P.F. Rose

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Volume II

ENDF/B FISSION PRODUCT DECAY DATA

P.F. Rose and T.W. Burrows

August 1976

INFORMATION ANALYSIS CENTER REPORT

NATIONAL NEUTRON CROSS SECTION CENTER
BROOKHAVEN NATIONAL LABORATORY
UPTON, NEW YORK 11973

national
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Cross
Section
Center

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BROOKHAVEN NATIONAL LABORATORY
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CONTENTS

CONTENTS

INTRODUCTION

The purpose of this publication is to provide comprehensive radioactive decay data for the fission product nuclides in a convenient book format. Such data, in a concise, easily usable form, are of value in many areas of applied science.

This publication contains selected portions of the Evaluated Nuclear Data File ENDF/B-IV,[1] issued in January 1975. It combines information taken from the fission product yield files ($MT = 454$) and decay data files ($MT = 457$) of ENDF/B-IV and from cross sections generated by the code INTER from ENDF/B-IV. Half lives, Q-values, average decay energies, branching ratios, fractional yields, and cross sections are given for the 96 A-chains comprising the fission product nuclei. Data for the light mass isotopes are contained in Volume 1, and for the heavy mass isotopes, in Volume 2. Sections on calculational techniques and assumptions, file deficiencies and omissions, and also the acknowledgments are included in Volume 1, but not in Volume 2.

ENDF/B-IV is the first version of ENDF/B to contain radioactive decay data and radioactive spectra for a wide range of nuclides. Reich et al.[2] initially established the categories of decay format within which the data were organized. The responsibility for preparing the ENDF fission product file was assigned to a specially designated *ad hoc* group, the Decay-Heat Task Force, set up under the Fission Product Subcommittee of the Cross Section Evaluation Working Group (CSEWG).

The first publication summarizing the fission product files was that of England and Schenter.[3] It is hoped that the present summary will be of additional use because of its visual, easy-to-read format. Practical limits on size and the uneven quality of data in $MT = 457$ have limited the scope of this report. Doses and ranges for the various radiations, for example, have not been included. However, the additional information produced on conversion-electron, x-ray, fluorescence, and Auger-electron yields will be useful and may reveal some of the possible weaknesses and strengths of the present decay data files. It is hoped that it will also lead to improvements in future versions of ENDF/B.

The authors anticipate that the format changes for decay data and the extended coverage of radionuclides in ENDF/B-V will allow the publication of further reports of this type which may include useful derived data on such quantities as doses. The additional information, which may be available in ENDF/B-V, would also allow the production of β-ray spectra as a function of β-energy.

ENDF/B-V will specifically allow tabulations of total and/or partial internal conversion coefficients. Multiple particle emission will be allowed by using any combination of decay modes. The source of radiation will be specified for spectral lines, and the specification of continuous spectra will be allowed.

ORGANIZATION

The fission product data have been organized by A-chains in order of ascending A from $A = 72$ to $A = 167$. Figure 1 shows the basic arrangement of the publication and the configuration of page numbers. Each chain begins with a heading page, which is a simplified decay scheme of the chain that gives only the members, the half-lives, and the modes of decay. These generic schemes are presented in a simple flow-chart format. On looking down the page, it can be seen that the members of the chain are arranged in order of increasing Z and identified by a specific type of box. The parent of the chain is represented by a parallelogram; radioactive members, by a square; and stable members, by an oval. Isomeric states are always to the left of the ground state and are offset in axial location. Only first (*m*etastable) or second (*n*etastable) states have been considered in the files. The decay mode is represented by a labeled arrow. If a decay changes A because of α-decay or neutron emission, the chain diagram is terminated by a circle at the proper axial location. An oval is a normal chain terminator. It contains a stable ($T_{1/2} > 10^{15}$ years) or a long-lived ($T_{1/2} > 10^{9}$ years) member.

The heading page is followed by more detailed information on the individual members of the chain in order of increasing Z and decreasing metastable state. The detailed information for each member includes the ENDF/B-IV File 1 comments and references if available and applicable to the decay data. To limit redundancy and reduce the size of this publication, certain frequently used references have been omitted. When no reference is listed for a particular data category, it can be assumed that the standard references outlined in Table 1 were used.

Following the comments is a decay scheme of the nuclide tabulating the quantities $T_{1/2}$, Q, branching ratio (BR), $\langle E_\gamma \rangle$, $\langle E_\beta \rangle$, and $\langle E_\alpha \rangle$. Uncertainties are given if available in the file. Independent fission yields are given, as well as thermal cross sections and resonance integrals as obtained from ENDF/B-IV. All energies listed in this publication are in keV, and all branching ratios (BR) sum to unity.

If there are spectra in the decay data file, the decay scheme is followed by tables of photon, particle, and characteristic radiation. In the photon radiation table discrete lines are normally listed, except when more than 3 lines are present in a 100-keV energy bin. In this case the photon intensity is summed within the bin, and the mean energy is an intensity-weighted value. A plot of the photon intensities shows all discrete lines.

For cases in which the multipolarities could be obtained from the file the tables also contain information on x-rays, conversion electrons, and Auger electrons. The characteristic radiation table has an arbitrary cutoff of the 20 most intense lines, or 90% of the total intensity. Associated with the photon and particle radiation tables are the appropriate average energies per decay for each type of radiation, including neutrino radiation.

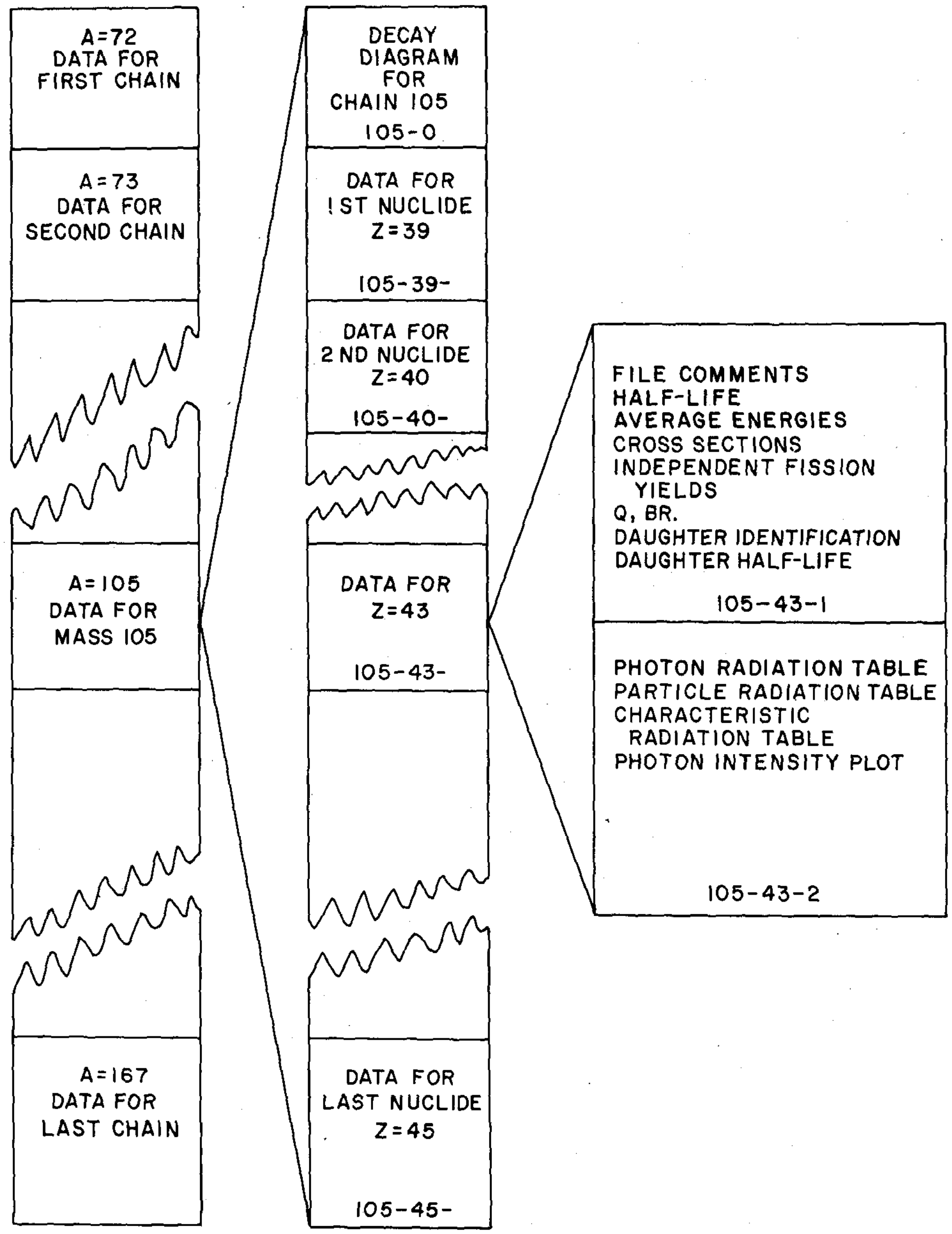


Figure 1. Arrangement of publication and configuration of page numbers.

Table 1

General References for ENDF Fission Product Decay Data

Decay Data

G. Devillers, J. Blachot, M. Lott, B. Nimal, N'Guyen Van Dat, J. P. Noel, and R. de Touried, Fission product data library, in *Nuclear Data in Science and Technology* (*Proc. IAEA Symp., Paris, March 1973*), Vol. 1, p. 477, IAEA, Vienna, Oct. 1973. (Referred to as the French File.)

Q_β, AWR, Q_n, Q_α

G. T. Garvey, W. J. Gerace, R. L. Jaffe, I. Talmi, and I. Kelson, Set of Nuclear-Mass Relations and a Resultant Mass Table, *Rev. Mod. Phys.* **41**, No. 4, Pt. 2, S1-S80 (1969).

E_β, E_γ

F. Schmittroth, *Theoretical Estimates of Average Beta and Gamma Energies for Decay Heat File*, Internal Memorandum, Hanford Engineering Development Laboratory, Oct. 1973.

$T_{1/2}$, $\Delta T_{1/2}$

N. Holden and F. W. Walker, *Chart of the Nuclides*, 11th ed., General Electric Company, Apr. 1972; N. Holden, private communication, Sept. 1973.

Branching Probability

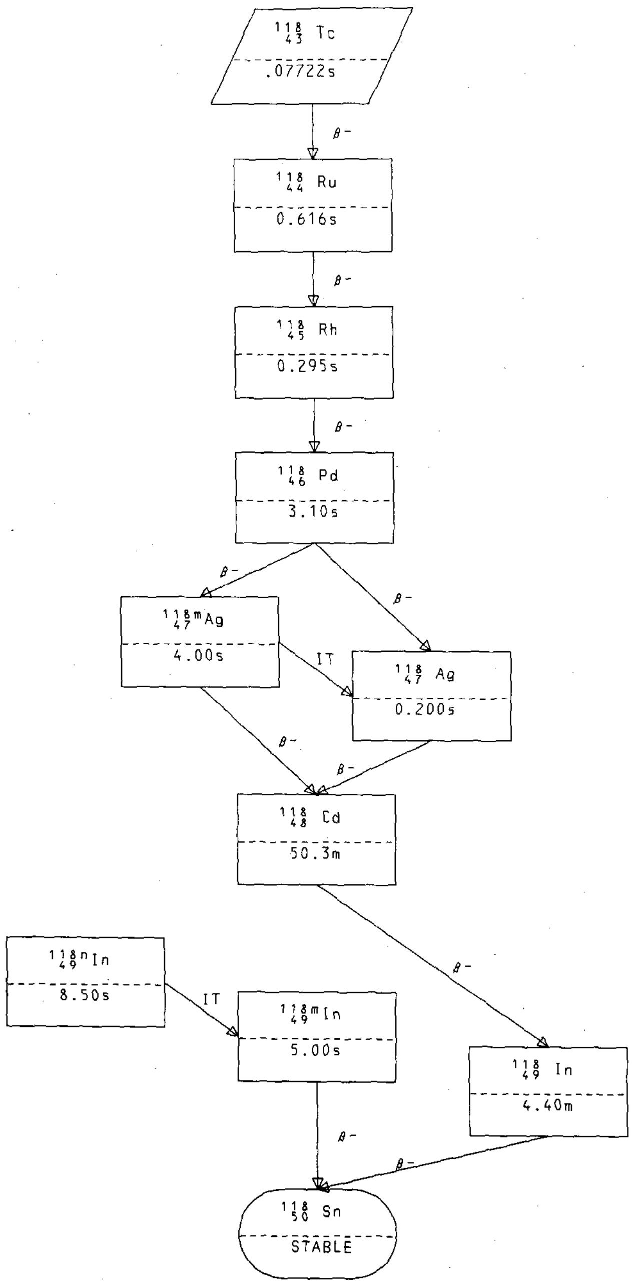
M. E. Meek and B. F. Rider, *Compilation of Fission Product Yields*, NEDO-12154-1, General Electric Company, 1974.

DEFINITIONS

AU	Auger electron
AU_K	Electron emission when a K-shell vacancy is filled from the L shell
AU_L	Electron emission when an L-shell vacancy is filled from the M shell
AU_M	Electron emission when an M-shell vacancy is filled from the continuum
AU_{KM}	Electron emission when a K-shell vacancy is filled from the M shell
BR	Branching ratio ($\sum BR_i = 1.0$)
CE	Conversion electron
CE_K	Electron emission from K shell
CE_L	Electron emission from L shell
CE_M	Electron emission from M shell
E	Energy (keV)
$\bar{E}$	Average energy (keV)
$\langle E \rangle$	Average energy per decay (keV)
EC	Electron capture
E_{max}	Maximum or end-point energy (keV)
I	Absolute intensity (per 100 decays of parent)
IT	Isomeric transition
m (or n)	Metastable, first isomeric state (or netastable, second isomeric state)
Q	Q-value (keV)
$T_{1/2}$	Half-life in s (seconds), h (hours), d (days), or y (years)
X	X ray; definitions similar to those for the Auger electron
n	Neutron decay or neutron
α	Alpha decay or alpha particle
β	Beta decay or beta particle
β_+	Positron decay or positron
γ	Gamma ray
ν	Neutrino
σ	Cross section (barns)

REFERENCES

1. D. Garber, Editor, *ENDF/B Summary Documentation*, Informal Report BNL 17541 (ENDF-201), 2nd ed., Bookhaven National Laboratory, Oct. 1975.
2. C. W. Reich, R. G. Helmer, and M. H. Putnam, *Radioactive-Nuclide Decay Data for ENDF/B*, ANCR-1157 (ENDF-120), Aerojet Nuclear Company, Aug. 1974.
3. T. R. England and R. E. Schenter, *ENDF/B-IV Fission-Product Files: Summary of Major Nuclide Data*, LA-6116-MS (ENDF-223), Los Alamos Scientific Laboratory, Oct. 1975.



$^{118}_{43}$Tc
.07722s
β-
$^{118}_{44}$Ru
0.616s
β-
$^{118}_{45}$Rh
0.295s
β-
$^{118}_{46}$Pd
3.10s
β-
β-
$^{118m}_{47}$Ag
4.00s
IT
$^{118}_{47}$Ag
0.200s
β-
β-
$^{118}_{48}$Cd
50.3m
β-
$^{118n}_{49}$In
8.50s
IT
$^{118m}_{49}$In
5.00s
$^{118}_{49}$In
4.40m
β-
β-
$^{118}_{50}$Sn
STABLE

$^{118}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{118}_{43}$Tc

$T_{1/2}$ =.07722s
$\langle E_\beta \rangle$ PER DECAY =4403.
$\langle E_\gamma \rangle$ PER DECAY =4524.

Q_β =13330.
BR_β =1.000

$^{118}_{44}$Ru

.6163s

118 - 43- 1

$^{118}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{118}_{44}$Ru

$T_{1/2}$ =.6163s
$\langle E_\beta \rangle$ PER DECAY =1995.
$\langle E_\gamma \rangle$ PER DECAY =2434.

FISSION YIELDS

^{235}U THERMAL	3.7821×10^{-9}
^{235}U FAST	1.7503×10^{-8}
^{238}U FAST	2.4768×10^{-5}
^{239}PU THERMAL	2.2997×10^{-9}

Q_β =6690.
BR_β =1.000

$^{118}_{45}$Rh

.2953s

$^{118}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{118}_{45}$Rh

$T_{1/2}$ =.2953s
$\langle E_\beta \rangle$ PER DECAY =3478.
$\langle E_\gamma \rangle$ PER DECAY =3210.

FISSION YIELDS

^{235}U THERMAL	1.0606×10^{-6}
^{235}U FAST	4.6108×10^{-6}
^{238}U FAST	1.5778×10^{-4}
^{239}PU THERMAL	1.3198×10^{-6}

Q_β =10250.
BR_β =1.000

$^{118}_{46}$Pd

3.1±.3s

118 - 45- 1

$^{118}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{118}_{46}$Pd

$T_{1/2}$ =3.1±.3s
$\langle E_\beta \rangle$ PER DECAY =1050.
$\langle E_\gamma \rangle$ PER DECAY =1206.

FISSION YIELDS

^{235}U THERMAL	3.4869×10^{-5}
^{235}U FAST	1.4362×10^{-4}
^{238}U FAST	1.6873×10^{-4}
^{239}PU THERMAL	8.4208×10^{-5}

Q_β =3600.
BR_β =.5000

$^{118m}_{47}$Ag

4.000±.020s

Q_β =3850.
BR_β =.5000

$^{118}_{47}$Ag

.2000s

$^{118m}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS
47-AG-118M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{118m}_{47}Ag$

$T_{1/2}$ =4.000±.020s
$\langle E_\beta \rangle$ PER DECAY =1296.
$\langle E_\gamma \rangle$ PER DECAY =1229.

FISSION YIELDS

^{235}U THERMAL	2.0951×10^{-5}
^{235}U FAST	8.1933×10^{-5}
^{238}U FAST	3.4097×10^{-6}
^{239}PU THERMAL	9.1637×10^{-5}

Q_β =7500.
BR_β =.5400

Q_{IT}=250.0
BR_{IT}=.4600

$^{118}_{48}$ Cd
50.30m

$^{118}_{47}$ Ag
.2000s

118m- 47- 1

$^{118}_{47}$ Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{118}_{47}$ Ag

$T_{1/2}$ =.2000s
$\langle E_\beta \rangle$ PER DECAY =2319.
$\langle E_\gamma \rangle$ PER DECAY =1993.

FISSION YIELDS

^{235}U THERMAL	5.5250×10^{-5}
^{235}U FAST	8.1933×10^{-5}
^{238}U FAST	3.4097×10^{-6}
^{239}PU THERMAL	9.1637×10^{-5}

Q_β =7250.
BR_β =1.000

$^{118}_{48}$ Cd
50.30m

$^{118}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-118 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{118}_{48}$Cd

$T_{1/2}$ =50.30m
$\langle E_\beta \rangle$ PER DECAY =212.6
$\langle E_\gamma \rangle$ PER DECAY =226.8

FISSION YIELDS

^{235}U THERMAL	8.6647×10^{-6}
^{235}U FAST	3.1945×10^{-5}
^{238}U FAST	3.3097×10^{-8}
^{239}PU THERMAL	6.9170×10^{-5}

Q_β =800.0
BR_β =1.000

$^{118}_{49}$In

4.400m

$^{118n}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-118N HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{118n}_{49}$In

$T_{1/2}$ =8.500s
$\langle E_\gamma \rangle$ PER DECAY =250.0

Q_{IT}=250.0
BR_{IT}=1.000

$^{118m}_{49}$In

5.000s

$^{118m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-118M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-(ASSUMED SAME AS IN-118)

$^{118m}_{49}In$

$T_{1/2}$ =5.000s
$\langle E_{\beta} \rangle$ PER DECAY =1776.
$\langle E_{\gamma} \rangle$ PER DECAY =218.1

FISSION YIELDS

^{235}U THERMAL	2.7515×10^{-8}
^{235}U FAST	9.5816×10^{-8}
^{239}PU THERMAL	4.3894×10^{-7}

Q_{β} =4200.±300.
BR_{β} =1.000

$^{118}_{50}Sn$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

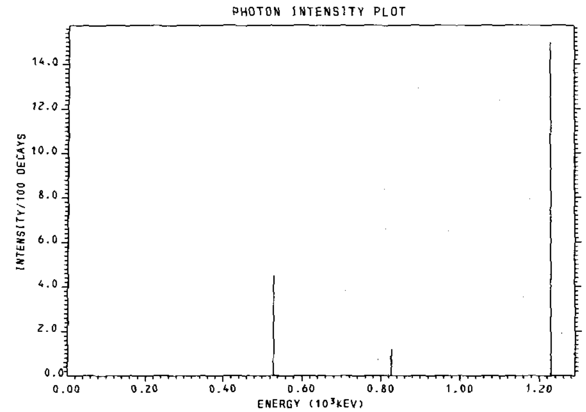
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
528.2	1	4.500
826.9	1	1.200
1230.	1	15.00

$\langle E_{PHOTON} \rangle$ PER DECAY = 218.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	2970.0	1265.	15.00
$\beta-$	4200.0	1866.	85.00

$\langle E_e \rangle$ PER DECAY = 1776.
$\langle E_\nu \rangle$ PER DECAY = 2240.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	4200.	85.00
γ	1230.	15.00

$^{118}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-118 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{118}_{49}$In

$T_{1/2}$ =4.400m
$\langle E_\beta \rangle$ PER DECAY =629.5
$\langle E_\gamma \rangle$ PER DECAY =2576.

FISSION YIELDS

^{235}U THERMAL	2.7615×10^{-8}
^{235}U FAST	9.5816×10^{-8}
^{239}PU THERMAL	4.3894×10^{-7}

Q_β =4200.±300.
BR_β =1.000

$^{118}_{50}$Sn

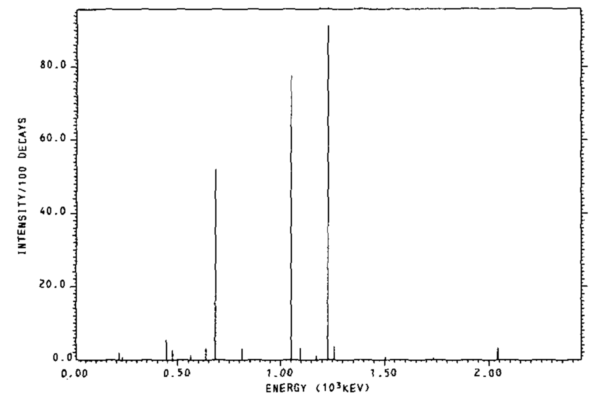
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
208.6	1	2.191
230.0	1	.8215
445.8	1	5.568
474.4	1	2.830
560.2	1	1.278
637.3	1	3.286
683.3	1	52.03
813.7	1	3.104
1051.	1	77.59
1097.	1	3.195
1173.	1	1.187
1230.	1	91.28
1259.	1	3.651
1504.	1	.8215
1735.	1	.4564
2042.	1	3.195
2325.	1	.1826

$\langle E_{PHOTON} \rangle$ PER DECAY = 2576.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1340.0	499.7	53.00
β^-	1550.0	593.8	2.000
β^-	1820.0	717.6	13.00
β^-	2020.0	810.8	32.00

$\langle E_e \rangle$ PER DECAY = 629.5
$\langle E_\nu \rangle$ PER DECAY = 994.7

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1230.	91.28
γ	1051.	77.59
β^-	1340.	53.00
γ	683.3	52.03

$^{118}_{50}$Sn

$^{118}_{50}$Sn

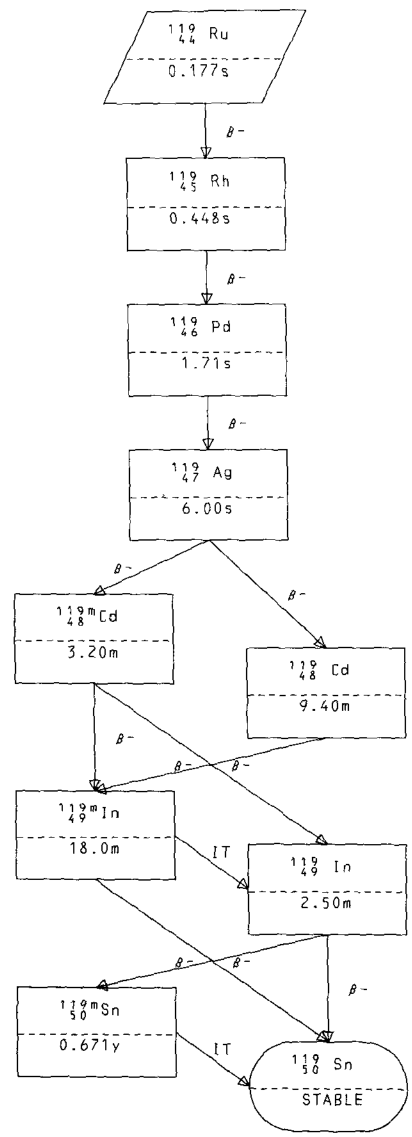
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.1831
WESTCOTT G FACTOR	1.1258
σ CAPTURE 2200M/S	8.4254×10^{-2}
WESTCOTT G FACTOR	9.9881×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.0740 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	6.2510

FISSION YIELDS

^{239}PU THERMAL 1.2198×10^{-9}


119 44 Ru
0.177s
β-
119 45 Rh
0.448s
β-
119 46 Pd
1.71s
β-
119 47 Ag
6.00s
β-
β-
119m 48 Cd
3.20m
119 48 Cd
9.40m
β-
β-
β-
119m 49 In
18.0m
IT
119 49 In
2.50m
β-
β-
β-
119m 50 Sn
0.671y
IT
119 50 Sn
STABLE

$^{119}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{119}_{44}$Ru

$T_{1/2}$ =.1771s
$\langle E_\beta \rangle$ PER DECAY =3075.
$\langle E_\gamma \rangle$ PER DECAY =3490.

Q_β =9640.
BR_β =1.000

$^{119}_{45}$Rh

.4477s

$^{119}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{119}_{45}$Rh

$T_{1/2}$ =.4477s
$\langle E_\beta \rangle$ PER DECAY =2562.
$\langle E_\gamma \rangle$ PER DECAY =2754.

FISSION YIELDS

^{235}U THERMAL	2.2612×10^{-7}
^{235}U FAST	8.0913×10^{-7}
^{238}U FAST	1.0609×10^{-5}
^{239}PU THERMAL	8.0689×10^{-6}

Q_β =8120.
BR_β =1.000

$^{119}_{46}$Pd

1.712s

$^{119}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{119}_{46}$Pd

$T_{1/2}$ =1.712s
$\langle E_\beta \rangle$ PER DECAY =2110.
$\langle E_\gamma \rangle$ PER DECAY =2173.

FISSION YIELDS

^{235}U THERMAL	2.0321×10^{-5}
^{235}U FAST	6.6651×10^{-5}
^{238}U FAST	1.9108×10^{-4}
^{239}PU THERMAL	1.7608×10^{-4}

Q_β =6830.
BR_β =1.000

$^{119}_{47}$Ag

6.0±1.0s

119 - 46- 1

$^{119}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{119}_{47}$Ag

$T_{1/2}$ =6.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1592.
$\langle E_\gamma \rangle$ PER DECAY =1588.

FISSION YIELDS

^{235}U THERMAL	6.0003×10^{-5}
^{235}U FAST	1.8196×10^{-4}
^{238}U FAST	1.3223×10^{-4}
^{239}PU THERMAL	1.4519×10^{-4}

Q_β =5190.
BR_β =.5000

$^{119m}_{48}$Cd

3.200m

Q_β =5440.
BR_β =.5000

$^{119}_{48}$Cd

9.400m

$^{119m}_{48}Cd$

ENDF/B-IV FILE 1 COMMENTS
48-CD-119M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{119m}_{48}Cd$

$T_{1/2}$ =3.200m
$\langle E_\beta \rangle$ PER DECAY =1049.
$\langle E_\gamma \rangle$ PER DECAY =1015.

FISSION YIELDS

^{235}U THERMAL	1.5428×10^{-5}
^{235}U FAST	4.3297×10^{-5}
^{238}U FAST	7.6493×10^{-6}
^{239}PU THERMAL	1.0119×10^{-5}

Q_β =3500.
BR_β =.5000

Q_β =3750.
BR_β =.5000

$^{119m}_{49}In$

18.00m

$^{119}_{49}In$

2.500m

119m- 48- 1

$^{119}_{48}Cd$

ENDF/B-IV FILE 1 COMMENTS
48-CD-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{119}_{48}Cd$

$T_{1/2}$ =9.400m
$\langle E_\beta \rangle$ PER DECAY =940.1
$\langle E_\gamma \rangle$ PER DECAY =910.2

FISSION YIELDS

^{235}U THERMAL	1.5428×10^{-5}
^{235}U FAST	4.3297×10^{-5}
^{238}U FAST	7.6493×10^{-6}
^{239}PU THERMAL	1.0119×10^{-5}

Q_β =3250.
BR_β =1.000

$^{119m}_{49}In$

18.00m

$^{119m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-119M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{119m}_{49}In$

$T_{1/2}$ =18.00m
$\langle E_\beta \rangle$ PER DECAY =732.1
$\langle E_\gamma \rangle$ PER DECAY =693.1

FISSION YIELDS

^{235}U THERMAL	2.7315×10^{-7}
^{235}U FAST	7.0311×10^{-7}
^{238}U FAST	2.5498×10^{-8}
^{239}PU THERMAL	4.1594×10^{-8}

Q_β =2750.
BR_β =.9500

Q_{IT}=250.0
BR_{IT}=.05000

$^{119}_{50}Sn$
STABLE OR LONG-LIVED

$^{119}_{49}In$
2.500m

119m- 49- 1

$^{119}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-119 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{119}_{49}In$

$T_{1/2}$ =2.500m
$\langle E_\beta \rangle$ PER DECAY =699.3
$\langle E_\gamma \rangle$ PER DECAY =650.1

FISSION YIELDS

^{235}U THERMAL	2.7315×10^{-7}
^{235}U FAST	7.0311×10^{-7}
^{238}U FAST	2.5498×10^{-8}
^{239}PU THERMAL	4.1594×10^{-8}

Q_β =2411.
BR_β =.05000

Q_β =2500.
BR_β =.9500

$^{119m}_{50}Sn$
.6708y

$^{119}_{50}Sn$
STABLE OR LONG-LIVED

$^{119m}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-119M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{119m}_{50}Sn$

$T_{1/2}$ =.6708y
$\langle E_\gamma \rangle$ PER DECAY =89.00

FISSION YIELDS
^{235}U FAST 1.2802x10^{-9}

D_{IT}=89.00
BR_{IT}=1.000

$^{119}_{50}Sn$

STABLE OR LONG-LIVED

119m- 50- 1

$^{119}_{50}Sn$

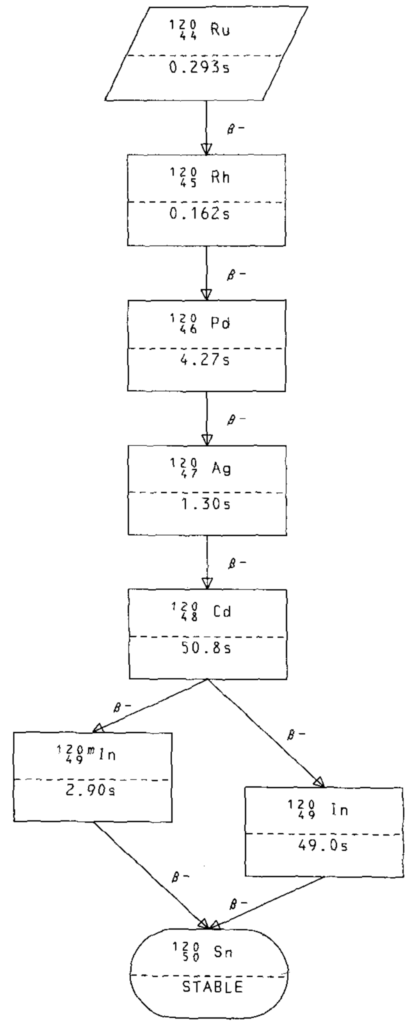
$^{119}_{50}Sn$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.7049
WESTCOTT G FACTOR	1.0942
σ CAPTURE 2200M/S	2.2998
WESTCOTT G FACTOR	1.0286
RESONANCE INTEGRAL TOTAL	9.9770x10^{+1}
RESONANCE INTEGRAL CAPTURE	3.9210

FISSION YIELDS
^{235}U FAST 1.2802x10^{-9}


120 44 Ru
0.293s
β-
120 45 Rh
0.162s
β-
120 46 Pd
4.27s
β-
120 47 Ag
1.30s
β-
120 48 Cd
50.8s
β-
120m 49 In
2.90s
β-
120 49 In
49.0s
β-
β-
120 50 Sn
STABLE

$^{120}_{44}$Ru

```
              ENDF/B-IV FILE 1 COMMENTS
44-RU-120  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-NOV74
  REFERENCES
   HALF LIFE-R SCHENTER,THEORY(9/73)
```

$^{120}_{44}$Ru

$T_{1/2}$ =.2932s
$\langle E_\beta \rangle$ PER DECAY =2338.
$\langle E_\gamma \rangle$ PER DECAY =2982.

FISSION YIELDS

^{238}U FAST	6.7394×10^{-9}

Q_β =7760.
BR_β =1.000

$^{120}_{45}$Rh

.1624s

120 - 44- 1

$^{120}_{45}$Rh

```
              ENDF/B-IV FILE 1 COMMENTS
45-RH-120  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-NOV74
  REFERENCES
   HALF LIFE-R SCHENTER,THEORY(9/73)
```

$^{120}_{45}$Rh

$T_{1/2}$ =.1624s
$\langle E_\beta \rangle$ PER DECAY =3687.
$\langle E_\gamma \rangle$ PER DECAY =3697.

FISSION YIELDS

^{235}U THERMAL	2.8716×10^{-8}
^{235}U FAST	1.1102×10^{-7}
^{238}U FAST	2.5998×10^{-6}
^{239}PU THERMAL	1.4698×10^{-8}

Q_β =11070.
BR_β =1.000

$^{120}_{46}$Pd

4.272s

$^{120}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-120 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{120}_{46}$Pd

$T_{1/2}$ =4.272s
$\langle E_\beta \rangle$ PER DECAY =1337.
$\langle E_\gamma \rangle$ PER DECAY =1614.

FISSION YIELDS

^{235}U THERMAL	6.8837×10^{-6}
^{235}U FAST	2.3714×10^{-5}
^{238}U FAST	1.1572×10^{-4}
^{239}PU THERMAL	7.3190×10^{-6}

Q_β =4690.
BR_β =1.000

$^{120}_{47}$Ag

1.3±.3s

120 - 46- 1

$^{120}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-120 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{120}_{47}$Ag

$T_{1/2}$ =1.3±.3s
$\langle E_\beta \rangle$ PER DECAY =2725.
$\langle E_\gamma \rangle$ PER DECAY =2449.

FISSION YIELDS

^{235}U THERMAL	4.8997×10^{-5}
^{235}U FAST	1.5143×10^{-4}
^{238}U FAST	1.8164×10^{-4}
^{239}PU THERMAL	1.0144×10^{-4}

Q_β =8350.
BR_β =1.000

$^{120}_{48}$Cd

50.80±0.20s

$^{120}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-120 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{120}_{48}$Cd

$T_{1/2}$ =50.80±0.20s
$\langle E_\beta \rangle$ PER DECAY =444.9
$\langle E_\gamma \rangle$ PER DECAY =503.0

FISSION YIELDS

^{235}U THERMAL	5.8862×10^{-5}
^{235}U FAST	1.6314×10^{-4}
^{238}U FAST	4.9285×10^{-5}
^{239}PU THERMAL	2.2164×10^{-4}

Q_β =1530.
BR_β =.5000

Q_β =1780.
BR_β =.5000

$^{120m}_{49}$In
2.90±.10s

$^{120}_{49}$In
49.0±1.0s

120 - 48- 1

$^{120m}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-120M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
O-J.KANTELE AND M.KARRAS, PHYS. REV. 135, 89 (1964)

$^{120m}_{49}$In

$T_{1/2}$ =2.90±.10s
$\langle E_\beta \rangle$ PER DECAY =2471.
$\langle E_\gamma \rangle$ PER DECAY =175.7

FISSION YIELDS

^{235}U THERMAL	1.3107×10^{-6}
^{235}U FAST	3.2905×10^{-6}
^{238}U FAST	2.1498×10^{-7}
^{239}PU THERMAL	9.6886×10^{-6}

Q_β =5600.±600.
BR_β =1.000

$^{120}_{50}$Sn

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
1172.	1	15.00

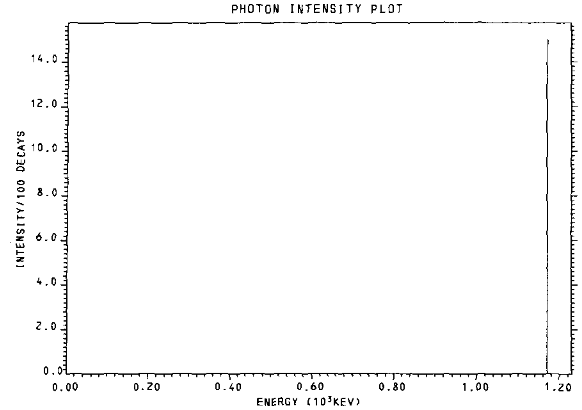
$\langle E_{PHOTON} \rangle$ PER DECAY = 175.7

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	4430.0	1979.	15.00
$\beta-$	5600.0	2558.	85.00

$\langle E_e \rangle$ PER DECAY = 2471.
$\langle E_\nu \rangle$ PER DECAY = 2953.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	5600.	85.00
γ	1172.	15.00

$^{120}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-120 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-J. KANTELE AND M. KARRAS, PHYS. REV. 135, 89 (1964)

$^{120}_{49}$In

$T_{1/2}$ =49.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1039.
$\langle E_\gamma \rangle$ PER DECAY =3060.

FISSION YIELDS

^{235}U THERMAL	1.3107×10^{-6}
^{235}U FAST	3.2905×10^{-6}
^{238}U FAST	2.1498×10^{-7}
^{239}PU THERMAL	9.6886×10^{-6}

Q_β =5300.±200.
BR_β =1.000

$^{120}_{50}$Sn

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

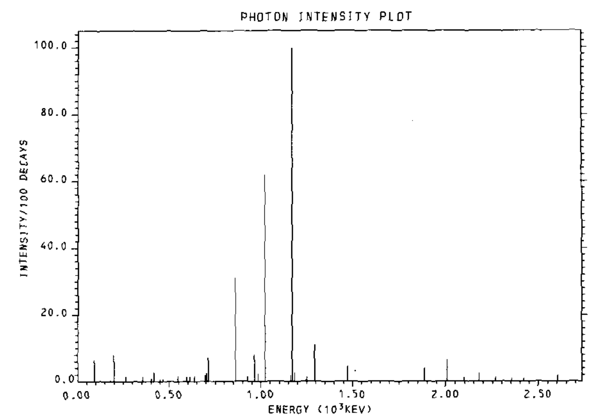
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
89.90	1	6.500
177.5	1	.3000
197.3	1	8.100
263.1	1	1.500
354.7	1	1.400
424.8	4	5.000
545.6	1	1.600
592.2	1	1.500
610.0	1	1.500
637.2	1	1.600
697.0	1	1.800
702.8	1	2.500
713.5	1	7.100
863.8	1	31.00
925.0	1	1.500
965.0	1	8.100
985.1	1	2.400
1023.	1	62.00
1163.	1	2.000
1172.	1	100.0
1184.	1	2.700
1247.	1	.5000
1251.	1	1.300
1295.	1	11.10
1472.	1	4.500
1886.	1	4.000
2007.	1	6.500
2097.	1	1.200
2178.	1	2.500
2267.	1	1.400
2355.	1	.9000
2420.	1	.9000
2605.	1	2.000

$\langle E_{PHOTON} \rangle$ PER DECAY = 3060.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1500.0	571.2	2.300
β^-	1750.0	685.3	1.100
β^-	1900.0	754.7	3.500
β^-	2100.0	848.4	7.000
β^-	2250.0	919.2	48.00
β^-	2700.0	1134.	7.000
β^-	3100.0	1328.	31.00

$\langle E_e \rangle$ PER DECAY = 1039.
$\langle E_\nu \rangle$ PER DECAY = 1459.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1172.	100.0
γ	1023.	62.00
β^-	2250.	48.00
γ	863.8	31.00
β^-	3100.	31.00
γ	1295.	11.10
γ	965.0	8.100

$^{120}_{50}Sn$

$^{120}_{50}Sn$

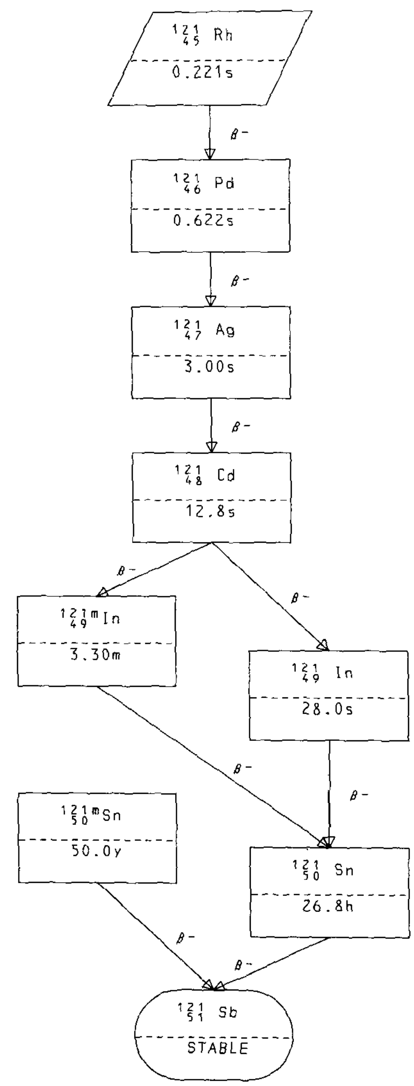
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.5280
WESTCOTT G FACTOR	1.1255
σ CAPTURE 2200M/S	1.4108×10^{-1}
WESTCOTT G FACTOR	1.0235
RESONANCE INTEGRAL TOTAL	$8.8960 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.2550

FISSION YIELDS

^{235}U THERMAL	1.4508×10^{-8}
^{235}U FAST	3.2105×10^{-8}
^{239}PU THERMAL	2.2097×10^{-7}



121 45 Rh
0.221s
β-
121 46 Pd
0.622s
β-
121 47 Ag
3.00s
β-
121 48 Cd
12.8s
β-
121m 49 In
3.30m
β-
121 49 In
28.0s
β-
β-
121m 50 Sn
50.0y
121 50 Sn
26.8h
β-
β-
121 51 Sb
STABLE

$^{121}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{121}_{45}$Rh

$T_{1/2}$ =.2210s
$\langle E_\beta \rangle$ PER DECAY =2928.
$\langle E_\gamma \rangle$ PER DECAY =3305.

FISSION YIELDS

^{235}U THERMAL	3.3018×10^{-9}
^{235}U FAST	1.0102×10^{-8}
^{238}U FAST	4.9295×10^{-7}

Q_β =9190.
BR_β =1.000

$^{121}_{46}$Pd

.6221s

121 - 45- 1

$^{121}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{121}_{46}$Pd

$T_{1/2}$ =.6221s
$\langle E_\beta \rangle$ PER DECAY =2340.
$\langle E_\gamma \rangle$ PER DECAY =2619.

FISSION YIELDS

^{235}U THERMAL	1.9711×10^{-6}
^{235}U FAST	5.8710×10^{-6}
^{238}U FAST	5.3885×10^{-5}
^{239}PU THERMAL	1.2298×10^{-6}

Q_β =7650.
BR_β =1.000

$^{121}_{47}$Ag

3.000s

$^{121}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{121}_{47}$Ag

$T_{1/2}$ =3.000s
$\langle E_\beta \rangle$ PER DECAY =1879.
$\langle E_\gamma \rangle$ PER DECAY =1983.

FISSION YIELDS	
^{235}U THERMAL	3.2338×10^{-5}
^{235}U FAST	9.3235×10^{-5}
^{238}U FAST	1.8922×10^{-4}
^{239}PU THERMAL	4.4924×10^{-5}

Q_β =6210.
BR_β =1.000

$^{121}_{48}$Cd

12.8±0.4s

121 - 47- 1

$^{121}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{121}_{48}$Cd

$T_{1/2}$ =12.8±0.4s
$\langle E_\beta \rangle$ PER DECAY =1391.
$\langle E_\gamma \rangle$ PER DECAY =1404.

FISSION YIELDS	
^{235}U THERMAL	8.1824×10^{-5}
^{235}U FAST	2.3079×10^{-4}
^{238}U FAST	1.1483×10^{-4}
^{239}PU THERMAL	2.6496×10^{-4}

Q_β =4500.
BR_β =.1800

$^{121m}_{49}$In

3.300m

Q_β =4750.
BR_β =.8200

$^{121}_{49}$In

28.00s

$^{121m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-121M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{121m}_{49}In$

$T_{1/2}$ =3.300m
$\langle E_\beta \rangle$ PER DECAY =1091.
$\langle E_\gamma \rangle$ PER DECAY =1082.

FISSION YIELDS	
^{235}U THERMAL	7.9743×10^{-6}
^{235}U FAST	1.1482×10^{-5}
^{238}U FAST	1.2299×10^{-6}
^{239}PU THERMAL	2.4697×10^{-5}

Q_β =3850.
BR_β =1.000

$^{121}_{50}Sn$

26.80h

121m- 49- 1

$^{121}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{121}_{49}In$

$T_{1/2}$ =28.00s
$\langle E_\beta \rangle$ PER DECAY =1020.
$\langle E_\gamma \rangle$ PER DECAY =1012.

FISSION YIELDS	
^{235}U THERMAL	4.2123×10^{-6}
^{235}U FAST	1.1472×10^{-5}
^{238}U FAST	1.2299×10^{-6}
^{239}PU THERMAL	2.6446×10^{-5}

Q_β =3600.
BR_β =1.000

$^{121}_{50}Sn$

26.80h

$^{121m}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-121M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{121m}_{50}Sn$

$T_{1/2}$ =49.97y
$\langle E_\beta \rangle$ PER DECAY =173.9
$\langle E_\gamma \rangle$ PER DECAY =164.0

FISSION YIELDS

^{235}U THERMAL	5.9532×10^{-8}
^{235}U FAST	1.5102×10^{-7}
^{238}U FAST	3.0297×10^{-9}
^{239}PU THERMAL	3.4495×10^{-7}

Q_β =630.0
BR_β =1.000

$^{121}_{51}Sb$

STABLE OR LONG-LIVED

121m- 50- 1

$^{121}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-121 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{121}_{50}Sn$

$T_{1/2}$ =26.80h
$\langle E_\beta \rangle$ PER DECAY =104.9
$\langle E_\gamma \rangle$ PER DECAY =98.93

FISSION YIELDS

^{235}U THERMAL	5.9132×10^{-8}
^{235}U FAST	1.5102×10^{-7}
^{238}U FAST	3.0297×10^{-9}
^{239}PU THERMAL	7.7589×10^{-7}

Q_β =380.0
BR_β =1.000

$^{121}_{51}Sb$

STABLE OR LONG-LIVED

$^{121}_{51}$Sb

$^{121}_{51}$Sb

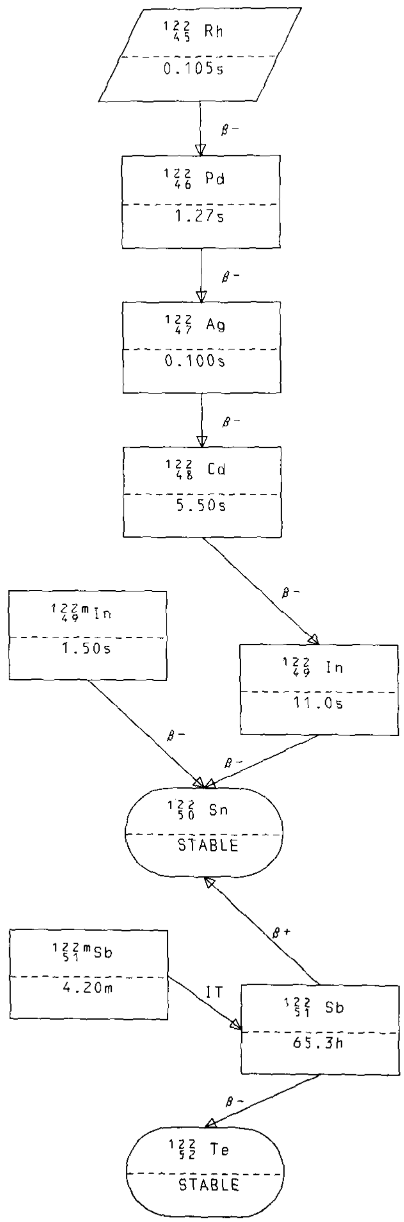
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	9.9583
WESTCOTT G FACTOR	1.0492
σ CAPTURE 2200M/S	6.2626
WESTCOTT G FACTOR	1.0026
RESONANCE INTEGRAL TOTAL	$3.0390 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.0640 \times 10^{+2}$

FISSION YIELDS

^{235}U THERMAL	2.2012×10^{-7}
^{239}PU THERMAL	2.9096×10^{-7}


$^{122}_{45}$Rh
0.105s
β-
$^{122}_{46}$Pd
1.27s
β-
$^{122}_{47}$Ag
0.100s
β-
$^{122}_{48}$Cd
5.50s
β-
$^{122m}_{49}$In
1.50s
$^{122}_{49}$In
11.0s
β-
β-
$^{122}_{50}$Sn
STABLE
β+
$^{122m}_{51}$Sb
4.20m
IT
$^{122}_{51}$Sb
65.3h
β-
$^{122}_{52}$Te
STABLE

$^{122}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-122 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{122}_{45}$Rh

$T_{1/2}$ =.1053s
$\langle E_\beta \rangle$ PER DECAY =3899.
$\langle E_\gamma \rangle$ PER DECAY =4072.

FISSION YIELDS

^{235}U FAST	1.0602×10^{-9}
^{238}U FAST	7.5293×10^{-8}

Q_β =11870.
BR_β =1.000

$^{122}_{46}$Pd

1.270s

$^{122}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-122 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{122}_{46}$Pd

$T_{1/2}$ =1.270s
$\langle E_\beta \rangle$ PER DECAY =1663.
$\langle E_\gamma \rangle$ PER DECAY =2104.

FISSION YIELDS

^{235}U THERMAL	5.0828×10^{-7}
^{235}U FAST	1.4702×10^{-6}
^{238}U FAST	1.9598×10^{-5}
^{239}PU THERMAL	2.0597×10^{-7}

Q_β =5770.
BR_β =1.000

$^{122}_{47}$Ag

.1000s

$^{122}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS

47-AG-122 HEDL EVAL-APR74 R.E.SCHENTER

DIST-NOV74

REFERENCES

HALF LIFE-R SCHENTER,THEORY(9/73)

$^{122}_{47}$Ag

$T_{1/2}$ =.1000s

$\langle E_\beta \rangle$ PER DECAY =2966.

$\langle E_\gamma \rangle$ PER DECAY =2912.

FISSION YIELDS

^{235}U THERMAL	1.8120×10^{-5}
^{235}U FAST	5.2088×10^{-5}
^{238}U FAST	1.5017×10^{-4}
^{239}PU THERMAL	1.9387×10^{-5}

Q_β =9170.

BR_β =1.000

$^{122}_{48}$Cd

5.50±.10s

122 - 47- 1

$^{122}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS

48-CD-122 HEDL EVAL-APR74 R.E.SCHENTER

DIST-NOV74

$^{122}_{48}$Cd

$T_{1/2}$ =5.50±.10s

$\langle E_\beta \rangle$ PER DECAY =660.7

$\langle E_\gamma \rangle$ PER DECAY =788.3

FISSION YIELDS

^{235}U THERMAL	9.4121×10^{-5}
^{235}U FAST	2.6673×10^{-4}
^{238}U FAST	1.8903×10^{-4}
^{239}PU THERMAL	2.3681×10^{-4}

Q_β =2430.

BR_β =1.000

$^{122}_{49}$In

11.0±1.0s

$^{122m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-122M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
GIT-R SCHENTER,THEORY(9/73)

$^{122m}_{49}In$

$T_{1/2}$ =1.500s
$\langle E_\beta \rangle$ PER DECAY =2171.
$\langle E_\gamma \rangle$ PER DECAY =1928.

FISSION YIELDS

^{235}U THERMAL	9.6753×10^{-6}
^{235}U FAST	2.7665×10^{-5}
^{238}U FAST	4.6496×10^{-6}
^{239}PU THERMAL	5.7292×10^{-5}

Q_β =7000.
BR_β =1.000

$^{122}_{50}Sn$

STABLE OR LONG-LIVED

122m- 49- 1

$^{122}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-122 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{122}_{49}In$

$T_{1/2}$ =11.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =2094.
$\langle E_\gamma \rangle$ PER DECAY =1860.

FISSION YIELDS

^{235}U THERMAL	9.6853×10^{-6}
^{235}U FAST	2.7665×10^{-5}
^{238}U FAST	4.6496×10^{-6}
^{239}PU THERMAL	5.7012×10^{-5}

Q_β =6750.
BR_β =1.000

$^{122}_{50}Sn$

STABLE OR LONG-LIVED

$^{122}_{50}Sn$

$^{122}_{50}Sn$	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	4.3628
WESTCOTT G FACTOR	1.1246
σ CAPTURE 2200M/S	1.8109×10^{-1}
WESTCOTT G FACTOR	1.0284
RESONANCE INTEGRAL TOTAL	$9.2530 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	7.6970×10^{-1}
FISSION YIELDS	
^{235}U THERMAL	5.8432×10^{-7}
^{235}U FAST	1.6703×10^{-6}
^{238}U FAST	5.5595×10^{-8}
^{239}PU THERMAL	8.8187×10^{-6}

122 - 50- 1

$^{122m}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-122M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{122m}_{51}Sb$	
$T_{1/2}$ =4.200m	
$\langle E_\gamma \rangle$ PER DECAY =162.0	
FISSION YIELDS	
^{239}PU THERMAL	9.4986×10^{-9}

Q_{IT}=162.0
BR_{IT}=1.000

$^{122}_{51}Sb$
65.28h

$^{122}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-122 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{122}_{51}$Sb

$T_{1/2}$ =65.28h
$\langle E_\beta \rangle$ PER DECAY =567.7
$\langle E_\gamma \rangle$ PER DECAY =466.3

FISSION YIELDS
^{239}PU THERMAL 8.9787x10^{-9}

Q_β =1970.
BR_β =.9700

$Q_{\beta+}$=1630.
$BR_{\beta+}$=.03000

$^{122}_{52}$Te
STABLE OR LONG-LIVED

$^{122}_{50}$Sn
STABLE OR LONG-LIVED

122 - 51- 1

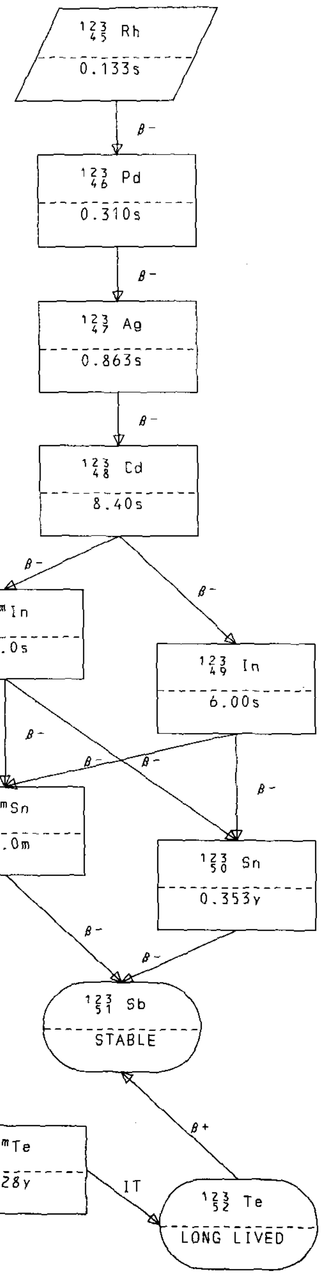
$^{122}_{52}$Te

$^{122}_{52}$Te

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.7532
WESTCOTT G FACTOR	1.0661
σ CAPTURE 2200M/S	2.8025
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	2.1660x10^{+2}
RESONANCE INTEGRAL CAPTURE	7.4090x10^{+1}



$^{123}_{45}$Rh
0.133s
β-
$^{123}_{46}$Pd
0.310s
β-
$^{123}_{47}$Ag
0.863s
β-
$^{123}_{48}$Cd
8.40s
β-
β-
$^{123m}_{49}$In
48.0s
$^{123}_{49}$In
6.00s
β-
β-
β-
β-
$^{123m}_{50}$Sn
40.0m
$^{123}_{50}$Sn
0.353y
β-
β-
$^{123}_{51}$Sb
STABLE
β+
$^{123m}_{52}$Te
0.328y
IT
$^{123}_{52}$Te
LONG LIVED

$^{123}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-123 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{123}_{45}$Rh

$T_{1/2}$ =.1335s
$\langle E_\beta \rangle$ PER DECAY =3172.
$\langle E_\gamma \rangle$ PER DECAY =3747.

FISSION YIELDS

^{238}U FAST	9.8691×10^{-9}

Q_β =10090.
BR_β =1.000

$^{123}_{46}$Pd

.3100s

123 - 45- 1

$^{123}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-123 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{123}_{46}$Pd

$T_{1/2}$ =.3100s
$\langle E_\beta \rangle$ PER DECAY =2631.
$\langle E_\gamma \rangle$ PER DECAY =3059.

FISSION YIELDS

^{235}U THERMAL	1.1306×10^{-7}
^{235}U FAST	3.8906×10^{-7}
^{238}U FAST	6.0394×10^{-6}
^{239}PU THERMAL	3.9794×10^{-8}

Q_β =8460.
BR_β =1.000

$^{123}_{47}$Ag

.8627s

$^{123}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-123 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{123}_{47}$Ag

$T_{1/2}$ =.8627s
$\langle E_{\beta}\rangle$ PER DECAY =2225.
$\langle E_{\gamma}\rangle$ PER DECAY =2474.

FISSION YIELDS

^{235}U THERMAL	9.2550×10^{-6}
^{235}U FAST	2.9855×10^{-5}
^{238}U FAST	1.0109×10^{-4}
^{239}PU THERMAL	8.2588×10^{-6}

Q_{β} =7280.
BR_{β} =1.000

$^{123}_{48}$Cd

8.404s

$^{123}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-123 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{123}_{48}$Cd

$T_{1/2}$ =8.404s
$\langle E_{\beta}\rangle$ PER DECAY =1602.
$\langle E_{\gamma}\rangle$ PER DECAY =1766.

FISSION YIELDS

^{235}U THERMAL	9.4962×10^{-5}
^{235}U FAST	3.0454×10^{-4}
^{238}U FAST	2.6188×10^{-4}
^{239}PU THERMAL	2.0723×10^{-4}

Q_{β} =5280.
BR_{β} =.2300

$^{123m}_{49}$In

48.00s

Q_{β} =5530.
BR_{β} =.7700

$^{123}_{49}$In

6.000s

$^{123m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-123M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
Q1T-R SCHENTER,THEORY(9/73)

$^{123m}_{49}In$

$T_{1/2}$ =48.00s
$\langle E_\beta \rangle$ PER DECAY =1325.
$\langle E_\gamma \rangle$ PER DECAY =1394.

FISSION YIELDS

^{235}U THERMAL	1.9501×10^{-5}
^{235}U FAST	6.1870×10^{-5}
^{238}U FAST	1.3709×10^{-5}
^{239}PU THERMAL	9.7086×10^{-5}

Q_β =4500.
BR_β =.5000

Q_β =4750.
BR_β =.5000

$^{123m}_{50}Sn$
40.00m

$^{123}_{50}Sn$
.3532y

123m- 49- 1

$^{123}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-123 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{123}_{49}In$

$T_{1/2}$ =6.000s
$\langle E_\beta \rangle$ PER DECAY =1253.
$\langle E_\gamma \rangle$ PER DECAY =1319.

FISSION YIELDS

^{235}U THERMAL	2.0441×10^{-5}
^{235}U FAST	6.1860×10^{-5}
^{238}U FAST	1.3699×10^{-5}
^{239}PU THERMAL	9.7086×10^{-5}

Q_β =4250.
BR_β =.5000

Q_β =4500.
BR_β =.5000

$^{123m}_{50}Sn$
40.00m

$^{123}_{50}Sn$
.3532y

$^{123m}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-123M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{123m}_{50}Sn$

$T_{1/2}$ =40.00m
$\langle E_\beta \rangle$ PER DECAY =471.8
$\langle E_\gamma \rangle$ PER DECAY =465.5

FISSION YIELDS

^{235}U THERMAL	1.9311×10^{-6}
^{235}U FAST	3.9406×10^{-6}
^{238}U FAST	1.9098×10^{-7}
^{239}PU THERMAL	1.5358×10^{-5}

Q_β =1670.
BR_β =1.000

$^{123}_{51}Sb$

STABLE OR LONG-LIVED

123m- 50- 1

$^{123}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-123 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

$^{123}_{50}Sn$

$T_{1/2}$ =.3532y
$\langle E_\beta \rangle$ PER DECAY =401.2
$\langle E_\gamma \rangle$ PER DECAY =395.8

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.5550
WESTCOTT G FACTOR	1.1353
σ CAPTURE 2200M/S	3.3000×10^{-2}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$9.9710\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	2.6820

FISSION YIELDS

^{235}U THERMAL	1.7089×10^{-5}
^{235}U FAST	3.9406×10^{-6}
^{238}U FAST	1.9098×10^{-7}
^{239}PU THERMAL	1.5358×10^{-5}

Q_β =1420.
BR_β =1.000

$^{123}_{51}Sb$

STABLE OR LONG-LIVED

123 - 50- 1

$^{123}_{51}$ Sb

$^{123}_{51}$ Sb	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	8.0947
WESTCOTT G FACTOR	1.0603
σ CAPTURE 2200M/S	4.3294
WESTCOTT G FACTOR	1.0010
RESONANCE INTEGRAL TOTAL	$2.5040\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.2780\times10^{+2}$
FISSION YIELDS	
^{235}U THERMAL	5.4029×10^{-9}
^{235}U FAST	1.3802×10^{-8}
^{239}PU THERMAL	1.4598×10^{-7}

123 - 51- 1

$^{123m}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-123M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{123m}_{52}$Te

$T_{1/2}$ =.3277y
$\langle E_\gamma \rangle$ PER DECAY =247.5

Q_{IT}=247.5
BR_{IT}=1.000

$^{123}_{52}$ Te

$(1.199)\times10^{+13}$y

$^{123}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-123 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

$^{123}_{52}$Te

$T_{1/2}$ =(1.199)x10^{+13}y
<E_γ> PER DECAY =20.00

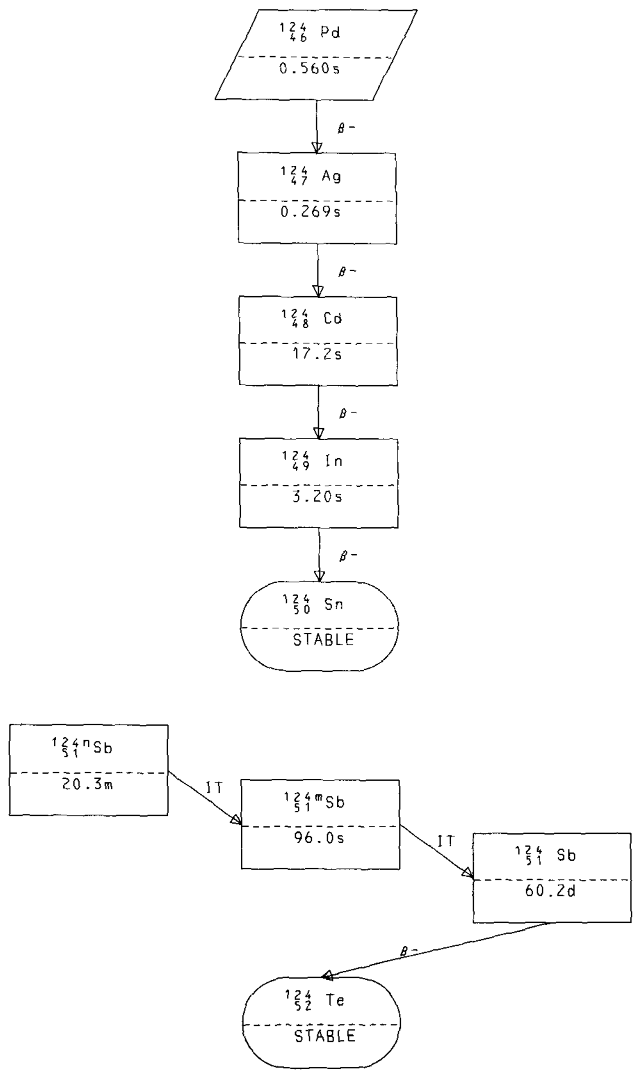
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.0969x10^{+2}
WESTCOTT G FACTOR	1.0116
σ CAPTURE 2200M/S	4.0991x10^{+2}
WESTCOTT G FACTOR	1.0116
RESONANCE INTEGRAL TOTAL	6.2230x10^{+3}
RESONANCE INTEGRAL CAPTURE	5.5420x10^{+3}

$Q_{\beta+}$=50.00
$BR_{\beta+}$=1.000

$^{123}_{51}$Sb

STABLE OR LONG-LIVED



124 46 Pd
0.560s
β-
124 47 Ag
0.269s
β-
124 48 Cd
17.2s
β-
124 49 In
3.20s
β-
124 50 Sn
STABLE
124n 51 Sb
20.3m
IT
124m 51 Sb
96.0s
IT
124 51 Sb
60.2d
β-
124 52 Te
STABLE

$^{124}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-124 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{124}_{46}$Pd

$T_{1/2}$ =.5601s
$\langle E_\beta \rangle$ PER DECAY =1946.
$\langle E_\gamma \rangle$ PER DECAY =2572.

