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Stable Isotope Customer List and Summary of Shipments–FY 1985

J. G. Tracy

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ORNL/TM-9866/R1

OPERATIONS DIVISION

STABLE ISOTOPE CUSTOMER LIST AND SUMMARY OF SHIPMENTS — FY 1985

Compiled by

J. G. Tracy

Date Published: January 1986

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Oak Ridge, Tennessee 37831
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STABLE ISOTOPE CUSTOMER LIST AND SUMMARY OF SHIPMENTS — FY 1985

J. G. Tracy

INTRODUCTION

This compilation is published as an aid to those concerned with the separation and sale of stable isotopes. The information is divided into four sections:

1. alphabetical list of domestic and foreign customers, showing the stable isotopes purchased during the fiscal year;

2. alphabetical list of isotopes, cross-referenced to customer numbers and divided into domestic and foreign categories;

3. alphabetical list of states and countries, cross-referenced to customer numbers and indicating geographical concentrations of isotope users; and

4. tabulation of the shipments, quantities, and dollars for domestic, foreign, and project categories for each isotope.

Other reports in this series are:

ORNL/TM-1928	ORNL/TM-3987	ORNL/TM-7764
ORNL/TM-2038	ORNL/TM-5089	ORNL/TM-8302
ORNL/TM-2401	ORNL/TM-5853	ORNL/TM-8704
ORNL/TM-2747	ORNL/TM-6241	ORNL/TM-8979
ORNL/TM-3146	ORNL/TM-6710	ORNL/TM-9430
ORNL/TM-3543	ORNL/TM-7214	

We wish to thank Jim Delker of the Business Systems Department of the ORGDP Computing Technology Center for his assistance in developing the tabulations.

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

A. DOMESTIC

1 Abilene Christian College
Box 8208
Abilene, Texas 79699

^{92}Mo, ^{100}Mo, ^{182}W, ^{184}W

2 Arco Chemical Company
Accounts Payable
6905 Sierra Ct.
Dublin, California 94568

^{113}Cd

3 Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439

^{54}Fe, ^{56}Fe, ^{74}Ge, ^{76}Ge, ^{60}Ni, ^{64}Ni, ^{207}Pb, ^{208}Pb, ^{194}Pt, ^{196}Pt, ^{124}Sn, SS, ^{130}Te, TGS, ^{80}Tl, ^{182}W, ^{174}Yb, ^{176}Yb, ^{67}Zn, ^{68}Zn, ^{94}Zr

4 Argonne National Laboratory
P. O. Box 2528
Idaho Falls, Idaho 83401

^{90}Zr

5 Arizona State University
Tempe, Arizona 85281

^{33}S, SS

6 Arizona, University of
Post Office Drawer 4100
Tucson, Arizona 85721

^{148}Nd, ^{176}Yb

7 Atom Sciences, Incorporated
114 Ridgeway Center
Oak Ridge, Tennessee 37830

^{65}Cu, ^{50}V

8 AT&T Bell Laboratories
P. O. Box 800
Short Hills, New Jersey 07078

^{161}Dy, ^{167}Er, ^{155}Gd, ^{145}Nd, ^{148}Nd, ^{152}Sm, ^{154}Sm, TGS, ^{174}Yb

9 Bendix Corporation, The
2000 East Bannister Road
Kansas City, Missouri 64131

TGS

10 Betadyne Corporation
22 Park Place
New York, New York 10007

^{94}Mo, ^{60}Ni, ^{62}Ni, ^{47}Ti, ^{182}W, ^{184}W, ^{186}W

11 Biosources, Limited
4-4 Bud Way
Nashua, New Hampshire 03063

^{151}Eu

12 Boston University Medical School
Business Office
80 E. Concord Street
Boston, Massachusetts 02118

^{81}Br, ^{57}Fe, ^{58}Fe, ^{6}Li, ^{25}Mg, ^{204}Pb, ^{206}Pb, ^{207}Pb, ^{87}Rb, TGS, ^{70}Zn

13 Brigham Young University
Provo, Utah 84601

^{82}Se

14 Brookhaven National Laboratory
Upton, Long Island, New York 11973

^{135}Ba, ^{63}Cu, ^{160}Dy, ^{164}Dy, ^{196}Hg, ^{190}Os, ^{154}Sm, SS, ^{66}Zn

15 Brooklyn College
Bedford Avenue and Avenue H
Brooklyn, New York 11210

^{150}Sm, ^{154}Sm, ^{119}Sn

16 Brown University
Providence, Rhode Island 02912

^{6}Li

17 Cadema Medical Products, Incorporated
569 North Street
Middleton, New York 10940

^{152}Sm

18 California Institute of Technology
Accounts Payable 301-6
Pasadena, California 91125

^{57}Fe, ^{92}Mo, ^{100}Mo, ^{208}Pb, ^{185}Re, ^{187}Re, ^{124}Te, TGS, ^{203}Tl

19 California, University of
400 Sproul Hall
Berkeley, California 94720

^{113}Cd

20 California, University of
405 Hilgard Avenue
Los Angeles, California 90024

SS

21 California, University of
Lawrence Berkeley Laboratory
Berkeley, California 94701

^{114}Cd, ^{180}Hf, ^{201}Hg, ^{148}Nd, ^{96}Ru, ^{149}Sm, ^{150}Sm, SS, TGS

22 California, University of
Lawrence Livermore Laboratory
Box 808
Livermore, California 94550

^{46}Ca, ^{140}Ce, ^{142}Ce, ^{170}Er, ^{58}Fe, ^{154}Gd, ^{191}Ir, ^{148}Nd, ^{190}Os, ^{208}Pb, ^{29}Si, ^{30}Si, ^{149}Sm, SS, ^{123}Te, TGS, ^{48}Ti, ^{172}Yb, ^{174}Yb, ^{176}Yb, ^{90}Zr, ^{94}Zr, ^{96}Zr

