ORNL-IIC-13

UC-23 — Isotopes-Industrial Technology

OAK RIDGE NATIONAL LABORATORY

operated by

UNION CARBIDE CORPORATION

for the

U.S. ATOMIC ENERGY COMMISSION

WASTE

LIST OF AEC RADIOISOTOPE CUSTOMERS WITH SUMMARY OF RADIOISOTOPE SHIPMENTS

FY 1967

Compiled by

Ruth Curl

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ISOTOPES INFORMATION CENTER

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Contract No. W-7405-eng-26

**LIST OF AEC RADIOISOTOPE CUSTOMERS
WITH SUMMARY OF RADIOISOTOPE SHIPMENTS
FY 1967**

Compiled by Ruth Curl
Isotopes Information Center

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MARCH 1968

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee
operated by
UNION CARBIDE CORPORATION
for the
U. S. ATOMIC ENERGY COMMISSION

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Larry E. Williams
_____
Authorizing Official

Date: *06/13/2007*
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Previous reports in this series:

TID-21620 (FY 1964)

ORNL-IIC-6 (FY 1965)

ORNL-IIC-9 (FY 1966)

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LIST OF AEC RADIOISOTOPE CUSTOMERS WITH SUMMARY OF RADIOISOTOPE SHIPMENTS FY 1967

INTRODUCTION

This fourth edition of the AEC radioisotope customer list has been prepared, as previously, at the request of the Division of Isotopes Development of the commission as a compilation of radioisotope sales during FY 1967 by Commission facilities at Argonne National Laboratory, Brookhaven National Laboratory, Douglas-United Nuclear, Inc., Idaho Nuclear Corporation, Mound Laboratory, Oak Ridge National Laboratory, and the Savannah River Plant.

The information is divided into four sections. The first is an alphabetical list of customers that includes, as far as was practical, contacts (or purchasers), and isotopes purchased during the fiscal year. It is further subdivided into domestic and foreign customers. In order to differentiate among the suppliers, the isotopes furnished by Oak Ridge National Laboratory have no other designation. Those furnished by Argonne National Laboratory are followed by (A); those by Brookhaven National Laboratory are followed by (B); those by Douglas-United Nuclear, Inc., by (D); those by Idaho Nuclear Corporation, by (I); those by Mound, by (M); and by Savannah River Plant, by (S). All entries for Argonne, Douglas, and Idaho are either reactor service irradiations or cyclotron service irradiations, or both, with no processed isotopes, being sold. The designations CSI, RSI, and SS denote, respectively, cyclotron service irradiations, reactor service irradiations, and special services (including such items as target fabrication, source encapsulation, and preparation of special chemical forms). Targets are designated as Tgs, and fission products as FP.

The second section is an alphabetical list of isotopes, cross-referenced to customer numbers and again divided into the domestic and foreign categories. The third section is an alphabetical list of states and countries, also cross-referenced to customer numbers, the purpose of which is to indicate geographical concentrations of isotope users. The final section is a comprehensive table which includes an alphabetical listing of the isotopes and a breakdown into shipments, quantities, and dollars for each isotope under the domestic, foreign, and project (AEC facilities) categories. There are also included the total figures for each isotope. Of possible interest is Fig. 1, which presents a comparison of some of the data for FY's 1965, 1966, and 1967.

A similar report covering stable isotope distribution has also been prepared (ORNL-TM-2038, Stable Isotope Customer List and Summary of Shipments, FY 1967).

Fig. 1. Comparison of Sales Data for 1965, 1966, and 1967.

I. ALPHABETICAL LIST OF CUSTOMERS, WITH CONTACTS AND ISOTOPES PURCHASED

A. Domestic

- 1 Abbott Laboratories
1400 Sheridan Road
North Chicago, Illinois 60064
L. H. Keepper, Purchasing Department
 ^{47}Ca , ^{14}C , CSI, ^{86}Rb , RSI
- 2 Aerojet General Corporation
Post Office Box 1947
Sacramento, California
R. McLearnie, Purchasing Department
FPSS, ^3H , ^{90}Sr , SS
- 3 Aerospace Corporation
Post Office Box 95085
Los Angeles, California
E. F. Martina
 ^{147}Pm
- 4 AiResearch Manufacturing Co.
2525 W. 190th Street
Torrance, California 50509
 ^{99}Tc
- 5 Air Reduction Company
Murray Hill, New Jersey
W. A. Keats
 ^{131}Ba , ^{85}Kr , ^{133}Xe
- 6 Alabama, University of
Pedical Center
1919 Seventh Avenue, South
Birmingham, Alabama 35486
J. P. Wingo, Purchasing Agent
 ^{36}Cl , ^{143}Pr , ^{103}Ru , ^{89}Sr
- 7 Alaska, University of
College, Alaska
C. G. Beers, Purchasing Cepartaent
 ^{72}Ga , ^{103}Ru , ^{89}Sr
- 9 Albert Einstein Pedical Center
York and Tabor Rcds
Philadelphia, Pennsylvania 19141
Dr. David Charkes
 Sr-87m(B)
- Y Albert Einstein Medical College
Bronx, New York
Dr. Katzman
 $^{28}\text{Mg(B)}$
- 10 Alcoa Research Laboratories
Radioactive Tracer Group
New Kensington, Pennsylvania 15068
O. E. Proctor, R. P. A.
RSI(B)
- 11 Allen-Bradley Company
136 W. Greenfield Avenue
Milwaukee, Wisconsin 53204
A. D. Domino, Purchasing Agent
 ^{85}Kr
- 12 Alta Bates Hospital
Isotope Laboratory
Webster at Regent
Berkeley, California
 ^{67}Ca
- 13 American Atomics Corporation
425 South Plumer
Tucson, Arizona 85719
D. L. Ledbetter, Purchasing Agent
 ^{85}Kr
- 14 American Cyanamid Company
Lederle Laboratories Division
Pearl River, New York 10965
W. Hoffer, Senior Buyer
 ^3H , ^{131}I
- 15 American Nuclear Corporation
Post Office Box 426
Oak Ridge, Tennessee 37830
K. W. Graybeal
 ^{60}Co , ^{137}Cs , FPSS, SS
- 16 Ames Laboratory
Box 1129, I. S. U. Station
Ames, Iowa
A. F. Voigt, Asst. Director
 $^{28}\text{Al(I)}$, $^{169}\text{Er(I)}$, $^{171}\text{Er(I)}$, $^{154}\text{Eu(I)}$,
 $^{19}\text{F(I)}$, RSI(I), $^{155}\text{Sm(I)}$
- 17 Applied Science Laboratories, Inc.
Post Office Box 140
State College, Pennsylvania 16801
R. F. Kruppa, Service Manager
 ^{14}C
- 18 Ardel Corporation
619 Justin Avenue
Glendale, California 51201
E. G. Harrington, Purchasing Departrent
 ^{85}Kr
- 19 Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 50439
B. D. Devine
L. Bova
 ^{37}Ar , ^{144}Ce , ^{36}Cl , ^{60}Co , $^{60}\text{Co(B)}$,
CSI, CSI(A), ^3H , ^{192}Ir , ^{129}I ,
 $^{28}\text{Mg(B)}$, ^{95}Nb , ^{63}Ni , ^{237}Np , ^{147}Pm ,
 ^{86}Rb , RSI, RSI(A), RSI(B),
RSI(I), RSI(S), ^{106}Ru , ^{46}Sc , ^{153}Sm ,
SS, $^{170}\text{Tm(I)}$, ^{133}Xe , ^{91}Y , ^{95}Zr
- 20 Arizona, University of
Post Office Drawer 4100
Tucson, Arizona 85721
R. 3. Deal, Purchasing
 ^{210}Bi , ^{89}Sr
- 21 Arkansas, Univzrsity of
Chemistry Department
Fayetteville, Arkansas 72701
R. W. Bair, Purchasing Agent
R. Clark
CSI(A), ^{86}Rb

- 22 Atlantic Research
Shirley Highway and Edsall Road
Alexandria, Virginia
B. C. Strachan

 ^{14}C , FPSS, ^{90}Sr , SS
- 23 Atlas Chemical Industries, Inc.
Valley Forge Industrial Park
Valley Forge, Pennsylvania
C. B. Roden, Purchasing Agent

 ^{85}Kr
- 24 Atomics International Division
North American Aviation, Inc.
Post Office Box 309
Canoga Park, California
T. J. Bales, Purchasing
E. D. Falk

 ^{140}Ba , ^{144}Ce , ^3H , ^{114}In , ^{147}Pm ,
RSI(I), ^{103}Ru , ^{106}Ru , $^{122}\text{Sb(I)}$,
 $^{124}\text{Sb(I)}$, SS, ^{95}Zr
- 25 Auburn University
Auburn, Alabama 36830
Dr. H. Zallen, Radiological Safety Officer

 ^{14}C
- 26 Babcock and Wilcox Company
Atomic Energy Division
1201 Kemper Street
Lynchburg, Virginia 24505
G. P. Gunn, Jr., Purchasing Agent

 $^{152+154}\text{Eu}$
- 27 Bartol Research Corporation
Swarthmore, Pennsylvania 19081
F. A. Ernst, Purchasing Agent

RSI
- 28 Bell Telephone Laboratory
Murray Hill, New Jersey 07971
J. D. Struthers
K. Wolfstirn

 ^{237}Np , RSI
- 29 Bendix Aviation Corporation
Scintilla Division
Sidney, New York 13838
C. L. Kessler, Purchasing

 ^{137}Cs , ^{63}Ni
- 30 The Boeing Company
Aero-Space Division
Post Office Box 3707
Seattle, Washington 98124
D. W. Cairney, Purchasing

 ^{182}Ta
- 31 Boston City Hospital
818 Harrison Ave.
Boston, Massachusetts 02118
Dr. J. V. Messer

 ^{85}Kr
- 32 Brookhaven National Laboratory
Upton, Long Island, New York 11973
R. F. Keller, Buyer
Dr. Eoradori, Yedical Department

 ^{241}Am , ^{47}Ca , ^{252}Cf , ^{36}Cl , ^{60}Co , CSI,
 $^{152+154}\text{Eu}$, ^{155}Eu , ^3H , ^{114}In , ^{85}Kr ,
 $^{28}\text{Mg(B)}$, ^{99}Mo , ^{95}Nb , RSI(B), SS,
 ^{99}Tc , ^{204}Tl , ^{91}Y , ^{95}Zr
- 33 Brooklyn College
Purchasing Department
Bedford Avenue and Avenue H
Brooklyn, N. Y. 11210
Dr. H. L. Finston

 ^{72}Ga , RSI(B), ^{95}Zr
- 34 Brown University
Providence, Rhode Island 02912
R. L. Crowley

 ^{89}Sr
- 35 The Budd Company
Instruments Division
Post Office Box 245
Phoenixville, Pennsylvania 19460
C. W. Bothwell, Jr., Purchasing Agent

 ^{60}Co , ^{192}Ir
- 36 California Institute of Technology
1201 E. California Boulevard
Pasadena, California 91109
K. A. Jacobson
L. Varnell
Dr. R. Fleischer

 $^{110}\text{Ag(I)}$, ^{243}Am , ^{36}Cl , $^{165}\text{Dy(I)}$,
 $^{166}\text{Dy(I)}$, $^{171}\text{Er(I)}$, $^{152}\text{Eu(I)}$,
 $^{154}\text{Eu(I)}$, $^{156}\text{Eu(I)}$, $^{59}\text{Fe(I)}$, ^{72}Ga ,
 $^{161}\text{Gd(I)}$, ^{181}Hf , $^{175}\text{Hf(I)}$, $^{181}\text{Hf(I)}$,
 $^{166}\text{Ho(I)}$, ^3H , ^{114}In , $^{114}\text{In(I)}$, ^{192}Ir ,
 $^{192}\text{Ir(I)}$, $^{147}\text{Nd(I)}$, $^{193}\text{Os(I)}$, $^{232}\text{Pa(I)}$,
 $^{233}\text{Pa(I)}$, $^{234}\text{Pa(I)}$, $^{186}\text{Re(I)}$, $^{188}\text{Re(I)}$,
RSI(B), RSI(I), ^{106}Ru , $^{122}\text{Sb(I)}$,
 $^{124}\text{Sb(I)}$, $^{75}\text{Se(I)}$, $^{182}\text{Ta(I)}$, $^{183}\text{Ta(I)}$,
 $^{160}\text{Tb(I)}$, $^{161}\text{Tb(I)}$, $^{171}\text{Tb(I)}$,
 $^{171}\text{Tm(I)}$, $^{188}\text{W(I)}$, $^{169}\text{Yb(I)}$
- 37 California State Dept. of Public Health
2151 Berkeley Way
Berkeley, California 94700
W. S. Kurtz

 ^{131}I
- 38 California, University of
400 Sproul Hall
Berkeley, California 94704
F. S. Harter, Purchasing Agent

 ^{131}I , ^{86}Rb , ^{89}Sr
- 39 California, University of
Lawrence Radiation Laboratory
Berkeley, California 94701
W. B. Reynolds, Business Manager
R. J. Barrett
Pat Howe
E. K. Hulet

 ^{241}Am , ^{47}Ca , ^{252}Cf , ^{36}Cl , ^{244}Cm ,
 $^{152+154}\text{Eu}$, FPSS, $^{159}\text{Gd(I)}$, ^{181}Hf ,
 ^3H , ^{114}In , $^{114}\text{In(I)}$, ^{131}I , ^{85}Kr ,
 $^{177}\text{Lu(I)}$, ^{147}Nd , ^{63}Ni , ^{237}Np , ^{147}Pm ,
 $^{86}\text{Rb(I)}$, RSI(I), RSI(S), ^{90}Sr ,
SS, $^{182}\text{Ta(I)}$, $^{161}\text{Tb(I)}$, $^{171}\text{Tb(I)}$, ^{187}W ,
 ^{133}Xe , ^{95}Zr