FISSION YIELDS

^{235}U THERMAL	2.2612×10^{-8}
^{235}U FAST	8.1713×10^{-8}
^{238}U FAST	1.7098×10^{-6}
^{239}PU THERMAL	7.7389×10^{-9}

Q_β =6680.
BR_β =1.000

$^{124}_{47}$Ag

.2685s

124 - 46- 1

$^{124}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-124 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{124}_{47}$Ag

$T_{1/2}$ =.2685s
$\langle E_\beta \rangle$ PER DECAY =3275.
$\langle E_\gamma \rangle$ PER DECAY =3358.

FISSION YIELDS

^{235}U THERMAL	4.4324×10^{-6}
^{235}U FAST	1.4212×10^{-5}
^{238}U FAST	6.0554×10^{-5}
^{239}PU THERMAL	3.3795×10^{-6}

Q_β =9970.
BR_β =1.000

$^{124}_{48}$Cd

17.17s

$^{124}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-124 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{124}_{48}$Cd

$T_{1/2}$ =17.17s
$\langle E_\beta \rangle$ PER DECAY =1015.
$\langle E_\gamma \rangle$ PER DECAY =1273.

FISSION YIELDS

^{235}U THERMAL	1.0559×10^{-4}
^{235}U FAST	3.0340×10^{-4}
^{238}U FAST	3.0624×10^{-4}
^{239}PU THERMAL	1.6823×10^{-4}

Q_β =3690.
BR_β =1.000

$^{124}_{49}$In

3.20±.10s

124 - 48- 1

$^{124}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-124 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{124}_{49}$In

$T_{1/2}$ =3.20±.10s
$\langle E_\beta \rangle$ PER DECAY =2255.
$\langle E_\gamma \rangle$ PER DECAY =2200.

FISSION YIELDS

^{235}U THERMAL	9.5362×10^{-5}
^{235}U FAST	2.4502×10^{-4}
^{238}U FAST	6.3744×10^{-5}
^{239}PU THERMAL	2.8974×10^{-4}

Q_β =7340.
BR_β =1.000

$^{124}_{50}$Sn

STABLE OR LONG-LIVED

$^{124}_{50}$Sn

$^{124}_{50}$Sn

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.5720
WESTCOTT G FACTOR	1.1256
σ CAPTURE 2200M/S	1.3035×10^{-1}
WESTCOTT G FACTOR	1.0225
RESONANCE INTEGRAL TOTAL	$9.7470\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	7.1340

FISSION YIELDS

^{235}U THERMAL	1.4158×10^{-5}
^{235}U FAST	3.3085×10^{-5}
^{238}U FAST	1.9198×10^{-6}
^{239}PU THERMAL	8.7878×10^{-5}

124 - 50- 1

$^{124n}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-124N HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{124n}_{51}$Sb

$T_{1/2}$ =20.30*m*
$\langle E_\gamma \rangle$ PER DECAY =250.0

Q_{IT}=250.0
BR_{IT}=1.000

$^{124m}_{51}$Sb

96.00s

124n- 51- 1

$^{124m}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-124M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{124m}_{51}Sb$

$T_{1/2}$ =96.00s
$\langle E_\gamma \rangle$ PER DECAY =10.00

FISSION YIELDS

^{235}U THERMAL	2.9516×10^{-8}
^{235}U FAST	6.6111×10^{-8}
^{239}PU THERMAL	4.3094×10^{-7}

Q_{IT}=10.00
BR_{IT}=1.000

$^{124}_{51}Sb$

60.20d

124m- 51- 1

$^{124}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-124 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

$^{124}_{51}Sb$

$T_{1/2}$ =60.20d
$\langle E_\beta \rangle$ PER DECAY =861.8
$\langle E_\gamma \rangle$ PER DECAY =745.9

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.1046 \times 10^{+1}$
WESTCOTT G FACTOR	1.1542
σ CAPTURE 2200M/S	6.5000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.1700 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.6400 \times 10^{+1}$

FISSION YIELDS

^{235}U THERMAL	3.2217×10^{-8}
^{235}U FAST	6.6311×10^{-8}
^{239}PU THERMAL	4.3194×10^{-7}

Q_β =2910.
BR_β =1.000

$^{124}_{52}Te$

STABLE OR LONG-LIVED

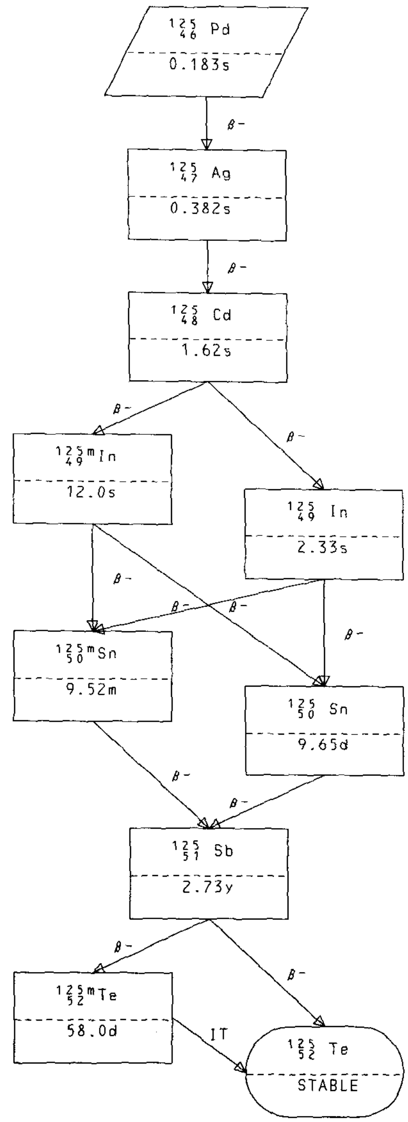
$^{124}_{52}$Te

$^{124}_{52}$Te

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.0618\times10^{+1}$
WESTCOTT G FACTOR	1.0568
σ CAPTURE 2200M/S	6.8022
WESTCOTT G FACTOR	1.0165
RESONANCE INTEGRAL TOTAL	$1.0690\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	8.5060


125 46 Pd
0.183s
β-
125 47 Ag
0.382s
β-
125 48 Cd
1.62s
β-
β-
125m 49 In
12.0s
125 49 In
2.33s
β-
β-
β-
β-
125m 50 Sn
9.52m
125 50 Sn
9.65d
β-
β-
125 51 Sb
2.73y
β-
β-
125m 52 Te
58.0d
IT
125 52 Te
STABLE

$^{125}_{46}$Pd

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              ENDF/B-IV FILE 1 COMMENTS
46-PD-125  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-NOV74
   REFERENCES
    HALF LIFE-R SCHENTER,THEORY(9/73)
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$^{125}_{46}$Pd

$T_{1/2}$ =.1831s
$\langle E_\beta \rangle$ PER DECAY =2851.
$\langle E_\gamma \rangle$ PER DECAY =3517.

Q_β =9220.
BR_β =1.000

$^{125}_{47}$Ag

.3821s

125 - 46- 1

$^{125}_{47}$Ag

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              ENDF/B-IV FILE 1 COMMENTS
47-AG-125  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-NOV74
   REFERENCES
    HALF LIFE-R SCHENTER,THEORY(9/73)
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$^{125}_{47}$Ag

$T_{1/2}$ =.3821s
$\langle E_\beta \rangle$ PER DECAY =2529.
$\langle E_\gamma \rangle$ PER DECAY =2951.

FISSION YIELDS	
^{235}U THERMAL	8.9649×10^{-7}
^{235}U FAST	4.7008×10^{-6}
^{238}U FAST	3.2937×10^{-5}
^{239}PU THERMAL	1.2698×10^{-6}

Q_β =8190.
BR_β =1.000

$^{125}_{48}$Cd

1.623s

$^{125}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-125 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{125}_{48}$Cd

$T_{1/2}$ =1.623s
$\langle E_{\beta} \rangle$ PER DECAY =1881.
$\langle E_{\gamma} \rangle$ PER DECAY =2159.

FISSION YIELDS

^{235}U THERMAL	5.1358×10^{-5}
^{235}U FAST	2.3360×10^{-4}
^{238}U FAST	3.4872×10^{-4}
^{239}PU THERMAL	1.4707×10^{-4}

Q_{β} =6140.
BR_{β} =.3000

Q_{β} =6390.
BR_{β} =.7000

$^{125m}_{49}$In
12.00s

$^{125}_{49}$In
2.33±.03s

125 - 48- 1

$^{125m}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-125M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{125m}_{49}$In

$T_{1/2}$ =12.00s
$\langle E_{\beta} \rangle$ PER DECAY =1586.
$\langle E_{\gamma} \rangle$ PER DECAY =1764.

FISSION YIELDS

^{235}U THERMAL	5.0707×10^{-5}
^{235}U FAST	2.0299×10^{-4}
^{238}U FAST	7.4243×10^{-5}
^{239}PU THERMAL	2.7286×10^{-4}

Q_{β} =5460.
BR_{β} =.9200

Q_{β} =5710.
BR_{β} =.08000

$^{125m}_{50}$Sn
9.52±.05m

$^{125}_{50}$Sn
9.65±.04d

125m- 49- 1

$^{125}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-125 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{125}_{49}$In

$T_{1/2}$ =2.33±.03s
$\langle E_\beta \rangle$ PER DECAY =1530.
$\langle E_\gamma \rangle$ PER DECAY =1702.

FISSION YIELDS

^{235}U THERMAL	5.0697×10^{-5}
^{235}U FAST	2.0301×10^{-4}
^{238}U FAST	7.4243×10^{-5}
^{239}PU THERMAL	2.7244×10^{-4}

Q_β =5210.
BR_β =.7000

Q_β =5460.
BR_β =.3000

$^{125m}_{50}$Sn
9.52±.05m

$^{125}_{50}$Sn
9.65±.04d

125 - 49- 1

$^{125m}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-125M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 9/73 RES(GULF)
Q VALUE IS FROM THE 1973 REVISION OF WAPSTRA-GOVE MASS TABLES
REFERENCE NUCLEAR DATA B7, NO 5 (1972)
PHOTON INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.
INTERNAL CONVERSION COEFFICIENT FOR 331.9-KEV GAMMA RAY IS
AVERAGE OF PREDICTED M1 AND E2 VALUES.

$^{125m}_{50}$Sn

$T_{1/2}$ =9.52±.05m
$\langle E_\beta \rangle$ PER DECAY =798.0
$\langle E_\gamma \rangle$ PER DECAY =345.9

FISSION YIELDS

^{235}U THERMAL	3.9892×10^{-5}
^{235}U FAST	6.4610×10^{-5}
^{238}U FAST	4.9795×10^{-6}
^{239}PU THERMAL	1.7518×10^{-4}

Q_β =2389.±8.
BR_β =1.000

$^{125}_{51}$Sb
2.73±.03y

125m- 50- 1

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
23.43			4	1.988		
279.0	±	1.0	1	.07	±	.05
311.0	±	1.0	1	.07	±	.05
331.90	±	0.20	1	92.44		
386.0	±	0.4	1	.085	±	.009
589.6	±	0.5	1	.20	±	.04
643.0	±	0.5	1	.15	±	.04
662.0	±	1.0	1	.04361		
778.0	±	2.0	1	.012	±	.005
840.9	±	0.5	1	.066	±	.019
1017.3	±	0.5	1	.095	±	.019
1059.0	±	1.0	1	.019	±	.019
1093.0	±	1.0	1	.038	±	.019
1151.1	±	0.6	1	.028	±	.019
1294.0	±	1.0	1	.01233		
1305.0	±	1.0	1	.009	±	.009
1349.0	±	0.8	1	.019	±	.009
1368.8	±	0.5	1	.095	±	.019
1404.0	±	0.5	1	.68	±	.03
1483.9	±	0.5	1	.18	±	.03
1582.0	±	1.0	1	.006	±	.006
1615.3	±	0.5	1	.114	±	.019
1634.0	±	1.0	1	.019	±	.019
1735.6	±	0.5	1	.028	±	.009
1913.5	±	0.5	1	.019	±	.009
1947.0	±	1.0	1	.009	±	.005
2113.0	±	1.0	1	.0019	±	.0019

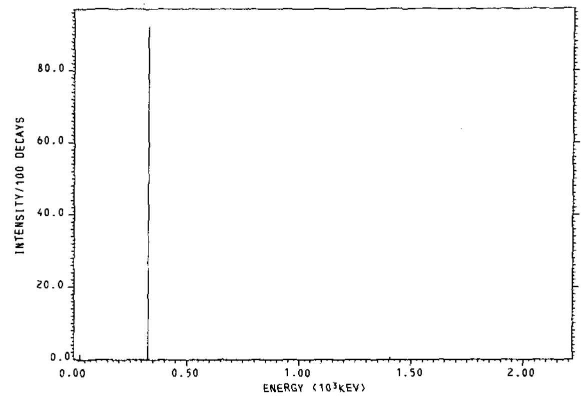
$\langle E_{PHOTON} \rangle$ PER DECAY = 330.4 ± 1.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	29.5	6.186	2.164
CE	331.0	305.54	2.367
β^-	275.0	78.83	.00200
β^-	441.0	134.7	.1400
β^-	475.0	146.7	.02600
β^-	652.0	212.4	.8500
β^-	687.0	225.9	.1300
β^-	904.0	312.8	.2800
β^-	1039.0	369.1	.03000
β^-	1466.0	555.9	.2600
β^-	1745.0	683.0	.05000
β^-	2056.0	827.7	95.80

$\langle E_e \rangle$ PER DECAY = 805.4
$\langle E_\nu \rangle$ PER DECAY = 1186.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
β^-	2056.			95.80
γ	331.90	±	0.20	92.44

$^{125}_{50}$Sn

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                ENDF/B-IV FILE 1 COMMENTS
50-SN-125  ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                                DIST-NOV74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
    PREPARED FOR FILE  9/73                  RES(GULF)
    Q VALUE IS FROM THE 1973 REVISION OF WAPSTRA-GOVE MASS TABLES
    REFERENCE  NUCLEAR DATA B7, NO.5 (1972)
     PHOTON INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
     RELATIVE INTENSITIES.
```

$^{125}_{50}$Sn

$T_{1/2}$ =9.65±.04d
$\langle E_\beta \rangle$ PER DECAY =836.2
$\langle E_\gamma \rangle$ PER DECAY =312.3

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.1210
WESTCOTT G FACTOR	1.1712
σ CAPTURE 2200M/S	5.5000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.1770\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.4830\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	1.0252×10^{-4}
^{235}U FAST	6.1310×10^{-5}
^{238}U FAST	4.9795×10^{-6}
^{239}PU THERMAL	3.7958×10^{-4}

Q_β =2363.±8.
BR_β =1.000

$^{125}_{51}$Sb

2.73±.03y

PHOTON RADIATION TABLE

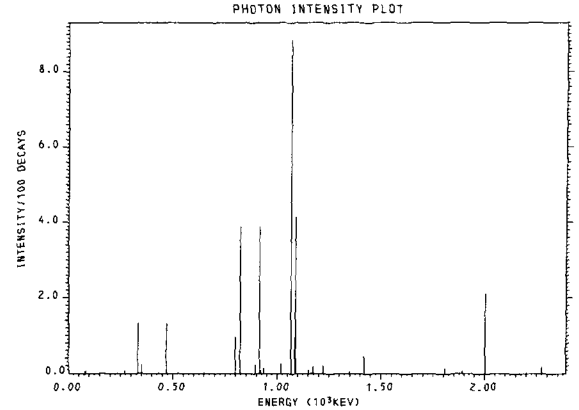
MEAN ENERGY		LINES	PHOTONS/100 DECAYS	
76.0	± 0.5	1	.07088	
84.0	± 0.5	1	.07974	
263.4	± 1.2	5	.142	± .014
334.7	± 0.7	6	1.57	± .20
434.1	± 0.5	1	.018	± .003
469.7	± 0.5	1	1.33	± .20
524.3	± 0.5	1	.00620	
562.2	± 0.5	1	.00532	
652.6	± 0.5	1	.035	± .005
684.2	± 0.5	1	.00620	
800.5	± 0.5	1	.97	± .15
822.6	± 0.5	1	3.9	± .6
893.7	± 0.5	1	.24	± .04
915.5	± 0.5	1	3.9	± .6
921.6	± 0.5	1	.089	± .013
934.7	± 0.5	1	.151	± .023
1073.6	± 0.8	4	14.3	± 0.6
1165.3	± 1.0	7	.35	± .03
1207.7	± 0.5	1	.0062	± .0009
1221.0	± 0.5	1	.22	± .03
1259.0	± 0.5	1	.018	± .003
1349.4	± 0.5	1	.062	± .009
1419.5	± 0.5	1	.48	± .07
1557.2	± 0.5	1	.00443	
1591.2	± 0.5	1	.00532	
1805.7	± 0.5	1	.151	± .023
1889.9	± 0.5	1	.071	± .011
1982.9	± 0.5	1	.00354	
2001.7	± 0.5	1	2.1	± .3
2200.6	± 0.5	1	.044	± .007
2227.0	± 0.5	1	.00177	
2275.2	± 0.5	1	.19	± .03

$\langle E_{PHOTON} \rangle$ PER DECAY = 312. ± 12.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	77.0	20.10	.2300
β^-	90.0	23.65	.2000
β^-	112.0	29.77	.1200
β^-	125.0	33.45	.5500
β^-	138.0	37.17	.00500
β^-	164.0	44.73	.05500
β^-	363.0	107.8	2.300
β^-	383.0	114.6	4.100
β^-	475.0	146.7	6.000
β^-	559.0	177.3	.1300
β^-	774.0	260.1	.02000
β^-	946.0	330.1	.1100

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY		I/100 DECAYS	
β^-	2363.		82.50	
γ	1066.6	± 0.5	8.860	
β^-	475.0		6.000	
γ	1088.9	± 1.0	4.2	± .6

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1016.0	359.4	.3200
β^-	1276.0	471.5	2.780
β^-	1298.0	481.1	.4800
β^-	2363.0	972.9	82.50

$\langle E_e \rangle$ PER DECAY = 836.2
$\langle E_\nu \rangle$ PER DECAY = 1214.

$^{125}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS

51-SB-125 HEDL,ANC EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE
OTHER- NUCLEAR DATA SHEETS B 7, NO.5, 465 (1972).
NOTE FIRST-FORBIDDEN,UNIQUE SHAPE CORRECTION CONSIDERED IN
DERIVING <E-BETA> FOR HIGHEST-ENERGY BETA TRANSITION

$^{125}_{51}$Sb

$T_{1/2}$ =2.73±.03y
$\langle E_\beta \rangle$ PER DECAY =86.86
$\langle E_\gamma \rangle$ PER DECAY =452.1

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.5710
WESTCOTT G FACTOR	1.1779
σ CAPTURE 2200M/S	1.0000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.2970\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.8360\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	5.9332×10^{-7}
^{235}U FAST	1.2002×10^{-6}
^{238}U FAST	1.8398×10^{-8}
^{239}PU THERMAL	7.5289×10^{-6}

Q_β =621.0±2.0
BR_β =.2300

$^{125m}_{52}$Te
58.0±1.0d

Q_β =766.0±2.0
BR_β =.7700

$^{125}_{52}$Te
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
24.5762	±	0.0017	5	4.929		
116.94	±	0.05	1	.32	±	.03
172.60	±	0.05	1	.27	±	.03
176.290	±	0.020	1	5.94	±	.24
204.07	±	0.04	1	.28	±	.03
208.00	±	0.20	1	.190	±	.018
227.70	±	0.20	1	.118	±	.012
321.00	±	0.20	1	.46	±	.05
380.50	±	0.20	1	1.52	±	.09
437.1			4	40.8		
616.2	±	0.5	4	36.4	±	1.0

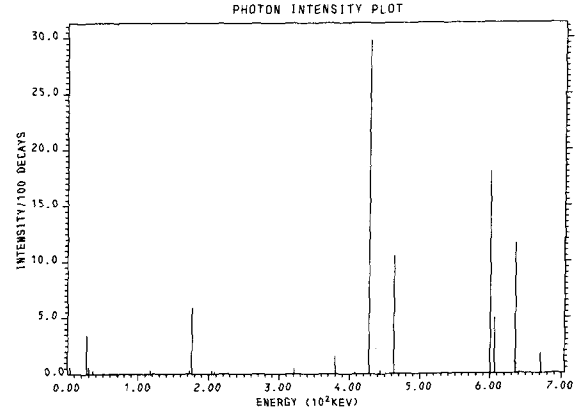
$\langle E_{PHOTON} \rangle$ PER DECAY = 423.7

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	30.2	6.697	4.923
CE	426.9	60.399	5.328
β^-	94.0	24.76	13.50
β^-	124.0	33.16	5.700
β^-	130.0	34.87	18.10
β^-	241.0	68.09	1.500
β^-	302.0	87.54	40.20
β^-	445.0	136.1	7.150
β^-	621.0	194.8	13.50

$\langle E_e \rangle$ PER DECAY = 87.33
$\langle E_\nu \rangle$ PER DECAY = 200.2

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	302.0			40.20		
γ	427.90	±	0.20	29.84		
β^-	130.0			18.10		
γ	600.60	±	0.20	18.1	±	0.8
β^-	621.0			13.50		
β^-	94.00			13.50		
γ	636.00	±	0.20	11.6	±	0.6
γ	463.4	±	0.3	10.6	±	0.5

$^{125m}_{52}Te$

ENDF/B-IV FILE 1 COMMENTS
52-TE-125M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 12/73 CWR
REFERENCES - NUCLEAR DATA SHEETS B 7, NO.5, 465 (1972).

$^{125m}_{52}Te$

$T_{1/2}$ =58.0±1.0d
$\langle E_\gamma \rangle$ PER DECAY =143.8

FISSION YIELDS
^{239}PU THERMAL 7.0790x10^{-9}

Q_{IT}=144.73±0.04
BR_{IT}=1.000

$^{125}_{52}Te$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

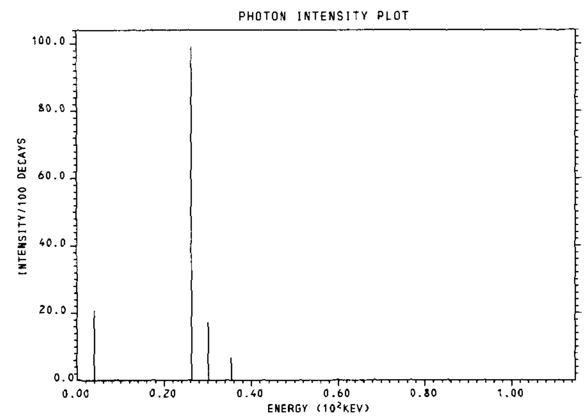
MEAN ENERGY			LINES	PHOTONS/100 DECAYS
23.9215	±	0.0014	5	143.8
109.270	±	0.020	1	.2700

$\langle E_{PHOTON} \rangle$ PER DECAY = 34.70

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	30.2	5.970			166.5
CE	108.3	50.527	±	0.014	192.2

$\langle E_e \rangle$ PER DECAY = 107.0

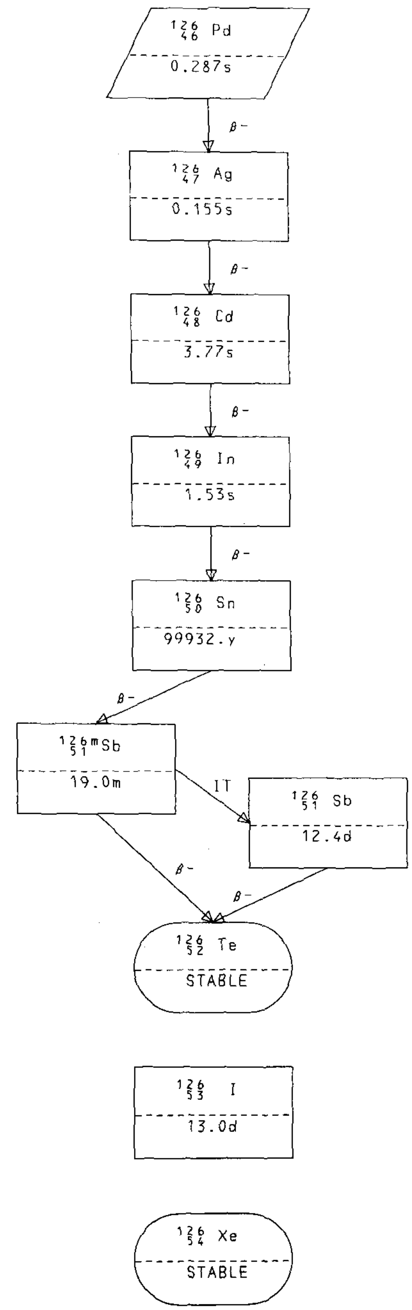


CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
AU_L	3.933			149.5
X_K	26.25			99.08
CE_K	4.28	±	.03	80.69
CE_K	78.086	±	0.020	52.34

$^{125}_{52}$Te

$^{125}_{52}$Te	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	5.5117
WESTCOTT G FACTOR	1.0937
σ CAPTURE 2200M/S	1.5507
WESTCOTT G FACTOR	1.0045
RESONANCE INTEGRAL TOTAL	$1.3010\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.3670\times10^{+1}$
FISSION YIELDS	
^{235}U FAST	9.1315×10^{-8}
^{239}PU THERMAL	7.0790×10^{-9}



$^{126}_{46}$Pd
0.287s
β-
$^{126}_{47}$Ag
0.155s
β-
$^{126}_{48}$Cd
3.77s
β-
$^{126}_{49}$In
1.53s
β-
$^{126}_{50}$Sn
99932.y
β-
$^{126m}_{51}$Sb
19.0m
IT
$^{126}_{51}$Sb
12.4d
β-
β-
$^{126}_{52}$Te
STABLE
$^{126}_{53}$I
13.0d
$^{126}_{54}$Xe
STABLE

$^{126}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-126 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{126}_{46}$Pd

$T_{1/2}$ =.2870s
$\langle E_\beta \rangle$ PER DECAY =2243.
$\langle E_\gamma \rangle$ PER DECAY =3090.

FISSION YIELDS

^{235}U FAST	1.2302×10^{-9}
^{238}U FAST	6.3794×10^{-8}

Q_β =7620.
BR_β =1.000

$^{126}_{47}$Ag

.1555s

126 - 46- 1

$^{126}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-126 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{126}_{47}$Ag

$T_{1/2}$ =.1555s
$\langle E_\beta \rangle$ PER DECAY =3473.
$\langle E_\gamma \rangle$ PER DECAY =3794.

FISSION YIELDS

^{235}U THERMAL	4.0122×10^{-7}
^{235}U FAST	1.4502×10^{-6}
^{238}U FAST	1.3189×10^{-5}
^{239}PU THERMAL	3.0696×10^{-7}

Q_β =10740.
BR_β =1.000

$^{126}_{48}$Cd

3.766s

$^{126}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-126 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{126}_{48}$Cd

$T_{1/2}$ =3.766s
$\langle E_\beta \rangle$ PER DECAY =1279.
$\langle E_\gamma \rangle$ PER DECAY =1681.

FISSION YIELDS

^{235}U THERMAL	6.6006×10^{-5}
^{235}U FAST	1.8405×10^{-4}
^{238}U FAST	3.3021×10^{-4}
^{239}PU THERMAL	9.0097×10^{-5}

Q_β =4600.
BR_β =1.000

$^{126}_{49}$In

1.530±.010s

126 - 48- 1

$^{126}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-126 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{126}_{49}$In

$T_{1/2}$ =1.530±.010s
$\langle E_\beta \rangle$ PER DECAY =2539.
$\langle E_\gamma \rangle$ PER DECAY =2593.

FISSION YIELDS

^{235}U THERMAL	3.3435×10^{-4}
^{235}U FAST	7.3653×10^{-4}
^{238}U FAST	3.0608×10^{-4}
^{239}PU THERMAL	7.6957×10^{-4}

Q_β =8130.
BR_β =1.000

$^{126}_{50}$Sn

99932.y

$^{126}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-126 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74 REV-JUN75
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{126}_{50}$Sn

$T_{1/2}$ =99932.y
$\langle E_\beta \rangle$ PER DECAY =70.00
$\langle E_\gamma \rangle$ PER DECAY =49.80

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.8950
WESTCOTT G FACTOR	1.1619
σ CAPTURE 2200M/S	3.0000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$8.9260\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.8510×10^{-1}

FISSION YIELDS

^{235}U THERMAL	1.6598×10^{-4}
^{235}U FAST	5.0941×10^{-4}
^{238}U FAST	4.8655×10^{-5}
^{239}PU THERMAL	1.0765×10^{-3}

Q_β =50.00
BR_β =1.000

$^{126m}_{51}$Sb

19.00m

$^{126m}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-126M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{126m}_{51}Sb$

$T_{1/2}$ =19.00m
$\langle E_{\beta} \rangle$ PER DECAY =1004.
$\langle E_{\gamma} \rangle$ PER DECAY =995.2

FISSION YIELDS

^{235}U THERMAL	3.3518×10^{-6}
^{235}U FAST	6.2710×10^{-6}
^{238}U FAST	1.1499×10^{-7}
^{239}PU THERMAL	2.9396×10^{-5}

Q_{β} =3980.
BR_{β} =.8600

Q_{IT}=250.0
BR_{IT}=.1400

$^{126}_{52}$Te
STABLE OR LONG-LIVED

$^{126}_{51}$Sb
12.40d

$^{126}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-126 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{126}_{51}$Sb

$T_{1/2}$ =12.40d
$\langle E_\beta \rangle$ PER DECAY =358.0
$\langle E_\gamma \rangle$ PER DECAY =2670.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.0395\times10^{+1}$
WESTCOTT G FACTOR	1.1670
σ CAPTURE 2200M/S	5.8000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.6330\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.5680\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	8.4046×10^{-6}
^{235}U FAST	6.2710×10^{-6}
^{238}U FAST	1.1499×10^{-7}
^{239}PU THERMAL	2.9426×10^{-5}

Q_β =3670.
BR_β =1.000

$^{126}_{52}$Te

Stable or Long-lived

$^{126}_{52}$Te

$^{126}_{52}$Te	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	5.1471
WESTCOTT G FACTOR	1.1039
σ CAPTURE 2200M/S	1.0361
WESTCOTT G FACTOR	1.0052
RESONANCE INTEGRAL TOTAL	$1.1940\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.0390\times10^{+1}$
FISSION YIELDS	
^{235}U THERMAL	2.4913×10^{-8}
^{235}U FAST	3.5906×10^{-8}
^{239}PU THERMAL	3.9694×10^{-7}

126 - 52- 1

$^{126}_{53}$I

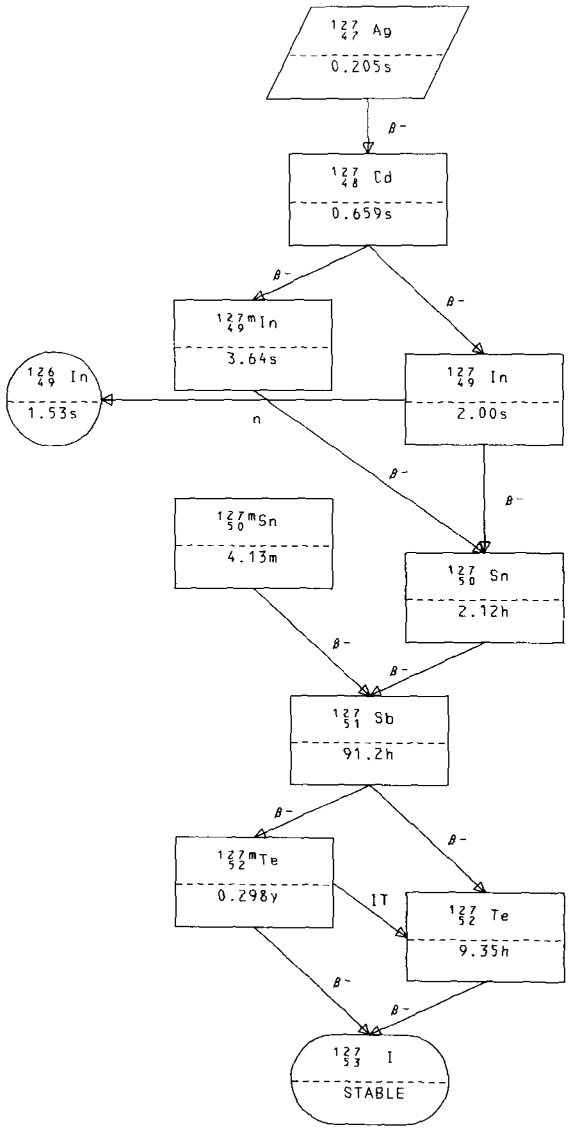
ENDF/B-IV FILE 1 COMMENTS
53-I-126 MISSING FROM ENDF/B IV
HALF LIFE R.L.AUBLE,NUCLEAR DATA 9,125(1973)

$^{126}_{53}$I	
$T_{1/2}$ =13.02±0.07d	
FISSION YIELDS	
^{235}U THERMAL	9.3050×10^{-9}

126 - 53- 1

$^{126}_{54}$Xe

$^{126}_{54}$Xe
STABLE OR LONG-LIVED



127 47 Ag
0.205s
β-
127 48 Cd
0.659s
β-
β-
127m 49 In
3.64s
126 49 In
1.53s
127 49 In
2.00s
n
β-
β-
127m 50 Sn
4.13m
127 50 Sn
2.12h
β-
β-
127 51 Sb
91.2h
β-
β-
127m 52 Te
0.298y
IT
127 52 Te
9.35h
β-
β-
127 53 I
STABLE

$^{127}_{47}$ Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-127 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{127}_{47}$ Ag

$T_{1/2}$ =.2052s
$\langle E_\beta \rangle$ PER DECAY =2831.
$\langle E_\gamma \rangle$ PER DECAY =3457.

Q_β =9120.
BR_β =1.000

$^{127}_{48}$ Cd

.6590s

127 - 47- 1

$^{127}_{48}$ Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-127 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{127}_{48}$ Cd

$T_{1/2}$ =.6590s
$\langle E_\beta \rangle$ PER DECAY =2097.
$\langle E_\gamma \rangle$ PER DECAY =2562.

FISSION YIELDS

^{235}U THERMAL	3.3668×10^{-5}
^{235}U FAST	9.2645×10^{-5}
^{238}U FAST	3.3545×10^{-4}
^{239}PU THERMAL	4.8303×10^{-5}

Q_β =6910.
BR_β =.5000

$^{127m}_{49}$In

3.640s

Q_β =7160.
BR_β =.5000

$^{127}_{49}$ In

2.0±.4s

$^{127m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-127M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{127m}_{49}In$

$T_{1/2}$ =3.640s
$\langle E_\beta \rangle$ PER DECAY =1957.
$\langle E_\gamma \rangle$ PER DECAY =2291.

FISSION YIELDS

^{235}U THERMAL	2.0938×10^{-4}
^{235}U FAST	5.1574×10^{-4}
^{238}U FAST	3.4953×10^{-4}
^{239}PU THERMAL	5.1846×10^{-4}

Q_β =6690.
BR_β =1.000

$^{127}_{50}Sn$

2.12±.03h

127m- 49- 1

$^{127}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-127 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{127}_{49}In$

$T_{1/2}$ =2.0±.4s
$\langle E_\beta \rangle$ PER DECAY =1873.
$\langle E_\gamma \rangle$ PER DECAY =2193.

FISSION YIELDS

^{235}U THERMAL	2.0859×10^{-4}
^{235}U FAST	5.1573×10^{-4}
^{238}U FAST	3.4934×10^{-4}
^{239}PU THERMAL	5.1845×10^{-4}

Q_N =796.1
BR_N =.00670

$^{126}_{49}In$

1.530±.010s

Q_β =6440.
BR_β =.9933

$^{127}_{50}Sn$

2.12±.03h

$^{127m}_{50}Sn$

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                 ENDF/B-IV FILE 1 COMMENTS
50-SN-127M ANC        EVAL-FEB74 C.W.REICH              DECAY DATA
                      DIST-NOV74
 FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                           ANCR-1157,ENDF210,8/74.
REFERENCE
          Q-SEE N.D.S. (1972)
          HALF-LIFE   G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
           PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.
```

$^{127m}_{50}Sn$

$T_{1/2}$ =4.13±.03m

$\langle E_\beta \rangle$ PER DECAY =1134.

$\langle E_\gamma \rangle$ PER DECAY =494.0

FISSION YIELDS

^{235}U THERMAL	4.1832×10^{-4}
^{235}U FAST	9.3083×10^{-4}
^{238}U FAST	1.2898×10^{-4}
^{239}PU THERMAL	1.6916×10^{-3}

Q_β =3200.±100.

BR_β =1.000

$^{127}_{51}$ Sb

91.2±0.5h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
494.0	1	100.0

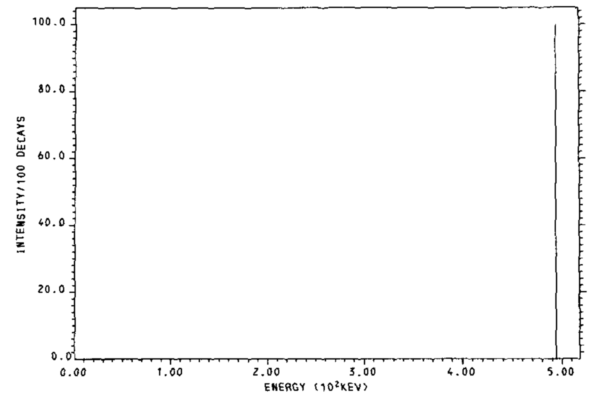
$\langle E_{PHOTON} \rangle$ PER DECAY = 494.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2700.0	1134.	100.0

$\langle E_e \rangle$ PER DECAY = 1134.
$\langle E_\nu \rangle$ PER DECAY = 1566.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	494.0	100.0
β^-	2700.	100.0

$^{127}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-127 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 9/73 RES(GULF)
REFERENCE NUCLEAR DATA B8, NO. 2 (1972)
Q VALUE IS FROM GARVEY ET AL., R. M. P. 41, NO. 4, PART II.
THE ABSOLUTE INTENSITIES HAVE LARGE UNCERTAINTIES.
UNCERTAINTY OF 20% IN PHOTON NORMALIZATION FACTOR IS FROM
UNCERTAINTIES IN ABSOLUTE INTENSITIES. (SEE REF.) PHOTON
INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF RELATIVE
PHOTON INTENSITIES.

$^{127}_{50}$Sn

$T_{1/2}$ =2.12±.03h
$\langle E_\beta \rangle$ PER DECAY =674.6
$\langle E_\gamma \rangle$ PER DECAY =1434.

FISSION YIELDS

^{235}U THERMAL	3.8172×10^{-4}
^{235}U FAST	9.3084×10^{-4}
^{238}U FAST	1.2905×10^{-4}
^{239}PU THERMAL	1.6916×10^{-3}

Q_β =3090.
BR_β =1.000

$^{127}_{51}$Sb

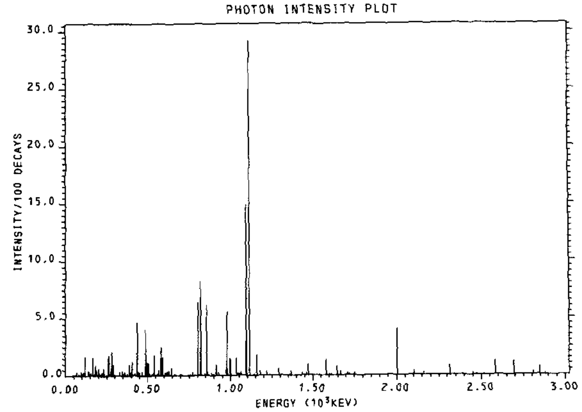
91.2±0.5h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
77.2	±	2.0	10	1.11	±	.14
154.	±	3.	16	6.7	±	.6
259.6	±	1.7	21	10.4	±	0.8
366.5	±	2.3	12	3.1	±	.3
461.	±	3.	12	14.5	±	1.5
551.	±	3.	14	10.0	±	0.9
634.2	±	1.5	7	2.13	±	.22
746.	±	4.	4	.70	±	.10
829.4	±	2.1	8	26.	±	3.
974.0	±	1.8	7	9.5	±	1.6
1084.	±	3.	7	21.	±	4.
1118.8	±	1.2	6	32.	±	7.
1220.5	±	0.4	1	.41	±	.09
1237.4	±	0.4	1	.09	±	.03
1292.1	±	0.4	1	.58	±	.13
1310.5	±	0.4	1	.06	±	.03
1360.3	±	0.4	1	.12	±	.04
1368.4	±	0.4	1	.41	±	.09
1466.2	±	1.4	4	2.0	±	.3
1542.7	±	0.4	1	.06	±	.03
1551.3	±	0.4	1	.03	±	.03
1584.3	±	0.4	1	1.4	±	.3
1645.8	±	2.0	4	1.40	±	.20
1733.	±	3.	4	.70	±	.12
1812.8	±	0.5	1	.09	±	.03
1937.3	±	0.5	1	.06	±	.03
2003.4	±	0.5	1	4.1	±	.9
2093.3	±	0.5	1	.06	±	.03
2125.	±	4.	4	.66	±	.11
2304.2	±	0.5	1	.09	±	.03
2317.4	±	0.5	1	.85	±	.19
2389.5	±	0.5	1	.09	±	.03
2447.5	±	0.5	1	.26	±	.06
2470.0	±	0.5	1	.09	±	.03
2513.9	±	0.5	1	.09	±	.03
2584.9	±	0.5	1	1.2	±	.3
2695.9	±	0.5	1	1.3	±	.3
2805.7	±	0.5	1	.29	±	.07
2846.4	±	0.5	1	.73	±	.16
2881.1	±	0.5	1	.20	±	.05

$\langle E_{PHOTON} \rangle$ *PER DECAY* = 1434. ± 300.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	3090.			40.00		
γ	1114.3	±	0.4	29.	±	7.
γ	1095.6	±	0.4	15.	±	4.
β-	500.0			8.700		
γ	823.1	±	0.4	8.2	±	2.3
γ	805.9	±	0.4	6.3	±	1.4
γ	859.5	±	0.4	6.1	±	1.4
γ	979.2	±	0.4	5.5	±	1.6
β-	590.0			4.900		
γ	824.7	±	0.4	4.7	±	1.3
γ	438.2	±	0.4	4.7	±	1.0
β-	730.0			4.200		
γ	2003.4	±	0.5	4.1	±	.9
γ	490.9	±	0.4	4.1	±	.9
β-	1000.			3.500		
β-	450.0			3.500		
β-	560.0			3.200		
γ	1093.3	±	0.7	2.9	±	.8
β-	630.0			2.900		
γ	583.3	±	0.4	2.5	±	.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	210.0	58.52	.2900
β^-	220.0	61.58	.8700
β^-	240.0	67.78	.9700
β^-	250.0	70.91	.3000
β^-	280.0	80.44	1.100
β^-	300.0	86.89	.6000
β^-	330.0	96.73	2.200
β^-	390.0	116.9	1.500
β^-	430.0	130.8	.7700
β^-	450.0	137.8	3.500
β^-	460.0	141.4	.7900
β^-	500.0	155.7	8.700
β^-	510.0	159.3	1.200
β^-	540.0	170.3	.6200
β^-	560.0	177.7	3.200
β^-	580.0	185.1	.09000
β^-	590.0	188.9	4.900
β^-	610.0	196.4	.4000
β^-	620.0	200.2	.09000
β^-	630.0	204.0	2.900
β^-	640.0	207.8	1.400
β^-	680.0	223.2	1.200
β^-	720.0	238.8	.3000
β^-	730.0	242.7	4.200
β^-	740.0	246.6	.7000
β^-	770.0	258.5	.2000
β^-	790.0	266.5	.1800
β^-	820.0	278.5	2.100
β^-	830.0	282.6	.1500
β^-	870.0	298.8	.5800
β^-	890.0	307.0	.06000
β^-	930.0	323.5	.2600
β^-	940.0	327.6	1.500
β^-	950.0	331.8	.1500
β^-	970.0	340.1	.1000
β^-	980.0	344.3	.1000
β^-	990.0	348.5	.2000
β^-	1000.0	352.7	3.500
β^-	1090.0	390.8	1.600
β^-	1150.0	416.6	1.200
β^-	1170.0	425.2	2.000
β^-	1380.0	517.5	.3000
β^-	1510.0	575.8	.8000
β^-	1980.0	792.1	2.000
β^-	1990.0	796.7	.5000
β^-	3090.0	1323.	40.00

$\langle E_e \rangle$ PER DECAY = 674.5
$\langle E_\nu \rangle$ PER DECAY = 988.7

$^{127}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-127 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{127}_{51}$Sb

$T_{1/2}$ =91.2±0.5h
$\langle E_\beta \rangle$ PER DECAY =318.1
$\langle E_\gamma \rangle$ PER DECAY =644.3

FISSION YIELDS

^{235}U THERMAL	5.1228×10^{-5}
^{235}U FAST	1.3119×10^{-4}
^{238}U FAST	3.8396×10^{-6}
^{239}PU THERMAL	4.4487×10^{-4}

Q_β =1492.±5.
BR_β =.1600

$^{127m}_{52}$Te
.2984y

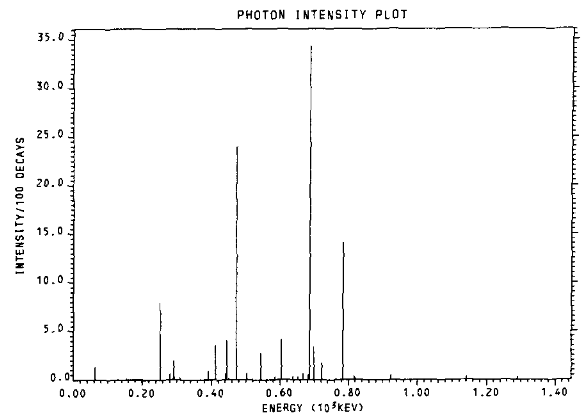
Q_β =1581.±5.
BR_β =.8400

$^{127}_{52}$Te
9.35±.07h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
61.00	1	1.340
154.3	1	.1400
262.1	4	10.78
310.0	1	.2400
391.8	1	.8900
462.1	5	32.48
502.8	1	.7100
543.3	1	2.760
584.2	1	.3100
677.9	7	43.83
776.6	4	16.06
817.0	1	.3800
820.6	1	.2000
924.4	1	.4900
1142.	1	.3400
1290.	1	.3400
1378.	1	.07000

$\langle E_{PHOTON} \rangle$ PER DECAY = 644.3



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	203.0	56.39	.06000
β^-	258.0	73.43	.2000
β^-	291.0	83.98	.7000
β^-	426.0	129.4	.9000
β^-	440.0	134.3	1.500
β^-	504.0	157.1	5.000
β^-	657.0	214.3	1.300
β^-	795.0	268.5	7.600
β^-	797.0	269.3	16.70
β^-	817.0	277.3	.06000
β^-	895.0	309.1	33.50
β^-	950.0	331.8	4.500
β^-	1078.0	385.7	.3000
β^-	1108.0	398.5	21.70
β^-	1240.0	455.7	2.000
β^-	1492.0	567.6	4.000

$\langle E_e \rangle$ PER DECAY = 318.1
$\langle E_\nu \rangle$ PER DECAY = 593.5

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	685.7	34.36
β^-	895.0	33.50
γ	473.0	24.03
β^-	1108.	21.70
β^-	797.0	16.70
γ	783.7	14.11
γ	252.4	7.920
β^-	795.0	7.600

$^{127m}_{52}Te$

ENDF/B-IV FILE 1 COMMENTS
52-TE-127M HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{127m}_{52}Te$

$T_{1/2}$ =.2984y
$\langle E_\beta \rangle$ PER DECAY =4.979
$\langle E_\gamma \rangle$ PER DECAY =91.86

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.4020 \times 10^{+1}$
WESTCOTT G FACTOR	1.1529
σ CAPTURE 2200M/S	9.4000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.7250 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.2480 \times 10^{+1}$

FISSION YIELDS

^{235}U THERMAL	6.0133×10^{-7}
^{235}U FAST	5.9310×10^{-7}
^{238}U FAST	1.9098×10^{-9}
^{239}PU THERMAL	4.0194×10^{-6}

Q_β =778.7
BR_β =.02400

Q_{IT}=88.70
BR_{IT}=.9760

$^{127}_{53}I$
STABLE OR LONG-LIVED

$^{127}_{52}Te$
9.35±.07h

$^{127}_{52}$Te

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                    ENDF/B-IV FILE 1 COMMENTS
52-TE-127  ANC         EVAL-FEB74 C.W.REICH              DECAY DATA
                       DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
    PREPARED FOR FILE  9/73                        RES(GULF)
    REFERENCE  NUCLEAR DATA B8, NO. 2 (1972)
    Q VALUE IS FROM 1973 REVISION OF THE WAPSTRA-GOVE MASS TABLES
     PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF RELATI
     INTENSITIES.
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$^{127}_{52}$Te

$T_{1/2}$ =9.35±.07h
$\langle E_\beta \rangle$ PER DECAY =227.3
$\langle E_\gamma \rangle$ PER DECAY =5.170

FISSION YIELDS

^{235}U THERMAL	2.0311×10^{-7}
^{235}U FAST	5.9310×10^{-7}
^{238}U FAST	1.9098×10^{-9}
^{239}PU THERMAL	4.0194×10^{-6}

Q_β =693.±5.
BR_β =1.000

$^{127}_{53}$I

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100		DECAYS
57.63	±	0.08	1	.56	±	.05
145.20	±	0.10	1	.0033	±	.0003
172.1	±	0.5	1	.00030	±	.00020
202.90	±	0.10	1	.0582	±	.0021
215.10	±	0.10	1	.0388	±	.0017
360.30	±	0.10	1	.1350	±	.0010
375.0	±	0.4	1	.00030	±	.00020
417.90	±	0.10	1	.9930		
618.6	±	0.3	1	.00013	±	.00002

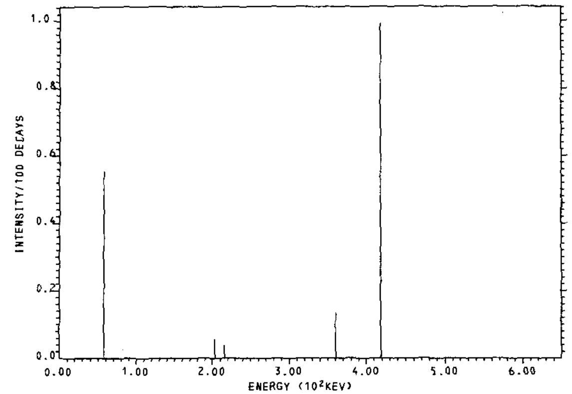
$\langle E_{PHOTON} \rangle$ PER DECAY = 5.17 ± .03

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	74.0	19.28	.00010
β-	275.0	78.83	1.170
β-	318.0	92.78	.00060
β-	490.0	152.1	.07000
β-	695.0	229.0	98.80

$\langle E_\beta \rangle$ PER DECAY = 227.3
$\langle E_\nu \rangle$ PER DECAY = 462.9

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	695.0	98.80

$^{127}_{53}I$

$^{127}_{53}I$

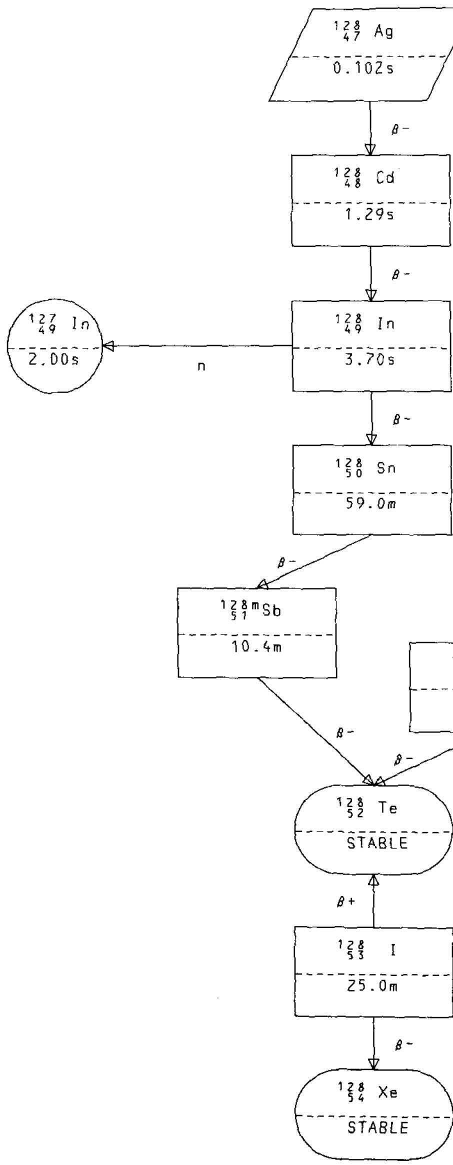
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	9.4050
WESTCOTT G FACTOR	1.0443
σ CAPTURE 2200M/S	6.2018
WESTCOTT G FACTOR	1.0009
RESONANCE INTEGRAL TOTAL	$2.9210 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.5520 \times 10^{+2}$

FISSION YIELDS

^{239}PU THERMAL 3.6395×10^{-9}



$^{128}_{47}$Ag
0.102s
β-
$^{128}_{48}$Cd
1.29s
β-
$^{127}_{49}$In
2.00s
n
$^{128}_{49}$In
3.70s
β-
$^{128}_{50}$Sn
59.0m
β-
$^{128m}_{51}$Sb
10.4m
$^{128}_{51}$Sb
9.00h
β-
β-
$^{128}_{52}$Te
STABLE
β+
$^{128}_{53}$I
25.0m
β-
$^{128}_{54}$Xe
STABLE

$^{128}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-128 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{128}_{47}$Ag

$T_{1/2}$ =.1024s
$\langle E_\beta \rangle$ PER DECAY =3627.
$\langle E_\gamma \rangle$ PER DECAY =4267.

FISSION YIELDS

^{235}U THERMAL	1.1907×10^{-8}
^{235}U FAST	2.7204×10^{-8}
^{238}U FAST	2.2998×10^{-6}
^{239}PU THERMAL	5.0893×10^{-9}

Q_β =11520.
BR_β =1.000

$^{128}_{48}$Cd

1.290s

$^{128}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-128 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{128}_{48}$Cd

$T_{1/2}$ =1.290s
$\langle E_\beta \rangle$ PER DECAY =1558.
$\langle E_\gamma \rangle$ PER DECAY =2138.

FISSION YIELDS

^{235}U THERMAL	1.5909×10^{-5}
^{235}U FAST	3.3255×10^{-5}
^{238}U FAST	4.2219×10^{-4}
^{239}PU THERMAL	1.2098×10^{-5}

Q_β =5540.
BR_β =1.000

$^{128}_{49}$In

3.7±.5s

$^{128}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-128 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{128}_{49}$In

$T_{1/2}$ =3.7±.5s
$\langle E_\beta \rangle$ PER DECAY =2804.
$\langle E_\gamma \rangle$ PER DECAY =3065.

FISSION YIELDS

^{235}U THERMAL	5.5125×10^{-4}
^{235}U FAST	1.0558×10^{-3}
^{238}U FAST	2.3595×10^{-3}
^{239}PU THERMAL	7.1709×10^{-4}

Q_N =1196.
BR_N =.01200

Q_β =9070.
BR_β =.9880

$^{127}_{49}$In

2.0±.4s

$^{128}_{50}$Sn

59.00±0.10m

$^{128}_{50}$Sn

```
              ENDF/B-IV FILE 1 COMMENTS
50-SN-128  ANC      EVAL-FEB74 C.W.REICH            DECAY DATA
                    DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
   PREPARED FOR FILE  9/73                     RES(GULF)
   REFERENCE  NUCLEAR DATA B9, NO. 2 (1973)
   Q VALUE IS FROM 1973 REVISION OF WAPSTRA-GOVE MASS TABLES.
     BETA-RAY ENERGIES WERE COMPUTED WITH THE ASSUMPTION THAT THE
     482-KEV GAMMA RAY IS IN COINCIDENCE WITH A 800-KEV BETA RAY.
     THE BETA-RAY INTENSITIES WERE DETERMINED FROM THE RELATIVE
     GAMMA-RAY INTENSITIES GIVEN IN DECAY SCHEME AND THE GAMMA-
     RAY NORMALIZATION FACTOR.
     THE BETA-RAY INTENSITIES TOTAL ONLY 84.7%.
    SOME OF GAMMA RAYS MAY BE FROM SB-128, ACCORDING TO REF.
     GAMMA-RAY INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
     RELATIVE INTENSITIES.
```

$^{128}_{50}$Sn

$T_{1/2}$ =59.00±0.10m

$\langle E_\beta \rangle$ PER DECAY =217.2

$\langle E_\gamma \rangle$ PER DECAY =596.5

FISSION YIELDS

^{235}U THERMAL	2.7576×10^{-3}
^{235}U FAST	4.8778×10^{-3}
^{238}U FAST	2.2269×10^{-3}
^{239}PU THERMAL	5.7997×10^{-3}

Q_β =1300.±150.

BR_β =1.000

$^{128m}_{51}$Sb

10.40±0.20m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
65.3	±	1.7	4	43.	±	6.
152.5	±	0.4	1	7.4	±	.8
230.5	±	0.4	1	.60	±	.12
404.4	±	0.4	1	7.2	±	.7
435.7	±	0.4	1	4.2	±	.5
482.0	±	0.4	1	66.	±	7.
557.3	±	0.4	1	18.0	±	2.4
680.4	±	0.4	1	13.2	±	1.3

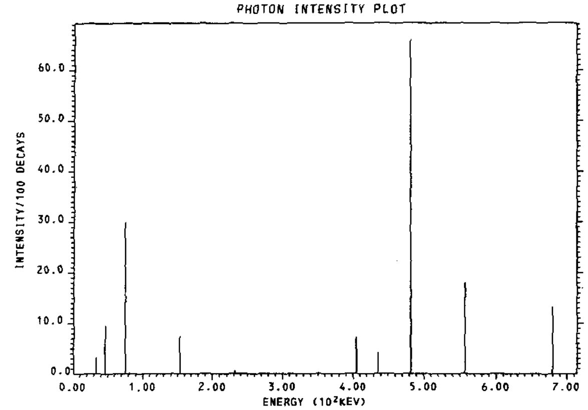
$\langle E_{PHOTON} \rangle$ PER DECAY = 597. ± 40.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	697.0	229.8	9.600
β^-	743.0	247.8	38.40
β^-	818.0	277.7	36.00

$\langle E_e \rangle$ PER DECAY = 217.2
$\langle E_\nu \rangle$ PER DECAY = 429.5

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	482.0	±	0.4	66.	±	7.
β^-	743.0			38.40		
β^-	818.0			36.00		
γ	75.0	±	0.3	30.	±	6.
γ	557.3	±	0.4	18.0	±	2.4

$^{128m}_{51}Sb$

```
                    ENDF/B-IV FILE 1 COMMENTS
51-SB-128M ANC         EVAL-FEB74 C.W.REICH              DECAY DATA
                       DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                            ANCR-1157,ENDF210,8/74.
   PREPARED FOR FILE  9/73                         RES(GULF)
   REFERENCE  NUCLEAR DATA B9, NO. 2, 1973.
     UNCERTAINTIES ON Q VALUE ARE FROM THE WAPSTRA-GOVE MASS
     COMPILATION.
   BETA RAY INTENSITIES GIVEN IN DECAY SCHEME SUM TO 104.3%.
     GAMMA-RAY INTENSITY UNCERTAINTIES ARE FROM LIST OF REALTIVE
     INTENSITIES.
     IN ADDITION TO GAMMA-RAY TRANSITION GIVEN, THERE IS POSSIBLY
     AN ISOMERIC TRANSITION TO THE GROUND STATE OF SB-128 WITH
     AN INTENSITY OF 0.05%.
```

$^{128m}_{51}Sb$

$T_{1/2}$ =10.40±0.20m

$\langle E_{\beta} \rangle$ PER DECAY =947.3

$\langle E_{\gamma} \rangle$ PER DECAY =1986.

FISSION YIELDS

^{235}U THERMAL	6.5916×10^{-5}
^{235}U FAST	4.5822×10^{-4}
^{238}U FAST	3.9346×10^{-5}
^{239}PU THERMAL	9.4159×10^{-4}

Q_{β} =4261.±100.

BR_{β} =1.000

$^{128}_{52}Te$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
193.5	±	0.7	1	1.0	±	.5
314.0	±	0.5	1	95.0	±	2.0
594.10	±	0.10	1	3.4	±	.5
743.24	±	0.04	1	100.0		
753.90	±	0.04	1	100.00	±	0.20
787.60	±	0.07	1	7.4	±	1.0
844.0	±	0.3	1	2.3	±	.4
908.30	±	0.20	1	2.4	±	.3
1040.9	±	0.3	1	1.00	±	.20
1098.4	±	0.8	1	.30	±	.20
1101.8	±	0.8	1	.40	±	.20
1141.7	±	0.3	1	.80	±	.20
1158.0	±	0.3	1	1.80	±	.20
1354.6	±	0.5	1	.60	±	.20
1585.2	±	1.0	1	.30	±	.20
1608.5	±	1.0	1	.50	±	.20

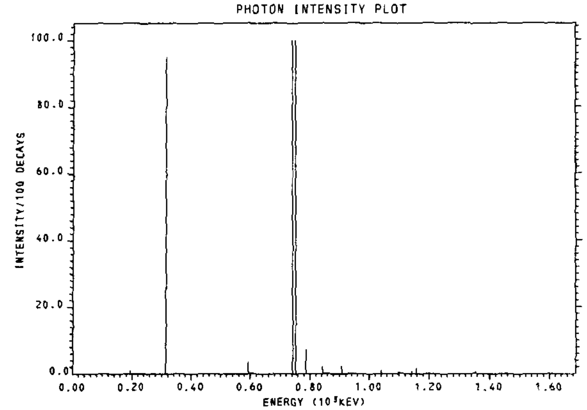
$\langle E_{PHOTON} \rangle$ PER DECAY = 1986. ± 14.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	1410.0	530.8	1.534
$\beta-$	1600.0	616.6	3.932
$\beta-$	1660.0	643.9	8.439
$\beta-$	1850.0	731.5	4.603
$\beta-$	2450.0	1014.	81.52

$\langle E_e \rangle$ PER DECAY = 947.3
$\langle E_\nu \rangle$ PER DECAY = 1360.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	753.90	±	0.04	100.00	±	0.20
γ	743.24	±	0.04	100.0		
γ	314.0	±	0.5	95.0	±	2.0
$\beta-$	2450.			81.52		

$^{128}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS

```
51-SB-128  ANC       EVAL-FEB74 C.W.REICH              DECAY DATA
                     DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
   PREPARED FOR FILE  9/73                        RES(GULF)
   REFERENCE  NUCLEAR DATA B9, NO 2, 1973.
     UNCERTAINTIES ON Q VALUE ARE FROM THE WAPSTRA-GOVE MASS
     COMPILATION.
     BETA-RAY INTENSITIES (FROM DECAY SCHEME IN NUCLEAR DATA)
     SUM TO ONLY 93.72%.
     GAMMA-RAY INTENSITY UNCERTAINTIES ARE FROM LIST OF RELATIVE
     INTENSITIES.
```

$^{128}_{51}$Sb

$T_{1/2}$ =9.00±.10h

$\langle E_\beta \rangle$ PER DECAY =418.5

$\langle E_\gamma \rangle$ PER DECAY =3096.