23 Carnegie Institution of Washington
Washington, D. C. 20008

^{144}Nd

24 Carnegie-Mellon University
5000 Forbes
Pittsburgh, Pennsylvania 15213

^{92}Mo, ^{98}Mo, ^{100}Mo

25 Case Western Reserve University
2220 Circle Drive
Cleveland, Ohio 44106

^{57}Fe, ^{6}Li, ^{61}Ni

26 Chevron Research Company
555 Market Street
San Francisco, California 94120

^{57}Fe

27 Clorox Technical Center
P. O. Box 493
Pleasanton, California 94566

^{43}Ca, ^{25}Mg

28 Colorado, University of
4200 E. Ninth Avenue
Denver, Colorado 80220

^{70}Zn

29 Cornell University
Purchasing
120 Maple Avenue
Ithica, New York 14850

^{6}Li

30 Denison University
Granville, Ohio 43023

^{148}Sm, ^{149}Sm, ^{150}Sm, ^{152}Sm

31 Department of Chemistry
Mount Holyoke College
South Hadley, Massachusetts 01075

SS

32 Duke University
Durham, North Carolina 27706

^{35}Cl, ^{63}Cu, ^{65}Cu, SS, TGS

33 E. I. Du Pont De Nemours & Company
NEN Products
Accounts Payable
549 Albany Street
Boston, Massachusetts 02118

^{57}Fe, ^{58}Fe, ^{58}Ni, ^{102}Ru, ^{112}Sn, SS,
^{203}Tl, ^{94}Zr

34 E.I. Dupont De Nemours & Company, Inc.
Experimental Station
Accounts Payable Section-E268
Wilmington, Delaware 19898

^{63}Cu, ^{6}Li

35 Eagle-Picher Industries, Inc.
Miami, Oklahoma 74354

^{6}Li, ^{7}Li

36 Eastman Kodak Company
Kodak Park Division
Rochester, New York 14650

^{101}Ru

37 Efratom California, Incorporated
18851 Bardeen Avenue
Irvine, California 92715

^{87}Rb

38 Esso Research and Engineering Company
P. O. Box 642
Linden, New Jersey 07036

^{57}Fe

39 EG&G Idaho, Inc
Accounts Payable Section
P. O. Box 1625
Idaho Falls, Idaho 83401

^{135}Ba, ^{144}Sm

40 ETA Industries, Incorporated
8 West 40th Street
Suite 1901
New York, New York 10018

^{85}Rb, ^{87}Rb

41 Florida State University
Tallahassee, Florida 32306

^{6}Li, ^{58}Ni

42 Frequency Electronics, Incorporated
55 Charges Lindbergh Blvd.
Mitchel Field, New York 11553

^{87}Rb

43 General Motors Corporation
G. M. Technical Center
12 Mile and Mound Roads
Warren, Michigan 48090

^{57}Fe

44 Georgia Institute of Technology
225 North Avenue, N.W.
Atlanta, Georgia 30332

^{46}Ti

45 Georgia, University of
Athens, Georgia 30601

^{65}Cu

46 GA Technologies Inc.
P. O. Box 85608
San Diego, California 92138

^{6}Li

47 GTE Products Corporation
Lighting Products Group
100 Endicott Street
Danvers, Massachusetts 01923

^{198}Hg, ^{202}Hg, ^{204}Hg

48 Harshaw/Filtrol Partnership
6801 Cochran Road
Solon, Ohio 44139

^{6}Li, ^{7}Li

49 Hewlett Packard Company
1501 Page Mill Road
Palo Alto, California 94304

^{85}Rb

50 Illinois Institute of Technology
3300 S. Federal Street
Chicago, Illinois 60616

SS

51 Indiana University
Bloomington, Indiana 47401

^{40}Ca, ^{42}Ca, ^{44}Ca, ^{48}Ca, ^{86}Sr, TGS, ^{66}Zn, ^{67}Zn

52 International Business Machines Corp.
Post Office Box 218
Yorktown Heights, New York 10598

TGS

53 Iowa State University
Purchasing Department
Ames, Iowa 50011

^{113}Cd, ^{6}Li, ^{70}Zn

54 Isotope Products Laboratories
404 South Luke Street
Burbank, California 91502

^{132}Ba, ^{57}Fe, ^{208}Pb, ^{124}Sn, SS

55 ICN Biomedicals, Incorporated
P. O. Box 19536
Irvine, California 92714
Attn: Accounts Payable

^{44}Ca

56 ICN Biomedicals, Incorporated
P. O. Box 19536
Irvine, California 92714
Attn: Stohler Accts. Payable

^{6}Li, ^{7}Li

57 Kaman Instrumentation Corp.
P. O. Box 7463
Colorado Springs, Colorado 80933

TGS

58 Kansas State University
Department of Clothing, Textiles
and Interior Designs
223 Justin Hall
Manhattan, Kansas 66506

^{63}Cu, ^{54}Fe, ^{66}Zn

59 Kansas State University
Department of Geology
Thompson Hall
Manhattan, Kansas 66506

^{87}Rb, ^{84}Sr

60 Kansas State University
Department of Pathology
College of Veterinary Medicine
Veterinary Medical Center
Manhattan, Kansas 66506

^{58}Fe

61 Kentucky, University of
Lexington, Kentucky 40506

^{130}Ba, ^{170}Er, ^{152}Sm, SS

62 Louisiana State University
Nuclear Sciences Center
Baton Rouge, Louisiana 70803

^{6}Li, ^{7}Li

63 Mallinckrodt, Inc.
2703 Wagner Place
Maryland Heights, Missouri 63043

^{113}Cd, ^{203}Tl

64 Massachusetts General Hospital
Isotope Laboratory
Boston, Massachusetts 02114

^{190}Os

65 Massachusetts Institute of Technology
Box 69
Cambridge, Massachusetts 02139

^{44}Ca, ^{54}Fe, ^{57}Fe, ^{95}Mo, ^{100}Mo, ^{61}Ni, ^{30}Si

66 Mayo Foundation
200 1st Street SW
Box 10,000
Rochester, Minnesota 55905

^{42}Ca, ^{44}Ca

67 Medi-Physics, Incorporated
4050 Lakeside Drive
Richmond, California 94806

^{124}Te, ^{66}Zn

68 Michigan State University
Attn: Accounts Payable
366 Administration Building
East Lansing, Michigan 48824

^{6}Li, ^{24}Mg

69 Michigan, University of
Ann Arbor, Michigan 48104

^{63}Cu, ^{24}Mg, ^{30}Si

70 MicroMatter Company
Route 1, Box 728
Eastsound, Washington 98245

^{110}Cd, ^{113}Cd, ^{207}Pb, ^{208}Pb, ^{144}Sm, ^{120}Sn, ^{122}Sn, ^{124}Sn, ^{130}Te

71 Mississippi, University of
University, Mississippi 38677

^{48}Ca, ^{64}Ni, SS, TGS, ^{174}Yb

72 National Bureau of Standards
Connecticut Avenue and Van Ness Street,
Washington, D. C. 20234

^{57}Fe, ^{177}Hf, ^{142}Nd, ^{144}Nd, ^{148}Nd,
^{144}Nd, ^{148}Nd, ^{150}Nd, ^{190}Os, ^{87}Rb,
^{84}Sr, ^{68}Zn

73 National Bureau of Standards
MASC Finance Division
RAS/MCI
325 Broadway
Boulder, Colorado 80303

^{198}Hg, ^{24}Mg, ^{26}Mg, TGS

74 National Institutes of Health
Accounts Payable DFM/Attn: Louise Clar
9000 Rockville Pike
Building 31, Room B1B33
Bethesda, Maryland 20205

^{42}Ca, ^{43}Ca, ^{50}Cr, ^{57}Fe, SS

75 Naval Ship R & D Center
Annapolis Laboratory
Annapolis, Maryland 21402

^{202}Hg

76 New Mexico State University
Las Cruces, New Mexico 88003

^{24}Mg, SS

77 New York Power Authority
P.O. Box 215
Buchanan, New York 10511

^{6}Li

78 New York, State University of
Research Foundation
Stony Brook, New York 11790

^{110}Cd, ^{114}Cd, ^{58}Ni, ^{110}Pd, ^{119}Sn, TGS,
^{90}Zr

79 North Carolina State University
P. O. Box 5935
Raleigh, North Carolina 27607

TGS

80 Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115

^{192}Os, TGS

81 Northwestern University
619 Clark Street
Evanston, Illinois 60201

^{6}Li, SS, TGS

82 Notre Dame, University of
Notre Dame, Indiana 46556

^{152}Sm, ^{154}Sm

83 Nuclear Medicine Incorporated
900 Atlantic Drive
Atlanta, GA 30332

^{6}Li

84 NASA
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena, California 91109

^{199}Hg, ^{202}Hg

85 Oak Ridge Associated Universities
Post Office Box 117
Oak Ridge, Tennessee 37830

^{164}Dy, ^{174}Hf, TGS

86 Ohio State University
190 North Oval Drive
Columbus, Ohio 43210

^{158}Dy, ^{84}Sr, SS

87 Ohio University
Athens, Ohio 45701

SS

88 Opthos Instruments, Inc.
17805 Caddy Drive
Rockville, Maryland 20855

^{130}Te

89 Oregon Graduate Center
19600 Northwest Walker Road
Beaverton, Oregon 97005

^{63}Cu

90 Pennsylvania State University
University Park, Pennsylvania 16802

^{111}Cd, ^{6}Li, ^{7}Li

91 Pennsylvania, University of
3025 Walnut Street
Philadelphia, Pennsylvania 19104

^{40}Ca, ^{6}Li, ^{58}Ni, ^{60}Ni, ^{28}Si, ^{124}Sn,
TGS

92 Pittsburgh, University of
Pittsburgh, Pennsylvania 15213

^{191}Ir, ^{193}Ir, ^{87}Sr

93 Plasma Physics Laboratory
Accounts Payable Department
Princeton University
P. O. Box 451
Princeton, New Jersey 08544

^{85}Rb

94 Princeton University
James Forrestal Campus
Princeton, New Jersey 08540

^{54}Fe, ^{207}Pb, ^{85}Rb, ^{87}Rb

95 Purdue University
Pharmacy Annex
Lafayette, Indiana 47907

^{42}Ca, ^{43}Ca, ^{44}Ca, ^{48}Ca, ^{106}Cd, ^{50}Cr, ^{151}Eu, ^{153}Eu, ^{57}Fe, ^{176}Hf, ^{178}Hf, ^{179}Hf, ^{180}Hf, ^{191}Ir, ^{193}Ir, ^{25}Mg, ^{26}Mg, ^{61}Ni, ^{62}Ni, SS

96 Reactor Experiments, Inc.
963 Terminal Way
San Carlos, California 94070

TGS

97 Rensselaer Polytechnic Institute
110 8th Street
Troy, New York 12181

^{6}Li, TGS

98 Rochester, University of
575 Elmwood Avenue
Rochester, New York 14627

^{114}Cd, ^{162}Dy, ^{70}Ge, ^{74}Ge, ^{76}Ge, ^{178}Hf, ^{180}Hf, ^{148}Nd, ^{58}Ni, ^{152}Sm, ^{120}Sn, ^{122}Yb

99 Rutgers, The State University
New Brunswick, New Jersey 08903

^{52}Cr, ^{54}Cr, ^{54}Fe, ^{110}Pd, ^{34}S, ^{112}Sn, ^{114}Sn

100 Sandia Corporation
Post Office Box 5800
Albuquerque, New Mexico 87115

^{160}Gd

101 Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, California

SS

102 Stanford University
P. O. Box 4409
Stanford, California 94305

^{6}Li, SS

103 Syncor International Corporation
12847 Arroyo Street
Sylmar, California 91342

^{168}Er

104 Tennessee Eastman Company
Kingsport, Tennessee 37667

^{57}Fe

105 Tennessee Valley Authority
Chattanooga Accounting Office
285 Haney Bldg.
Chattanooga, Tennessee 37401

^{7}Li

106 Texas A and M University
Post Office Box 44
College Station, Texas 77843

^{208}Pb, ^{154}Sm

107 Texas, University of
Austin, Texas 78712

^{35}Cl, ^{6}Li, ^{7}Li, ^{182}W

108 U. S. Department of Agriculture
Prime Land Seminar Committee
Natural Resources Economics Division
500 12th Street S.W., Rm 412
Washington, D. C. 20250