- 40 California, University of
Davis, California 95616
R. E. Schwartz
Dr. Hjerpe
 ^{47}Ca , ^{36}Cl , $^{28}\text{Mg}(\text{B})$, ^{86}Rb
- 41 California, University of
Post Office Box 109
La Jolla, California 92038
B. F. Millijour
D. Piper
 $^{109}\text{Cd}(\text{A})$, ^{14}C , $^{62}\text{Cu}(\text{A})$, $^{55}\text{Fe}(\text{A})$,
 $^{67}\text{Ge}(\text{A})$, $^{59}\text{Ni}(\text{A})$, ^{33}P , $^{30}\text{P}(\text{A})$,
 $\text{RSI}(\text{A})$, $^{61}\text{Zn}(\text{A})$
- 42 California, University of
Lawrence Radiation Laboratory
Livermore, California 94551
D. Meadors
 $\text{CSI}(\text{A})$, $^{235}\text{Np}(\text{A})$, $^{236}\text{Pu}(\text{A})$, $\text{RSI}(\text{B})$
- 43 California, University of
405 Hilgard Avenue
Los Angeles, California 90024
K. A. Weydert
 ^{37}Ar , ^{144}Ce , ^3H , ^{131}I , ^{85}Kr , SS
- 44 California, University of
Los Alamos Scientific Laboratory
Post Office Box 1663
Los Alamos, New Mexico 87544
P. M. Peterson
 ^{241}Am , ^{140}Ba , ^{144}Ce , ^{137}Cs , $^{152+154}\text{Eu}$,
 ^{181}Hf , ^3H , ^{192}Ir , ^{131}I , ^{95}Nb , ^{237}Np ,
 $^{210}\text{Po}(\text{M})$, ^{106}Ru , SS , ^{182}Ta
- 45 California, University of
Post Office Box 112
Administration Building
Riverside, California 92502
U. F. Murphy, Purchasing Agent
 ^{91}Y
- 46 California, University of
San Francisco Medical Center
San Francisco, California 94122
Edith Shoaf
 ^{144}Ce , ^{131}I , ^{147}Pm , ^{86}Rb
- 47 Cambridge Nuclear Corporation
131 Portland Street
Cambridge, Massachusetts 02139
D. F. McEhinney, Business Manager
 ^{140}Ba , ^{47}Ca , ^{36}Cl , ^{137}Cs , ^{86}Rb ,
 ^{89}Sr , ^{90}Sr , ^{95}Zr
- 48 Carnegie Institute of Technology
Schenley Park
Pittsburgh, Pennsylvania 5213
J. D. Sands
R. Edwards
Serio
J. Tanner
 $^{212}\text{At}(\text{A})$, ^{133}Ba , $^{208}\text{Bi}(\text{A})$, $^{130}\text{Cs}(\text{A})$,
 $^{62}\text{Cu}(\text{A})$, $^{154}\text{Gd}(\text{A})$, ^{181}Hf , $^{111}\text{In}(\text{A})$,
 $^{59}\text{Ni}(\text{A})$, $^{203}\text{Pb}(\text{A})$, $\text{RSI}(\text{A})$, $^{61}\text{Zn}(\text{A})$
- 49 Carnegie Institution of Washington
Genetics Research Unit
Cold Spring Harbor, Long Island, New York
B. Bockay
 ^{14}C
- 50 Case Institute of Technology
10900 Euclid Avenue
Cleveland, Ohio 44106
A. Kuper
C. Slabinski
S. Tandon
 $^{26}\text{Al}(\text{A})$, $^{59}\text{Ni}(\text{A})$, $^{82}\text{Rb}(\text{A})$, $\text{RSI}(\text{A})$,
 $^{31}\text{S}(\text{A})$
- 51 Fred Chariton
2 West 46th Street
Room 804-A
New York, New York 10036
 $\text{RSI}(\text{B})$
- 52 Charles F. Kettering Foundation
150 East South College Street
Yellow Springs, Ohio 45387
J. C. Crawford
 SS
- 53 ChemTrac Corporation
33 University Road
Cambridge, Massachusetts 02138
J. C. Leak
 ^{133}Ba , ^{147}Pm , ^{106}Ru
- 54 Chevron Research Company
576 Standard Avenue
Richmond, California
R. M. Hoyt
 ^{140}Ba , ^{60}Co , ^{181}Hf , ^3H , ^{46}Sc , ^{95}Zr
- 55 Chicago, University of
1160 East 55th Street
Chicago, Illinois 50515
E. H. Wilkens
 ^{252}Cf
- 56 Chicago, university of
5801 S. Ellis Avenue
Chicago, Illinois 60637
C. Sarrett
M. Srim
C. Keedy
A. Turkevich
 $^{55}\text{Fe}(\text{A})$, ^{131}I , ^{147}Nd , ^{143}Pr , $^{241}\text{Pu}(\text{A})$,
 $^{30}\text{P}(\text{A})$, RSI , $\text{RSI}(\text{A})$
- 57 Chicago-Uesley Memorial Hospital
250 East Superior Street
Chicago, Illinois 60611
J. D. Deapsey, Purchasing Agent
 ^{47}Ca , $\text{Tc-99m}(\text{B})$
- 58 Childrens Hospital Medical Center
Boston, Massachusetts
Dr. David G. Nathan
 $^{28}\text{Mg}(\text{B})$

- 59 Childrens Hospital of Pittsburgh
125 De Soto Street
Pittsburgh, Pennsylvania 15213
Dr. Philip Firemsn

RSI(B)
- 60 Cincinnati, University of
Cincinnati, Ohio 45221
P. J. Carson, Jr.

 ^{36}Cl , ^{60}Co , ^{137}Cs , ^3H , ^3H , ^{204}Tl
- 61 Clairol Incorporated, Research Laboratories
90 Commerce Road
Stamford, Connecticut 06904
G. F. Dasher

 ^3H
- 62 Clarkson College of Technology
Potsdam, New York 13673
John L. Brien, Purchasing Agent

 ^{181}Hf
- 63 Clark University
Department of Chemistry
Worcester, Massachusetts 01610
T. T. Sugihara

 ^{140}Ba
- 64 Clemson Agricultural College
Clemson, South Carolina 29632
E. S. Liberty, Director of Purchasing

 ^{111}Ag
- 65 Cleveland Metropolitan General Hospital
3395 Scranton Road
Cleveland, Ohio
Dr. B. M. Dobyns

 ^{131}I
- 66 Cleveland, University Hospital
University Circle
Cleveland, Ohio
Dr. Pearson

 ^{47}Ca
- 67 Colorado State University
Purchasing Department
Fort Collins, Colorado 80521
E. B. McCall, Purchasing Agent

 ^{60}Co
- 68 Colorado, University of
Boulder, Colorado 80304
Mrs. Dori Boneertz, Buyer

 ^{36}Cl
- 69 Colorado, University of
Medical Center
Denver, Colorado
Dr. A. J. Aikawa

 $^{28}\text{Mg(B)}$
- 70 Columbia University
Black Research Building
630 West 168th Street
New York, New York

 $^{28}\text{Mg(B)}$
- 71 Columbia university
Pupin Building
638 W. 120th Street
New York, New York 10027
P. M. Lorio
Dr. Wu

RSI(B)
- 72 Columbia University
Government Contract Division
Box 6, Low Library
New York, New York 10027
R. N. Jenkins, Purchasing

 ^{37}Ar , ^{140}Ba , ^{252}Cf , ^{192}Ir , ^{85}Kr ,
 ^{89}Sr , ^{35}S , SS
- 73 Connecticut Agriculture Experiment Station
Post Office Box 1105
New Haven, Connecticut 06504
Gilbert H. Aklgren, Business Manager

 ^{137}Cs
- 74 Consolidated Electrodynamics Corp.
360 North Sierra Madre Villa
Pasadena, California 91109
R. Lomax

 ^{85}Kr , SS
- 75 Continental Oil Company
Ponca City, Oklahoma 74602
J. A. Murphy, Buyer

 ^{36}Cl , ^{14}C
- 76 Cook County Hospital
1903 W. Harrison Street
Chicago 12, Illinois
Dr. L. F. Hummon

 ^{133}Xe
- 77 Cornell University
Medical College
1300 York Avenue
New York, New York 10021
Dr. H. Hempling
Dr. Helzna Gilder

 ^{85}Kr , ^{89}Sr
- 78 Dallas, University of
University of Dallas Station, Texas 75061
A. F. Reid

 ^{60}Co
- 79 Dayton, university of
Dayton, Ohio 45409
D. R. Geiger

 ^{133}Ba , ^{60}Co , ^{137}Cs , ^{192}Ir

80 Dhom Products Ltd.
11120 Cumpston Street
North Hollywood, California 91601
Eileen Hess

^{14}C

81 Douglas Aircraft Company
Missile and Space Systems Division
Santa Monica, California
G. C. Rossner, Purchasing Agent

FPSS, ^{147}Pm

82 Dow Chemical Company
Rocky Flats Division
Post Office Box 888
Golden, Colorado 80401

^{237}Np , ^{89}Sr

83 Downstate Medical Center
Brooklyn, New York

$^{28}\text{Mg(B)}$

84 Duke University Medical Center
Physiology Department
036 Bell Building
Durham, North Carolina 27706
Dr. Paul Horowicz

RSI(B)

85 Duke University
Durham, North Carolina
J. E. Doxey

^{14}C , ^3H , ^3H , ^{131}I , ^{86}Rb , SS, ^{133}Xe

86 E. I. du Pont de Nemours and Company
Savannah River Plant
Aiken, South Carolina 29801
L. R. Bailey, Purchasing

^{241}Am , ^{243}Am , ^{36}Cl , CSi , ^{237}Np , ^{147}Pm ,
RSI(B), RSI(S), ^{89}Sr , SS, ^{182}Ta ,
 ^{99}Tc , ^{133}Xe , ^{91}Y , ^{95}Zr

87 Edgerton, Germeshausen and Grier
95 Brookline Avenue
Boston, Massachusetts
J. G. Kewer

^{63}Ni

88 Emery Tumor Group
615 So. Westlake
Los Angeles, California 90057
T. W. Lynch

^{131}I

89 Emory University
Atlanta, Georgia 30322
C. W. Hayes, Director Of Purchases

^{133}Ba

90 Fairchild Semiconductor
Post Office Box 790
Mountain View, California
L. R. Suasey, Jr., Purchasing

^{85}Kr

91 First Atomic Ship Transport, Inc.
39 Broadway
New York, New York 10006
J. E. Bone, Executive Vice-president

^{131}I , SS

32 Florida, University of
Gainesville, Florida
B. G. Dunavant

^{47}Ca , ^{14}C , ^{181}Hf , ^{131}I , ^{86}Rb , RSI,
 ^{106}Ru

93 Ford Motor Company
21500 Oakwood Boulevard
Dearborn, Michigan
L. I. Webb, Senior Buyer

^{181}Hf , ^{95}Zr

34 Frigidaire Division, General Motors Corporation
Dayton, Ohio
J. T. Heavin, Purchasing Agent

^{85}Kr

95 Fundamental Methods Associates, Inc.
31 Union Square West
New York, New York
M. S. Cohen

RSI

36 Gamma Industries, Inc.
Post Office Box 2543
Baton Rouge, Louisiana
R. F. Dicharry, General Manager

^{137}Cs , SS

97 Gamma Process Company, Inc.
160 Broadway
New York, New York 10038
J. Armel, President

^{60}Co

38 G and H Laboratories, Inc.
1001 W. Arbor Vitae
Inglewood, California
E. G. Harrington

^{85}Kr

39 GCA Corporation
Burlington Road
Bedford, Massachusetts 01730
G. McGrath, Buyer

^{63}Ni

100 Geigy Chemical Corporation
Saw Mill River Road
Ardsley, New York
D. P. Ryskiewicz

^{14}C

101 Gem Irradiation Laboratories, Inc.
580 Fifth Avenue
New York, New York 10036
N. Levko

RSI(B)

- 102 General Atomic
A Division of General Dynamics Corp.
Post Office Box 608
San Diego, California
Miss Alice Thomas, Purchasing

 ^{133}Ba , ^{140}Ba , ^{137}Cs , $^{152+154}\text{Eu}$, ^{131}I ,
 ^{147}Nd , ^{86}Rb , ^{153}Sm , ^{90}Sr , ^{182}Ta ,
 ^{99}Tc , ^{133}Xe , ^{95}Zr
- 103 General Dynamics
Camp McCoy, Wisconsin
Mr. Godbold

 $^{142}\text{Pr(A)}$, ^{90}Sr
- 104 General Electric Company
1495 Fillmore Avenue
Buffalo, New York 14211
F. J. Feller

 ^{85}Kr
- 105 General Electric Company
Nuclear Materials and Propulsion Operation
Post Office Box 15132
Cincinnati, Ohio 45215
F. E. Knapp, Purchasing Agent

 ^{90}Sr , ^{90}Sr , ^{103}Ru
- 106 General Electric Company
21800 Tungsten Road
Cleveland, Ohio 44117
M. Coates

 ^{3}H , ^{85}Kr
- 107 General Electric Co.
Pinellas Peninsula Plant
Post Office Box 11508
St. Petersburg, Florida 33733
A. D. Seabury, Buyer

 ^{85}Kr
- 108 General Electric Company
Post Office Box 254
San Jose, California 95103
J. G. Jorgenson

 ^{241}Am , ^{90}Sr , ^{147}Pm , ^{238}U
- 109 General Electric Company
Research and Development Center
The Knolls, Post Office Box 8
Schenectady, New York 12301
R. C. Dawes, Manager

 ^{252}Cf , ^{90}Sr
- 110 General Electric Company
Building No. 7
Electronics Park Laboratory
Syracuse, New York
M. M. Magnarelli, Buyer

 ^{85}Kr
- 111 General Electric Company
General Electric Drive
Waynesboro, Virginia
B. S. Thayer

 ^{85}Kr
- 112 General Motors Corporation
Frigidaire Division
Dayton, Ohio 45501
J. T. Heavin, Purchasing Agent

 ^{85}Kr
- 113 General Nuclear, Inc.
6740 Telean
Houston, Texas 77034
W. Peeples, Jr.

 ^{241}Am , ^{137}Cs , ^{90}Sr , ^{90}Sr
- 114 General Nucleonics Corporation
115 S. Spring Street
Claremont, California 91712

 ^{85}Kr
- 115 General Radioisotope Processing Company
3086 Claremont Avenue
Berkeley, California 94705
H. W. Patterson, President

 ^{241}Am , ^{140}Ba , ^{144}Ce , ^{252}Cf , ^{90}Sr ,
 ^{137}Cs , ^{181}Hf , ^{192}Ir , ^{192}Ir , ^{129}I ,
 ^{95}Nb , ^{109}Pd , ^{86}Rb , ^{103}Ru , ^{106}Ru ,
 ^{90}Sr , ^{182}Ta , ^{187}W , ^{90}Y , ^{91}Y ,
 ^{95}Zr
- 116 General Radioisotope Processing Corp.
3120 Crow Canyon Road
San Ramon, California 94583

 $^{132}\text{Te(B)}$
- 117 Georgia Institute of Technology
225 North Avenue, N.W.
Atlanta, Georgia 30332
R. L. Zimmerman, Radiation Safety Officer
M. D. McLain, Jr.
Dr. J. M. Wampler

 ^{181}Hf , ^{129}I , ^{131}I , ^{147}Pm , ^{90}Sr ,
 ^{90}Sr , ^{90}Sr , ^{46}Sc , ^{204}Tl , ^{91}Y
- 118 Georgia State College
33 Gilmer Street, S. W.
Atlanta, Georgia 30303

 ^{133}Ba
- 119 Georgia, University of
Athens, Georgia
F. E. Johnston, Jr.