FISSION YIELDS

^{235}U THERMAL	1.1045x10^{-4}
^{235}U FAST	4.5845x10^{-4}
^{238}U FAST	3.9356x10^{-5}
^{239}PU THERMAL	9.4274x10^{-4}

Q_β =4298.±100.

BR_β =1.000

$^{128}_{52}$Te

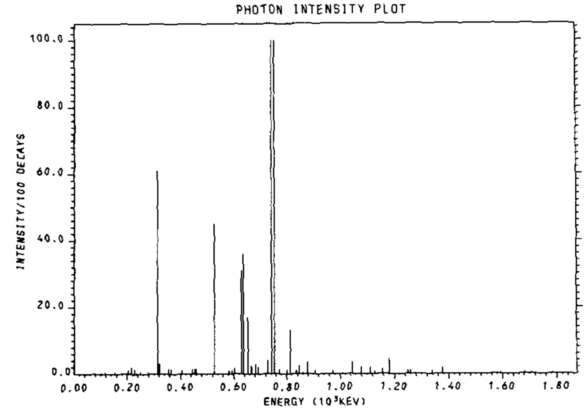
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
102.8	±	0.3	1	.40	±	.08
118.4	±	0.3	1	.60	±	.12
152.6	±	0.3	1	.50	±	.10
227.2	±	1.6	6	5.9	±	.6
316.6	±	0.3	5	70.	±	3.
444.3	±	1.8	4	5.5	±	.6
526.50	±	0.10	1	45.0	±	2.3
582.9	±	0.3	1	1.00	±	.20
594.3	±	0.3	1	1.00	±	.20
640.0	±	0.4	7	93.	±	3.
748.42	±	0.20	4	206.	±	7.
828.9	±	1.3	6	21.8	±	1.4
908.8	±	0.4	1	1.00	±	.20
972.3	±	0.4	1	1.00	±	.20
1047.5	±	0.4	1	3.5	±	.4
1078.6	±	0.4	1	2.0	±	.4
1157.2	±	2.4	4	8.8	±	.7
1250.5	±	0.4	1	1.00	±	.20
1259.5	±	0.4	1	1.00	±	.20
1339.8	±	0.4	1	1.00	±	.20
1378.4	±	0.4	1	1.8	±	.4
1593.2	±	0.5	1	.50	±	.10
1685.7	±	0.5	1	.50	±	.10
1707.9	±	0.5	1	.30	±	.06
1785.5	±	0.5	1	.40	±	.08

$\langle E_{PHOTON} \rangle$ PER DECAY = 3096. ± 60.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	566.0	179.9	6.900
β-	700.0	230.9	4.300
β-	710.0	234.8	2.000
β-	780.0	262.5	4.200
β-	810.0	274.5	5.500
β-	870.0	298.8	4.000
β-	880.0	302.9	15.60
β-	1120.0	403.7	4.000
β-	1150.0	416.6	13.00
β-	1160.0	420.9	1.200
β-	1440.0	544.3	3.500
β-	1540.0	589.3	7.000
β-	1610.0	621.1	3.500
β-	1960.0	782.7	19.00

$\langle E_e \rangle$ PER DECAY = 418.5
$\langle E_\nu \rangle$ PER DECAY = 709.4

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	754.00	±	0.10	100.	±	5.
γ	743.30	±	0.10	100.	±	5.
γ	314.10	±	0.10	61.	±	3.
γ	526.50	±	0.10	45.0	±	2.3
γ	636.20	±	0.10	36.0	±	1.8
γ	628.70	±	0.10	31.0	±	1.6
β-	1960.			19.00		
γ	654.20	±	0.20	17.0	±	0.9
β-	880.0			15.60		
γ	813.60	±	0.20	13.2	±	1.3

$^{128}_{52}$ Te

$^{128}_{52}$ Te	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	4.7584
WESTCOTT G FACTOR	1.1239
σ CAPTURE 2200M/S	2.1499×10^{-1}
WESTCOTT G FACTOR	1.0237
RESONANCE INTEGRAL TOTAL	$9.5390 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	2.4150
FISSION YIELDS	
^{235}U THERMAL	1.7810×10^{-6}
^{235}U FAST	2.4664×10^{-5}
^{238}U FAST	3.2997×10^{-7}
^{239}PU THERMAL	9.3777×10^{-5}

128 - 52- 1

$^{128}_{53}$ I

ENDF/B-IV FILE 1 COMMENTS

53- I-128 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{128}_{53}$ I	
$T_{1/2}$ =25.00m	
$\langle E_\beta \rangle$ PER DECAY =748.0	
$\langle E_\gamma \rangle$ PER DECAY =155.0	
FISSION YIELDS	
^{235}U THERMAL	1.3207×10^{-7}
^{235}U FAST	1.5302×10^{-8}
^{239}PU THERMAL	1.1198×10^{-6}

Q_β =2070.
BR_β =.9370

$Q_{\beta+}$=1270.
$BR_{\beta+}$=.06300

$^{128}_{54}$ Xe
STABLE OR LONG-LIVED

$^{128}_{52}$ Te
STABLE OR LONG-LIVED

$^{128}_{54}$Xe

$^{128}_{54}$Xe

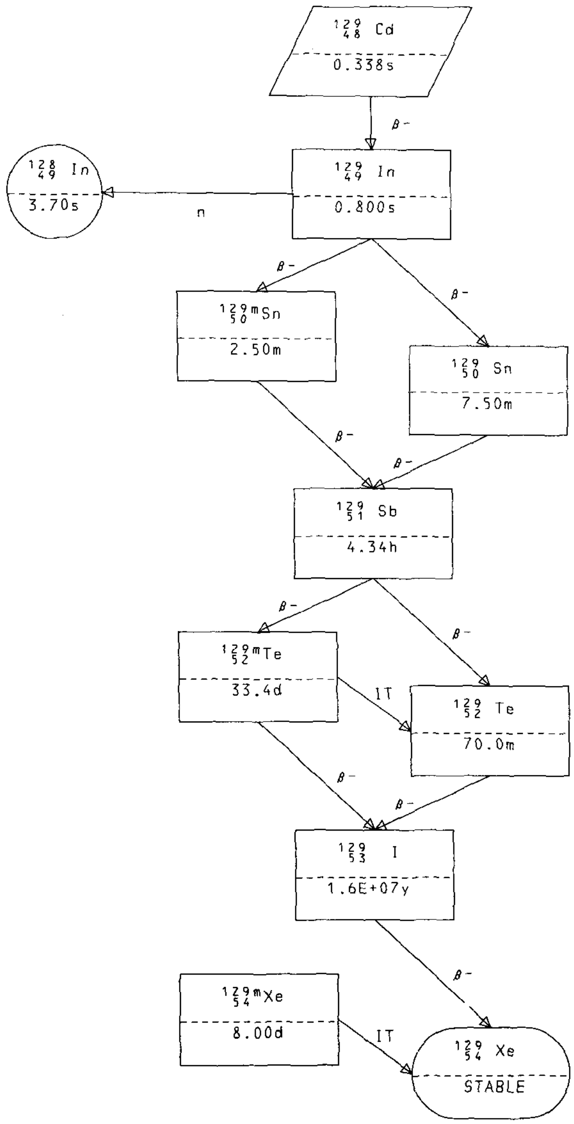
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	7.8022
WESTCOTT G FACTOR	3.5011
σ CAPTURE 2200M/S	3.5022
WESTCOTT G FACTOR	1.0035
RESONANCE INTEGRAL TOTAL	$1.7550 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1390 \times 10^{+1}$
RESONANCE INTEGRAL (N,2N)	8.7420×10^{-1}
RESONANCE INTEGRAL (N,P)	1.0420×10^{-3}
RESONANCE INTEGRAL (N,α)	2.4610×10^{-4}

FISSION YIELDS

^{235}U THERMAL	1.1206×10^{-8}
^{239}PU THERMAL	9.9186×10^{-8}


129 48 Cd
0.338s
β-
129 49 In
0.800s
n
128 49 In
3.70s
β-
129m 50 Sn
2.50m
β-
129 50 Sn
7.50m
β-
β-
129 51 Sb
4.34h
β-
129m 52 Te
33.4d
IT
β-
129 52 Te
70.0m
β-
β-
129 53 I
1.6E+07y
β-
129m 54 Xe
8.00d
IT
129 54 Xe
STABLE

$^{129}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-129 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{129}_{48}$Cd

$T_{1/2}$ =.3377s
$\langle E_\beta \rangle$ PER DECAY =2343.
$\langle E_\gamma \rangle$ PER DECAY =3084.

FISSION YIELDS

^{235}U THERMAL	2.9682×10^{-6}
^{235}U FAST	3.7037×10^{-6}
^{238}U FAST	1.4033×10^{-4}
^{239}PU THERMAL	2.6274×10^{-6}

Q_β =7940.
BR_β =1.000

$^{129}_{49}$In

.8±.3s

129 - 48- 1

$^{129}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-129 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{129}_{49}$In

$T_{1/2}$ =.8±.3s
$\langle E_\beta \rangle$ PER DECAY =2067.
$\langle E_\gamma \rangle$ PER DECAY =2552.

FISSION YIELDS

^{235}U THERMAL	3.7901×10^{-4}
^{235}U FAST	4.9696×10^{-4}
^{238}U FAST	2.7130×10^{-3}
^{239}PU THERMAL	4.8649×10^{-4}

Q_N =2135.	Q_β =7060.	Q_β =7310.
BR_N =.03500	BR_β =.5000	BR_β =.4650
$^{128}_{49}$In	$^{129m}_{50}$Sn	$^{129}_{50}$Sn
3.7±.5s	2.50±.10m	7.50±.20m

$^{129m}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-129M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{129m}_{50}Sn$

$T_{1/2}$ =2.50±.10m
$\langle E_{\beta}\rangle$ PER DECAY =1216.
$\langle E_{\gamma}\rangle$ PER DECAY =1471.

FISSION YIELDS

^{235}U THERMAL	3.3082×10^{-3}
^{235}U FAST	3.1974×10^{-3}
^{238}U FAST	3.6955×10^{-3}
^{239}PU THERMAL	4.1874×10^{-3}

Q_{β} =4270.
BR_{β} =1.000

$^{129}_{51}Sb$

4.34±.03h

129m- 50- 1

$^{129}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-129 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{129}_{50}Sn$

$T_{1/2}$ =7.50±.20m
$\langle E_{\beta}\rangle$ PER DECAY =1145.
$\langle E_{\gamma}\rangle$ PER DECAY =1385.

FISSION YIELDS

^{235}U THERMAL	1.8491×10^{-3}
^{235}U FAST	3.1974×10^{-3}
^{238}U FAST	3.6954×10^{-3}
^{239}PU THERMAL	4.1873×10^{-3}

Q_{β} =4020.
BR_{β} =1.000

$^{129}_{51}Sb$

4.34±.03h

$^{129}_{51}$ Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-129 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{129}_{51}$ Sb

$T_{1/2}$ =4.34±.03h
$\langle E_\beta \rangle$ PER DECAY =359.1
$\langle E_\gamma \rangle$ PER DECAY =1301.

FISSION YIELDS

^{235}U THERMAL	8.1514×10^{-4}
^{235}U FAST	3.2464×10^{-3}
^{238}U FAST	8.0920×10^{-4}
^{239}PU THERMAL	5.5605×10^{-3}

Q_β =2271.±21.
BR_β =.2400

Q_β =2376.±21.
BR_β =.7600

$^{129m}_{52}$Te

33.40±0.20d

$^{129}_{52}$ Te

70.0±1.0m

PHOTON RADIATION TABLE

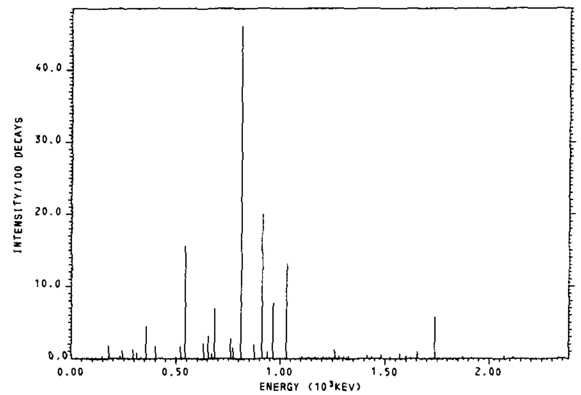
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
94.90	1	.2543
170.7	7	2.464
267.5	6	2.857
313.5	1	.9015
332.3	1	.2311
358.8	1	4.484
404.8	1	1.757
434.9	1	.09246
499.6	1	.2311
523.3	1	1.711
543.8	1	15.63
667.2	4	12.99
760.8	1	2.774
773.1	1	1.526
812.6	1	46.23
876.0	1	1.988
930.0	6	28.94
1030.	1	13.18
1067.	1	.05548
1134.	8	.9939
1252.	5	2.312
1303.	1	.2311
1318.	1	.2311
1327.	1	.3698
1451.	4	1.294
1569.	5	1.539
1622.	1	.1387
1656.	1	.9246
1691.	1	.06934
1738.	1	5.825
1752.	1	.04623
1780.	1	.01849
1842.	1	.2311
1872.	1	.2589
1929.	4	.3745
2071.	5	.4993
2115.	1	.2311

$\langle E_{PHOTON} \rangle$ PER DECAY = 1301.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	64.0	16.59	.01000
β^-	67.0	17.39	.01000
β^-	108.0	28.65	.02000
β^-	131.0	35.16	.06000
β^-	194.0	53.67	.03000
β^-	216.0	60.36	1.000
β^-	258.0	73.43	1.200

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	812.6	46.23
β^-	603.0	22.50
γ	914.7	20.02
β^-	487.0	18.80
γ	543.8	15.63
γ	1030.	13.18
β^-	1517.	13.00
γ	966.6	7.767
γ	683.5	6.934
γ	1738.	5.825
β^-	1786.	4.800
β^-	1570.	4.500
γ	358.8	4.484
β^-	578.0	3.800
β^-	1363.	3.700

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	288.0	83.01	.03000
β^-	411.0	124.2	.03000
β^-	458.0	140.7	.8000
β^-	487.0	151.0	18.80
β^-	549.0	173.6	.2500
β^-	578.0	184.4	3.800

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	603.0	193.8	22.50
β^-	674.0	220.9	.9000
β^-	698.0	230.2	1.800
β^-	730.0	242.7	.4000
β^-	849.0	290.3	.8000
β^-	915.0	317.3	.5000
β^-	1013.0	358.2	1.800
β^-	1028.0	364.5	.9000
β^-	1050.0	373.8	3.000
β^-	1103.0	396.4	3.500
β^-	1363.0	509.9	3.700
β^-	1381.0	517.9	.4000
β^-	1454.0	550.5	1.500
β^-	1517.0	578.9	13.00
β^-	1570.0	602.9	4.500
β^-	1696.0	660.4	1.000
β^-	1786.0	701.9	4.800
β^-	1866.0	738.9	3.200
β^-	2085.0	841.3	1.000
β^-	2224.0	906.9	3.000

$\langle E_e \rangle$ PER DECAY = 359.1
$\langle E_\nu \rangle$ PER DECAY = 626.9

$^{129m}_{52}Te$

ENDF/B-IV FILE 1 COMMENTS

```
52-TE-129M ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                                DIST-NOV74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
           Q-1973 WAPSTRA-GOVE MASSTABLE
```

$^{129m}_{52}Te$

$T_{1/2}$ =33 40±0.20d

$\langle E_\beta \rangle$ PER DECAY =214.0

$\langle E_\gamma \rangle$ PER DECAY =29.80

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.7680
WESTCOTT G FACTOR	1.1801
σ CAPTURE 2200M/S	1.1000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.2610\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	6.0490

FISSION YIELDS

^{235}U THERMAL	1.1191×10^{-4}
^{235}U FAST	1.3180×10^{-4}
^{238}U FAST	4.9045×10^{-5}
^{239}PU THERMAL	3.0393×10^{-4}

Q_β =1608.±6.
BR_β =.3660

Q_{IT}=105.5
BR_{IT}=.6340

$^{129}_{53}$I
$1.589\times10^{+7}$y

$^{129}_{52}$Te
70.0±1.0m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
105.5	1	.3004
556.7	1	.1113
672.0	1	.02418
696.0	1	3.100
729.4	5	.7914
817.2	1	.09207
844.9	1	.03534
1023.	1	.01984
1050.	1	.01798
1374.	1	.00093
1402.	1	.00434

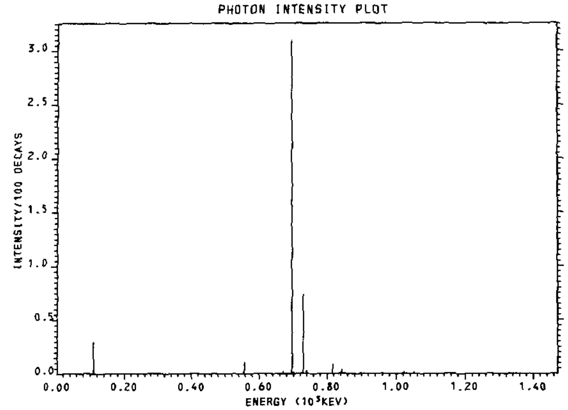
$\langle E_{PHOTON} \rangle$ PER DECAY = 29.96

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	206.0	57.30	.1500
β-	558.0	176.9	.04000
β-	763.0	255.7	.02000
β-	839.0	286.2	.03000
β-	878.0	302.1	.7400
β-	912.0	316.1	3.100
β-	1608.0	620.2	32.52

$\langle E_e \rangle$ PER DECAY = 214.0
$\langle E_\nu \rangle$ PER DECAY = 344.6

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1608.	32.52

$^{129}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-129 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{129}_{52}$Te

$T_{1/2}$ =70.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =533.9
$\langle E_\gamma \rangle$ PER DECAY =72.90

FISSION YIELDS

^{235}U THERMAL	1.2250×10^{-4}
^{235}U FAST	1.3183×10^{-4}
^{238}U FAST	5.9694×10^{-6}
^{239}PU THERMAL	3.0396×10^{-4}

Q_β =1502.±6.
BR_β =1.000

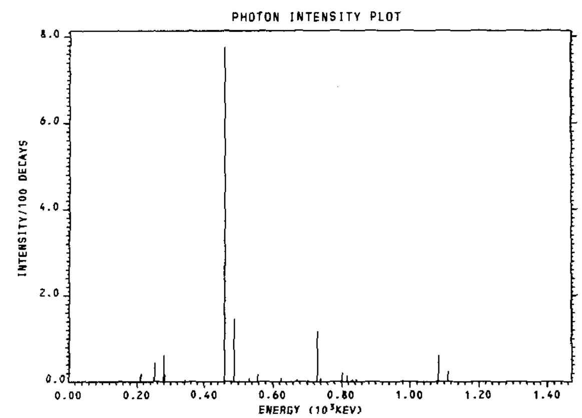
$^{129}_{53}$I

$1.589\times10^{+7}$y

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
260.4	5	1.410
342.6	1	.01000
342.8	1	.04000
459.6	1	7.750
487.4	1	1.470
531.8	1	.09000
556.7	1	.1800
559.7	1	.01000
624.4	1	.09000
672.0	1	.04000
729.8	7	1.310
815.7	4	.4700
1080.	5	.6600
1112.	1	.2400
1253.	6	.03000
1402.	1	.01000

$\langle E_{PHOTON} \rangle$ PER DECAY = 72.90



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	210.0	58.52	.01000
β-	220.0	61.58	.01000
β-	241.0	68.09	.04000
β-	298.0	86.24	.000
β-	390.0	116.9	1.030
β-	672.0	220.1	.2400
β-	942.0	328.5	.2600
β-	1015.0	359.0	9.300
β-	1224.0	448.7	.6100
β-	1474.0	559.5	88.50

$\langle E_e \rangle$ PER DECAY = 533.9
$\langle E_\nu \rangle$ PER DECAY = 880.6

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1474.	88.50

$^{129}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-129 HEDL EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
DIST-NOV74 REV-JUN75

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{129}_{53}$I

$T_{1/2}$ =1.589x10^{+7}y
$\langle E_\beta \rangle$ PER DECAY =62.40
$\langle E_\gamma \rangle$ PER DECAY =40.00

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.1543x10^{+1}
WESTCOTT G FACTOR	1.0325
σ CAPTURE 2200M/S	2.7001x10^{+1}
WESTCOTT G FACTOR	1.0164
RESONANCE INTEGRAL TOTAL	1.5050x10^{+2}
RESONANCE INTEGRAL CAPTURE	3.6440x10^{+1}

FISSION YIELDS

^{235}U THERMAL	1.4508x10^{-7}
^{235}U FAST	6.0210x10^{-7}
^{238}U FAST	4.3596x10^{-9}
^{239}PU THERMAL	1.9197x10^{-6}

Q_β =189.0
BR_β =1.000

$^{129}_{54}$Xe

STABLE OR LONG-LIVED

$^{129m}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS
54-XE-129M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{129m}_{54}Xe$

$T_{1/2}$ =8.000d
$\langle E_\gamma \rangle$ PER DECAY =236.0

Q_{IT}=236.0
BR_{IT}=1.000

$^{129}_{54}Xe$

STABLE OR LONG-LIVED

129m- 54- 1

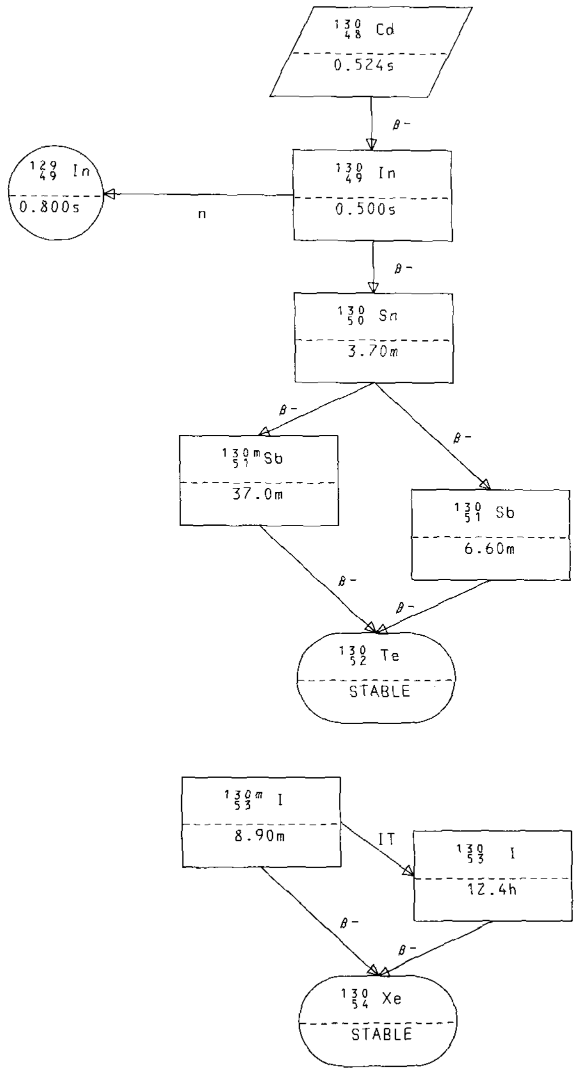
$^{129}_{54}Xe$

$^{129}_{54}Xe$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.2451\times10^{+1}$
WESTCOTT G FACTOR	3.4093
σ CAPTURE 2200M/S	$1.7804\times10^{+1}$
WESTCOTT G FACTOR	1.0016
RESONANCE INTEGRAL TOTAL	$4.6540\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.5560\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.6090
RESONANCE INTEGRAL (N,P)	1.8810×10^{-3}
RESONANCE INTEGRAL (N,α)	6.5060×10^{-4}



$^{130}_{48}$Cd
0.524s
β-
$^{129}_{49}$In
0.800s
n
$^{130}_{49}$In
0.500s
β-
$^{130}_{50}$Sn
3.70m
β-
β-
$^{130m}_{51}$Sb
37.0m
$^{130}_{51}$Sb
6.60m
β-
β-
$^{130}_{52}$Te
STABLE
$^{130m}_{53}$I
8.90m
IT
$^{130}_{53}$I
12.4h
β-
β-
$^{130}_{54}$Xe
STABLE

$^{130}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-130 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{130}_{48}$Cd

$T_{1/2}$ =.5240s
$\langle E_\beta \rangle$ PER DECAY =1885.
$\langle E_\gamma \rangle$ PER DECAY =2694.

FISSION YIELDS

^{235}U THERMAL	7.5041×10^{-6}
^{235}U FAST	1.2522×10^{-5}
^{238}U FAST	2.9631×10^{-4}
^{239}PU THERMAL	2.4297×10^{-6}

Q_β =6630.
BR_β =1.000

$^{130}_{49}$In

.50±.20s

130 - 48- 1

$^{130}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-130 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{130}_{49}$In

$T_{1/2}$ =.50±.20s
$\langle E_\beta \rangle$ PER DECAY =2891.
$\langle E_\gamma \rangle$ PER DECAY =3433.

FISSION YIELDS

^{235}U THERMAL	6.8732×10^{-4}
^{235}U FAST	1.0793×10^{-3}
^{238}U FAST	4.6933×10^{-3}
^{239}PU THERMAL	4.8874×10^{-4}

Q_N =2275.
BR_N =.04500

Q_β =9690.
BR_β =.9550

$^{129}_{49}$In

.8±.3s

$^{130}_{50}$Sn

3.70±.10m

$^{130}_{50}$ Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-130 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{130}_{50}$ Sn

$T_{1/2}$ =3.70±.10m
$\langle E_\beta \rangle$ PER DECAY =502.5
$\langle E_\gamma \rangle$ PER DECAY =686.5

FISSION YIELDS

^{235}U THERMAL	8.2183×10^{-3}
^{235}U FAST	1.2217×10^{-2}
^{238}U FAST	1.1602×10^{-2}
^{239}PU THERMAL	1.1939×10^{-2}

Q_β =1850.
BR_β =.9000

Q_β =2100.
BR_β =.1000

$^{130m}_{51}$Sb

37.0±1.0m

$^{130}_{51}$ Sb

6.60±.10m

130 - 50- 1

$^{130m}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-130M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-A. KEREK ET AL. NUCL. PHYS. A198, 466 (1972)

$^{130m}_{51}$Sb

$T_{1/2}$ =37.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =1093.
$\langle E_\gamma \rangle$ PER DECAY =2489.

FISSION YIELDS

^{235}U THERMAL	3.0325×10^{-3}
^{235}U FAST	2.7393×10^{-3}
^{238}U FAST	5.7472×10^{-4}
^{239}PU THERMAL	5.4574×10^{-3}

Q_β =5900.±300.
BR_β =1.000

$^{130}_{52}$ Te

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
182.0	1	79.82
287.0	1	2.892
330.4	1	71.34
469.5	1	16.39
731.2	1	17.35
793.0	1	96.40
839.5	1	96.40
992.0	1	1.928
1062.	1	.1446
1074.	1	1.639
1258.	1	2.314
1294.	1	4.820
1421.	1	1.832
1445.	1	2.217
1582.	1	2.410
1763.	1	2.892
1949.	1	.8676
1997.	1	1.446

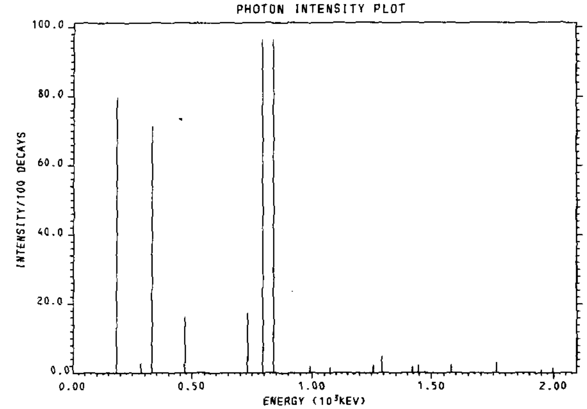
$\langle E_{PHOTON} \rangle$ PER DECAY = 2489.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1629.6	630.0	2.700
β^-	1704.4	664.3	9.500
β^-	1840.6	727.1	2.100
β^-	1864.8	738.4	1.700
β^-	2211.7	901.1	4.600
β^-	2223.9	906.8	16.30
β^-	2955.1	1257.	50.50
β^-	2998.0	1278.	12.60

$\langle E_e \rangle$ PER DECAY = 1093.
$\langle E_\nu \rangle$ PER DECAY = 1517.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	839.5	96.40
γ	793.0	96.40
γ	182.0	79.82
γ	330.4	71.34
β^-	2955.	50.50

$^{130}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-130 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{130}_{51}$Sb

$T_{1/2}$ =6.60±.10m
$\langle E_\beta \rangle$ PER DECAY =1261.
$\langle E_\gamma \rangle$ PER DECAY =2141.

FISSION YIELDS

^{235}U THERMAL	2.0717×10^{-3}
^{235}U FAST	2.7393×10^{-3}
^{238}U FAST	5.7496×10^{-4}
^{239}PU THERMAL	5.4571×10^{-3}

Q_β =5050.±100.
BR_β =1.000

$^{130}_{52}$Te

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
182.0	1	53.86
349.0	1	3.820
370.0	1	2.197
469.5	1	1.910
758.0	1	4.202
793.0	1	79.65
839.5	1	95.50
921.0	1	1.910
1018.	1	25.21
1042.	1	2.578
1128.	1	4.775
1143.	1	5.634
1200.	1	2.578
1235.	1	3.438
1599.	1	2.292
1884.	1	.9550

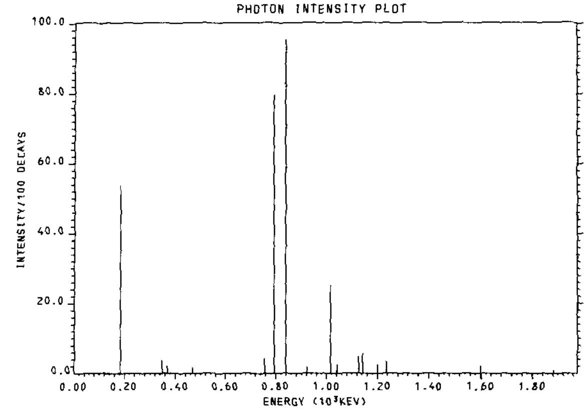
$\langle E_{PHOTON} \rangle$ PER DECAY = 2141.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	2268.0	927.7	32.26
$\beta-$	2998.0	1278.	1.960
$\beta-$	3118.5	1337.	9.820
$\beta-$	3132.9	1344.	7.240
$\beta-$	3285.5	1418.	29.58
$\beta-$	3467.5	1507.	18.10
$\beta-$	3502.5	1524.	1.030

$\langle E_e \rangle$ PER DECAY = 1261.
$\langle E_\nu \rangle$ PER DECAY = 1698.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	839.5	95.50
γ	793.0	79.65
γ	182.0	53.86
$\beta-$	2268.	32.26
$\beta-$	3286.	29.58
γ	1018.	25.21

$^{130}_{52}$Te

$^{130}_{52}$Te

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	4.9187
WESTCOTT G FACTOR	1.1227
σ CAPTURE 2200M/S	2.9004×10^{-1}
WESTCOTT G FACTOR	1.0236
RESONANCE INTEGRAL TOTAL	$8.7540 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	3.5760×10^{-1}

FISSION YIELDS	
^{235}U THERMAL	4.5073×10^{-4}
^{235}U FAST	3.8843×10^{-4}
^{238}U FAST	1.5099×10^{-5}
^{239}PU THERMAL	1.6649×10^{-3}

130 - 52- 1

$^{130m}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-130M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{130m}_{53}$I

$T_{1/2}$ =8.900m
$\langle E_\beta \rangle$ PER DECAY =136.7
$\langle E_\gamma \rangle$ PER DECAY =347.0

FISSION YIELDS	
^{235}U THERMAL	7.4240×10^{-7}
^{235}U FAST	3.8306×10^{-7}
^{238}U FAST	2.4398×10^{-9}
^{239}PU THERMAL	1.2738×10^{-5}

Q_β =3200.
BR_β =.1500

$^{130}_{54}$Xe
STABLE OR LONG-LIVED

Q_{IT}=250.0
BR_{IT}=.8500

$^{130}_{53}$I
12.40h

130m- 53- 1

$^{130}_{53}$I

ENDF/B-IV FILE 1 COMMENTS

53- I-130 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH

DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA

REFERENCES

QBETA -A TOBIAS(10/72) RD/B/M2453

EBETA-A TOBIAS(10/72) RD/B/M2453

EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{130}_{53}$I

$T_{1/2}$ =12.40h

$\langle E_\beta \rangle$ PER DECAY =295.0

$\langle E_\gamma \rangle$ PER DECAY =2120.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.2692\times10^{+1}$
WESTCOTT G FACTOR	1.1223
σ CAPTURE 2200M/S	$1.8000\times10^{+1}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$3.3800\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.7990\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	1.7209×10^{-6}
^{235}U FAST	3.8306×10^{-7}
^{238}U FAST	2.4398×10^{-9}
^{239}PU THERMAL	4.7993×10^{-5}

Q_β =2990.

BR_β =1.000

$^{130}_{54}$Xe

STABLE OR LONG-LIVED

130 - 53- 1

$^{130}_{54}$Xe

$^{130}_{54}$Xe

STABLE OR LONG-LIVED

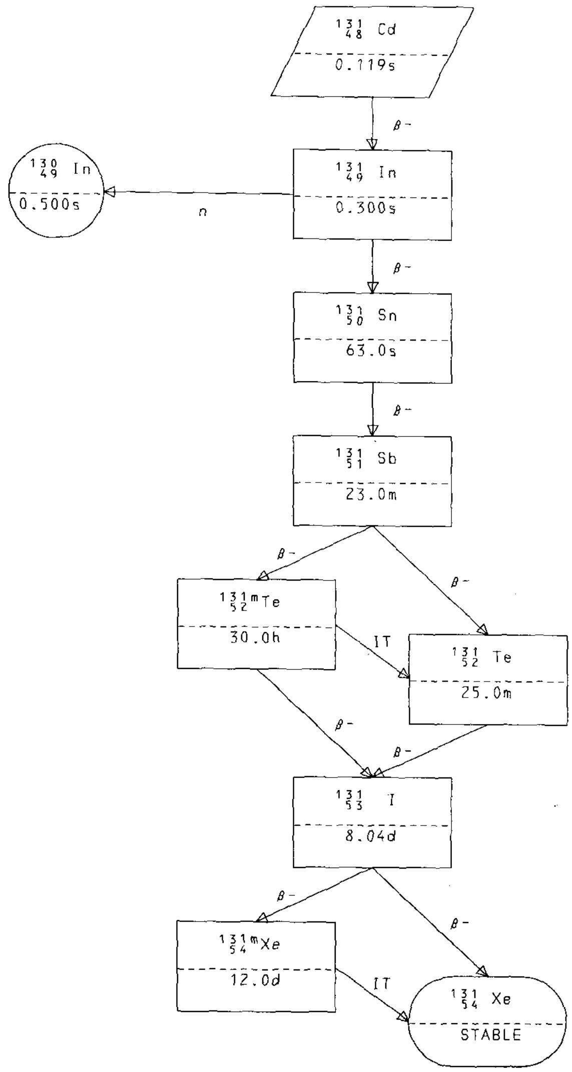
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.0500\times10^{+1}$
WESTCOTT G FACTOR	4.5211
σ CAPTURE 2200M/S	6.2005
WESTCOTT G FACTOR	1.0261
RESONANCE INTEGRAL TOTAL	$1.3980\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	4.2740
RESONANCE INTEGRAL (N,2N)	1.0820
RESONANCE INTEGRAL (N,P)	3.1950×10^{-3}
RESONANCE INTEGRAL (N,α)	1.1990×10^{-4}

FISSION YIELDS

^{239}PU THERMAL	1.2198×10^{-8}

130 - 54- 1



$^{131}_{48}$Cd
0.119s
β-
$^{131}_{49}$In
0.300s
n
$^{130}_{49}$In
0.500s
β-
$^{131}_{50}$Sn
63.0s
β-
$^{131}_{51}$Sb
23.0m
β-
β-
$^{131m}_{52}$Te
30.0h
IT
$^{131}_{52}$Te
25.0m
β-
β-
$^{131}_{53}$I
8.04d
β-
β-
$^{131m}_{54}$Xe
12.0d
IT
$^{131}_{54}$Xe
STABLE

$^{131}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-131 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{131}_{48}$Cd

$T_{1/2}$ =.1193s
$\langle E_\beta \rangle$ PER DECAY =3146.
$\langle E_\gamma \rangle$ PER DECAY =4258.

FISSION YIELDS

^{235}U THERMAL	6.9538×10^{-7}
^{235}U FAST	1.3202×10^{-6}
^{238}U FAST	6.0914×10^{-5}
^{239}PU THERMAL	1.4198×10^{-7}

Q_β =10550.
BR_β =1.000

$^{131}_{49}$In

.30±.10s

131 - 48- 1

$^{131}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-131 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{131}_{49}$In

$T_{1/2}$ =.30±.10s
$\langle E_\beta \rangle$ PER DECAY =2348.
$\langle E_\gamma \rangle$ PER DECAY =3071.

FISSION YIELDS

^{235}U THERMAL	2.2537×10^{-4}
^{235}U FAST	3.7984×10^{-4}
^{238}U FAST	3.1208×10^{-3}
^{239}PU THERMAL	1.0005×10^{-4}

Q_N =3366.
BR_N =.09500

Q_β =8390.
BR_β =.9050

$^{130}_{49}$In

.50±.20s

$^{131}_{50}$Sn

63.±3.s

$^{131}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-131 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{131}_{50}$Sn

$T_{1/2}$ =63.±3.s
$\langle E_\beta \rangle$ PER DECAY =1305.
$\langle E_\gamma \rangle$ PER DECAY =1707.

FISSION YIELDS

^{235}U THERMAL	9.1536×10^{-3}
^{235}U FAST	1.2857×10^{-2}
^{238}U FAST	2.2162×10^{-2}
^{239}PU THERMAL	7.8002×10^{-3}

Q_β =4630.
BR_β =1.000

$^{131}_{51}$Sb

23.00±0.10m

131 - 50- 1

$^{131}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-131 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74 REV-JUN75
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 7/74 CWR
REFERENCE Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER- J. BLACHOT, H.N. ERTEN, C.D. CORYELL, E.S.
MACIAS AND W.B. WALTERS, PHYS. REV. C 4,
214 (1971).

$^{131}_{51}$Sb

$T_{1/2}$ =23.00±0.10m
$\langle E_\beta \rangle$ PER DECAY =713.7
$\langle E_\gamma \rangle$ PER DECAY =1703.

FISSION YIELDS

^{235}U THERMAL	1.5928×10^{-2}
^{235}U FAST	1.5750×10^{-2}
^{238}U FAST	6.5014×10^{-3}
^{239}PU THERMAL	2.0246×10^{-2}

Q_β =3218.
BR_β =.068±.010

Q_β =3400.
BR_β =.932±.010

$^{131m}_{52}$Te

30.00h

$^{131}_{52}$Te

25.00±0.10m

PHOTON RADIATION TABLE

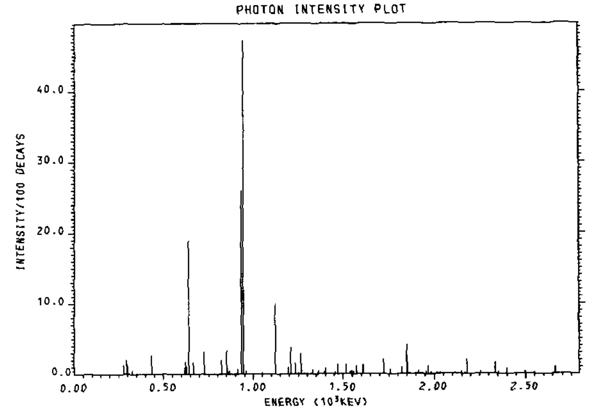
MEAN ENERGY			LINES	PHOTONS/100 DECAYS
275.7			1	1.322
296.1			1	1.982
301.0			1	1.416
326.4			1	.5664
433.9			1	2.690
641.9			4	23.36
726.2			1	3.162
825.0			1	2.030
854.5			1	3.398
866.0	±	1.0	1	.4720
939.610	±	0.011	4	74.340
1050.0	±	1.0	1	.2360
1124.			1	9.912
1193.			1	.9440
1235.			5	8.638
1371.			4	2.218
1456.			1	.3304
1470.			1	1.369
1546.			6	4.201
1609.			1	1.369
1722.			1	2.030
1757.			1	.7080
1821.			1	.9912
1853.			1	4.154
1957.			4	2.360
2015.			1	.2360
2031.			1	.2360
2169.			4	2.974
2256.0	±	2.0	1	.3304
2335.			1	1.652
2354.0	±	2.0	1	.3776
2398.			1	.8496
2496.0	±	2.0	1	.3304
2550.0	±	2.0	1	.2832
2662.			1	.9912

$\langle E_{PHOTON} \rangle$ PER DECAY = 1703.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	738.0	245.8	2.592
β-	849.0	290.3	2.074
β-	904.0	312.8	1.763
β-	1001.0	353.1	1.970
β-	1064.0	379.7	1.866
β-	1221.0	447.4	2.488
β-	1333.0	496.6	10.16
β-	1524.0	582.1	28.72
β-	1547.0	592.5	4.251

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	943.6	47.20
β-	1524.	28.72
γ	932.8	25.96
γ	642.1	18.88
β-	2758.	11.30
β-	1333.	10.16
γ	1124.	9.912
β-	2456.	7.361
β-	2192.	4.873
β-	2132.	4.873
β-	1547.	4.251
γ	1853.	4.154
γ	1208.	3.776
γ	854.5	3.398
β-	1730.	3.214
γ	726.2	3.162
β-	3218.	3.110
γ	1268.	2.926

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1678.0	652.2	2.074
β-	1730.0	676.1	3.214
β-	1854.0	733.4	.8294

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1930.0	768.7	2.696
β^-	1933.0	770.1	2.177
β^-	2001.0	801.9	.8709
β^-	2132.0	863.4	4.873
β^-	2192.0	891.8	4.873
β^-	2364.0	973.4	.7361
β^-	2456.0	1017.	7.361
β^-	2758.0	1162.	11.30
β^-	3218.0	1385.	3.110

$\langle E_e \rangle$ PER DECAY = 713.7
$\langle E_\nu \rangle$ PER DECAY = 1086.

$^{131m}_{52}Te$

ENDF/B-IV FILE 1 COMMENTS

52-TE-131M ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

REFERENCE

Q-1973 WAPSTRA-GOVE MASSTABLE

$^{131m}_{52}Te$

$T_{1/2}$ =30.00h

$\langle E_\beta \rangle$ PER DECAY =182.2

$\langle E_\gamma \rangle$ PER DECAY =1491.

FISSION YIELDS

^{235}U THERMAL	1.9095×10^{-3}
^{235}U FAST	1.6649×10^{-3}
^{238}U FAST	1.3695×10^{-4}
^{239}PU THERMAL	4.5815×10^{-3}

Q_β =2431.±6.
BR_β =.8200

Q_{IT}=182.4
BR_{IT}=.1800

$^{131}_{53}I$

8.0410±.0020d

$^{131}_{52}Te$

25.00±0.10m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
80.90	1	5.113
138.8	6	44.79
230.9	6	23.34
337.4	5	12.89
458.1	4	10.64
586.0	1	1.069
603.0	1	1.069
665.0	1	3.294
777.3	5	65.55
822.1	1	5.863
852.1	1	22.37
910.0	1	3.736
922.0	1	.5285
1060.	1	1.168
1126.	1	12.78
1149.	1	4.044
1207.	1	10.13
1238.	1	.5285
1315.	1	1.069
1646.	1	1.487
1888.	1	1.598
2001.	1	2.126
2168.	1	.3196
2270.	1	.3196

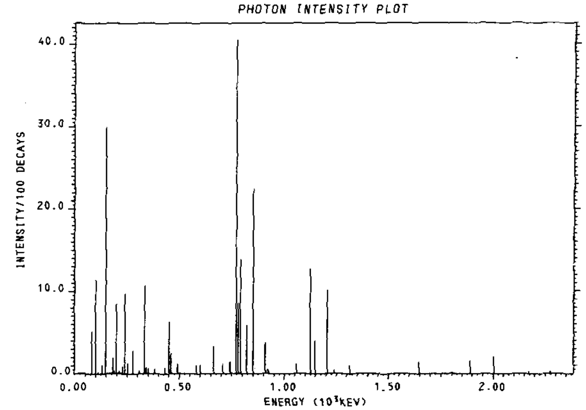
$\langle E_{PHOTON} \rangle$ PER DECAY ≈ 1491.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	101.0	26.70	.3000
β-	188.0	51.86	4.000
β-	301.0	87.22	.5000
β-	419.0	127.0	10.00
β-	450.0	137.8	11.00
β-	466.0	143.5	12.00
β-	500.0	155.7	3.000
β-	529.0	166.3	13.00
β-	602.0	193.4	7.000
β-	802.0	271.3	16.00
β-	1366.0	511.2	.2000
β-	2431.0	1005.	5.000

$\langle E_e \rangle$ PER DECAY = 182.2
$\langle E_\nu \rangle$ PER DECAY = 353.0

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	773.7	40.50
γ	149.7	29.87
γ	852.1	22.37
β-	802.0	16.00
γ	793.6	13.86
β-	529.0	13.00
γ	1126.	12.78
β-	466.0	12.00
γ	102.3	11.41
β-	450.0	11.00
γ	334.5	10.66
γ	1207.	10.13
β-	419.0	10.00
γ	240.6	9.698
γ	782.7	8.530
γ	200.7	8.419

$^{131}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-131 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{131}_{52}$Te

$T_{1/2}$ =25.00±0.10m
$\langle E_\beta \rangle$ PER DECAY =671.7
$\langle E_\gamma \rangle$ PER DECAY =422.8

FISSION YIELDS

^{235}U THERMAL	1.1008×10^{-3}
^{235}U FAST	1.6442×10^{-3}
^{238}U FAST	1.3705×10^{-4}
^{239}PU THERMAL	4.5815×10^{-3}

Q_β =2249.±6.
BR_β =1.000

$^{131}_{53}$I

8.0410±.0020d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
109.8	1	.09380
149.8	1	67.00
221.4	1	.04690
278.3	1	.1206
298.3	1	.1742
342.9	1	.7370
353.0	1	.04690
384.2	1	.9380
461.3	5	22.98
551.0	4	.5159
616.5	4	6.439
727.0	1	.5025
860.4	4	.4422
971.5	4	7.042
1008.	1	.8710
1099.	1	.2077
1147.	1	5.628
1278.	1	.1206
1295.	1	.6365
1309.	1	.00670
1352.	1	.06030
1428.	1	.1072
1501.	1	.1206
1528.	1	.05360
1579.	1	.00670
1652.	1	.00670

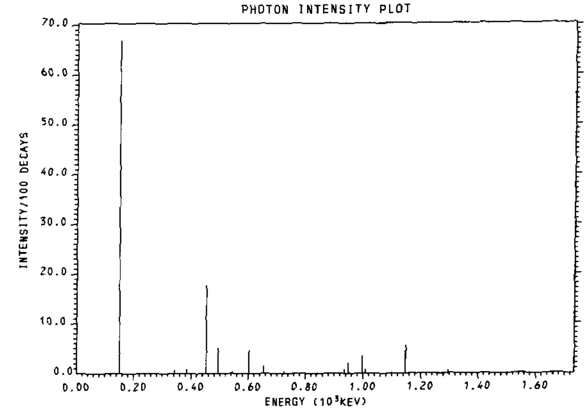
$\langle E_{PHOTON} \rangle$ PER DECAY = 422.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1360.0	508.6	42.00
β-	1646.0	637.5	16.00
β-	2099.0	847.9	42.00

$\langle E_e \rangle$ PER DECAY = 671.7
$\langle E_\nu \rangle$ PER DECAY = 1044.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	149.8	67.00
β-	2099.	42.00
β-	1360.	42.00
γ	452.4	17.82

$^{131}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-131 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74

$^{131}_{53}$I

$T_{1/2}$ =8.0410±.0020d
$\langle E_\beta \rangle$ PER DECAY =185.5
$\langle E_\gamma \rangle$ PER DECAY =389.3

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.4160
WESTCOTT G FACTOR	1.1740
σ CAPTURE 2200M/S	7.0000×10^{-1}
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3280\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	7.9640

FISSION YIELDS

^{235}U THERMAL	3.9752×10^{-5}
^{235}U FAST	2.1854×10^{-5}
^{238}U FAST	3.1497×10^{-7}
^{239}PU THERMAL	1.2017×10^{-4}

Q_β =776.0
BR_β =.00700

$^{131m}_{54}$Xe

11.990±0.020d

Q_β =970.8±0.6
BR_β =.9930

$^{131}_{54}$Xe

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
80.20	1	2.619
272.3	1	.06286
284.3	1	6.495
364.3	5	84.27
404.8	1	.06286
503.0	1	.3143
637.0	1	7.228
643.0	1	.1571
722.9	1	1.676

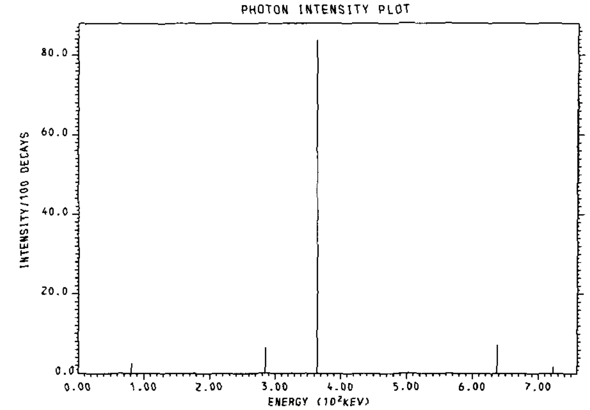
$\langle E_{PHOTON} \rangle$ PER DECAY = 389.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	247.0	69.97	1.700
β^-	304.0	88.19	.6000
β^-	334.0	98.06	7.400
β^-	606.0	194.9	89.60
β^-	806.0	272.9	.7000

$\langle E_e \rangle$ PER DECAY = 185.5
$\langle E_\nu \rangle$ PER DECAY = 393.9

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	606.0	89.60
γ	364.5	83.81

$^{131m}_{54}Xe$

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                 ENDF/B-IV FILE 1 COMMENTS
54-XE-131M ANC        EVAL-FEB74 C.W.REICH             DECAY DATA
                      DIST-NOV74
 FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                           ANCR-1157,ENDF210,8/74.
 PREPARED FOR FILE   12/73                        CWR
REFERENCE
            OTHER - M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
                    ORNL-4923(1973).
```

$^{131m}_{54}Xe$

$T_{1/2}$ =11.990±0.020d

$\langle E_\gamma \rangle$ PER DECAY =167.5

FISSION YIELDS

^{235}U THERMAL	7.7042×10^{-9}
^{235}U FAST	7.4812×10^{-9}
^{239}PU THERMAL	8.2588×10^{-8}

Q_{IT}=163.930±.008

BR_{IT}=1.000

$^{131}_{54}$ Xe

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

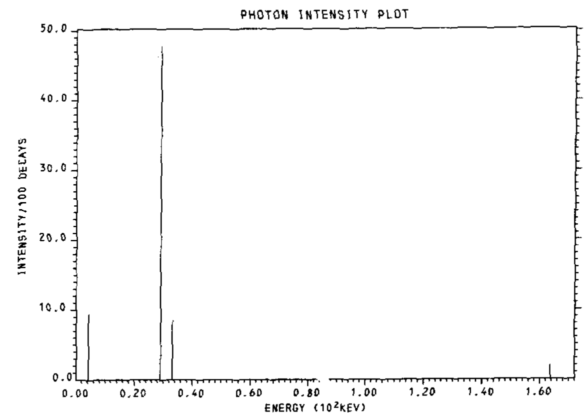
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
26.1	±	1.2	4	66.	±	15.
163.930	±	0.008	1	2.00	±	.10

$\langle E_{PHOTON} \rangle$ PER DECAY = 20. ± 4.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	33.4	6.	±	3.	85.	±	30.
CE	162.8	140.4	±	0.6	100.	±	5.

$\langle E_{\beta} \rangle$ PER DECAY = 145.8



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
AU_L	4.308			78.	±	22.
CE_K	129.369	±	0.008	63.	±	4.
X_K	29.11			48.	±	15.
CE_L	158.477	±	0.008	29.9	±	1.9

$^{131}_{54}$Xe

$^{131}_{54}$Xe

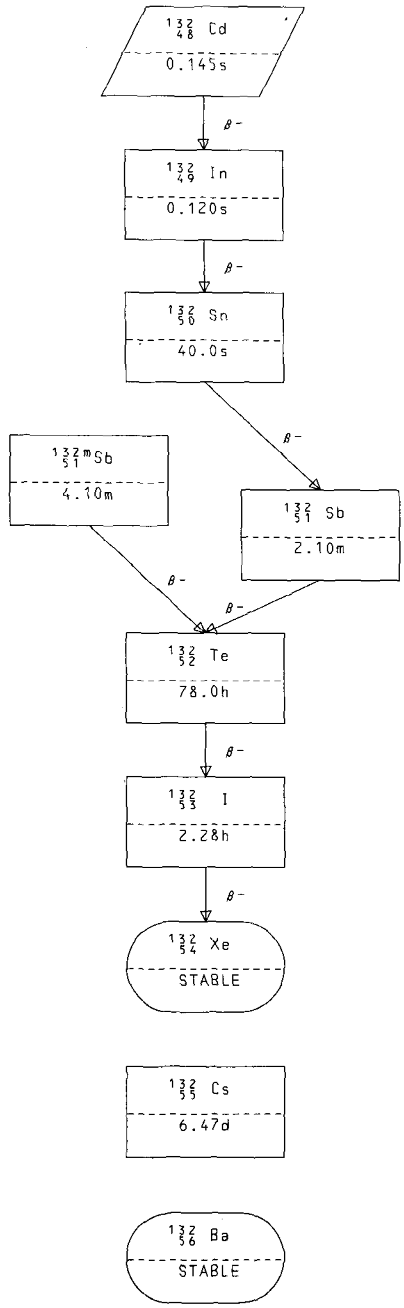
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$9.4329\times10^{+1}$
WESTCOTT G FACTOR	2.4511
σ CAPTURE 2200M/S	$9.0028\times10^{+1}$
WESTCOTT G FACTOR	1.0014
RESONANCE INTEGRAL TOTAL	$2.9640\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$8.7640\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.7260
RESONANCE INTEGRAL (N,P)	2.3660×10^{-3}
RESONANCE INTEGRAL (N,α)	3.1580×10^{-4}

FISSION YIELDS

^{235}U THERMAL	7.7042×10^{-9}
^{235}U FAST	7.4812×10^{-9}
^{238}U FAST	5.9694×10^{-6}
^{239}PU THERMAL	8.2588×10^{-8}


132 48 Cd
0.145s
β-
132 49 In
0.120s
β-
132 50 Sn
40.0s
β-
132m 51 Sb
4.10m
132 51 Sb
2.10m
β-
β-
132 52 Te
78.0h
β-
132 53 I
2.28h
β-
132 54 Xe
STABLE
132 55 Cs
6.47d
132 56 Ba
STABLE

$^{132}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-132 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{132}_{48}$Cd

$T_{1/2}$ =.1448s
$\langle E_\beta \rangle$ PER DECAY =2691.
$\langle E_\gamma \rangle$ PER DECAY =3998.

FISSION YIELDS

^{235}U THERMAL	6.2234×10^{-8}
^{235}U FAST	5.7209×10^{-8}
^{238}U FAST	6.0494×10^{-6}
^{239}PU THERMAL	3.4395×10^{-9}

Q_β =9380.
BR_β =1.000

$^{132}_{49}$In

.120±.020s

132 - 48- 1

$^{132}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-132 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{132}_{49}$In

$T_{1/2}$ =.120±.020s
$\langle E_\beta \rangle$ PER DECAY =3825.
$\langle E_\gamma \rangle$ PER DECAY =4661.

FISSION YIELDS

^{235}U THERMAL	6.7306×10^{-5}
^{235}U FAST	5.9800×10^{-5}
^{238}U FAST	1.1117×10^{-3}
^{239}PU THERMAL	9.2587×10^{-6}

Q_β =12310.
BR_β =1.000

$^{132}_{50}$Sn

40.0±1.0s

$^{132}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-132 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
TIN-132 PREPARED FOR ENDF/B IV 8/73 DRF(SRL)
REFERENCE - A.KEREK, ET.AL, NUCL. PHYS. A195, 159(1972)

$^{132}_{50}$Sn

$T_{1/2}$ =40.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =660.3
$\langle E_\gamma \rangle$ PER DECAY =1323.

FISSION YIELDS

^{235}U THERMAL	5.7553×10^{-3}
^{235}U FAST	6.7469×10^{-3}
^{238}U FAST	2.4984×10^{-2}
^{239}PU THERMAL	2.5621×10^{-3}

Q_β =3020.±200.
BR_β =1.000

$^{132}_{51}$Sb

2.10±.20m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
58.0	±	0.9	5	44.6	±	1.5
246.70	±	0.10	1	40.6	±	1.8
340.20	±	0.10	1	42.4	±	1.9
528.70	±	0.20	1	2.02	±	.19
548.80	±	0.20	1	1.92	±	.19
651.90	±	0.20	1	1.92	±	.19
898.50	±	0.10	1	42.2	±	1.9
992.20	±	0.10	1	38.4	±	1.9
1077.8	±	0.3	1	2.02	±	.19
1238.80	±	0.20	1	13.4	±	1.0

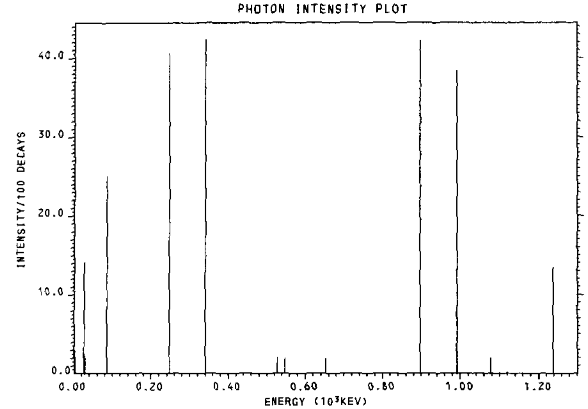
$\langle E_{PHOTON} \rangle$ PER DECAY = 1253. ± 30.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	29.5	7.627			26.50
CE	339.3	80.15	±	0.07	26.45
β-	1695.7	660.	±	80.	100.0

$\langle E_{\beta} \rangle$ PER DECAY = 684. ± 80.
$\langle E_{\nu} \rangle$ PER DECAY = 1035. ± 120.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	1696.	±	200.	100.0		
γ	340.20	±	0.10	42.4	±	1.9
γ	898.50	±	0.10	42.2	±	1.9
γ	246.70	±	0.10	40.6	±	1.8
γ	992.20	±	0.10	38.4	±	1.9
γ	85.50	±	0.10	25.0	±	1.5

$^{132m}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-132M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.
REFERENCE
Q-(ASSUMED SAME AS SB-132)

$^{132m}_{51}Sb$

$T_{1/2}$ =4.100m
$\langle E_\beta \rangle$ PER DECAY =1696.
$\langle E_\gamma \rangle$ PER DECAY =2039.

FISSION YIELDS

^{235}U THERMAL	1.0513×10^{-2}
^{235}U FAST	1.2184×10^{-2}
^{238}U FAST	1.0583×10^{-2}
^{239}PU THERMAL	1.0377×10^{-2}

Q_β =6080.
BR_β =1.000

$^{132}_{52}Te$

78.0±0.3h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
103.2	1	35.00
151.1	1	41.00
383.2	1	32.00
697.4	1	100.0
974.6	1	100.0
1042.	1	14.00

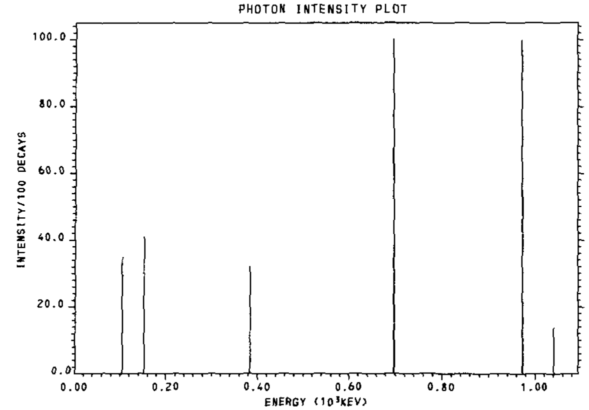
$\langle E_{PHOTON} \rangle$ PER DECAY = 2039.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	3182.0	1367.	15.40
β-	3842.0	1690.	36.20
β-	4074.0	1804.	48.40

$\langle E_e \rangle$ PER DECAY = 1696.
$\langle E_\nu \rangle$ PER DECAY = 2157.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	974.6	100.0
γ	697.4	100.0
β-	4074.	48.40
γ	151.1	41.00
β-	3842.	36.20

$^{132}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS
51-SB-132 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-GARVEY ET AL. R.M.P. 41, NO. 4, PART II (1969)

$^{132}_{51}Sb$

$T_{1/2}$ =2.10±.20m
$\langle E_\beta \rangle$ PER DECAY =1722.
$\langle E_\gamma \rangle$ PER DECAY =2007.

FISSION YIELDS

^{235}U THERMAL	1.0587×10^{-2}
^{235}U FAST	1.2184×10^{-2}
^{238}U FAST	1.0583×10^{-2}
^{239}PU THERMAL	1.0377×10^{-2}

Q_β =6080.
BR_β =1.000

$^{132}_{52}Te$

78.0±0.3h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
103.2	1	10.00
634.9	1	4.100
697.4	1	69.00
974.6	1	100.0
989.3	1	26.00
1134.	1	7.900
1152.	1	5.000
1197.	1	3.500
1215.	1	2.700
1513.	1	2.300

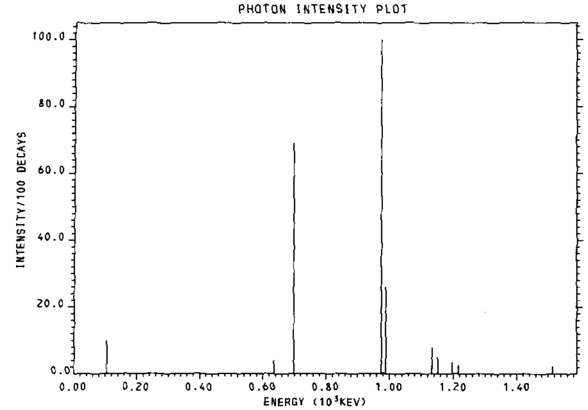
$\langle E_{PHOTON} \rangle$ PER DECAY = 2006.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	3235.0	1393.	30.55
β^-	3829.0	1684.	4.120
β^-	3874.0	1706.	5.920
β^-	3892.0	1715.	9.300
β^-	4328.0	1929.	50.11

$\langle E_e \rangle$ PER DECAY = 1722.
$\langle E_\nu \rangle$ PER DECAY = 2184.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	974.6	100.0
γ	697.4	69.00
β^-	4328.	50.11
β^-	3235.	30.55

$^{132}_{52}$Te

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                ENDF/B-IV FILE 1 COMMENTS
52-TE-132  ANC,HEDL  EVAL-JUL74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                                DIST-NOV74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
           Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
           OTHER- SEE M.J. MARTIN AND P.H. BLICHERT-TOFT,
                      NUCLEAR DATA TABLES A 8. NOS.1-2.(1970).
```

$^{132}_{52}$Te

$T_{1/2}$ =78.0±0.3h

$\langle E_\beta \rangle$ PER DECAY =60.05

$\langle E_\gamma \rangle$ PER DECAY =268.6

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.7420
WESTCOTT G FACTOR	1.1288
σ CAPTURE 2200M/S	2.0000×10^{-3}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$8.6110\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	5.6240×10^{-3}

FISSION YIELDS

^{235}U THERMAL	1.5387×10^{-2}
^{235}U FAST	1.5044×10^{-2}
^{238}U FAST	3.0068×10^{-3}
^{239}PU THERMAL	2.7902×10^{-2}

Q_β =505.±15.

BR_β =1.000

$^{132}_{53}$I

2.2850±.0020h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
28.0	±	0.9	5	19.	±	4.
111.76	±	0.08	1	1.08	±	.10
116.30	±	0.08	1	1.19	±	.11
228.16	±	0.06	1	78.	±	5.