^{172}Yb

109 U.S. Services Incorporated
19 Ox Bos Lane
Summit, New Jersey 97901

^{153}Eu, ^{57}Fe, ^{69}Ga, ^{6}Li, ^{33}S, ^{29}Si, ^{30}Si

110 Union Carbide Corporation
Sterling Forest Research Center
Post Office Box 324
Tuxedo, New York 10987

^{50}Cr, ^{58}Fe, TGS

111 Union Carbide Corporation, Nuclear Divi
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

^{11}B, ^{81}Br, ^{44}Ca, ^{48}Ca, ^{164}Dy, ^{170}Er, ^{54}Fe, ^{152}Gd, ^{160}Gd, ^{191}Ir, ^{26}Mg, ^{92}Mo, ^{94}Mo, ^{95}Mo, ^{96}Mo, ^{97}Mo, ^{98}Mo, ^{100}Mo, ^{142}Nd, ^{150}Nd, ^{58}Ni, ^{208}Pb, ^{96}Ru, ^{74}Se, ^{154}Sm, ^{116}Sn, ^{124}Sn, ^{84}Sr, SS, ^{124}Te, ^{128}Te, TGS, ^{46}Ti, ^{47}Ti, ^{48}Ti, ^{50}Ti, ^{184}W, ^{168}Yb, ^{171}Yb, ^{173}Yb, ^{176}Yb, ^{64}Zn, ^{90}Zr

112 Union Carbide Corporation, Nuclear Divi
Y-12 Plant
Post Office Box Y
Oak Ridge, Tennessee 37830

^{123}Sb

113 United States Department of Agriculture
Research Service
P. O. Box 53326
New Orleans, Louisiana 70150

^{44}Ca, ^{65}Cu, ^{54}Fe, ^{25}Mg, ^{67}Zn

114 United States Geological Survey
Financial Management
National Center, Room 1447-A
12201 Sunrise Valley Drive
Reston, Virginia 22092

^{43}Ca, ^{116}Cd, ^{142}Ce, ^{161}Dy, ^{167}Er, ^{151}Eu, ^{152}Gd, ^{158}Gd, ^{25}Mg, ^{150}Nd, ^{190}Os, ^{87}Rb, ^{187}Re, ^{29}Si, ^{30}Si, ^{144}Sm, ^{88}Sr, ^{171}Yb

115 United States Navy
Naval Electronics Lab Center
271 Catalina Boulevard
San Diego, California 92152

^{198}Hg, ^{200}Hg, ^{202}Hg, ^{204}Hg

116 United States Navy
Naval Research Laboratory
Washington, D. C. 20390

^{58}Fe, ^{6}Li

117 University of California
P. O. Box CA
Irvine, California 92716

SS

118 University of California
Los Alamos National Laboratory
Accounting Dept.
P. O. Box 1663
Los Alamos, New Mexico 87545

^{44}Ca, ^{48}Ca, ^{111}Cd, ^{113}Cd, ^{151}Eu, ^{54}Fe, ^{154}Gd, ^{158}Gd, ^{98}Mo, ^{100}Mo, ^{58}Ni, ^{60}Ni, ^{64}Ni, ^{192}Os, ^{208}Pb, ^{96}Ru, ^{102}Ru, ^{116}Sn, ^{119}Sn, ^{120}Sn, ^{87}Sr, SS, ^{130}Te, ^{124}Te, ^{125}Te, ^{126}Te, ^{128}Te, ^{130}Te, TGS

119 University of California San Diego
Accounting Office (Q-027)
La Jolla, California 92093

^{65}Cu, ^{57}Fe, ^{196}Pt

120 University of Chicago
Account Payable
1525 E. Hyde Park Boulevard
Chicago, Illinois 60615

^{44}Ca, ^{166}Er, ^{144}Nd, ^{123}Te

121 University of Cincinnati
Purchasing Department
Cincinnati, Ohio 45221

^{116}Cd, ^{110}Pd, ^{120}Sn, ^{125}Te

122 University of Connecticut
Health Center
Accounts Payable, Bldg. #18
Farmington, Connecticut 06032

^{76}Ge

123 University of Illinois
252 Administration Building
Accounting Division
506 South Wright Street
Urbana, Illinois 61801
Illinois

^{79}Br, ^{140}Ce, ^{190}Os, ^{192}Os, SS, TGS

124 University of Louisville
Purchasing Department
Louisville, Kentucky 40292
Kentucky

^{111}Cd

125 University of Minnesota
Business Office
1919 University Avenue
St. Paul, Minnesota 55104

^{204}Hg, ^{150}Nd, ^{206}Pb, ^{207}Pb, TGS

126 University of Missouri
Purchasing Department
General Services Building
Columbia, Missouri 65211

^{58}Fe, ^{74}Se, ^{186}W, ^{168}Yb

127 University of San Francisco
Golden Gate and Parker Avenues
San Francisco, California 94117

^{113}Cd

128 University of South Florida
Div. of Finance & Accounting
4202 Fowler Avenue
Tampa, Florida 33620

^{96}Mo, ^{61}Ni

129 University of Southern California
Accounts Payable
P. O. Box 77967
Los Angeles, California 90089-1141

^{194}Pt

130 University of Texas
P.O. Box 688
Richardson, Texas 75080

^{56}Fe, ^{57}Fe, ^{24}Mg

131 Vanderbilt University
Business Managers Office
Nashville, Tennessee 37203

^{77}Se

132 Virginia, University of
Charlottesville, Virginia 22903

^{44}Ca, ^{48}Ca, ^{50}Cr, ^{65}Cu, ^{164}Dy, ^{54}Fe, ^{26}Mg, ^{62}Ni, ^{204}Pb, ^{206}Pb, ^{207}Pb, ^{74}Se, SS, TGS, ^{66}Zn

133 Washington University
Lindell and Skinker
St. Louis, Missouri 63130

^{42}Ca

134 Washington, University of
400 Administration Building
Seattle, Washington 98105

^{40}Ca, ^{140}Ce, ^{24}Mg, ^{206}Pb, ^{148}Sm, ^{154}Sm, ^{122}Sn, TGS, ^{64}Zn

135 Wayne State University
Detroit, Michigan 48202

^{63}Cu, ^{70}Zn

136 West Valley Nuclear Services Co., Inc.
Attention: Accounts Payable
Post Office Box 191
West Valley, New York 14171-0191

^{107}Ag, ^{136}Ce, ^{161}Dy, ^{167}Er, ^{154}Gd, ^{138}La, ^{145}Nd, ^{208}Pb, ^{82}Se, ^{149}Sm, ^{171}Yb

137 Westinghouse Electric Corporation
Research and Development Center
Beulah Road, Churchill Borough
Pittsburgh, Pennsylvania 15235

^{208}Pb, SS, ^{94}Zr

138 Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

^{6}Li, ^{7}Li

139 Wisconsin, University of
750 University Avenue
Madison, Wisconsin 53706

^{6}Li, SS

140 Wright State University
7751 Colonel Glenn Highway
Dayton, Ohio 45431

^{119}Sn

141 Wyoming, University of
Laramie, Wyoming 82070

^{144}Nd, ^{208}Pb, ^{87}Rb, ^{149}Sm, TGS

142 Xerox Special Information Systems
Accounting Dept.
250 North Halstead Street
P.O. Box 7018
Pasadena, California 91109

^{114}Cd, TGS

143 Yale University
20 Ashmun Street
New Haven, Connecticut 06520

^{199}Hg, ^{190}Os, ^{208}Pb, ^{100}Ru, SS, TGS, ^{80}Tl

144 Yale University School of Medicine
Therapeutic Radiology Department
P. O. Box 3333
New Haven, Connecticut 06510

^{74}Se, TGS

B. FOREIGN

AUSTRALIA

145 Australian Mineral Development Laborato
Flemington Street
Frewville, South Australia 5063

^{150}Nd, ^{208}Pb, ^{149}Sm, ^{84}Sr

146 Australian National University
P. O. Box 4
Canberra, A. C. T., Australia

^{48}Ca, ^{195}Pt, ^{28}Si, ^{30}Si, ^{149}Sm

147 Monash University
Wellington Road
Clayton, Victoria, Australia

^{190}Pt

148 New South Wales, University of
P. O. Box 1
Kensington, NSW 2033, Australia

^{57}Fe

149 The Accountant
Australian Atomic Energy Commission,
Private Mail Bag,
Sutherland. 2232, NSW
Australia

^{98}Mo, ^{152}Sm, ^{88}Sr, SS

150 University of Melbourne
School of Physics
Parkville, Victoria, 3052

^{54}Fe

151 Western Australian Institute of Technol
Hayman Road
Bentley South 6102
Western Australia

^{191}Ir, ^{193}Ir

AUSTRIA

152 Oesterreichisches Forschungszentrum
Seiberdorf GMBH
Linaugasse 10
A 1082 Vienna, Austria

^{122}Te

153 Osterreichische Akademie Der Wissenscha
Institut Fur Radiumforschung
Und Kernphysik
Boltzmanngasse 3
A-1090, Wien, Austria