 ^{14}C , ^{131}I
- 120 Glen Cove Community Hospital
Glen Cove, Long Island, New York
Dr. Carlson

 ^{99}Tc
- 121 Goodyear Atomic Corporation
Post Office Box 628
Piketon, Ohio 45661
E. L. Hardman, Buyer

 ^{237}Np , ^{95}Zr

- 122 W. R. Grace and Company
Washington Research Center
Clarksville, Maryland 21029
J. G. Merson
95Nb
- 123 Grumman Aircraft Engineering Corporation
Bethpage, Long Island, New York
M. D. Agostino
133Ba
- 124 Harper Hospital
3825 Brush Street
Detroit, Michigan 48201
V. M. Farneti, Purchasing Agent
CSI
- 125 Harvard University
75 Mount Auburn Street
Cambridge, Massachusetts
P. S. Mullen
85Kr, 46Sc
- 126 Hawaii Development Irradiator
Honolulu, Hawaii
60Co(B)
- 127 Hazleton Nuclear Science Corporation
4062 Fabian Way
Palo Alto, California
D. C. Lawrence
133Ba, 137Cs, 152+154Eu, 106Ru, 91y
- 128 Henry Ford Hospital
2799 West Grand Eculevard
Detroit, Michigan
L. Preuss
131I, SS, 99fc
- 129 Hercules Incorporated, Research Center
Wilmington, Delaware 19899
W. C. Cook, Purchasing Supervisor
99Tc
- 130 High Voltage Engineering Corporation
South Bedford Street
Burlington, Massachusetts 01603
R. W. Chase, Authorized Signature
237Np
- 131 Hittman Associates, Inc.
4715 E. Wabash Avenue
Baltimore, Maryland 21215
FPSS, 147Pm
- 132 Honeywell, Inc.
500 Washington Avenue, South
Hopkins, Minnesota 55343
D. C. Prem
63Ni
- 133 Hughes Aircraft Company
Research Laboratories
3011 Malibu Canyon Road
Malibu, California
B. Jones, Buyer
85Kr
- 134 Idaho Nuclear Corporation
Idaho Falls, Idaho 83401
R. C. Shank
C. H. Hogg
W. H. Burgus
R. P. Schuman
J. J. Scoville
J. W. Henscheid
108Ag(I), 28Al(I), 198Au(I), 140Ba,
115Cd(I), 117Cd(I), 141Ce(I), 252Cf,
60Co(I), 55Cr(I), 66Cu(I), 152Eu(I),
154Eu(I), 181Hf(I), 114In, 116In(I),
192Ir, 131I, 140La(I), 176Lu(I),
177Lu(I), 99Mo(I), 101Mo(I), 95Nb,
94Nb(I), 149Nd(I), 151Nd(I), 237Np,
109Pd(I), 148Pm(I), 86Rb(I), RSI(I),
103Ru, 106Ru, 122Sb(I), 124Sb(I),
46Sc(I), 155Sm(I), SS, 182Ta(I),
131Te(I), 95Zr
- 135 Illinois, University of
203 Administration Building E
Urbana, Illinois 51503
D. L. Hartman, Buyer
M. Atac
J. Thomas
133Ba, 47Ca, 252Cf, CSI, 181Hf, 3H,
59Ni(A), 193Os(A), 30P(A), 86Rb,
RSI, RSI(A), 106Ru
- 136 Indiana University
Bloomington, Indiana
R. H. Cooper, Purchasing Department
47Ca, 144Ce, CSI, 131I, 143Pr, 86Rb,
122Sb, 89Sr, 91Y
- 137 Indiana University Medical Center
1100 West Michigan Street
Indianapolis, Indiana 46207
J. R. Neel, Purchasing Agent
RSI(B)
- 138 Industrial Nucleonics Corporation
650 Ackerman Road
Columbus, Ohio 43202
J. D. Spillers
85Kr, 90Sr
- 139 International Chemical and Nuclear Corporation
13332 East Torch Street
City of Industry, California
Miss Ann Schoonderbeck
3H
- 140 Iowa State College
Ames, Iowa
A. F. Voigt, Radiation Safety Officer
144Ce, 36Cl, 14C, 152+154Eu, 155Eu,
95Nb, 86Rb, 186Re, 89Sr, 91Y

- 141 Iowa, State University of
Iowa City, Iowa
A. G. Burks, Purchasing Agent
Dr. Richard Petersen

Sr-87m(R)
- 142 Isochem, Inc.
Richland, Washington

134Cs(D), RSI(D), 103Ru(D)
- 143 Isotope Products Laboratories
920 North Citrus Avenue
Los Angeles, California 90038
Karl Amlauer

14C
- 144 Isotopes Incorporated
123 Woodland Avenue
Westwood, New Jersey 07675
P. W. Krey
Mr. J. Cassidy

133Ba, CSI, 147Pm, SS, 238U, 185W,
133Xe
- 145 Jackson Memorial Hospital
Miami, Florida

Sr-87m(B), Tc-99m(B)
- 146 Jefferson Medical College
307 South 11th Street
Philadelphia, Pennsylvania 19107
Dr. F. X. Hausberger
Dr. Kramer

86Rb, Tc-99m(B)
- 147 Johns Hopkins Medical Institution
E15 North Wolfe Street
Baltimore, Maryland 21218
C. W. Mareck, Buyer

133Ba, 47Ca, 114In, 85Kr, 86Rb, RSI,
133Xe
- 148 Johns Hopkins University
Charles and 34th Streets
Baltimore, Maryland

238U
- 149 Kansas Stats College
Manhattan, Kansas 66504
John P. Lambert, Radiation Safety Officer

14C, 187W
- 150 Kansas, University of
Pedical Center
Kansas City, Kansas 66103

36Cl, 14C
- 151 Kentucky, University of
Lexington, Kentucky
W. D. Devors:
W. Ehmann

26Al(A), 62Cu(A), 3H, 59Ni(A),
203Pb(A), 142Pr(A), 86Rb, RSI(A),
42Sc(A), 31S(A), 200Tl(A), 48V(A),
133Xe
- 152 King County Hospital
Seattle, Washington
Dr. Dowling

132I(B)
- 153 Knolls Atomic Power Laboratory
Post Office Box 1072
Schenectady, New York 12301
H. C. Metzger
M. Indig

252Cf, 181Hf, 3H, 3H, 95Nb, 147Pm,
RSI(B), SS, 95Zr
- 154 Lenox Hill Hospital
111 East 76th Street
New York 10021
Dr. K. R. Paley

131I
- 155 Ling Temco-Wought
Post Office Box 5907
Dallas, Texas 75222
R. J. Bartlett, Buyer

133Ba
- 156 Lockheed Aircraft Corporation
Post Office Box 504
Missiles and Space
Sunnyvale, California
J. Dunham, Buyer

60Co, 60Co, 137Cs, FPSS, 3H, 131I,
85Kr, SS, 204Tl, 238U
- 157 Long Island Jewish Hospital
Queens Hospital Center Affiliation
82-68 164th Street
Jamaica, New York 11432
Rose di Perne, Purchasing Manager

144Ce
- 158 Long Island Jewish Hospital
New Hyde Park, L. I., New York
Dr. L. Levy

Tc-99m(B)
- 159 Louisiana State University
Nuclear Science Center
Baton Rouge, Louisiana
H. O. Richardson

36Cl, 204Tl, 91Y
- 160 Louisville, University of
Belknap Campus
Louisville, Kentucky
W. M. Gruber

36Cl, RSI
- 161 Lovelace Clinic
4800 Gibson Boulevard, S. E.
Albuquerque, New Mexico 87108
C. R. Tiber

241Am, 144Ce, 137Cs, FPSS, 103Ru,
106Ru, 90Sr, SS, 91Y

- 162 Loyola University
6526 N. Sheridan Road
Chicago 26, Illinois
Dr. H. Spencer
E. Kanabrockf

26Al(A), 47Ca, 58Co(A), 66Ga(A),
RSI(A), 200Tl(A)
- 163 Maimonides Hospital
Brooklyn, New York
Dr. Kramer

131I
- 164 Mallinckrodt Chemical Works
2nd and Pallinckrodt Streets
St. Louis, Missouri
L. W. Powitzky, Purchasing Agent

137Cs, 152+154Eu, 114In, 95Nb, 86Rb,
PSI, 182Ta, 185W, 95Zr
- 165 Martin-Marietta Corporation
Baltimore, Maryland 21203
L. Fischer, Buyer

RSI(B)
- 166 The Mary Imogene Eassett Hospital
Atwell Road
Cooperstown, New York 13326
Prs. Phyllis S. McCloskey, Purchasing Agent

63Ni
- 167 Maryland, University of
College Park, Maryland

36Cl, 85Kr
- 168 Massachusetts General Hospital
Isotope Laboratory
Boston, Massachusetts
J. F. Balcius

111Ag, 47Ca
- 169 Massachusetts Institute of Technology
Box 69
Cambridge, Massachusetts 02139

60Co(B), 131I, SS
- 170 Mayo Clinic
Rochester, Minnesota
E. G. Southwick, Purchasing Agent

47Ca, 64Cu, 85Kr, SS, 133Xe, 91Y
- 171 Medical College of Georgia
Talmadge Memorial Hospital
Augusta, Georgia
Dr. J. B. Hudson
Dr. D. A. L. Dick

RSI(B), RSI(S)
- 172 Medical College of Virginia
12th and Marshall Streets
Richmond, Virginia 23219
J. T. Bayham, Purchasing Agent

86Rb
- 173 Mellon Institute
4400 Fifth Avenue
Pittsburgh, Pennsylvania
Dr. R. H. Schuler

133Ba
- 174 Merck and Company
Rahway, New Jersey 07065
A. R. Braunmuller

60Co
- 175 Methodist Hospital
6720 Bertner
Houston, Texas 77025
V. A. Johnston, Purchasing Agent

CSI
- 176 Metropolitan Dade County
Court House on Flager Street
Miami, Florida 33131

133Xe
- 177 Metropolitan Sanitary District of Greater Chicago
100 E. Erie
Chicago, Illinois 60611
Francis J. Casey, Purchasing Agent

60Co, 14C, 137Cs, 55+59Fe, 90Sr,
204Tl
- 178 Miami, University of
Post Office Box 3065
Coral Gables, Florida
E. J. Davis, Purchasing Agent

131I, RSI, SS
- 179 Michigan State College
East Lansing, Michigan
W. B. Richards

60Co, 14C, 152+154Eu, FP, 3H, RSI,
46Sc
- 180 Michigan Technological University
Nuclear Engineering
Houghton, Michigan 49931
D. A. Daavettila

RSI(A)
- 181 Michigan, University of
Ann Arbor, Michigan
W. L. Bulbick, Director of Purchasing

90Sr, SS, 95Zr
- 182 Miles Laboratories, Inc.
Elkhart, Indiana
E. J. Energy, Director of Purchases

86Rb
- 193 Minnesota Mining and Manufacturing Company
Post Office Box 3121
St. Paul, Minnesota 55119
R. J. Kunz

241Am, 133Ba, 210Bi, 144Ce, 137Cs,
FPSS, 3H, 95Nb, 147Pm, 210Po(M),
RSI, 46Sc, 90Sr, SS, 204Tl

- 184 Pinnesota, University of
402 Morrill Hall
Pinneapolis, Minnesota 55455
H. M. Lampert, Buyer
J. Lowman
L. Singer
Dr. Loken

 ^{36}Cl , ^{60}Co , $^{18}\text{F}(\text{A})$, ^{131}I , ^{63}Ni ,
 ^{86}Rb , $\text{RSI}(\text{A})$, ^{89}Sr , ^{90}Sr ,
 $\text{Sr}-87\text{m}(\text{B})$, SS , ^{133}Xe
- 185 Pisericordia Hospital
54th Street and Cedar Avenue
Philadelphia, Pennsylvania
Sister M. Alepres, Purchasing

 ^{185}W
- 186 Mississippi State College
Box 307
State College, Mississippi
E. J. Middlebrooks

 $^{152+154}\text{Eu}$, ^{106}Ru
- 187 Mississippi, University o
Jackson, Mississippi
W. E. Pitts, Purchasing Agent

 ^{137}Cs , ^{86}Rb
- 188 Missouri, University of
Columbia, Missouri
H. J. Fields, Director of Purchasing

 ^{36}Cl , ^{63}Ni , ^{147}Pm
- 189 Mobil Oil Corporation
F. C. Box 900
Dallas, Texas 75221

 ^{133}Ba , ^{86}Rb
- 190 Monsanto Company
Post Office Bcx 1311
Texas City, Texas 77591

 ^{144}Ce , ^{133}Xe
- 191 Monsanto Research Corporation
Dayton Laboratory
1515 Nicholas Road
Dayton, Ohio 45407
H. S. Honious

 ^{181}Hf , ^3H , $^{210}\text{Po}(\text{M})$, RSI , ^{90}Sr , SS ,
 ^{204}Tl , ^{238}U , ^{95}Zr
- 192 Monsanto Research Corporation
Mound Laboratory
Post Office Box 32
Miamisburg, Ohio 45342
David L. Scott, Plant Manager

 ^{241}Am
- 193 National Eureau of Standards
Connecticut Avenue and Van Ness Street, N.W.
Washington, D. C. 20234
C. B. Kipps, Chief Procurement Section
Dr. Vernon Myers

 ^{241}Am , ^{243}Am , ^{47}Ca , ^{144}Ce , ^{242}Cm , ^{244}Cm ,
 ^{181}Hf , ^{114}In , ^{129}I , RSI , $\text{RSI}(\text{B})$
- 194 National Center for Atmospheric Research
1420-30th Street
Boulder, Colorado

 ^{140}Ba , ^{95}Nb
- 195 National Institutes of Health
Bethesda, Maryland

 $^{132}\text{I}(8)$, $\text{Tc}-99\text{m}(\text{B})$
- 196 National Lead Company of Ohio
Bcx 39158
Cincinnati, Ohio 45239
Mr. Doerr

 ^{237}Np
- 197 Nebraska, University of
511 Administration
Lincoln, Nebraska 68508
E. O. Ingram, Division of Purchases

 ^{129}I
- 198 Nevada, University of
Reno, Nevada
R. M. Moyers

 ^{14}C , ^{86}Rb , ^{106}Ru
- 199 New England Nuclear Corporation
575 Albany Street
Boston, Massachusetts 02118
C. B. Killian

 ^{241}Am , ^{144}Ce , ^{36}Cl , ^{14}C , CSI , ^{137}Cs ,
 $^{152+154}\text{Eu}$, ^3H , ^3H , ^{114}In , ^{192}Ir , ^{129}I ,
 ^{85}Kr , ^{95}Nb , ^{63}Ni , ^{147}Pm , ^{106}Ru ,
 ^{89}Sr , ^{90}Sr , SS , ^{99}Tc , ^{133}Xe
- 200 New Jersey College of Medicine
24 Baldwin Avenue
Jersey City, New Jersey 07304
Stanley J. Mills, Business Manager

 ^{85}Kr
- 201 New Mexico, University of
Albuquerque, New Mexico
Dr. M. L. Riedesel

 ^{131}I
- 202 New York, State University of
Research Foundation
Upstate Medical Center
766 Irving Avenue
Syracuse, New York 13210
D. Thompson

 ^{241}Am , ^{36}Cl , ^{114}In , ^{85}Kr
- 203 New York University Medical Center
550 First Avenue
New York, New York 10016
Dr. James B. Campbell

 ^{36}Cl , CSI , ^{90}Y beads (B)
- 204 North Carolina Baptist Hospital
dinston-Salem, North Carolina

