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(**Radioisotope Distribution Program
Progress Report for May 1976**)

(E. Lamb) A

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OAK RIDGE NATIONAL LABORATORY

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OPERATIONS DIVISION

RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR MAY 1976

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RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR MAY 1976

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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	16
Copper-67	9

ACCELERATOR-PRODUCED ISOTOPES

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

May 1976 ORNL 86-Inch Cyclotron runs for ORNL and non-ORNL programs are given in Table 1.

Table 1. Cyclotron Irradiations and Runs for May 1976

Date	Customer	Product	Target	Total Time (hr:min)	Total Charges
<u>ORNL Programs</u>					
5- 5-76	ORAU	Carbon-11	Boron Oxide	5:15	\$ 642
5-10-76	ORAU	Carbon-11	Boron Oxide	5:15	642
5-24-76	ORAU	Carbon-11	Boron Oxide	5:15	642
				15:45	\$ 1,926
<u>Non-ORNL Programs</u>					
4-30-76	New England Nuclear	Cobalt-57	Nickel-58	51:15	\$ 8,933
5- 6-76	New England Nuclear	Rubidium-84	Krypton-84	6:30	1,558
5- 7-76	New England Nuclear	Germanium-68	Gallium	13:15	2,288
5-18-76	New England Nuclear	Cobalt-57	Nickel-58	51:15	9,031
				122:15	\$21,810

Cyclotron Operations

The mercury rectifiers in the cubicles (the d.c. high voltage power supplies for oscillator) were replaced with six stacks of solid state devices in 1968. On May 14, 1976, master cubicle 96 failed and all six stacks of rectifiers in the cubicle were found to have failed. The rectifiers were replaced and the rest of the cubicle was checked. We had smooth operations for the rest of the month.

FISSION PRODUCTS

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

The ^{85}Kr enrichment columns operated satisfactorily during the month of May. Unloading operations will be initiated after the installation of a new unloading station. This station is being designed and should be in operation by July 1976.

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

1. Process Status

The analytical data on the purified powder batches recovered from the WESF container was completed and the product powder averaged 24.4 Ci per gram. A total of 42,164 Ci was recovered from the WESF container, which represents a yield of 91.7%.

2. Operational Summary

Product Inventory

(Decay calculated through April 30, 1975)

<u>Inventory Material</u>	<u>Amount (Ci)</u>
In-Process	0
Cesium-137 chloride powder	32,700
Special form cans and Fabricated Sources	9,800
<u>Total Inventory Material</u>	<u>42,500</u>
 <u>Non-Inventory Material</u>	 <u>Amount (Ci)</u>
Material returned or stored for customer	
Puerto Rico sources	8,200
Lockheed	20,300
AECL powder	73,800
Radiation Resources	34,600
Minn. Mining & Mfg. Company	9,500
Gamma Industries	8,600
J. L. Shepherd	13,400
<u>Total Non-Inventory Material</u>	<u>168,400</u>
 TOTAL INVENTORY AND NON-INVENTORY MATERIAL	 210,900

Fabrication Summary

	<u>May 1976</u>		<u>CY 1976</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	2	3,000	28	26,232
Shipped	0	0	2	3,000	18	24,032
Special Form Cans						
Fabricated	0	0	42	4,200	80	9,100
Shipped	1	100	3	300	36	7,422

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 ERDA Decommissioning 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%)	476,000
Sources in fabrication	0
RCA source	57,800
⁹⁰ Sr silicate powder	28,200
Stock powder cans	4,000
<u>Total Inventory Material</u>	<u>566,000</u>
<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
FPDL recovery material	18,200
Quehanna recovery material	44,400
Weather Bureau source	11,800
SNAP-7B	161,500
SNAP-7C	25,400
SNAP-7D	147,800
SNAP material purchase ^a	256,600
<u>Total Non-Inventory Material</u>	<u>665,700</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>1,231,700</u>

^aStrontium-90 purchased under DRRD program.

Fabrication Summary

	<u>May 1976</u>		<u>CY 1976</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	1	100	5	234	9	604

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

<u>Isotope</u>	<u>Number of Batches</u>	<u>Amount (Ci)</u>
Iodine-131	1	50
Xenon-133	2	1300

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	6,000 Ci
American Atomics	Tritium	6,000 Ci
ICN Pharmaceuticals	Tritium	1,000 Ci
Saunders-Roe, England	Tritium	5,000 Ci
Self-Powered Lighting	Tritium	2,000 Ci

Withdrawn Items

K-25 Plant	Iodine-131	5 mCi
Cleveland General Hospital	Iodine-131	50 mCi

Items Used in Cooperative Programs

University of Southern California	Platinum-195m	18 mCi
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The radioisotope sales and shipments for the first eleven months of FY 1975 and FY 1976 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	7-1-74 thru 5-31-75	7-1-75 thru 5-31-76
Inventory items	\$ 342,635	\$ 272,335
Major products	92,390	49,516
Radioisotope services	81,199	80,319
Cyclotron irradiations	90,689	164,801
Miscellaneous processed materials	130,701	51,593
Packing and Shipping	<u>69,015</u>	<u>102,110</u>
Total	\$ 806,629	\$ 720,674
Number of shipments	1,457	1,567

PUBLICATIONS

REPORTS

E. Lamb, *Radioisotope Distribution Program Progress Report for April 1976*, ORNL/TM-5537, Oak Ridge National Laboratory (June 1976).

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