^{50}Cr, TGS

BELGIUM

154 Central Bureau for Nuclear Measurements
of the European Communities
B-2440 GEEL, Steenweg maar Relle
Belgium

^{041}Ca, ^{53}Cr, ^{57}Fe, HC, ^{208}Pb, SS, ^{50}V

155 IRE, Institut National des Radioelement
Avenue Eugene Plasky, 144
1040 Brussels, Belgium

^{50}Cr, SS

156 Katolieke Universiteit Leuven
Instituut Voor Kern-En Stralingsfysika
Celestijnenlaan 200 D
3030 Leuven, Belgium

^{120}Te, ^{124}Te, ^{128}Te, ^{130}Te, ^{66}Zn

157 S.CK.-C.E.N.
Avenue E. Plasky 144,
1040 Brussels,
Belgium

^{164}Dy, ^{156}Gd, ^{143}Nd, ^{145}Nd

158 Universite de Louvain
Institut de Physique Corpusculaire
Chemin du Cyclotron, 2
B-1348 Louvain-la-Neuve
Belgium

^{102}Ru

BRAZIL

159 Conselho Nacional De Desenvolvimento
Cientifico E Technologico - CNPQ
Av. W/3 Norte Q.507 Lote 2
Brasilia - DE
Brazil

^{57}Fe

CANADA

160 Animal Research Centre
Agriculture Canada Research Branch
Finance & Material Management Unit
Central Experimental Farm, Bldg. 60
Ottawa, Ontario K1A 0C6

^{65}Cu

161 Atomic Energy of Canada Limited
Chalk River, Ontario, Canada

^{106}Cd, ^{50}Cr, ^{39}K, ^{6}Li, ^{7}Li, ^{94}Zr

162 Atomic Energy of Canada Ltd.
Radiochemical Co.
413 March Road
P.O. Box 13500
Kanata, Ontario K2K 1X8

^{50}Cr, SS

163 British Columbia, University of
Vancouver 8, B.C., Canada

^{110}Pd

164 Carleton University
Accounts Payable Department
Business Office
301 Administration Bldg.
Ottawa, Ontario
K1S 5B6
Canada

^{145}Nd, ^{204}Pb, ^{208}Pb, ^{84}Sr

165 Erindale College
University Of Toronto
3359 Mississauga Road
Mississauga, Ontario, Canada L5L 1C6

^{122}Sn, SS

166 Geological Survey of Canada
601 Booth Street, Room 462
Ottawa, Ontario K1A 9E8
Canada

^{35}Cl, ^{193}Ir, ^{6}Li, ^{204}Pb, ^{101}Ru, ^{182}W

167 Manitoba, University of
Winnepeg, Manitoba, Canada

^{48}Ca, ^{58}Ni, ^{60}Ni, TGS

168 McMaster University
Hamilton, Ontario, Canada

^{110}Cd, ^{136}Ce, ^{35}Cl, ^{54}Cr, ^{65}Cu, ^{160}Dy, ^{170}Er, ^{57}Fe, ^{154}Gd, ^{176}Hf, ^{138}La, ^{7}Li, ^{24}Mg, ^{97}Mo, ^{150}Nd, ^{62}Ni, ^{207}Pb, ^{104}Ru, ^{149}Sm, ^{123}Te, ^{130}Te, ^{176}Yb, ^{67}Zn

169 Memorial University of Newfoundland
St. John's Newfoundland
Canada A1C5S7

^{157}Gd, ^{148}Nd, ^{171}Yb

170 National Research Council
Montreal Road Laboratories
Ottawa, Ontario, Canada

^{107}Ag, ^{53}Cr, ^{69}Ga, ^{61}Ni

171 Queens University
Kingston, Ontario, Canada

^{99}Ru, ^{102}Ru

172 Research and Productivity Council
P. O. Box 6000
Fredericton, N.B.
Canada E3B 5H1

^{107}Ag

173 Royal Ontario Museum
100 Queens Park
Toronto, Ontario, Canada M5s 2c6

^{81}Br, ^{136}Ce, ^{161}Dy, ^{167}Er, ^{153}Eu, ^{157}Gd, ^{180}Hf, ^{87}Rb, ^{149}Sm, ^{173}Yb

174 S.Y.E.P. #1002 xx4
c/o P. O. Box 1000
Agassiz, British Columbia V0M 1A0
Canada

^{65}Cu, ^{76}Se, ^{77}Se, ^{78}Se

175 Saint Francis Xavier University
Attn: Accounts Payable Office
Antigonish, Nova Scotia
Canada, B2G 1C0

^{84}Sr

176 Saskatchawan, University of
Saskatoon, Saskatchewan, Canada

^{148}Nd, ^{87}Rb, ^{150}Sm, ^{88}Sr

177 Sherritt Gordon Mines
Fort Saskatchewan,
Alberta T8L 2P2

^{111}Cd, ^{63}Cu, ^{163}Dy, ^{167}Er, ^{153}Eu, ^{57}Fe, ^{155}Gd, ^{201}Hg, ^{148}Nd, ^{60}Ni, ^{189}Os, ^{206}Pb, ^{77}Se, ^{29}Si, ^{149}Sm, ^{171}Yb

178 TRIUMF
4004 Wesbrook Mall
Vancouver, British Columbia
Canada V6T 2A3

^{48}Ca, ^{24}Mg, TGS

179 University of Regina
Regina, Saskatchewan, Canada

^{138}Ce, ^{161}Dy, ^{170}Er, ^{153}Eu, ^{158}Gd, ^{139}La, ^{85}Rb, ^{149}Sm, ^{84}Sr, ^{171}Yb

180 X-Ray Assay Laboratories
1885 Leslie Street
Don Mills, Ontario M3B 3J4
Canada

^{142}Ce, ^{108}Pd, ^{196}Pt

DENMARK

181 Geologisk Central Institut
University of Copenhagen
Oster Voldgad10
DK-1350 Copenhagen
Denmark

^{208}Pb

182 Kobenhauns Universitet
Niels Bohr Institutet
Tandem Accelerator Laboratory
Riso, 4000 Roskilde
Denmark

^{110}Cd

ENGLAND

183 Amersham International Limited
White Lion Road Amersham
Buckinghamshire England HP7 9LL

^{44}Ca, ^{46}Ca, ^{50}Cr, ^{61}Ni, ^{88}Sr, SS, ^{168}Yb

184 Birmingham, University of
Edgbaston, Birmingham 15, England

^{175}Lu

185 British Embassy
3100 Massachusetts Avenue, N. W.
Washington, D. C. 20008

^{161}Dy, ^{162}Dy, ^{64}Ni, SS, ^{46}Ti

186 Cambridge University
Cambridge, England

^{132}Ba, ^{91}Zr

187 Edlow International Co.
Suite 404-5
1100 17th Street, N. W.
Washington, D. C. 20036

^{152}Gd

188 Liverpool, University of
Liverpool 3, England

^{110}Cd, ^{54}Cr, ^{160}Dy, ^{161}Dy, ^{162}Dy, ^{164}Dy, ^{70}Ge, ^{72}Ge, ^{204}Hg, ^{98}Mo, ^{144}Nd, ^{104}Pd, ^{105}Pd, ^{108}Pd, ^{110}Pd, ^{96}Ru, ^{100}Ru, ^{74}Se

189 Manchester University
Manchester 13, England

^{50}Cr, ^{74}Ge, ^{142}Nd, ^{62}Ni, ^{189}Os, ^{207}Pb, ^{105}Pd, ^{96}Ru, ^{116}Sn, ^{120}Sn, ^{122}Sn, ^{124}Sn, TGS, ^{184}W

190 The Open University
Finance Division
Sherwood House
Bletchley, Milton Keynes
Buckinghamshire, England

^{92}Mo, ^{94}Mo, ^{100}Mo, ^{58}Ni, ^{96}Ru, ^{154}Sm

191 United Kingdom Freight Forwarding Offic
25 Broadway
New York, New York 10004

^{50}Cr, ^{157}Gd, ^{73}Ge, ^{100}Mo, ^{148}Nd, ^{206}Pb, ^{104}Pd, ^{110}Pd, ^{96}Ru, ^{29}Si, ^{116}Sn, ^{120}Sn, ^{122}Sn, SS, ^{124}Te

FRANCE

192 Centre De Recherches Petrographiques
ET Geochimiques
B.P.20
54501 Vandoeuvre-Les-Nancy Cedex
France

^{139}La

193 Commissariat A L'Energie Atomique
Office Des Rayonnements Ionisants
Purchasing Department
B.P. 21
91190 Gif-Sur-Yvette, France

^{168}Er, ^{190}Os, TGS

194 Fondation Scientifique de la Geologie
et de ses Applications
Rue du Doyen Marcel Roubault
B.P. 40, F-54501 Vandoeuvre
Cedex, France

^{42}Ca, ^{73}Ge, ^{47}Ti

195 Johannes Gutenberg-Universitat
Institut Fur Organische Chemie
Joh. Joachim Becher-Weg 18-20
D-6500 Mainz, West Germany