 $\text{Sr}-87\text{m}(\text{B})$

- 205 North Carolina State University
F. O. Box 5935
Raleigh, North Carolina 27507
John C. Williams, Purchasing Agent
 ^{243}Am
- 206 North Carolina State University
Department of Chemistry
F. O. Box 5247
Raleigh, North Carolina 27607
Dr. L. H. Bcwen
RSI(S)
- 207 North Carolina State University
Raleigh, North Carolina
Mr. L. T. Caruthers
 ^{133}I (B)
- 208 North Carolina University of
Chapel Hill, North Carolina 27514
H. W. Dark
 ^{241}Am , ^{137}Cs , FPSS, ^{181}Hf , RSI, SS
- 209 North Dakota, University of
Grand Forks, North Dakota
Dr. H. D. Bale
RSI
- 210 Northwestern University
619 Clark Street
Evanston, Illinois
T. M. Johnson
 ^{47}Ca , ^{63}Ni
- 211 Notre Dame, University of
Notre Dame, Indiana
J. J. Sechowski
J. Mihelich
 **^{60}Co (B), CSI(A), ^{155}Gd (A), ^{114}In ,
 ^{184}Re (A), ^{157}Tb (A), ^{158}Tb (A)**
- 212 Nortronics
A Division of Northrup Corp.
Applied Research Department
Newbury Park, California
 ^{238}U
- 213 Nuclear- Chicago Corporation
333 East Howard Avenue
Des Plaines, Illinois
R. B. Young
 ^{133}Ba , ^{137}Cs , FPSS, SS
- 214 Nuclear Corporation of America
2 Richwood Place
Denville, New Jersey
R. Kurkewicz, Purchasing Agent
 ^{36}Cl , ^{137}Cs , ^{90}Sr
- 215 Nuclear Fuel Services, Inc.
Box 124
West Valley, New York 14171
Homer B. Culp, Purchasing Agent
 ^{131}I , ^{90}Sr
- 216 Nuclear Materials and Equipment Corp.
Apollo, Pennsylvania 15613
C. W. Flint
 ^{241}Am , FPSS, ^{90}Sr , ^{238}U
- 217 Nuclear Research Chemicals, Inc.
100 North Crystal Lake Drive
Orlando, Florida
Dr. G. A. Greathouse
 ^{36}Cl , 3H
- 218 Nuclear Science and Engineering Corporation
Post Office Box 10901
Pittsburgh, Pennsylvania
P. A. Weston
 **^{133}Ba , ^{36}Cl , CSI, ^{137}Cs , FPSS,
 ^{181}Hf , ^{63}Ni , ^{106}Ru , ^{90}Sr , SS,
 ^{99}Tc**
- 219 Nucleonic Company of America
196 De Grad Street
Brooklyn, New York
Dr. B. Schloss
 ^{144}Ce , ^{106}Ru
- 220 Oak Ridge Associated Universities
Post Office Box 117
Oak Ridge, Tennessee
H. E. Elliot, Purchasing Agent
 **^{76}As , ^{144}Ce , ^{36}Cl , ^{60}Co , ^{60}Co , ^{14}C ,
CSI, ^{72}Ga , 3H, ^{114}In , RSI, ^{46}Sc ,
 ^{153}Sm , SS, Tc-99m (B), ^{91}Y**
- 221 Oak Ridge Technical Enterprises Corporation
102 Midland Road
Oak Ridge, Tennessee
S. C. Irwin, Purchasing Agent
 ^{36}Cl , SS
- 222 Oberlin College
Oberlin, Ohio
J. L. Powell
 ^{89}Sr
- 223 Ohio Agricultural Research and Development Center
Wooster, Ohio 44691
W. R. Vaughn, Comptroller
 ^{144}Ce , ^{90}Sr
- 224 Ohio State University
190 North Oval Drive
Columbus, Ohio 43210
J. E. Medley, Director of Purchasing
 **^{14}C , ^{131}I , ^{142}Pr , ^{86}Rb , ^{46}Sc , ^{153}Sm ,
 ^{89}Sr , ^{91}Y**
- 225 Oregon, University of
Eugene, Oregon
W. M. McLaughlin, Business Manager
 ^{131}I , RSI
- 226 Pacific Northwest Laboratories
Battelle Memorial Institute
P.O. Box 999
Richland, Washington 99352
L. G. Hendrickson
 **^{76}As (D), ^{133}Ba , ^{140}Ba , ^{144}Ce , ^{141}Ce (D),
 ^{60}Co (D), CSI, ^{137}Cs , FPSS, ^{131}I ,
 ^{133}I (B), ^{131}I (D), ^{85}Kr , ^{24}Na (D), ^{147}Nd ,**

- 226 Pacific Northwest Laboratories
Battelle Memorial Institute
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Richland, Washington 99352
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237Np, 239Np(D), 86Rb, RSI, RSI(D),
106Ru, 124Sb(D), 153Sm, 90Sr,
89Sr(D), SS, 132Te(B), 133Xe, 91Y,
95Zr
- 227 Fanametrics, Inc.
221 Crescent Street
Waltham, Massachusetts
A. Cucchiara

37Ar, 85Kr, 85Kr, 147Pm, SS
- 228 Parkwell Laboratories, Inc.
429 North High Street
Croton, Ohio 43013
Charles E. Wells

241Am
- 229 Pennsylvania Hospital
8th and Spruce Street
Philadelphia, Pennsylvania
Dr. G. N. Ling
Dr. Kuhl

28Mg(B), 86Rb, Tc-99m(B)
- 230 Pennsylvania State College
University Park, Pennsylvania
D. A. Baker

14C, SS
- 231 Pennsylvania, University of
3025 Walnut Street
Philadelphia, Pennsylvania
H. J. Swartz

181Hf, 133Xe
- 232 Peter Bent Brigham Hospital
721 Huntington Avenue
Boston, Massachusetts
Dr. R. Gorlin

85Kr
- 233 Philco Corporation
Ford Road
Newport Beach, California
J. E. Welsh, Buyer

85Kr
- 234 Picker X-Ray Corporation
17325 Euclid Avenue
Cleveland, Ohio
J. Dunn

60Co, 60Co, SS
- 235 Piper Well Surveys
Box 261
Bradford, Pennsylvania
D. J. Piper

46Sc
- 236 Pittsburgh. University of
Pittsburgh, Pennsylvania 15213
D. J. Brewer, Director of Purchases

192Ir, 131I, SS
- 237 Potter and Brumfield
Princeton, Indiana 47570
E. Cox, Purchasing

85Kr
- 238 Presbyterian Medical Center
Clay and Webster Streets
San Francisco, California
Dr. J. M. Lowenstein

86Rb
- 239 Presbyterian St. Luke's Hospital
1753 West Congress Parkway
Chicago, Illinois
E. R. Blomquist

131I
- 240 Pressure Chemical Company
3413-25 Smallman Street
Pittsburgh, Pennsylvania 15201
E. L. Clark

99Tc
- 241 Princeton University
Princeton, New Jersey
R. A. Winters

144Ce, 191Os, 103Ru, SS, 99Tc
- 242 Proctor and Gamble Company
Miami Valley Laboratories
Post Office Box 39175
Groesbeck Station
Cincinnati, Ohio
H. W. Lampe
H. Schweizer

CSI(A), 18F(A), RSI(A), RSI(B)
- 243 Puerto Rico, University of
Puerto Rico Nuclear Center
College Station
Mayaguez, Puerto Rico 00709
J. A. Colon

89Sr
- 244 Puerto Rico Water Resources Authority
San Juan, Puerto Rico 00323
J. C. Muniz

RSI
- 245 Purdue University
Chemistry and Physics Departments
Lafayette, Indiana 47907
P. L. Ziemer

106Ag(A), 72As(A), 212At(A), 194Au(A),
197Au(A), 208Bi(A), 78Br(A),
51Cr(A), 52Cr(A), CSI(A), 137Cs,
62Cu(A), 68Ga(A), 67Ga(A), 67Ge(A),
181Hf, 114In, 111In(A), 188Ir(A),
189Ir(A), 190Ir(A), 83Kr(A), 38K(A),
92Nb(A), 59Ni(A), 237Np, 234Pa(A),
203Pb(A), 210Po(A), 211Po(A), 212Po(A),
210Po(M), 241Pu(A), 242Pu(A), 184Re(A),
RSI(A), 106Ru, 95Ru(A), 119Sb(A),
42Sc(A), 43Sc(A), 27Si(A), 117Sn(A),
89Sr, 178Ta(A), 179Ta(A), 156Tb(A),
157Tb(A), 236U(A), 48V(A), 131Xe(A)

- 246 Radio-Carbon Laboratories, Inc.
120 Chester Avenue
San Francisco, California 94132
Dr. J. W. Davis, Jr
 ^{36}Cl , ^{14}C
- 247 Radio Corporation of America
Box 432
Princeton, New Jersey 08540
R. F. Bailey
 ^{90}Sr
- 248 Randolph-Macon College
Ashland, Virginia 23005
Wade J. Temple, Associate Professor of Physics
 ^{60}Co
- 249 Reactor Experiments, Inc.
140 Harbor Boulevard
Belmont, California 34002
Warren J. Heiman
 ^{238}U
- 250 Aensselaer Polytechnic Institute
110 8th Street
Troy, New York
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 ^{85}Kr , $\text{RSI}(\text{B})$, ^{46}Sc
- 251 Research Triangle Institute
Post Office Box 490
Durham, North Carolina 27702
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 ^{241}Am , ^{144}Ce , SS
- 252 Reynolds Electric Engineering Company
Post Office Box 1360
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 ^3H
- 253 Rice University
Houston, Texas 77001
R. V. Talmage
 ^{85}Kr , ^{237}Np , ^{89}Sr
- 254 Rochester, University of
575 Elmwood Avenue
Rochester, New York
R. H. Hayes
W. Bowman
Mr. Lanzaframe
 ^{47}Ca , ^{14}C , $\text{CSI}(\text{A})$, ^{131}I , ^{33}P , ^{86}Rb ,
 ^{103}Ru , ^{89}Sr , ^{201}Tl , ^{133}Xe
- 255 Rockefeller University
66th Street and York Avenue
New York, New York 10021
R. M. Miller
 ^{131}I
- 256 Rollins College
Winter Park, Florida 32799
Harold Matispaugh, Purchasing Agent
 ^{91}Y
- 257 Rosuell Park Memorial Institute
665 Elm Street
Buffalo, New York
Or. M. A. Bender
 ^{14}C , $\text{Tc-99m}(\text{B})$, ^{170}Tm
- 258 Rutgers University
University Heights Campus
Radiation Science Center
New Brunswick, New Jersey
J. C. Frisch, Jr.
 ^{131}I , ^{63}Ni , ^{86}Rb
- 259 Sanders Nuclear Corporation
Nashua, New Hampshire
 $\text{RSI}(\text{D})$, $^{170}\text{Tm}(\text{D})$
- 260 Schlumberger Well Surveying Company
Post Office Box 2175
Houston, Texas 77001
O. C. Cheatham
 ^3H
- 261 Schwarz Bio-Research, Inc.
Mountain View Avenue
Orangeburg, New York
R. Capodiceci
 ^{14}C , ^3H , SS
- 262 Scripps Clinic and Research Foundation
476 Prospect Street
La Jolla, California
Dr. Arthur Dawson
 ^{133}Xe
- 263 Select Services
800 Brooklaun
Boulder, Colorado
C. R. Guinn
 ^{46}Sc
- 264 Shell Development Company
1410 45th Street
Emeryville, California
Miss M. Abney
 ^{181}Hf
- 265 Shell Oil Company
Houston Refinery
Post Office Box 100
Deer Park, Texas
 ^{144}Ce , ^{137}Cs , $^{152+154}\text{Eu}$, ^{46}Sc , SS,
 ^{95}Zr
- 266 Siemens Medical of America, Inc.
685 Liberty Avenue
Union, New Jersey 07083
Karl Haug, Manager Order Department
 ^{137}Cs , FPSS, SS

267 Sinclair Research Laboratories, Inc.
155 North Uacker Drive
Chicago, Illinois 60606

^{85}Kr

268 Sloan-Kettering Institute
410 East 69th Street
New York, New York
P. C. Wrenn

^{131}Ba , ^{47}Ca , ^{89}Sr

269 Solid State Radiation, Inc.
2261 S. Carmelina Avenue
Los Angeles, California

^{238}U

270 South Carolina, University of
Columbia, South Carolina 29208
J. F. Taylor

^{36}Cl , ^{181}Hf

271 South Dakota, University of
Route 1, La James
Vermillion, South Dakota 57069
Parjory C. Coker

^{182}Ta

272 Southern California, University of
University Park
Los Angeles, California 90007
D. L. McNamara

^{131}I

273 Southwestern Medical School
5323 Harry Hines Boulevard
Dallas, Texas
Mr. Rampy

^{36}Cl , ^3H , ^{131}I

274 E. R. Squibb and Sons
George Road
New Brunswick, New Jersey
Dr. G. Lindenblad

^{47}Ca

275 Stanford Research Institute
Menlo Park, California
T. L. Tasso, Purchasing Services

^{90}Sr

276 Stanford University
300 Pasteur Drive
Palo Alto, California
M. F. Moran

^{140}Ba , ^{86}Rb , RSI, SS

277 Stauffer Chemical Company
Eastern Research Center
Dobbs Ferry, New York 10522
W. Chess

RSI(B)

278 Sylvania Electric Products, Inc.
Towanda, Pennsylvania 18848

^{85}Kr

273 Syntex Institute for Molecular Biology
3401 Hillview Avenue
Palo Alto, California
Donald A. Fegles, Purchasing Agent

^{14}C

280 Technical Operations
South Avenue
Burlington, Massachusetts
R. J. Prest

^{137}Cs , FPSS, SS

281 Temple University
Broad and Montgomery Streets
Philadelphia, Pennsylvania 19140
W. T. Barclay
Dr. N. David Charkes

^{37}Ar , Sr-87m(B) , SS

282 Tennessee, University of
Medical Units
Memphis, Tennessee

^{133}Ba , ^{60}Co , ^{14}C , CSI, ^{137}Cs , ^3H ,
 ^{114}In , ^{131}I , ^{145}W , ^{187}W

283 Texas A and M College
Post Office Box 44
College Station, Texas
Dr. C. Ellis

^{36}Cl , ^{60}Co , ^{89}Sr

284 Texas Instruments, Inc.
Post Office Box 5474
Dallas, Texas
M. D. Noell, Purchasing Agent

^{37}Ar , ^3H , ^{85}Kr , RSI, SS, ^{133}Xe

285 Texas Nuclear Corporation
Post Office Box 9257
Austin, Texas 78755
I. L. Morgan, Executive Vice President

^3H , ^3H

286 Texas Technological College
Texas Agricultural Experiment Station
Lubbock, Texas 79409
J. P. House

^{186}Re , RSI

287 Texas, University of
Austin, Texas 78712
E. F. Gloyne

3ti

288 Tracerlab, Inc.
1601 Trapelo Road
Waltham, Massachusetts 02154
W. Karp

^{133}Ba , ^{144}Ce , ^{36}Cl , CSI, ^{137}Cs , ^3H ,
 ^{114}In , ^{85}Kr , ^{46}Sc , ^{89}Sr , ^{90}Sr , SS,
 ^{182}Ta , ^{204}Tl , ^{95}Zr