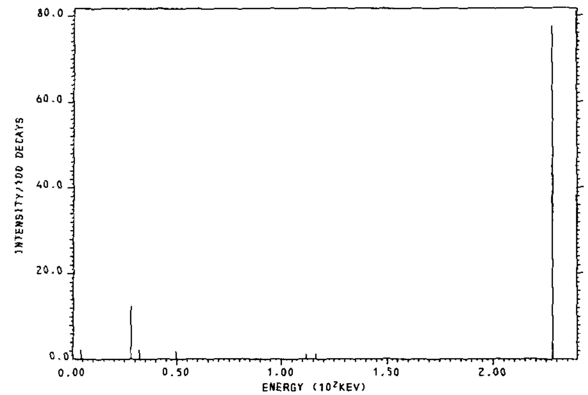
$\langle E_{PHOTON} \rangle$ PER DECAY = 185. ± 10.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	32.1	10.	±	3.	20.	±	6.
CE	227.1	90.	±	5.	20.6	±	1.1
β^-	215.0	60.0	±	2.1	100.0		

$\langle E_e \rangle$ PER DECAY = 81. ± 3.
$\langle E_\nu \rangle$ PER DECAY = 155. ± 3.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	215.	±	4.	100.0		
γ	228.16	±	0.06	78.	±	5.
AU_L	4.116			15.	±	5.

$^{132}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-132 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{132}_{53}$I

$T_{1/2}$ =2.2850±.0020h
$\langle E_\beta \rangle$ PER DECAY =524.7
$\langle E_\gamma \rangle$ PER DECAY =2238.

FISSION YIELDS

^{235}U THERMAL	1.6958×10^{-4}
^{235}U FAST	3.1495×10^{-4}
^{238}U FAST	1.2249×10^{-5}
^{239}PU THERMAL	1.4056×10^{-3}

Q_β =3580.±20.
BR_β =1.000

$^{132}_{54}$Xe

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
147.3	1	.3069
262.4	1	2.353
284.7	1	.6138
521.7	4	22.51
662.2	7	120.2
727.3	1	5.422
729.2	1	1.483
772.6	1	78.77
811.3	1	8.491
863.9	1	.5115
877.0	1	1.023
950.0	4	21.01
1035.	1	.6138
1136.	1	3.581
1144.	1	1.432
1171.	1	1.125
1294.	1	1.535
1299.	1	1.637
1316.	1	.1637
1372.	1	2.558
1398.	1	7.263
1443.	1	1.432
1479.	1	.1739
1722.	1	.1330
1922.	1	1.504
2003.	1	1.688
2087.	1	.3887
2172.	1	.3785
2224.	1	.2046
2391.	1	.3171
2526.	1	.08184

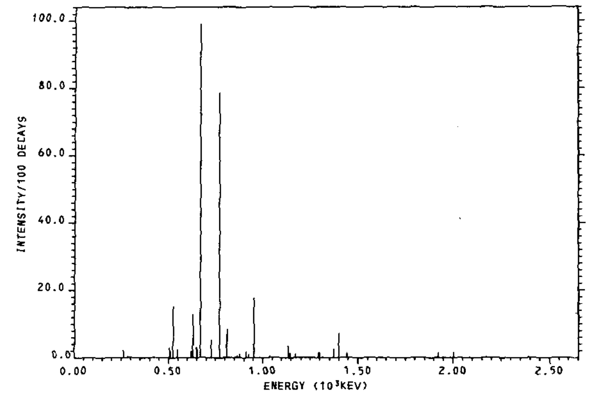
$\langle E_{PHOTON} \rangle$ PER DECAY = 2238.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	841.0	287.0	16.00
β^-	918.0	318.5	8.000
β^-	1022.0	362.0	5.000
β^-	1096.0	393.4	18.00
β^-	1284.0	475.0	20.00
β^-	1716.0	669.6	9.000
β^-	1874.0	742.6	6.000
β^-	2239.3	914.1	18.00

$\langle E_{\beta} \rangle$ PER DECAY = 524.7
$\langle E_{\nu} \rangle$ PER DECAY = 858.5

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	667.8	99.13
γ	772.6	78.77
β^-	1284.	20.00
β^-	2239.	18.00
β^-	1096.	18.00
γ	954.9	17.90
β^-	841.0	16.00
γ	522.7	15.35
γ	630.4	12.89

$^{132}_{54}$Xe

$^{132}_{54}$Xe

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.7520
WESTCOTT G FACTOR	1.6123
σ CAPTURE 2200M/S	4.5196×10^{-1}
WESTCOTT G FACTOR	1.0169
RESONANCE INTEGRAL TOTAL	$1.1640\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.7320
RESONANCE INTEGRAL (N,2N)	1.1430
RESONANCE INTEGRAL (N,P)	1.3790×10^{-3}
RESONANCE INTEGRAL (N,α)	5.6500×10^{-5}

FISSION YIELDS

^{235}U THERMAL	8.3345×10^{-7}
^{235}U FAST	8.1013×10^{-7}
^{238}U FAST	5.3595×10^{-9}
^{239}PU THERMAL	8.9387×10^{-6}

132 - 54- 1

$^{132}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-132 MISSING FROM ENDF/B IV
HALF LIFE H.R.HIDDLESTON AND C.P.BROWNE,
NUCLEAR DATA 17,225(1976

$^{132}_{55}$Cs

$T_{1/2}$ =6.475±.010d

FISSION YIELDS

^{239}PU THERMAL	1.2298×10^{-9}

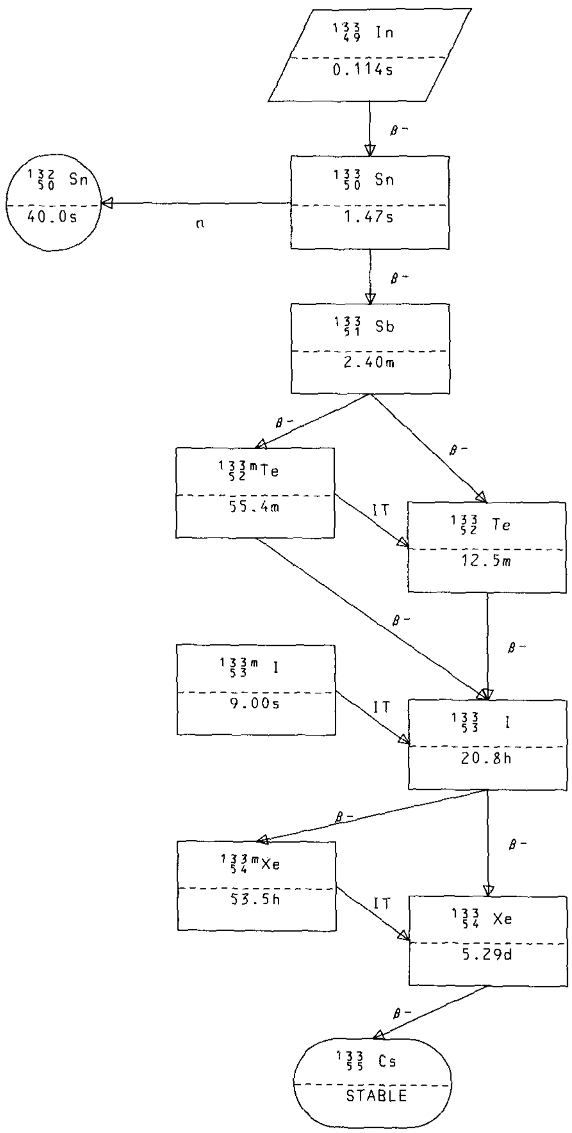
132 - 55- 1

$^{132}_{56}$Ba

$^{132}_{56}$Ba

STABLE OR LONG-LIVED

132 - 56- 1


$^{133}_{49}$In
0.114s
β-
$^{133}_{50}$Sn
1.47s
n
$^{132}_{50}$Sn
40.0s
β-
$^{133}_{51}$Sb
2.40m
β-
β-
$^{133m}_{52}$Te
55.4m
IT
$^{133}_{52}$Te
12.5m
β-
β-
$^{133m}_{53}$I
9.00s
IT
$^{133}_{53}$I
20.8h
β-
β-
$^{133m}_{54}$Xe
53.5h
IT
$^{133}_{54}$Xe
5.29d
β-
$^{133}_{55}$Cs
STABLE

$^{133}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-133 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{133}_{49}$In

$T_{1/2}$ =.1139s
$\langle E_\beta \rangle$ PER DECAY =3337.
$\langle E_\gamma \rangle$ PER DECAY =4465.

FISSION YIELDS

^{235}U THERMAL	3.8821×10^{-6}
^{235}U FAST	4.5407×10^{-6}
^{238}U FAST	1.8020×10^{-4}
^{239}PU THERMAL	3.2395×10^{-7}

Q_β =11140.
BR_β =1.000

$^{133}_{50}$Sn

1.47±.04s

133 - 49- 1

$^{133}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-133 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{133}_{50}$Sn

$T_{1/2}$ =1.47±.04s
$\langle E_\beta \rangle$ PER DECAY =2082.
$\langle E_\gamma \rangle$ PER DECAY =2805.

FISSION YIELDS

^{235}U THERMAL	1.6773×10^{-3}
^{235}U FAST	1.8422×10^{-3}
^{238}U FAST	1.3625×10^{-2}
^{239}PU THERMAL	3.6178×10^{-4}

Q_N =125.9
BR_N =.00021

Q_β =7240.
BR_β =.9998

$^{132}_{50}$Sn

40.0±1.0s

$^{133}_{51}$Sb

2.40±.20m

$^{133}_{51}$ Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-133 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTNAM,
ANCR-1157,ENDF210,8/74.

REFERENCE

Q-G, RUDSTAM ET AL., CERN-70-30, 341 (1970)

$^{133}_{51}$ Sb

$T_{1/2}$ =2.40±.20m
$\langle E_\beta \rangle$ PER DECAY =537.1
$\langle E_\gamma \rangle$ PER DECAY =3163.

FISSION YIELDS

^{235}U THERMAL	2.0827×10^{-2}
^{235}U FAST	2.1128×10^{-2}
^{238}U FAST	3.4397×10^{-2}
^{239}PU THERMAL	1.0564×10^{-2}

Q_β =3616.
BR_β =.02240

Q_β =3950.±30.
BR_β =.9776

$^{133m}_{52}$Te

55.4±0.4m

$^{133}_{52}$ Te

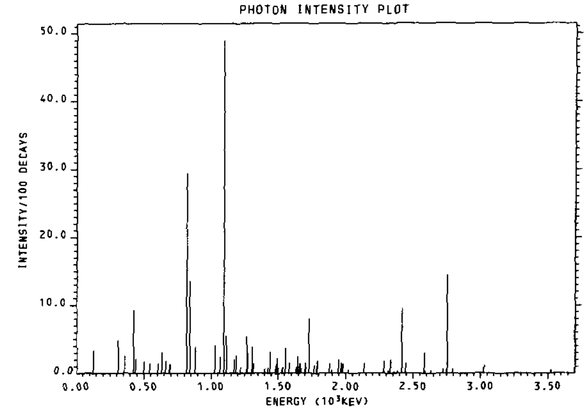
12.5±0.3m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
121.4	1	3.479
308.9	1	4.851
354.4	1	2.499
423.5	1	9.310
437.2	1	2.107
496.9	1	1.715
540.0	1	1.470
650.1	5	9.065
816.5	1	29.40
838.5	1	13.57
881.0	1	3.920
1025.	1	4.116
1066.	1	2.401
1096.	1	49.00
1114.	1	5.537
1168.	1	2.009
1184.	1	2.548
1218.	1	.8820
1266.	1	5.390
1271.	1	2.891
1305.	1	3.871
1314.	1	1.421
1459.	6	9.016
1533.	1	.8820
1554.	1	3.675
1580.	1	1.519
1659.	6	8.232
1740.	4	11.86
1877.	1	1.372
1895.	1	.4900
1945.	1	2.009
1964.	1	1.519
1976.	1	1.372
2020.	1	.5390
2132.	1	1.421
2279.	1	1.813
2288.	1	.1960
2339.	6	3.381
2417.	1	9.555
2444.	1	1.470
2580.	1	3.038
2586.	1	.3920
2630.	1	.3920
2724.	1	.5880
2752.	1	14.45
2793.	1	.5880
3025.	1	1.127
3523.	1	.5880

$\langle E_{PHOTON} \rangle$ PER DECAY = 3162.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1096.	49.00
$\beta-$	1198.	36.56
γ	816.5	29.40
γ	2752.	14.45
γ	838.5	13.57
$\beta-$	1534.	10.79
γ	2417.	9.555
γ	423.5	9.310
γ	1728.	7.987
$\beta-$	803.0	7.930
$\beta-$	1973.	7.380
$\beta-$	2330.	6.830
$\beta-$	1671.	6.390
$\beta-$	2222.	5.730
γ	1114.	5.537
γ	1266.	5.390
γ	308.9	4.851
$\beta-$	1370.	4.410
γ	1025.	4.116
γ	881.0	3.920

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	427.0	129.7	2.310
β^-	523.0	164.1	3.740
β^-	803.0	271.7	7.930
β^-	925.0	321.4	3.190
β^-	1157.0	419.6	1.980
β^-	1198.0	437.4	36.56
β^-	1370.0	513.0	4.410
β^-	1534.0	586.6	10.79
β^-	1671.0	649.0	6.390
β^-	1973.0	788.8	7.380
β^-	2037.0	818.8	1.320
β^-	2222.0	905.9	5.730
β^-	2330.0	957.2	6.830
β^-	2416.0	998.1	1.430

$\langle E_e \rangle$ PER DECAY = 537.1
$\langle E_\nu \rangle$ PER DECAY = 872.6

$^{133m}_{52}Te$

ENDF/B-IV FILE 1 COMMENTS

52-TE-133M ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.

REFERENCE

Q-1973 WAPSTRA-GOVE MASSTABLE

$^{133m}_{52}Te$

$T_{1/2}$ =55.4±0.4m

$\langle E_\beta \rangle$ PER DECAY =552.1

$\langle E_\gamma \rangle$ PER DECAY =1866.

FISSION YIELDS

^{235}U THERMAL	3.0118×10^{-2}
^{235}U FAST	1.9540×10^{-2}
^{238}U FAST	7.5714×10^{-3}
^{239}PU THERMAL	2.2672×10^{-2}

Q_β =3725.±110.
BR_β =.8700

Q_{IT}=334.5
BR_{IT}=.1300

$^{133}_{53}I$

20.80±0.10h

$^{133}_{52}Te$

12.5±0.3m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
91.14	4	13.74
170.1	4	17.10
214.0	1	3.084
261.8	1	16.82
285.7	1	.9346
334.5	1	15.05
344.2	1	2.430
356.5	1	1.589
445.9	4	7.010
574.2	1	2.523
647.8	1	31.50
864.6	1	20.94
885.4	1	6.075
913.0	1	93.46
979.0	1	10.19
1007.	1	1.122
1030.	1	1.402
1683.	1	6.168
2005.	1	3.551
2028.	1	2.243
2050.	1	1.122

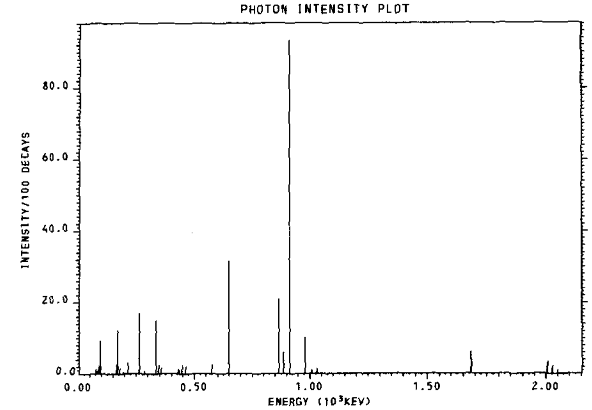
$\langle E_{PHOTON} \rangle$ PER DECAY = 1866.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1300.0	482.0	60.90
β^-	2400.0	990.5	26.10

$\langle E_\beta \rangle$ PER DECAY = 552.1
$\langle E_\nu \rangle$ PER DECAY = 866.0

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	913.0	93.46
β^-	1300.	60.90
γ	647.8	31.50
β^-	2400.	26.10
γ	864.6	20.94
γ	261.8	16.82
γ	334.5	15.05

$^{133}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS

52-TE-133 ANC EVAL-JUL74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 6/74 CWR
REFERENCE Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER- E.A. HENRY, NUCLEAR DATA SHEETS 11, NO.4,
495(1974).

$^{133}_{52}$Te

$T_{1/2}$ =12.5±0.3m
$\langle E_\beta \rangle$ PER DECAY =820.0
$\langle E_\gamma \rangle$ PER DECAY =983.2

FISSION YIELDS

^{235}U THERMAL	1.2298×10^{-2}
^{235}U FAST	1.9519×10^{-2}
^{238}U FAST	7.5718×10^{-3}
^{239}PU THERMAL	2.2672×10^{-2}

Q_β =2960.±100.
BR_β =1.000

$^{133}_{53}$I

20.80±0.10h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
311.99	±	0.08	1	72.00
384.6	±	0.5	1	.2880
407.63	±	0.07	1	32.40
474.72	±	0.13	1	1.080
546.4	±	0.6	1	.5760
587.1	±	0.5	1	.5040
613.6	±	0.7	1	.2880
719.65	±	0.10	1	8.640
786.77	±	0.10	1	6.984
844.39	±	0.07	1	4.464
930.67	±	0.10	1	5.544
1000.77	±	0.11	1	4.608
1021.07	±	0.15	1	3.600
1061.8	±	0.8	1	1.296
1252.20	±	0.20	1	1.440
1313.5	±	0.8	1	.7920
1333.23	±	0.12	1	11.52
1405.70	±	0.20	1	.9360
1474.0	±	1.0	1	.3600
1717.65	±	0.15	1	3.312
1825.1	±	1.0	1	.5760
1881.5	±	0.4	1	1.440
2136.5	±	1.2	1	.2880
2228.0	±	1.3	1	.2880
2540.6	±	1.5	1	.07200

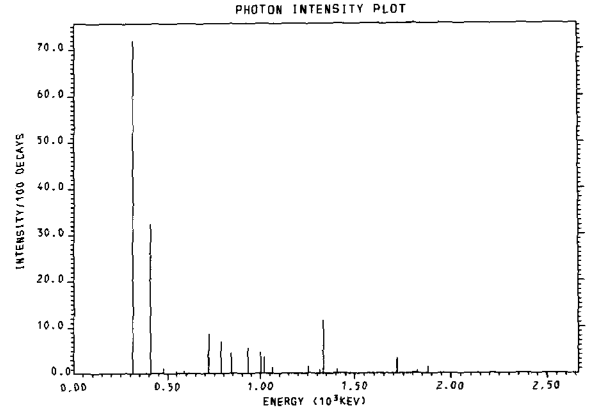
$\langle E_{PHOTON} \rangle$ PER DECAY = 983.2

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	419.0	127.0	.4000
β-	766.0	256.9	1.900
β-	824.0	280.2	.9000
β-	1242.0	456.6	9.000
β-	1395.0	524.1	4.500
β-	1586.0	610.2	1.800
β-	1627.0	628.9	13.60
β-	1647.0	638.0	7.200
β-	2173.0	882.8	1.200
β-	2240.0	914.5	33.70
β-	2648.0	1109.	25.80

$\langle E_e \rangle$ PER DECAY = 820.0
$\langle E_\nu \rangle$ PER DECAY = 1211.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	311.99	±	0.08	72.00
β-	2240.			33.70
γ	407.63	±	0.07	32.40
β-	2648.			25.80
β-	1627.			13.60
γ	1333.23	±	0.12	11.52
β-	1242.			9.000

$^{133m}_{53}I$

ENDF/B-IV FILE 1 COMMENTS
53- I-133M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{133m}_{53}I$

$T_{1/2}$ =9.000s
$\langle E_\gamma \rangle$ PER DECAY =250.0

FISSION YIELDS

^{235}U THERMAL	1.2902×10^{-3}
^{235}U FAST	1.2027×10^{-3}
^{238}U FAST	9.7061×10^{-5}
^{239}PU THERMAL	3.3360×10^{-3}

Q_{IT}=250.0
BR_{IT}=1.000

$^{133}_{53}I$

20.80±0.10h

133m- 53- 1

$^{133}_{53}I$

ENDF/B-IV FILE 1 COMMENTS
53- I-133 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{133}_{53}I$

$T_{1/2}$ =20.80±0.10h
$\langle E_\beta \rangle$ PER DECAY =417.2
$\langle E_\gamma \rangle$ PER DECAY =598.9

FISSION YIELDS

^{235}U THERMAL	1.6563×10^{-3}
^{235}U FAST	1.4146×10^{-3}
^{238}U FAST	1.1276×10^{-4}
^{239}PU THERMAL	9.6213×10^{-3}

Q_β =1527.±30.
BR_β =.1400

$^{133m}_{54}Xe$

54.±5.h

Q_β =1760.±30.
BR_β =.8600

$^{133}_{54}Xe$

5.290±.010d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
262.5	1	.3641
422.8	1	.2952
510.5	1	1.968
529.9	1	87.58
618.0	1	.5510
680.4	1	.6790
706.7	1	1.476
768.5	1	.4428
820.5	1	.1279
856.5	1	1.181
875.5	1	4.359
1053.	1	.4822
1237.	1	1.476
1298.	1	2.165

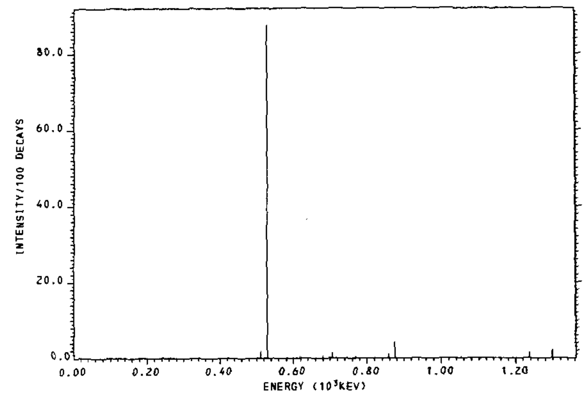
$\langle E_{PHOTON} \rangle$ PER DECAY = 598.9

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	168.0	45.91	.5000
β^-	374.0	111.5	3.500
β^-	410.0	123.8	.4000
β^-	460.0	141.4	3.700
β^-	524.0	164.4	3.300
β^-	707.0	233.7	.5000
β^-	890.0	307.0	2.300
β^-	1230.0	451.3	85.40
β^-	1540.0	589.3	1.400

$\langle E_e \rangle$ PER DECAY = 417.2
$\langle E_\nu \rangle$ PER DECAY = 728.7

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	529.9	87.58
β^-	1230.	85.40

$^{133m}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS

54-XE-133M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.

PREPARED FOR FILE 12/73 CWR

REFERENCE

OTHER - M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1
ORNL-4923(1973).

$^{133m}_{54}Xe$

$T_{1/2}$ =54.±5.h
$\langle E_\gamma \rangle$ PER DECAY =232.7

FISSION YIELDS

^{235}U THERMAL	1.9080×10^{-5}
^{235}U FAST	4.5817×10^{-5}
^{238}U FAST	1.2209×10^{-5}
^{239}PU THERMAL	3.3879×10^{-4}

Q_{IT}=232.9±0.3
BR_{IT}=1.000

$^{133}_{54}Xe$

5.290±.010d

PHOTON RADIATION TABLE

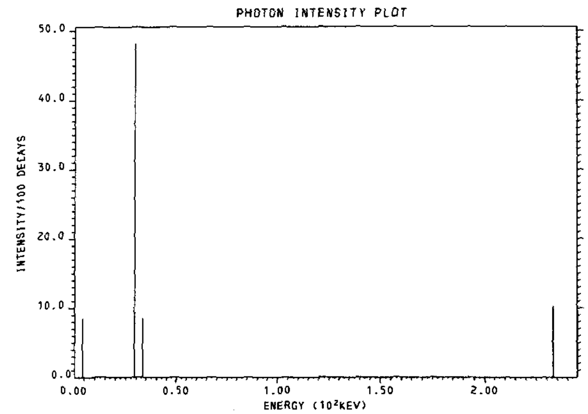
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
26.4	±	1.1	4	65.	±	15.
232.9	±	0.3	1	10.3	±	0.3

$\langle E_{PHOTON} \rangle$ PER DECAY = 41. ± 4.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	33.4	7.	±	3.	80.	±	30.
CE	231.8	206.9	±	0.5	90.	±	4.

$\langle E_e \rangle$ PER DECAY = 191.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
AU_L	4.308			70.	±	21.
CE_K	198.3	±	0.3	64.	±	3.
X_K	29.11			48.	±	15.
CE_L	227.4	±	0.3	21.0	±	1.1

$^{133}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-133 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74
FILE INFORMATION
MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTNAM,ANCR-1157,ENDF210,8/74,
Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER- M.J.MARTIN RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
ORNL-4923 (1973).

$^{133}_{54}$Xe

$T_{1/2}$ =5.290±.010d
$\langle E_\beta \rangle$ PER DECAY =101.9
$\langle E_\gamma \rangle$ PER DECAY =81.44

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.9476\times10^{+2}$
WESTCOTT G FACTOR	1.0201
σ CAPTURE 2200M/S	$1.9000\times10^{+2}$
WESTCOTT G FACTOR	9.9991×10^{-1}
RESONANCE INTEGRAL TOTAL	$6.2170\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.5630\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	6.5135×10^{-6}
^{235}U FAST	1.4962×10^{-5}
^{238}U FAST	5.7395×10^{-6}
^{239}PU THERMAL	9.6446×10^{-5}

Q_β =427.±3.
BR_β =1.000

$^{133}_{55}$Cs

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
50.			6	34.	±	80.
160.63	±	0.04	1	.050	±	.017
221.0			1	.00020		
302.0			1	.00500		

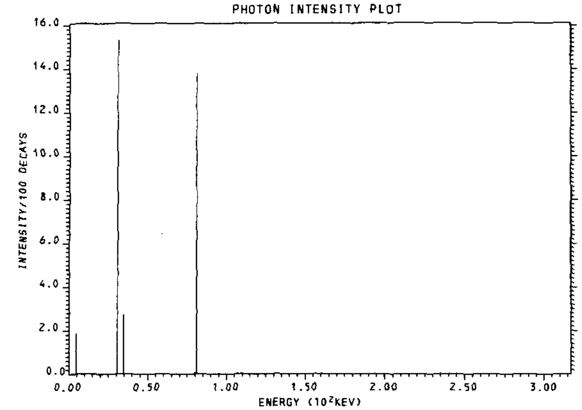
$\langle E_{PHOTON} \rangle$ PER DECAY = 17. ± 80.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	34.8	12.	±	3.	26.	±	7.
CE	159.4	49.			23.5	±	0.4
β-	266.0	76.0	±	2.4	.66	±	.10
β-	346.0	102.	±	3.	99.34	±	0.10

$\langle E_e \rangle$ PER DECAY = 117. ± 100.
$\langle E_\nu \rangle$ PER DECAY = 243.6 ± 0.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	346.	±	3.	99.34	±	0.10
CE_K	45.012	±	0.005	20.1	±	0.4
AU_L	4.496			19.	±	6.

$^{133}_{55}$Cs

$^{133}_{55}$Cs

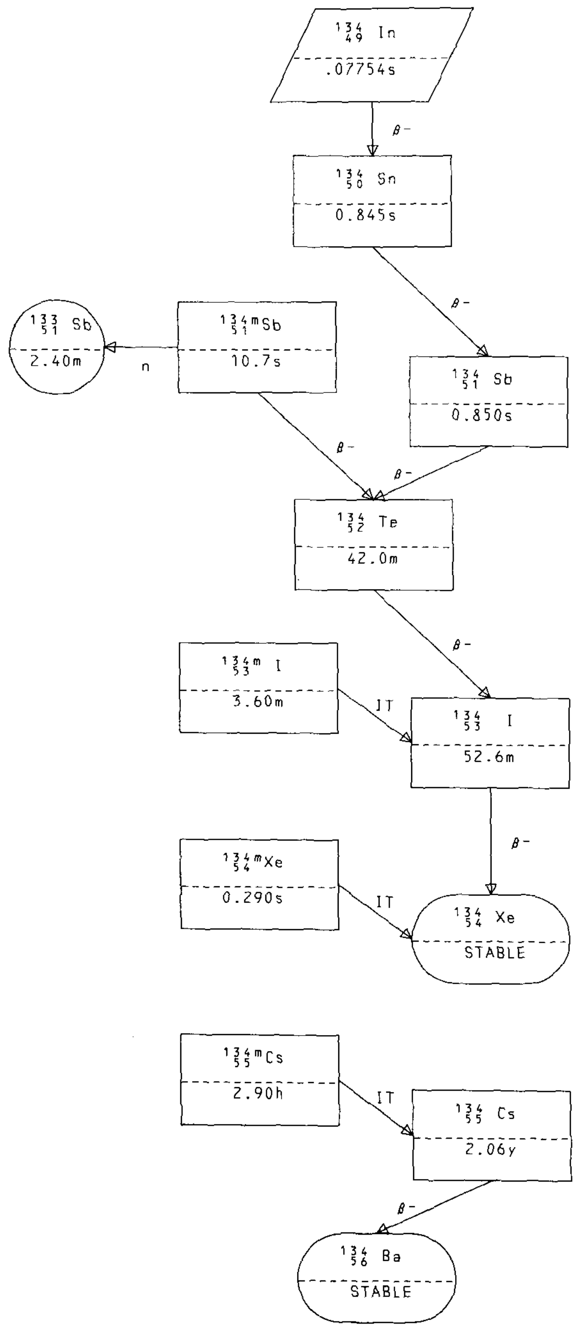
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$3.4371 \times 10^{+1}$
WESTCOTT G FACTOR	1.0199
σ CAPTURE 2200M/S	$2.9514 \times 10^{+1}$
WESTCOTT G FACTOR	1.0022
RESONANCE INTEGRAL TOTAL	$5.4430 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.8030 \times 10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.0510
RESONANCE INTEGRAL (N,P)	1.2120×10^{-2}
RESONANCE INTEGRAL (N,α)	9.5210×10^{-4}

FISSION YIELDS

^{235}U THERMAL	5.0828×10^{-7}
^{235}U FAST	5.7209×10^{-9}
^{239}PU THERMAL	1.6098×10^{-7}



$^{134}_{49}$In
.07754s
β-
$^{134}_{50}$Sn
0.845s
β-
$^{133}_{51}$Sb
2.40m
n
$^{134m}_{51}$Sb
10.7s
$^{134}_{51}$Sb
0.850s
β-
β-
$^{134}_{52}$Te
42.0m
β-
$^{134m}_{53}$I
3.60m
IT
$^{134}_{53}$I
52.6m
β-
$^{134m}_{54}$Xe
0.290s
IT
$^{134}_{54}$Xe
STABLE
$^{134m}_{55}$Cs
2.90h
IT
$^{134}_{55}$Cs
2.06y
β-
$^{134}_{56}$Ba
STABLE

$^{134}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-134 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{134}_{49}$In

$T_{1/2}$ =.07754s
$\langle E_\beta \rangle$ PER DECAY =4012.
$\langle E_\gamma \rangle$ PER DECAY =5137.

FISSION YIELDS

^{235}U THERMAL	5.8131×10^{-8}
^{235}U FAST	1.5303×10^{-7}
^{238}U FAST	1.2589×10^{-5}
^{239}PU THERMAL	6.6591×10^{-9}

Q_β =13160.
BR_β =1.000

$^{134}_{50}$Sn

.8447s

$^{134}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-134 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{134}_{50}$Sn

$T_{1/2}$ =.8447s
$\langle E_\beta \rangle$ PER DECAY =1664.
$\langle E_\gamma \rangle$ PER DECAY =2471.

FISSION YIELDS

^{235}U THERMAL	1.0232×10^{-4}
^{235}U FAST	2.3859×10^{-4}
^{238}U FAST	3.4727×10^{-3}
^{239}PU THERMAL	2.9066×10^{-5}

Q_β =6070.
BR_β =1.000

$^{134}_{51}$Sb

.85±.10s

$^{134m}_{51}Sb$

ENDF/B-IV FILE 1 COMMENTS

51-SB-134M ANC   EVAL-FEB74 C.W.REICH   DECAY DATA
DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.

ANTIMONY-134M   PREPARED FOR ENDF/B IV 8/73 DRF(SRL)
REFERENCE - A.KEREK, ET.AL , NUCL. PHYS. A195, 177(1972)
HALF-LIFE G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.
DELAYED-NEUTRON BRANCHING TAKEN FROM L.TOMLINSON, AT. AND
NUCL. DATA TABLES 12,NO.2,179 (1973). NO Q VALUE IS
LISTED HERE FOR THE ASSOCIATED NEUTRON DECAY MODE.

$^{134m}_{51}Sb$

$T_{1/2}$ =10.7±0.3s
$\langle E_\beta \rangle$ PER DECAY =2954.
$\langle E_\gamma \rangle$ PER DECAY =2094.

FISSION YIELDS

^{235}U THERMAL	2.2863×10^{-3}
^{235}U FAST	4.7457×10^{-3}
^{238}U FAST	1.4026×10^{-2}
^{239}PU THERMAL	1.5325×10^{-3}

BR_N =.00080±.00020

Q_β =8490.±300.
BR_β =.99920±.00020

$^{133}_{51}$ Sb

2.40±.20m

$^{134}_{52}$ Te

42.0±1.0m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
23.17			4	22.16
115.20	±	0.10	1	23.90
297.00	±	0.10	1	94.08
706.30	±	0.10	1	57.00
1279.10	±	0.10	1	100.0

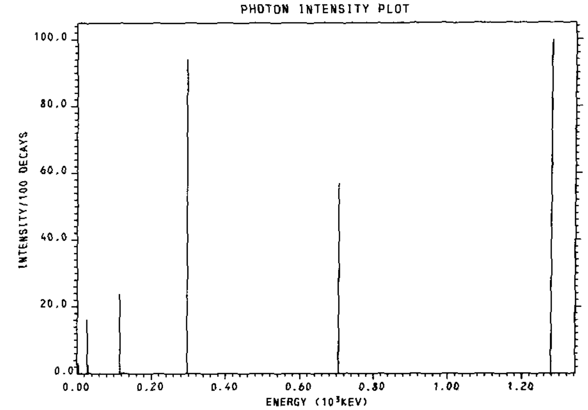
$\langle E_{PHOTON} \rangle$ PER DECAY = 1994.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	29.5	10.37			31.96
CE	296.1	109.23	±	0.07	28.01
$\beta-$	6092.4	2803.	±	160.	57.00
$\beta-$	6798.7	3154.	±	170.	43.00

$\langle E_e \rangle$ PER DECAY = 2988.
$\langle E_\nu \rangle$ PER DECAY = 3442.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	1279.10	±	0.10	100.0
γ	297.00	±	0.10	94.08
γ	706.30	±	0.10	57.00
$\beta-$	6092.	±	300.	57.00
$\beta-$	6799.	±	300.	43.00

$^{134}_{51}Sb$

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              ENDF/B-IV FILE 1 COMMENTS
51-SB-134  ANC        EVAL-FEB74 C.W.REICH              DECAY DATA
                      DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
ANTIMONY-134       PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
REFERENCE - A.KEREK, ET.AL , NUCL. PHYS. A195, 177(1972)
```

$^{134}_{51}Sb$

$T_{1/2}$ =.85±.10s

$\langle E_\beta \rangle$ PER DECAY =3952.

FISSION YIELDS

^{235}U THERMAL	2.2863×10^{-3}
^{235}U FAST	4.7458×10^{-3}
^{238}U FAST	1.4026×10^{-2}
^{239}PU THERMAL	1.5318×10^{-3}

Q_β =8400.±300.

BR_β =1.000

$^{134}_{52}Te$

42.0±1.0m

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY		INTENSITY/100 DECAYS
β^-	8400.0	3952.	± 180.	100.0

$\langle E_e \rangle$ PER DECAY = 3952. ± 180.
$\langle E_\nu \rangle$ PER DECAY = 4448. ± 160.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY		I/100 DECAYS
β^-	8400.	± 300.	100.0

$^{134}_{52}$ Te

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                ENDF/B-IV FILE 1 COMMENTS
52-TE-134  ANC        EVAL-JUL74 C.W.REICH            DECAY DATA
                      DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE    6/74                       CWR
REFERENCES  Q - SEE 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
            OTHER-  V. BERG, K. FRANSSON AND C.E. BEMIS, ARKIV
                      FYSIK 37, 203 (1968).
                     V. BERG AND A. HOEGLUND, NUCLEAR PHYSICS
                       A175, 495 (1971).
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$^{134}_{52}$ Te

$T_{1/2}$ =42.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =152.1
$\langle E_\gamma \rangle$ PER DECAY =825.0

FISSION YIELDS

^{235}U THERMAL	6.3090×10^{-2}
^{235}U FAST	5.3699×10^{-2}
^{238}U FAST	3.7516×10^{-2}
^{239}PU THERMAL	3.5068×10^{-2}

Q_β =1400.
BR_β =1.000

$^{134}_{53}$ I

52.60±0.20m

PHOTON RADIATION TABLE

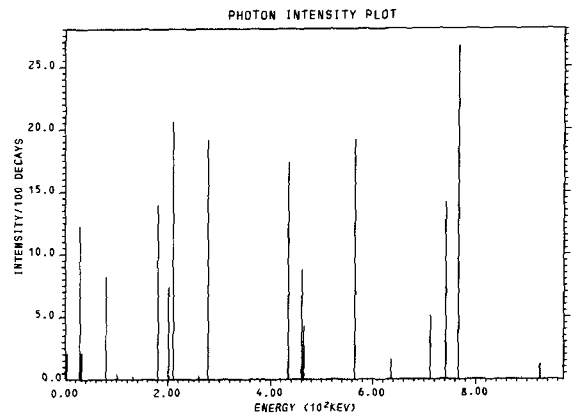
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
43.	±	3.	5	25.	±	4.
101.4	±	0.8	1	.40	±	.13
131.3	±	0.3	1	.27	±	.08
181.10	±	0.20	1	14.0	±	0.9
236.8	±	1.6	4	47.5	±	2.1
434.8	±	0.8	1	17.4	±	1.3
460.7	±	1.0	1	8.8	±	1.1
464.4	±	1.0	1	4.3	±	1.1
565.6	±	0.8	1	19.2	±	1.6
635.9	±	0.5	1	1.6	±	.4
712.5	±	1.0	1	5.1	±	1.1
742.0	±	1.0	1	14.2	±	1.6
766.7	±	1.0	1	26.7	±	1.6
925.2	±	0.5	1	1.2	±	.3

$\langle E_{PHOTON} \rangle$ PER DECAY = 761. ± 24.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	32.1	13.7	±	2.4	24.	±	6.
CE	277.0	98.	±	5.	20.0	±	1.9
β^-	294.0	84.95			11.50		
β^-	477.0	147.4			46.00		
β^-	553.0	175.1			42.55		

$\langle E_\beta \rangle$ PER DECAY = 174.9
$\langle E_\nu \rangle$ PER DECAY = 336.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	477.0			46.00		
β^-	553.0			42.55		
γ	766.7	±	1.0	26.7	±	1.6
γ	210.8	±	0.3	20.6	±	1.3
γ	565.6	±	0.8	19.2	±	1.6
γ	278.1	±	0.3	19.2	±	1.5
γ	434.8	±	0.8	17.4	±	1.3
AU_L	4.116			15.	±	5.
γ	742.0	±	1.0	14.2	±	1.6
γ	181.10	±	0.20	14.0	±	0.9
X_K	27.98			12.	±	4.

$^{134m}_{53}I$

ENDF/B-IV FILE 1 COMMENTS

53- I-134M ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

$^{134m}_{53}I$

$T_{1/2}$ =3.60±.10m

$\langle E_\gamma \rangle$ PER DECAY =315.7

FISSION YIELDS

^{235}U THERMAL	4.2620×10^{-3}
^{235}U FAST	6.1654×10^{-3}
^{238}U FAST	9.6167×10^{-4}
^{239}PU THERMAL	1.1120×10^{-2}

Q_{IT}=315.7

BR_{IT}=1.000

$^{134}_{53}I$

52.60±0.20m

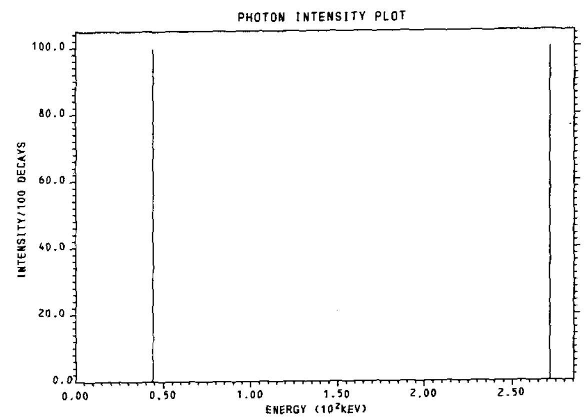
PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
44.00	1	100.0
271.7	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 315.7

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	271.7	100.0
γ	44.00	100.0



$^{134}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-134 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{134}_{53}$I

$T_{1/2}$ =52.60±0.20m
$\langle E_\beta \rangle$ PER DECAY =690.9
$\langle E_\gamma \rangle$ PER DECAY =2593.

FISSION YIELDS

^{235}U THERMAL	4.2859×10^{-3}
^{235}U FAST	6.1647×10^{-3}
^{238}U FAST	9.6158×10^{-4}
^{239}PU THERMAL	2.2743×10^{-2}

Q_β =4150.±60.
BR_β =1.000

$^{134}_{54}$Xe

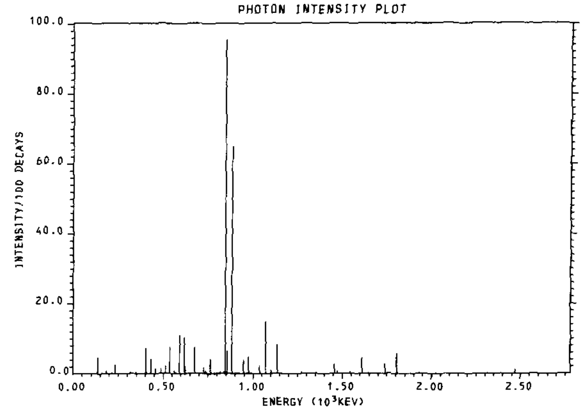
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
144.2	4	6.821
216.9	1	.2862
235.3	1	2.480
279.0	1	.1526
311.0	1	.09540
319.8	1	.4579
350.5	1	.5056
426.0	5	14.86
566.9	5	21.88
621.6	1	10.56
627.8	1	2.108
677.4	1	7.479
756.0	4	7.088
861.6	5	168.0
948.0	1	3.835
967.6	1	.2767
974.6	1	4.732
1040.	1	2.213
1073.	1	14.91
1133.	5	10.30
1270.	1	.4675
1323.	1	.1336
1337.	1	.1526
1354.	1	.3530
1430.	1	.1622
1457.	1	2.690
1471.	1	.7537
1543.	1	.5152
1618.	4	5.304
1741.	1	2.862
1806.	1	5.753
1870.	1	.05724
1928.	1	.1908
2021.	1	.2099
2161.	1	.2194
2262.	1	.05724
2313.	1	.2099
2409.	1	.09540
2453.	1	.04770
2467.	1	1.145
2513.	1	.05724
2629.	1	.06678
2646.	1	.01908

$\langle E_{PHOTON} \rangle$ PER DECAY = 2593.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	846.9	95.40
γ	884.1	64.99
$\beta-$	1280.	21.66
$\beta-$	1560.	16.09
γ	1073.	14.91
$\beta-$	2420.	14.72
γ	595.2	10.99
$\beta-$	1800.	10.69
γ	621.6	10.56
$\beta-$	2538.	8.680
$\beta-$	1500.	8.320
γ	1137.	8.128
γ	540.7	7.518
γ	677.4	7.479
γ	405.3	7.355

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	660.0	215.5	.02000
$\beta-$	670.0	219.3	.06000
$\beta-$	780.0	262.5	1.650
$\beta-$	790.0	266.5	.2700
$\beta-$	840.0	286.6	.1100
$\beta-$	850.0	290.7	.05000

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	890.0	307.0	.09000
β^-	1070.0	382.3	1.190
β^-	1280.0	473.2	21.66
β^-	1380.0	517.5	.3700
β^-	1500.0	571.2	8.320
β^-	1560.0	598.4	16.09
β^-	1600.0	616.6	3.470
β^-	1740.0	680.7	6.120
β^-	1800.0	708.3	10.69
β^-	1850.0	731.5	1.650
β^-	1880.0	745.4	.2700
β^-	2014.0	808.0	.5800
β^-	2230.0	909.7	3.930
β^-	2420.0	1000.	14.72
β^-	2538.0	1056.	8.680

$\langle E_e \rangle$ PER DECAY = 690.9
$\langle E_\nu \rangle$ PER DECAY = 1064.

$^{134m}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS
54-XE-134M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{134m}_{54}Xe$

$T_{1/2}$ =.2900s
$\langle E_\gamma \rangle$ PER DECAY =2000.

FISSION YIELDS

^{235}U THERMAL	2.3695×10^{-4}
^{235}U FAST	2.0767×10^{-4}
^{238}U FAST	6.0994×10^{-6}
^{239}PU THERMAL	9.5046×10^{-4}

Q_{IT}=2000.
BR_{IT}=1.000

$^{134}_{54}Xe$

STABLE OR LONG-LIVED

134m- 54- 1

$^{134}_{54}Xe$

$^{134}_{54}Xe$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.5556
WESTCOTT G FACTOR	1.4447
σ CAPTURE 2200M/S	2.5614×10^{-1}
WESTCOTT G FACTOR	6.7548
RESONANCE INTEGRAL TOTAL	$1.1300 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.5820
RESONANCE INTEGRAL (N,2N)	1.2000
RESONANCE INTEGRAL (N,P)	1.6110×10^{-3}
RESONANCE INTEGRAL (N,α)	3.7640×10^{-5}

FISSION YIELDS

^{235}U THERMAL	2.5640×10^{-4}
^{235}U FAST	2.0769×10^{-4}
^{238}U FAST	6.1094×10^{-6}
^{239}PU THERMAL	9.5086×10^{-4}

$^{134m}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-134M ANC   EVAL-FEB74 C.W.REICH   DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

$^{134m}_{55}Cs$

$T_{1/2}$ =2.900±.010h
$\langle E_{\gamma}\rangle$ PER DECAY =137.6

FISSION YIELDS

^{235}U THERMAL	2.5514×10^{-7}
^{235}U FAST	1.8303×10^{-7}
^{239}PU THERMAL	2.3097×10^{-6}

Q_{IT}=137.6
BR_{IT}=1.000

$^{134}_{55}Cs$

2.060±.010y

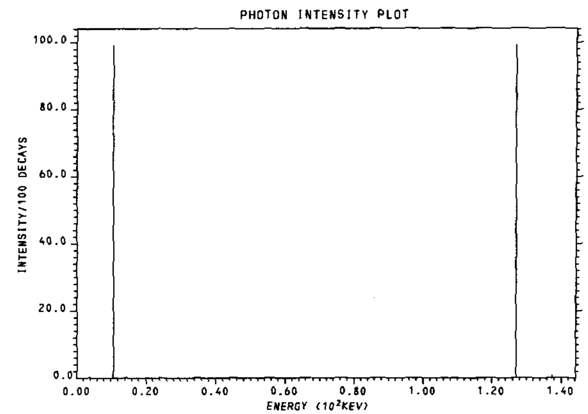
PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
10.50	1	99.20
127.1	1	99.20
137.4	1	.8000

$\langle E_{PHOTON} \rangle$ PER DECAY = 137.6

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	127.1	99.20
γ	10.50	99.20



$^{134}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS

55-CS-134 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA

REFERENCES

CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.

Q-1973 WAPSTRA-GOVE MASSTABLE

$^{134}_{55}$Cs

$T_{1/2}$ =2.060±.010y

$\langle E_\beta \rangle$ PER DECAY =161.3

$\langle E_\gamma \rangle$ PER DECAY =1580.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.4479\times10^{+2}$
WESTCOTT G FACTOR	1.0309
σ CAPTURE 2200M/S	$1.4000\times10^{+2}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$4.0620\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.1120\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	1.0205×10^{-7}
^{235}U FAST	1.8303×10^{-7}
^{239}PU THERMAL	2.2997×10^{-6}

Q_β =2058.5±0.4

BR_β =1.000

$^{134}_{56}$Ba

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

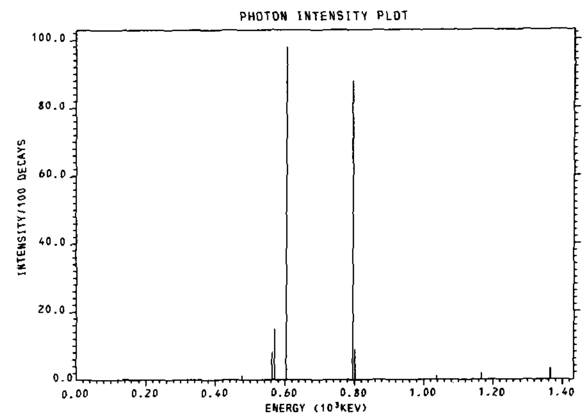
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
475.3	1	1.400
563.0	1	8.000
569.3	1	14.80
604.7	1	98.00
795.8	1	88.00
802.2	1	9.000
1038.	1	1.100
1168.	1	1.900
1365.	1	3.300

$\langle E_{PHOTON} \rangle$ PER DECAY = 1580.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	89.0	23.38	28.00
β^-	410.0	123.8	1.000
β^-	662.0	216.2	71.00

$\langle E_e \rangle$ PER DECAY = 161.3
$\langle E_\nu \rangle$ PER DECAY = 337.7

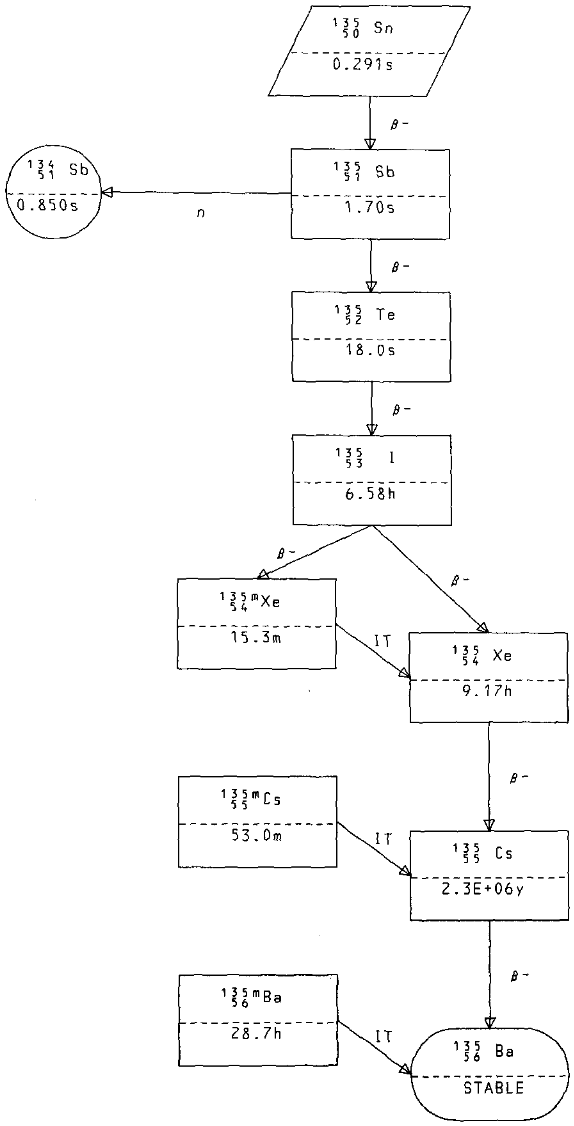


CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	604.7	98.00
γ	795.8	88.00
β^-	662.0	71.00

$^{134}_{56}$Ba

$^{134}_{56}$Ba	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	6.3358
WESTCOTT G FACTOR	1.0859
σ CAPTURE 2200M/S	2.1587
WESTCOTT G FACTOR	1.0033
RESONANCE INTEGRAL TOTAL	$1.6330 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.3920 \times 10^{+1}$
FISSION YIELDS	
^{239}PU THERMAL	1.1298×10^{-9}


135 50 Sn
0.291s
β-
134 51 Sb
0.850s
n
135 51 Sb
1.70s
β-
135 52 Te
18.0s
β-
135 53 I
6.58h
β-
β-
135m 54 Xe
15.3m
IT
135 54 Xe
9.17h
β-
135m 55 Cs
53.0m
IT
135 55 Cs
2.3E+06y
β-
135m 56 Ba
28.7h
IT
135 56 Ba
STABLE

$^{135}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-135 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{135}_{50}$Sn

$T_{1/2}$ =.2911s
$\langle E_\beta \rangle$ PER DECAY =2337.
$\langle E_\gamma \rangle$ PER DECAY =3304.

FISSION YIELDS

^{235}U THERMAL	1.2367×10^{-5}
^{235}U FAST	1.2882×10^{-5}
^{238}U FAST	4.7930×10^{-4}
^{239}PU THERMAL	1.0798×10^{-6}

Q_β =8080.
BR_β =1.000

$^{135}_{51}$Sb
1.700±.020s

135 - 50- 1

$^{135}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-135 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{135}_{51}$Sb

$T_{1/2}$ =1.700±.020s
$\langle E_\beta \rangle$ PER DECAY =2064.
$\langle E_\gamma \rangle$ PER DECAY =2808.

FISSION YIELDS

^{235}U THERMAL	1.9740×10^{-3}
^{235}U FAST	1.8764×10^{-3}
^{238}U FAST	1.2135×10^{-2}
^{239}PU THERMAL	4.0570×10^{-4}

Q_N =3655.
BR_N =.080±.020

Q_β =7520.
BR_β =.9200

$^{134}_{51}$Sb
.85±.10s

$^{135}_{52}$Te
18.0±1.0s

$^{135}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-135 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{135}_{52}$Te

$T_{1/2}$ =18.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1625.
$\langle E_\gamma \rangle$ PER DECAY =2177.

FISSION YIELDS

^{235}U THERMAL	3.0767×10^{-2}
^{235}U FAST	3.4132×10^{-2}
^{238}U FAST	4.5855×10^{-2}
^{239}PU THERMAL	1.7589×10^{-2}

Q_β =5920.
BR_β =1.000

$^{135}_{53}$I

6.585±.003h

$^{135}_{53}$I

ENDF/B-IV FILE 1 COMMENTS

```
53- I-135  ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                                DIST-NOV74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
          Q-1973 WAPSTRA-GOVE MASSTABLE
          BRANCHING RATIO FOR DECAY TO XE-135M IS TAKEN FROM
          W.R.DANIELS ET AL., J.INORG.AND NUCL.CHEM. 36,
          201 (1974).
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$^{135}_{53}$I

$T_{1/2}$ =6.585±.003h
$\langle E_\beta \rangle$ PER DECAY =393.7
$\langle E_\gamma \rangle$ PER DECAY =1456.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.8320
WESTCOTT G FACTOR	1.1326
σ CAPTURE 2200M/S	2.0000×10^{-2}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$9.1720\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.5360×10^{-2}

FISSION YIELDS

^{235}U THERMAL	3.0739×10^{-2}
^{235}U FAST	2.3534×10^{-2}
^{238}U FAST	7.0092×10^{-3}
^{239}PU THERMAL	4.5036×10^{-2}

Q_β =2189.±30.
BR_β =.147±.007

Q_β =2715.±30.
BR_β =.8530

$^{135m}_{54}$Xe

15.30±0.10m

$^{135}_{54}$Xe

9.170±.010h

PHOTON RADIATION TABLE

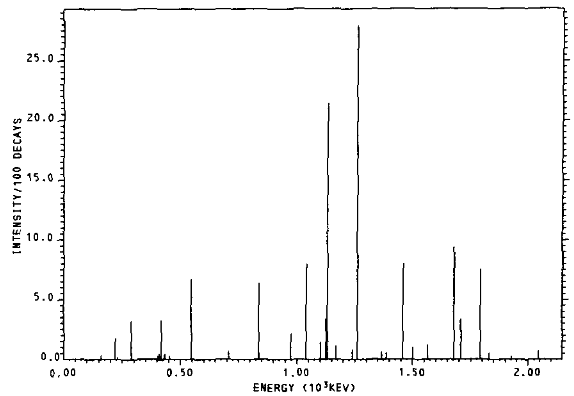
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
158.2	1	.4000
220.4	1	1.760
229.7	1	.2000
288.4	1	3.200
420.2	7	5.408
546.6	1	6.720
707.9	1	.6800
836.9	1	6.400
972.3	1	2.160
1039.	1	8.000
1131.	4	27.35
1240.	1	.8160
1261.	1	27.92
1368.	1	.6320
1387.	1	.5760
1458.	1	8.000
1503.	1	.9920
1567.	1	1.232
1678.	1	9.440
1707.	1	3.360
1791.	1	7.520
1831.	1	.5600
1927.	1	.2960
2045.	1	.7200

$\langle E_{PHOTON} \rangle$ PER DECAY = 1456.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	260.0	74.06	.06000
β^-	320.0	93.43	1.000
β^-	360.0	106.8	.8000
β^-	370.0	110.1	1.100
β^-	470.0	144.9	5.000
β^-	500.0	155.7	3.000
β^-	540.0	170.3	.03000
β^-	580.0	185.1	.03000
β^-	620.0	200.2	.06000
β^-	640.0	207.8	1.400
β^-	680.0	223.2	1.100
β^-	760.0	254.5	6.900
β^-	780.0	262.5	.06000
β^-	800.0	270.5	.06000
β^-	840.0	286.6	.6000
β^-	940.0	327.6	9.800
β^-	950.0	331.8	.1000
β^-	1020.0	361.1	4.300
β^-	1050.0	373.8	20.90
β^-	1160.0	420.9	7.600

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1261.	27.92
β^-	1470.	24.20
γ	1132.	21.44
β^-	1050.	20.90
β^-	940.0	9.800
γ	1678.	9.440
γ	1458.	8.000
γ	1039.	8.000
β^-	1270.	8.000
β^-	1160.	7.600
γ	1791.	7.520
β^-	760.0	6.900
γ	546.6	6.720
γ	836.9	6.400

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1270.0	468.8	8.000
β^-	1280.0	473.2	.03000
β^-	1470.0	557.7	24.20
β^-	1600.0	616.6	2.100
β^-	2200.0	895.5	1.100

$\langle E_e \rangle$ PER DECAY = 393.7
$\langle E_\nu \rangle$ PER DECAY = 690.8

$^{135m}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS
54-XE-135M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74

REFERENCE
OTHER- M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
ORNL-4923 (1973).

$^{135m}_{54}Xe$

$T_{1/2}$ =15.30±0.10m
$\langle E_\gamma \rangle$ PER DECAY =526.8

FISSION YIELDS

^{235}U THERMAL	1.6141×10^{-3}
^{235}U FAST	2.0484×10^{-3}
^{238}U FAST	6.4724×10^{-5}
^{239}PU THERMAL	6.7593×10^{-3}

Q_{IT}=526.62±0.03
BR_{IT}=1.000

$^{135}_{54}Xe$

9.170±.010h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
26.7	±	1.0	4	15.	±	4.
526.62	±	0.03	1	81.2	±	0.5

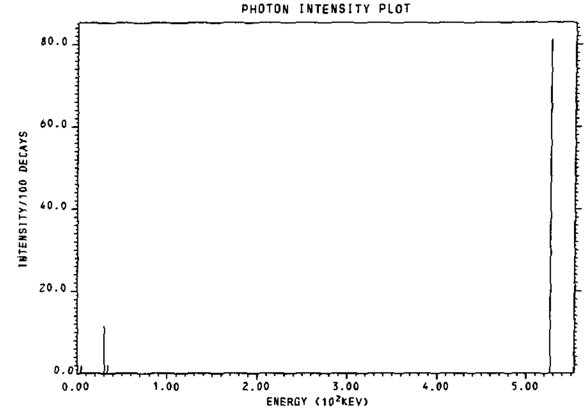
$\langle E_{PHOTON} \rangle$ PER DECAY = 432. ± 3.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	33.4	14.8	±	2.3	24.	±	6.
CE	525.5	497.64	±	0.18	18.8	±	0.5

$\langle E_e \rangle$ PER DECAY = 97.30

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	526.62	±	0.03	81.2	±	0.5
CE_K	492.06	±	0.03	15.3	±	0.5
AU_L	4.308			15.	±	5.

$^{135}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS
54-XE-135 BNW EVAL-JUN67 B.R.LEONARD,JR. AND K.B.STEWART
PRI.COM.JUNE,1967 DIST-NOV74 REV-JUN75
Radioactive Decay Data EVAL-C.W. Reich(ANC)

References
Q 1973 revision of Wapstra-Gove Tables
Other M.J. Martin Radioactive Atoms-Supplement 1
ORNL-4923(1973)

$^{135}_{54}Xe$

$T_{1/2}$ =9.170±.010h
$\langle E_\beta \rangle$ PER DECAY =309.9
$\langle E_\gamma \rangle$ PER DECAY =261.4

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.9320 \times 10^{+6}$
WESTCOTT G FACTOR	1.1915
σ CAPTURE 2200M/S	$2.6363 \times 10^{+6}$
WESTCOTT G FACTOR	1.1616
RESONANCE INTEGRAL TOTAL	$1.2870 \times 10^{+4}$
RESONANCE INTEGRAL CAPTURE	$7.6400 \times 10^{+3}$

FISSION YIELDS

^{235}U THERMAL	9.3109×10^{-4}
^{235}U FAST	1.1522×10^{-3}
^{238}U FAST	8.5132×10^{-5}
^{239}PU THERMAL	4.7572×10^{-3}

Q_β =1158.±9.
BR_β =1.000

$^{135}_{55}Cs$

$2.298 \times 10^{+6}$y

PHOTON RADIATION TABLE

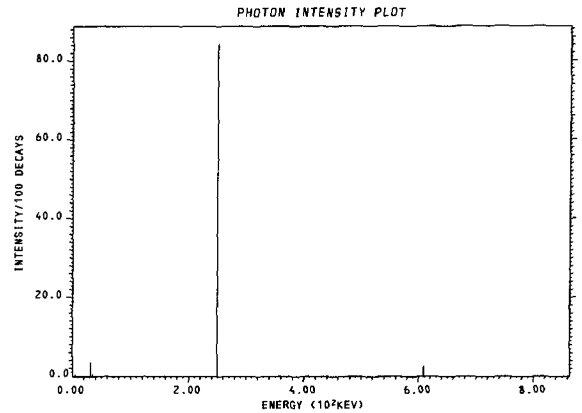
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
28.4	±	0.9	4	4.8	±	1.2
158.20	±	0.20	1	.230	±	.020
199.9	±	0.7	1	.02000		
249.741	±	0.010	1	84.59	±	0.25
358.3	±	0.3	1	.200	±	.020
373.1	±	1.0	1	.01100		
407.9	±	0.3	1	.320	±	.020
608.07	±	0.04	1	2.58	±	.14
654.6	±	0.4	1	.032	±	.004
731.9	±	0.4	1	.045	±	.005
821.6	±	0.4	1	.050	±	.006

$\langle E_{PHOTON} \rangle$ PER DECAY = 231.7 ± 1.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	34.8	23.4	±	2.1	13.2	±	1.8
CE	248.5	219.7	±	0.4	6.0	±	.3
β^-	95.0	25.0	±	2.5	.082	±	.007
β^-	176.0	48.	±	3.	.056	±	.010
β^-	549.0	174.	±	6.	2.80	±	.20
β^-	750.0	251.	±	8.	.500	±	.010
β^-	908.0	314.	±	10.	96.60	±	0.20

$\langle E_e \rangle$ PER DECAY = 326. ± 9.
$\langle E_\nu \rangle$ PER DECAY = 586.5 ± 1.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	908.	±	9.	96.60	±	0.20
γ	249.741	±	0.010	84.59	±	0.25

$^{135m}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-135M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{135m}_{55}Cs$

$T_{1/2}$ =53.00m
$\langle E_\gamma \rangle$ PER DECAY =1621.