^{6}Li

196 Laboratoire De Chimie Nucleaire
B.P. 20
67037 Strasbourg Cedex
France

^{168}Er

197 Universite De Bretagne Occidentale
Service Financier-Rue Des Archives
B.P. 137
29269 Brest Cedex
France

^{148}Nd, ^{87}Rb, ^{149}Sm, ^{86}Sr

GERMANY

198 American Hoechst Corporation
P. O. Box 2500
Somerville, New Jersey 08876

^{50}Cr, TGS

199 Buchler and Company
Frankfurter Str. 294
Braunschweig, Germany

^{87}Rb, ^{77}Se

200 Erlangen-Nurnberg, University
Gluckstr.
852 Erlangen, West Germany

^{50}Cr

201 Fachbereich Physik
der TU-Munchen
Strahlenschutzabt. Z 62
James-Franck-Weg
D-8046 Garching B. Munchen, West German

^{70}Ge, ^{179}Hf, ^{191}Ir, ^{7}Li, ^{140}Nd, ^{148}Nd,
^{64}Ni, ^{190}Pt, ^{87}Rb, ^{88}Sr

202 Forschungsanstalt Karlsruhe
Reaktorgelande
D-7514 Leopoldshafen
Federal Republic of Germany

^{128}Te

203 Freie Universitat Berlin
SFB-161
Arnimallee 14
1 Berlin 33,
W. Germany

^{114}Cd, ^{123}Sb, SS, ^{130}Te

204 Gesellschaft fur Kernforschung mbH
Institute fuer Angewandte Reaktor Physi
Weberstrasse 5
75 Karlsruhe
West Germany

^{6}Li, ^{58}Ni, SS, TGS

205 Gesellschaft fur Schwerionenforschung,
Finanz Abbielung,
Postfach 541,
D-6100 Darmstadt,
West Germany

^{160}Gd, ^{96}Ru, ^{28}Si, SS, ^{90}Zr

206 Goettingen, Universitat
34 Goettingen, Germany

^{58}Ni, ^{110}Pd, TGS

207 Institut fur Kristallographie
Universitat Munchen
Theresien Str. 4A
D-8000 Munchen 2,
West Germany

^{145}Nd, ^{150}Nd, ^{149}Sm

208 Institut Fur Kernchemie
Johannes Gutenberg-Universitat
Fritz-Strabmann-Weg 2
D-6500 Mainz
West Germany

^{6}Li, ^{104}Ru

209 Kernforschungsanlage Julich GmbH
Postfach 1913
D-517 Julich, FRG
West Germany

^{6}Li, SS

210 Koln, Universitat
Zulpicher Str. 47
5 Koln 1, Germany

^{40}Ca, ^{113}Cd, ^{115}In, ^{94}Mo, ^{98}Mo, ^{144}Nd,
^{206}Pb, ^{149}Sm

211 Max Planck Institut fur Kernphysik
Saupfercheckweg
Heidelberg, Germany

^{74}Ge, ^{24}Mg, ^{100}Mo, ^{80}Se, ^{82}Se, ^{28}Si,
^{150}Sm, TGS, ^{64}Zn, ^{66}Zn, ^{94}Zr

212 Max Planck Institute fur Chemie
Saarstrasse 23, Mainz
West Germany

^{138}Ba, ^{136}Ce, ^{142}Ce, ^{88}Sr

213 Sektion Physik
Der Universitat Munchen
Technologisches Labor
8046 Garching -Am Coulombwall 1, West G

^{206}Pb, ^{144}Sm

214 Universitat Wuppertal
FB 9 - Anorg. Chemie
Gaupstr. 20
D-5600 Wuppertal
West Germany

^{35}Cl

ISRAEL

215 Landseas Corporation
1212 Avenue of the Americas
New York, New York 10036

^{40}Ca, ^{112}Cd, ^{114}Cd, ^{170}Er, ^{160}Gd,
^{142}Nd, ^{64}Ni, ^{192}Os, ^{118}Sn, ^{122}Sn

216 Tel-Aviv University
Ramat-Avit
Tel-Aviv, Israel

^{57}Fe

ITALY

217 Consiglio Nazionale Delle Ricerche
Laboratorio de Geocronologia E. Geochim
Isotopica
56100 Pisa, It
Via Cardinale Maffi
Italy

^{150}Nd, ^{87}Rb, ^{149}Sm

218 Dipart. Scienze Chimiche dell'Universit
62032 Camerino
Italy

^{57}Fe, TGS

219 Euratom C.C.R.
Ispra (Varese), Italy

^{204}Hg, ^{204}Pb, ^{203}Tl

220 Instituto Nazionale Di Fisica Nucleare
Laboratori Nazionali Di Legnaro
Via Romea n. 4 - 35030 Legnaro
Padova Italy

^{40}Ca, ^{48}Ca, ^{96}Ru, ^{92}Zr, ^{94}Zr

221 Istituto Nazionale di Fisica Nucleare
Largo E. Fermi 2
50125 Florence, Italy

^{96}Ru

222 Istituto Nazionale Fisica Nucleare
Via Celoria, 16
Milano, Italy

^{138}Ce

223 Italian Economic Corporation, The
25 West 51st Street
New York, New York 10019

SS

224 New Metals & Chemicals Corp., Ltd.
Shin Dai-Ichi Building 4-13
3 Chome, Nihonbashi
Chuo-Ku, Tokyo, Japan

^{114}Cd, SS

225 Padova, Universita Degli Studi di
Via F. Marzolo 8
Padova, Italy

^{190}Os, ^{192}Os, ^{194}Pt, ^{196}Pt, ^{198}Pt

226 Universita Degli Studi Di Firenze
Instituto Di Chimica Generale Inorg.
Facolta Di Farmacia
Via G. Capponi 7 - 50121
Firenze, Italy

^{113}Cd

JAPAN

227 Japan Atomic Energy Research Institute
Tokai Research Establishment
Tokai-Mura, Naka-Gun, Ibaraki-Ken
Japan

^{135}Ba, ^{138}Ba, ^{121}Sb, ^{122}Sn, SS

228 Japan Radioisotope Association
Hon-Komagome 2 Chome 28
Bunkyo-Ku
Tokyo, Japan

^{109}Ag, ^{44}Ca, ^{106}Cd, ^{138}Ce, ^{140}Ce, ^{37}Cl, ^{50}Cr, ^{53}Cr, ^{65}Cu, ^{163}Dy, ^{167}Er, ^{153}Eu, ^{57}Fe, ^{154}Gd, ^{157}Gd, ^{160}Gd, ^{73}Ge, ^{177}Hf, ^{178}Hf, ^{180}Hf, ^{191}Ir, ^{138}La, ^{139}La, ^{6}Li, ^{92}Mo, ^{94}Mo, ^{96}Mo, ^{98}Mo, ^{100}Mo, ^{143}Nd, ^{145}Nd, ^{146}Nd, ^{148}Nd, ^{58}Ni, ^{60}Ni, ^{61}Ni, ^{64}Ni, ^{188}Os, ^{190}Os, ^{192}Os, ^{208}Pb, ^{104}Pd, ^{110}Pd, ^{192}Pt, ^{194}Pt, ^{87}Rb, ^{96}Ru, ^{101}Ru, ^{104}Ru, ^{123}Sb, ^{29}Si, ^{149}Sm, ^{149}Sm, ^{150}Sm, ^{152}Sm, ^{154}Sm, ^{114}Sn, ^{119}Sn, ^{120}Sn, ^{84}Sr, ^{86}Sr, ^{88}Sr, SS, ^{128}Te, ^{130}Te, TGS, ^{180}W, ^{182}W, ^{184}W, ^{171}Yb, ^{173}Yb, ^{64}Zn, ^{68}Zn, ^{91}Zr, ^{92}Zr

229 Kansai Electronics Co., Ltd.
8 Toganocho
Kitaku, Osaka, Japan

^{50}Cr, ^{52}Cr, ^{53}Cr, ^{54}Cr, ^{57}Fe, ^{152}Gd, ^{6}Li, ^{58}Ni, ^{61}Ni, ^{62}Ni, ^{207}Pb, ^{194}Pt, ^{30}Si, SS, ^{128}Te, TGS, ^{49}Ti, ^{50}Ti, ^{90}Zr, ^{91}Zr, ^{92}Zr, ^{94}Zr, ^{96}Zr

