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RADIOISOTOPE DISTRIBUTION PROGRAM PROGRESS REPORT FOR MAY 1974

J. H. Gillette



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ORNL-TM-4629

Contract No. W-7405-eng-26

ISOTOPES DEVELOPMENT CENTER

RADIOISOTOPE DISTRIBUTION PROGRAM
PROGRESS REPORT FOR MAY 1974

J. H. Gillette

Work Sponsored by
AEC Division of Biomedical and
Environmental Research

JULY 1974

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RADIOISOTOPE DISTRIBUTION PROGRAM
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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	30
Copper-67	50
Zinc-69m	373

ACCELERATOR-PRODUCED ISOTOPES

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

May 1974 ORNL 86-Inch Cyclotron runs for ORNL and non-ORNL programs are given in Table 1.

Table 1. Cyclotron Irradiations and Runs for May 1974

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Target</u>	<u>Total Time (hr:min)</u>	<u>Total Charges</u>
<u>Non-ORNL Programs</u>					
5-3-74	International Chemical and Nuclear Corp.	Cobalt-57	Nickel-58	49:15	\$8109
<u>Sales Department Inventory</u>					
5-17-74	Isotopes Sales	Bismuth-207	Lead	9:15	\$1498

FISSION PRODUCTS

Krypton-85 Enrichment (*R. J. Lauer*)⁸⁵Krypton Columns

Two bundles of columns have been installed in Cell 2 of Building 3026C. The loading station at Cell 2 is being overhauled. The third bundle is on the site and ready for installation. Bellows pumps for sampling the enriched ⁸⁵Kr are on emergency order.

Chilled Water System

The contractor has started work involved in installing a water chiller for the krypton columns in Building 3026C. The chiller unit has been set on a pad behind the building and the associated pipe work is being fabricated and installed. The contract has a completion date of July 7, 1974.

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

1. Process Status

The ¹³⁷Cs process equipment is in standby condition.

2. Operational Summary

Product Inventory

<u>Inventory Material</u>	<u>Amount (Ci)</u>
Cesium-137 chloride powder	66,350
Sources in fabrication	208,000
Completed sources and special form cans	<u>12,510^a</u>
<u>Total Inventory Material</u>	<u>286,860</u>
<u>Non-Inventory Material</u>	
Material returned or stored for customer	
Puerto Rico sources	8,590
Lockheed	28,500
AECL powder	84,720
Radiation Resources	<u>36,740</u>
<u>Total Non-Inventory Material</u>	<u>158,550</u>
<u>TOTAL INVENTORY AND NON-INVENTORY</u>	<u>445,410</u>

^aIncludes 6,330 Ci unclaimed sources, 6,140 Ci stock powder cans, and two 20-Ci sources for Industrial Nucleonics.

Fabrication Summary

	<u>May 1974</u>		<u>CY 1974</u>		<u>FY 1974</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	16	104,070	50	337,790	75	359,945
Shipped	17	124,930	42	241,360	60	255,905
Special Form Cans						
Fabricated	0	0	2	24,350	4	25,150
Shipped	1	500	3	24,850	5	25,650

3. Current Orders

Current orders for ^{137}Cs as sources or bulk powder are as follows:

<u>Customer</u>	<u>Amount (Ci)</u>	<u>Estimated Shipping Date</u>
Industrial Nucleonics	40	June & July 1974
Sandia Corporation	200,000	June 1974

The current inventory of ^{137}Cs as CsCl powder is ~100 kilocuries.

Strontium-90 Pilot Production (*R. W. Schaich*)
(Production and Inventory Accounts)

1. Process Status

Strontium-90 processing was continued and ~0.15 MCi of ^{90}Sr feed solution was converted to distrontium titanate.

Product Inventory

<u>Inventory Material</u>	<u>Amount (Ci)</u>
Feed solution ($\pm 25\%$)	140,000
Sources in fabrication	0
^{90}Sr titanate powder ($\pm 5\%$)	331,000
RCA source	60,650
^{90}Sr silicate powder	29,650
Stock powder cans	<u>6,050</u>
<u>Total Inventory Material</u>	<u>567,350</u>

<u>Non-Inventory Material</u>	<u>Amount (Ci)</u>
FPDL recovery material	9,650
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 ^a	269,630
<u>Total Non-Inventory Material</u>	<u>690,030</u>
<u>TOTAL INVENTORY AND NON-INVENTORY MATERIAL</u>	<u>1,257,380</u>

^aStrontium-90 purchased under DRRD program.

Fabrication Summary

	<u>May 1974</u>		<u>CY 1974</u>		<u>FY 1974</u>	
	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>	<u>No.</u>	<u>Ci</u>
Sources						
Fabricated	0	0	3	153,170	4	198,870
Shipped	0	0	3	153,170	4	198,870
Special Form Cans						
Fabricated	0	0	0	0	0	0
Shipped	0	0	1	9	2	509

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

<u>Isotope</u>	<u>Number of Batches</u>	<u>Amount (Ci)</u>
Xenon-133	2	700
Iodine-131	1	6

RADIOISOTOPE SALES

J. E. Ratledge

Requests for quotations were received from Atomic Energy of Canada for (14) ¹³⁷Cs sources containing 21.6 kilocuries and from CEA, France, for ten ¹³⁷Cs sources containing 47.5 kilocuries. A letter was received from Mr. C. B. G. Taylor of The Radiochemical Centre inquiring about making personal contacts with responsible parties regarding shortened WESF ⁹⁰Sr cans during his visit to the United States in September 1974. We presently have a backlog of normal ⁸⁵Kr orders totaling ~10,008 curies, and 180 curies of enriched ⁸⁵Kr.

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>		
Isomedix, Inc.	Cesium-137	124,906 Ci
Minnesota Mining & Mfg. Co.	Cesium-137	500 Ci
New England Nuclear Corp.	Hydrogen-3	4,000 Ci
Reynolds Elec. & Eng. Corp.	Cobalt-60	150 Ci

<u>Withdrawn Items</u>		
Mayo Clinic	Copper-67	~30 mCi
University of Alabama	Copper-67	10 mCi
University of Arizona	Copper-67	10 mCi
National Institutes of Health	Copper-67	10 mCi
University of Rochester	Iodine-131	600 mCi
University of Pittsburgh	Iodine-131	100 mCi
University of California, LBL	Iodine-131	30 mCi
Cleveland Metropolitan Gen. Hosp.	Iodine-131	50 mCi

<u>Items Used in Cooperative Programs</u>		
ORAU	Platinum-195m	0.58 mCi
Scripps Clinic & Research Fdtn.	Iron-59	1.16 mCi

The radioisotopes sales proceeds and shipments for the first ten months of FY 1973 and FY 1974 are given in Table 2.

Table 2. Radioisotope Sales and Shipments

Item	7-1-72 thru 5-31-73	7-1-73 thru 5-31-74
Inventory items	\$ 449,350	\$ 399,361
Major products	50,966	62,075
Radioisotope services	208,007	225,825
ORNL 86-Inch Cyclotron	104,252	92,856
Miscellaneous processed materials	55,933	67,491
Packing and Shipping	<u>62,177</u>	<u>67,262</u>
Total	\$ 930,685	\$ 914,870
Number of shipments	<u>1,943</u>	<u>1,661</u>

PUBLICATIONS

REPORTS

J. H. Gillette, *Radioisotope Program Progress Report for April 1974*, ORNL-TM-4608, Oak Ridge National Laboratory.



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