- 289 TRW Systems Group
One Space Park
Redondo Beach, California
C. A. Pierce, Buyer
 ^{36}Cl , ^{14}C , ^{85}Kr , ^{46}Sc , SS, ^{95}Zr
- 290 Tumor Institute of the Swedish Hospital
Seattle, Washington
Sr-87m(B)
- 291 Union Carbide Chemical Corp.
Post Office Box 8361
South Charleston, West Virginia
C. C. Lloyd
 ^{137}Cs , FPSS, SS, ^{133}Xe
- 292 Union Carbide Corporation, Nuclear Division
Oak Ridge Gaseous Diffusion Plant
Post Office Box F
Oak Ridge, Tennessee 37830
 ^3H , ^{192}Ir , ^{237}Np , ^{32}P , ^{89}Sr , SS, ^{99}Tc
- 293 Union Carbide Corporation, Nuclear Division
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830
H. F. Stringfield
C. C. Hays
R. King
J. E. Ratledge
 ^{241}Am , ^{243}Am , ^{37}Ar , $^{35}\text{Ar}(A)$, ^{131}Ba , ^{133}Ba , ^{140}Ba , ^{47}Ca , ^{144}Ce , ^{36}Cl , $^{36}\text{Cl}(D)$, ^{244}Cm , ^{60}Co , ^{60}Co , ^{60}Co , $^{60}\text{Co}(D)$, $^{60}\text{Co}(S)$, ^{51}Cr , ^{14}C , CSI, CSI(A), ^{137}Cs , $^{62}\text{Cu}(A)$, $^{152+154}\text{Eu}$, ^{59}Fe , FPSS, ^{181}Hf , ^{203}Hg , ^3H , ^3H , $^3\text{H}(S)$, ^{114}In , ^{192}Ir , ^{192}Ir , ^{129}I , ^{130}I , ^{131}I , $^{132}\text{I}(B)$, ^{85}Kr , ^{99}Mo , ^{24}Na , ^{95}Nb , ^{147}Nd , ^{63}Ni , ^{237}Np , ^{109}Pd , ^{147}Pm , $^{210}\text{Po}(M)$, ^{32}P , $^{242}\text{Pu}(A)$, $^{30}\text{P}(A)$, ^{86}Rb , RSI, RSI(A), RSI(B), RSI(D), RSI(S), ^{103}Ru , ^{106}Ru , ^{124}Sb , ^{46}Sc , ^{153}Sm , ^{113}Sn , ^{85}Sr , ^{89}Sr , ^{90}Sr , SS, $^{35}\text{S}(D)$, ^{99}Tc , $^{132}\text{Te}(B)$, Tgs, ^{170}Tm , ^{187}W , ^{133}Xe , ^{91}Y , ^{65}Zn , ^{95}Zr
- 294 Union Carbide Corporation, Nuclear Division
Faducan Gaseous Diffusion Plant
Faducan, Kentucky 42002
R. F. Smith
RSI
- 295 Union Carbide Corporation, Nuclear Division
Y-12 Plant
Post Office Box Y
Oak Ridge, Tennessee 37830
 ^{60}Co , ^{137}Cs , FPSS, ^{192}Ir , ^{131}I , ^{147}Pm , ^{32}P , ^{90}Sr , ^{35}S , SS
- 296 Union Carbide Nuclear Company
Long Meadow Road
Post Office Box 324
Tuxedo, New York
R. W. Harrison
 ^{14}C , ^{137}Cs , ^{85}Kr , ^{133}Xe , ^{95}Zr
- 237 United Aircraft Corp.
Silver Lane
East Hartford, Connecticut
J. H. Mcmeekin
 ^{85}Kr , ^{133}Xe
- 298 United States Air Force
McClellan Air Force Base, California 35652
Charles H. Anderson, Captain
 ^{181}Hf , ^{237}Np , ^{133}Xe , ^{95}Zr
- 299 United States Air Force
Account and Finance Division
Robins Air Force Base, Georgia 31093
WRCAF, Wiley B. Hencely, Jr.,
Guidance Unit Repairer
 ^{85}Kr
- 300 United States Air Force
ASFC 13, Building 11, Area B
Wright Patterson Air Force Base, Ohio 45433
D. L. Stahl, Contracting Officer
 ^{60}Co , ^{63}Ni , ^{186}Re
- 301 United States Army
Army Medical Center
Walter Reed Army Medical Center
Washington, D. C. 20012
J. J. Degen
 ^{133}Xe
- 302 United States Army
Ecological Laboratories
Fort Detrick, Maryland
W. A. Blumenauer
 ^{131}I
- 303 United States Army
Edgewood Arsenal, Maryland 21010
J. Van Silder, Contracting Officer
 ^{95}Zr
- 304 United States Army
Fitzsimons Hospital
Denver, Colorado 80240
Ora Lee Brown
 ^{170}Tm , ^{133}Xe
- 305 United States Army
Fort McClellan, Alabama 36205
Mary W. Kirk
 ^{86}Rb
- 306 United States Army
Redstone Arsenal
P. and C. Division
Building T-3152
Redstone Arsenal, Alabama 35809
D. G. Rowland
RSI
- 307 United States Army
Support Center
12th and Spruce Streets
St. Louis, Missouri 53102
Myrtle E. Hilton, Contracting Officer
FP

308 United States Army
United States Military Academy
West Point, New York 10996
Fred A. Childs, Activity Supply Officer

^{144}Ce , SS

309 United States Army
Watertown Arsenal
Watertown, Massachusetts
J. Pavlick

$^{62}\text{Cu}(\text{A})$, $^{59}\text{Ni}(\text{A})$, $\text{RSI}(\text{A})$, $^{117}\text{Sn}(\text{A})$,
 $^{61}\text{Zn}(\text{A})$

310 United States Atomic Energy Commission
New Brunswick Laboratory
New Brunswick, New Jersey 08903
C. J. Rodden, Director

^{147}Pm

311 United States Atomic Energy Commission
376 Hudson Street
Eay K, King Street, Fifth Floor
New York, New York 10014
J. H. Harley

^{140}Ba , ^{249}Bk , ^{60}Co , ^{137}Cs , FPSS
SS, ^{91}Y

312 United States Department of Agriculture
Crop Research Division, ARS
Plant Industry Station
Beltsville, Maryland
E. L. Marshall, Procurement Officer

^{14}C , ^{86}Rb , SS, ^{99}Tc

313 United States Department of the Interior
Fish and Wildlife Service
Bureau of Commercial Fisheries
Gloucester, Massachusetts

RSI, ^{106}Ru , ^{89}Sr

314 United States Food And Drug Administration
South Agriculture Building
12th and C Streets, S.W.
Washington, D. C.
E. P. Laug

^{86}Rb

315 United States National Aeronautics and Space Adm.
Ames Research Center
Moffett Field, California

RSI(D), $^{85}\text{Sr}(\text{D})$

316 United States National Aeronautics and Space Adm.
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
B. S. Torre

^{47}Ca , ^{144}Ce , ^{60}Co , CSI, ^{137}Cs ,
 ^{95}Nb , RSI, SS, Tgs

317 United States Navy
Naval Air Engineering Center
Philadelphia, Pennsylvania 19112
J. H. Bowen, Jr., Technical Director, AML

^{36}Cl

318 United States Navy
Naval Postgraduate School
Monterey, California
CWO 4 D. R. Siler,
Assistant Supply And Fiscal Officer

^{131}I

319 United States Navy
Naval Radiological Defense Laboratory
San Francisco, California 94135
A. E. Cozby

^{140}Ba , ^{144}Ce , CSI, ^{114}In , ^{85}Kr ,
 ^{109}Pd , RSI, ^{103}Ru , $^{132}\text{Te}(\text{B})$

320 United States Navy
Naval Research Laboratory
Washington, D. C. 20390
D. Linehan, Contracting Officer

^3H , ^{131}I , SI, SI

321 United States Navy
Naval Submarine Base
Groton, Connecticut 06340
E. M. Haag, Contracting Officer

FP

322 United States Navy
San Francisco Bay Naval Shipyard
San Francisco, California

$^{132}\text{I}(\text{B})$, $^{132}\text{Te}(\text{B})$

323 United States Nuclear Corporation
801 North Lake Street
Burbank, California 91503
K. Amlauer

^{60}Co , ^{60}Co , CSI, ^{137}Cs , FPSS,
 ^{85}Kr , $^{210}\text{Po}(\text{M})$, ^{106}Ru , ^{90}Sr , SS,
 ^{133}Xe

324 United States Public Health Service
National Institutes of Health, Isotope Laboratory
Building 21
Bethesda, Maryland
J. M. Brown, Jr.

^{47}Ca , ^{186}Re

325 United States Public Health Service
Robert A. Taft Sanitary Engineering Center
4676 Columbia Parkway
Cincinnati, Ohio 45226
K. F. Schroeder, Procurement Assistant

^{137}Cs , ^{106}Ru

326 United States Public Health Service
Post Office Box 684
4505 Maryland Parkway
Las Vegas, Nevada 89101
R. D. Ostlund, General Services Assistant

^{133}Xe

327 United States Public Health Service
Southwestern Radiological Health Lab.
944 East Harmon Avenue
Las Vegas, Nevada 89109

$^{132}\text{I}(\text{B})$, $^{133}\text{I}(\text{B})$

32R United States Public Health Service
Post Office Box 61
Montgomery, Alabama 36101
F. H. Gorrie

^{140}Ba

329 United States Public Health Service
Bay Street and Vanderbilt Avenue
Staten Island, New York 10304
J. D. Sturges, Chief, Supply Section

^{85}Kr

330 United States Public Health Service
330 Independence Avenue, S.W.
Washington, D. C. 20201
Helen S. Shartzler, Purchasing Agent

^{131}I

331 United States Public Health Service Hospital
San Francisco, California
Dr. Hyatt

$^{28}\text{Mg}(\text{B})$

332 United States Radium Corporation
4150 Old Berwick Road
Post Office Box 380
Bloomsburg, Pennsylvania 17815
J. G. MacHutchen

^{241}Am , ^{14}C , ^3H , ^{85}Kr , ^{63}Ni , $^{210}\text{Po}(\text{M})$,
 ^{90}Sr , ^{204}Tl

333 Unit Process Assemblies, Inc.
53 - 15 37th Avenue
Woodside, New York 11377
J. J. Weinstock

^{147}Pm , ^{90}Sr

334 Upjohn Company, Inc.
201 Henrietta Street
Kalamazoo, Michigan
D. B. Gauss, Purchasing Agent

^{14}C

335 Utah, University of
Purchasing Department
Salt Lake City, Utah 84112
William Christensen, Purchasing Agent
Dr. B. A. Goodwin

^{137}Cs , $^{132}\text{I}(\text{B})$, ^{133}Xe , ^{95}Zr

336 Vanderbilt University
Business Managers Office
Nashville, Tennessee
June Jenkins
Dr. Bri 11

^{60}Co , CSI , ^{72}Ga , ^{192}Ir , ^{86}Rb ,
 ^{182}Ta , $\text{Tc-99m}(\text{B})$, ^{133}Xe

337 Varian Associates
611 Hansen Way
Palo Alto, California 94303
Hamilton Shutts, Manager Purchasing

^{60}Co

338 Veterans Administration Center
Wood, Wisconsin

^{60}Co

339 Veterans Administration Hospital
Chief, Fiscal Division
130 Kingsbridge Road
Bronx, New York 10468
J. S. Santroni, Purchasing Agent

^{131}I

340 Veterans Administration Hospital
West Side Hospital
820 South Damen Avenue
Chicago, Illinois 50512

CSI , $^{132}\text{I}(\text{B})$

341 Veterans Administration Hospital
Cleveland, Ohio 44106

^{133}Xe

342 Veterans Administration Hospital
1200 Anastasia Avenue
Coral Gables, Florida
W. G. Rather, Chief Supply Division

^{133}Xe

343 Veterans Administration Hospital
Chief, Supply Division
General Storeroom, Building 142
Hines, Illinois
Walter S. Kopacz

^{47}Ca

344 Veterans Administration Hospital
1481 West Tenth Street
Indianapolis, Indiana 46207
P. D. Dwenger

^{86}Rb

345 Veterans Administration Hospital
5901 East Seventh Street
Long Beach, California
B. B. Smith

^{86}Rb

346 Veterans Administration Hospital
Wilshire and Sawtelle Boulevards
Los Angeles, California 90073
George S. Hadley, Contracting Officer

$^{28}\text{Mg}(\text{B})$, ^{99}Tc

347 Veterans Administration Hospital
First Avenue at East 24th Street
New York, New York 10010
T. W. Hopkins

^{85}Kr

348 Veterans Administration Hospital
Richmond, Virginia 23225
Chief, Supply Division

^{133}Xe

349 Veterans Administration Hospital
4435 Beacon Avenue South
Seattle, Washington 98108
D. K. Hirahara

^{47}Ca

350 Victoreen Instrument Company
5806 Hough Avenue
Cleveland, Ohio
V. Gittery

^{85}Kr

351 Virginia Polytechnic Institute
Purchasing Department
Blacksburg, Virginia
C. I. Rich

$^{28}\text{Mg(B)}$

352 Volk Radiccheaical Company
8260 Elmwood Avenue
Skokie, Illinois

^3H , ^{89}Sr

353 Warner-Lambert Research Institute
170 Tabor Road
Porris Plains, New Jersey
E. J. Merrill

^{86}Rb

354 Washington State University
Comptroller's Office
Pullman, Washington
R. B. Smawley, Buyer

SS

355 Washington University
Business Office
Lindell and Skinker
St. Louis, Missouri
A. C. Wahl
M. Paurette

^{131}I , RSI(A), ^{238}U

356 Washington, University of
Purchasing Department
400 Administration Building
Seattle, Washington
V. A. Sichler, Purchasing
R. L. Chaney

^{133}Ba , ^{47}Ca , $^{114}\text{In(I)}$, RSI(I), ^{89}Sr

357 Washington, University of
College of Fisheries
Seattle, Washington

$^{60}\text{Co(B)}$

358 Wayne State University
Accounting Department
Detroit, Michigan 48202
P. Grayson

^{86}Rb

359 Western Electric Company
100 Central Avenue
Kearny, New Jersey
J. E. Speer

^{85}Kr

360 Western Michigan University
Kalamazoo, Michigan 49001

^{155}Eu

361 Western Reserve University
2220 Cummington Road
Cleveland, Ohio
H. D. Pallister

^{181}Hf , ^{192}Ir , RSI

362 Westinghouse Electric Corporation
Bettis Atomic Power Laboratory
Post Office Box 1459
Pittsburgh, Pennsylvania
John Clayton, Reactor Metallurgy

^{140}Ba , ^{140}Ba , ^{144}Ce , ^3H , ^3H , ^{131}I ,
 ^{85}Kr , ^{147}Nd , ^{103}Ru , ^{106}Ru , ^{89}Sr ,
 ^{90}Sr , SS, ^{185}W , ^{91}Y , ^{95}Zr , ^{95}Zr

363 Westinghouse Electric Corp.
Bettis Atomic Power Laboratory
Post Office Box 79
West Mifflin, Pennsylvania 15122
T. M. Ryan
J. J. Volpe

RSI(A), RSI(B)

364 Westinghouse Electric Corp.
Astronuclear Laboratory
P. O. Box 10864
Pittsburgh, Pennsylvania 15236
W. J. Schumer

^{238}U

365 West Virginia University
Purchasing, Administration Building
Morgantown, West Virginia
Dr. H. Patrick

^{144}Ce , ^3H , ^3H , SS

366 William Wayne Electronics, Inc.
Hasting Radiochemical Works
P. O. Box 60448
Houston, Texas 77060
Othel L. Pirtle, Jr.