KOREA

230 Seoul National University
Department of Physics
Seoul 151, Korea

^{24}Mg, ^{25}Mg, ^{26}Mg

231 Yonsei University
Seoul, Korea

^{57}Fe

MEXICO

232 International Atomic Energy Agency
Musee Oceanographique
Monacoville, Monaco

SS, ^{128}Te

NETHERLANDS

233 FOM Werkgroep KIIb
c/o Kernfysisch Versneller Instituut
Zernikelaan 25
Groningen,
The Netherlands

SS, TGS, ^{90}Zr

234 Highways International
Amsterdamse Straatweg 20
Baarn 2670
The Netherlands

^{33}S, ^{49}Ti

235 N.I.O.Z.
Postbus 59
1790AB Den Burg-Texel
The Netherlands

^{134}Ba

236 Reactor Centrum Nederland
Petten N. H., The Netherlands

^{42}Ca, ^{44}Ca, ^{199}Hg

237 Rijksinkoopbureau
55 A Laan van Meerdervoort
The Hague, Netherlands

^{118}Sn, ^{119}Sn, ^{124}Sn

238 Rijksuniversiteit Utrecht
Fysisch Laboratorium
Princetonplein 5
Postbus 80.000
3508 TA Utrecht, The Netherlands

^{62}Ni

239 Scallop Materials Services
One Rockefeller Plaza
New York, New York 10020

^{29}Si

240 Vrije Universiteit
Amsterdam, The Netherlands

^{176}Hf, ^{199}Hg

NORWAY

241 Institutt for Energiteknikk
P. O. Box 40
2007 Kjeller, Norway

^{148}Nd, ^{85}Rb, ^{87}Rb, ^{84}Sr, ^{88}Sr, ^{171}Yb

SCOTLAND

242 Department of Child Health
Attn: Dr. T. Stack
Foresterhill
Aberdeen AB9 22D
Scotland, United Kingdom

^{70}Zn

243 Rowett Research Institute
Bucksburn, Aberdeen
AB2 9SB Scotland

^{70}Zn

SPAIN

244 Junta de Energia Nuclear-Reactor
Ciudad Universitaria
Madrid 3, Spain

^{87}Rb, ^{84}Sr

SWEDEN

245 Chalmers Institute of Technology
Department of Biochemistry & Biophysics
S-412 96 Goteborg, Sweden
Attn: Dr. Bengt Reinhammar

^{65}Cu

246 Tandem Accelerator Laboratory
Box 533
S-751 21 Uppsala, Sweden
Sweden

^{192}Os, ^{123}Te, ^{172}Yb

SWITZERLAND

247 Basel Universitat
4000 Basel
Switzerland

^{191}Ir

248 Eidg. Institut fur Reaktorforschung
Wurenlingen, Switzerland

^{155}Gd

249 Eth and University of Zurich
Institute of Toxicology
Schorenstrasse 16
CH-8603 Schwerzenbach
Switzerland

^{204}Pb, ^{116}Sn, ^{120}Sn

250 Geneve, Universite de
Geneva, Switzerland 1211
Switzerland
University of Fribourg
Institute of Inorganic Chemistry
Perolles, CH-1700 Fribourg,
Switzerland

^{101}Ru

UNITED KINGDOM

251 Agricultural & Food Research Council
Food Research Institute
Colney Lane
Norwich, NR4 7UA
England

^{44}Ca, ^{48}Ca

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

A. DOMESTIC

Antimony 123
112

Barium 132
54

Barium 135
14, 39

Barium 138
61

Boron 011
111

Bromine 079
123

Bromine 081
12, 111

Cadmium 106
95

Cadmium 110
70, 78

Cadmium 111
90, 118, 124

Cadmium 112
63

Cadmium 113
2, 19, 53, 70, 118, 127

Cadmium 114
78, 98, 142

Cadmium 116
21, 114, 121

Calcium 040
51, 91, 134

Calcium 042
51, 66, 74, 95, 133

Calcium 043
27, 74, 95, 114

Calcium 044
51, 55, 65, 66, 95, 111, 113, 118, 120, 132

Calcium 046
22

Calcium 048
51, 71, 95, 111, 118, 132

Cerium 136
136

Cerium 140
22, 123, 134

Cerium 142
22, 114

Chlorine 035
32, 107

Chromium 050
74, 95, 110, 132

Chromium 052
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Chromium 054
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Copper 063
14, 32, 34, 89, 135

Copper 065
7, 32, 45, 58, 69, 113, 119, 132

Dysprosium 158
86

Dysprosium 160
14

Dysprosium 161
8, 114, 136

Dysprosium 162
98

Dysprosium 164
14, 85, 111, 132

Erbium 166
120

Erbium 167
8, 114, 136

Erbium 168
103

Erbium 170
22, 61, 111

Europium 151
11, 95, 114, 118

Europium 153
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Gadolinium 152
111, 114

Gadolinium 154

22, 118, 136

Gadolinium 155

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Gadolinium 158

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Gadolinium 160

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Gadolinium High Purity 155

114

Gallium 069

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Germanium 070

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Germanium 074

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Germanium 076

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Hafnium 176

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Hafnium 177

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Hafnium 178

95, 98

Hafnium 179

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Hafnium 180

21, 95, 98

Iridium 191

22, 92, 95, 111

Iridium 193

92, 95

Iron 054

3, 58, 94, 99, 111, 113, 118, 132

Iron 056

3, 22, 65, 116, 130

Iron 057

12, 18, 25, 26, 33, 38, 43, 54, 65, 72, 74, 95, 104, 109, 119, 130

Iron 058

12, 33, 60, 110, 126

Lanthanum 138

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Lead 204

12, 132

Lead 206

12, 125, 132

Lead 207

3, 12, 70, 94, 125, 132

Lead 208

3, 18, 22, 54, 70, 106, 111, 118, 134, 136, 137, 141, 143

Lithium 006

12, 16, 25, 29, 34, 35, 41, 46, 48, 53, 56, 62, 68, 77, 81, 83, 90, 91, 97, 102, 107, 109, 116, 138, 139

Lithium 007

35, 48, 56, 62, 90, 105, 107, 138

Magnesium 024

68, 73, 76, 134

Magnesium 025

12, 27, 95, 113, 114

Magnesium 026

69, 73, 95, 111, 130, 132

Mercury 196

14

Mercury 198

47, 73, 115

Mercury 199

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Mercury 200

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Mercury 201

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Mercury 202

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Mercury 204

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Molybdenum 092

1, 18, 24, 111

Molybdenum 094

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Molybdenum 095

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Molybdenum 096

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Molybdenum 097
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Molybdenum 098
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Neodymium 144
72, 120
Neodymium 145
8, 72, 136
Neodymium 146
23, 72, 141
Neodymium 148
6, 8, 21, 22, 72, 98
Neodymium 150
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33, 41, 78, 91, 98, 111, 118
Nickel 060
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Platinum 194
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18
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40, 49, 93, 94
Rubidium 087
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39, 70
Samarium 148
30, 134
Samarium 149
21, 22, 30, 114, 136, 141
Samarium 150
15, 21, 30
Samarium 152
8, 17, 30, 61, 82, 98
Samarium 154
8, 14, 15, 82, 106, 111, 134
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Selenium 076
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Selenium 077
131
Selenium 082
13, 136
Silicon 028
91
Silicon 029
22, 109, 114
Silicon 030
22, 65, 69, 109, 114
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Special Services

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Strontium 084

59, 72, 86, 111

Strontium 086

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Strontium 087

92, 118

Strontium 088

114

Sulfur 033

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Sulfur 034

99

Target Preparation Stable

3, 8, 9, 12, 18, 21, 22, 32, 51, 52, 57, 71, 73, 78, 79, 80, 81, 85, 91, 96, 97, 110, 111, 118, 123, 125, 132, 134, 141, 142, 143, 144

Tellurium 120

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Tellurium 123

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Tellurium 124

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Tellurium 125

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Tellurium 126

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Tellurium 128

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Tellurium 130

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Thallium 203

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Tin 112

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Tin 114

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Tin 116

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Tin 119

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Tin 120

70, 98, 118, 121

Tin 122

70, 134

Tin 124

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Titanium 046

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Titanium 047

10, 111

Titanium 048

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Titanium 049

111

Titanium 050

3, 111, 143

Tungsten 182

1, 3, 10, 107

Tungsten 184

10

Tungsten 186

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Vanadium 050

7

Ytterbium 168

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Ytterbium 171

111, 114, 136

Ytterbium 172

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Ytterbium 173

111

Ytterbium 174

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Ytterbium 176

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Zinc 064

111, 134

Zinc 066
51, 58
Zinc 067
3, 51, 113
Zinc 068
3, 14, 67, 72, 132
Zinc 070
12, 28, 53, 135
Zirconium 090
4, 22, 78, 111
Zirconium 094
3, 22, 33, 137
Zirconium 096
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B. FOREIGN

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Antimony 123
203, 228
Barium 132
186, 212
Barium 135
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Barium 136
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Barium 138
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Bromine 081
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Cadmium 106
161, 228
Cadmium 110
168, 182
Cadmium 111
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Cadmium 112
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Cadmium 113
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Cadmium 114
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Cadmium 116
188, 215
Calcium 040
210, 215, 220
Calcium 041
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Calcium 042
194, 236
Calcium 044
183, 228, 236, 251
Calcium 046
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Calcium 048
146, 167, 178, 220, 251
Cerium 136
168, 173, 179, 212, 228
Cerium 138
222
Cerium 140
228
Cerium 142
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IV. STABLE ISOTOPE SALES - FY 1985