FISSION YIELDS

^{235}U THERMAL	6.0533×10^{-6}
^{235}U FAST	4.5907×10^{-6}
^{238}U FAST	2.6897×10^{-8}
^{239}PU THERMAL	3.7085×10^{-5}

Q_{IT}=1621.
BR_{IT}=1.000

$^{135}_{55}Cs$

$2.298\times10^{+6}$y

135m- 55- 1

$^{135}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-135 HEDL EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
DIST-NOV74

$^{135}_{55}Cs$

$T_{1/2}$ =$2.298\times10^{+6}$y
$\langle E_\beta \rangle$ PER DECAY =69.40
$\langle E_\gamma \rangle$ PER DECAY =.1000

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.3512\times10^{+1}$
WESTCOTT G FACTOR	1.1426
σ CAPTURE 2200M/S	8.7000
WESTCOTT G FACTOR	9.9991×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.9450\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.1840\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	8.3145×10^{-6}
^{235}U FAST	4.5407×10^{-6}
^{238}U FAST	3.0097×10^{-8}
^{239}PU THERMAL	4.2854×10^{-5}

Q_β =209.0
BR_β =1.000

$^{135}_{56}Ba$

STABLE OR LONG-LIVED

135 - 55- 1

$^{135m}_{56}Ba$

ENDF/B-IV FILE 1 COMMENTS
56-BA-135M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
OIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{135m}_{56}Ba$

$T_{1/2}$ =28.70h
$\langle E_\gamma \rangle$ PER DECAY =268.0

FISSION YIELDS

^{235}U THERMAL	2.3613×10^{-9}
^{235}U FAST	1.6503×10^{-9}
^{239}PU THERMAL	3.4995×10^{-8}

Q_{IT}=268.0
BR_{IT}=1.000

$^{135}_{56}$ Ba

STABLE OR LONG-LIVED

135m- 56- 1

$^{135}_{56}$ Ba

$^{135}_{56}$ Ba

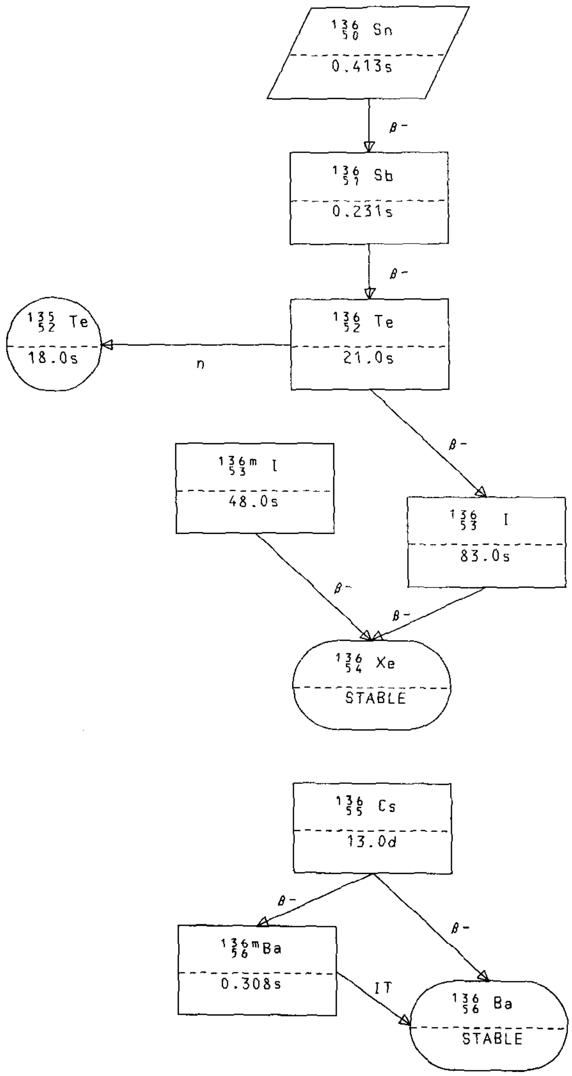
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	9.3066
WESTCOTT G FACTOR	1.0486
σ CAPTURE 2200M/S	5.8171
WESTCOTT G FACTOR	1.0007
RESONANCE INTEGRAL TOTAL	$2.8490\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.0060\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	2.2412×10^{-9}
^{235}U FAST	3.9106×10^{-9}
^{239}PU THERMAL	3.8995×10^{-8}


$^{136}_{50}$Sn
0.413s
β-
$^{136}_{51}$Sb
0.231s
β-
$^{135}_{52}$Te
18.0s
n
$^{136}_{52}$Te
21.0s
β-
$^{136m}_{53}$I
48.0s
$^{136}_{53}$I
83.0s
β-
β-
$^{136}_{54}$Xe
STABLE
$^{136}_{55}$Cs
13.0d
β-
β-
$^{136m}_{56}$Ba
0.308s
IT
$^{136}_{56}$Ba
STABLE

$^{136}_{50}$Sn

ENDF/B-IV FILE 1 COMMENTS
50-SN-136 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{136}_{50}$Sn

$T_{1/2}$ =.4130s
$\langle E_\beta \rangle$ PER DECAY =1927.
$\langle E_\gamma \rangle$ PER DECAY =2972.

FISSION YIELDS

^{235}U THERMAL	5.3929×10^{-7}
^{235}U FAST	5.8609×10^{-7}
^{238}U FAST	5.0435×10^{-5}
^{239}PU THERMAL	3.9694×10^{-8}

Q_β =6950.
BR_β =1.000

$^{136}_{51}$Sb

.2313s

136 - 50- 1

$^{136}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-136 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{136}_{51}$Sb

$T_{1/2}$ =.2313s
$\langle E_\beta \rangle$ PER DECAY =2889.
$\langle E_\gamma \rangle$ PER DECAY =3688.

FISSION YIELDS

^{235}U THERMAL	2.9992×10^{-4}
^{235}U FAST	2.9722×10^{-4}
^{238}U FAST	3.8616×10^{-3}
^{239}PU THERMAL	5.2882×10^{-5}

Q_β =9540.
BR_β =1.000

$^{136}_{52}$Te

21.0±1.0s

$^{136}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-136 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{136}_{52}$Te

$T_{1/2}$ =21.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1144.
$\langle E_\gamma \rangle$ PER DECAY =1698.

FISSION YIELDS

^{235}U THERMAL	1.8738×10^{-2}
^{235}U FAST	1.7012×10^{-2}
^{238}U FAST	3.9278×10^{-2}
^{239}PU THERMAL	7.5028×10^{-3}

Q_N =715.3
BR_N =.005±.005

Q_β =4400.
BR_β =.9950

$^{135}_{52}$Te — 18.0±1.0s

$^{136}_{53}$I — 83.±3.s

136 - 52- 1

$^{136m}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-136M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

REFERENCE
Q-L. CARRAZ, NUCL. PHYS. A158, 403 (1970)
HALF-LIFE G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.

$^{136m}_{53}$I

$T_{1/2}$ =48.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =1939.
$\langle E_\gamma \rangle$ PER DECAY =1925.

FISSION YIELDS

^{235}U THERMAL	1.9934×10^{-2}
^{235}U FAST	1.6748×10^{-2}
^{238}U FAST	7.9634×10^{-3}
^{239}PU THERMAL	1.6641×10^{-2}

Q_β =6300.±200.
BR_β =1.000

$^{136}_{54}$Xe — STABLE OR LONG-LIVED

136m- 53- 1

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
197.5	1	85.00
370.5	1	19.00
381.5	1	98.00
1313.	1	100.0

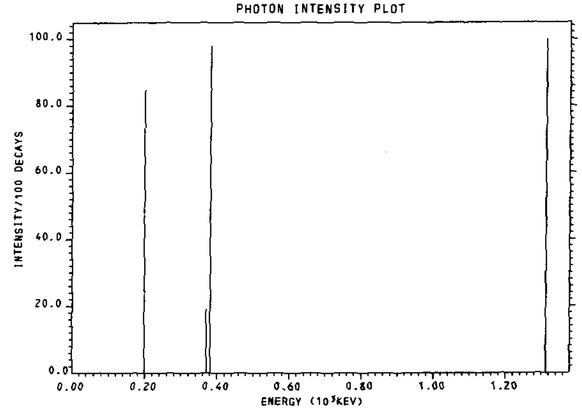
$\langle E_{PHOTON} \rangle$ PER DECAY = 1925.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	4000.0	1768.	20.00
β-	4400.0	1965.	66.00
β-	4600.0	2063.	14.00

$\langle E_e \rangle$ PER DECAY = 1939.
$\langle E_\nu \rangle$ PER DECAY = 2409.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1313.	100.0
γ	381.5	98.00
γ	197.5	85.00
β-	4400.	66.00

$^{136}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-136 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.

REFERENCE
G-L. CARRAZ, NUCL. PHYS. A158, 403 (1970)
HALF-LIFE G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.

$^{136}_{53}$I

$T_{1/2}$ =83.±3.s
$\langle E_\beta \rangle$ PER DECAY =1811.
$\langle E_\gamma \rangle$ PER DECAY =2213.

FISSION YIELDS

^{235}U THERMAL	1.1271×10^{-2}
^{235}U FAST	1.6748×10^{-2}
^{238}U FAST	7.9388×10^{-3}
^{239}PU THERMAL	1.6641×10^{-2}

Q_β =6300.±200.
BR_β =1.000

$^{136}_{54}$Xe

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
219.5	1	1.326
345.5	1	3.977
434.0	1	.9944
976.0	1	3.977
1313.	1	66.29
1321.	1	29.17
1536.	1	2.652
1963.	1	3.315
2289.	1	11.93
2415.	1	7.292
2635.	1	7.955
2869.	1	4.640

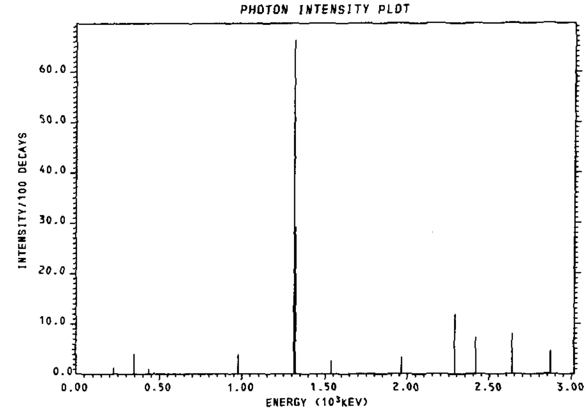
$\langle E_{PHOTON} \rangle$ PER DECAY = 2213.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	3000.0	1279.	3.000
β-	3400.0	1474.	10.00
β-	3700.0	1620.	40.00
β-	3900.0	1719.	6.500
β-	4000.0	1768.	11.50
β-	5000.0	2261.	28.00
β-	6300.0	2906.	1.000

$\langle E_e \rangle$ PER DECAY = 1811.
$\langle E_\nu \rangle$ PER DECAY = 2275.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1313.	66.29
β-	3700.	40.00
γ	1321.	29.17
β-	5000.	28.00
γ	2289.	11.93
β-	4000.	11.50

$^{136}_{54}$Xe

$^{136}_{54}$Xe

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.4605
WESTCOTT G FACTOR	1.3351
σ CAPTURE 2200M/S	1.6000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.2660\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.2380×10^{-1}
RESONANCE INTEGRAL (N,2N)	1.0660
RESONANCE INTEGRAL (N,P)	5.9930×10^{-5}
RESONANCE INTEGRAL (N,α)	3.1480×10^{-5}

FISSION YIELDS

^{235}U THERMAL	1.2475×10^{-2}
^{235}U FAST	1.1485×10^{-2}
^{238}U FAST	1.0123×10^{-3}
^{239}PU THERMAL	2.5392×10^{-2}

136 - 54- 1

$^{136}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-136 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{136}_{55}$Cs

$T_{1/2}$ =13.000±0.020d
$\langle E_\beta\rangle$ PER DECAY =119.2
$\langle E_\gamma\rangle$ PER DECAY =2157.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.1453
WESTCOTT G FACTOR	1.0961
σ CAPTURE 2200M/S	1.3018
WESTCOTT G FACTOR	1.0008
RESONANCE INTEGRAL TOTAL	$2.4700\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.9920\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	5.3079×10^{-5}
^{235}U FAST	1.5651×10^{-4}
^{238}U FAST	8.2292×10^{-6}
^{239}PU THERMAL	1.0529×10^{-3}

Q_β =508.3
BR_β =.1600

$^{136m}_{56}$Ba

.3080s

Q_β =2574.5±2.0
BR_β =.8400

$^{136}_{56}$Ba

STABLE OR LONG-LIVED

136 - 55- 1

PHOTON RADIATION TABLE

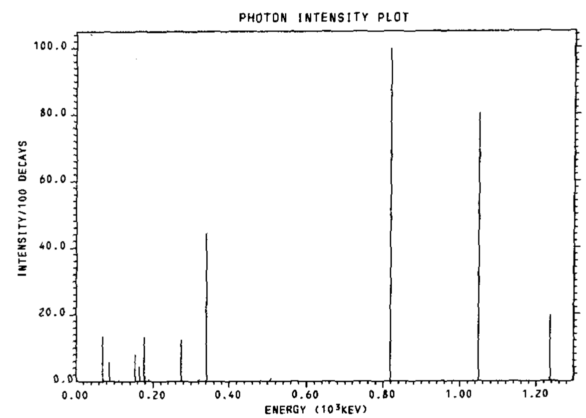
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
66.90	1	13.70
86.43	1	5.800
166.6	5	26.90
273.8	1	12.50
319.9	1	.6000
340.6	1	44.50
507.2	1	1.000
818.5	1	100.0
1048.	1	80.50
1235.	1	19.70

$\langle E_{PHOTON} \rangle$ PER DECAY = 2157.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	368.0	109.5	91.00
β^-	518.0	162.2	2.000
β^-	708.0	234.1	7.000

$\langle E_e \rangle$ PER DECAY = 119.2
$\langle E_\nu \rangle$ PER DECAY = 275.6



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	818.5	100.0
β^-	368.0	91.00
γ	1048.	80.50
γ	340.6	44.50

$^{136m}_{56}Ba$

ENDF/B-IV FILE 1 COMMENTS
56-BA-136M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{136m}_{56}Ba$

$T_{1/2}$ =.3080s
$\langle E_\gamma \rangle$ PER DECAY =2040.

Q_{IT}=2040.
BR_{IT}=1.000

$^{136}_{56}$ Ba

STABLE OR LONG-LIVED

136m- 56- 1

$^{136}_{56}$ Ba

$^{136}_{56}$ Ba

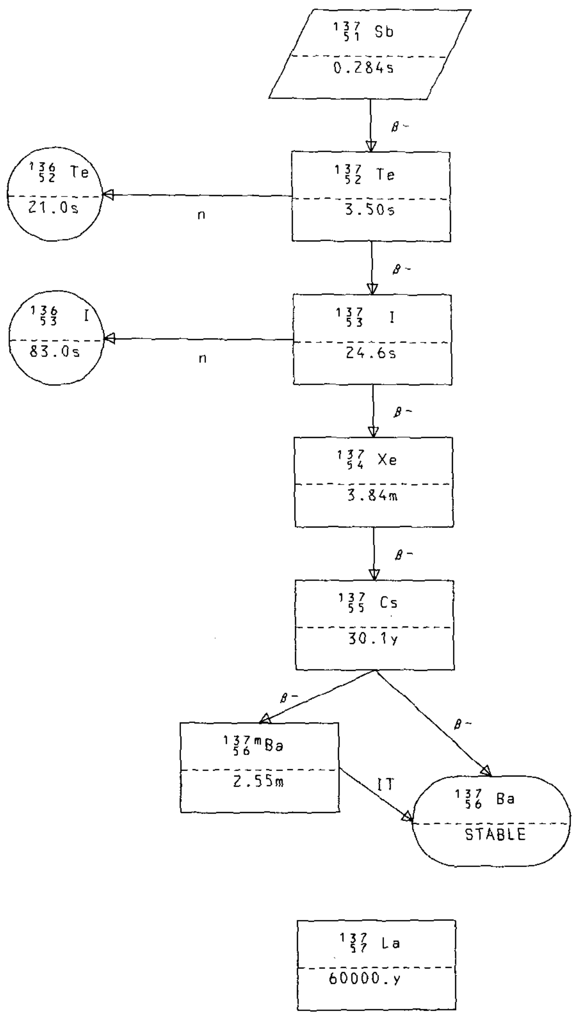
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.1952
WESTCOTT G FACTOR	1.1205
σ CAPTURE 2200M/S	4.1044×10^{-1}
WESTCOTT G FACTOR	1.0266
RESONANCE INTEGRAL TOTAL	$1.0280\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.9630

FISSION YIELDS

^{235}U THERMAL	7.1239×10^{-8}
^{235}U FAST	1.5903×10^{-7}
^{239}PU THERMAL	2.2497×10^{-6}


137 51 Sb
0.284s
β-
137 52 Te
3.50s
n
136 52 Te
21.0s
β-
137 53 I
24.6s
n
136 53 I
83.0s
β-
137 54 Xe
3.84m
β-
137 55 Cs
30.1y
β-
β-
137m 56 Ba
2.55m
IT
137 56 Ba
STABLE
137 57 La
60000.y

$^{137}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-137 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{137}_{51}$Sb

$T_{1/2}$ =.2837s
$\langle E_\beta \rangle$ PER DECAY =2443.
$\langle E_\gamma \rangle$ PER DECAY =3403.

FISSION YIELDS

^{235}U THERMAL	2.0311×10^{-5}
^{235}U FAST	2.8525×10^{-5}
^{238}U FAST	9.4072×10^{-4}
^{239}PU THERMAL	3.7495×10^{-6}

Q_β =8400.
BR_β =1.000

$^{137}_{52}$Te

3.5±.5s

137 - 51- 1

$^{137}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-137 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{137}_{52}$Te

$T_{1/2}$ =3.5±.5s
$\langle E_\beta \rangle$ PER DECAY =1781.
$\langle E_\gamma \rangle$ PER DECAY =2512.

FISSION YIELDS

^{235}U THERMAL	4.0890×10^{-3}
^{235}U FAST	5.0996×10^{-3}
^{238}U FAST	2.6960×10^{-2}
^{239}PU THERMAL	1.6138×10^{-3}

Q_N =785.7
BR_N =.005±.005

Q_β =6480.
BR_β =.9950

$^{136}_{52}$Te

21.0±1.0s

$^{137}_{53}$I

24.60±0.20s

$^{137}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-137 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{137}_{53}$I

$T_{1/2}$ =24.60±0.20s
$\langle E_\beta \rangle$ PER DECAY =1515.
$\langle E_\gamma \rangle$ PER DECAY =2029.

FISSION YIELDS

^{235}U THERMAL	2.8518×10^{-2}
^{235}U FAST	2.7839×10^{-2}
^{238}U FAST	2.8786×10^{-2}
^{239}PU THERMAL	1.9531×10^{-2}

Q_N =1306.
BR_N =.054±.013

Q_β =5770.
BR_β =.9460

$^{136}_{53}$I

83.±3.s

$^{137}_{54}$Xe

3.840±.020m

137 - 53- 1

$^{137}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-137 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 12/73 CWR
REFERENCE Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE
OTHER- M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
ORNL-4923 (1973).

$^{137}_{54}$Xe

$T_{1/2}$ =3.840±.020m
$\langle E_\beta \rangle$ PER DECAY =1841.
$\langle E_\gamma \rangle$ PER DECAY =195.3

FISSION YIELDS

^{235}U THERMAL	2.8969×10^{-2}
^{235}U FAST	2.6398×10^{-2}
^{238}U FAST	5.0898×10^{-3}
^{239}PU THERMAL	3.7946×10^{-2}

Q_β =4347.±24.
BR_β =1.000

$^{137}_{55}$Cs

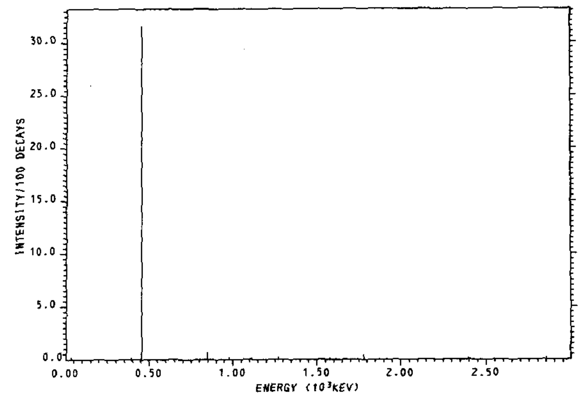
30.10±0.10y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
28.5	±	1.0	4	.32	±	.09
394.0	±	1.0	1	.18	±	.04
455.38	±	0.10	1	32.	±	7.
595.0	±	1.0	1	.090	±	.020
849.0	±	1.0	1	.69	±	.15
934.0	±	1.0	1	.070	±	.020
982.0	±	1.0	1	.23	±	.05
1068.0	±	1.0	1	.080	±	.020
1141.	±	5.	4	.43	±	.06
1275.0	±	1.0	1	.26	±	.06
1576.0	±	1.0	1	.18	±	.04
1615.0	±	1.0	1	.17	±	.04
1668.0	±	1.0	1	.080	±	.020
1784.0	±	1.0	1	.51	±	.11
1918.0	±	1.0	1	.12	±	.03
2396.0	±	1.0	1	.11	±	.03
2852.0	±	1.0	1	.27	±	.06

$\langle E_{PHOTON} \rangle$ PER DECAY = 192. ± 30.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	34.8	33.6	±	0.4	8.35	±	.13
CE	454.2	424.2	±	1.2	.39	±	.07
β^-	1495.0	569.	±	19.	.87	±	.10
β^-	2276.0	932.	±	30.	.17	±	.04
β^-	2429.0	1004.	±	30.	.05	±	.04
β^-	2563.0	1068.	±	30.	.43	±	.11
β^-	2771.0	1168.	±	40.	.21	±	.05
β^-	3365.0	1457.	±	40.	.14	±	.07
β^-	3498.0	1522.	±	50.	.90	±	.20
β^-	3892.0	1715.	±	50.	31.	±	3.
β^-	4347.0	1938.	±	60.	66.	±	3.

$\langle E_e \rangle$ PER DECAY = 1845. ± 90.
$\langle E_\nu \rangle$ PER DECAY = 2306. ± 100.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	4347.	±	24.	66.	±	3.
γ	455.38	±	0.10	32.	±	7.
β^-	3892.	±	24.	31.	±	3.

$^{137}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS

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55-CS-137  HEDL,ANC  EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
                                CROSS SECTION DATA
                     EVAL-FEB74 C.W.REICH   DECAY DATA
                     DIST-NOV74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
            Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLES
            OTHER- M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
                   ORNL-4923  (1973).
```

$^{137}_{55}$Cs

$T_{1/2}$ =30.10±0.10y

$\langle E_\beta \rangle$ PER DECAY =174.4

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.9690
WESTCOTT G FACTOR	1.1455
σ CAPTURE 2200M/S	1.1000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.1190\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	4.8570×10^{-1}

FISSION YIELDS

^{235}U THERMAL	1.0842×10^{-3}
^{235}U FAST	2.2241×10^{-3}
^{238}U FAST	1.5986×10^{-4}
^{239}PU THERMAL	7.8172×10^{-3}

Q_β =511.6±0.9
BR_β =.946±.003

Q_β =1173.2±0.9
BR_β =.054±.003

$^{137m}_{56}$Ba

2.5500±.0020m

$^{137}_{56}$Ba

STABLE OR LONG-LIVED

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	512.0	160.	±	5.	94.6	±	0.3
β-	1173.0	427.	±	13.	5.4	±	.3

$\langle E_e \rangle$ PER DECAY = 174. ± 5.
$\langle E_\nu \rangle$ PER DECAY = 373.3 ± 2.5

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	512.0	±	0.9	94.6	±	0.3

$^{137m}_{56}Ba$

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                ENDF/B-IV FILE 1 COMMENTS
56-BA-137M ANC      EVAL-FEB74 C.W.REICH            DECAY DATA
                    DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE    12/73                    CWR
REFERENCE
             OTHER- M.J.MARTIN, RADIOACTIVE ATOMS-SUPPLEMENT 1 ,
                    ORNL-4923  (1973).
```

$^{137m}_{56}Ba$

$T_{1/2}$ =2.5500±.0020m
$\langle E_\gamma \rangle$ PER DECAY =662.2

FISSION YIELDS

^{235}U THERMAL	2.5114×10^{-6}
^{235}U FAST	1.8803×10^{-6}
^{238}U FAST	8.3192×10^{-9}
^{239}PU THERMAL	1.5338×10^{-5}

Q_{IT}=661.645±.009
BR_{IT}=1.000

$^{137}_{56}Ba$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

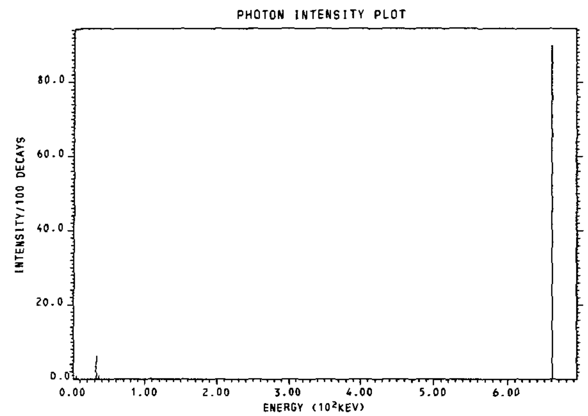
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
29.4	±	0.9	4	8.3	±	1.9
661.645	±	0.009	1	90.0	±	0.4

$\langle E_{PHOTON} \rangle$ PER DECAY = 598. ± 3.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	36.1	20.8	±	2.4	17.	±	3.
CE	660.4	629.85	±	0.06	10.08	±	0.08

$\langle E_e \rangle$ PER DECAY = 67.00



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	661.645	±	0.009	90.0	±	0.4
CE_K	624.204	±	0.009	8.31	±	.08

$^{137}_{56}$Ba

$^{137}_{56}$Ba
STABLE OR LONG-LIVED
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	9.6467
WESTCOTT G FACTOR	1.0704
σ CAPTURE 2200M/S	5.1029
WESTCOTT G FACTOR	1.0186
RESONANCE INTEGRAL TOTAL	$1.2340\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.0110

FISSION YIELDS

^{235}U THERMAL	2.5114×10^{-6}
^{235}U FAST	1.8803×10^{-6}
^{238}U FAST	8.2792×10^{-9}
^{239}PU THERMAL	1.5338×10^{-5}

137 - 56- 1

$^{137}_{57}$La

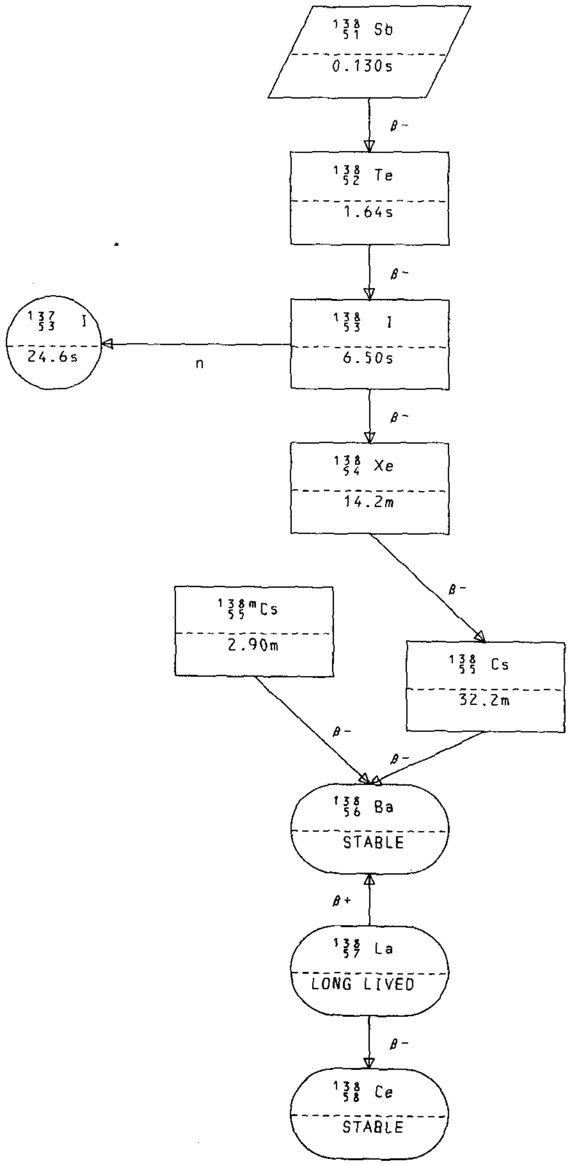
ENDF/B-IV FILE 1 COMMENTS
57-LA-137 MISSING FROM ENDF/B IV
HALF LIFE ORNL ENSDF FILES

$^{137}_{57}$La

$T_{1/2}$ =60000.±20000.y

FISSION YIELDS

^{239}PU THERMAL	6.6191×10^{-9}



$^{138}_{51}$Sb
0.130s
β-
$^{138}_{52}$Te
1.64s
β-
$^{138}_{53}$I
6.50s
n
$^{137}_{53}$I
24.6s
β-
$^{138}_{54}$Xe
14.2m
β-
$^{138m}_{55}$Cs
2.90m
$^{138}_{55}$Cs
32.2m
β-
β-
$^{138}_{56}$Ba
STABLE
β+
$^{138}_{57}$La
LONG LIVED
β-
$^{138}_{58}$Ce
STABLE

$^{138}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-138 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{138}_{51}$Sb

$T_{1/2}$ =.1304s
$\langle E_\beta \rangle$ PER DECAY =3221.
$\langle E_\gamma \rangle$ PER DECAY =4228.

FISSION YIELDS

^{235}U THERMAL	1.2707×10^{-6}
^{235}U FAST	1.7203×10^{-6}
^{238}U FAST	1.4236×10^{-4}
^{239}PU THERMAL	1.7297×10^{-7}

Q_β =10670.
BR_β =1.000

$^{138}_{52}$Te

1.640s

138 - 51- 1

$^{138}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-138 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{138}_{52}$Te

$T_{1/2}$ =1.640s
$\langle E_\beta \rangle$ PER DECAY =1410.
$\langle E_\gamma \rangle$ PER DECAY =2178.

FISSION YIELDS

^{235}U THERMAL	8.5256×10^{-4}
^{235}U FAST	1.0272×10^{-3}
^{238}U FAST	1.1711×10^{-2}
^{239}PU THERMAL	2.3126×10^{-4}

Q_β =5340.
BR_β =1.000

$^{138}_{53}$I

6.50±.10s

$^{138}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-138 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74 REV-JUN75
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{138}_{53}$I

$T_{1/2}$ =6.50±.10s
$\langle E_\beta \rangle$ PER DECAY =2122.
$\langle E_\gamma \rangle$ PER DECAY =2701.

FISSION YIELDS

^{235}U THERMAL	1.5572×10^{-2}
^{235}U FAST	1.6767×10^{-2}
^{238}U FAST	3.1892×10^{-2}
^{239}PU THERMAL	7.9891×10^{-3}

Q_N =1926.
BR_N =.025±.005

Q_β =7480.
BR_β =.9750

$^{137}_{53}$I

24.60±0.20s

$^{138}_{54}$Xe

14.2±0.3m

138 - 53- 1

$^{138}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-138 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 CWR
REFERENCES Q - G.H. CARLSON, AEC REPORT IS-T-549 (NOV.,1972).
OTHER - G.H. CARLSON, AEC REPORT IS-T-549 (NOV.,1972

$^{138}_{54}$Xe

$T_{1/2}$ =14.2±0.3m
$\langle E_\beta \rangle$ PER DECAY =657.7
$\langle E_\gamma \rangle$ PER DECAY =1195.

FISSION YIELDS

^{235}U THERMAL	4.6095×10^{-2}
^{235}U FAST	4.2712×10^{-2}
^{238}U FAST	1.5138×10^{-2}
^{239}PU THERMAL	4.0464×10^{-2}

Q_β =2830.±80.
BR_β =1.000

$^{138}_{55}$Cs

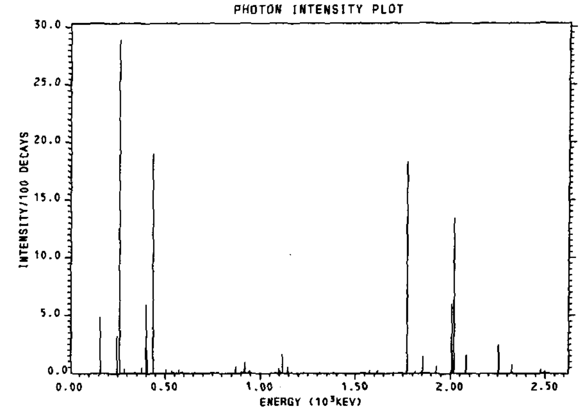
32.20±0.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
137.20	±	0.20	1	.06	±	.03
153.75	±	0.03	1	4.9	±	.3
256.98	±	0.12	4	32.6	±	1.7
393.35	±	0.22	5	6.6	±	.3
401.36	±	0.05	1	2.03	±	.12
542.7	±	0.9	10	1.38	±	.04
671.4	±	1.8	8	.44	±	.03
756.	±	3.	8	.26	±	.03
866.6	±	0.7	7	1.21	±	.05
924.7	±	0.8	8	1.91	±	.07
1076.38	±	0.22	1	.093	±	.017
1093.87	±	0.09	1	.43	±	.03
1098.77	±	0.11	1	.225	±	.018
1127.9	±	1.0	8	2.78	±	.17
1204.5	±	0.4	1	.039	±	.014
1218.7	±	0.5	1	.039	±	.017
1228.3	±	0.4	1	.066	±	.019
1357.	±	3.	5	.34	±	.04
1473.2	±	0.3	1	.074	±	.015
1548.9	±	0.4	1	.081	±	.021
1571.84	±	0.16	1	.29	±	.03
1578.1	±	0.5	1	.055	±	.020
1614.57	±	0.18	1	.26	±	.03
1646.5	±	0.3	1	.073	±	.015
1768.26	±	0.13	1	18.3	±	1.0
1783.4	±	0.6	1	.040	±	.016
1799.4	±	0.6	1	.038	±	.015
1812.54	±	0.18	1	.198	±	.020
1850.86	±	0.13	1	1.46	±	.08
1887.3	±	0.3	1	.077	±	.014
1925.36	±	0.14	1	.63	±	.04
2017.5	±	0.3	4	21.1	±	0.8
2252.26	±	0.15	1	2.50	±	.14
2266.8	±	0.5	1	.043	±	.013
2321.90	±	0.16	1	.72	±	.04
2326.9	±	0.3	1	.063	±	.012
2475.26	±	0.16	1	.358	±	.022
2492.61	±	0.24	1	.061	±	.008
2497.56	±	0.17	1	.199	±	.013

$\langle E_{PHOTON} \rangle$ PER DECAY = 1195. ± 24.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	804.	±	80.	35.40		
γ	258.31	±	0.05	28.9	±	1.7
β-	2815.	±	80.	20.00		
γ	434.49	±	0.05	19.1	±	1.0
γ	1768.26	±	0.13	18.3	±	1.0
β-	2380.	±	80.	18.30		
γ	2015.82	±	0.14	13.5	±	0.7
β-	2418.	±	80.	11.30		
β-	567.	±	80.	10.40		

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	322.0	94.	±	24.	.2600
β^-	340.0	100.	±	24.	.5100
β^-	493.0	153.	±	30.	3.400
β^-	567.0	180.	±	30.	10.40
β^-	804.0	272.	±	30.	35.40
β^-	808.0	274.	±	30.	.2500
β^-	1307.0	485.	±	30.	.2400
β^-	1458.0	552.	±	30.	.1400
β^-	1625.0	628.	±	40.	.2100
β^-	1878.0	745.	±	40.	.2700
β^-	2274.0	931.	±	40.	.04000
β^-	2380.0	981.	±	40.	18.30
β^-	2418.0	999.	±	40.	11.30
β^-	2815.0	1190.	±	50.	20.00

$\langle E_e \rangle$ PER DECAY = 657.7
$\langle E_\nu \rangle$ PER DECAY = 993.6

$^{138m}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-138M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
O-G.H. CARLSON, IS-T-549 (1972)

$^{138m}_{55}Cs$

$T_{1/2}$ =2.90±.10m
$\langle E_\beta \rangle$ PER DECAY =1147.
$\langle E_\gamma \rangle$ PER DECAY =2100.

FISSION YIELDS

^{235}U THERMAL	2.5224×10^{-3}
^{235}U FAST	2.1472×10^{-3}
^{238}U FAST	1.0567×10^{-4}
^{239}PU THERMAL	4.1016×10^{-3}

Q_β =5360.±70.
BR_β =1.000

$^{138}_{56}Ba$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
79.90	1	2.000
107.5	1	1.000
112.5	1	8.000
191.7	1	80.00
212.0	1	2.800
324.5	1	6.200
516.2	1	3.200
1436.	1	100.0

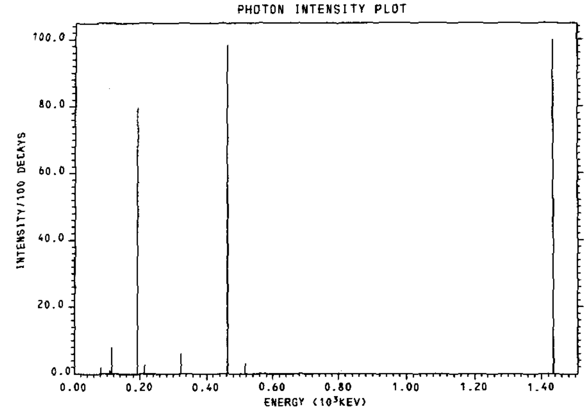
$\langle E_{PHOTON} \rangle$ PER DECAY = 2100.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2606.0	1089.	9.520
β^-	2739.0	1153.	90.48

$\langle E_e \rangle$ PER DECAY = 1147.
$\langle E_\nu \rangle$ PER DECAY = 1579.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1436.	100.0
γ	463.0	98.50
β^-	2739.	90.48
γ	191.7	80.00

$^{138}_{55}$Cs

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                    ENDF/B-IV FILE 1 COMMENTS
55-CS-138  ANC          EVAL-FEB74 C.W.REICH              DECAY DATA
                        DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
 PREPARED FOR FILE      8/73                     CWR
 REFERENCES  Q - G.H. CARLSON , AEC REPORT IS-T-549 (NOV.,1972)
           OTHER - G.H. CARLSON, AEC REPORT IS-T-549 (NOV.,1972
```

$^{138}_{55}$Cs

$T_{1/2}$ =32.20±0.10m
$\langle E_\beta \rangle$ PER DECAY =1262.
$\langle E_\gamma \rangle$ PER DECAY =2329.

FISSION YIELDS

^{235}U THERMAL	3.1220×10^{-3}
^{235}U FAST	1.9657×10^{-3}
^{238}U FAST	6.0699×10^{-4}
^{239}PU THERMAL	4.1108×10^{-3}

Q_β =5280.±70.
BR_β =1.000

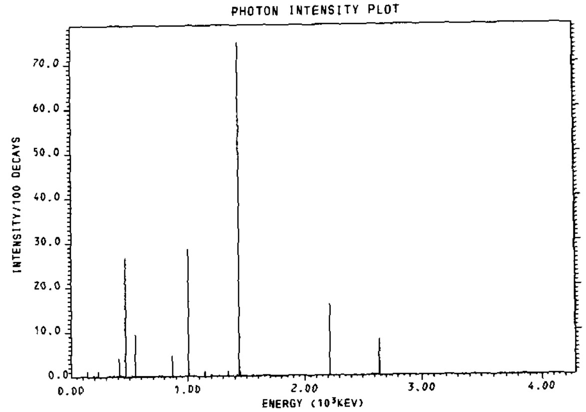
$^{138}_{56}$Ba

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
157.0	±	0.9	4	1.96	±	.07
212.32	±	0.08	1	.152	±	.013
227.76	±	0.06	1	1.29	±	.07
347.3	±	0.9	5	.73	±	.04
408.98	±	0.06	1	4.03	±	.21
421.59	±	0.07	1	.367	±	.021
462.79	±	0.07	1	26.7	±	1.5
545.97	±	0.16	4	9.9	±	.5
683.59	±	0.15	1	.098	±	.013
767.5	±	1.4	7	.86	±	.04
870.3	±	0.4	6	5.0	±	.3
935.03	±	0.12	1	.169	±	.015
946.0	±	0.5	1	.029	±	.012
953.0	±	0.3	1	.049	±	.014
1009.78	±	0.08	1	28.4	±	1.5
1041.4	±	0.3	1	.060	±	.016
1054.32	±	0.15	1	.150	±	.018
1147.22	±	0.09	1	1.19	±	.07
1199.15	±	0.24	1	.17	±	.03
1203.69	±	0.13	1	.38	±	.03
1264.94	±	0.16	1	.133	±	.017
1284.2	±	0.5	1	.034	±	.014
1343.59	±	0.09	1	1.11	±	.06
1359.1	±	0.5	1	.047	±	.019
1386.39	±	0.21	1	.074	±	.011
1436.02	±	0.10	4	76.	±	4.
1555.31	±	0.10	1	.358	±	.022
1614.09	±	0.20	1	.136	±	.023
1745.5	±	2.4	4	.42	±	.05
1806.65	±	0.18	1	.094	±	.011
1821.7	±	0.3	1	.046	±	.011
1903.2	±	0.4	1	.047	±	.014
1941.0	±	0.3	1	.081	±	.017
2023.93	±	0.20	1	.122	±	.016
2062.34	±	0.17	1	.116	±	.012
2105.9	±	0.3	1	.058	±	.011
2114.3	±	0.7	1	.022	±	.010
2210.7	±	0.4	1	.22	±	.07
2218.00	±	0.10	1	16.0	±	0.8
2487.1	±	0.6	1	.025	±	.008
2499.4	±	0.3	1	.19	±	.05
2510.5	±	0.8	1	.017	±	.008
2583.15	±	0.13	1	.263	±	.017
2609.3	±	0.3	1	.037	±	.006
2639.59	±	0.13	1	8.1	±	.4
2731.12	±	0.15	1	.134	±	.008
2806.57	±	0.17	1	.113	±	.008
2931.4	±	0.4	1	.022	±	.005
3049.9	±	0.3	1	.036	±	.005
3072.5	±	0.4	1	.022	±	.005
3180.4	±	0.7	1	.010	±	.003

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	1435.86	±	0.09	75.	±	4.
β-	2835.	±	70.	39.80		
γ	1009.78	±	0.08	28.4	±	1.5
γ	462.79	±	0.07	26.7	±	1.5
γ	2218.00	±	0.10	16.0	±	0.8
β-	3063.	±	70.	14.40		
β-	3382.	±	70.	11.60		
γ	546.94	±	0.07	9.5	±	.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	650.0	212.	±	24.	.3000
β-	772.0	259.	±	25.	.2000
β-	1038.0	369.	±	30.	.1000
β-	1200.0	438.	±	30.	.2000
β-	1268.0	468.	±	30.	.1000
β-	1345.0	502.	±	30.	.5000
β-	1358.0	508.	±	30.	.2000
β-	1586.0	610.	±	30.	.3000
β-	1628.0	629.	±	30.	.02000
β-	1634.0	632.	±	30.	.1900
β-	1843.0	728.	±	40.	.1000
β-	1914.0	761.	±	40.	.3000
β-	1928.0	768.	±	40.	.04000

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
3339.01 ± 0.25	1	.181 ± .011
3352.6 ± 0.3	1	.042 ± .005
3366.98 ± 0.25	1	.273 ± .016
3437.5 ± 0.6	1	.013 ± .004
3442.6 ± 0.5	1	.016 ± .004
3643.3 ± 0.4	1	.028 ± .004
3652.5 ± 0.8	1	.0067 ± .0023
3935.2 ± 0.5	1	.022 ± .004
4080.1 ± 0.5	1	.0225 ± .0023

$\langle E_{PHOTON} \rangle$ PER DECAY = 2329. ± 70.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1941.0	774. ± 40.	.2000
β^-	2023.0	812. ± 40.	.1000
β^-	2038.0	819. ± 40.	.3000
β^-	2117.0	856. ± 40.	.3000
β^-	2231.0	910. ± 40.	.3000
β^-	2289.0	938. ± 40.	.6000
β^-	2349.0	966. ± 40.	.2000
β^-	2429.0	1004. ± 40.	.2000
β^-	2501.0	1039. ± 40.	1.600
β^-	2641.0	1106. ± 40.	9.100
β^-	2697.0	1133. ± 40.	2.000
β^-	2835.0	1199. ± 50.	39.80
β^-	2865.0	1214. ± 50.	.5000
β^-	2973.0	1266. ± 50.	7.300
β^-	3063.0	1310. ± 50.	14.40
β^-	3382.0	1465. ± 50.	11.60
β^-	3845.0	1692. ± 60.	9.200

$\langle E_e \rangle$ PER DECAY = 1262.
$\langle E_\nu \rangle$ PER DECAY = 1701.

$^{138}_{56}$Ba

$^{138}_{56}$Ba

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.7492
WESTCOTT G FACTOR	1.1215
σ CAPTURE 2200M/S	3.5006×10^{-1}
WESTCOTT G FACTOR	1.0252
RESONANCE INTEGRAL TOTAL	$8.4700 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	2.0050×10^{-1}

FISSION YIELDS

^{235}U THERMAL	7.7332×10^{-5}
^{235}U FAST	5.8389×10^{-5}
^{238}U FAST	4.4596×10^{-7}
^{239}PU THERMAL	2.4228×10^{-4}

138 - 56- 1

$^{138}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-138 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{138}_{57}$La

$T_{1/2} = 1.049 \times 10^{+11}$ y
$\langle E_\gamma \rangle$ PER DECAY =840.0

FISSION YIELDS

^{235}U THERMAL	6.3234×10^{-7}
^{235}U FAST	1.8803×10^{-7}
^{239}PU THERMAL	1.8797×10^{-7}

Q_β =1010.
BR_β =.3000

$^{138}_{58}$Ce
STABLE OR LONG-LIVED

$Q_{\beta+}$=1780.
$BR_{\beta+}$=.7000

$^{138}_{56}$Ba
STABLE OR LONG-LIVED

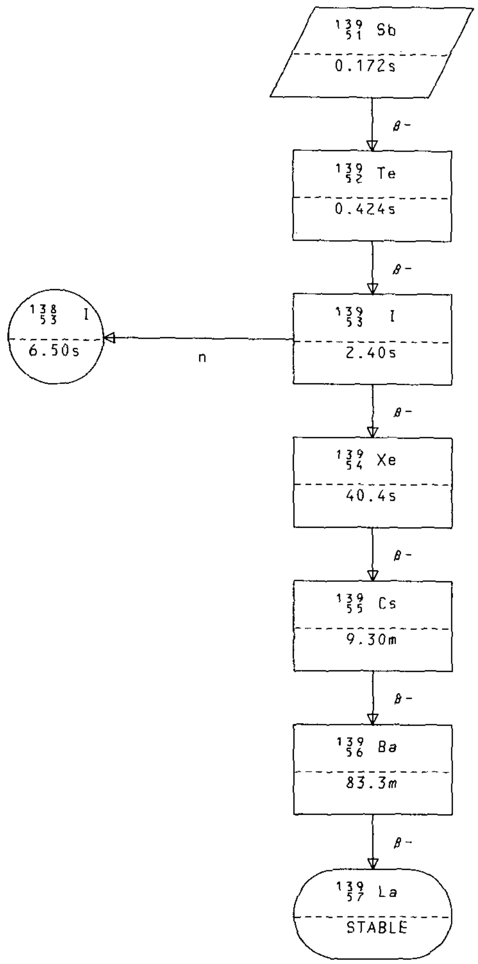
138 - 57- 1

$^{138}_{58}$Ce

$^{138}_{58}$Ce

STABLE OR LONG-LIVED

138 - 58- 1



$^{139}_{51}$Sb
0.172s
β-
$^{139}_{52}$Te
0.424s
β-
$^{138}_{53}$I
6.50s
n
$^{139}_{53}$I
2.40s
β-
$^{139}_{54}$Xe
40.4s
β-
$^{139}_{55}$Cs
9.30m
β-
$^{139}_{56}$Ba
83.3m
β-
$^{139}_{57}$La
STABLE

$^{139}_{51}$Sb

ENDF/B-IV FILE 1 COMMENTS
51-SB-139 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{139}_{51}$Sb

$T_{1/2}$ =.1719s
$\langle E_\beta \rangle$ PER DECAY =2654.
$\langle E_\gamma \rangle$ PER DECAY =3843.

FISSION YIELDS

^{235}U THERMAL	5.8932×10^{-8}
^{235}U FAST	5.8809×10^{-8}
^{238}U FAST	1.1189×10^{-5}
^{239}PU THERMAL	7.8289×10^{-9}

Q_β =9150.
BR_β =1.000

$^{139}_{52}$Te

.4237s

$^{139}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-139 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{139}_{52}$Te

$T_{1/2}$ =.4237s
$\langle E_\beta \rangle$ PER DECAY =2145.
$\langle E_\gamma \rangle$ PER DECAY =3105.

FISSION YIELDS

^{235}U THERMAL	1.3223×10^{-4}
^{235}U FAST	1.1643×10^{-4}
^{238}U FAST	2.9971×10^{-3}
^{239}PU THERMAL	3.2155×10^{-5}

Q_β =7610.
BR_β =1.000

$^{139}_{53}$I

2.40±.10s

$^{139}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-139 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{139}_{53}$I

$T_{1/2}$ =2.40±.10s
$\langle E_\beta \rangle$ PER DECAY =1751.
$\langle E_\gamma \rangle$ PER DECAY =2473.

FISSION YIELDS

^{235}U THERMAL	7.4228×10^{-3}
^{235}U FAST	5.8134×10^{-3}
^{238}U FAST	2.3577×10^{-2}
^{239}PU THERMAL	3.2017×10^{-3}

Q_N =2456.
BR_N =.10±.03

Q_β =6770.
BR_β =.9000

$^{138}_{53}$I
6.50±.10s

$^{139}_{54}$Xe
40.4±0.5s

$^{139}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-139 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 12/73 CWR
REFERENCES HALF-LIFE G.RUDSTAM ET AL.,REVIEW PAPER 12,IAEA
PANEL ON FISSION-PRODUCT DATA(BOLOGNA,1973),APP.B.
Q- M.A.LEE, THESIS, IOWA STATE UNIVERSITY (1973).
OTHER- M.A.LEE,THESIS, IOWA STATE UNIVERSITY (1973)

$^{139}_{54}$Xe

$T_{1/2}$ =40.4±0.5s
$\langle E_\beta \rangle$ PER DECAY =1787.
$\langle E_\gamma \rangle$ PER DECAY =927.5

FISSION YIELDS

^{235}U THERMAL	4.4068×10^{-2}
^{235}U FAST	4.0324×10^{-2}
^{238}U FAST	3.0851×10^{-2}
^{239}PU THERMAL	2.9954×10^{-2}

Q_β =4880.±60.
BR_β =1.000

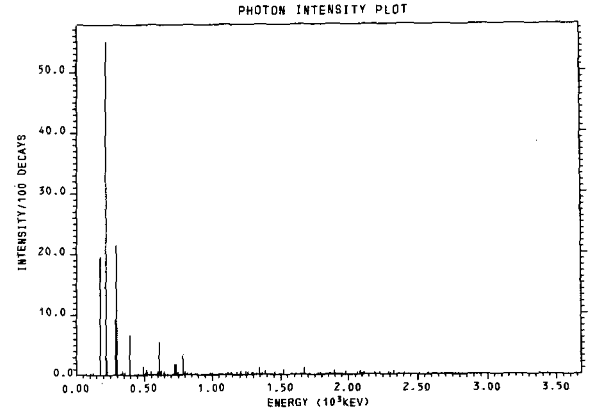
$^{139}_{55}$Cs
9.30±.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
55.7	±	0.3	1	.10	±	.03
70.9	±	0.4	1	.25	±	.09
172.69	±	0.19	4	20.3	±	1.2
245.0	±	1.2	4	88.	±	3.
386.5	±	0.4	4	7.8	±	.4
478.5	±	1.0	8	2.10	±	.10
531.5	±	1.1	8	2.62	±	.13
620.4	±	0.4	9	8.0	±	.3
755.2	±	1.3	13	8.6	±	.4
839.1	±	1.9	9	1.79	±	.09
967.9	±	2.5	12	1.58	±	.11
1037.9	±	2.2	8	.93	±	.07
1152.9	±	1.5	9	1.80	±	.09
1254.4	±	1.7	11	3.12	±	.15
1353.8	±	1.2	8	2.63	±	.11
1446.8	±	1.9	9	1.66	±	.10
1533.	±	4.	6	1.35	±	.13
1657.7	±	1.2	9	2.01	±	.09
1768.1	±	1.8	8	1.30	±	.08
1861.0	±	1.5	10	1.79	±	.18
1965.9	±	1.5	6	1.00	±	.06
2062.9	±	1.3	8	1.67	±	.07
2139.4	±	1.8	4	1.00	±	.05
2256.	±	3.	6	.99	±	.09
2304.97	±	0.16	1	.29	±	.03
2328.80	±	0.09	1	.62	±	.04
2366.97	±	0.22	1	.131	±	.017
2423.4	±	1.7	6	.53	±	.04
2543.6	±	2.0	5	.81	±	.05
2655.	±	4.	5	.31	±	.04
2769.8	±	1.2	5	.81	±	.05
2845.0	±	2.0	5	.57	±	.04
2931.7	±	2.3	6	.46	±	.04
3028.5	±	0.4	1	.068	±	.015
3143.	±	3.	5	.28	±	.04
3214.8	±	0.5	1	.040	±	.011
3375.51	±	0.19	1	.150	±	.015
3424.8	±	0.5	1	.070	±	.020
3504.7	±	0.3	1	.064	±	.010

$\langle E_{PHOTON} \rangle$ PER DECAY = 928. ± 11.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	218.59	±	0.03	55.	±	3.
β-	4880.	±	60.	22.	±	6.
γ	296.53	±	0.07	21.4	±	1.2
β-	4365.	±	60.	20.8	±	1.2
γ	174.97	±	0.04	19.6	±	1.2
β-	4486.	±	60.	16.3	±	1.5
γ	289.78	±	0.07	9.0	±	.5
β-	3874.	±	60.	8.4	±	.4
γ	393.50	±	0.06	6.6	±	.4
γ	612.82	±	0.04	5.4	±	.3
γ	788.04	±	0.08	3.3	±	.3
γ	225.38	±	0.07	2.9	±	.3
β-	4590.	±	60.	2.6	±	.8
β-	4661.	±	60.	2.	±	4.
β-	4148.	±	60.	2.20	±	.10
β-	2694.	±	60.	2.00	±	.10
γ	723.84	±	0.06	1.77	±	.10

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	581.0	185.	±	20.	.40	±	.10
β-	943.0	329.	±	23.	.30	±	.10
β-	972.0	341.	±	23.	.40	±	.10
β-	1065.0	380.	±	24.	.50	±	.10
β-	1375.0	515.	±	30.	.30	±	.10
β-	1505.0	573.	±	30.	.50	±	.10
β-	1507.0	574.	±	30.	.30	±	.20
β-	1724.0	673.	±	30.	.30	±	.10
β-	1733.0	677.	±	30.	.40	±	.10
β-	1750.0	685.	±	30.	.40	±	.10
β-	1900.0	755.	±	30.	.20	±	.10
β-	1912.0	760.	±	30.	.50	±	.10
β-	1944.0	775.	±	30.	.20	±	.10
β-	2028.0	815.	±	30.	.30	±	.10

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	2081.0	839.	±	30.	.50	±	.10
β-	2083.0	840.	±	30.	.80	±	.10
β-	2126.0	861.	±	40.	.60	±	.10
β-	2153.0	873.	±	40.	.30	±	.10
β-	2259.0	923.	±	40.	.40	±	.10
β-	2294.0	940.	±	40.	1.00	±	.20
β-	2370.0	976.	±	40.	1.60	±	.10
β-	2507.0	1042.	±	40.	.70	±	.10
β-	2551.0	1063.	±	40.	1.30	±	.10
β-	2575.0	1074.	±	40.	1.50	±	.10
β-	2694.0	1131.	±	40.	2.00	±	.10
β-	2776.0	1171.	±	40.	.04	±	.04
β-	2780.0	1173.	±	40.	.37	±	.05
β-	2816.0	1190.	±	40.	.69	±	.04
β-	3049.0	1303.	±	50.	.10	±	.08
β-	3141.0	1348.	±	50.	1.70	±	.10
β-	3186.0	1369.	±	50.	.40	±	.10
β-	3227.0	1389.	±	50.	1.20	±	.10
β-	3280.0	1415.	±	50.	.20	±	.10
β-	3372.0	1460.	±	50.	.05		
β-	3419.0	1483.	±	50.	1.20	±	.10
β-	3485.0	1515.	±	50.	.03	±	.06
β-	3665.0	1603.	±	50.	.36	±	.08
β-	3694.0	1617.	±	60.	.10	±	.05
β-	3860.0	1699.	±	60.	1.400	±	.010
β-	3874.0	1706.	±	60.	8.4	±	.4
β-	3938.0	1737.	±	60.	1.40	±	.10
β-	3988.0	1762.	±	60.	.20	±	.10
β-	4148.0	1840.	±	60.	2.20	±	.10
β-	4234.0	1883.	±	60.	.50	±	.10
β-	4365.0	1947.	±	60.	20.8	±	1.2
β-	4486.0	2007.	±	70.	16.3	±	1.5
β-	4590.0	2058.	±	70.	2.6	±	.8
β-	4661.0	2093.	±	70.	2.	±	4.
β-	4880.0	2202.	±	70.	22.	±	6.

$\langle E_e \rangle$ PER DECAY = 1787. ± 160.
$\langle E_\nu \rangle$ PER DECAY = 2246. ± 190.

$^{139}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-139 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 12/73 CWR
REFERENCE
Q- M.A. LEE , THESIS, IOWA STATE UNIVERSITY (1973).
OTHER- M.A.LEE,THESIS, IOWA STATE UNIVERSITY (1973)

$^{139}_{55}$Cs

$T_{1/2}$ =9.30±.10m
$\langle E_\beta \rangle$ PER DECAY =1764.
$\langle E_\gamma \rangle$ PER DECAY =310.8

FISSION YIELDS

^{235}U THERMAL	1.2560×10^{-2}
^{235}U FAST	1.6487×10^{-2}
^{238}U FAST	3.6544×10^{-3}
^{239}PU THERMAL	1.9508×10^{-2}

Q_β =4290.±70.
BR_β =1.000

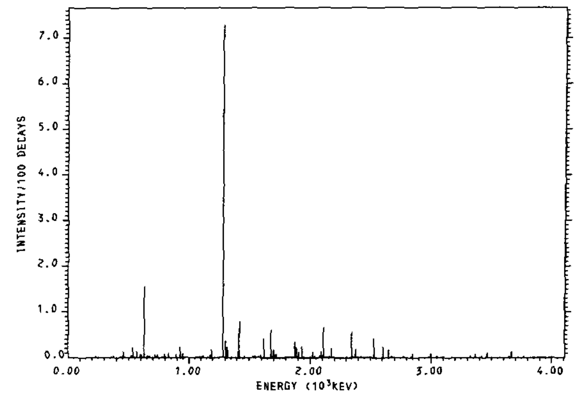
$^{139}_{56}$Ba

83.30±0.20m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
188.88	±	0.20	1	.0079	±	.0018
196.51	±	0.18	1	.0088	±	.0018
242.5	±	1.3	5	.068	±	.005
368.2	±	2.1	5	.082	±	.006
445.2	±	0.8	9	.257	±	.011
548.2	±	0.8	10	.581	±	.021
629.28	±	0.19	12	1.91	±	.08
751.6	±	1.0	9	.360	±	.012
851.3	±	1.3	7	.246	±	.011
936.5	±	0.6	7	.473	±	.017
1072.7	±	1.2	6	.133	±	.011
1166.5	±	1.3	7	.420	±	.016
1282.88	±	0.06	4	7.4	±	.4
1317.3	±	0.6	8	.81	±	.03
1421.3	±	0.4	4	1.00	±	.04
1554.2	±	1.6	8	.211	±	.012
1662.9	±	0.9	6	1.34	±	.04
1729.9	±	1.1	7	.238	±	.011
1878.0	±	0.6	5	.605	±	.023
1930.7	±	0.7	4	.435	±	.016
2049.	±	4.	6	.44	±	.06
2126.3	±	0.8	5	.97	±	.04
2239.2	±	2.1	4	.061	±	.006
2356.3	±	0.5	7	.92	±	.03
2418.9	±	0.4	1	.012	±	.003
2422.16	±	0.18	1	.029	±	.004
2524.47	±	0.22	1	.029	±	.004
2529.9	±	0.3	1	.083	±	.020
2531.84	±	0.07	1	.43	±	.03
2605.75	±	0.06	1	.247	±	.014
2649.32	±	0.07	1	.169	±	.009
2673.98	±	0.18	1	.035	±	.004
2774.04	±	0.13	1	.030	±	.003
2836.88	±	0.16	1	.028	±	.003
2847.63	±	0.08	1	.101	±	.006
2978.99	±	0.24	1	.0132	±	.0018
2997.32	±	0.09	1	.087	±	.005
3047.29	±	0.16	1	.030	±	.003
3096.4	±	0.4	1	.0086	±	.0019
3171.57	±	0.23	1	.0181	±	.0025
3270.2	±	0.3	1	.0103	±	.0018
3323.66	±	0.15	1	.051	±	.005
3364.23	±	0.11	1	.080	±	.005
3418.77	±	0.15	1	.040	±	.004
3464.34	±	0.09	1	.110	±	.007
3645.70	±	0.13	1	.0280	±	.0023
3665.61	±	0.08	1	.138	±	.008
3724.20	±	0.15	1	.0264	±	.0023
3769.16	±	0.11	1	.046	±	.003
3847.8	±	1.2	4	.057	±	.003
3912.32	±	0.21	1	.0122	±	.0016

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	4290.	±	70.	84.	±	6.
γ	1283.23	±	0.05	7.3	±	.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	339.0	100.	±	21.	.060	±	.010
β-	378.0	113.	±	21.	.030	±	.010
β-	402.0	121.	±	21.	.030	±	.010
β-	436.0	133.	±	22.	.030	±	.010
β-	450.0	138.	±	22.	.030	±	.010
β-	470.0	145.	±	22.	.030	±	.010
β-	521.0	163.	±	22.	.070	±	.010
β-	555.0	176.	±	23.	.020	±	.010
β-	566.0	180.	±	23.	.040	±	.010
β-	615.0	198.	±	23.	.050	±	.010
β-	624.0	202.	±	23.	.150	±	.010
β-	644.0	209.	±	24.	.040	±	.010
β-	668.0	219.	±	24.	.070	±	.010
β-	826.0	281.	±	30.	.160	±	.010
β-	871.0	299.	±	30.	.090	±	.010
β-	889.0	307.	±	30.	.030	±	.010
β-	926.0	322.	±	30.	.100	±	.010
β-	1020.0	361.	±	30.	.030	±	.010
β-	1118.0	403.	±	30.	.030	±	.010

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
$\langle E_{PHOTON} \rangle$ PER DECAY = 311.		± 6.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1138.0	411. ± 30.	.100 ± .010
β-	1293.0	479. ± 30.	.130 ± .010
β-	1296.0	480. ± 30.	.130 ± .010
β-	1442.0	545. ± 30.	.120 ± .010
β-	1641.0	635. ± 30.	.24 ± .04
β-	1684.0	655. ± 30.	.570 ± .020
β-	1758.0	689. ± 30.	.54 ± .03
β-	1760.0	690. ± 30.	.080 ± .020
β-	1766.0	693. ± 30.	.050 ± .010
β-	1828.0	721. ± 40.	.080 ± .010
β-	1909.0	759. ± 40.	.150 ± .010
β-	1914.0	761. ± 40.	.090 ± .010
β-	1940.0	773. ± 40.	1.27 ± .04
β-	1985.0	794. ± 40.	.060 ± .010
β-	2040.0	820. ± 40.	.030 ± .010
β-	2060.0	830. ± 40.	.070 ± .010
β-	2071.0	835. ± 40.	.100 ± .010
β-	2116.0	856. ± 40.	.260 ± .010
β-	2123.0	859. ± 40.	.020 ± .010
β-	2133.0	864. ± 40.	.040 ± .010
β-	2179.0	886. ± 40.	.77 ± .04
β-	2190.0	891. ± 40.	.050 ± .010
β-	2200.0	896. ± 40.	.120 ± .010
β-	2211.0	901. ± 40.	.020 ± .010
β-	2252.0	920. ± 40.	.230 ± .010
β-	2269.0	928. ± 40.	.16 ± .04
β-	2292.0	939. ± 40.	.090 ± .010
β-	2341.0	962. ± 40.	.280 ± .020
β-	2356.0	970. ± 40.	.310 ± .020
β-	2402.0	991. ± 40.	.300 ± .010
β-	2413.0	997. ± 40.	.360 ± .020
β-	2439.0	1009. ± 40.	.140 ± .010
β-	2472.0	1025. ± 40.	.020 ± .020
β-	2541.0	1058. ± 40.	.030 ± .010
β-	2591.0	1082. ± 40.	.110 ± .010
β-	2609.0	1090. ± 40.	.41 ± .03
β-	2669.0	1119. ± 40.	.390 ± .020
β-	2751.0	1159. ± 50.	.060 ± .010
β-	2869.0	1216. ± 50.	.29 ± .05
β-	2982.0	1270. ± 50.	.250 ± .020
β-	3007.0	1283. ± 50.	6.4 ± .4
β-	3208.0	1380. ± 50.	.040 ± .010
β-	4290.0	1910. ± 70.	84. ± 6.

$\langle E_e \rangle$ PER DECAY = 1764. ± 120.
$\langle E_\nu \rangle$ PER DECAY = 2223. ± 140.

$^{139}_{56}$Ba

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                ENDF/B-IV FILE 1 COMMENTS
56-BA-139  ANC        EVAL-JUL74 C.W.REICH              DECAY DATA
                      DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE    7/74                     CWR
REFERENCE   Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
            OTHER-  G. BERZINS, M.E. BUNKER AND J.W. STARNER.
                    NUCLEAR PHYSICS A128, 294 (1969).
```

$^{139}_{56}$Ba

$T_{1/2}$ =83.30±0.20m
$\langle E_\beta \rangle$ PER DECAY =897.3
$\langle E_\gamma \rangle$ PER DECAY =52.29

FISSION YIELDS

^{235}U THERMAL	6.8032×10^{-4}
^{235}U FAST	5.3135×10^{-4}
^{238}U FAST	9.1092×10^{-6}
^{239}PU THERMAL	3.7210×10^{-3}

Q_β =2254.±17.
BR_β =1.000

$^{139}_{57}$La

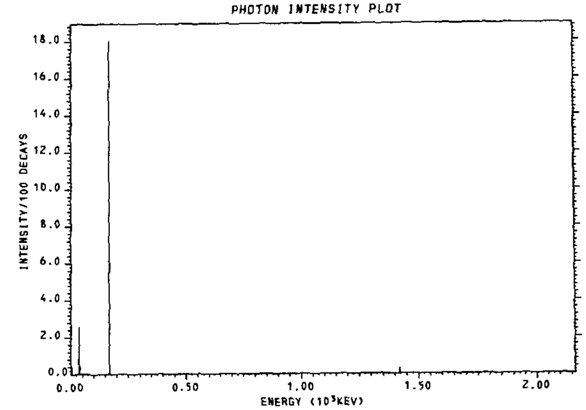
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
30.31			4	3.415
165.8			1	18.05
1052.9	±	0.5	1	.00037
1090.9	±	0.3	1	.00958
1248.03	±	0.25	4	.04450
1321.4	±	0.3	4	.02027
1420.5	±	0.3	1	.3090
1476.6	±	0.5	1	.00188
1565.4	±	0.3	5	.00692
1601.4	±	1.0	1	.00025
1683.4	±	0.5	1	.00371
1691.2	±	1.0	1	.00028
1770.7	±	0.6	4	.00053
1896.0	±	1.0	1	.00006
1922.0	±	1.0	1	.00012
2061.0	±	1.0	1	.00015

$\langle E_{PHOTON} \rangle$ PER DECAY = 36.50

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	37.6	27.80	12.10
CE	164.4	135.4	4.511
β-	193.0	53.37	.00021
β-	291.0	83.98	.00009
β-	332.0	97.40	.00017
β-	397.0	119.4	.00027
β-	486.0	150.7	.00055
β-	492.0	152.8	.00290
β-	571.0	181.8	.00370
β-	676.0	221.6	.00061
β-	696.0	229.4	.00039
β-	718.0	238.0	.00640
β-	777.0	261.3	.01800
β-	834.0	284.2	.3400
β-	872.0	299.6	.00380
β-	997.0	351.4	.01500
β-	1035.0	367.4	.00500
β-	2088.0	842.7	27.20
β-	2254.0	921.1	72.40

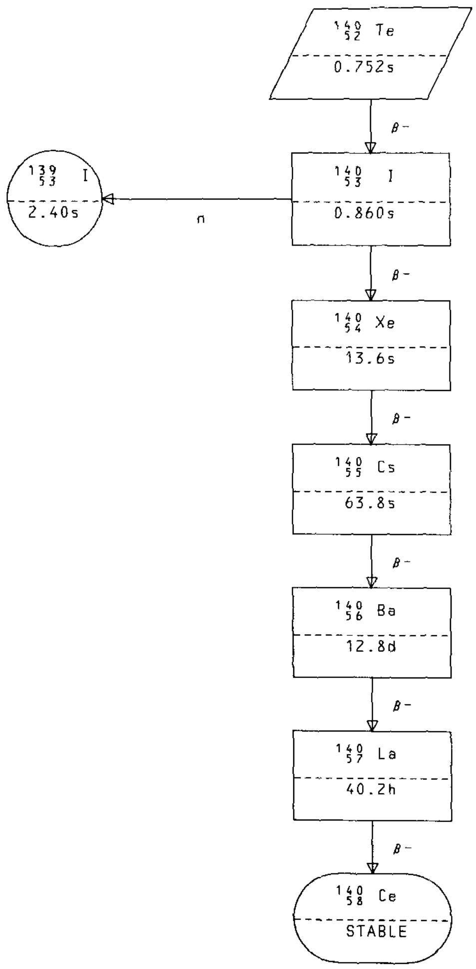
$\langle E_e \rangle$ PER DECAY = 906.7
$\langle E_\nu \rangle$ PER DECAY = 1306.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	2254.	72.40
β-	2088.	27.20
γ	165.8	18.05

$^{139}_{57}$La

$^{139}_{57}$La	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$2.1454\times10^{+1}$
WESTCOTT G FACTOR	1.0740
σ CAPTURE 2200M/S	9.0020
WESTCOTT G FACTOR	9.9960×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.5270\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.2040\times10^{+1}$
FISSION YIELDS	
^{235}U THERMAL	7.8042×10^{-7}
^{235}U FAST	5.8809×10^{-7}
^{238}U FAST	1.6098×10^{-7}
^{239}PU THERMAL	3.4895×10^{-6}


140 52 Te
0.752s
β-
139 53 I
2.40s
n
140 53 I
0.860s
β-
140 54 Xe
13.6s
β-
140 55 Cs
63.8s
β-
140 56 Ba
12.8d
β-
140 57 La
40.2h
β-
140 58 Ce
STABLE

$^{140}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-140 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{140}_{52}$Te

$T_{1/2}$ =.7519s
$\langle E_\beta \rangle$ PER DECAY =1630.
$\langle E_\gamma \rangle$ PER DECAY =2613.