^{63}Ni , ^{133}Xe

367 Wisconsin, University of
428 North Murray Street
Madison, Wisconsin 53706
L. Haskins
J. Suttie
Dr. R. C. Briggs

^{241}Am , ^{137}Cs , ^{129}I , ^{136}La , RSI(A),
Sr-87m(B)

368 Woods Hole Oceanographic Institute
Woods Hole, Massachusetts
A. T. Henderson

^{131}Ba , ^{140}Ba

369 Worcester Foundation
Foundation for Experimental Biology
222 Maple Avenue
Shrewsbury, Massachusetts
I. E. Washburn

³H

370 Yale— New Haven Hospital
P. O. Box 1001
New Haven, Connecticut 06504
J. J. Leydon, Director of Purchasing

CSI

371 Yale University
20 Ashmun Street
New Haven, Connecticut
R. H. Coe, Buyer

⁴⁷Ca, ³H, ¹²⁹I, RSI, RSI(B), ⁸⁹Sr

372 Yeshiva University
Albert Einstein College of Medicine
110 West 57 Street
New York, New York 10019
J. S. Perlestein
Dr. S. Levenson

³⁶Cl, ³H, RSI(B)

B. Foreign

ARGENTINA

373 Comision Nacional de Energia Atomica
Gerencia de Energia
Avda. del Libertador 8250
Buenos Aires, Argentina
Enrique J. Conadei

⁴⁷Ca

AUSTRALIA

374 Australian AEC Research Establishment
Lucas Heights
Sydney, Australia

²⁴²Pu

375 Australian Consulate General
636 Fifth Avenue
New York, New York 10020
Pr. W. Bath

FP, ¹⁴⁷Pm, ²³⁹Pu, ²⁴²Pu, ⁸⁹Sr, ⁹⁹Tc,
²³³U, ²³⁵U

376 Commonwealth X-Ray and Radium Laboratory
Melbourne, Australia
D. J. Stevens

Tc-99m(B)

AUSTRIA

377 Embassy of Austria
2343 Massachusetts Avenue, N. W.
Washington, D. C. 20008
Dr. Thomas Klestil

²⁵²Cf

378 Institut fur Radiumforschung und Kernphysik
der Osterr. Akademie der Wissenschaften
Boltzmanngasse 3
Wien IX, Austria
Dr. A. Saulich

⁶³Ni

379 Osterreichische Studiengesellschaft
fur Atomenergie Ges. M. B. H.
Lenaugasse 10
A-1082 Uien, Austria

²⁵²Cf, ²³⁷Np, ²³⁹Pu

BELGIUM

380 Albert Nils
2668 Av. de Tervueren
Bruxelles 15, Belgium

³⁶Cl, ¹³³Xe

381 Centre d'Etude de l'Energie Nucleaire
Mol-Donk, Belgium
R. Constant

²³⁷Np, ²³⁹Pu, ¹³³Xe

382 Euratom Supply Agency
51-53 Rue Belliard
Brussels, Belgium
F. Poortmans

²⁴²Pu, ²³³U, ²³⁶U, ²³⁸U

383 Eurochemic Company
Mol, Belgium

²⁴¹Am, ²³⁷Np

BRAZIL

384 Banco Nacional do Desenvolvimento Economico
Rio de Janeiro, Brazil

⁸²Br, ¹⁰⁹Cd, ⁶⁰Co, ¹³⁷Cs, ¹⁵²⁺¹⁵⁴Eu

CANADA

385 Alberta, University of
Purchasing Department
Edmonton, Alberta, Canada
E. F. Hunter

⁸⁹Sr, Tgs

386 Atomic Energy of Canada Limited
Operations Division
Chalk River, Ontario, Canada
H. B. Reid

²³⁹Pu, ²³⁸U

387 Atomic Energy of Canada Limited
Manitoba, Canada

¹³³I(B)

388 Atomic Energy of Canada Limited
Commercial Products Division
Tunney's Pasture
Ottawa, Ontario, Canada
C. C. Anderson

¹⁴⁰Ba, ¹⁴⁴Ce, ⁶⁰Co, ¹⁴C, ¹³⁷Cs, ³H,
⁸⁵Kr, ¹⁴⁷Pm, ²³⁹Pu, ¹⁰⁶Ru, ⁸⁹Sr,
²³³U, ²³⁵U

- 389 British Columbia, University of
Purchasing Department
Vancouver 8, B.C., Canada
K. C. Mann

^{154}Eu , ^3H , Tgs

- 390 Canada Department of Agriculture
Research Branch Experimental Farm
Lacombe, Alberta, Canada
Dr. H. Doernbal

^{133}Ba

- 391 Charles E. Fresst and Company
1 Hallowell Street
Montreal, Quebec, Canada
Dr. Jamieson

^{99}Mo

- 392 Hospital Pisonneuve
5415 Blvd. l'Assomption
Montreal, Quebec, Canada
Dr. Serge Carriere

^{85}Kr

- 393 Hospital for Sick Children
University Avenue
Toronto 2, Ontario, Canada

$^{28}\text{Mg(B)}$

- 394 Panitoba, University of
Comptroller's office
Winnipeg, Manitoba, Canada
M. A. Zwarich

^{137}Cs , ^{147}Nd , ^{89}Sr

- 395 McGill University
Department of Chemistry
Montreal 2, P.Q., Canada
Prof. L. Yaffe

^{99}Tc

- 396 McMaster University
Department of Physics
Nuclear Research Building
Hamilton, Ontario, Canada
Dr. R. H. Tomlinson

^{237}Np , ^{147}Pm , ^{106}Ru , ^{89}Sr

- 397 Montreal General Hospital
Montreal, Quebec, Canada

$\text{Sr-}^{87}\text{m(8)}$

- 398 National Research Council
100 Sussex Drive
Ottawa, Ontario, Canada
G. A. Hughes

^3H , ^{85}Kr

- 399 Ontario Veterinary College
Department of Physiology and Pharmacology
Guelph, Ontario, Canada
Dr. G. A. Robinson

^{99}Mo

- 400 Princess Margaret Hospital
500 Sherbourne Street
Toronto 5, Ontario, Canada
Anna Flint

^{47}Ca

- 401 Royal Victoria Hospital
Respiratory Isotope Laboratory
Montreal 2, Quebec, Canada
Mr. David Ross

^{133}Xe

- 402 Saskatchewan, University of
Regina Campus
Regina, Saskatchewan, Canada
John Neudorf

^{144}Ce , ^{60}Co , ^{137}Cs , ^{90}Sr , ^{204}Tl ,
 ^{91}Y

- 403 Simon Fraser University
Bursar's Office
Burnaby 2, B. C., Canada
Dr. D. H. Tuck

^{114}In

- 404 Toronto General Hospital
101 College Street
Toronto 2, Ontario, Canada
I. M. Young

^{133}Xe

- 405 Toronto, University of
Toronto, Canada
Dr. Joan Harrison

$^{28}\text{Mg(B)}$

- 406 Universite Laval
Cite Universitaire
Quebec 10, P.Q., Canada
Dr. Eibiana Cujec

^{60}Co

- 407 Winnipeg General Hospital
Winnipeg 3, Manitoba, Canada
Dr. T. D. Craddock

$^{133}\text{I(B)}$

CHILE

- 408 Universidad de Chile
Blanco Encalada 2008
Casilla 5487
Santiago, Chile
Dr. D. Yudilevich

^{86}Rb , SS

CHINA

- 409 Chinese Government Procurement
and Service Mission
Division for Taiwan Sugar Corp.
61 Broadway
New York, New York 10007
George O. Burr

^{14}C , ^{86}Rb

CZECHOSLOVAKIA

- 410 Omnipol/62
Washingtonova 11
Frague 1, Czechoslovakia
F. Merta
147Pm

DENMARK

- 411 Institute of Physics
University of Aarhus
Aarhus C, Denmark
K. Ronde Nielsen
95Nb, 236U

- 412 Neurochemical Institute
fiadmahdsgade 58
Copenhagen N., Denmark
Dr. Flemming Wollensen
131I

ENGLAND

- 413 Atomic Energy Attache
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Washington, D. C.
Cr. R. G. Sowden
238U
- 414 Medical Research Council
Cyclotron Unit
Hammersmith Hospital
Ducane Road
London, W.12, England
Dr. C. Matthews
95Nb
- 415 Postgraduate Medical School of London
London, England
Professor J. F. Fowler
28Mg(B)
- 416 United Kingdom Atomic Energy Authority
Atomic Energy Research Establishment
Harwell, Didcot, Berkshire
England
Dr. M. L. Smith
244Cm, 242Pu, 234U, 236U, 238U

- 417 United Kingdom Treasury and Supply Delegation
Radiochemical Centre
Amersham, Bucks, England
210Po(M)

- 418 United Kingdom Treasury and Supply Delegation
25 Broadway
New York, New York 10004
Mary Curran
241Am, 133Ba, 140Ba, 7Be, 207Bi, 144Ce,
36Cl, 57Co, 137Cs, 85Kr, 63Ni,
237Np, 147Pm, 85Sr, 89Sr, 90Sr,
99Tc, 88Y, 91Y, 95Zr

- 419 Westland Aircraft Ltd.
Fairey Aviation Division
Hayes, Yiddlesex, England
3H

FINLAND

- 420 University of Helsinki
Department of Physics
Siltavuorenpenger 20C
Helsinki, Finland
Prof. Matti Nurmi
252Cf

FRANCE

- 421 C.E.A. New York Office
972 Fifth Ave.
New York, N. Y. 10021
P. de Bellaigue, Director
241Am, 37Ar, 144Ce, 137Cs, 3H, 129I,
90Sr

- 422 Institut Francais du Pétrole des
Carburants et Lubrifiants
I-R Avenue du Bois-Preau 32
Rueil Yalmaison, S. and O.
France
F. le Floch
147Pm

- 423 Laboratoires Lumina
19, Rue Henri Martin S. A.
Colombes (Seine), France
Monsieur Bernard
3H

- 424 Service des Radioelements Artificiels
Boite Postale No. 2
Gif-sur-Yvette (S + O), France
Professor Kellershohn
28Mg(B)

GERMANY

- 425 American Hoechst Corporation
777 Third Avenue
New York, New York 10017
Mrs. Inge Cavis
85Kr, 204Tl

- 426 Ruchler and Company
Untermain 134
6 Frankfurt / Main
Germany
Dr. W. Gorup
37Ar, 140Ba, 147Pm, 90Sr, 99Tc

- 427 EURATOM Transuranium Institute
P. O. Box 452
75 Karlsruhe, West Germany
241Am, 237Np, 242Pu, 236U

- 428 Gesellschaft für Kernforschung M.B.H.
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- 434 W. Maier Komm.Ges.
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- 436 Siemens-Reiniger-Werke AG
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- 437 Atomic Energy Establishment Trombay
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^{95}Nb , ^{147}Pm

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- 438 The Hebrew University of Jerusalem
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^{167}Ho , ^{65}Zn

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^{243}Am , ^{140}Ba , ^{252}Cf , ^{244}Cm , ^{129}I , ^{233}U

ITALY

- 440 Consiglio Nazionale delle Ricerche
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^{89}Sr

- 441 Euratom C.C.R.
Sezione Doganale d'Ispira
Ispira (Varese), Italy

SS

JAPAN

- 442 Mitsubishi International Corporation
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^{243}Am , ^{133}Ba , ^{140}Ba , ^{36}Cl , ^{60}Co , ^{14}C ,
 ^{137}Cs , ^{60}Fe , ^{85}Kr , ^{147}Pm , ^{89}Sr ,
 ^{95}Zr

- 443 Rikkyo University, Saitama
The Institute for Atomic Energy
Kanagawa-ken, Yokosuka, Japan
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^{252}Cf

- 444 Sumitomo Shoji New York, Inc.
277 Park Avenue 25th Floor
New York, New York 10017
S. T. Nishizaka

^{85}Kr

MEXICO

- 445 Comisión Nacional de Energía Nuclear
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Ninfa G. de Callejas

^{91}Y

- 446 Nuclear, S.A.
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^{91}Y

NETHERLANDS

- 447 Hijksinkcepbureau
(Netherlands Govt. Purchasing Office)
55 A Laan van Meerdervcort
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¹³⁷Cs

- 448 N. V. Philips-Duphar
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¹³⁷Cs, ⁹⁹Tc, ²⁰⁴Tl

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³H, ¹³¹I

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- 451 Royal Norwegian Embassy
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- 454 Karl Breser Hcspital
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- 455 Aktiebolaget Ptomenergi
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hykoping, Sweden

³⁷Ar

- 456 Government of Sweden
The Research Institute of National Defence
Stockholm, Sweden

²³⁶U

- 457 SPAB USA, Inc.
405 Park Avenue
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⁸⁵Kr

SWITZERLAND

- 458 Merz and Bentelli AG
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³H, ¹⁴⁷Pm

- 459 Radium-Chemie
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9053 Teufen / Ar
Switzerland
Mr. A. Zelier

³H, ¹⁴⁷Pm

II. ALPHABETICAL LIST OF ISOTOPES, CROSS-REFERENCED TO CUTOMER NUMBERS

A. Domestic

Aluminum 026

50, 151, 162

Aluminum 028

16, 134

Americium 241

32, 39, 44, 86, 108, 113, 115, 161, 183,
193, 199, 202, 208, 216, 228, 251, 293, 332,
367

Americium 243

36, 86, 193, 205, 293

Antimony 119

245

Antimony 122

24, 36, 134, 136

Antimony 124

24, 36, 134, 226, 293

Argon 035

253

Argon 037

19, 43, 72, 227, 281, 284, 293

Arsenic 072

245

Arsenic 076

220, 226

Astatine 212

48, 245

Barium 131

5, 268, 293, 368

Barium 133

48, 53, 79, 89, 102, 118, 123, 127, 135,
147, 155, 173, 183, 189, 213, 218, 226, 282,
288, 293, 356

Barium 140

24, 44, 47, 54, 63, 72, 102, 115, 134, 194,
226, 276, 293, 311, 319, 328, 362, 368

Berkelium 249

311

Bismuth 208

48, 245

Bismuth 210

20, 183

Bromine 078

245

Cadmium 109

41

Cadmium 115

134

Cadmium 117

134

Calcium 047

1, 12, 32, 39, 40, 47, 57, 66, 92, 135,
147, 162, 168, 170, 193, 210, 254, 268, 274,
253, 316, 324, 343, 349, 356, 371

Californium 252

32, 39, 55, 72, 109, 115, 134, 135, 153

Carbon 014

1, 17, 22, 25, 41, 49, 75, 80, 85, 92, 100,
119, 140, 143, 149, 150, 177, 179, 198, 199,
220, 224, 230, 246, 254, 257, 261, 279, 282,
289, 293, 296, 312, 332, 334

Cerium 141

134, 226

Cerium 144

15, 24, 43, 44, 46, 115, 136, 140, 157, 161,
183, 190, 193, 199, 213, 220, 223, 226, 241,
251, 265, 288, 293, 308, 316, 319, 362, 365

Cesium 130

48

Cesium 134

142

Cesium 137

15, 29, 44, 47, 60, 73, 79, 96, 102, 113,
115, 127, 156, 151, 154, 177, 183, 187, 199,
208, 213, 214, 218, 226, 245, 265, 266, 280,
282, 288, 291, 293, 235, 296, 311, 316, 323,
325, 335, 367

Chlorine 036

6, 19, 32, 36, 39, 40, 47, 60, 68, 75, 86,
140, 150, 159, 160, 167, 184, 188, 199, 202,
203, 214, 217, 218, 220, 221, 246, 270, 273,
283, 288, 289, 293, 317, 372

