Lamb



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OPERATIONS DIVISION

RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR JUNE 1977

E. Lamb

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RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR JUNE 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	26

ACCELERATOR-PRODUCED ISOTOPES

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

June 1977 ORNL 86-Inch Cyclotron runs for ORNL and non-ORNL programs are given in Table 1.

Table 1. Cyclotron Irradiations and Runs for June 1977

Date	Customer	Product	Target	Total Time (hr:min)	Total Charges
<u>ORNL Programs</u>					
6-18-77	ORAU	Carbon-11	Boron Oxide	12:10	\$ 1,425
6-26-77	Y-12 Plant	Cobalt-56	Iron	6:15	971
				18:25	\$ 2,396
<u>Non-ORNL Programs</u>					
6-15-77	New England Nuclear	Cobalt-57	Nickel-58	51:15	\$ 9,060
6-26-77	New England Nuclear	Cobalt-57	Nickel-58	51:15	9,090
				102:30	\$18,150

Cyclotron Operations

Major repairs to the cyclotron were completed June 11, 1977 and regular production runs were started. Malfunction of some components resulted in operation of the cyclotron at a reduced beam current.

FISSION PRODUCTS

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

Fifty percent of the  $^{85}\text{Kr}$  enrichment columns were operative during the month of June. A helium leak testing program is still in progress to determine the leak points on the remaining columns, and repairs should be completed by July 1, 1977. Full operation of all the columns should start during July.

Cesium-137 Pilot Production (*R. W. Schaich*)  
(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	3,700
Gamma Industries	8,600
<u>Total Non-Inventory Material</u>	<u>121,700</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>157,150</u>

Fabrication Summary

	<u>June 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	8	34,475	67	49,413
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	1	950	9	5,150	9	5,150

## 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 <sup>90</sup>Sr vacuum hot press testing has been completed and the unit has been installed in the hot cell 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>
<sup>90</sup> Sr titanate powder (±5%)	77,000
Sources in fabrication	0
RCA source	57,300
<sup>90</sup> 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>June 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	1	10	2	20	2	20

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

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

## 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	10,000 Ci
Brookhaven National Laboratory	Tritium	1,500 Ci
Self-Powered Lighting	Tritium	3,500 Ci
Saunders-Roe Development, Ltd., England	Tritium	10,000 Ci

Withdrawn Items

Microbiological Associates	Carbon-14	0.01 mCi
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The radioisotope sales and shipments for October 1975 through June 1976 and the first nine months of fiscal year 1977 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	10-1-75 thru 6-30-76	10-1-76 thru 6-30-77
Inventory items	\$ 246,437	\$ 304,279
Major products	45,785	85,744
Radioisotope services	111,642	150,634
Cyclotron irradiations	152,977	170,551
Miscellaneous processed materials	43,441	35,968
Packing and shipping	<u>95,392</u>	<u>145,969</u>
Total	\$ 695,674	\$ 893,145
Number of shipments	1,583	1,840

## PUBLICATIONS

## REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for May 1977*, ORNL/TM-5979, Oak Ridge National Laboratory (June 1977).



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