FISSION YIELDS

^{235}U THERMAL	1.2547×10^{-5}
^{235}U FAST	9.1015×10^{-6}
^{238}U FAST	4.5996×10^{-4}
^{239}PU THERMAL	1.6198×10^{-6}

Q_β =6100.
BR_β =1.000

$^{140}_{53}$I

.86±.04s

140 - 52- 1

$^{140}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-140 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{140}_{53}$I

$T_{1/2}$ =.86±.04s
$\langle E_\beta \rangle$ PER DECAY =2087.
$\langle E_\gamma \rangle$ PER DECAY =2932.

FISSION YIELDS

^{235}U THERMAL	2.2514×10^{-3}
^{235}U FAST	1.4479×10^{-3}
^{238}U FAST	1.1015×10^{-2}
^{239}PU THERMAL	4.9415×10^{-4}

Q_N =3686.
BR_N =.32±.13

Q_β =8930.
BR_β =.6800

$^{139}_{53}$I

2.40±.10s

$^{140}_{54}$Xe

13.60±0.10s

$^{140}_{54}Xe$

ENDF/B-IV FILE 1 COMMENTS
54-XE-140 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{140}_{54}Xe$

$T_{1/2}$ =13.60±0.10s
$\langle E_\beta \rangle$ PER DECAY =880.7
$\langle E_\gamma \rangle$ PER DECAY =1362.

FISSION YIELDS

^{235}U THERMAL	3.4898×10^{-2}
^{235}U FAST	2.8523×10^{-2}
^{238}U FAST	3.9598×10^{-2}
^{239}PU THERMAL	1.7660×10^{-2}

Q_β =3510.
BR_β =1.000

$^{140}_{55}Cs$

63.8±0.3s

$^{140}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-140 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 9/73 CWR
REFERENCE
OTHER (INCL. Q)- F. SCHUSSLER ET AL., NUCL. PHYS.
A209, 589(1973).

$^{140}_{55}Cs$

$T_{1/2}$ =63.8±0.3s
$\langle E_\beta \rangle$ PER DECAY =1931.
$\langle E_\gamma \rangle$ PER DECAY =2131.

FISSION YIELDS

^{235}U THERMAL	2.1829×10^{-2}
^{235}U FAST	2.5436×10^{-2}
^{238}U FAST	7.6988×10^{-3}
^{239}PU THERMAL	2.9135×10^{-2}

Q_β =6300.±100.
BR_β =1.000

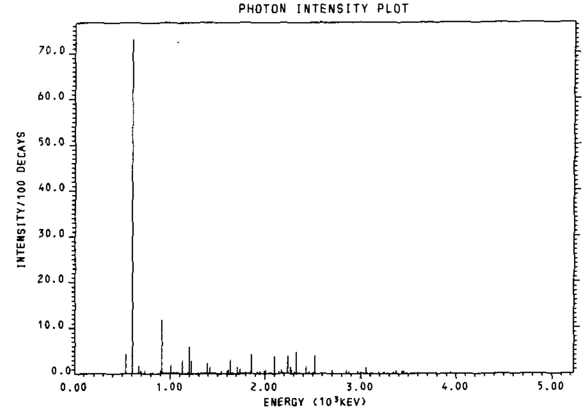
$^{140}_{56}Ba$

12.790±0.010d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
528.2	1	4.263
604.6	4	75.33
744.2	4	1.124
820.7	1	.3066
873.5	1	.08760
892.9	1	.1460
901.9	1	.5840
908.5	1	11.65
919.0	1	.2774
1021.	5	2.701
1135.	4	3.482
1213.	6	9.548
1387.	5	2.832
1428.	4	1.781
1514.	1	.1095
1518.	1	.1095
1536.	1	.6132
1628.	7	5.453
1731.	8	3.752
1854.	4	5.103
1955.	5	1.986
2035.	6	1.759
2122.	6	5.504
2251.	4	6.059
2333.	6	5.979
2445.	6	2.810
2516.	1	.3212
2523.	1	4.000
2554.	1	.04380
2664.	1	.05840
2675.	1	.09490
2705.	1	.7738
2765.	1	.1241
2789.	1	.1095
2850.	1	.7665
2875.	1	.4891
2971.	1	.4891
3000.	1	.2044
3024.	1	.1825
3055.	1	1.416
3069.	1	.1241
3153.	4	.7373
3255.	4	.7884
3317.	1	.02920
3342.	1	.3650
3372.	1	.6716
3449.	4	1.548
3526.	1	.1241
3546.	1	.09490
3565.	1	.1241
3623.	4	.4526

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY		I/100 DECAYS
γ	602.3		73.00
β-	5698.	± 100.	28.00
β-	6300.	± 100.	14.00
γ	908.5		11.65
β-	3367.	± 100.	9.000
β-	4790.	± 100.	8.000
γ	1201.		5.993
β-	2643.	± 100.	5.900
γ	2331.		4.760
γ	528.2		4.263
γ	1854.		4.146
γ	2523.		4.000
β-	3777.	± 100.	4.000
β-	3595.	± 100.	3.900
γ	2238.		3.745
γ	2102.		3.738
β-	2326.	± 100.	3.100
γ	1635.		3.008
β-	4062.	± 100.	3.000
γ	1130.		2.913

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
3757.	1	.1314
3786.	1	.05840
3794.	1	.2482
3846.	1	.03650
3919.	1	.03650
3945.	1	.3650
4004.	1	.01460
4051.	1	.02920
4076.	1	.05840
4109.	1	.06570
4171.	1	.02190
4211.	1	.07300
4239.	1	.02190
4381.	1	.04380
4405.	1	.02190
4417.	1	.05840
4530.	4	.1971
4787.	1	.02920
4815.	1	.02920
4983.	1	.02920

$\langle E_{PHOTON} \rangle$ PER DECAY = 2131.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	844.0	288.	±	40.	.4000
β^-	870.0	299.	±	40.	1.400
β^-	911.0	316.	±	40.	1.300
β^-	931.0	324.	±	40.	.2000
β^-	970.0	340.	±	40.	.6000
β^-	994.0	350.	±	40.	.1000
β^-	1118.0	403.	±	40.	.5000
β^-	1232.0	452.	±	40.	.6000
β^-	1281.0	474.	±	40.	1.000
β^-	1317.0	490.	±	40.	1.000
β^-	1376.0	516.	±	40.	.6000
β^-	1486.0	565.	±	40.	.2000
β^-	1558.0	597.	±	40.	.4000
β^-	1911.0	760.	±	50.	.2000
β^-	1940.0	773.	±	50.	.2000
β^-	2220.0	905.	±	50.	1.500
β^-	2268.0	928.	±	50.	.5000
β^-	2296.0	941.	±	50.	1.000
β^-	2326.0	955.	±	50.	3.100
β^-	2355.0	969.	±	50.	2.700
β^-	2414.0	997.	±	50.	.1000
β^-	2448.0	1013.	±	50.	1.500
β^-	2643.0	1107.	±	50.	5.900
β^-	2697.0	1133.	±	50.	.2000
β^-	2848.0	1206.	±	60.	1.400
β^-	3182.0	1367.	±	60.	1.000
β^-	3367.0	1458.	±	60.	9.000
β^-	3425.0	1486.	±	60.	.5000
β^-	3429.0	1488.	±	60.	1.000
β^-	3511.0	1528.	±	60.	.5000
β^-	3595.0	1569.	±	60.	3.900
β^-	3777.0	1658.	±	70.	4.000
β^-	3870.0	1704.	±	70.	1.000
β^-	4062.0	1798.	±	70.	3.000
β^-	4476.0	2002.	±	70.	1.400
β^-	4790.0	2157.	±	80.	8.000
β^-	5698.0	2607.	±	90.	28.00
β^-	6300.0	2906.	±	100.	14.00

$\langle E_e \rangle$ PER DECAY = 1931.
$\langle E_\nu \rangle$ PER DECAY = 2392.

$^{140}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-140 ANC,HEDL EVAL-JUL74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74

$^{140}_{56}$Ba

$T_{1/2}$ =12.790±0.010d
$\langle E_\beta \rangle$ PER DECAY =280.3
$\langle E_\gamma \rangle$ PER DECAY =216.9

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.5300
WESTCOTT G FACTOR	1.1816
σ CAPTURE 2200M/S	1.6000
WESTCOTT G FACTOR	9.9915×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.2890\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.2760\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	4.2111×10^{-3}
^{235}U FAST	4.6993×10^{-3}
^{238}U FAST	1.2110×10^{-4}
^{239}PU THERMAL	8.2139×10^{-3}

Q_β =1035.±10.
BR_β =1.000

$^{140}_{57}$La

40.230±0.020h

PHOTON RADIATION TABLE

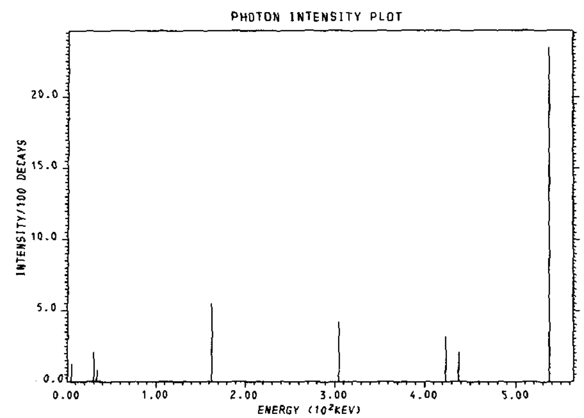
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
23.2	±	1.5	6	4.4	±	.4
118.90	±	0.10	1	.048	±	.005
132.70	±	0.10	1	.068	±	.005
162.90	±	0.10	1	5.5	±	.3
304.82	±	0.03	1	4.2	±	.3
423.69	±	0.04	1	3.20	±	.20
437.55	±	0.05	1	2.10	±	.20
537.38	±	0.03	1	23.5	±	1.2

$\langle E_{PHOTON} \rangle$ PER DECAY = 172. ± 7.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	37.6	18.1	±	2.0	21.	±	3.
CE	536.0	42.9	±	2.1	14.51	±	0.21
$\beta-$	454.0	139.2			24.0	±	2.0
$\beta-$	568.0	180.6			10.1	±	0.4
$\beta-$	872.0	299.6			2.6	±	.4
$\beta-$	991.0	348.9			46.0	±	2.0
$\beta-$	1005.0	354.8			17.0	±	2.0

$\langle E_e \rangle$ PER DECAY = 290.3
$\langle E_\nu \rangle$ PER DECAY = 535.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			1/100 DECAYS		
$\beta-$	991.0			46.0	±	2.0
$\beta-$	454.0			24.0	±	2.0
γ	537.38	±	0.03	23.5	±	1.2
$\beta-$	1005.			17.0	±	2.0
AU_L	4.905			12.	±	3.
CE_L	23.69	±	0.05	11.17	±	0.18

$^{140}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-140 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,*ANCR-1157,ENDF210,8/74.*
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{140}_{57}$La

$T_{1/2}$ =40.230±0.020h
$\langle E_{\beta} \rangle$ PER DECAY =517.0
$\langle E_{\gamma} \rangle$ PER DECAY =2205.

CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	7.6300
WESTCOTT G FACTOR	1.1808
σ CAPTURE 2200M/S	2.7000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$3.2410\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.5070\times10^{+1}$

FISSION YIELDS	
^{235}U THERMAL	5.6711×10^{-5}
^{235}U FAST	8.0093×10^{-5}
^{238}U FAST	6.0694×10^{-8}
^{239}PU THERMAL	2.4533×10^{-4}

Q_{β} =3770.8±2.0
BR_{β} =1.000

$^{140}_{58}$Ce

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
68.92	1	.04950
109.4	1	.2277
131.1	1	.5049
173.5	1	.1089
242.0	1	.3762
266.5	1	.4752
328.0	1	17.82
432.6	1	2.574
487.1	1	41.18
751.7	1	3.663
815.8	1	20.10
867.9	1	4.653
919.6	1	2.277
925.2	1	6.039
1596.	1	95.53
2348.	1	.7524
2522.	1	2.970
2547.	1	.09900
2898.	1	.05940
3119.	1	.01980

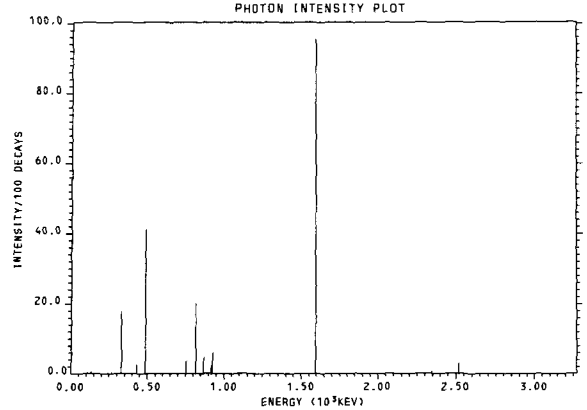
$\langle E_{PHOTON} \rangle$ PER DECAY = 2205.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	460.0	141.4	1.000
β^-	670.0	219.3	4.000
β^-	870.0	298.8	3.000
β^-	985.0	346.4	7.000
β^-	1244.0	457.4	19.00
β^-	1358.0	507.7	42.00
β^-	1688.0	656.8	17.00
β^-	2174.0	883.2	7.000

$\langle E_e \rangle$ PER DECAY = 517.0
$\langle E_\nu \rangle$ PER DECAY = 855.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	1596.	95.53
β^-	1358.	42.00
γ	487.1	41.18
γ	815.8	20.10
β^-	1244.	19.00
γ	328.0	17.82

$^{140}_{58}$Ce

$^{140}_{58}$Ce

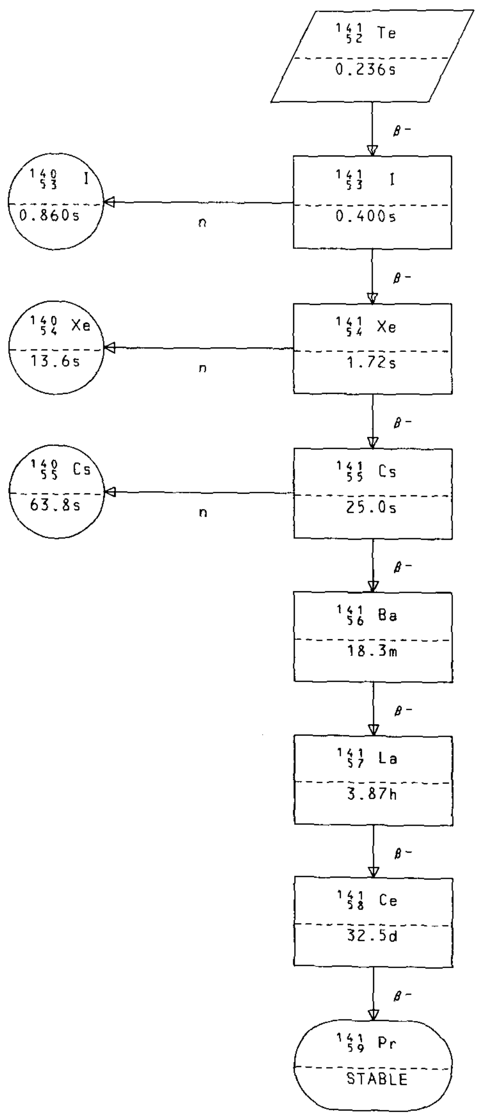
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.5000
WESTCOTT G FACTOR	1.1715
σ CAPTURE 2200M/S	5.7000×10^{-1}
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.1150 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	4.4570×10^{-1}

FISSION YIELDS

^{235}U THERMAL	6.7337×10^{-9}
^{235}U FAST	1.9503×10^{-8}
^{238}U FAST	1.0099×10^{-7}
^{239}PU THERMAL	4.5094×10^{-7}


141 52 Te
0.236s
β-
141 53 I
0.400s
n
140 53 I
0.860s
β-
141 54 Xe
1.72s
n
140 54 Xe
13.6s
β-
141 55 Cs
25.0s
n
140 55 Cs
63.8s
β-
141 56 Ba
18.3m
β-
141 57 La
3.87h
β-
141 58 Ce
32.5d
β-
141 59 Pr
STABLE

$^{141}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-141 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{141}_{52}$Te

$T_{1/2}$ =.2358s
$\langle E_\beta \rangle$ PER DECAY =2410.
$\langle E_\gamma \rangle$ PER DECAY =3600.

FISSION YIELDS

^{235}U THERMAL	4.4975x10^{-7}
^{235}U FAST	2.1196x10^{-7}
^{238}U FAST	2.3421x10^{-5}
^{239}PU THERMAL	3.1595x10^{-8}

Q_β =8420.
BR_β =1.000

$^{141}_{53}$I

.40±.10s

141 - 52- 1

$^{141}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-141 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{141}_{53}$I

$T_{1/2}$ =.40±.10s
$\langle E_\beta \rangle$ PER DECAY =1948.
$\langle E_\gamma \rangle$ PER DECAY =2886.

FISSION YIELDS

^{235}U THERMAL	3.3029x10^{-4}
^{235}U FAST	1.5519x10^{-4}
^{238}U FAST	2.7565x10^{-3}
^{239}PU THERMAL	4.1312x10^{-5}

Q_N =3896.
BR_N =.1200

Q_β =7420.
BR_β =.8800

$^{140}_{53}$I

.86±.04s

$^{141}_{54}$Xe

1.720±.010s

$^{141}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-141 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{141}_{54}$Xe

$T_{1/2}$ =1.720±.010s
$\langle E_\beta \rangle$ PER DECAY =1571.
$\langle E_\gamma \rangle$ PER DECAY =2270.

FISSION YIELDS

^{235}U THERMAL	1.1921×10^{-2}
^{235}U FAST	9.1437×10^{-3}
^{238}U FAST	2.8280×10^{-2}
^{239}PU THERMAL	4.4040×10^{-3}

Q_N =.01000
BR_N =.00054±.00009

Q_β =5850.
BR_β =.9995

$^{140}_{54}$Xe
13.60±0.10s

$^{141}_{55}$Cs
25.0±0.3s

141 - 54- 1

$^{141}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-141 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{141}_{55}$Cs

$T_{1/2}$ =25.0±0.3s
$\langle E_\beta \rangle$ PER DECAY =1377.
$\langle E_\gamma \rangle$ PER DECAY =1825.

FISSION YIELDS

^{235}U THERMAL	3.1967×10^{-2}
^{235}U FAST	3.5474×10^{-2}
^{238}U FAST	1.9399×10^{-2}
^{239}PU THERMAL	2.8113×10^{-2}

Q_N =235.9
BR_N =.00073±.00011

Q_β =5060.
BR_β =.9993

$^{140}_{55}$Cs
63.8±0.3s

$^{141}_{56}$Ba
18.30±0.10m

$^{141}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-141 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 7/73 CWR
REFERENCES Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER - W.L. TALBERT, PRIV. COMM. (1973).

$^{141}_{56}$Ba

$T_{1/2}$ =18.30±0.10m
$\langle E_\beta \rangle$ PER DECAY =915.5
$\langle E_\gamma \rangle$ PER DECAY =887.9

FISSION YIELDS

^{235}U THERMAL	1.4479×10^{-2}
^{235}U FAST	1.5028×10^{-2}
^{238}U FAST	9.6333×10^{-4}
^{239}PU THERMAL	2.0654×10^{-2}

Q_β =3030.±50.
BR_β =1.000

$^{141}_{57}$La

3.87±.03h

PHOTON RADIATION TABLE

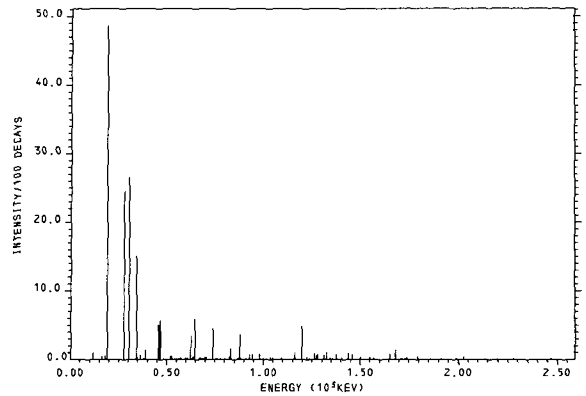
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
188.36	±	0.16	4	51.	±	3.
276.79	±	0.09	4	24.9	±	1.3
321.8	±	0.7	6	44.1	±	1.6
462.52	±	0.16	5	16.0	±	0.5
544.2	±	1.5	9	2.09	±	.12
644.1	±	1.0	12	11.6	±	0.4
738.8	±	0.4	5	5.2	±	.3
858.8	±	1.0	10	6.4	±	.3
952.6	±	1.4	6	2.65	±	.13
1049.2	±	2.3	5	1.12	±	.10
1160.84	±	0.09	1	.96	±	.10
1160.8	±	0.5	1	.25	±	.10
1197.47	±	0.08	1	4.9	±	.3
1261.8	±	0.9	5	2.69	±	.14
1336.7	±	1.8	6	3.00	±	.20
1405.59	±	0.25	1	.29	±	.05
1436.84	±	0.13	1	.87	±	.07
1458.56	±	0.14	1	.72	±	.07
1538.7	±	2.1	4	1.01	±	.08
1667.2	±	1.2	6	2.44	±	.12
1757.5	±	2.1	5	1.28	±	.09
1820.7	±	0.6	1	.083	±	.024
1860.4	±	0.6	1	.083	±	.024
1877.3	±	1.0	1	.039	±	.024
1912.7	±	0.3	1	.136	±	.024
1918.6	±	0.8	1	.049	±	.019
1990.3	±	0.3	1	.19	±	.03
2026.56	±	0.23	1	.40	±	.05
2058.8	±	0.9	1	.054	±	.019
2080.9	±	1.1	1	.029	±	.019
2160.	±	3.	4	.42	±	.04
2217.2	±	0.6	1	.063	±	.019
2278.9	±	0.4	1	.102	±	.024
2469.0	±	0.3	1	.19	±	.04

$\langle E_{PHOTON} \rangle$ PER DECAY = 888. ± 11.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	561.0	178.	±	17.	.6000
β-	589.0	188.	±	17.	.2000
β-	644.0	209.	±	17.	.2000
β-	654.0	213.	±	18.	.8000
β-	813.0	276.	±	19.	.6000
β-	850.0	291.	±	19.	.5000
β-	1104.0	397.	±	22.	2.300
β-	1157.0	420.	±	22.	4.100
β-	1186.0	432.	±	22.	2.600
β-	1289.0	477.	±	23.	2.500

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			1/100 DECAYS		
γ	190.22	±	0.08	49.	±	3.
γ	304.24	±	0.08	26.6	±	1.4
γ	276.99	±	0.08	24.6	±	1.3
β-	2381.	±	50.	24.00		
β-	2563.	±	50.	19.00		
γ	343.71	±	0.08	15.1	±	0.8
β-	2101.	±	50.	13.00		
β-	2840.	±	50.	12.00		
β-	1528.	±	50.	6.300		
γ	647.88	±	0.08	6.0	±	.3
γ	467.26	±	0.08	5.8	±	.3
γ	462.15	±	0.08	5.1	±	.3
γ	457.58	±	0.08	5.1	±	.3
γ	1197.47	±	0.08	4.9	±	.3
γ	739.10	±	0.08	4.54	±	.24

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	1402.0	527.	±	25.	2.300
β-	1464.0	555.	±	30.	.2000
β-	1528.0	584.	±	30.	6.300
β-	1604.0	618.	±	30.	.3000
β-	1841.0	727.	±	30.	.3000
β-	1858.0	735.	±	30.	1.500

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1964.0	785. ± 30.	3.600
β^-	1991.0	797. ± 30.	.1000
β^-	2038.0	819. ± 30.	.2000
β^-	2101.0	849. ± 30.	13.00
β^-	2198.0	895. ± 30.	2.100
β^-	2204.0	897. ± 30.	.5000
β^-	2344.0	964. ± 40.	.1000
β^-	2381.0	981. ± 40.	24.00
β^-	2450.0	1014. ± 40.	.2000
β^-	2563.0	1068. ± 40.	19.00
β^-	2726.0	1147. ± 40.	1.600
β^-	2840.0	1202. ± 40.	12.00
β^-	3030.0	1294. ± 40.	2.000

$\langle E_e \rangle$ PER DECAY = 915.5
$\langle E_\nu \rangle$ PER DECAY = 1328.

$^{141}_{57}$La

```
                ENDF/B-IV FILE 1 COMMENTS
57-LA-141  ANC        EVAL-FEB74 C.W.REICH             DECAY DATA
                      DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
 PREPARED FOR FILE  7/73                         CWR
 REFERENCES  Q-1973 REVISION OF WAPSTRA-GOVE MASS TABLE
             OTHER- W.L. TALBERT,PRIV. COMM. (1973)
```

$^{141}_{57}$La

$T_{1/2}$ =3.87±.03h
$\langle E_\beta \rangle$ PER DECAY =989.9
$\langle E_\gamma \rangle$ PER DECAY =32.81

FISSION YIELDS

^{235}U THERMAL	1.9769×10^{-4}
^{235}U FAST	1.5148×10^{-4}
^{238}U FAST	3.2397×10^{-6}
^{239}PU THERMAL	3.9162×10^{-4}

Q_β =2430.±30.
BR_β =1.000

$^{141}_{58}$Ce

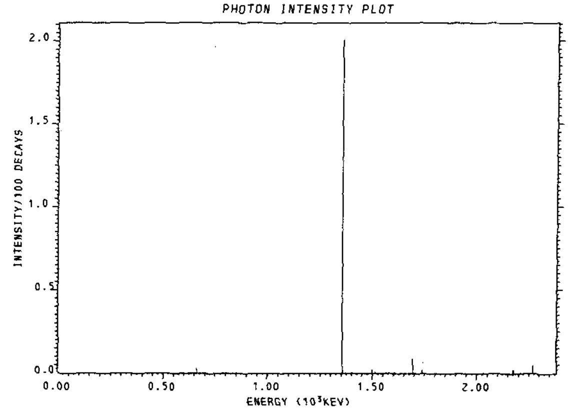
32.530±0.020d

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
324.6	±	0.4	1	.0015	±	.0005
435.0	±	0.8	1	.0009	±	.0006
475.0	±	0.6	1	.0008	±	.0005
571.	±	4.	4	.0052	±	.0012
662.05	±	0.06	1	.0318	±	.0018
676.8	±	0.5	1	.0016	±	.0007
694.9	±	0.7	1	.0013	±	.0007
710.39	±	0.24	1	.0038	±	.0007
834.8	±	0.4	1	.0025	±	.0008
853.0	±	0.3	1	.0038	±	.0008
964.0	±	0.9	1	.0017	±	.0010
1354.52	±	0.09	1	2.01	±	.11
1368.68	±	0.16	1	.0061	±	.0006
1497.03	±	0.12	1	.0222	±	.0015
1512.08	±	0.15	1	.0112	±	.0009
1604.76	±	0.15	1	.0105	±	.0009
1693.31	±	0.11	1	.090	±	.005
1739.01	±	0.11	1	.0191	±	.0012
1943.7	±	0.3	1	.0041	±	.0007
2030.19	±	0.18	1	.0063	±	.0006
2049.2	±	0.3	1	.0028	±	.0004
2171.1	±	0.3	1	.025	±	.003
2173.9	±	0.3	1	.0201	±	.0024
2207.30	±	0.22	1	.0096	±	.0008
2267.00	±	0.16	1	.051	±	.003

$\langle E_{PHOTON} \rangle$ PER DECAY = 32.8 ± 1.5

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
β-	2430.	±	30.	97.70

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	101.0	27.	±	8.	.00060
β-	163.0	44.	±	8.	.06100
β-	223.0	63.	±	9.	.01700
β-	256.0	73.	±	9.	.03500
β-	259.0	74.	±	9.	.02500
β-	381.0	114.	±	10.	.00420
β-	400.0	120.	±	10.	.00630
β-	486.0	151.	±	10.	.00540
β-	691.0	227.	±	12.	.01800
β-	737.0	245.	±	12.	.09200
β-	804.0	272.	±	13.	.00040
β-	933.0	325.	±	14.	.01900
β-	1061.0	378.	±	16.	.00450
β-	1076.0	385.	±	16.	2.000
β-	1187.0	433.	±	17.	.00150
β-	1293.0	479.	±	18.	.00070
β-	1768.0	694.	±	24.	.00370
β-	2430.0	1005.	±	30.	97.70

$\langle E_e \rangle$ PER DECAY = 989.9
$\langle E_\nu \rangle$ PER DECAY = 1407.

$^{141}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-141 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74

$^{141}_{58}$Ce

$T_{1/2}$ =32.530±0.020d
$\langle E_\beta \rangle$ PER DECAY =159.5
$\langle E_\gamma \rangle$ PER DECAY =71.70

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$3.3953\times10^{+1}$
WESTCOTT G FACTOR	1.1136
σ CAPTURE 2200M/S	$2.9000\times10^{+1}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$3.2170\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.4090\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	2.3113×10^{-7}
^{235}U FAST	2.2804×10^{-7}
^{239}PU THERMAL	8.7988×10^{-7}

Q_β =580.9±1.5
BR_β =1.000

$^{141}_{59}$Pr

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
145.4	1	49.30

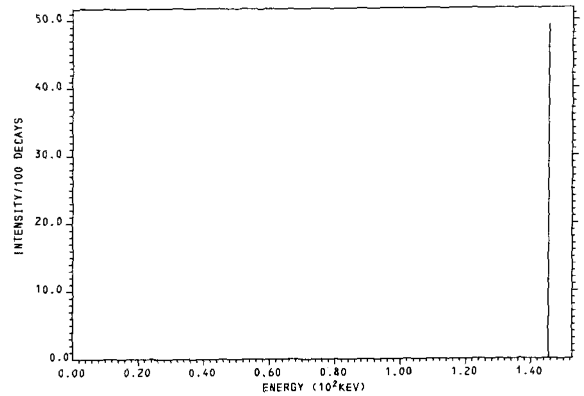
$\langle E_{PHOTON} \rangle$ PER DECAY = 71.70

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	435.6	132.7	49.30
β^-	581.0	185.5	50.70

$\langle E_e \rangle$ PER DECAY = 159.5
$\langle E_\nu \rangle$ PER DECAY = 349.8

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	581.0	50.70
γ	145.4	49.30
β^-	435.6	49.30

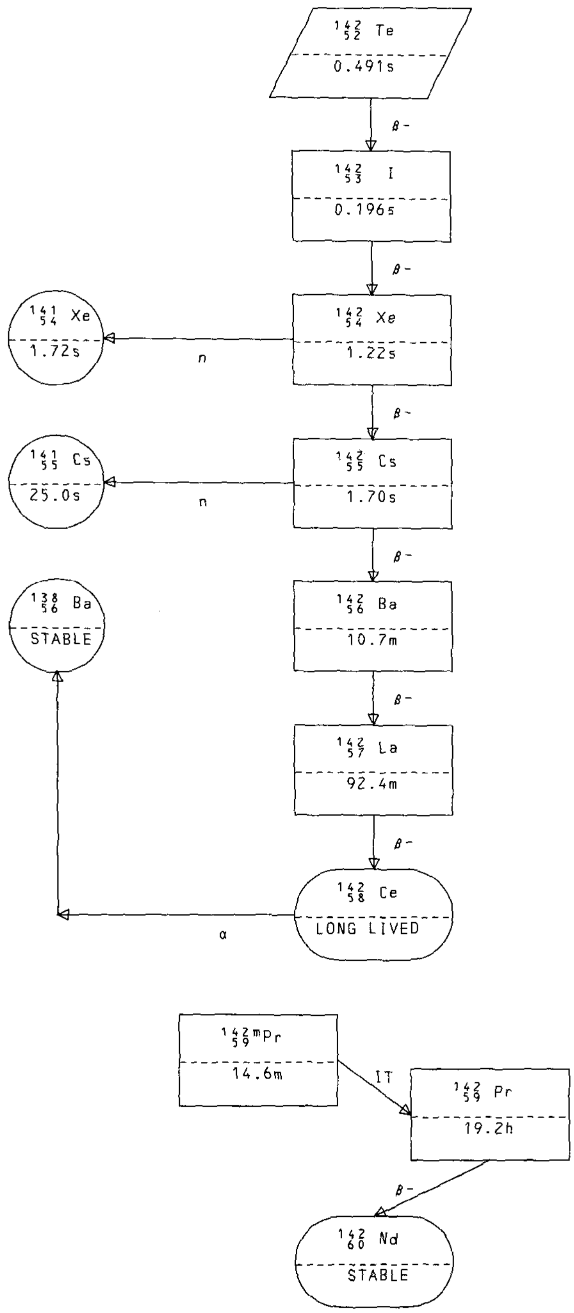
$^{141}_{59}$Pr

$^{141}_{59}$Pr

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.3671\times10^{+1}$
WESTCOTT G FACTOR	1.0217
σ CAPTURE 2200M/S	$1.1501\times10^{+1}$
WESTCOTT G FACTOR	1.0015
RESONANCE INTEGRAL TOTAL	$3.3310\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.9450\times10^{+1}$
RESONANCE INTEGRAL (N,2N)	1.1410
RESONANCE INTEGRAL (N,P)	3.8850×10^{-3}
RESONANCE INTEGRAL (N,α)	3.1000×10^{-3}


142 52 Te
0.491s
β-
142 53 I
0.196s
β-
141 54 Xe
1.72s
n
142 54 Xe
1.22s
β-
141 55 Cs
25.0s
n
142 55 Cs
1.70s
β-
138 56 Ba
STABLE
142 56 Ba
10.7m
β-
142 57 La
92.4m
β-
142 58 Ce
LONG LIVED
α
142m 59 Pr
14.6m
IT
142 59 Pr
19.2h
β-
142 60 Nd
STABLE

$^{142}_{52}$Te

ENDF/B-IV FILE 1 COMMENTS
52-TE-142 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{142}_{52}$Te

$T_{1/2}$ =.4913s
$\langle E_\beta \rangle$ PER DECAY =1740.
$\langle E_\gamma \rangle$ PER DECAY =2890.

FISSION YIELDS

^{235}U THERMAL	7.2339×10^{-9}
^{235}U FAST	1.3902×10^{-8}
^{238}U FAST	3.0097×10^{-6}

Q_β =6440.
BR_β =1.000

$^{142}_{53}$I

.1960s

142 - 52- 1

$^{142}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-142 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{142}_{53}$I

$T_{1/2}$ =.1960s
$\langle E_\beta \rangle$ PER DECAY =2904.
$\langle E_\gamma \rangle$ PER DECAY =3932.

FISSION YIELDS

^{235}U THERMAL	2.2092×10^{-5}
^{235}U FAST	2.4454×10^{-5}
^{238}U FAST	7.2182×10^{-4}
^{239}PU THERMAL	2.4697×10^{-6}

Q_β =9740.
BR_β =1.000

$^{142}_{54}$Xe

1.220±.020s

$^{142}_{54}$Xe

```
                         ENDF/B-IV FILE 1 COMMENTS
54-XE-142   HEDL           EVAL-APR74 R.E.SCHENTER
                           DIST-NOV74
     REFERENCES
      DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)
```

$^{142}_{54}$Xe

$T_{1/2}$ =1.220±.020s
$\langle E_\beta \rangle$ PER DECAY =1097.
$\langle E_\gamma \rangle$ PER DECAY =1765.

FISSION YIELDS

^{235}U THERMAL	3.7138×10^{-3}
^{235}U FAST	4.5004×10^{-3}
^{238}U FAST	2.0687×10^{-2}
^{239}PU THERMAL	8.3737×10^{-4}

Q_N =405.1
BR_N =.0051±.0009

Q_β =4340.
BR_β =.9949

$^{141}_{54}$Xe
1.720±.010s

$^{142}_{55}$Cs
1.70±.10s

142 - 54- 1

$^{142}_{55}$Cs

```
                         ENDF/B-IV FILE 1 COMMENTS
55-CS-142   HEDL           EVAL-APR74 R.E.SCHENTER
                           DIST-NOV74
     REFERENCES
      DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)
```

$^{142}_{55}$Cs

$T_{1/2}$ =1.70±.10s
$\langle E_\beta \rangle$ PER DECAY =2045.
$\langle E_\gamma \rangle$ PER DECAY =2545.

FISSION YIELDS

^{235}U THERMAL	2.4542×10^{-2}
^{235}U FAST	2.5217×10^{-2}
^{238}U FAST	2.1866×10^{-2}
^{239}PU THERMAL	1.4824×10^{-2}

Q_N =1126.
BR_N =.0021±.0006

Q_β =7060.
BR_β =.9979

$^{141}_{55}$Cs
25.0±0.3s

$^{142}_{56}$Ba
10.70±0.10m

$^{142}_{56}$Ba

```
              ENDF/B-IV FILE 1 COMMENTS
56-BA-142  ANC       EVAL-FEB74 C.W.REICH            DECAY DATA
                     DIST-NOV74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
 PREPARED FOR FILE   8/73                         CWR
 REFERENCES  Q-  1973 REVISION OF WAPSTRA-GOVE MASS TABLES
             OTHER - J.T. LARSEN ET AL. PHYS. REV. C 3,1372 (1971
```

$^{142}_{56}$Ba

$T_{1/2}$ =10.70±0.10m

$\langle E_\beta \rangle$ PER DECAY =428.3

$\langle E_\gamma \rangle$ PER DECAY =1013.

FISSION YIELDS

^{235}U THERMAL	3.0015×10^{-2}
^{235}U FAST	2.4004×10^{-2}
^{238}U FAST	6.0019×10^{-3}
^{239}PU THERMAL	3.2657×10^{-2}

Q_β =2200.±100.

BR_β =1.000

$^{142}_{57}$La

92.4±0.3m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
69.4	±	0.3	1	.4020		
76.8	±	0.6	1	1.005		
77.60	±	0.10	1	10.85		
155.9	±	1.8	4	3.4	±	.3
248.0	±	0.9	8	34.3	±	2.4
344.3	±	1.9	6	9.4	±	.7
431.2	±	0.9	8	8.5	±	.8
581.	±	3.	6	2.9	±	.3
604.2	±	0.3	1	.36	±	.08
769.40	±	0.20	1	.68	±	.08
786.4	±	0.3	1	.28	±	.08
792.2	±	0.4	1	.24	±	.08
881.3	±	1.7	4	16.3	±	1.4
948.75	±	0.06	1	10.1	±	1.4
1048.	±	3.	4	22.4	±	2.0
1122.6	±	0.3	1	.34	±	.06
1126.54	±	0.08	1	1.73	±	.24
1148.3	±	0.3	1	.44	±	.06
1202.20	±	0.10	1	6.0	±	.8
1204.06	±	0.08	1	15.4	±	1.7
1283.4	±	0.5	1	.18	±	.08
1379.90	±	0.10	1	3.8	±	.5

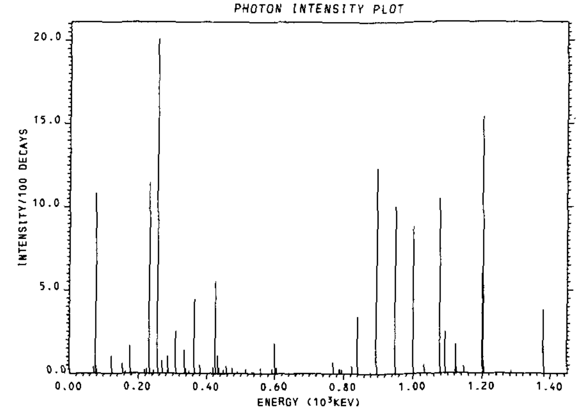
$\langle E_{PHOTON} \rangle$ PER DECAY = 1013.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	742.0	247.	±	30.	14.00
β-	917.0	318.	±	40.	.1000
β-	996.0	351.	±	40.	45.00
β-	1121.0	404.	±	40.	20.00
β-	1333.0	497.	±	40.	.5000
β-	1382.0	518.	±	40.	.3000
β-	1408.0	530.	±	40.	.8000
β-	1609.0	621.	±	40.	.4000
β-	1768.0	694.	±	40.	3.500
β-	1775.0	697.	±	40.	5.100
β-	1836.0	725.	±	50.	1.400
β-	1891.0	751.	±	50.	.8000
β-	1900.0	755.	±	50.	.2000
β-	1945.0	776.	±	50.	1.800
β-	2045.0	823.	±	50.	.1000
β-	2122.0	859.	±	50.	6.000

$\langle E_e \rangle$ PER DECAY = 428.3
$\langle E_\nu \rangle$ PER DECAY = 738.8

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	996.	±	100.	45.00		
γ	255.12	±	0.04	20.1	±	1.7
β-	1121.	±	100.	20.00		
γ	1204.06	±	0.08	15.4	±	1.7
β-	742.	±	100.	14.00		
γ	894.90	±	0.10	12.4	±	1.3
γ	231.52	±	0.04	11.5	±	1.6
γ	77.60	±	0.10	10.85		
γ	1078.48	±	0.05	10.5	±	1.5
γ	948.75	±	0.06	10.1	±	1.4
γ	1000.86	±	0.05	8.8	±	1.3
γ	1202.20	±	0.10	6.0	±	.8
β-	2122.	±	100.	6.000		

$^{142}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-142 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 CWR
REFERENCES Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER - J.T. LARSEN ET AL. PHYS. REV. C 3,1372 (1971)

$^{142}_{57}$La

$T_{1/2}$ =92.4±0.3m
$\langle E_\beta \rangle$ PER DECAY =947.0
$\langle E_\gamma \rangle$ PER DECAY =2565.

FISSION YIELDS

^{235}U THERMAL	1.0127×10^{-3}
^{235}U FAST	8.4528×10^{-4}
^{238}U FAST	2.4658×10^{-5}
^{239}PU THERMAL	1.8211×10^{-3}

Q_β =4517.±6.
BR_β =1.000

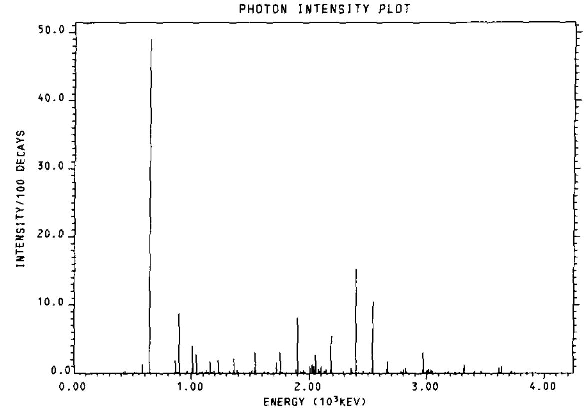
$^{142}_{58}$Ce

$1.049\times10^{+11}$y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
137.	±	10.	5	.39	±	.14
297.9	±	0.3	1	.05	±	.05
366.	±	7.	5	.34	±	.11
427.1	±	2.0	4	.73	±	.19
567.	±	4.	7	1.8	±	.3
601.8	±	0.5	1	.05	±	.05
619.50	±	0.10	1	.15	±	.05
641.17	±	0.03	1	49.	±	4.
793.1	±	0.4	1	.05	±	.05
861.57	±	0.07	1	1.9	±	.3
878.2	±	0.3	1	.20	±	.10
894.85	±	0.04	1	8.8	±	1.0
961.	±	4.	4	.64	±	.17
1028.6	±	1.6	10	8.0	±	.6
1155.	±	3.	9	3.3	±	.4
1239.0	±	1.8	9	2.8	±	.3
1363.4	±	1.8	8	3.6	±	.4
1449.	±	12.	4	.54	±	.18
1540.6	±	1.1	5	4.4	±	.5
1618.20	±	0.20	1	.29	±	.10
1651.4	±	0.3	1	.20	±	.10
1688.1	±	0.3	1	.25	±	.10
1748.3	±	1.6	7	5.3	±	.5
1806.3	±	0.5	1	.15	±	.10
1817.1	±	0.6	1	.10	±	.05
1885.4	±	0.7	1	.54	±	.15
1906.1	±	1.0	6	9.2	±	.6
2044.6	±	1.6	7	7.6	±	.5
2170.	±	3.	5	7.8	±	.8
2290.5	±	0.6	1	.34	±	.15
2358.40	±	0.20	1	.78	±	.15
2364.4	±	0.3	1	.44	±	.15
2397.72	±	0.10	1	15.3	±	1.6
2419.5	±	0.4	1	.20	±	.10
2459.4	±	0.4	1	.39	±	.15
2542.0	±	0.3	4	11.5	±	1.3
2663.5	±	0.3	1	.73	±	.15
2666.80	±	0.15	1	1.76	±	.25
2672.6	±	0.4	1	.20	±	.10
2779.0	±	1.0	1	.05	±	.05
2782.3	±	0.4	1	.29	±	.10
2800.8	±	0.4	1	.59	±	.15
2818.10	±	0.10	1	.78	±	.20
2828.60	±	0.20	1	.25	±	.10
2975.2	±	0.9	4	4.4	±	.4
3029.	±	3.	6	2.1	±	.3
3155.0	±	0.3	1	.20	±	.10
3181.0	±	0.3	1	.29	±	.10
3236.70	±	0.20	1	.29	±	.10
3242.4	±	0.3	1	.20	±	.10
3273.2	±	0.7	1	.15	±	.10

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	641.17	±	0.03	49.	±	4.
β-	2119.	±	6.	20.00		
β-	1974.	±	6.	19.00		
γ	2397.72	±	0.10	15.3	±	1.6
β-	4517.	±	6.	13.00		
γ	2542.65	±	0.09	10.5	±	1.3
γ	894.85	±	0.04	8.8	±	1.0
γ	1901.32	±	0.08	8.1	±	.5
β-	1821.	±	6.	7.000		
β-	2330.	±	6.	6.000		
γ	2187.20	±	0.10	5.4	±	.7
β-	3876.	±	6.	5.000		
γ	1011.38	±	0.06	4.1	±	.5
β-	904.	±	6.	4.000		
γ	2972.00	±	0.20	3.1	±	.3
γ	1756.42	±	0.07	3.1	±	.4
γ	1545.80	±	0.10	3.1	±	.4
β-	2981.	±	6.	3.000		
β-	1850.	±	6.	3.000		
γ	1043.68	±	0.07	2.8	±	.3

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
3314.70	±	0.20	1	1.27	±	.20
3334.2	±	0.7	1	.05	±	.05
3434.	±	7.	4	.74	±	.19
3612.10	±	0.20	1	.83	±	.20
3632.70	±	0.20	1	1.08	±	.20
3719.10	±	0.20	1	.29	±	.10
3746.3	±	0.8	1	.05	±	.05
3850.4	±	0.3	1	.25	±	.10
3975.60	±	0.20	1	.05	±	.05
4045.2	±	0.3	1	.05	±	.05

$\langle E_{PHOTON} \rangle$ PER DECAY = 2565. ± 70.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	474.0	146.	±	5.	2.000
β^-	798.0	270.	±	8.	1.000
β^-	800.0	270.	±	8.	1.000
β^-	842.0	287.	±	9.	1.000
β^-	884.0	305.	±	9.	1.000
β^-	904.0	313.	±	10.	4.000
β^-	905.0	313.	±	10.	2.000
β^-	1047.0	373.	±	11.	1.000
β^-	1058.0	377.	±	12.	2.000
β^-	1097.0	394.	±	12.	2.000
β^-	1776.0	697.	±	21.	1.000
β^-	1821.0	718.	±	22.	7.000
β^-	1850.0	732.	±	22.	3.000
β^-	1974.0	789.	±	24.	19.00
β^-	2119.0	857.	±	30.	20.00
β^-	2153.0	873.	±	30.	2.000
β^-	2330.0	957.	±	30.	6.000
β^-	2513.0	1044.	±	30.	2.000
β^-	2864.0	1213.	±	40.	1.000
β^-	2981.0	1270.	±	40.	3.000
β^-	3876.0	1707.	±	50.	5.000
β^-	4517.0	2022.	±	60.	13.00

$\langle E_e \rangle$ PER DECAY = 947.0
$\langle E_\nu \rangle$ PER DECAY = 1335.

$^{142}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-142 HEDL EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
DIST-NOV74

$^{142}_{58}$Ce

$T_{1/2}$ =1.049x10^{+11}y
$\langle E_\alpha \rangle$ PER DECAY =1445.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.9270
WESTCOTT G FACTOR	1.1791
σ CAPTURE 2200M/S	9.5000x10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	1.3880x10^{+2}
RESONANCE INTEGRAL CAPTURE	8.3110x10^{-1}

FISSION YIELDS

^{235}U THERMAL	5.1728x10^{-6}
^{235}U FAST	3.5606x10^{-6}
^{238}U FAST	1.3999x10^{-8}
^{239}PU THERMAL	1.4008x10^{-5}

Q_α =1434.
BR_α =1.000

$^{138}_{56}$Ba

STABLE OR LONG-LIVED

$^{142m}_{59}Pr$

ENDF/B-IV FILE 1 COMMENTS
59-PR-142M HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{142m}_{59}Pr$

$T_{1/2}$ =14.60m
$\langle E_\gamma \rangle$ PER DECAY =250.0

FISSION YIELDS
^{239}PU THERMAL 1.3098x10^{-9}

Q_{IT}=250.0
BR_{IT}=1.000

$^{142}_{59}Pr$

19.16h

142m- 59- 1

$^{142}_{59}Pr$

ENDF/B-IV FILE 1 COMMENTS
59-PR-142 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-DEC74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{142}_{59}Pr$

$T_{1/2}$ =19.16h
$\langle E_\beta \rangle$ PER DECAY =807.0
$\langle E_\gamma \rangle$ PER DECAY =58.20

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.4977x10^{+1}
WESTCOTT G FACTOR	1.1145
σ CAPTURE 2200M/S	2.0000x10^{+1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	5.3790x10^{+2}
RESONANCE INTEGRAL CAPTURE	1.4480x10^{+2}

FISSION YIELDS
^{239}PU THERMAL 1.3198x10^{-9}

Q_β =2160.
BR_β =1.000

$^{142}_{60}Nd$

STABLE OR LONG-LIVED

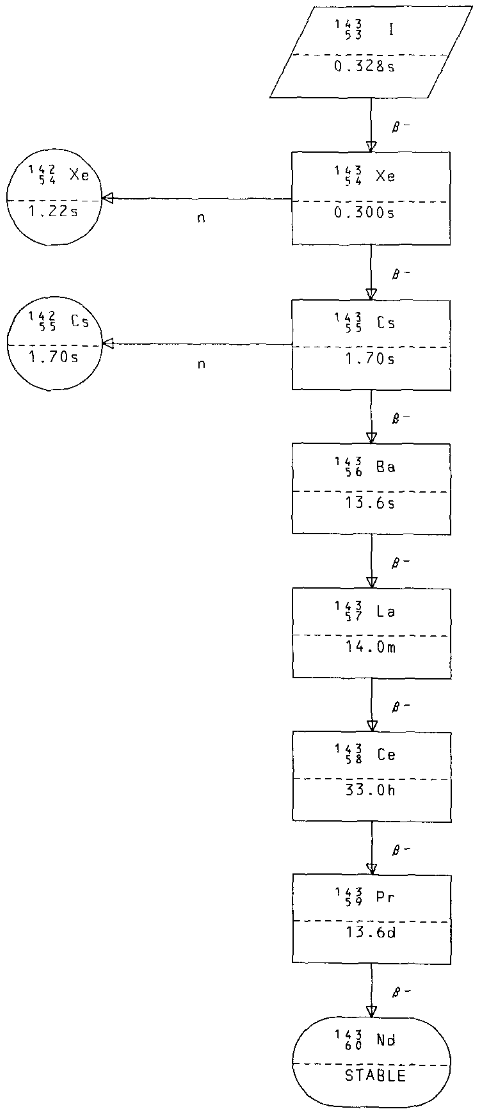
$^{142}_{60}$Nd

$^{142}_{60}$Nd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.3268\times10^{+1}$
WESTCOTT G FACTOR	1.0481
σ CAPTURE 2200M/S	$1.8700\times10^{+1}$
WESTCOTT G FACTOR	1.0284
RESONANCE INTEGRAL TOTAL	$1.1510\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	9.1690



143 53 I
0.328s
β-
143 54 Xe
0.300s
n
142 54 Xe
1.22s
β-
143 55 Cs
1.70s
n
142 55 Cs
1.70s
β-
143 56 Ba
13.6s
β-
143 57 La
14.0m
β-
143 58 Ce
33.0h
β-
143 59 Pr
13.6d
β-
143 60 Nd
STABLE

$^{143}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-143 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{143}_{53}$I

$T_{1/2}$ =.3282s
$\langle E_\beta \rangle$ PER DECAY =2200.
$\langle E_\gamma \rangle$ PER DECAY =3311.

FISSION YIELDS

^{235}U THERMAL	8.9313×10^{-7}
^{235}U FAST	1.0335×10^{-6}
^{238}U FAST	5.6092×10^{-5}
^{239}PU THERMAL	1.2254×10^{-7}

Q_β =7760.
BR_β =1.000

$^{143}_{54}$Xe
.3000s

143 - 53- 1

$^{143}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-143 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{143}_{54}$Xe

$T_{1/2}$ =.3000s
$\langle E_\beta \rangle$ PER DECAY =1799.
$\langle E_\gamma \rangle$ PER DECAY =2689.

FISSION YIELDS

^{235}U THERMAL	5.0999×10^{-4}
^{235}U FAST	6.0259×10^{-4}
^{238}U FAST	4.7035×10^{-3}
^{239}PU THERMAL	1.2244×10^{-4}

Q_N =1056.
BR_N =.01100

Q_β =6650.
BR_β =.9890

$^{142}_{54}$Xe
1.220±.020s

$^{143}_{55}$Cs
1.70±.10s

$^{143}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-143 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{143}_{55}Cs$

$T_{1/2}$ =1.70±.10s
$\langle E_\beta \rangle$ PER DECAY =1564.
$\langle E_\gamma \rangle$ PER DECAY =2169.

FISSION YIELDS

^{235}U THERMAL	1.4981×10^{-2}
^{235}U FAST	1.2778×10^{-2}
^{238}U FAST	2.2057×10^{-2}
^{239}PU THERMAL	5.9175×10^{-3}

Q_N =1465.
BR_N =.0113±.0025

Q_β =5730.
BR_β =.9887

$^{142}_{55}Cs$
1.70±.10s

$^{143}_{56}Ba$
13.6±0.5s

143 - 55- 1

$^{143}_{56}Ba$

ENDF/B-IV FILE 1 COMMENTS
56-BA-143 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{143}_{56}Ba$

$T_{1/2}$ =13.6±0.5s
$\langle E_\beta \rangle$ PER DECAY =1089.
$\langle E_\gamma \rangle$ PER DECAY =1570.

FISSION YIELDS

^{235}U THERMAL	3.7631×10^{-2}
^{235}U FAST	3.9472×10^{-2}
^{238}U FAST	2.1243×10^{-2}
^{239}PU THERMAL	3.3494×10^{-2}

Q_β =4260.
BR_β =1.000

$^{143}_{57}La$
14.0±1.0m

$^{143}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-143 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{143}_{57}$La

$T_{1/2}$ =14.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =831.3
$\langle E_\gamma \rangle$ PER DECAY =1141.

FISSION YIELDS

^{235}U THERMAL	6.2798×10^{-3}
^{235}U FAST	4.0720×10^{-3}
^{238}U FAST	2.8091×10^{-4}
^{239}PU THERMAL	5.9441×10^{-3}

Q_β =3300.
BR_β =1.000

$^{143}_{58}$Ce

33.00±0.20h

$^{143}_{58}$ Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-143 ANC,HEDL *EVAL-JUL74* C.W.REICH *DECAY DATA*
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-NOV74

REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q- 1973 *REVISION OF WAPSTRA-GOVE MASS TABLE.*
OTHER- M.A. LUDINGTON, D.E. RAESIDE, J.J. REIDY AND
M.L. WIEDENBECK, PHYS. REV. C 4, 647(1971).