Chromium 051

245, 293

Chromium 052

245

Chromium 055

134

Cobalt 058

162

Cobalt 060

15, 19, 32, 35, 54, 50, 67, 78, 79, 97,
134, 156, 169, 174, 177, 179, 184, 211, 220,
226, 234, 248, 282, 283, 293, 295, 300, 311,
316, 323, 336, 337, 338, 357

Copper 062

41, 48, 151, 245, 293, 309

Copper 064

170

Copper 066

134

Curium 242

193

Curium 244

39, 193, 293

Cyclotron Service Irradiations

1, 19, 21, 32, 42, 86, 105, 115, 124, 135, 136, 144, 175, 199, 203, 211, 218, 220, 226, 242, 245, 254, 282, 288, 293, 316, 319, 323, 336, 340, 370

Dysprosium 165

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Dysprosium 166

36

Erbium 169

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Erbium 171

16, 36

Europium 152

26, 32, 36, 39, 44, 102, 127, 134, 140, 164, 179, 186, 199, 265, 293

Europium 154

16, 36, 134

Europium 155

32, 140, 360

Europium 156

36

Fission Prod Source Spec Ser

2, 15, 22, 39, 81, 108, 113, 131, 156, 161, 183, 208, 213, 216, 218, 226, 266, 280, 291, 293, 295, 311, 323

Fission Products

179, 307, 321

Fluorine 018

184, 242

Fluorine 019

16

Gadolinium 154

48

Gadolinium 155

211

Gadolinium 159

39

Gadolinium 161

36

Gallium 066

162, 245

Gallium 067

245

Gallium 072

7, 33, 36, 220, 336

Germanium 067

41, 245

Gold 154

245

Gold 147

245

Gold 138

134

Hafnium 175

36

Hafnium 181

36, 39, 44, 48, 54, 52, 92, 93, 115, 117, 134, 135, 153, 191, 133, 208, 218, 231, 245, 264, 270, 293, 298, 351

Holmium 166

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Hydrogen 003

2, 14, 19, 24, 32, 36, 39, 43, 44, 54, 60, 61, 85, 106, 135, 139, 151, 153, 156, 179, 183, 191, 199, 217, 220, 252, 260, 261, 273, 282, 284, 285, 287, 298, 292, 293, 320, 332, 352, 362, 365, 369, 371, 372

Indium 111

48, 245

Indium 114

24, 32, 36, 39, 134, 147, 164, 193, 199, 211, 220, 245, 282, 288, 293, 319, 356

Indium 116

134

Iodine 129

19, 115, 117, 193, 197, 199, 293, 367, 371

Iodine 130

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Iodine 131

14, 37, 38, 39, 43, 44, 46, 56, 65, 85, 88,
91, 92, 102, 117, 119, 128, 134, 136, 154,
156, 163, 169, 179, 184, 201, 215, 224, 225,
226, 236, 239, 254, 255, 258, 272, 273, 282,
293, 295, 302, 318, 320, 330, 339, 355, 362

Iodine 132

152, 195, 293, 322, 327, 335, 340

Iodine 133

207, 226, 327

Iridium 188

245

Iridium 189

245

Iridium 190

245

Iridium 192

19, 35, 36, 44, 72, 79, 115, 134, 199, 236,
252, 293, 295, 336, 361

Iron 055

41, 56, 177

Iron 059

36, 293

Krypton 083

245

Krypton 085

5, 11, 13, 18, 23, 31, 32, 39, 43, 72, 74,
77, 90, 94, 98, 104, 106, 107, 110, 111,
113, 114, 125, 133, 138, 147, 156, 167, 170,
199, 200, 202, 226, 227, 232, 233, 217, 250,
253, 267, 278, 284, 288, 289, 293, 296, 297,
299, 319, 323, 329, 332, 347, 350, 359, 362

Lanthanum 136

367

Lanthanum 140

134

Lead 203

48, 151, 245

Lutetium 176

134

Lutetium 177

39, 134

LITR Service Irradiations

320

Magnesium 028

9, 19, 32, 40, 58, 69, 70, 83, 229, 331,
346, 351

Mercury 203

293

Molybdenum 099

32, 134, 293

Molybdenum 101

134

Neodymium 147

36, 39, 56, 102, 226, 293, 362

Neodymium 143

134

Neodymium 151

134

Neptunium 235

42

Neptunium 237

19, 28, 39, 44, 82, 86, 121, 130, 134, 196,
226, 245, 253, 292, 293, 298

Neptunium 239

226

Nickel 059

41, 48, 50, 135, 151, 245, 309

Nickel 063

19, 29, 39, 87, 99, 132, 166, 184, 188, 199,
210, 218, 258, 293, 300, 332, 366

Niobium 092

245

Niobium 094

134

Niobium 095

19, 32, 44, 115, 122, 134, 140, 153, 154,
183, 194, 199, 293, 316

Osmium 191

241

Osmium 133

36, 135

Palladium 109

115, 134, 293, 319

Phosphorus 030

41, 56, 135, 293

Phosphorus 032

292, 293, 295

Phosphorus 033

41, 254

Plutonium 236

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Plutonium 241

56, 245

Plutonium 242

245, 293

Polonium 210

44, 183, 191, 245, 293, 323, 332

Polonium 211

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Polonium 212

245

Potassium 038

245

Praseodymium 142

103, 151, 224

Praseodymium 143

6, 56, 136

Promethium 147

3, 19, 24, 39, 46, 53, 81, 86, 108, 117, 131, 144, 153, 183, 188, 199, 227, 293, 295, 310, 333

Promethium 148

134

Protactinium 234

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Protractinium 232

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Protractinium 233

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Protractinium 234

36

Reactor Service Irradiations

1, 10, 16, 19, 24, 27, 28, 32, 33, 36, 39, 41, 42, 48, 50, 51, 56, 59, 71, 84, 86, 92, 95, 101, 103, 105, 109, 117, 134, 135, 137, 142, 147, 151, 153, 160, 162, 164, 165, 171, 178, 179, 180, 183, 184, 191, 193, 206, 209, 209, 220, 225, 226, 242, 244, 245, 250, 259, 276, 277, 284, 286, 293, 294, 306, 309, 313, 315, 316, 319, 355, 356, 361, 363, 367, 371, 372

Rhenium 184

211, 245

Rhenium 186

36, 140, 286, 300, 324

Rhenium 188

36

Rubidium 082

50

Rubidium 086

1, 19, 21, 38, 39, 40, 46, 47, 85, 92, 102, 115, 134, 135, 136, 140, 146, 147, 151, 164, 172, 182, 184, 187, 189, 198, 224, 226, 229, 238, 254, 258, 276, 293, 305, 312, 314, 336, 344, 345, 353, 358

Ruthenium 095

245

Ruthenium 103

6, 7, 24, 105, 115, 134, 142, 161, 241, 254, 253, 319, 362

Ruthenium 106

19, 24, 36, 44, 53, 92, 115, 127, 134, 135, 161, 186, 198, 199, 218, 219, 226, 245, 293, 313, 323, 325, 362

Samarium 153

19, 102, 220, 224, 225, 293

Samarium 155

16, 134

Scandium 042

151, 245

Scandium 043

245

Scandium 046

19, 54, 117, 125, 134, 179, 183, 220, 224, 235, 250, 263, 265, 289, 289, 293

Selenium 075

36

Silicon 027

245

Silver 106

245

Silver 108

134

Silver 110

36

Silver 111

64, 168

Sodium 024

226, 293

Special Services

2, 15, 19, 22, 24, 32, 39, 43, 44, 52, 72, 74, 85, 86, 91, 96, 102, 113, 128, 134, 144, 153, 156, 161, 169, 170, 178, 181, 183, 184, 191, 199, 208, 213, 218, 220, 221, 226, 227, 230, 234, 236, 241, 251, 261, 265, 266, 276, 280, 281, 284, 288, 289, 291, 292, 293, 295,

308, 311, 312, 316, 323, 354, 362, 365

Strontium 085

293, 315

Strontium 087

8, 141, 145, 184, 204, 281, 290, 367

Strontium 089

6, 7, 20, 34, 38, 47, 72, 77, 82, 86, 136, 140, 184, 199, 222, 224, 226, 243, 245, 253, 254, 268, 283, 288, 292, 293, 313, 352, 356, 362, 371

Strontium 090

2, 22, 39, 47, 115, 138, 161, 177, 181, 183, 184, 191, 199, 214, 215, 216, 218, 223, 226, 247, 275, 288, 253, 295, 323, 332, 333, 362

Sulfur 031

50, 151

Sulfur 035

72, 293, 295

Tantalum 178

245

Tantalum 179

245

Tantalum 182

30, 36, 38, 44, 86, 102, 115, 134, 164, 271, 288, 336

Tantalum 183

36

Target Preparation Radiosotope

39, 293, 316

Technetium 099

4, 32, 57, 86, 102, 120, 128, 129, 145, 146, 158, 195, 199, 218, 220, 229, 240, 241, 257, 292, 293, 312, 336, 346

Tellurium 131

134

Tellurium 132

116, 226, 293, 319, 322

Terbium 156

245

Terbium 157

211, 245

Terbium 158

211

Terbium 160

36

Terbium 161

36, 39

Terbium 71

36

Thallium 200

151 162

Thallium 201

254

Thallium 204

32, 60, 117, 156, 159, 177, 183, 191, 288, 332

Thulium 170

19, 257, 259, 293, 304

Thulium 171

36

Tin 13

293

Tin 17

245, 309

Tungsten 185

144, 164, 185, 282, 362

Tungsten 187

39, 115, 149, 282, 293

Tungsten 188

36

Uranium 236

245

Uranium 238

108, 144, 148, 156, 191, 212, 216, 249, 269, 355, 364

Vanadium 048

151, 245

Xenon 131

245

Xenon 133

5, 19, 39, 76, 85, 95, 102, 144, 147, 151, 170, 176, 184, 190, 199, 226, 231, 254, 262, 284, 291, 293, 296, 297, 298, 301, 304, 323, 326, 335, 336, 341, 342, 348, 366

Ytterbium 169

36

Yttrium 090

115

Yttrium 091

19, 32, 45, 86, 115, 117, 127, 136, 140, 161, 170, 220, 224, 226, 256, 293, 311, 362

Yttrium beads OYG

203

Zinc 061

41, 48, 309

Zinc 065

293

Zirconium 09519, 24, 32, 33, 39, 47, 54, 86, 93, 102,
115, 121, 134, 153, 164, 181, 191, 226, 265,
288, 289, 293, 296, 298, 303, 335, 362**B. Foreign****Americium 241**

383, 418, 421, 427, 428

Americium 243

439, 442

Argon 037

421, 426, 455

Barium 133

390, 418, 442

Barium 140

388, 418, 426, 439, 442

Beryllium 007

418

Bismuth 207

418

Bromine 082

384

Cadmium 109

384

Calcium 047

373, 400

Californium 252

377, 379, 420, 439, 443

Carbon 014

388, 409, 442

Cerium 144

380, 402, 418, 421

Cesium 137384, 388, 394, 402, 418, 421, 436, 442, 447,
448**Chlorine 036**

380, 418, 442

Cobalt 057

418

Cobalt 060

384, 388, 402, 406, 442

Curium 244

416, 439

Europium 152

384

Europium 154

3e9

Fission Products

375, 442

Gadolinium 153

430

Hafnium 181

435

Holmium 167

439

Hydrogen 003

388, 389, 398, 419, 421, 423, 449, 458, 459

Indium 114

403

Iodine 129

421, 439

Iodine 131

412, 449, 452

Iodine 133

387, 407

Krypton OR5

388, 392, 398, 418, 425, 442, 444, 457

Lutetium 177

433

Magnesium 028

393, 405, 415, 424, 450

Molybdenum 099

391, 399

Neodymium 147

394

Nep tun ium 237

379, 381, 383, 396, 418, 427, 428

Nickel 053

378, 418

Niobium 095

411, 414, 437

Plutonium 239

375, 379, 381, 386, 388

Plutonium 242

374, 375, 382, 416, 427, 451

Polonium 210

417

Promethium 147375, 388, 396, 410, 418, 422, 426, 434, 437,
442, 458, 459**Rubidium 086**

408, 409

Ruthenium 106

388, 396

Samarium 145

432

Samarium 151

432

Special Services

408, 441

Strontium 085

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Strontium 087

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Strontium 089

375, 385, 388, 394, 396, 418, 440, 442

Strontium 090

402, 418, 421, 426

Uranium 236

382, 411, 416, 427, 456

Uranium 238

382, 386, 413, 416

Xenon 133

380, 381, 401, 404

Yttrium 088

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Yttrium 091

402, 418, 445, 446

Zinc 065

438

Zirconium 095

418, 442

Target Preparation Radiosotope

385, 389

Technetium 099375, 376, 395, 418, 426, 431, 435, 448, 453,
454**Thallium 204**

402, 425, 448

Uranium 233

375, 382, 388, 439

Uranium 234

416

Uranium 235

375, 388, 429

111. ALPHABETICAL LIST OF STATES AND COUNTRIES, CROSS-REFERENCED TO CUSTOMER NUMBERS

A. Domestic**Alabama**

6, 25, 305, 306, 328

Alaska

7

Arizona

13, 20

Arkansas

21

California2, 3, 4, 12, 18, 24, 36, 37, 38, 39, 40,
41, 42, 43, 45, 46, 54, 74, 80, 81, 88, 90,
98, 102, 108, 114, 115, 116, 127, 133, 139,
143, 156, 212, 233, 238, 246, 249, 262, 264,
269, 272, 275, 276, 279, 289, 298, 315, 318,
319, 322, 323, 331, 337, 345, 346**Colorado**

67, 68, 69, 82, 194, 263, 304

Connecticut

61, 73, 297, 321, 370, 371

Delaware

129

District of Columbia

193, 301, 314, 320, 330

Florida

92, 107, 145, 176, 178, 217, 256, 342

Georgia

89, 117, 118, 119, 171, 299

Hawaii

126

Idaho

134

Illinois1, 19, 55, 56, 57, 76, 135, 162, 177, 210,
213, 239, 267, 340, 343, 352**Indiana**

136, 137, 182, 211, 237, 245, 344

Iowa

16, 140, 141

Kansas

149, 150

Kentucky

151, 160, 294

Louisiana

96, 159

Maryland122, 131, 147, 148, 165, 167, 195, 302, 303,
312, 324**Massachusetts**31, 47, 53, 58, 63, 87, 99, 125, 130, 168,
169, 199, 227, 232, 290, 288, 309, 313, 368,
369**Michigan**

93, 124, 128, 179, 180, 181, 334, 358, 360

Minnesota

132, 170, 183, 184

Mississippi

186, 187

Missouri

164, 188, 307, 355

Nebraska

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Nevada

198, 252, 326, 327

New Hampshire

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New Jersey5, 28, 144, 174, 200, 214, 241, 247, 258,
266, 274, 310, 353, 359**New Mexico**

44, 161, 201

New York9, 14, 29, 32, 33, 49, 51, 62, 70, 71, 72,
77, 83, 91, 95, 97, 100, 101, 104, 109, 110,
120, 123, 153, 154, 157, 158, 163, 166, 202,
203, 215, 219, 250, 254, 255, 257, 261, 268,
277, 296, 308, 311, 329, 333, 339, 347, 372**North Carolina**

84, 85, 204, 205, 206, 207, 208, 251

North Dakota

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Ohio50, 52, 60, 65, 66, 79, 94, 105, 106, 112,
121, 138, 191, 192, 196, 222, 223, 224, 228,
234, 242, 300, 316, 325, 341, 350, 361**Oklahoma**