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
ANTIMONY-123				2	574.0	775	1	100.0	135	3	674.0	910
BARIUM-132	2	117.0	2140	2	15.0	231				4	132.0	2372
BARIUM-135				1	25.0	100	2	232.0	269	3	257.0	369
BARIUM-136				1	120.0	108				1	120.0	108
BARIUM-138	1	400.0	100	1	52.0	100				2	452.0	200
BROMINE-79	1	270.0	202							1	270.0	202
BROMINE-81	1	82.0	100				1	400.0	265	2	482.0	365
CADMIUM-106	1	6.0	104	3	177.0	3221				4	183.0	3326
CADMIUM-110	2	310.0	821	2	127.0	482				4	437.0	1303
CADMIUM-111	2	245.0	563	1	50.0	115	1	500.0	925	4	795.0	1603
CADMIUM-112	1	5000.0	2500	1	200.0	100				2	5200.0	2600
CADMIUM-113	5	253.0	1179	1	50.0	235	1	500.0	1854	7	803.0	3268
CADMIUM-114	3	6425.0	2912	6	19400.0	9353				9	25825.0	12265
CADMIUM-116	1	100.0	265	2	150.0	442	2	238.0	525	5	488.0	1233
CALCIUM 41				1	1.0	2118				1	1.0	2118
CALCIUM-40	4	1800.0	1300	4	1180.0	866				8	2980.0	2166
CALCIUM-42	10	433.0	7784	2	18.3	330	1	870.0	15703	13	1321.3	23818
CALCIUM-43	3	15.0	4986				2	35.0	11754	5	50.0	16741
CALCIUM-44	17	3162.0	11828	5	1240.0	4592	3	1018.0	3446	25	5420.0	19867
CALCIUM-46				1	47.5	74670	1	3.0	2450	2	50.5	77120
CALCIUM-48	5	60.0	13933	4	65.0	12506	3	343.0	48134	12	468.0	74573
CERIUM-136	1	10.0	370	7	17.3	935				8	27.3	1305
CERIUM-138				1	30.0	892				1	30.0	892
CERIUM-140	2	2165.0	200	1	2000.0	100	1	123.0	15	4	4288.0	315
CERIUM-142				2	176.0	265	2	106.0	145	4	282.0	410
CHLORINE-35	2	1550.0	852	3	2600.0	1565				5	4150.0	2417
CHLORINE-37				1	100.0	800				1	100.0	800
CHROMIUM-50	3	195.0	1956	12	2665.0	24694	1	200.0	1080	16	3060.0	27731
CHROMIUM-52	1	130.0	104	1	500.0	425				2	630.0	529
CHROMIUM-53				4	375.0	1361				4	375.0	1361
CHROMIUM-54	1	5.0	206	4	153.0	3496				5	158.0	3702
COPPER-63	5	1964.0	1431	1	1000.0	750	2	12000.0	7222	8	14964.0	9403
COPPER-65	7	753.0	1196	6	4591.0	8034	2	1500.0	2625	15	6844.0	11855
DYSPROSIUM-158	1	34.0	678							1	34.0	678
DYSPROSIUM-160				2	169.0	255	1	13000.0	18355	3	13169.0	18610
DYSPROSIUM-161	2	370.3	200	3	1333.0	522	1	303.0	106	6	2006.3	828
DYSPROSIUM-162	1	500.0	100	1		-100				2	500.0	
DYSPROSIUM-163				2	583.0	200				2	583.0	200
DYSPROSIUM-164	1	400.0	100	2	535.7	200	3	50056.0	9777	6	50991.7	10077
ERBIUM-166	1	250.0	100							1	250.0	100
ERBIUM-167	2	578.3	200	6	2500.0	625	1	417.0	104	9	3495.3	929
ERBIUM-168	1	4000.0	1000	2	750.0	200				3	4750.0	1200
ERBIUM-170	1	400.0	120	3	1034.0	310	2	475.0	200	6	1909.0	630
EUROPIUM-151	2	1123.0	464				2	35.0	200	4	1158.0	664
EUROPIUM-153	2	597.0	278	4	842.0	400				6	1439.0	678
GADOLINIUM-152				2	120.0	2544	1	50.0	863	3	170.0	3407
GADOLINIUM-154				2	110.0	211	2	220.0	324	4	330.0	535
GADOLINIUM-155	1	55.0	101	1	50.0	100				2	105.0	201
GADOLINIUM-156				2	435.0	281				2	435.0	281
GADOLINIUM-157				5	422.0	503				5	422.0	503
GADOLINIUM-158							1	1250.0	501	1	1250.0	501
GADOLINIUM-160				3	620.0	640	2	625.0	245	5	1245.0	885
GALLIUM-69	1	500.0	275	1	500.0	275				2	1000.0	550
GERMANIUM-70	1	40.0	106	1	100.0	300				2	140.0	406
GERMANIUM-72				1	100.0	165				1	100.0	165
GERMANIUM-73				4	2627.0	18783				4	2627.0	18783

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
GERMANIUM-74	1	47.0	100	1	300.0	675	1	200.0	356	3	547.0	1131
GERMANIUM-76	2	28.0	200	2	500.0	4100	1	100.0	667	5	628.0	4967
H.P. GD-155				1	20.8	130	1	30.0	187	2	50.8	317
H.P. GD-157				1	170.0	569				1	170.0	569
H.P. SM-150				2	214.0	1594				2	214.0	1594
H.P. SR-84				5	9.2	5787	1	1.0	629	6	10.2	6416
HAFNIUM-176	1	48.0	554	1	100.0	1565	1	40.0	510	3	188.0	2629
HAFNIUM-177				1	66.0	100	1	50.0	102	2	116.0	202
HAFNIUM-178	2	315.0	437	1	74.0	100				3	389.0	537
HAFNIUM-179	1	21.0	100	2	1134.0	850				3	1155.0	950
HAFNIUM-180	1	250.0	375	2	132.0	200	1	500.0	520	4	882.0	1095
HANDLING CHARGE						95						95
INDIUM-115				1	200.0	100				1	200.0	100
IRIDIUM-191	2	165.0	580	3	2276.0	8725	2	10020.0	30288	7	12461.0	39593
IRIDIUM-193	2	126.0	310	1	139.2	105				3	265.2	415
IRON-54	4	257.0	1035	1	142.0	255	7	2431.0	8076	12	2830.0	9367
IRON-56	3	2780.0	362				4	5750.0	1863	7	8530.0	2225
IRON-57	16	2397.0	32798	17	2111.9	19512	5	355.0	4904	38	4863.9	57215
IRON-58	5	221.9	23636							5	221.9	23636
LANTHANUM-138	1	10.0	442	4	12.1	513				5	22.1	955
LANTHANUM-139				1	100.0	100				1	100.0	100
LEAD-204	3	381.0	3031	2	160.0	1193				5	541.0	4224
LEAD-206	3	1623.0	1915	5	6775.0	9146				8	8398.0	11061
LEAD-207	7	3316.0	2934	3	500.0	500	1	3018.0	983	11	6834.0	4418
LEAD-208	9	13697.0	4189	8	34445.0	19217	7	6088.0	2050	24	54230.0	25456
LUTETIUM-175				1	278.0	100				1	278.0	100
MAGNESIUM-24	3	15317.0	4676	2	750.0	327	1	200.0	150	6	16267.0	5153
MAGNESIUM-25	3	300.0	2355	1	50.0	392	2	176.0	1381	6	526.0	4129
MAGNESIUM-26	5	308.0	1829	3	350.0	3570	2	130.0	1125	10	788.0	6524
MERCURY-196							1	3.0	824	1	3.0	824
MERCURY-198	1	20.0	357	1	50.0	892	2	30.0	535	4	100.0	1785
MERCURY-199	1	40.0	822	1	20.0	411	1	50.0	1027	3	110.0	2260
MERCURY-200							1	10.0	245	1	10.0	245
MERCURY-201				1	10.0	216	1	200.0	3514	2	210.0	3730
MERCURY-202	1	10.0	153				3	270.0	4144	4	280.0	4298
MERCURY-204	2	24.0	529	2	150.0	3217	1	10.0	214	5	184.0	3961
MOLYBDENUM-092	3	1300.0	375	3	1200.0	375	3	920.0	307	9	3420.0	1057
MOLYBDENUM-094	1	100.0	100	3	728.0	364	1	20.0	100	5	848.0	564
MOLYBDENUM-095	1	400.0	100				2	8020.0	2100	3	8420.0	2200
MOLYBDENUM-096	2	667.0	200	1	500.0	150	1	20.0	100	4	1187.0	450
MOLYBDENUM-097				1	334.0	100	1	20.0	100	2	354.0	200
MOLYBDENUM-098				4	650.0	977	3	455.3	607	7	1105.3	1584
MOLYBDENUM-100	4	1250.0	550	5	1905.0	980	3	403.2	247	12	3558.2	1777
NEODYMIUM-142				3	300.0	545	2	180.0	264	5	480.0	809
NEODYMIUM-143				3	375.0	370				3	375.0	370
NEODYMIUM-144	1	250.0	187	2	450.0	217	1	300.0	105	4	1000.0	510
NEODYMIUM-145	2	33.0	228	5	426.0	642	1	100.0	115	8	559.0	986
NEODYMIUM-146	2	242.0	200	6	1547.3	1042	1	225.0	101	9	2014.3	1343
NEODYMIUM-148	3	360.0	425	5	1229.0	1183	4	393.0	416	12	1982.0	2024
NEODYMIUM-150	1	413.0	784	4	306.0	655	3	515.0	2059	8	1234.0	3499
NICKEL-58	7	32400.0	11340	6	2965.0	1197	2	1000.0	293	15	36365.0	12830
NICKEL-60	2	600.0	225	4	1345.0	425	2	1000.0	193	8	2945.0	843
NICKEL-61	6	82.0	1175	4	135.0	1909				10	217.0	3085
NICKEL-62	3	132.0	1156	4	117.0	1020				7	249.0	2177
NICKEL-64	1	85.0	743	3	285.0	4294	1	237.0	2784	5	607.0	7821
OSMIUM-188				1	4.0	102				1	4.0	102
OSMIUM-189				2	135.6	386				2	135.6	386