$^{143}_{58}$ Ce

$T_{1/2}$ =33.00±0.20h
$\langle E_\beta \rangle$ PER DECAY =419.1
$\langle E_\gamma \rangle$ PER DECAY =295.8

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.1000\times10^{+1}$
WESTCOTT G FACTOR	1.1739
σ CAPTURE 2200M/S	6.0000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.1180\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.1480\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	3.1854×10^{-4}
^{235}U FAST	4.9998×10^{-5}
^{238}U FAST	4.6696×10^{-7}
^{239}PU THERMAL	1.3132×10^{-4}

Q_β =1444.±5.
BR_β =1.000

$^{143}_{59}$ Pr

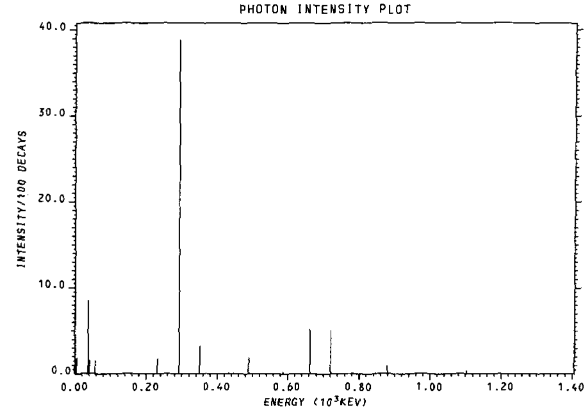
13.580±0.020d

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
34.0	±	0.3	5	13.38	±	0.15
139.67	±	0.20	1	.10	±	.03
231.56	±	0.03	1	1.74	±	.18
293.262	±	0.021	1	38.85		
350.59	±	0.05	1	3.2	±	.3
371.1	±	0.4	1	.021	±	.006
389.49	±	0.18	1	.029	±	.008
485.7	±	0.9	4	2.17	±	.21
556.86	±	0.21	1	.025	±	.008
587.28	±	0.15	1	.24	±	.04
664.55	±	0.10	1	5.2	±	.5
721.96	±	0.11	1	5.0	±	.5
791.1	±	0.3	1	.017	±	.004
876.8	±	0.9	4	.97	±	.08
937.8	±	0.3	1	.031	±	.006
1025.	±	3.	4	.126	±	.015
1102.98	±	0.18	1	.36	±	.05
1324.6	±	0.4	1	.012	±	.004
1339.9	±	0.8	1	.0037	±	.0012

$\langle E_{PHOTON} \rangle$ PER DECAY = 2315

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	40.5	7.709			10.27
CE	349.1	70.981	±	0.003	12.91
β-	46.0	11.81			.01000
β-	62.0	16.05			.04000
β-	284.0	81.72			.3900
β-	384.0	114.9			.1000
β-	506.0	157.9			1.240
β-	596.0	191.1			.06000
β-	704.0	232.5			.00400
β-	722.0	239.5			12.50
β-	1093.0	392.1			46.70
β-	1387.0	520.6			39.10

$\langle E_e \rangle$ PER DECAY = 429.1
$\langle E_\nu \rangle$ PER DECAY = 732.1

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
β-	1093.			46.70
β-	1387.			39.10
γ	293.262	±	0.021	38.85
β-	722.0			12.50
AU_L	5.324			9.341

$^{143}_{59}$Pr

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                 ENDF/B-IV FILE 1 COMMENTS
59-PR-143  ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                     DIST-DEC74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
          Q-1973 WAPSTRA-GOVE MASSTABLE
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$^{143}_{59}$Pr

$T_{1/2}$ =13.580±0.020d

$\langle E_\beta \rangle$ PER DECAY =323.9

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$9.4000 \times 10^{+1}$
WESTCOTT G FACTOR	1.0534
σ CAPTURE 2200M/S	$8.9000 \times 10^{+1}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$6.3920 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.8930 \times 10^{+2}$

FISSION YIELDS

^{235}U THERMAL	2.7315×10^{-8}
^{235}U FAST	3.6406×10^{-8}
^{239}PU THERMAL	9.4087×10^{-8}

Q_β =931.2±2.0

BR_β =1.000

$^{143}_{60}$Nd

STABLE OR LONG-LIVED

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	931.0	323.9	100.0

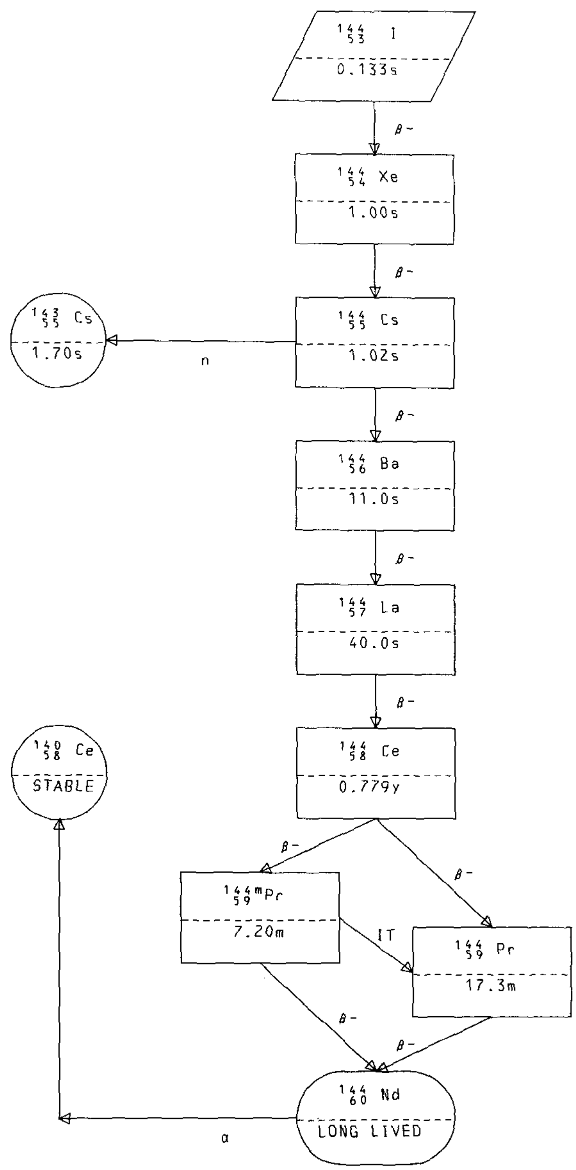
$\langle E_e \rangle$ PER DECAY = 323.9
$\langle E_\nu \rangle$ PER DECAY = 607.1

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	931.0	100.0

$^{143}_{60}Nd$

$^{143}_{60}$Nd	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$3.9398 \times 10^{+2}$
WESTCOTT G FACTOR	1.0182
σ CAPTURE 2200M/S	$3.2508 \times 10^{+2}$
WESTCOTT G FACTOR	9.9646×10^{-1}
RESONANCE INTEGRAL TOTAL	$8.2330 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.3130 \times 10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.9090
RESONANCE INTEGRAL (N,P)	3.8770×10^{-3}
RESONANCE INTEGRAL (N,α)	5.9230×10^{-3}


144 53 I
0.133s
β-
144 54 Xe
1.00s
β-
143 55 Cs
1.70s
n
144 55 Cs
1.02s
β-
144 56 Ba
11.0s
β-
144 57 La
40.0s
β-
140 58 Ce
STABLE
144 58 Ce
0.779y
β-
β-
144m 59 Pr
7.20m
IT
144 59 Pr
17.3m
β-
β-
144 60 Nd
LONG LIVED
α

$^{144}_{53}$I

ENDF/B-IV FILE 1 COMMENTS

53- I-144 HEDL EVAL-APR74 R.E.SCHENTER

DIST-NOV74

REFERENCES

HALF LIFE-R SCHENTER,THEORY(9/73)

$^{144}_{53}$I

$T_{1/2}$ =.1327s

$\langle E_\beta \rangle$ PER DECAY =3014.

$\langle E_\gamma \rangle$ PER DECAY =4203.

FISSION YIELDS

^{235}U THERMAL	3.1963×10^{-8}
^{235}U FAST	5.0710×10^{-8}
^{238}U FAST	5.3054×10^{-6}
^{239}PU THERMAL	3.4568×10^{-9}

Q_β =10230.

BR_β =1.000

$^{144}_{54}$Xe

1.000s

144 - 53- 1

$^{144}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS

54-XE-144 HEDL EVAL-APR74 R.E.SCHENTER

DIST-NOV74

$^{144}_{54}$Xe

$T_{1/2}$ =1.000s

$\langle E_\beta \rangle$ PER DECAY =1201.

$\langle E_\gamma \rangle$ PER DECAY =2004.

FISSION YIELDS

^{235}U THERMAL	6.0381×10^{-5}
^{235}U FAST	1.0524×10^{-4}
^{238}U FAST	1.3680×10^{-3}
^{239}PU THERMAL	1.1425×10^{-5}

Q_β =4670.

BR_β =1.000

$^{144}_{55}$Cs

1.02±.04s

$^{144}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-144 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{144}_{55}$Cs

$T_{1/2}$ =1.02±.04s
$\langle E_\beta \rangle$ PER DECAY =2350.
$\langle E_\gamma \rangle$ PER DECAY =3041.

FISSION YIELDS

^{235}U THERMAL	2.8172×10^{-3}
^{235}U FAST	5.2572×10^{-3}
^{238}U FAST	1.6265×10^{-2}
^{239}PU THERMAL	1.5957×10^{-3}

Q_N =1885.
BR_N =.0110±.0025

Q_β =8050.
BR_β =.9890

$^{143}_{55}$Cs
1.70±.10s

$^{144}_{56}$Ba
11.0±1.0s

144 - 55- 1

$^{144}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-144 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{144}_{56}$Ba

$T_{1/2}$ =11.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =647.9
$\langle E_\gamma \rangle$ PER DECAY =1046.

FISSION YIELDS

^{235}U THERMAL	3.9817×10^{-2}
^{235}U FAST	3.6465×10^{-2}
^{238}U FAST	2.8488×10^{-2}
^{239}PU THERMAL	2.4006×10^{-2}

Q_β =2690.
BR_β =1.000

$^{144}_{57}$La
40.0±1.0s

$^{144}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-144 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{144}_{57}$La

$T_{1/2}$ =40.0±1.0s
$\langle E_{\beta} \rangle$ PER DECAY =1511.
$\langle E_{\gamma} \rangle$ PER DECAY =1937.

FISSION YIELDS

^{235}U THERMAL	1.1240×10^{-2}
^{235}U FAST	1.0414×10^{-2}
^{238}U FAST	1.3753×10^{-3}
^{239}PU THERMAL	1.1937×10^{-2}

Q_{β} =5600.
BR_{β} =1.000

$^{144}_{58}$Ce

.7786±.0005y

$^{144}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS

58-CE-144 HEDL,ANC EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
CROSS SECTION DATA
EVAL-JUL74 C.W.REICH DECAY DATA
DIST-NOV74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER- M.J. MARTIN AND P.H. BLICHERT-TOFT, NUCLEAR DATA TABLES A 8, NOS.1-2, (1970).
J.L. FASCHING, W.B. WALTERS AND C.D. CORYELL, PHYS. REV. C 1, 1126 (1970).

$^{144}_{58}$Ce

$T_{1/2}$ =.7786±.0005y
$\langle E_\beta \rangle$ PER DECAY =82.96
$\langle E_\gamma \rangle$ PER DECAY =28.87

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.0240
WESTCOTT G FACTOR	1.1791
σ CAPTURE 2200M/S	1.0000
WESTCOTT G FACTOR	9.9992×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3620\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	2.0680

FISSION YIELDS

^{235}U THERMAL	6.3160×10^{-4}
^{235}U FAST	4.3025×10^{-4}
^{238}U FAST	8.5692×10^{-6}
^{239}PU THERMAL	8.2491×10^{-4}

Q_β =256.5±1.5
BR_β =.01200

$^{144m}_{59}$Pr

7.20±.20m

Q_β =315.5±1.5
BR_β =.9880

$^{144}_{59}$Pr

17.28±0.03m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
68.	±	4.	5	2.3	±	.5
133.53	±	0.03	1	10.8	±	0.6

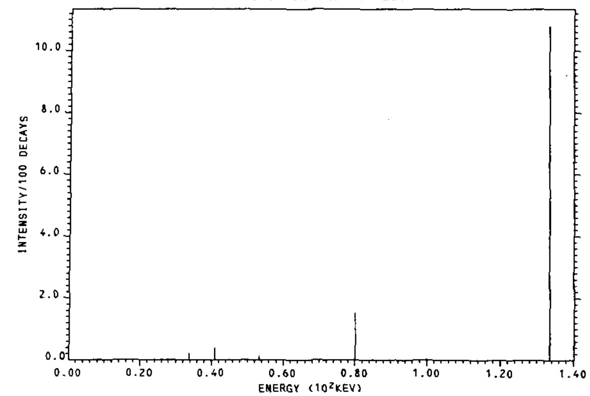
$\langle E_{PHOTON} \rangle$ PER DECAY = 16.0 ± 0.9

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	182.0	50.1	±	1.6	19.4	±	0.7
β-	216.0	60.4	±	1.9	.28	±	.10
β-	236.0	66.5	±	2.0	4.2	±	.3
β-	316.0	92.	±	3.	76.3	±	0.7

$\langle E_e \rangle$ PER DECAY = 83.0 ± 2.3
$\langle E_\nu \rangle$ PER DECAY = 204.0 ± 1.9

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	316.0	±	1.5	76.3	±	0.7
β-	182.0	±	1.5	19.4	±	0.7

$^{144m}_{59}Pr$

ENDF/B-IV FILE 1 COMMENTS
59-PR-144M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{144m}_{59}Pr$

$T_{1/2}$ =7.20±.20m
$\langle E_\beta \rangle$ PER DECAY =.3000
$\langle E_\gamma \rangle$ PER DECAY =59.73

FISSION YIELDS

^{235}U THERMAL	3.4819×10^{-7}
^{235}U FAST	2.4604×10^{-7}
^{239}PU THERMAL	8.4588×10^{-7}

Q_β =3056.±3.
BR_β =.00050

Q_{IT}=59.00
BR_{IT}=.9995

$^{144}_{60}$ Nd

2.099×10^{15}y

$^{144}_{59}$ Pr

17.28±0.03m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
59.00	1	99.95
696.4	1	.05000
813.8	1	.05000

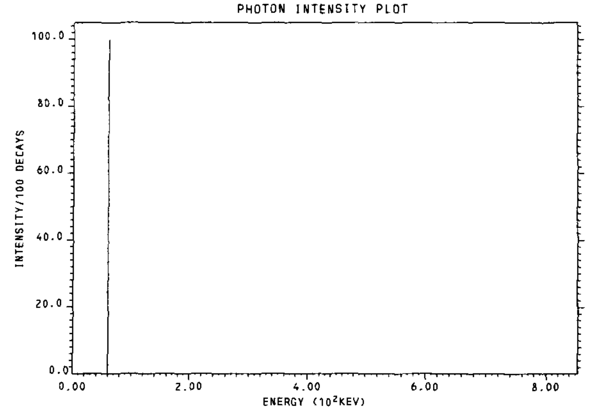
$\langle E_{PHOTON} \rangle$ PER DECAY = 59.73

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1543.0	590.7	.05000

$\langle E_e \rangle$ PER DECAY = .2953
$\langle E_\nu \rangle$ PER DECAY = .4762

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	59.00	99.95

$^{144}_{59}$Pr

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                    ENDF/B-IV FILE 1 COMMENTS
59-PR-144  ANC         EVAL-JUL74 C.W.REICH               DECAY DATA
                       DIST-DEC74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                            ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE    7/74                          CWR
REFERENCE    Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
            OTHER-  M.J. MARTIN AND P.H. BLICHERT-TOFT ,NUCLEAR
                       DATA TABLES A 8, NOS.1-2 (1970)
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$^{144}_{59}$Pr

$T_{1/2}$ =17.28±0.03m

$\langle E_\beta \rangle$ PER DECAY =1263.

$\langle E_\gamma \rangle$ PER DECAY =31.01

FISSION YIELDS

^{235}U THERMAL	6.8537×10^{-7}
^{235}U FAST	1.7503×10^{-6}
^{238}U FAST	5.0995×10^{-8}
^{239}PU THERMAL	2.2597×10^{-6}

Q_β =2997.±3.

BR_β =1.000

$^{144}_{60}$Nd

2.099×10^{15}y

PHOTON RADIATION TABLE

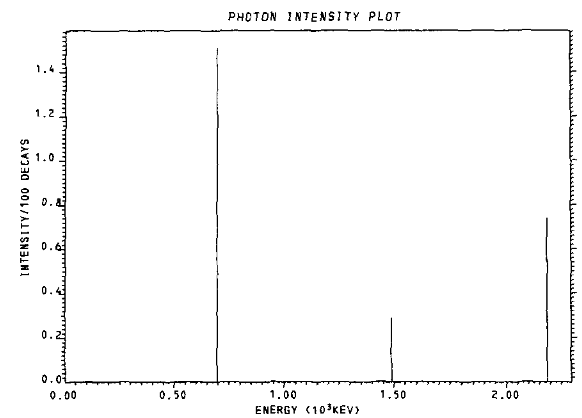
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
696.48	±	0.09	1	1.51	±	.05
1489.14	±	0.07	1	.290	±	.020
2185.72	±	0.05	1	.74	±	.03

$\langle E_{PHOTON} \rangle$ PER DECAY = 31.0 ± 0.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β^-	810.0	275.	±	8.	1.03	±	.04
β^-	2300.0	943.	±	30.	1.22	±	.06
β^-	2996.0	1277.	±	40.	97.75	±	0.06

$\langle E_e \rangle$ PER DECAY = 1263. ± 40.
$\langle E_\nu \rangle$ PER DECAY = 1702.2 ± 1.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	2996.	±	3.	97.75	±	0.06

$^{144}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-144 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-DEC74

$^{144}_{60}$Nd

$T_{1/2}$ =2.099x10^{+15}y
$\langle E_\alpha \rangle$ PER DECAY =1907.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	-9.6317x10^{-1}
WESTCOTT G FACTOR	1.6052
σ CAPTURE 2200M/S	3.6010
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	6.3800x10^{+2}
RESONANCE INTEGRAL CAPTURE	5.6270

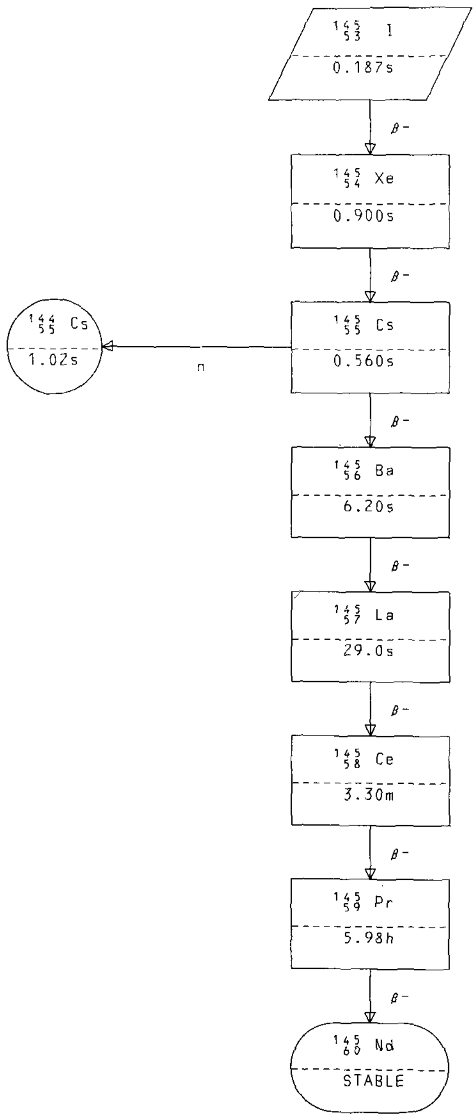
FISSION YIELDS

^{235}U THERMAL	9.6252x10^{-6}
^{235}U FAST	2.7304x10^{-6}
^{238}U FAST	2.2098x10^{-7}

Q_α =1894.
BR_α =1.000

$^{140}_{58}$Ce

STABLE OR LONG-LIVED



145 53 I
0.187s
β-
145 54 Xe
0.900s
β-
145 55 Cs
0.560s
n
144 55 Cs
1.02s
β-
145 56 Ba
6.20s
β-
145 57 La
29.0s
β-
145 58 Ce
3.30m
β-
145 59 Pr
5.98h
β-
145 60 Nd
STABLE

$^{145}_{53}$I

ENDF/B-IV FILE 1 COMMENTS
53- I-145 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{145}_{53}$I

$T_{1/2}$ =.1867s
$\langle E_\beta \rangle$ PER DECAY =2433.
$\langle E_\gamma \rangle$ PER DECAY =3795.

Q_β =8660.
BR_β =1.000

$^{145}_{54}$Xe

.9000s

145 - 53- 1

$^{145}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-145 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{145}_{54}$Xe

$T_{1/2}$ =.9000s
$\langle E_\beta \rangle$ PER DECAY =1986.
$\langle E_\gamma \rangle$ PER DECAY =3050.

FISSION YIELDS

^{235}U THERMAL	8.0444×10^{-7}
^{235}U FAST	6.3110×10^{-6}
^{238}U FAST	2.1554×10^{-4}
^{239}PU THERMAL	1.3998×10^{-6}

Q_β =7140.
BR_β =1.000

$^{145}_{55}$Cs

.56±.03s

$^{145}_{55}$ Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-145 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{145}_{55}$ Cs

$T_{1/2}$ =.56±.03s
$\langle E_\beta \rangle$ PER DECAY =1641.
$\langle E_\gamma \rangle$ PER DECAY =2381.

FISSION YIELDS

^{235}U THERMAL	6.7923×10^{-4}
^{235}U FAST	1.0034×10^{-3}
^{238}U FAST	5.6111×10^{-3}
^{239}PU THERMAL	3.9110×10^{-4}

Q_N =2236.
BR_N =.04400

Q_β =6070.
BR_β =.9560

$^{144}_{55}$ Cs
1.02±.04s

$^{145}_{56}$ Ba
6.2±.4s

145 - 55- 1

$^{145}_{56}$ Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-145 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{145}_{56}$ Ba

$T_{1/2}$ =6.2±.4s
$\langle E_\beta \rangle$ PER DECAY =1287.
$\langle E_\gamma \rangle$ PER DECAY =1922.

FISSION YIELDS

^{235}U THERMAL	1.9107×10^{-2}
^{235}U FAST	1.9772×10^{-2}
^{238}U FAST	2.9170×10^{-2}
^{239}PU THERMAL	1.2886×10^{-2}

Q_β =4950.
BR_β =1.000

$^{145}_{57}$ La
29.0±1.0s

$^{145}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-145 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{145}_{57}$La

$T_{1/2}$ =29.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1058.
$\langle E_\gamma \rangle$ PER DECAY =1520.

FISSION YIELDS

^{235}U THERMAL	1.7197×10^{-2}
^{235}U FAST	1.4846×10^{-2}
^{238}U FAST	4.8809×10^{-3}
^{239}PU THERMAL	1.4466×10^{-2}

Q_β =4150.
BR_β =1.000

$^{145}_{58}$Ce

3.3±.3m

145 - 57- 1

$^{145}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-145 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{145}_{58}$Ce

$T_{1/2}$ =3.3±.3m
$\langle E_\beta \rangle$ PER DECAY =629.9
$\langle E_\gamma \rangle$ PER DECAY =748.9

FISSION YIELDS

^{235}U THERMAL	2.3487×10^{-3}
^{235}U FAST	1.8528×10^{-3}
^{238}U FAST	9.8791×10^{-5}
^{239}PU THERMAL	3.0166×10^{-3}

Q_β =2490.±100.
BR_β =1.000

$^{145}_{59}$Pr

5.980±.020h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
63.00	1	57.36
233.0	1	2.964
285.0	1	10.89
345.2	1	2.678
423.2	1	3.919
439.0	1	7.839
723.9	1	65.00
858.0	1	1.436
1148.	1	11.47

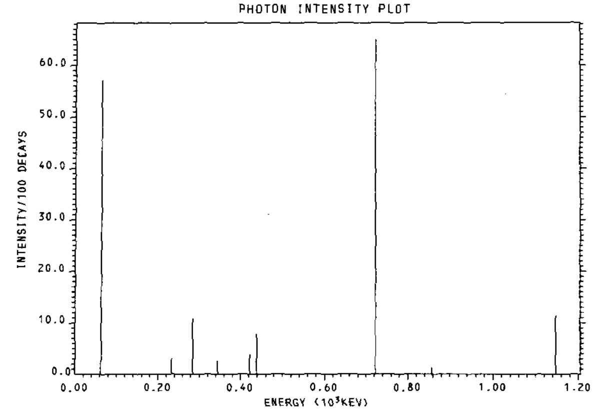
$\langle E_{PHOTON} \rangle$ PER DECAY = 748.9

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	1300.0	482.0	20.00
$\beta-$	1700.0	662.3	78.00
$\beta-$	2100.0	848.4	2.000

$\langle E_e \rangle$ PER DECAY = 629.9
$\langle E_\nu \rangle$ PER DECAY = 998.1

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	1700.	78.00
γ	723.9	65.00
γ	63.00	57.36

$^{145}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-145 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{145}_{59}$Pr

$T_{1/2}$ =5.980±.020h
$\langle E_\beta \rangle$ PER DECAY =704.7
$\langle E_\gamma \rangle$ PER DECAY =13.78

FISSION YIELDS

^{235}U THERMAL	9.5252×10^{-6}
^{235}U FAST	6.7811×10^{-6}
^{238}U FAST	5.5095×10^{-8}
^{239}PU THERMAL	2.0147×10^{-5}

Q_β =1805.±10.
BR_β =1.000

$^{145}_{60}$Nd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

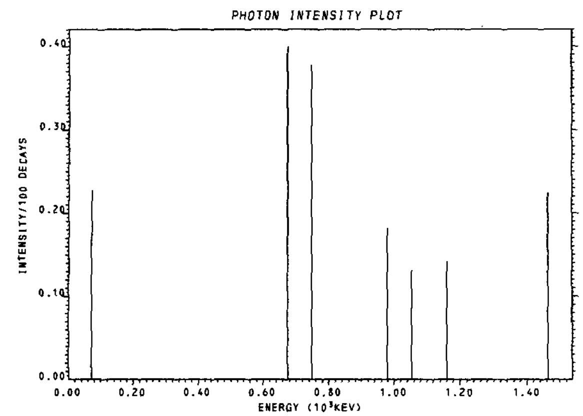
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
72.00	1	.2270
675.7	1	.4000
748.9	1	.3775
979.4	1	.1820
1053.	1	.1303
1161.	1	.1416
1462.	1	.2247

$\langle E_{PHOTON} \rangle$ PER DECAY = 13.78

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	410.0	123.8	.4000
β-	640.0	207.8	.1500
β-	1050.0	373.8	.9400
β-	1730.0	676.1	.2600
β-	1805.0	710.7	98.30

$\langle E_e \rangle$ PER DECAY = 704.7
$\langle E_\nu \rangle$ PER DECAY = 1087.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1805.	98.30

$^{145}_{60}$ Nd

$^{145}_{60}$ Nd

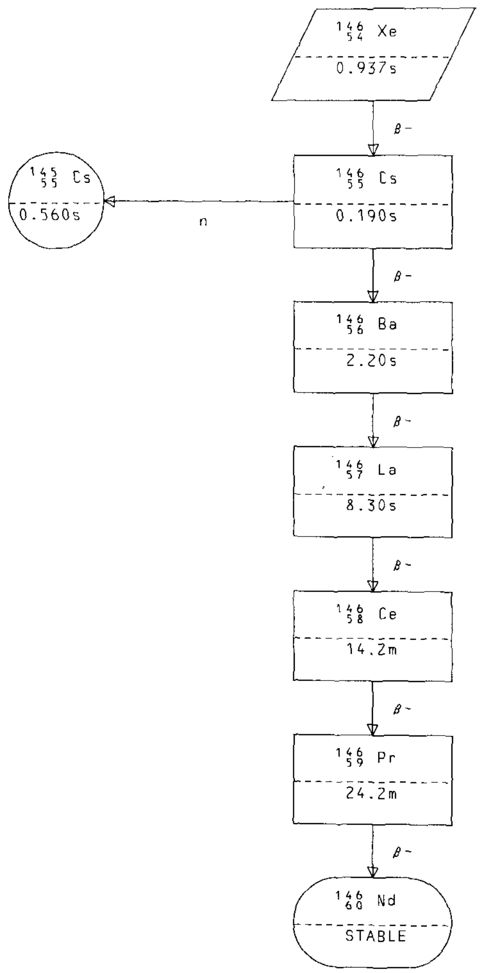
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.2895 \times 10^{+1}$
WESTCOTT G FACTOR	1.0035
σ CAPTURE 2200M/S	$4.2003 \times 10^{+1}$
WESTCOTT G FACTOR	1.0009
RESONANCE INTEGRAL TOTAL	$8.2700 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.3130 \times 10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.7870
RESONANCE INTEGRAL (N,P)	2.0670×10^{-3}
RESONANCE INTEGRAL (N,α)	3.4670×10^{-3}

FISSION YIELDS

^{235}U THERMAL	4.0622×10^{-9}
^{235}U FAST	2.5504×10^{-9}
^{239}PU THERMAL	1.1798×10^{-8}


146 54 Xe
0.937s
β-
146 55 Cs
0.190s
145 55 Cs
0.560s
n
β-
146 56 Ba
2.20s
β-
146 57 La
8.30s
β-
146 58 Ce
14.2m
β-
146 59 Pr
24.2m
β-
146 60 Nd
STABLE

$^{146}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-146 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{146}_{54}$Xe

$T_{1/2}$ =.9372s
$\langle E_\beta \rangle$ PER DECAY =1449.
$\langle E_\gamma \rangle$ PER DECAY =2504.

FISSION YIELDS

^{235}U THERMAL	1.2207×10^{-7}
^{235}U FAST	2.5104×10^{-7}
^{238}U FAST	1.4579×10^{-5}
^{239}PU THERMAL	3.7095×10^{-8}

Q_β =5570.
BR_β =1.000

$^{146}_{55}$Cs
.190±.010s

146 - 54- 1

$^{146}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-146 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{146}_{55}$Cs

$T_{1/2}$ =.190±.010s
$\langle E_\beta \rangle$ PER DECAY =2478.
$\langle E_\gamma \rangle$ PER DECAY =3323.

FISSION YIELDS

^{235}U THERMAL	7.4130×10^{-5}
^{235}U FAST	1.3105×10^{-4}
^{238}U FAST	1.2528×10^{-3}
^{239}PU THERMAL	3.6495×10^{-5}

Q_N =2086.
BR_N =.03900

Q_β =8540.
BR_β =.9610

$^{145}_{55}$Cs
.56±.03s

$^{146}_{56}$Ba
2.20±.20s

$^{146}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-146 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{146}_{56}$Ba

$T_{1/2}$ =2.20±.20s
$\langle E_\beta \rangle$ PER DECAY =724.5
$\langle E_\gamma \rangle$ PER DECAY =1216.

FISSION YIELDS

^{235}U THERMAL	6.5541×10^{-3}
^{235}U FAST	7.7142×10^{-3}
^{238}U FAST	2.2701×10^{-2}
^{239}PU THERMAL	3.8878×10^{-3}

Q_β =2970.
BR_β =1.000

$^{146}_{57}$La

8.3±.3s

$^{146}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-146 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{146}_{57}$La

$T_{1/2}$ =8.3±.3s
$\langle E_\beta \rangle$ PER DECAY =1768.
$\langle E_\gamma \rangle$ PER DECAY =2358.

FISSION YIELDS

^{235}U THERMAL	1.6309×10^{-2}
^{235}U FAST	1.5573×10^{-2}
^{238}U FAST	1.1372×10^{-2}
^{239}PU THERMAL	1.3342×10^{-2}

Q_β =6450.
BR_β =1.000

$^{146}_{58}$Ce

14.2±0.8m

$^{146}_{58}Ce$

ENDF/B-IV FILE 1 COMMENTS
58-CE-146 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-NOV74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{146}_{58}Ce$

$T_{1/2}$ =14.2±0.8m
$\langle E_\beta \rangle$ PER DECAY =242.7
$\langle E_\gamma \rangle$ PER DECAY =314.3

FISSION YIELDS

^{235}U THERMAL	6.9021×10^{-3}
^{235}U FAST	5.4735×10^{-3}
^{238}U FAST	7.6310×10^{-4}
^{239}PU THERMAL	7.9446×10^{-3}

Q_β =1080.±60.
BR_β =1.000

$^{146}_{59}Pr$

24.20±0.20m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
86.80	1	1.176
98.30	1	1.736
100.1	1	1.400
133.5	1	7.840
142.0	1	3.416
231.1	4	43.51
317.0	1	56.00
351.5	1	.3920
415.4	1	1.456
468.0	1	.6720
503.0	1	1.232

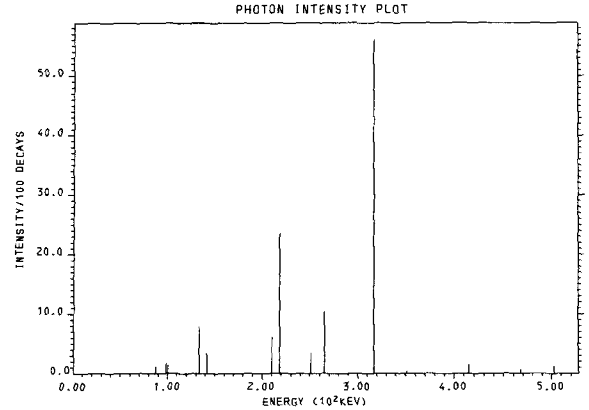
$\langle E_{PHOTON} \rangle$ PER DECAY = 314.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	730.0	242.7	100.0

$\langle E_e \rangle$ PER DECAY = 242.7
$\langle E_\nu \rangle$ PER DECAY = 487.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	730.0	100.0
γ	317.0	56.00
γ	218.6	23.52

$^{146}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS

59-PR-146 ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-DEC74

FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

REFERENCE

Q-1973 WAPSTRA-GOVE MASSTABLE

$^{146}_{59}$Pr

$T_{1/2}$ =24.20±0.20m

$\langle E_\beta \rangle$ PER DECAY =927.9

$\langle E_\gamma \rangle$ PER DECAY =1635.

FISSION YIELDS

^{235}U THERMAL	8.7788×10^{-5}
^{235}U FAST	6.3450×10^{-5}
^{238}U FAST	1.4899×10^{-6}
^{239}PU THERMAL	1.6592×10^{-4}

Q_β =4080.±100.

BR_β =1.000

$^{146}_{60}$Nd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
453.9	1	88.00
562.1	1	.9944
589.7	1	.7216
601.2	1	5.597
735.6	1	14.40
789.0	1	12.16
922.2	1	4.796
1017.	1	2.244
1084.	1	1.918
1232.	1	.3168
1365.	4	12.15
1453.	1	4.321
1472.	1	2.244
1526.	1	32.00
1691.	1	1.276
2176.	1	.8008
2228.	1	1.118
2254.	1	2.244
2356.	1	1.443

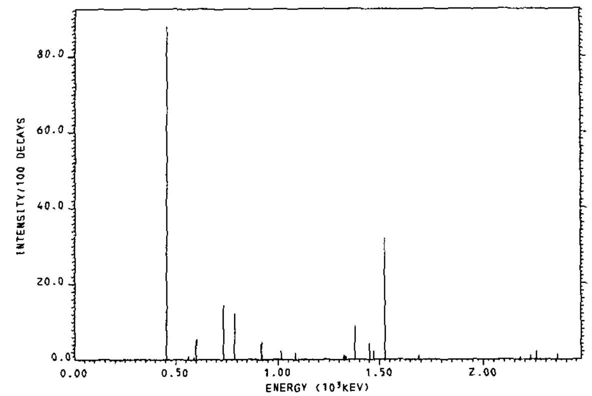
$\langle E_{PHOTON} \rangle$ PER DECAY = 1635.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	263.0	75.01	1.830
β^-	433.0	131.8	1.830
β^-	803.0	271.7	1.830
β^-	1047.0	372.5	4.590
β^-	1403.0	527.7	1.830
β^-	1567.0	601.6	7.340
β^-	1827.0	720.8	4.590
β^-	2077.0	837.5	47.71
β^-	2397.0	989.1	1.830
β^-	2727.0	1147.	5.500
β^-	3627.0	1585.	21.10

$\langle E_e \rangle$ PER DECAY = 927.9
$\langle E_\nu \rangle$ PER DECAY = 1322.

PHOTON INTENSITY PLOT



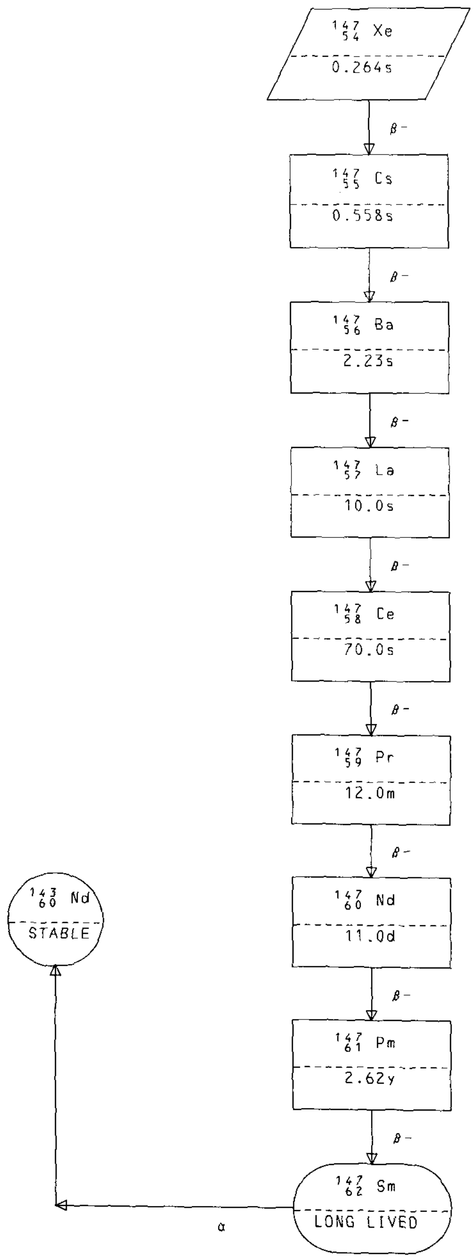
CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	453.9	88.00
β^-	2077.	47.71
γ	1526.	32.00
β^-	3627.	21.10
γ	735.6	14.40
γ	789.0	12.16
γ	1378.	8.958

146 - 59- 2

$^{146}_{60}$Nd

$^{146}_{60}$Nd	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	3.0990
WESTCOTT G FACTOR	1.0729
σ CAPTURE 2200M/S	1.4006
WESTCOTT G FACTOR	1.0047
RESONANCE INTEGRAL TOTAL	$2.0820\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	3.3160
RESONANCE INTEGRAL (N,2N)	1.2650
RESONANCE INTEGRAL (N,P)	1.0000×10^{-3}
RESONANCE INTEGRAL (N,α)	1.5880×10^{-3}
FISSION YIELDS	
^{235}U THERMAL	1.3007×10^{-7}
^{235}U FAST	8.0613×10^{-8}
^{239}PU THERMAL	3.9594×10^{-7}


$^{147}_{54}$Xe
0.264s
β-
$^{147}_{55}$Cs
0.558s
β-
$^{147}_{56}$Ba
2.23s
β-
$^{147}_{57}$La
10.0s
β-
$^{147}_{58}$Ce
70.0s
β-
$^{147}_{59}$Pr
12.0m
β-
$^{147}_{60}$Nd
11.0d
β-
$^{147}_{61}$Pm
2.62y
β-
$^{147}_{62}$Sm
LONG LIVED
α
$^{143}_{60}$Nd
STABLE

$^{147}_{54}$Xe

ENDF/B-IV FILE 1 COMMENTS
54-XE-147 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{147}_{54}$Xe

$T_{1/2}$ =.2638s
$\langle E_\beta \rangle$ PER DECAY =2184.
$\langle E_\gamma \rangle$ PER DECAY =3532.

FISSION YIELDS

^{235}U THERMAL	2.4357×10^{-9}
^{235}U FAST	1.6517×10^{-9}
^{238}U FAST	1.5456×10^{-6}

Q_β =7900.
BR_β =1.000

$^{147}_{55}$Cs

.5579s

147 - 54- 1

$^{147}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-147 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{147}_{55}$Cs

$T_{1/2}$ =.5579s
$\langle E_\beta \rangle$ PER DECAY =1963.
$\langle E_\gamma \rangle$ PER DECAY =2944.

FISSION YIELDS

^{235}U THERMAL	6.0016×10^{-6}
^{235}U FAST	5.3603×10^{-6}
^{238}U FAST	3.9652×10^{-4}
^{239}PU THERMAL	2.1440×10^{-6}

Q_β =6970.
BR_β =1.000

$^{147}_{56}$Ba

2.227s

$^{147}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-147 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{147}_{56}$Ba

$T_{1/2}$ =2.227s
$\langle E_\beta \rangle$ PER DECAY =1441.
$\langle E_\gamma \rangle$ PER DECAY =2217.

FISSION YIELDS

^{235}U THERMAL	1.2758×10^{-3}
^{235}U FAST	1.4829×10^{-3}
^{238}U FAST	1.0171×10^{-2}
^{239}PU THERMAL	6.9523×10^{-4}

Q_β =5440.
BR_β =1.000

$^{147}_{57}$La

10.00s

$^{147}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-147 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{147}_{57}$La

$T_{1/2}$ =10.00s
$\langle E_\beta \rangle$ PER DECAY =1151.
$\langle E_\gamma \rangle$ PER DECAY =1724.

FISSION YIELDS

^{235}U THERMAL	9.3636×10^{-3}
^{235}U FAST	9.5044×10^{-3}
^{238}U FAST	1.3609×10^{-2}
^{239}PU THERMAL	7.1813×10^{-3}

Q_β =4460.
BR_β =1.000

$^{147}_{58}$Ce

70.±4.s

$^{147}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-147 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{147}_{58}$Ce

$T_{1/2}$ =70.±4.s
$\langle E_{\beta}\rangle$ PER DECAY =851.3
$\langle E_{\gamma}\rangle$ PER DECAY =1271.

FISSION YIELDS

^{235}U THERMAL	1.1513×10^{-2}
^{235}U FAST	1.2274×10^{-2}
^{238}U FAST	2.9064×10^{-3}
^{239}PU THERMAL	1.2057×10^{-2}

Q_{β} =3450.
BR_{β} =1.000

$^{147}_{59}$Pr

12.0±0.5m

147 - 58- 1

$^{147}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-147 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{147}_{59}$Pr

$T_{1/2}$ =12.0±0.5m
$\langle E_{\beta}\rangle$ PER DECAY =748.0
$\langle E_{\gamma}\rangle$ PER DECAY =820.1

FISSION YIELDS

^{235}U THERMAL	5.5191×10^{-4}
^{235}U FAST	4.2602×10^{-4}
^{238}U FAST	2.0808×10^{-5}
^{239}PU THERMAL	7.8473×10^{-4}

Q_{β} =2700.±200.
BR_{β} =1.000

$^{147}_{60}$Nd

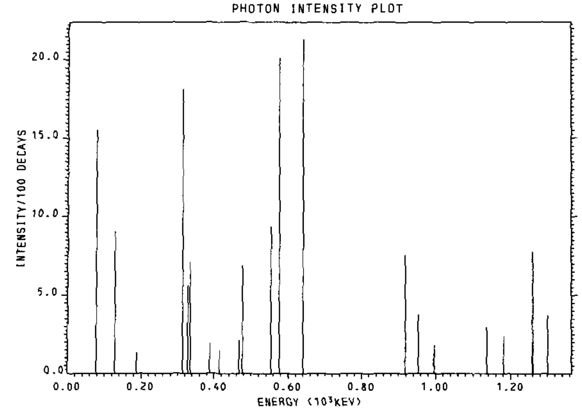
10.990±0.020d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
77.20	1	15.56
128.2	1	9.076
188.4	1	1.361
326.0	4	32.87
415.4	1	1.491
467.5	1	2.139
477.7	1	6.873
554.3	1	9.400
577.4	1	20.10
640.9	1	21.33
918.6	1	7.585
954.0	1	3.760
996.4	1	1.815
1137.	1	2.982
1182.	1	2.400
1260.	1	7.779
1300.	1	3.760

$\langle E_{PHOTON} \rangle$ PER DECAY = 820.1

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1000.0	352.7	5.000
β^-	1450.0	548.7	30.00
β^-	2100.0	848.4	60.00
β^-	2700.0	1134.	5.000

$\langle E_e \rangle$ PER DECAY = 748.0
$\langle E_\nu \rangle$ PER DECAY = 1132.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	2100.	60.00
β^-	1450.	30.00
γ	640.9	21.33
γ	577.4	20.10
γ	314.4	18.15
γ	77.20	15.56
γ	554.3	9.400
γ	128.2	9.076
γ	1260.	7.779

$^{147}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-147 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-DEC74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDFZ10,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{147}_{60}$Nd

$T_{1/2}$ =10.990±0.020d
$\langle E_\beta \rangle$ PER DECAY =241.7
$\langle E_\gamma \rangle$ PER DECAY =118.7

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$5.4093\times10^{+1}$
WESTCOTT G FACTOR	1.0590
σ CAPTURE 2200M/S	$4.9000\times10^{+1}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.2070\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$6.4830\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	3.0617×10^{-6}
^{235}U FAST	2.0103×10^{-6}
^{238}U FAST	4.2796×10^{-8}
^{239}PU THERMAL	6.4891×10^{-6}

Q_β =894.5±1.0
BR_β =1.000

$^{147}_{61}$Pm

2.6230±.0003y

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
91.10	1	28.00
120.4	1	.6300
197.0	1	.6048
275.4	1	.4872
319.5	1	1.946
398.1	1	.6300
410.9	1	.4732
439.7	1	1.039
530.8	1	13.15
686.1	1	.7112

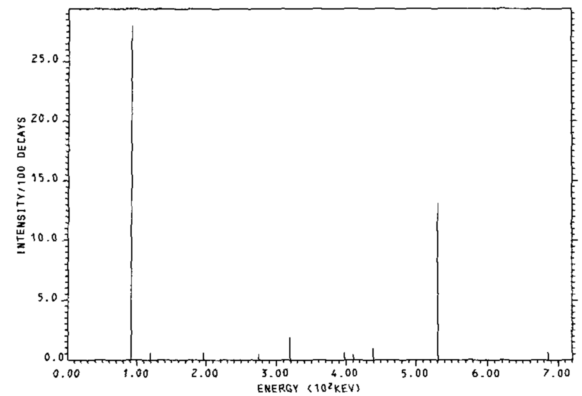
$\langle E_{PHOTON} \rangle$ PER DECAY = 118.7

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	207.0	57.61	2.000
β^-	213.0	59.44	.1000
β^-	361.0	107.1	16.00
β^-	404.0	121.8	.8000
β^-	483.0	149.6	.5000
β^-	803.0	271.7	81.00
β^-	894.0	308.7	.5000

$\langle E_e \rangle$ PER DECAY = 241.7
$\langle E_\nu \rangle$ PER DECAY = 481.0

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	803.0	81.00
γ	91.10	28.00
β^-	361.0	16.00

$^{147}_{61}Pm$

ENDF/B-IV FILE 1 COMMENTS
61-PM-147 HEDL,BNL EVAL-NOV74 R.E.SCHENTER AND A.PRINCE
CROSS SECTION DATA
EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{147}_{61}Pm$

$T_{1/2}$ =2.6230±.0003y
$\langle E_\beta \rangle$ PER DECAY =63.00
$\langle E_\gamma \rangle$ PER DECAY =.1000

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.8523\times10^{+2}$
WESTCOTT G FACTOR	9.9750×10^{-1}
σ CAPTURE 2200M/S	$1.8198\times10^{+2}$
WESTCOTT G FACTOR	9.9542×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.8870\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.2770\times10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.3160
RESONANCE INTEGRAL (N,P)	2.4560×10^{-3}
RESONANCE INTEGRAL (N,α)	2.4030×10^{-3}

FISSION YIELDS

^{235}U FAST	1.8703×10^{-8}
^{239}PU THERMAL	2.2197×10^{-9}

Q_β =224.5±0.4
BR_β =1.000

$^{147}_{62}Sm$

$1.069\times10^{+11}$y

PHOTON RADIATION TABLE

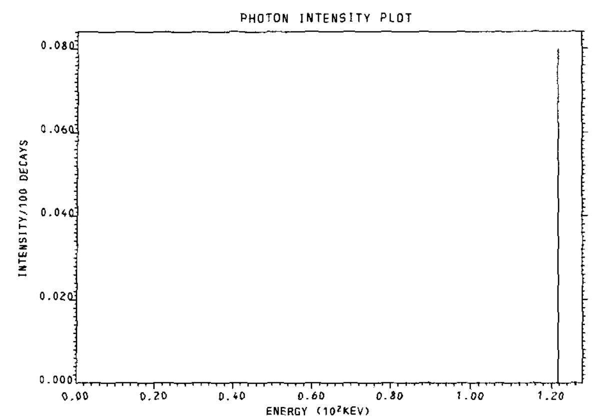
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
121.7	1	.08000

$\langle E_{PHOTON} \rangle$ PER DECAY = .09736

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	103.0	27.25	.08000
β^-	224.7	63.03	99.92

$\langle E_e \rangle$ PER DECAY = 63.00
$\langle E_\nu \rangle$ PER DECAY = 161.6



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	224.7	99.92

$^{147}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-147 HEDL,BNL EVAL-NOV74 R.E.SCHENTER AND A.PRINCE
DIST-DEC74

FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES

$^{147}_{62}$Sm

$T_{1/2}$ =(1.069)x10^{+11}y
$\langle E_\alpha \rangle$ PER DECAY =2330.

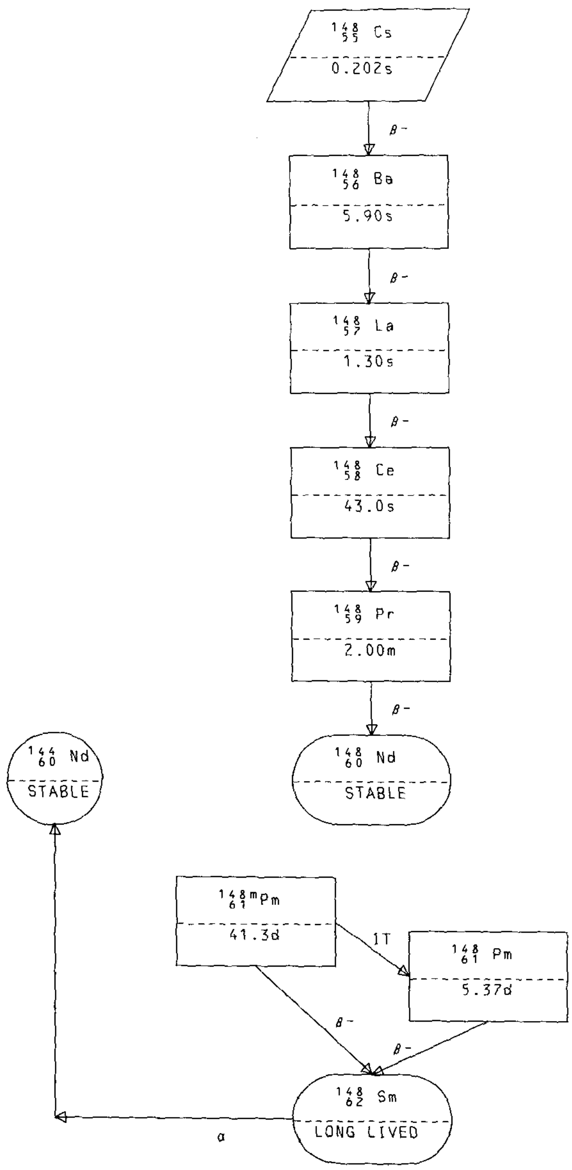
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.4915x10^{+1}
WESTCOTT G FACTOR	9.9368x10^{-1}
σ CAPTURE 2200M/S	6.4024x10^{+1}
WESTCOTT G FACTOR	9.9379x10^{-1}
RESONANCE INTEGRAL TOTAL	1.6420x10^{+3}
RESONANCE INTEGRAL CAPTURE	7.4820x10^{+2}
RESONANCE INTEGRAL (N,2N)	1.7040
RESONANCE INTEGRAL (N,P)	4.5940x10^{-3}
RESONANCE INTEGRAL (N,α)	6.8310x10^{-3}

Q_α =2314.
BR_α =1.000

$^{143}_{60}$Nd

STABLE OR LONG-LIVED



$^{148}_{55}$Cs
0.202s
β-
$^{148}_{56}$Ba
5.90s
β-
$^{148}_{57}$La
1.30s
β-
$^{148}_{58}$Ce
43.0s
β-
$^{148}_{59}$Pr
2.00m
β-
$^{144}_{60}$Nd
STABLE
$^{148}_{60}$Nd
STABLE
$^{148m}_{61}$Pm
41.3d
IT
$^{148}_{61}$Pm
5.37d
β-
β-
$^{148}_{62}$Sm
LONG LIVED
α

$^{148}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-148 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{148}_{55}$Cs

$T_{1/2}$ =.2016s
$\langle E_\beta \rangle$ PER DECAY =2724.
$\langle E_\gamma \rangle$ PER DECAY =3843.

FISSION YIELDS

^{235}U THERMAL	1.7509×10^{-7}
^{235}U FAST	2.2304×10^{-7}
^{238}U FAST	2.9087×10^{-5}
^{239}PU THERMAL	6.6691×10^{-8}

Q_β =9290.
BR_β =1.000

$^{148}_{56}$Ba

5.901s

$^{148}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-148 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{148}_{56}$Ba

$T_{1/2}$ =5.901s
$\langle E_\beta \rangle$ PER DECAY =955.9
$\langle E_\gamma \rangle$ PER DECAY =1664.

FISSION YIELDS

^{235}U THERMAL	1.4931×10^{-4}
^{235}U FAST	1.7349×10^{-4}
^{238}U FAST	3.2712×10^{-3}
^{239}PU THERMAL	8.1468×10^{-5}

Q_β =3870.
BR_β =1.000

$^{148}_{57}$La

1.30±.10s

$^{148}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-148 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{148}_{57}$La

$T_{1/2}$ =1.30±.10s
$\langle E_\beta \rangle$ PER DECAY =1934.
$\langle E_\gamma \rangle$ PER DECAY =2667.

FISSION YIELDS

^{235}U THERMAL	3.4013×10^{-3}
^{235}U FAST	3.6271×10^{-3}
^{238}U FAST	1.1784×10^{-2}
^{239}PU THERMAL	2.5870×10^{-3}

Q_β =6930.
BR_β =1.000

$^{148}_{58}$Ce

43.±10.s

$^{148}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-148 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{148}_{58}$Ce

$T_{1/2}$ =43.±10.s
$\langle E_\beta \rangle$ PER DECAY =366.9
$\langle E_\gamma \rangle$ PER DECAY =619.6

FISSION YIELDS

^{235}U THERMAL	1.1701×10^{-2}
^{235}U FAST	1.1542×10^{-2}
^{238}U FAST	7.3468×10^{-3}
^{239}PU THERMAL	1.1970×10^{-2}

Q_β =1590.
BR_β =1.000

$^{148}_{59}$Pr

2.00±.10m

$^{148}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-148 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-GARVEY, REV. MOD. PHYS. 41, II, (1969)

$^{148}_{59}$Pr

$T_{1/2}$ =2.00±.10m
$\langle E_\beta \rangle$ PER DECAY =2044.
$\langle E_\gamma \rangle$ PER DECAY =300.0

FISSION YIELDS

^{235}U THERMAL	1.6242×10^{-3}
^{235}U FAST	1.4791×10^{-3}
^{238}U FAST	1.6194×10^{-4}
^{239}PU THERMAL	2.2457×10^{-3}

Q_β =4860.
BR_β =1.000

$^{148}_{60}$Nd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
300.0	1	100.0

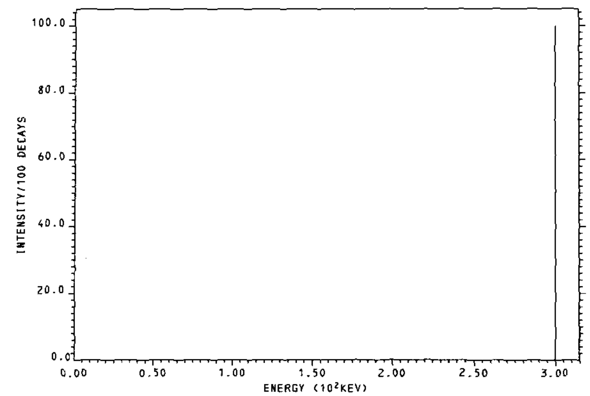
$\langle E_{PHOTON} \rangle$ PER DECAY = 300.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	4560.0	2044.	100.0

$\langle E_e \rangle$ PER DECAY = 2044.
$\langle E_\nu \rangle$ PER DECAY = 2516.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	300.0	100.0
β^-	4560.	100.0

$^{148}_{60}$Nd

$^{148}_{60}$Nd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.2025
WESTCOTT G FACTOR	9.8281×10^{-1}
σ CAPTURE 2200M/S	2.5011
WESTCOTT G FACTOR	1.0002
RESONANCE INTEGRAL TOTAL	$6.2480 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.0060 \times 10^{+1}$
RESONANCE INTEGRAL (N,2N)	1.2100
RESONANCE INTEGRAL (N,P)	5.1320×10^{-4}
RESONANCE INTEGRAL (N,α)	8.5390×10^{-4}

FISSION YIELDS

^{235}U THERMAL	3.1127×10^{-5}
^{235}U FAST	2.5984×10^{-5}
^{238}U FAST	4.0996×10^{-7}
^{239}PU THERMAL	6.0431×10^{-5}

148 - 60- 1

$^{148m}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-148M ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-DEC74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{148m}_{61}$Pm

$T_{1/2}$ =41.30±0.10d
$\langle E_\beta \rangle$ PER DECAY =147.4
$\langle E_\gamma \rangle$ PER DECAY =2009.

FISSION YIELDS

^{235}U THERMAL	7.4941×10^{-9}
^{235}U FAST	5.7009×10^{-9}
^{239}PU THERMAL	2.0897×10^{-8}

Q_β =2602.±10.
BR_β =.9400

Q_{IT}=137.2
BR_{IT}=.06000

$^{148}_{62}$Sm

7.995×10^{15}y

$^{148}_{61}$Pm

5.370±.007d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
98.50	1	10.10
189.5	1	1.500
288.0	1	13.20
311.7	1	4.000
414.1	1	18.40
432.7	1	5.700
501.1	1	6.900
550.1	1	95.40
599.5	1	12.50
611.1	1	5.500
629.9	1	89.80
725.6	1	32.50
914.9	1	18.70
1014.	1	20.20

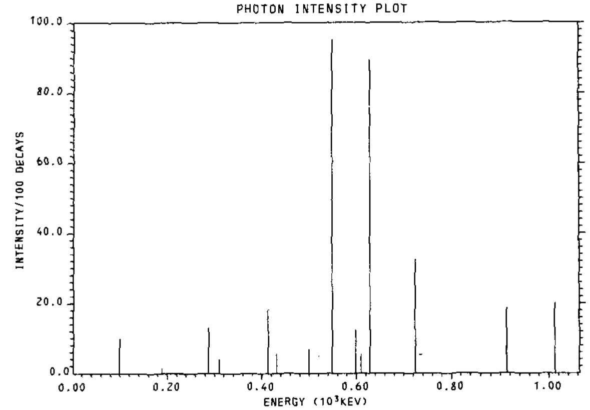
$\langle E_{PHOTON} \rangle$ PER DECAY = 2009.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	397.0	119.4	51.00
β^-	495.0	153.9	18.00
β^-	683.0	224.3	23.00
β^-	1019.0	360.7	2.000

$\langle E_e \rangle$ PER DECAY = 147.4
$\langle E_\nu \rangle$ PER DECAY = 321.7

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	550.1	95.40
γ	629.9	89.80
β^-	397.0	51.00
γ	725.6	32.50
β^-	683.0	23.00
γ	1014.	20.20
γ	914.9	18.70

$^{148}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-148 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-DEC74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{148}_{61}$Pm

$T_{1/2}$ =5.370±.007d
$\langle E_\beta \rangle$ PER DECAY =744.3
$\langle E_\gamma \rangle$ PER DECAY =630.4

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.0659 \times 10^{+4}$
WESTCOTT G FACTOR	1.4771
σ CAPTURE 2200M/S	$1.0626 \times 10^{+4}$
WESTCOTT G FACTOR	1.4756
RESONANCE INTEGRAL TOTAL	$3.8340 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$3.6360 \times 10^{+3}$

FISSION YIELDS

^{235}U THERMAL	5.7331×10^{-8}
^{235}U FAST	5.7009×10^{-9}
^{239}PU THERMAL	2.0897×10^{-8}

Q_β =2465.±10.
BR_β =1.000

$^{148}_{62}$Sm

7.995×10^{15}y

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
550.1	1	25.70
611.1	1	1.250
914.9	1	13.70
1465.	1	24.30

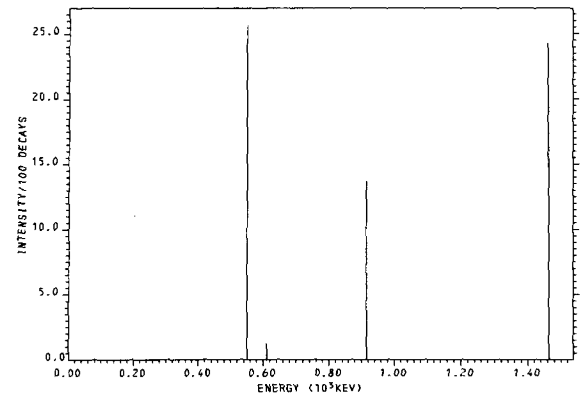
$\langle E_{PHOTON} \rangle$ PER DECAY = 630.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1020.0	361.1	37.00
β^-	1922.0	765.0	13.00
β^-	2467.0	1022.	50.00

$\langle E_e \rangle$ PER DECAY = 744.3
$\langle E_\nu \rangle$ PER DECAY = 1116.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	2467.	50.00
β^-	1020.	37.00
γ	550.1	25.70
γ	1465.	24.30

$^{148}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-148 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-DEC74

$^{148}_{62}$Sm

$T_{1/2}$ =7.995x10^{+15}y
$\langle E_\alpha \rangle$ PER DECAY =2018.

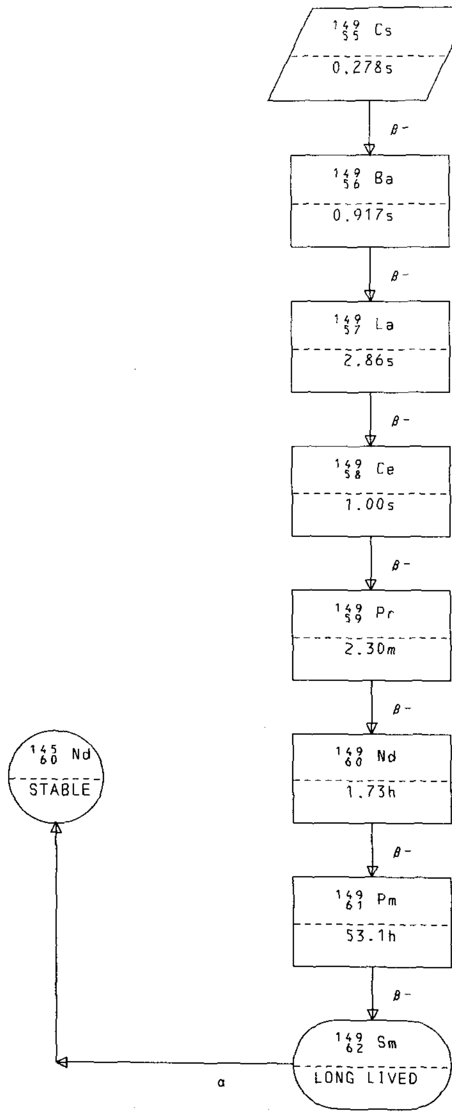
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	7.8160
WESTCOTT G FACTOR	1.1813
σ CAPTURE 2200M/S	2.7000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	4.0480x10^{+2}
RESONANCE INTEGRAL CAPTURE	2.7640x10^{+1}

Q_α =2005.
BR_α =1.000

$^{144}_{60}$Nd

STABLE OR LONG-LIVED


149 55 Cs
0.278s
β-
149 56 Ba
0.917s
β-
149 57 La
2.86s
β-
149 58 Ce
1.00s
β-
149 59 Pr
2.30m
β-
149 60 Nd
1.73h
β-
149 61 Pm
53.1h
β-
149 62 Sm
LONG LIVED
α
145 60 Nd
STABLE

$^{149}_{55}Cs$

ENDF/B-IV FILE 1 COMMENTS
55-CS-149 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{149}_{55}Cs$

$T_{1/2}$ =.2782s
$\langle E_{\beta}\rangle$ PER DECAY =2239.
$\langle E_{\gamma}\rangle$ PER DECAY =3483.

Q_{β} =7960.
BR_{β} =1.000

$^{149}_{56}Ba$

.9175s

$^{149}_{56}Ba$

ENDF/B-IV FILE 1 COMMENTS
56-BA-149 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{149}_{56}Ba$

$T_{1/2}$ =.9175s
$\langle E_{\beta}\rangle$ PER DECAY =1642.
$\langle E_{\gamma}\rangle$ PER DECAY =2666.

FISSION YIELDS

^{235}U THERMAL	9.0149×10^{-6}
^{235}U FAST	1.1282×10^{-5}
^{238}U FAST	5.2590×10^{-4}
^{239}PU THERMAL	5.2692×10^{-6}

Q_{β} =6200.
BR_{β} =1.000

$^{149}_{57}La$

2.864s

$^{149}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-149 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{149}_{57}$La

$T_{1/2}$ =2.864s
$\langle E_\beta \rangle$ PER DECAY =1400.
$\langle E_\gamma \rangle$ PER DECAY =2182.

FISSION YIELDS

^{235}U THERMAL	6.9429×10^{-4}
^{235}U FAST	7.7188×10^{-4}
^{238}U FAST	5.8546×10^{-3}
^{239}PU THERMAL	5.4112×10^{-4}

Q_β =5360.
BR_β =1.000

$^{149}_{58}$Ce

1.00±.06s

149 - 57- 1

$^{149}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-149 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{149}_{58}$Ce

$T_{1/2}$ =1.00±.06s
$\langle E_\beta \rangle$ PER DECAY =989.5
$\langle E_\gamma \rangle$ PER DECAY =1524.

