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**Radioisotope Distribution Program
Progress Report for November 1975**

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author



OAK RIDGE NATIONAL LABORATORY

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RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR NOVEMBER 1975

E. Lamb

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JANUARY 1976

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RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR NOVEMBER 1975

E. Lamb

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	18
Copper-67	9

ACCELERATOR-PRODUCED ISOTOPES

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

November 1975 ORNL 86-Inch Cyclotron runs for ORNL and non-ORNL programs are given in Table 1.

Table 1. Cyclotron Irradiations and Runs for November 1975

Date	Customer	Product	Target	Total Time (hr:min)	Total Charges
<u>ORNL Programs</u>					
11-3-75	ORAU	Carbon-11	Boron Oxide	1:45	\$ 173
11-4-75	ORAU	Carbon-11	Boron Oxide	4:00	387
11-11-75	ORAU	Carbon-11	Boron Oxide	3:00	292
11-14-75	ORAU	Carbon-11	Boron Oxide	3:10	308
11-17-75	ORAU	Carbon-11	Boron Oxide	3:05	300
11-28-75	ORAU	Target Development		15:00	150
				15:00	\$ 1,610
<u>Non-ORNL Programs</u>					
10-31-75	New England Nuclear	Germanium-68	Gallium	9:15	\$ 1,533
11-6-75	New England Nuclear	Cobalt-57	Nickel-58	26:15	5,020
11-8-75	New England Nuclear	Gallium-67	Zinc-68	17:15	2,455
11-12-75	New England Nuclear	Gallium-67	Zinc-68	25:15	3,675
11-18-75	New England Nuclear	Rubidium-84	Krypton-84	6:15	1,545
				84:15	\$14,228

Cyclotron Operations

A thermal water leak developed in the Dee's of the cyclotron in November. The Dee's were removed from the cyclotron and the rest of the month was spent attempting to locate the leak.

FISSION PRODUCTS

Krypton-85 Enrichment Facility (*F. N. Case*)

All of the ⁸⁵Kr thermal diffusion enrichment columns were placed in operation following a revalving of loadout stations and cooling system maintenance. The wire conductors from the electrometers to the readout station used to monitor the enrichment progress were protected from condensate water that caused a short in the system during the first cycle.

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

1. Process Status

The ¹³⁷Cs process equipment is in standby condition.

2. Operational Summary

Product Inventory

(Decay calculated through April 30, 1975)

<u>Inventory Material</u>	<u>Amount (C1)</u>
Cesium-137 chloride powder	0
Special form cans	<u>5,000</u>
<u>Total Inventory Material</u>	<u>5,000</u>
<u>Non-Inventory Material</u>	<u>Amount (C1)</u>
Material returned or stored for customer	
Puerto Rico sources	8,400
Lockheed	27,600
AECL powder	72,000
Radiation Resources	35,900
Minn. Mining & Mfg. Company	11,700
Gamma Industries	8,800
J. L. Shepherd	<u>17,800</u>
<u>Total Non-Inventory Material</u>	<u>182,200</u>
 TOTAL INVENTORY AND NON-INVENTORY MATERIAL	 187,200

Fabrication Summary

	<u>Nov. 1975</u>		<u>CY 1975</u>		<u>FY 1976</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	5	2,023	45	30,406	16	22,032
Shipped	0	0	40	28,383	11	20,009
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	0	0	10	4,151	5	2,070

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 ⁹⁰Sr process and manipulator cells are being decontaminated under the DWMT Decommission Program. The ⁹⁰Sr powder was removed from the FPD, encapsulated, and stored for future orders.

Product Inventory

(Decay calculated through April 30, 1975)

<u>Inventory Material</u>	<u>Amount (Ci)</u>
⁹⁰ Sr titanate powder (±5%)	491,800
Sources in fabrication	0
RCA source	59,200
⁹⁰ Sr silicate powder	28,900
Stock powder cans	4,680
<u>Total Inventory Material</u>	<u>584,580</u>
<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
FPDL recovery material	18,700
Quehanna recovery material	45,500
Weather Bureau source	12,100
SNAP-7B	165,600
SNAP-7C	26,000
SNAP-7D	151,500
SNAP material purchase ^a	263,000
<u>Total Non-Inventory Material</u>	<u>682,400</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>1,266,980</u>

^aStrontium-90 purchased under DRRD program.

Fabrication Summary

	<u>Nov. 1975</u>		<u>CY 1975</u>		<u>FY 1976</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	0	0	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)

<u>Isotope</u>	<u>Number of Batches</u>	<u>Amount (Ci)</u>
Xenon-133	2	700
Iodine-131	1	40

RADIOISOTOPE SALES

J. E. Katledge

A request was received from the Radiochemical Centre, England, for a quotation for 180 kCi ³H gas.

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	Tritium	6,000 Ci
New England Nuclear Corporation	Tritium	6,000 Ci
Schwarz/Mann	Tritium	1,000 Ci
<u>Withdrawn Items</u>		
University of Rochester	Iodine-131	50 mCi
Cleveland General Hospital	Iodine-131	25 mCi
<u>Items Used in Cooperative Programs</u>		
ORAU	Dysprosium-157	90 mCi
ORAU	Erbium-171	135 mCi

The radioisotope sales and shipments for the first five months of FY 1975 and FY 1976 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	7-1-74 thru 11-30-74	7-1-75 thru 11-30-75
Inventory items	\$ 209,223	\$ 115,155
Major products	19,865	18,788
Radioisotope services	57,937	36,807
Cyclotron irradiations	32,930	73,094
Miscellaneous processed materials	35,817	24,363
Packing and Shipping	32,270	33,913
Total	\$ 388,042	\$ 302,120
Number of shipments	663	700

PUBLICATIONS

REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for October 1975*, ORNL-TM-5219, Oak Ridge National Laboratory (December 1975).

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