ISOTOPE	DOMESTIC SHIP	DOMESTIC MILLIGRAMS	DOMESTIC DOLLARS	FOREIGN SHIP	FOREIGN MILLIGRAMS	FOREIGN DOLLARS	PROJECT SHIP	PROJECT MILLIGRAMS	PROJECT DOLLARS	TOTAL SHIP	TOTAL MILLIGRAMS	TOTAL DOLLARS
OSMIUM-190	3	1788.0	13901	3	163.0	1225	2	156.0	1159	8	2107.0	16285
OSMIUM-192	2	1092.0	4750	5	603.0	2623	1	1422.0	4547	8	3117.0	11920
PALLADIUM-104				3	178.0	602				3	178.0	602
PALLADIUM-105				1	100.0	215				1	100.0	215
PALLADIUM-106				1	100.0	175				1	100.0	175
PALLADIUM-108				2	161.0	265				2	161.0	265
PALLADIUM-110	5	395.0	1402	5	700.0	2485				10	1095.0	3887
PLATINUM-190	1	4.0	682							1	4.0	682
PLATINUM-192				1	5.0	103				1	5.0	103
PLATINUM-194	1	80.0	340	2	300.0	1275	1	100.0	331	4	480.0	1946
PLATINUM-195				2	200.0	950				2	200.0	950
PLATINUM-196				6	818.0	3610	1	100.0	353	7	918.0	3963
POTASSIUM-39				1	1000.0	350				1	1000.0	350
RHENIUM-185	1	71.0	366							1	71.0	366
RHENIUM-187	1	2574.0	1349				1	181.4	100	2	2755.4	1449
RUBIDIUM-85	5	1805.0	3158	2	324.0	567				7	2129.0	3725
RUBIDIUM-87	10	2348.0	9892	15	840.0	3531	2	59.0	247	27	3247.0	13671
RUTHENIUM-096				13	1060.0	12145	4	450.0	4281	17	1510.0	16426
RUTHENIUM-099				1	50.0	225				1	50.0	225
RUTHENIUM-100	1	100.0	530	1	100.0	530				2	200.0	1060
RUTHENIUM-101	1	500.0	1850	3	200.0	740				4	700.0	2590
RUTHENIUM-102	1	250.0	612	2	150.0	367	1	150.0	293	4	550.0	1273
RUTHENIUM-104				3	300.0	885				3	300.0	885
SAMARIUM-144	1	100.0	1305				1	40.0	420	2	140.0	1725
SAMARIUM-148	2	763.0	527	1	300.0	225				3	1063.0	752
SAMARIUM-149	3	470.0	301	15	3879.2	1710	3	750.0	345	21	5099.2	2357
SAMARIUM-150	2	225.0	200	1	300.0	150	1	250.0	100	4	775.0	450
SAMARIUM-152	5	900.0	672	2	550.0	357				7	1450.0	1030
SAMARIUM-154	5	477.0	604	2	400.0	520	3	500.0	498	10	1377.0	1622
SELENIUM-74	1	8.0	1352	1	50.0	4377	3	180.0	13308	5	238.0	19038
SELENIUM-76	2	75.0	337	2	150.0	675				4	225.0	1012
SELENIUM-77	1	150.0	1890	3	65.0	822				4	215.0	2712
SELENIUM-78				1	25.0	115				1	25.0	115
SELENIUM-80				2	600.0	600				2	600.0	600
SELENIUM-82	2	15.0	590	1	50.0	1962				3	65.0	2552
SILICON-28	1	500.0	450	3	850.0	730				4	1350.0	1180
SILICON-29	1	100.0	2445	4	251.9	6188	2	3725.0	10415	7	4076.9	19049
SILICON-30	3	263.0	9083	2	62.0	2703	2	12279.0	73540	7	12604.0	85326
SILVER-107	1	222.0	100	2	2000.0	900				3	2222.0	1000
SILVER-109				1	500.0	275				1	500.0	275
STRONTIUM-84	2	23.0	1092	7	142.0	7886	3	83.0	3677	12	248.0	12656
STRONTIUM-86	1	300.0	735	3	1096.0	596				4	1396.0	1331
STRONTIUM-87	2	700.0	350				1	51.0	100	3	751.0	450
STRONTIUM-88				2	8260.0	6509				2	8260.0	6509
SULFUR-33	2	48.6	294	1	5.0	100				3	53.6	394
SULFUR-34	1	66.0	100							1	66.0	100
TELLURIUM-120				1	2.0	124	1	10.0	505	2	12.0	629
TELLURIUM-122				2	25.3	477				2	25.3	477
TELLURIUM-123	1	100.0	2880	1	50.0	1440				2	150.0	4320
TELLURIUM-124	2	10010.0	103603	2	150.0	1550	1	10.0	100	5	10170.0	105253
TELLURIUM-125	1	29.4	199	3	2200.0	14960	2	1062.0	1101	6	3291.4	16260
TELLURIUM-126				1	100.0	165	3	800.0	1051	4	900.0	1216
TELLURIUM-128				3	1000.0	1150	3	537.0	562	6	1537.0	1712
TELLURIUM-130	2	275.0	247	5	2020.0	1820	3	1111.0	876	10	3406.0	2943
THALLIUM-203	3	100059.0	165100	1	100.0	170				4	100159.0	165270
TIN-112	2	2005.0	42405							2	2005.0	42405
TIN-114	2	30.0	531							2	30.0	531

ISOTOPE	DOMESTIC			FOREIGN			PROJECT			TOTAL		
	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS	SHIP	MILLIGRAMS	DOLLARS
TIN-116				2	1250.0	500	2	1440.0	464	4	2690.0	964
TIN-118				2	600.0	1060	1	100.0	100	3	700.0	1160
TIN-119	3	1702.0	700	3	1899.0	1608	1	400.0	105	7	4001.0	2414
TIN-120	3	1500.0	300	4	4920.0	1000	1	500.0	100	8	6920.0	1400
TIN-122	2	550.0	467	4	760.0	539				6	1310.0	1007
TIN-124	3	500.0	517	2	600.0	815	4	1800.0	717	9	2900.0	2049
TITANIUM-46	1	55.0	255	1	500.0	3300	1	272.0	1434	3	827.0	4989
TITANIUM-47	1	100.0	100	1	13.9	100	1	150.0	883	3	253.9	1083
TITANIUM-48							1	1850.0	942	1	1850.0	942
TITANIUM-49				2	170.0	1734	2	422.0	3513	4	592.0	5247
TITANIUM-50	1	22.0	247	1	150.0	1687	3	605.0	5342	5	777.0	7277
TUNGSTEN-180				1	12.0	108				1	12.0	108
TUNGSTEN-182	3	2000.0	710	2	351.7	220	1	250.0	100	6	2601.7	1030
TUNGSTEN-184	1	100.0	100	2	550.0	220				3	650.0	320
TUNGSTEN-186	4	725.0	301				1	400.0	147	5	1125.0	448
VANADIUM-50	1	3.0	392	1	5.0	982				2	8.0	1374
YTTERBIUM-168	2	6.0	601	2	250.0	59442	2	2.0	400	6	258.0	60444
YTTERBIUM-171	1	118.0	100	6	774.0	674	2	384.0	291	9	1276.0	1065
YTTERBIUM-172	1	250.0	212	1	200.0	170	1	200.0	135	3	650.0	517
YTTERBIUM-173				2	268.0	201	1	260.0	158	3	528.0	359
YTTERBIUM-174	3	3857.0	3279				3	445.0	332	6	4302.0	3611
YTTERBIUM-176	1	100.0	100	1	106.0	100	2	145.0	200	4	351.0	400
ZINC-64	2	900.0	630	2	5020.0	3600	1	48813.0	25416	5	54733.0	29646
ZINC-66	3	318.0	550	2	170.0	355				5	488.0	905
ZINC-67	1	100.0	1020	1	10.0	102	2	800.0	7608	4	910.0	8730
ZINC-68	3	70050.0	175125	1	100.0	250	3	1000.0	2402	7	71150.0	177777
ZINC-70	6	168.0	7652	2	55.0	2505				8	223.0	10157
ZIRCONIUM-90	1	250.0	250	2	620.0	620	4	1375.0	1022	7	2245.0	1892
ZIRCONIUM-91				3	107.0	1728				3	107.0	1728
ZIRCONIUM-92				3	755.0	1312				3	755.0	1312
ZIRCONIUM-94	2	1988.0	4575	3	220.0	570	2	240.0	601	7	2448.0	5746
ZIRCONIUM-96				2	40.0	3476	1	20.0	1012	3	60.0	4488
TOTAL	348	328596.5	736700	484	169718.0	462397	209	213948.9	372754	1041	712263.4	1571851

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