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Radioisotope Distribution Program Progress Report for October 1977

E. Lamb

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OPERATIONS DIVISION

RADIOISOTOPE DISTRIBUTION PROGRAM PROGRESS REPORT FOR OCTOBER 1977

Date Published - December 1977

E. Lamb

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RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR OCTOBER 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)

Processed Units	
Radioisotope	Amount (mCi)
Calcium-47	25

ACCELERATOR-PRODUCED ISOTOPES

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

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

Table 1. Cyclotron Irradiations and Runs for October 1977

Date	Customer	Product	Target	Total Time (hr:min)	Total Charges
		ORNL Programs			
10- 6-77	ORAU	Carbon-11	Boron Oxide	6:20	$ 755
10-27-77	ORAU	Carbon-11	Boron Oxide	5:35	668
				11:55	$ 1,423
		Non-ORNL Programs			
10- 3-77	New England Nuclear	Gallium-67	Zinc-68	42:25	$ 6,555
10- 7-77	New England Nuclear	Gold-195	Platinum	11:15	1,918
10-11-77	Westinghouse-Hanford	Beryllium-7	Lithium	2:15	670
10-18-77	New England Nuclear	Zinc-65	Copper	6:15	1,130
10-21-77	New England Nuclear	Germanium-68	Gallium	13:15	2,279
10-25-77	New England Nuclear	Gallium-67	Zinc-68	25:15	3,980
10-28-77	New England Nuclear	Germanium-68	Gallium	13:15	2,279
				113:55	$18,811
		Isotopes Sales Inventory			
10-13-77	Isotopes Sales	Cobalt-57	Nickel	49:30	$ 8,207

Cyclotron Operations

Other than the routine maintenance of the cyclotron, the only unusual event during the month was a power outage October 1, 1977. Firemen checking the fire alarm system in the building tripped the 13,800 volt transformer supplying the building, resulting in the loss of vacuum in the cyclotron tank and the usual accompanying complications.

FISSION PRODUCTS

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

Two of the ^{85}Kr enrichment columns were operative during the month of October and all the units were functioning according to design. All three columns in the south bank were unloaded and the yield ranged from 5 to 21.84% enrichment in ^{85}Kr. A total of 175 Ci of 21.84% enriched ^{85}Kr was made available for sales. The remaining cuts varied from 5 to 10% and will be reloaded on the south bank columns in November. The south bank loading station was modified to increase the operating sensitivity and to reduce personnel exposure from the higher enrichment ^{85}Kr being handled in the system.

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

1. Process Status

The ^{137}Cs processing equipment has been placed in standby status.

2. Operational Summary

Product Inventory

(Decay calculated through August 31, 1977)

Inventory Material	Amount (Ci)
Cesium-137 chloride powder	29,960
Total Inventory Material	29,960

Non-Inventory Material	Amount (Ci)
Special Form Cans	4,300
Material returned or stored for customer	
Nuclear Research Corporation	0
J. L. Shepherd	50,600
New England Nuclear Corporation	2,700
Puerto Rico Sources	7,900
Lockheed	19,600
AECL powder	71,500
Radiation Resources	19,800
Minn. Mining & Mfg. Company	2,800
Gamma Industries	8,400
Total Non-Inventory Material	187,600
TOTAL INVENTORY AND NON-INVENTORY MATERIAL	217,560

Fabrication Summary

	Oct. 1977		CY 1977		FY 1978	
	No.	Ci	No.	Ci	No.	Ci
Sources						
Fabricated	0	0	14	16,926	0	0
Shipped	0	0	17	35,555	0	0
Special Form Cans						
Fabricated	1	5	2	2,055	1	5
Shipped	1	5	14	7,505	1	5

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}source fabrication equipment has been placed in standby status.

Product Inventory

(Decay calculated through August 31, 1977)

Inventory Material	Amount (Ci)
^{90}Sr titanate powder (±5%)	0
Sources in fabrication	0
Stock powder cans	3,325
Stock solution	200
Total Inventory Material	3,525

Non-Inventory Material	Amount (Ci)
Batch 26Sr-74RE	7,900
Calorimeter Standards	4,800
Weather Bureau source	11,400
SNAP-7B	156,300
SNAP-7C	24,600
SNAP-7D	143,000
SNAP material purchase[a]	248,300
AGN-4 Powder	38,400
Total Non-Inventory Material	634,700
TOTAL INVENTORY AND NON-INVENTORY MATERIAL	638,225

[a]Strontium-90 purchased under DRRD program.

Fabrication Summary

	Oct. 1977		CY 1977		FY 1978	
	No.	Ci	No.	Ci	No.	Ci
Sources						
Fabricated	0	0	3	157,000	0	0
Shipped	0	0	4	177,000	0	0
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	0	0	2	20	0	0

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

Isotope	Number of Batches	Amount (Ci)
Xenon-133	2	1500
Niobium-95	1	13
Iodine-131	1	50

RADIOISOTOPE SALES

J. E. Ratledge

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

Customer	Isotope	Amount
Large Quantities		
U. S. Radium Corporation	Tritium	10,000 Ci
New England Nuclear Corporation	Tritium	8,000 Ci
American Atomics Corporation	Tritium	45,000 Ci
ICN Pharmaceuticals	Tritium	1,000 Ci
Self-Powered Lighting, Ltd.	Tritium	3,000 Ci
Schwarz/Mann	Tritium	1,500 Ci
Items Used in Cooperative Programs		
University of Kentucky	Platinum-195m	20 mCi
University of Southern California	Platinum-195m	20 mCi

The radioisotope sales and shipments for October 1976 and the first month of fiscal year 1978 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	10-1-76 thru 10-31-76	10-1-77 thru 10-31-77
Inventory items	$ 26,165	$ 88,070
Major products	7,378	11,051
Radioisotope services	7,504	40,118
Cyclotron irradiations	44,573	24,688
Miscellaneous processed materials	9,571	4,909
Packing and Shipping	13,990	15,415
Total	$ 109,181	$ 184,251
Number of shipments	178	186

PUBLICATIONS

REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for September 1977*, ORNL/TM-6154, Oak Ridge National Laboratory (November 1977).

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