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# Radioisotope Distribution Program Progress Report for March 1975

J. H. Gillette

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ORNL-TM-4937

Contract No. W-7405-eng-26

ISOTOPES DEVELOPMENT CENTER

RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR MARCH 1975

J. H. Gillette

Work Sponsored by  
ERDA Division of Biomedical and  
Environmental Research

JUNE 1975

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RADIOISOTOPE DISTRIBUTION PROGRAM  
PROGRESS REPORT FOR MARCH 1975

*J. H. Gillette*

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>
Copper-67	33
Calcium-47	27

ACCELERATOR-PRODUCED ISOTOPES

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

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

Table 1. Cyclotron Irradiations and Runs for March 1975

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Target</u>	<u>Total Time (hr:min)</u>	<u>Total Charges</u>
<u>ORNL Programs</u>					
2-27-75	ORAU	Carbon-11	Boron Oxide	1:45	\$ 176
3-4-75	ORAU	Carbon-11	Boron Oxide	3:45	356
3-7-75	ORAU	Carbon-11	Boron Oxide	2:45	261
3-11-75	ORAU	Carbon-11	Boron Oxide	2:20	212
3-12-75	ORAU	Carbon-11	Boron Oxide	<u>1:25</u>	<u>135</u>
				12:00	\$ 1,140
<u>Non-ORNL Programs</u>					
3-27-75	New England Nuclear Corporation	Cobalt-57	Nickel-58	51:15	\$ 7,314

Travel by Cyclotron Personnel

<u>Traveler</u>	<u>Site Visited</u>	<u>Purpose of Visit</u>
M. R. Skidmore	Washington, D.C.	Attend Particle Accelerator Conference

Cyclotron Operations

In addition to routine maintenance, the oscillator tube was replaced (tube life 1736 hours) using a rebuilt oscillator tube. Ten Alpha I high voltage supply cubicles, which have been used as a spare oscillator plate supply source, are being removed. The space, approximately 1200 sq. ft., will then be used by the Y-12 maintenance group as a shop. The Y-12 maintenance group's previous work area is needed by the Thermonuclear Division for additional experimental facilities.

A request for information on a 100-hour irradiation to produce a long-lived radioisotope has been received.

## FISSION PRODUCTS

Krypton-85 Enrichment (*S. E. Gheesling*)

Krypton-85 Columns

Calrod No. 1 on Column C was found to be open electrically and leaking argon to the atmosphere upon completion of the hot test. This calrod assembly has been bypassed from the gas path and isolated electrically.

In addition to the above leakage, one gas transfer line between columns was found to be leaking. This leak has been repaired.

All columns have undergone further heatup and leak testing, with no indication of leakage.

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

## 1. Process Status

The  $^{137}\text{Cs}$  process equipment is in standby condition.

## 2. Operational Summary

Product Inventory

<u>Inventory Material</u>	<u>Amount (Ci)</u>
Cesium-137 chloride powder	0
Sources in fabrication	0
Completed sources and special form cans	<u>11,625<sup>a</sup></u>
<u>Total Inventory Material</u>	<u>11,625</u>

Non-Inventory Material

Material returned or stored for customer	
Puerto Rico sources	8,590
Lockheed	28,500
AECL powder	98,778
Radiation Resources	36,740
Minn. Mining & Mfg. Company	14,000
Gamma Industries	9,000
J. L. Shepherd	<u>28,445</u>
<u>Total Non-Inventory Material</u>	<u>224,053</u>
 TOTAL INVENTORY AND NON-INVENTORY MATERIAL	 235,678

<sup>a</sup>Includes 6330 Ci unclaimed sources and 5295 Ci stock powder cans.

Fabrication Summary

	<u>Mar. 1975</u>		<u>CY 1975</u>		<u>FY 1975</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	0	0	13	371	38	32,463
Shipped	0	0	13	371	38	32,463
Special Form Cans						
Fabricated	0	0	0	0	23	37,710
Shipped	0	0	4	2,049	10	4,169

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

Product Inventory

<u>Inventory Material</u>	<u>Amount (Ci)</u>
<sup>90</sup> Sr titanate powder (±5%)	487,360
Sources in fabrication	0
RCA source	60,650
<sup>90</sup> Sr silicate powder	29,650
Stock powder cans	<u>5,500</u>
<u>Total Inventory Material</u>	<u>583,160</u>
<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
FPDL recovery material	19,200
Quehanna recovery material	46,680
Weather Bureau source	12,400
SNAP-7B	169,730
SNAP-7C	26,660
SNAP-7D	155,280
SNAP material purchase <sup>a</sup>	<u>269,630</u>
<u>Total Non-Inventory Material</u>	<u>699,580</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>1,282,740</u>

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

Fabrication Summary

	<u>Mar. 1975</u>		<u>CY 1975</u>		<u>FY 1975</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	0	0	3	540

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	38

## RADIOISOTOPE SALES

*J. E. Ratledge*

An order was received from J. L. Shepherd and Associates for fourteen  $^{137}\text{Cs}$  sources containing approximately 5800 curies.

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	4,000 Ci
Self-Powered Lighting Limited	Tritium	2,000 Ci
U. S. Radium Corporation	Tritium	10,000 Ci
<u>Withdrawn Items</u>		
Mayo Clinic	Copper-67	36 mCi
University of Rochester	Iodine-131	100 mCi
University of Colorado	Carbon-14 Targets	0.38 mCi
<u>Items Used in Cooperative Programs</u>		
University of Maryland Hospital	Potassium-43	89.3 mCi
Johns Hopkins Medical Institutions	Potassium-43	83.5 mCi
Temple University	Potassium-43	116.3 mCi
University of Texas Medical Branch	Potassium-43	102.8 mCi
Yale-New Haven Medical Center	Potassium-43	116.7 mCi
University of Mississippi Medical Center	Potassium-43	113.7 mCi
College of Medicine & Dentistry of New Jersey	Potassium-43	14.9 mCi
ORAU	Potassium-43	16.1 mCi
George Washington Hospital	Platinum-195m	14 mCi
ORNL, Biology Division	Platinum-195m	1 mCi
ORAU	Dysprosium-157	30 mCi
University of California, San Francisco	Gadolinium-153	2 Ci

The radioisotopes sales proceeds and shipments for the first nine months of FY 1974 and FY 1975 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	7-1-73 thru 3-31-74	7-1-74 thru 3-31-75
Inventory items	\$ 385,231	\$ 289,022
Major products	57,310	37,680
Radioisotope services	216,170	91,393
Cyclotron irradiations	84,747	69,614
Miscellaneous processed materials	54,161	93,937
Packing and Shipping	60,917	54,580
Total	\$ 858,536	\$ 636,226
Number of shipments	1,507	1,153

## PUBLICATIONS

## REPORTS

J. H. Gillette, *Radioisotope Distribution Program Progress Report for February 1975*, ORNL-TM-4893, Oak Ridge National Laboratory (March 1975).

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