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Oregon

225

Pennsylvania

a, io, 17, 23, 27, 35, 48, 59, 146, 173,
185, 216, 218, 229, 230, 231, 235, 236, 240,
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Puerto Rico

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Rhode Island

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South Caroline

64, 86, 270

South Dakota

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Tennessee

15, 220, 221, 282, 292, 293, 295, 336

Texas

78, 113, 155, 175, 189, 190, 253, 260, 265,
273, 283, 284, 285, 286, 287, 366

Utah

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Virginia

22, 26, 111, 172, 248, 348, 351

Washington

30, 142, 152, 226, 290, 349, 354, 356, 357

West Virginia

291, 365

Wisconsin

11, 103, 338, 367

B. Foreign

Argentina

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Australia

374, 375, 376

Austria

377, 378, 379

Belgium

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Brazil

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Canada

385, 386, 387, 388, 389, 390, 391, 392, 393,
394, 395, 396, 397, 398, 399, 400, 401, 402,
403, 404, 405, 406, 407

Chile

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China

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Czechoslovakia

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Denmark

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England

413, 414, 415, 416, 417, 419

Finland

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France

421, 422, 423, 424

Germany

425, 426, 427, 428, 429, 430, 431, 432, 433,
434, 435, 436

India

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Israel

438, 439

Italy

440, 441

Japan

442, 443, 444

Mexico

445, 446

Netherlands

447, 440

New York

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New Zealand

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Norway

450, 451

Peru

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South Africa

453, 454

Sweden

455, 456, 457

Switzerland

458, 459

IV. RADIOISOTOPE SALES - FY 1967

Isotope	Domestic			Foreign			Project			Total		
	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars
Americium-241	38	126.240 g	189,180	15	168.380 g	252,570	20	126.644 g	39,886	73	421.264 g	481,636
Americium-243	3		300	2		200	2		200	7		700
Antimony-122	1	15.0	135							1	15.0	135
Antimony-124							1	2.0	8	1	2.0	8
Argon-37	8	66.6	1,617	5	12.2	443	2	22.0	495	15	100.8	2,555
Arsenic-76							6	30.0	1,260	6	30.0	1,260
Barium-131	8	7.0	720				1	0.5	45	9	7.5	765
Barium-133	25	48.7	7,315	6	40.5	6,075	4	10.0	1,500	35	99.2	14,890
Barium-140	19	89.0	690	12	297.0	2,248	9	184.0	1,415	40	570.0	4,353
Berkelium-249							1	negligible	100	1	negligible	100
Bismuth-210	2	10.0	150							2	10.0	150
Bromine-82				1	3.0	360				1	3.0	360
Calcium-47	188	1,717.6	55,200	8	6.4	1,875	9	7.4	2,250	205	1,731.4	59,325
Californium-252	6		500	4		400	5		600	15		1,500
Carbon-14	70	48,759.0	187,060	4	2,012.1	11,101	5	710.0	1,752	79	51,481.1	199,913
cerium-144	28	842,793.6	1,508	19	15,723.0	300	30	8,310.0	652	77	866,826.6	2,460
Cesium-137	105	119,429,213.3	19,622	18	235,715,321.0	40,040	21	212,841,014.0	26,701	144	567,985,548.3	86,363
Chlorine-36	49	38.7	13,564	5	22.0	7,700	7	2.1	612	61	62.8	21,876
Chromium-51							1	1.0	2	1	1.0	2
Cobalt-60-P	18	369.1	1,528	8	96.0	385	4	79.5	330	30	544.6	2,243
Cobalt-60 (metal)	9	364,411,128.0	143,365	1	204,592,500.0	102,297	5	1,758,113,000.0	176,275	15	2,327,116,628.0	421,937
Copper-64	24	3,600.0	7,920							24	3,600.0	7,920
Curium-242							1	negligible	100	1	negligible	100
curium-244	2	0.011 g	200	2	0.002 g	200	1	0.005 g	625	5	0.018 g	1,025
Europium-152-154	8	23.1	500	1	8.0	160	8	26.0	535	17	57.1	1,195
Europium-155	1	4.0	80				2	22.0	440	3	26.0	520
Fission Products	3	25.0	138	6	42.0	245	2	15.0		11	82.0	383
Gallium-72	5	40.0	240				30	240.0	1,564	35	280.0	1,804
Hafnium-181	21	154.1	602	1	1.0	25	8	39.0	240	30	194.1	867
Indium-114	15	107.0	1,080	2	10.0	100	10	45.0	460	27	162.0	1,640
Iodine-123	14	70.0	1,750				1	1.0	25	15	71.0	1,775
Iodine-129	14	2,953.0	2,990	4	3,101.0	2,325	5	365.0	730	23	6,419.0	6,045
Iodine-130							1	6.0	25	1	6.0	25
Iodine-131	263	14,702.0	7,706	21	1,064.0	523	173	12,695.5	6,062	457	28,461.5	14,291
Iodine-132	36	360.0	1,980				2	40.0	200	38	400.0	2,180
Iodine-133	3	60.0	180	2	40.0	120				5	100.0	300

Isotope	Domestic			Foreign			Project			Total		
	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars	Ship- ments	Millicuries	Dollars
Iridium-192	8	66.0	91				5	64,030.0	681	13	64,096.0	772
Iridium-192 (metal)	3	143,000.0	1,327				6	228,700.0	2,508	9	371,700.0	3,835
Iron-55-59	1	2.0	140							1	2.0	140
Iron-59							3	8.0	240	3	8.0	240
Krypton-85	128	4,576,519.0	102,318	22		28,944	35		18,611	185	4,576,519.0	149,873
Magnesium-28	41	6.1	8,540	9	1.3	1,750	2	0.1	140	52	7.5	10,430
Mercury-203							3	2.5	3	3	2.5	3
Molybdenum-99				105	52,041.0	9,653	4	501.0	251	109	52,542.0	9,904
Neodymium-147	3	3.0	150	1	1.0	50	5	10.0	500	9	14.0	700
Neptunium-237	14	2.620 g	1,310	12	33.700 g	16,850	29	1,010.151 g	109,243	55	1,046.471 g	127,403
Nickel-63	30	8,077.1	45,188	3	610.0	3,575	8	1,496.0	1,510	41	10,183.1	50,273
Niobium-95	10	13.0	325	2	11.0	275	15	38.0	875	27	62.0	1,475
Osmium-191	1	10.0	200							1	10.0	200
palladium-109	24	240.0	370				1	2.0	25	25	242.0	395
Phosphorus-32							21	460.7	599	21	460.7	599
Phosphorus-33	2	1.1	500							2	1.1	500
Plutonium-239				3	0.407 g	744				3	0.407 g	744
Plutonium-242				5	0.019 g	301				5	0.019 g	301
Polonium-210	32	6,233,000.0	155,825	5	370,000.0	9,250	12	43,695,000.0	873,900	49	50,298,000.0	1,038,975
Praseodymium-142	1	10.0	45							1	10.0	45
Praseodymium-143	3	2.5	125							3	2.5	125
Promethium-147	68	219,134,060.0	50,289	447	7,296,250.0	4,393	33	7,225,053.0	3,308	548	233,655,363.0	57,990
Rhenium-186	4	25.0	145				1	10.0	30	5	35.0	175
Rubidium-86	189	5,443.0	4,375	4	230.0	139	9	530.0	414	202	6,203.0	4,928
Ruthenium-103	11	22.0	550				4	8.0	200	15	30.0	750
Ruthenium-106	17	39.0	975	2	4.0	100	12	178.2	4,627	31	221.2	5,702
Samarium-153	2	17.0	64				5	32.0	140	7	49.0	204
Scandium-46	23	888.4	1,691				3	37.0	79	26	925.4	1,770
Silver-111	7	30.2	338							7	30.2	338
Sodium-24							1	2.0		1	2.0	
strontium-85							2	4.0	200	2	4.0	200
Strontium-87m	68	204.0	12,240	11	33.0	1,980				79	237.0	14,220
Strontium-89	41	224.5	3,126	35	834.0	11,282	16	47.0	635	92	1,105.5	15,043
Strontium-90	33	29,890,887.7	9,815	7	15,380,010.0	4,805	15	351,010,786.0	67,872	55	396,281,683.7	82,492
Sulfur-35	1	6.0	25				2	55.0	44	3	61.0	69
Tantalum-182	7	38.5	395				2	7.0	75	9	45.5	470
Technetium-99	14	40,777.0	2,440	7	10,232.0	737	5	2,300.0	169	26	53,309.0	3,346

Isotope	Domestic			Foreign			Project			Total		
	Ship-ments	Millicuries	Dollars	Ship-ments	Millicuries	Dollars	Ship-ments	Millicuries	Dollars	Ship-ments	Millicuries	Dollars
Technetium-99m	52	9,150.0	4,437	12	1,200.0	660	8	1,200.0	620	72	11,550.0	5,717
Tellurium-132	9	90.0	405				4	80.0	180	13	170.0	585
Thallium-204	12	6,675.0	3,851	4	165.0	151	1	100.0	32	17	6,940.0	4,034
Thorium-230	1	0.006 g	127							1	0.006 g	127
Thulium-170	3	1,150.0	450				1	200.0	150	4	1,350.0	600
Tin-113	1						1	0.2	7	2	0.2	7
Tritium	127	126,195,637.0	145,719	31	52,678,392.0	54,054	49	493,343,083.0	44,086	207	672,217,112.0	243,859
Tungsten-185	3	30.1	265				2	12.0	96	5	42.1	361
Tungsten-187	5	24.0	216				13	61.0	565	18	85.0	781
Uranium-233				2	0.930 g	150				2	0.930 g	150
Uranium-234				1	0.002 g	44				1	0.002 g	44
Uranium-235				1	0.030 g	4				1	0.030 g	4
uranium-236				3	0.040 g	60				3	0.040 g	60
Uranium-238	11	146.010 g	4,773	4	268.400 g	6,379	3	186.100 g	3,117	18	600.510 g	14,269
Xenon-133	338	448,677.9	27,626	64	195,740.0	7,223	28	2,848,451.0	26,775	430	3,492,868.9	61,624
Yttrium-90	1	4.0	25							1	4.0	25
Yttrium-90 (beads)	1	100 beads	50							1	100 beads	50
Yttrium-91	12	74.0	848	11	128.0	1,408	34	11,181.0	8,327	57		10,583
zinc-65							1	1.0	3	1	1.0	3
Zirconium-95	25	168.2	1,111	8	502.0	2,761	24	107.0	737	57	777.2	4,609
Cyclotron Service Irr. ^a	111	111.0	179,679	15	15.0	25,181	24	23.0	17,398	1,717	149.0	258,236
Reactor Service Irr. ^b	488	32,401,670.0	184,996	10	10.0	2,847	272	75,228,033.0	21,247	1,641	107,629,713.0	385,934
Special Services	22	256.0	106,833	5	3.0	18,505	17	2,007,028.0	72,838	44	2,007,287.0	198,176
Total	2,994	903,853,683.1	1,712,153	998	516,316,711.5	643,947	1,118	2,946,645,724.7	1,648,146	7,548	4,366,816,119.3	4,117,168

^aRadioisotopes produced by cyclotron service irradiations:

²⁶Al, ²⁴⁰Am, ¹¹⁹Sb, ²¹²At, ^{133m}Ba, ²⁴⁵Bk, ²⁴⁶Bk, ⁷Be, ²⁰⁶Bi, ¹⁰⁹Cd, ^{245,247,248}Cf, ^{139,140}Ce, ¹²⁹Cs, ³⁴Cl, ^{51,52}Cr, ^{58,57,61}Co, ^{61,64}Cu, ^{238,242,243,244}Cm, ¹⁵⁹Dy, ^{250,251,252}Es, ^{153,155}Gd, ^{66,67,68,71}Ge, ^{192,195,197}Au, ¹¹¹In, ¹²³I, ^{188,189,190}Ir, ⁵⁵Fe, ¹⁴⁰La, ^{172,173}Lu, ^{194,197,199}Hg, ^{235,240}Np, ^{57,59}Ni, ¹⁰³Pd, ³⁰P, ^{207,208,210,211,212}Po, ^{236,239,241,242}Pu, ⁴²K, ¹³⁹Pr, ^{143,148}Pm, ²³⁴Pa, ^{183,184}Re, ⁹⁹Rh, ^{83,84}Rb, ^{97,99,101}Ru, ^{40,42,43,45,46,48}Sc, ^{27,29}Si, ¹⁰⁶Ag, ²⁴Na, ⁸⁵Sr, ³¹S, ¹⁷⁹Ta, ^{95,100}Tc, ^{156,157,158}Tb, ²⁰¹Tl, ¹⁸⁸Tm, ¹¹⁷Sn, ⁴⁴Ti, ¹⁸¹W, ²³⁶U, ^{48,50}V, ¹⁶⁹Yb, ^{87,88}Y, ⁶⁵Zn.

^bRadioisotopes produced by reactor service irradiations:

^{212,213}At, ^{26,28}Al, ^{240,241}Am, ^{118,122,124}Sb, ³⁵Ar, ^{72,76,77}As, ¹³¹Ba, ²⁰⁶Bi, ^{78, 82}Br, ^{109,115,115m,117}Cd, ⁴⁵Ca, ¹⁴¹Ce, ^{130,134}Cs, ³⁶Cl, ^{51,53,55}Cr, ^{58,57,58,60}Co, ^{62,64,66}Cu, ²⁴²Cm, ^{165,166}Dy, ²⁵⁴Es, ^{165,169,171}Er, ^{146,152,154,155,156}Eu, ^{FP, 17,18,19}F, ^{152,159,161}Gd, ^{66,67,70,72}Ga, ^{67,68,69}Ge, ^{194,196,198}Au, ^{175,181}Hf, ^{162,166}Ho, ^{110,114,116}In, ^{124,131}I, ^{190,192}Ir, ^{52,55,59}Fe, ^{82,83}Kr, ^{136,140}La, ²⁰³Pb, ⁵Li, ^{172,176,177}Lu, ⁵⁴Mn, ^{197,199}Hg, ^{93,99,101}Mo, ^{147,149,151}Nd, ¹⁹Ne, ^{237,239}Np, ^{59,63}Ni, ^{92,94}Nb, ^{185,188,191,193}Os, ^{15,16}O, ^{103,108}Pd, ³⁰P, ^{191,197}Pt, ²⁴¹Pu, ²¹¹Po, ^{38,42}K, ¹⁴²Pr, ^{143,144,148}Pm, ^{232,233,234}Pa, ^{184,186,188}Re, ^{82,86}Rb, ^{95,103}Ru, ^{145,155}Sm, ^{42,46}Sc, ⁷⁵Se, ²⁷Si, ^{106,108,110}Ag, ²⁴Na, ^{85,87,89}Sr, ^{31,35}S, ^{178,182,183}Ta, ^{97,100}Tc, ^{127,129,129m,131}Te, ^{156,160,161}Tb, ²⁰⁰Tl, ^{168,170,171}Tm, ^{117,118}Sn, ⁴³Ti, ^{181,187,188}W, ^{234,237}U, ^{48,50}V, ¹³¹Xe, ¹⁶⁹Yb, ⁹⁰Y, ^{61,65,71}Zn.