FISSION YIELDS

^{235}U THERMAL	7.1023×10^{-3}
^{235}U FAST	7.1597×10^{-3}
^{238}U FAST	1.0526×10^{-2}
^{239}PU THERMAL	7.1668×10^{-3}

Q_β =3930.
BR_β =1.000

$^{149}_{59}$Pr

2.30±.20m

$^{149}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-149 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{149}_{59}$Pr

$T_{1/2}$ =2.30±.20m
$\langle E_\beta \rangle$ PER DECAY =1158.
$\langle E_\gamma \rangle$ PER DECAY =251.3

FISSION YIELDS

^{235}U THERMAL	2.8970×10^{-3}
^{235}U FAST	2.8184×10^{-3}
^{238}U FAST	7.4065×10^{-4}
^{239}PU THERMAL	4.5878×10^{-3}

Q_β =3000.±200.
BR_β =1.000

$^{149}_{60}$Nd

1.730±.007h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
91.00	1	2.500
110.0	1	18.00
139.0	1	10.00
165.0	1	16.00
332.0	1	10.00
363.0	1	6.000
451.0	1	8.000
578.0	1	8.000
737.0	1	7.000

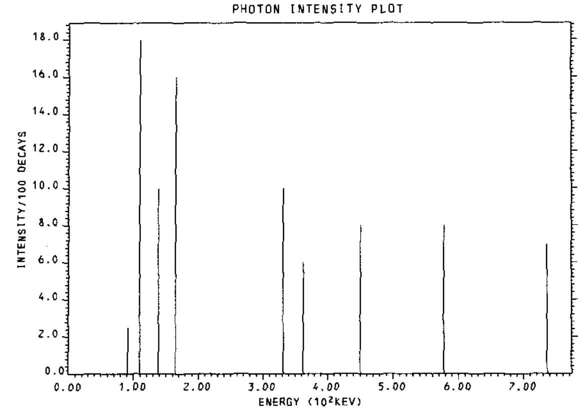
$\langle E_{PHOTON} \rangle$ PER DECAY = 251.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	2440.0	1010.	45.00
$\beta-$	3000.0	1279.	55.00

$\langle E_e \rangle$ PER DECAY = 1158.
$\langle E_\nu \rangle$ PER DECAY = 1590.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	3000.	55.00
$\beta-$	2440.	45.00
γ	110.0	18.00
γ	165.0	16.00
γ	332.0	10.00

$^{149}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-149 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 RGH
REFERENCES Q - 1973 REVISION OF WAPSTRA-GOVE MASS TABLE
OTHER-R.G.HELMER AND L.D.MCISAAC,PHYS.REV.143,923
(1966) + HELMER, NUCL.INSTR.+METH.65,31(1968)

$^{149}_{60}$Nd

$T_{1/2}$ =1.730±.007h
$\langle E_\beta \rangle$ PER DECAY =474.4
$\langle E_\gamma \rangle$ PER DECAY =336.8

FISSION YIELDS

^{235}U THERMAL	1.8461×10^{-4}
^{235}U FAST	1.4928×10^{-4}
^{238}U FAST	6.6794×10^{-6}
^{239}PU THERMAL	3.1032×10^{-4}

Q_β =1680.±7.
BR_β =1.000

$^{149}_{61}$Pm

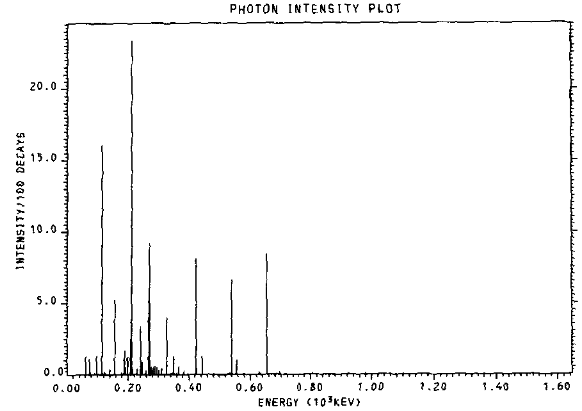
53.10±0.06h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
76.5	±	1.2	8	4.9	±	.4
134.3	±	1.4	13	25.9	±	1.7
235.5	±	1.4	18	49.	±	3.
336.4	±	0.7	13	7.5	±	.4
427.6	±	0.4	7	10.0	±	0.8
543.3	±	0.4	10	8.1	±	.7
655.37	±	0.13	10	9.0	±	.8
747.7	±	1.3	13	.314	±	.015
832.9	±	1.8	14	.40	±	.03
951.6	±	1.4	14	.306	±	.015
1045.0	±	1.5	7	.225	±	.013
1125.0	±	1.4	11	.121	±	.009
1247.0	±	1.3	10	.046	±	.003
1312.13	±	0.15	1	.0068	±	.0007
1357.2	±	0.4	1	.0021	±	.0004
1381.5	±	0.3	1	.0021	±	.0004
1468.	±	3.	4	.0026	±	.0004
1568.4	±	0.4	1	.00050	±	.00020

$\langle E_{PHOTON} \rangle$ PER DECAY = 337. ± 10.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	112.0	29.8	±	2.1	.01000
β-	185.0	51.0	±	2.5	.00500
β-	368.0	109.	±	4.	.1300
β-	446.0	136.	±	5.	.6200
β-	1026.0	364.	±	11.	19.00
β-	1142.0	413.	±	13.	18.00
β-	1165.0	423.	±	13.	.1000
β-	1218.0	446.	±	14.	.8000
β-	1255.0	462.	±	14.	.3000
β-	1284.0	475.	±	14.	3.700
β-	1293.0	479.	±	15.	2.000
β-	1320.0	491.	±	15.	.5000
β-	1410.0	531.	±	16.	18.00
β-	1469.0	557.	±	17.	22.00
β-	1492.0	568.	±	17.	4.000
β-	1566.0	601.	±	18.	9.000

$\langle E_e \rangle$ PER DECAY = 474.4
$\langle E_\nu \rangle$ PER DECAY = 801.6

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	211.32	±	0.03	23.4	±	2.3
β-	1469.	±	7.	22.00		
β-	1026.	±	7.	19.00		
β-	1410.	±	7.	18.00		
β-	1142.	±	7.	18.00		
γ	114.31	±	0.03	16.1	±	1.6
γ	270.18	±	0.03	9.2	±	.9
β-	1566.	±	7.	9.000		
γ	654.82	±	0.03	8.4	±	.8
γ	423.54	±	0.03	8.1	±	.8
γ	540.49	±	0.03	6.6	±	.7
γ	267.70	±	0.03	5.2	±	.5

$^{149}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-149 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-DEC74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
Q-1973 WAPSTRA-GOVE MASSTABLE

$^{149}_{61}$Pm

$T_{1/2}$ =53.10±0.06h
$\langle E_\beta \rangle$ PER DECAY =376.6
$\langle E_\gamma \rangle$ PER DECAY =14.23

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.4051 \times 10^{+3}$
WESTCOTT G FACTOR	1.0015
σ CAPTURE 2200M/S	$1.4000 \times 10^{+3}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0820 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$8.0040 \times 10^{+2}$

FISSION YIELDS

^{235}U THERMAL	3.1917×10^{-7}
^{235}U FAST	2.3104×10^{-7}
^{238}U FAST	1.4499×10^{-9}
^{239}PU THERMAL	1.0998×10^{-6}

Q_β =1072.4±2.0
BR_β =1.000

$^{149}_{62}$Sm

9.993×10^{15}y

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
263.0	1	.01000
276.0	1	.03000
286.0	1	3.870
575.3	4	.1400
614.0	1	.02000
849.0	5	.2500

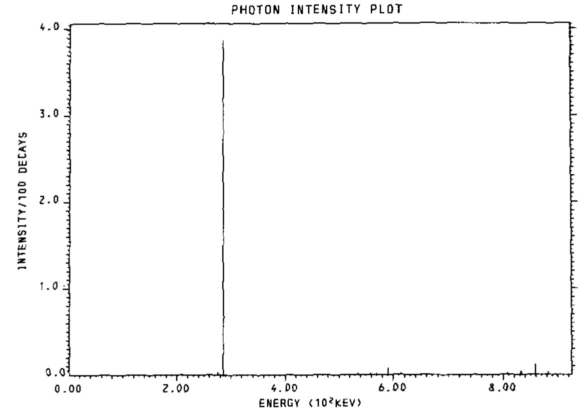
$\langle E_{PHOTON} \rangle$ PER DECAY = 14.23

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	190.0	52.46	.1000
β-	240.0	67.78	.08000
β-	430.0	130.8	.02000
β-	480.0	148.5	.1000
β-	510.0	159.3	.03000
β-	720.0	238.8	.000
β-	780.0	262.5	3.500
β-	790.0	266.5	.02000
β-	1070.0	382.3	96.00

$\langle E_e \rangle$ PER DECAY = 376.6
$\langle E_\nu \rangle$ PER DECAY = 679.2

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1070.	96.00

$^{149}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-149 BNW EVAL-JUN67 B.R.LEONARD,JR. AND K.B.STEWART
PRI.COM.JUNE,1967 DIST-DEC74
DECAY DATA ADDED FOR ENDF/B VERSION-IV
* * * * * * *
DATA MODIFIED JUNE,1970 TO CONFORM TO ENDF/B-II FORMATS
* * * * * * *
SAMARIUM-149 EVALUATION BY B.R.LEONARD AND K.B.STEWART REF.1
JUNE,1967
MF=1 GENERAL INFORMATION
MT=451 ATOMIC MASS = 148.9169 I= 3.5 REF.2
MT=453 BRANCHING RATIOS MT=103 REF.2
MT=457 RADIOACTIVE DECAY DATA (EVAL-JAN74 R.SCHENTER-HEDL)

$^{149}_{62}$Sm

$T_{1/2}$ =9.993x10^{+15}y
$\langle E_\alpha \rangle$ PER DECAY =1908.

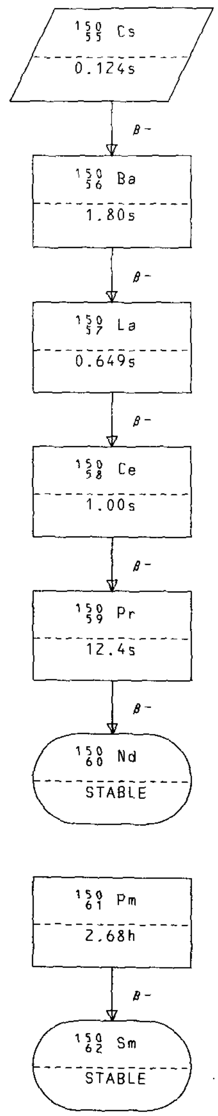
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.1356x10^{+4}
WESTCOTT G FACTOR	1.6411
σ CAPTURE 2200M/S	4.1191x10^{+4}
WESTCOTT G FACTOR	1.6381
RESONANCE INTEGRAL TOTAL	3.7960x10^{+3}
RESONANCE INTEGRAL CAPTURE	3.1830x10^{+3}
RESONANCE INTEGRAL (N,2N)	1.3630
RESONANCE INTEGRAL (N,P)	1.4720x10^{-2}
RESONANCE INTEGRAL (N,α)	1.4720x10^{-2}

Q_α =1895.
BR_α =1.000

$^{145}_{60}$Nd

STABLE OR LONG-LIVED



$^{150}_{55}$Cs
0.124s
β-
$^{150}_{56}$Ba
1.80s
β-
$^{150}_{57}$La
0.649s
β-
$^{150}_{58}$Ce
1.00s
β-
$^{150}_{59}$Pr
12.4s
β-
$^{150}_{60}$Nd
STABLE
$^{150}_{61}$Pm
2.68h
β-
$^{150}_{62}$Sm
STABLE

$^{150}_{55}$Cs

ENDF/B-IV FILE 1 COMMENTS
55-CS-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{150}_{55}$Cs

$T_{1/2}$ =.1244s
$\langle E_\beta \rangle$ PER DECAY =2919.
$\langle E_\gamma \rangle$ PER DECAY =4342.

FISSION YIELDS

^{238}U FAST	3.0097×10^{-8}

Q_β =10180.
BR_β =1.000

$^{150}_{56}$Ba

1.797s

150 - 55- 1

$^{150}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{150}_{56}$Ba

$T_{1/2}$ =1.797s
$\langle E_\beta \rangle$ PER DECAY =1218.
$\langle E_\gamma \rangle$ PER DECAY =2193.

FISSION YIELDS

^{235}U THERMAL	4.0622×10^{-7}
^{235}U FAST	6.2110×10^{-7}
^{238}U FAST	4.5326×10^{-5}
^{239}PU THERMAL	2.3997×10^{-7}

Q_β =4870.
BR_β =1.000

$^{150}_{57}$La

.6485s

$^{150}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{150}_{57}$La

$T_{1/2}$ =.6485s
$\langle E_\beta \rangle$ PER DECAY =2143.
$\langle E_\gamma \rangle$ PER DECAY =3128.

FISSION YIELDS

^{235}U THERMAL	9.7883×10^{-5}
^{235}U FAST	1.2888×10^{-4}
^{238}U FAST	1.7480×10^{-3}
^{239}PU THERMAL	8.4948×10^{-5}

Q_β =7680.
BR_β =1.000

$^{150}_{58}$Ce

1.00±.06s

150 - 57- 1

$^{150}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{150}_{58}$Ce

$T_{1/2}$ =1.00±.06s
$\langle E_\beta \rangle$ PER DECAY =551.9
$\langle E_\gamma \rangle$ PER DECAY =967.9

FISSION YIELDS

^{235}U THERMAL	2.8204×10^{-3}
^{235}U FAST	3.2345×10^{-3}
^{238}U FAST	9.6180×10^{-3}
^{239}PU THERMAL	3.4846×10^{-3}

Q_β =2360.
BR_β =1.000

$^{150}_{59}$Pr

12.4±0.4s

$^{150}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{150}_{59}$Pr

$T_{1/2}$ =12.4±0.4s
$\langle E_\beta \rangle$ PER DECAY =1355.
$\langle E_\gamma \rangle$ PER DECAY =1858.

FISSION YIELDS

^{235}U THERMAL	3.0023×10^{-3}
^{235}U FAST	3.0281×10^{-3}
^{238}U FAST	2.1420×10^{-3}
^{239}PU THERMAL	5.0887×10^{-3}

Q_β =5090.
BR_β =1.000

$^{150}_{60}$Nd

STABLE OR LONG-LIVED

150 - 59- 1

$^{150}_{60}$Nd

$^{150}_{60}$Nd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.0554
WESTCOTT G FACTOR	1.0987
σ CAPTURE 2200M/S	1.2035
WESTCOTT G FACTOR	1.0032
RESONANCE INTEGRAL TOTAL	$2.3750\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.6860\times10^{+1}$
RESONANCE INTEGRAL (N,2N)	1.1840
RESONANCE INTEGRAL (N,P)	3.4100×10^{-4}
RESONANCE INTEGRAL (N,α)	4.0830×10^{-4}

FISSION YIELDS

^{235}U THERMAL	5.4100×10^{-4}
^{235}U FAST	4.7961×10^{-4}
^{238}U FAST	7.0193×10^{-5}
^{239}PU THERMAL	1.2853×10^{-3}

$^{150}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-150 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{150}_{61}$Pm

$T_{1/2}$ =2.680h
$\langle E_\beta \rangle$ PER DECAY =735.0
$\langle E_\gamma \rangle$ PER DECAY =1510.

FISSION YIELDS

^{235}U THERMAL	5.4129×10^{-6}
^{235}U FAST	2.2804×10^{-6}
^{238}U FAST	5.9694×10^{-8}
^{239}PU THERMAL	1.7008×10^{-5}

Q_β =3430.
BR_β =1.000

$^{150}_{62}$Sm

STABLE OR LONG-LIVED

150 - 61- 1

$^{150}_{62}$Sm

$^{150}_{62}$Sm

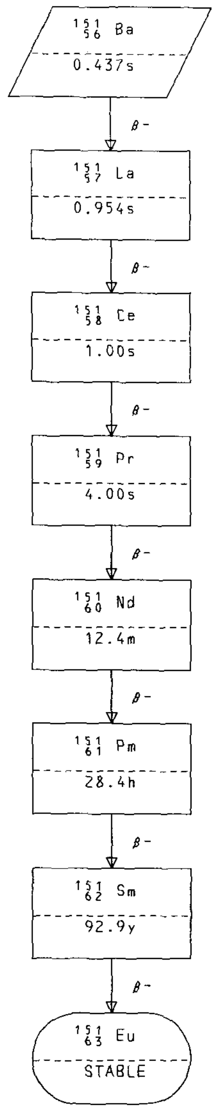
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.0899\times10^{+2}$
WESTCOTT G FACTOR	1.0016
σ CAPTURE 2200M/S	$1.0200\times10^{+2}$
WESTCOTT G FACTOR	9.9343×10^{-1}
RESONANCE INTEGRAL TOTAL	$8.0940\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.2090\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	3.0216×10^{-9}
^{235}U FAST	1.1302×10^{-9}
^{239}PU THERMAL	8.8087×10^{-9}


$^{151}_{56}$Ba
0.437s
β-
$^{151}_{57}$La
0.954s
β-
$^{151}_{58}$Ce
1.00s
β-
$^{151}_{59}$Pr
4.00s
β-
$^{151}_{60}$Nd
12.4m
β-
$^{151}_{61}$Pm
28.4h
β-
$^{151}_{62}$Sm
92.9y
β-
$^{151}_{63}$Eu
STABLE

$^{151}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-151 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{151}_{56}$Ba

$T_{1/2}$ =.4368s
$\langle E_\beta \rangle$ PER DECAY =1873.
$\langle E_\gamma \rangle$ PER DECAY =3204.

Q_β =7080.
BR_β =1.000

$^{151}_{57}$La

.9536s

151 - 56- 1

$^{151}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-151 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{151}_{57}$La

$T_{1/2}$ =.9536s
$\langle E_\beta \rangle$ PER DECAY =1681.
$\langle E_\gamma \rangle$ PER DECAY =2720.

FISSION YIELDS

^{235}U THERMAL	8.3045×10^{-6}
^{235}U FAST	1.3722×10^{-5}
^{238}U FAST	3.2437×10^{-4}
^{239}PU THERMAL	6.7390×10^{-6}

Q_β =6360.
BR_β =1.000

$^{151}_{58}$Ce

1.00±.06s

$^{151}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-151 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{151}_{58}$Ce

$T_{1/2}$ =1.00±.06s
$\langle E_\beta \rangle$ PER DECAY =1178.
$\langle E_\gamma \rangle$ PER DECAY =1920.

FISSION YIELDS

^{235}U THERMAL	7.2758×10^{-4}
^{235}U FAST	9.8278×10^{-4}
^{238}U FAST	5.0184×10^{-3}
^{239}PU THERMAL	9.0299×10^{-4}

Q_β =4680.
BR_β =1.000

$^{151}_{59}$Pr

4.0±.7s

$^{151}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-151 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{151}_{59}$Pr

$T_{1/2}$ =4.0±.7s
$\langle E_\beta \rangle$ PER DECAY =928.2
$\langle E_\gamma \rangle$ PER DECAY =1449.

FISSION YIELDS

^{235}U THERMAL	2.2259×10^{-3}
^{235}U FAST	2.3655×10^{-3}
^{238}U FAST	2.8971×10^{-3}
^{239}PU THERMAL	3.8049×10^{-3}

Q_β =3740.
BR_β =1.000

$^{151}_{60}$Nd

12.40±0.20m

$^{151}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-151 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 10/73 CWR
REFERENCE
Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE
OTHER- H.A.SMITH,JR.,ET AL.,TO BE PUBLISHED AND
PRIVATE COMMUNICATION (SEPT.,1973)

$^{151}_{60}$Nd

$T_{1/2}$ =12.40±0.20m
$\langle E_\beta \rangle$ PER DECAY =644.2
$\langle E_\gamma \rangle$ PER DECAY =839.3

FISSION YIELDS

^{235}U THERMAL	1.2229×10^{-3}
^{235}U FAST	9.9287×10^{-4}
^{238}U FAST	2.9476×10^{-4}
^{239}PU THERMAL	2.9889×10^{-3}

Q_β =2469.±13.
BR_β =1.000

$^{151}_{61}$Pm

28.40±0.05h

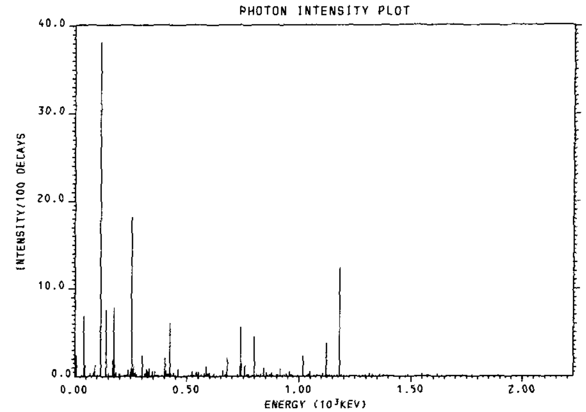
PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
39.805	±	0.008	12	12.9691	±	0.0011
132.39	±	0.05	16	59.09	±	0.03
255.22	±	0.04	15	23.028	±	0.009
324.559	±	0.022	19	7.5419	±	.0017
424.50	±	0.03	20	11.839	±	0.003
562.17	±	0.04	18	4.6314	±	.0017
665.06	±	0.04	8	3.5340	±	.0014
760.52	±	0.03	15	14.069	±	0.005
850.99	±	0.05	16	3.4522	±	.0016
939.34	±	0.04	19	3.0616	±	.0012
1033.79	±	0.06	19	4.272	±	.003
1164.25	±	0.03	19	18.195	±	0.006
1259.54	±	0.05	20	1.3231	±	.0006
1342.30	±	0.07	19	2.0187	±	.0014
1467.51	±	0.05	11	.6622	±	.0003
1556.86	±	0.06	9	.7676	±	.0004
1636.59	±	0.05	10	.6696	±	.0003
1755.41	±	0.04	15	.8345	±	.0003
1853.28	±	0.04	11	.49972	±	.00018
1918.76	±	0.05	4	.11284	±	.00005
2010.54	±	0.12	1	.02604		
2018.73	±	0.09	1	.04712		
2023.8	±	0.3	1	.00992		
2105.56	±	0.19	1	.00868		
2119.0	±	0.5	1	.00620		

$\langle E_{PHOTON} \rangle$ PER DECAY = 792.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	43.5	8.343			11.26
CE	421.9	104.55	±	0.03	14.27
β-	350.0	103.	±	5.	.1000
β-	427.0	130.	±	6.	.1000
β-	446.0	136.	±	6.	.1000
β-	450.0	138.	±	6.	.1000
β-	458.0	141.	±	6.	.1000
β-	471.0	145.	±	6.	.4000
β-	475.0	147.	±	6.	.1000
β-	535.0	168.	±	7.	.3000
β-	566.0	180.	±	7.	.3000
β-	577.0	184.	±	7.	1.700
β-	595.0	191.	±	7.	.6000
β-	615.0	198.	±	7.	.5000
β-	620.0	200.	±	7.	.1000
β-	659.0	215.	±	8.	.6000
β-	663.0	217.	±	8.	.6000
β-	675.0	221.	±	8.	.9000
β-	694.0	229.	±	8.	.2000



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	116.76	±	0.08	38.22
γ	255.70	±	0.05	18.16
β-	2213.	±	13.	18.00
β-	1171.	±	13.	17.60
γ	1180.88	±	0.04	12.40
AU_L	5.778			10.33
β-	2352.	±	13.	10.00
β-	1616.	±	13.	9.200
γ	175.06	±	0.08	7.898
β-	1555.	±	13.	7.800
γ	138.95	±	0.08	7.565
X_K	37.76			6.934
γ	423.55	±	0.04	6.018
γ	736.20	±	0.06	5.617
β-	1628.	±	13.	5.300
γ	797.51	±	0.07	4.528
CE_K	71.58	±	0.08	4.193
β-	2144.	±	13.	4.100
γ	1122.64	±	0.07	3.801
β-	1929.	±	13.	2.900

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	699.0	231. ± 8.	.1000
β^-	728.0	242. ± 8.	.9000
β^-	737.0	245. ± 9.	.1000
β^-	819.0	278. ± 9.	.1000
β^-	829.0	282. ± 10.	.2000
β^-	837.0	285. ± 10.	.1000
β^-	851.0	291. ± 10.	.8000
β^-	870.0	299. ± 10.	.04000
β^-	1024.0	363. ± 12.	1.100
β^-	1044.0	371. ± 12.	.3000
β^-	1074.0	384. ± 12.	.1000
β^-	1138.0	411. ± 13.	.1000
β^-	1171.0	426. ± 14.	17.60
β^-	1268.0	468. ± 15.	.5000
β^-	1286.0	476. ± 15.	.3000
β^-	1336.0	498. ± 16.	2.900
β^-	1371.0	513. ± 16.	.2000
β^-	1402.0	527. ± 17.	.1000
β^-	1439.0	544. ± 17.	.2000
β^-	1479.0	562. ± 18.	.3000
β^-	1555.0	596. ± 19.	7.800
β^-	1571.0	603. ± 19.	.3000
β^-	1594.0	614. ± 19.	.7000
β^-	1616.0	624. ± 19.	9.200
β^-	1628.0	629. ± 20.	5.300
β^-	1659.0	643. ± 20.	.3000
β^-	1695.0	660. ± 20.	.3000
β^-	1713.0	668. ± 21.	.3000
β^-	1722.0	672. ± 21.	.8000
β^-	1727.0	675. ± 21.	.02000
β^-	1795.0	706. ± 22.	.2000
β^-	1872.0	742. ± 23.	.3000
β^-	1892.0	751. ± 23.	1.300
β^-	1929.0	768. ± 24.	2.900
β^-	1937.0	772. ± 24.	.4000
β^-	1945.0	776. ± 24.	1.000
β^-	1961.0	783. ± 24.	.7000
β^-	2042.0	821. ± 30.	1.200
β^-	2144.0	869. ± 30.	4.100
β^-	2213.0	902. ± 30.	18.00
β^-	2294.0	940. ± 30.	1.100
β^-	2352.0	968. ± 30.	10.00

$\langle E_e \rangle$ PER DECAY = 660.0
$\langle E_\nu \rangle$ PER DECAY = 1001.

$^{151}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS

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61-PM-151  ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                     DIST-DEC74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
          Q-1973 WAPSTRA-GOVE MASSTABLE
```

$^{151}_{61}$Pm

$T_{1/2}$ =28.40±0.05h
$\langle E_\beta \rangle$ PER DECAY =311.8
$\langle E_\gamma \rangle$ PER DECAY =309.6

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$7.0519 \times 10^{+2}$
WESTCOTT G FACTOR	1.0038
σ CAPTURE 2200M/S	$7.0000 \times 10^{+2}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$2.3420 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.0030 \times 10^{+3}$

FISSION YIELDS

^{235}U THERMAL	1.8090×10^{-5}
^{235}U FAST	1.4012×10^{-5}
^{238}U FAST	8.2592×10^{-7}
^{239}PU THERMAL	7.1960×10^{-5}

Q_β =1188.±10.
BR_β =1.000

$^{151}_{62}$Sm

92.94y

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
148.5	9	26.20
251.3	11	18.12
340.6	8	29.42
444.6	5	6.500
516.0	1	.2000
564.9	1	.3700
654.9	4	3.620
731.5	5	7.520
808.1	1	.6000
817.9	1	.2900
848.9	1	.3100
948.9	1	.3600
953.9	1	.1000

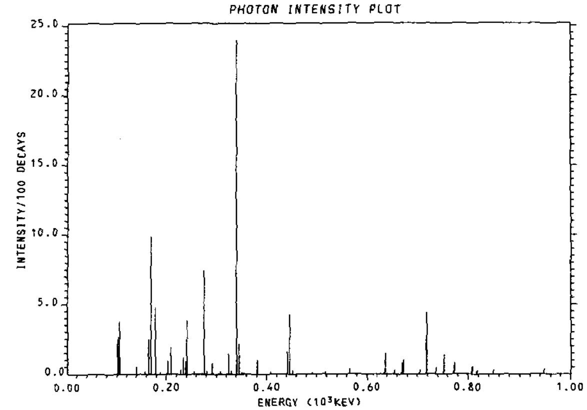
$\langle E_{PHOTON} \rangle$ PER DECAY = 309.6

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	236.0	66.53	1.000
β^-	367.0	109.1	5.000
β^-	415.0	125.6	1.600
β^-	448.0	137.1	3.000
β^-	744.0	248.2	7.000
β^-	794.5	268.3	1.000
β^-	845.1	288.7	44.00
β^-	866.1	297.2	3.000
β^-	981.0	344.7	2.000
β^-	1022.0	362.0	7.000
β^-	1085.2	388.8	5.000
β^-	1122.0	404.5	12.00
β^-	1190.0	433.9	10.00

$\langle E_e \rangle$ PER DECAY = 311.8
$\langle E_\nu \rangle$ PER DECAY = 585.9

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	845.1	44.00
γ	339.9	24.00
β^-	1122.	12.00
β^-	1190.	10.00
γ	167.8	9.900
γ	275.1	7.450
β^-	1022.	7.000
β^-	744.0	7.000
β^-	1085.	5.000
β^-	367.0	5.000
γ	177.0	4.800
γ	717.8	4.400
γ	445.5	4.300
γ	240.0	3.900

$^{151}_{62}Sm$

ENDF/B-IV FILE 1 COMMENTS
62-SM-151 HEDL,BNL EVAL-NOV74 R.E.SCHENTER AND A.PRINCE
DIST-DEC74

$^{151}_{62}Sm$

$T_{1/2}$ =92.94y
$\langle E_\beta \rangle$ PER DECAY =19.50
$\langle E_\gamma \rangle$ PER DECAY =.4000

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.5025\times10^{+4}$
WESTCOTT G FACTOR	9.2570×10^{-1}
σ CAPTURE 2200M/S	$1.5008\times10^{+4}$
WESTCOTT G FACTOR	9.2571×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.7620\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$3.4050\times10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.9400
RESONANCE INTEGRAL (N,P)	1.6920×10^{-3}
RESONANCE INTEGRAL (N,α)	1.9670×10^{-3}

FISSION YIELDS

^{235}U THERMAL	3.9722×10^{-8}
^{235}U FAST	2.2004×10^{-8}
^{239}PU THERMAL	2.6196×10^{-7}

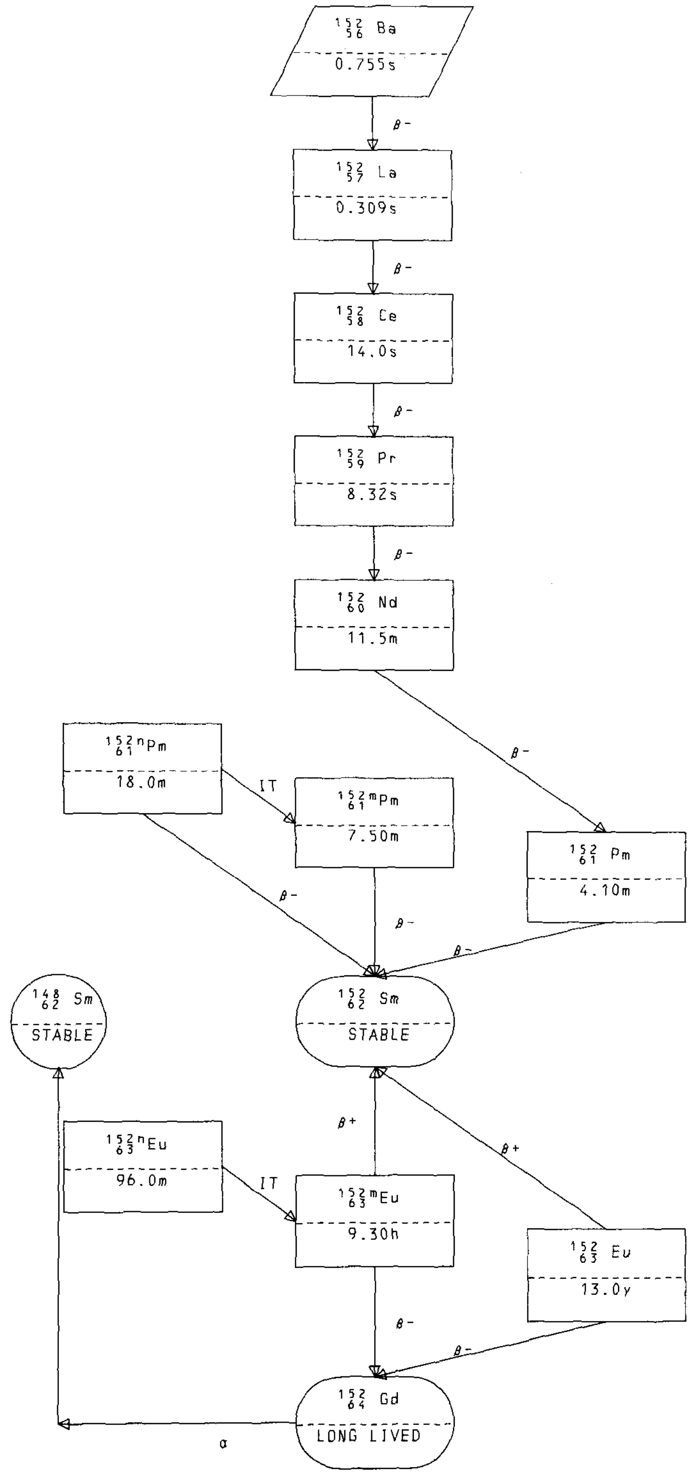
Q_β =76.00
BR_β =1.000

$^{151}_{63}Eu$

STABLE OR LONG-LIVED

$^{151}_{63}$Eu

$^{151}_{63}$Eu	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$9.3515 \times 10^{+3}$
WESTCOTT G FACTOR	8.9204×10^{-1}
σ CAPTURE 2200M/S	$9.3481 \times 10^{+3}$
WESTCOTT G FACTOR	8.9201×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.5600 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$3.2640 \times 10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.3340
RESONANCE INTEGRAL (N,P)	1.7160×10^{-2}
RESONANCE INTEGRAL (N,α)	6.6030×10^{-3}
FISSION YIELDS	
^{235}U THERMAL	5.7131×10^{-7}


152 56 Ba
0.755s
β-
152 57 La
0.309s
β-
152 58 Ce
14.0s
β-
152 59 Pr
8.32s
β-
152 60 Nd
11.5m
β-
152n 61 Pm
18.0m
IT
152m 61 Pm
7.50m
152 61 Pm
4.10m
β-
β-
β-
152 62 Sm
STABLE
148 62 Sm
STABLE
β+
β+
152n 63 Eu
96.0m
IT
152m 63 Eu
9.30h
152 63 Eu
13.0y
β-
β-
152 64 Gd
LONG LIVED
α

152-0

$^{152}_{56}$Ba

ENDF/B-IV FILE 1 COMMENTS
56-BA-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{152}_{56}$Ba

$T_{1/2}$ =.7548s
$\langle E_\beta \rangle$ PER DECAY =1466.
$\langle E_\gamma \rangle$ PER DECAY =2726.

FISSION YIELDS

^{238}U FAST	1.4599×10^{-7}

Q_β =5790.
BR_β =1.000

$^{152}_{57}$La

.3094s

$^{152}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{152}_{57}$La

$T_{1/2}$ =.3094s
$\langle E_\beta \rangle$ PER DECAY =2389.
$\langle E_\gamma \rangle$ PER DECAY =3683.

FISSION YIELDS

^{235}U THERMAL	4.7226×10^{-7}
^{235}U FAST	6.9111×10^{-7}
^{238}U FAST	5.0165×10^{-5}
^{239}PU THERMAL	2.6896×10^{-7}

Q_β =8570.
BR_β =1.000

$^{152}_{58}$Ce

14.03s

$^{152}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{152}_{58}$Ce

$T_{1/2}$ =14.03s
$\langle E_\beta \rangle$ PER DECAY =793.7
$\langle E_\gamma \rangle$ PER DECAY =1443.

FISSION YIELDS

^{235}U THERMAL	1.3109×10^{-4}
^{235}U FAST	1.7019×10^{-4}
^{238}U FAST	1.9964×10^{-3}
^{239}PU THERMAL	1.3010×10^{-4}

Q_β =3350.
BR_β =1.000

$^{152}_{59}$Pr

8.318s

152 - 58- 1

$^{152}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{152}_{59}$Pr

$T_{1/2}$ =8.318s
$\langle E_\beta \rangle$ PER DECAY =1623.
$\langle E_\gamma \rangle$ PER DECAY =2363.

FISSION YIELDS

^{235}U THERMAL	1.0646×10^{-3}
^{235}U FAST	1.2399×10^{-3}
^{238}U FAST	2.8233×10^{-3}
^{239}PU THERMAL	1.7547×10^{-3}

Q_β =6100.
BR_β =1.000

$^{152}_{60}$Nd

11.50±0.20m

$^{152}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{152}_{60}$Nd

$T_{1/2}$ =11.50±0.20m
$\langle E_\beta \rangle$ PER DECAY =203.0
$\langle E_\gamma \rangle$ PER DECAY =359.2

FISSION YIELDS

^{235}U THERMAL	1.4391×10^{-3}
^{235}U FAST	1.5088×10^{-3}
^{238}U FAST	6.9572×10^{-4}
^{239}PU THERMAL	3.7576×10^{-3}

Q_β =920.0
BR_β =1.000

$^{152}_{61}$Pm

4.10±.07m

152 - 60- 1

$^{152n}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-152N HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{152n}_{61}$Pm

$T_{1/2}$ =18.00m
$\langle E_\beta \rangle$ PER DECAY =809.7
$\langle E_\gamma \rangle$ PER DECAY =1151.

Q_β =3990.
BR_β =.8000

Q_{IT}=250.0
BR_{IT}=.2000

$^{152}_{62}$Sm

STABLE OR LONG-LIVED

$^{152m}_{61}$Pm

7.5±.6m

$^{152m}_{61}Pm$

```
              ENDF/B-IV FILE 1 COMMENTS
61-PM-152M ANC       EVAL-FEB74 C.W.REICH              DECAY DATA
                     DIST-DEC74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
   PREPARED FOR FILE  9/73                    RES(GULF)
   REFERENCE  W. DANNIELS AND D. HOFFMAN, PHYS. REV. C4, 919 (1971)
   GAMMA-RAY DATA ARE TAKEN FROM TABLE II OF REF.
     GAMMA-RAY INTENSITY UNCERTAINTIES INCLUDE STATISTICAL
   UNCERTAINTIES AND A 5% UNCERTAINTY IN RELATIVE EFFICIENCIES.
     THE UNCERTAINTY OF 10% IN ABSOLUTE EFFICIENCY IS NOT INCLUDE
     IN UNCERTAINTIES. THE ABSOLUTE GAMMA-RAY INTENSITIES WERE
     DETERMINED ON THE BASIS OF NO BETA RAYS FEEDING THE
     GROUND STATE OF SM-152. (THE LATTER WAS ASSUMED BECAUSE OF
     SPIN CONSIDERATIONS.)
     THE BETA-RAYS ARE POORLY KNOWN, AND DISCREPENCIES IN THE
     DECAY SCHEME DO NOT ALLOW THE ACCURATE STATEMENT OF
     INTENSITIES. THE ENERGIES OF BETA RAYS WITH POSSIBLE
     SIGNIFICANT INTENSITIES. ACCORDING TO REF., ARE GIVEN BELOW.
```

$^{152m}_{61}Pm$

$T_{1/2}$ =7.5±.6m

$\langle E_\beta \rangle$ PER DECAY =419.5

$\langle E_\gamma \rangle$ PER DECAY =1287.

FISSION YIELDS

^{235}U THERMAL	3.6890×10^{-5}
^{235}U FAST	3.4816×10^{-5}
^{238}U FAST	2.6998×10^{-6}
^{239}PU THERMAL	1.5935×10^{-4}

Q_β =3600.±100.

BR_β =1.000

$^{152}_{62}$ Sm

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
121.80	±	0.10	1	94.40		
137.0	±	1.0	1	.5664		
231.0	±	1.0	1	1.227		
244.70	±	0.10	1	59.	±	40.
340.2			1	28.	±	19.
361.30	±	0.20	1	.2832		
432.00	±	0.20	1	1.3	±	.3
656.2	±	0.5	1	2.7	±	.5
689.0	±	0.3	1	1.4	±	.3
696.50	±	0.20	1	2.55	±	.19
781.1	±	0.3	1	3.3	±	.4
832.4	±	1.9	4	10.1	±	0.9
901.0	±	1.0	1	1.6	±	.4
920.0	±	0.3	1	2.5	±	.5
962.0			1	7.6	±	.9
1084.	±	3.	5	28.	±	3.
1112.2	±	0.4	1	3.2	±	.8
1194.0	±	1.0	1	1.7	±	.6
1239.	±	12.	4	3.5	±	1.6
1321.2	±	0.5	1	1.510		
1389.0	±	1.0	1	.6	±	.3
1406.2	±	0.5	1	.5	±	.3
1437.5	±	0.3	1	15.2	±	1.6

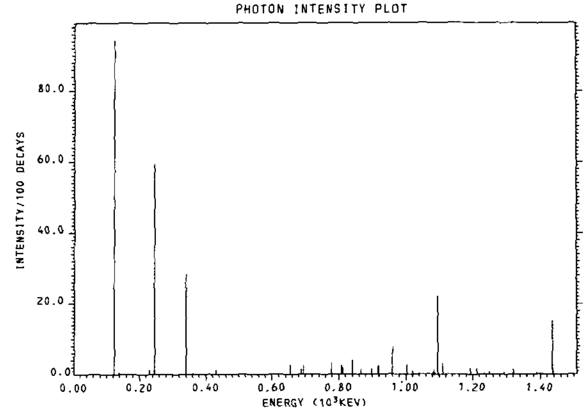
$\langle E_{PHOTON} \rangle$ PER DECAY = 1287.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1796.0	706.5	42.00
β^-	1823.0	719.0	4.400
β^-	2020.0	810.8	2.900
β^-	2228.0	908.8	2.400
β^-	2366.0	974.3	4.700

$\langle E_e \rangle$ PER DECAY = 419.5
$\langle E_\gamma \rangle$ PER DECAY = 638.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	121.80	±	0.10	94.40		
γ	244.70	±	0.10	59.	±	40.
β^-	1796.			42.00		
γ	340.2			28.	±	19.
γ	1097.00	±	0.20	22.2	±	2.5

$^{152}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-152 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 9/73 RES(GULF)
REFERENCE W. DANIELS AND D. HOFFMAN, PHYS. REV. C4, 919 (1971)
GAMMA-RAY DATA ARE TAKEN FROM TABLE II OF REF. AND
ADDITIONAL GAMMA RAYS IN FIG. 7 OF REF. BETA-RAY DATA ARE
FROM FIG. 7.
IT IS NOT CLEAR IF THE 4.1-M ACTIVITY OR THE 7.5-M
ACTIVITY IS THE GROUND STATE. THE DATA GIVEN HERE ARE FOR
THE 4.1-M ACTIVITY.
PHOTON INTENSITY UNCERTAINTIES INCLUDE 10% UNCERTAINTY IN
ABSOLUTE EFFICIENCY CALIBRATION, 5% UNCERTAINTY IN RELATIVE
EFFICIENCY, AND THE STATISTICS.

$^{152}_{61}$Pm

$T_{1/2}$ =4.10±.07m
$\langle E_\beta \rangle$ PER DECAY =1439.
$\langle E_\gamma \rangle$ PER DECAY =288.1

FISSION YIELDS

^{235}U THERMAL	3.6890×10^{-5}
^{235}U FAST	3.4816×10^{-5}
^{238}U FAST	2.6998×10^{-6}
^{239}PU THERMAL	1.5935×10^{-4}

Q_β =3600.±200.
BR_β =1.000

$^{152}_{62}$Sm

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
121.80	±	0.10	1	27.	±	3.
244.70	±	0.10	1	1.7	±	.4
252.0			1	.3000		
329.0			1	.4000		
444.0			1	.2000		
483.0			1	.1000		
563.0			1	.3000		
625.0			1	.2000		
689.0	±	0.3	1	.6	±	.3
696.50	±	0.20	1	2.7	±	.5
835.8	±	2.2	6	6.9	±	.8
920.0	±	0.3	1	1.0	±	.4
926.5	±	0.4	1	.9	±	.4
962.0			1	8.8	±	1.8
1081.			1	1.1	±	.3
1085.9	±	0.4	1	.4000		
1171.			1	.1000		
1293.0	±	1.0	1	.40	±	.14
1298.0	±	1.0	1	1.3	±	.3
1321.2	±	0.5	1	1.0	±	.3
1389.0	±	1.0	1	.40	±	.05
1437.5	±	0.3	1	.2000		
1511.			1	.00500		

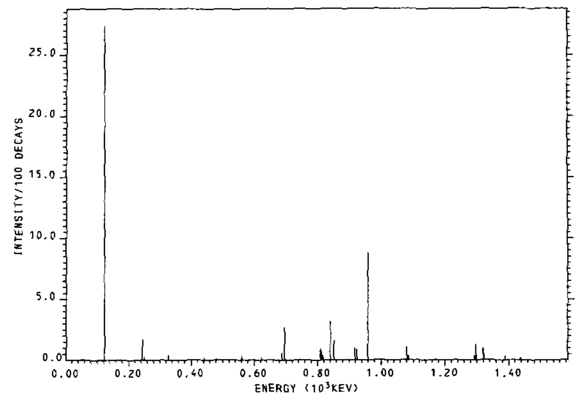
$\langle E_{PHOTON} \rangle$ PER DECAY = 288.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2089.0	843.2	.4000
β^-	2157.0	875.2	1.000
β^-	2302.0	943.9	1.000
β^-	2307.0	946.2	2.000
β^-	2558.0	1066.	7.000
β^-	2636.5	1104.	5.500
β^-	2789.0	1177.	1.000
β^-	3478.2	1512.	10.00
β^-	3600.0	1571.	70.00

$\langle E_e \rangle$ PER DECAY = 1439.
$\langle E_\nu \rangle$ PER DECAY = 1880.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	3600.			70.00		
γ	121.80	±	0.10	27.	±	3.
β^-	3478.			10.00		
γ	962.0			8.8	±	1.8

$^{152}_{62}$ Sm

$^{152}_{62}$ Sm	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$2.0825 \times 10^{+2}$
WESTCOTT G FACTOR	1.0049
σ CAPTURE 2200M/S	$2.0610 \times 10^{+2}$
WESTCOTT G FACTOR	1.0032
RESONANCE INTEGRAL TOTAL	$8.7610 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.9960 \times 10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.1590
RESONANCE INTEGRAL (N,P)	8.2360×10^{-4}
RESONANCE INTEGRAL (N,α)	8.1360×10^{-4}
FISSION YIELDS	
^{235}U THERMAL	4.7025×10^{-7}
^{235}U FAST	3.9406×10^{-7}
^{238}U FAST	4.4796×10^{-9}
^{239}PU THERMAL	3.5295×10^{-6}

$^{152n}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-152N HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{152n}_{63}$Eu

$T_{1/2}$ =96.00m
$\langle E_{\gamma} \rangle$ PER DECAY =97.80

Q_{IT}=97.80
BR_{IT}=1.000

$^{152}_{63}$ Eu

12.99y

$^{152m}_{63}Eu$

ENDF/B-IV FILE 1 COMMENTS
63-EU-152M HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{152m}_{63}Eu$

$T_{1/2}$ =9.300h
$\langle E_\beta \rangle$ PER DECAY =433.6
$\langle E_\gamma \rangle$ PER DECAY =579.2

Q_β =1870.
BR_β =.7700

$Q_{\beta+}$=1900.
$BR_{\beta+}$=.2300

$^{152}_{64}Gd$
$1.099 \times 10^{+14}$y

$^{152}_{62}Sm$
STABLE OR LONG-LIVED

152m- 63- 1

$^{152}_{63}Eu$

ENDF/B-IV FILE 1 COMMENTS
63-EU-152 BNL EVAL-DEC73 H.TAKAHASHI
DIST-DEC74 REV-JUN-75
* * * * * *
MF=1,MT=457 RADIOACTIVE DECAY DATA SECTION EVALUATED BY
R.SCHENTER (HEDL) FOR ENDF/B-IV FISS. PROD. FILE

$^{152}_{63}Eu$

$T_{1/2}$ =12.99y
$\langle E_\beta \rangle$ PER DECAY =425.5
$\langle E_\gamma \rangle$ PER DECAY =568.3

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.3183 \times 10^{+3}$
WESTCOTT G FACTOR	8.9872×10^{-1}
σ CAPTURE 2200M/S	$2.3129 \times 10^{+3}$
WESTCOTT G FACTOR	8.9823×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.9460 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$3.6920 \times 10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.6220
RESONANCE INTEGRAL (N,P)	1.8870×10^{-2}
RESONANCE INTEGRAL (N,α)	6.3760×10^{-3}

Q_β =1820.
BR_β =.2800

$Q_{\beta+}$=1850.
$BR_{\beta+}$=.7200

$^{152}_{64}Gd$
$1.099 \times 10^{+14}$y

$^{152}_{62}Sm$
STABLE OR LONG-LIVED

152 - 63- 1

$^{152}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-152 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

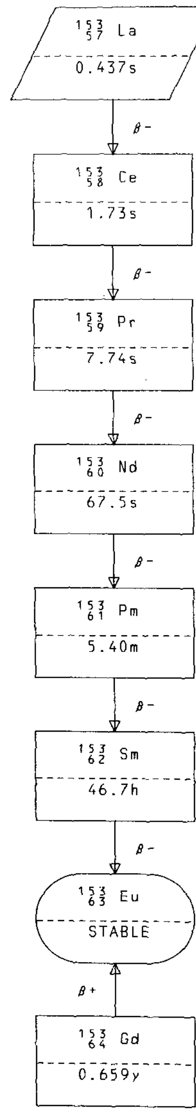
$^{152}_{64}$Gd

$T_{1/2}$ =1.099x10^{+14}y
$\langle E_\alpha \rangle$ PER DECAY =2234.

Q_α =2234.
BR_α =1.000

$^{148}_{62}$Sm

STABLE OR LONG-LIVED


153 57 La
0.437s
β-
153 58 Ce
1.73s
β-
153 59 Pr
7.74s
β-
153 60 Nd
67.5s
β-
153 61 Pm
5.40m
β-
153 62 Sm
46.7h
β-
153 63 Eu
STABLE
β+
153 64 Gd
0.659y

$^{153}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-153 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{153}_{57}$La

$T_{1/2}$ =.4371s
$\langle E_\beta \rangle$ PER DECAY =1946.
$\langle E_\gamma \rangle$ PER DECAY =3262.

FISSION YIELDS

^{235}U THERMAL	1.3707×10^{-8}
^{235}U FAST	2.1303×10^{-8}
^{238}U FAST	6.3694×10^{-6}
^{239}PU THERMAL	6.8990×10^{-9}

Q_β =7280.
BR_β =1.000

$^{153}_{58}$Ce

1.725s

$^{153}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-153 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{153}_{58}$Ce

$T_{1/2}$ =1.725s
$\langle E_\beta \rangle$ PER DECAY =1400.
$\langle E_\gamma \rangle$ PER DECAY =2411.

FISSION YIELDS

^{235}U THERMAL	1.2457×10^{-5}
^{235}U FAST	1.8143×10^{-5}
^{238}U FAST	6.5747×10^{-4}
^{239}PU THERMAL	1.1048×10^{-5}

Q_β =5570.
BR_β =1.000

$^{153}_{59}$Pr

7.743s

$^{153}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-153 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{153}_{59}$Pr

$T_{1/2}$ =7.743s
$\langle E_\beta \rangle$ PER DECAY =1199.
$\langle E_\gamma \rangle$ PER DECAY =1945.

FISSION YIELDS

^{235}U THERMAL	2.9993×10^{-4}
^{235}U FAST	4.1216×10^{-4}
^{238}U FAST	2.1937×10^{-3}
^{239}PU THERMAL	4.5239×10^{-4}

Q_β =4770.
BR_β =1.000

$^{153}_{60}$Nd

67.54s

153 - 59- 1

$^{153}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-153 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{153}_{60}$Nd

$T_{1/2}$ =67.54s
$\langle E_\beta \rangle$ PER DECAY =791.9
$\langle E_\gamma \rangle$ PER DECAY =1297.

FISSION YIELDS

^{235}U THERMAL	1.1453×10^{-3}
^{235}U FAST	1.3788×10^{-3}
^{238}U FAST	1.2351×10^{-3}
^{239}PU THERMAL	2.6243×10^{-3}

Q_β =3320.
BR_β =1.000

$^{153}_{61}$Pm

5.40±.20m

$^{153}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-153 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-DEC74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 CWR
REFERENCES Q - 1973 REVISION OF WAPSTRA-GOVE MASS TABLES
OTHER- L.A.KROGER AND C.W.REICH, NUCL. DATA SHEETS
10, 429 (1973).

$^{153}_{61}$Pm

$T_{1/2}$ =5.40±.20m
$\langle E_\beta \rangle$ PER DECAY =672.6
$\langle E_\gamma \rangle$ PER DECAY =77.48

FISSION YIELDS

^{235}U THERMAL	1.6026×10^{-4}
^{235}U FAST	1.9483×10^{-4}
^{238}U FAST	2.5748×10^{-5}
^{239}PU THERMAL	6.1776×10^{-4}

Q_β =1800.±100.
BR_β =1.000

$^{153}_{62}$Sm

46.70±0.10h

PHOTON RADIATION TABLE

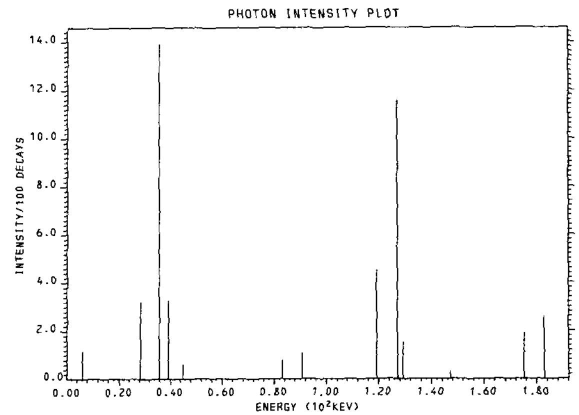
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
38.0	±	0.7	8	24.0	±	0.3
136.7	±	0.9	6	22.4	±	0.7

$\langle E_{PHOTON} \rangle$ PER DECAY = 39.76

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	45.1	10.51			5.819
CE	181.3	48.40	±	0.11	23.26
β-	1618.0	625.	±	40.	8.200
β-	1673.0	650.	±	40.	34.00
β-	1709.0	666.	±	40.	3.000
β-	1764.0	692.	±	40.	55.00

$\langle E_e \rangle$ PER DECAY = 684.5
$\langle E_\nu \rangle$ PER DECAY = 1050.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
β-	1764.	±	100.	55.00
β-	1673.	±	100.	34.00
γ	35.90	±	0.20	13.89
γ	127.3	±	0.3	11.57
CE_M	34.18	±	0.20	11.10
β-	1618.	±	100.	8.200

$^{153}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-153 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-DEC74
FILE INFORMATION

MF=1 MT=457 DECAY DATA
REFERENCES
CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 CWR
REFERENCES Q - 1973 REVISION OF WAPSTRA-GOVE MASS TABLES.
OTHER- L.A.KROGER AND C.W.REICH, NUCL. DATA SHEETS
10, 429 (1973).

$^{153}_{62}$Sm

$T_{1/2}$ =46.70±0.10h
$\langle E_\beta \rangle$ PER DECAY =230.7
$\langle E_\gamma \rangle$ PER DECAY =104.5

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$3.3523\times10^{+2}$
WESTCOTT G FACTOR	1.0135
σ CAPTURE 2200M/S	$3.3000\times10^{+2}$
WESTCOTT G FACTOR	1.0001
RESONANCE INTEGRAL TOTAL	$6.1590\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.8640\times10^{+3}$

FISSION YIELDS

^{235}U THERMAL	3.2117×10^{-6}
^{235}U FAST	3.7606×10^{-6}
^{238}U FAST	6.2294×10^{-8}
^{239}PU THERMAL	2.1407×10^{-5}

Q_β =809.±4.
BR_β =1.000

$^{153}_{63}$Eu

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
37.80	±	0.12	13	15.27	±	0.05
103.71	±	0.07	6	10.57	±	0.22
352.0			1	.00700		
458.3	±	1.1	9	.0312	±	.0020
540.2	±	0.7	16	.154	±	.008
613.9	±	0.4	13	.0212	±	.0014
721.	±	3.	6	.00031	±	.00004

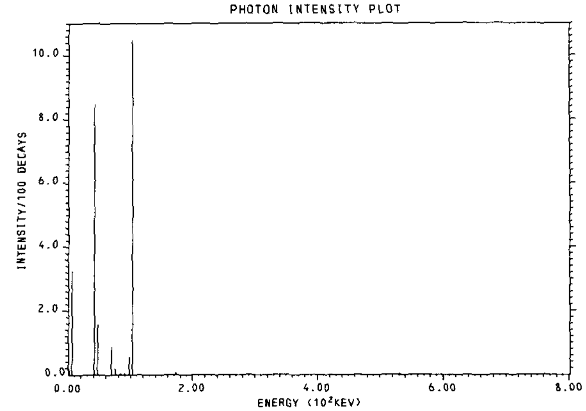
$\langle E_{PHOTON} \rangle$ PER DECAY = 17.86 ± 0.24

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	46.7	8.799			17.22
CE	101.4	69.5616	±	0.0011	22.65
β^-	90.0	23.7	±	1.2	.00180
β^-	102.0	27.0	±	1.2	.02300
β^-	114.4	30.4	±	1.3	.02500
β^-	172.1	47.1	±	1.7	.06900
β^-	174.0	47.7	±	1.7	.06600
β^-	538.9	170.	±	5.	.01500
β^-	635.7	206.	±	6.	33.70
β^-	657.0	214.	±	7.	.2900
β^-	705.4	233.	±	7.	43.60
β^-	711.2	235.	±	7.	.5800
β^-	808.6	274.	±	8.	21.00

$\langle E_e \rangle$ PER DECAY = 248.0
$\langle E_\nu \rangle$ PER DECAY = 467.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	705.	±	4.	43.60		
β^-	636.	±	4.	33.70		
β^-	809.	±	4.	21.00		
AU_L	6.252			15.95		
γ	103.179			10.48	±	0.22

$^{153}_{63}$Eu

$^{153}_{63}$Eu

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.5738 \times 10^{+2}$
WESTCOTT G FACTOR	9.8289×10^{-1}
σ CAPTURE 2200M/S	$4.5262 \times 10^{+2}$
WESTCOTT G FACTOR	9.8159×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.8080 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.5690 \times 10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.3500
RESONANCE INTEGRAL (N,P)	5.0610×10^{-3}
RESONANCE INTEGRAL (N,α)	1.1570×10^{-2}

FISSION YIELDS

^{235}U THERMAL	6.8837×10^{-7}
^{235}U FAST	1.7603×10^{-9}
^{239}PU THERMAL	1.9397×10^{-8}

$^{153}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-153 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

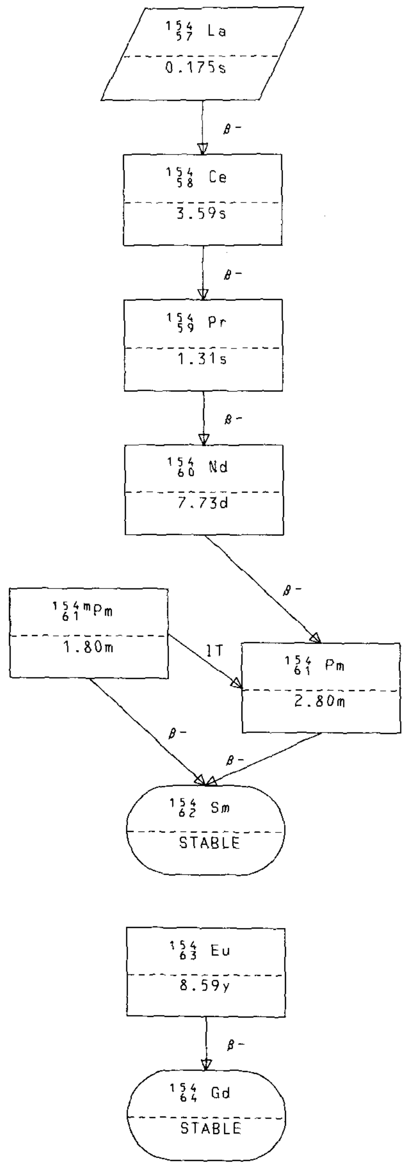
$^{153}_{64}$Gd

$T_{1/2}$ =.6591y
$\langle E_\gamma \rangle$ PER DECAY =120.0

$Q_{\beta+}$=240.0
$BR_{\beta+}$=1.000

$^{153}_{63}$Eu

STABLE OR LONG-LIVED



$^{154}_{57}$La
0.175s
β-
$^{154}_{58}$Ce
3.59s
β-
$^{154}_{59}$Pr
1.31s
β-
$^{154}_{60}$Nd
7.73d
β-
$^{154m}_{61}$Pm
1.80m
IT
$^{154}_{61}$Pm
2.80m
β-
β-
$^{154}_{62}$Sm
STABLE
$^{154}_{63}$Eu
8.59y
β-
$^{154}_{64}$Gd
STABLE

$^{154}_{57}$La

```
                ENDF/B-IV FILE 1 COMMENTS
57-LA-154  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-NOV74
     REFERENCES
      HALF LIFE-R SCHENTER,THEORY(9/73)
```

$^{154}_{57}$La

$T_{1/2}$ =.1753s
$\langle E_\beta \rangle$ PER DECAY =2626.
$\langle E_\gamma \rangle$ PER DECAY =4208.

FISSION YIELDS

^{238}U FAST	3.0897×10^{-7}

Q_β =9460.
BR_β =1.000

$^{154}_{58}$Ce

3.591s

154 - 57- 1

$^{154}_{58}$Ce

```
                ENDF/B-IV FILE 1 COMMENTS
58-CE-154  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-DEC74
     REFERENCES
      HALF LIFE-R SCHENTER,THEORY(9/73)
```

$^{154}_{58}$Ce

$T_{1/2}$ =3.591s
$\langle E_\beta \rangle$ PER DECAY =1025.
$\langle E_\gamma \rangle$ PER DECAY =1926.

FISSION YIELDS

^{235}U THERMAL	7.8543×10^{-7}
^{235}U FAST	9.9716×10^{-7}
^{238}U FAST	9.5931×10^{-5}
^{239}PU THERMAL	6.5191×10^{-7}

Q_β =4270.
BR_β =1.000

$^{154}_{59}$Pr

1.307s

$^{154}_{59}$ Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-154 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{154}_{59}$ Pr

$T_{1/2}$ =1.307s
$\langle E_\beta \rangle$ PER DECAY =1857.
$\langle E_\gamma \rangle$ PER DECAY =2866.

FISSION YIELDS

^{235}U THERMAL	5.3919×10^{-5}
^{235}U FAST	6.6321×10^{-5}
^{238}U FAST	8.6185×10^{-4}
^{239}PU THERMAL	8.9537×10^{-5}

Q_β =6990.
BR_β =1.000

$^{154}_{60}$ Nd

7.735d

154 - 59- 1

$^{154}_{60}$ Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-154 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{154}_{60}$ Nd

$T_{1/2}$ =7.735d
$\langle E_\beta \rangle$ PER DECAY =380.4
$\langle E_\gamma \rangle$ PER DECAY =698.6

FISSION YIELDS

^{235}U THERMAL	4.9838×10^{-4}
^{235}U FAST	5.9282×10^{-4}
^{238}U FAST	1.2653×10^{-3}
^{239}PU THERMAL	1.5438×10^{-3}

Q_β =1700.
BR_β =1.000

$^{154}_{61}$ Pm

2.80±.20m

$^{154m}_{61}Pm$

ENDF/B-IV FILE 1 COMMENTS

61-PM-154M HEDL EVAL-APR74 R.E.SCHENTER

DIST-DEC74

REFERENCES

DIT-R SCHENTER,THEORY(9/73)

$^{154m}_{61}Pm$

$T_{1/2}$ =1.800m

$\langle E_\beta \rangle$ PER DECAY =1034.

$\langle E_\gamma \rangle$ PER DECAY =1522.

FISSION YIELDS

^{235}U THERMAL	9.1760×10^{-5}
^{235}U FAST	1.0676×10^{-4}
^{238}U FAST	3.6277×10^{-5}
^{239}PU THERMAL	5.1300×10^{-4}

Q_β =4530.
BR_β =.9000

Q_{IT}=250.0
BR_{IT}=.1000

$^{154}_{62}Sm$

STABLE OR LONG-LIVED

$^{154}_{61}Pm$

2.80±.20m

154m- 61- 1

$^{154}_{61}Pm$

ENDF/B-IV FILE 1 COMMENTS

61-PM-154 HEDL EVAL-APR74 R.E.SCHENTER

DIST-DEC74

REFERENCES

QBETA -A TOBIAS(10/72) RD/B/M2453

EBETA-A TOBIAS(10/72) RD/B/M2453

EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{154}_{61}Pm$

$T_{1/2}$ =2.80±.20m

$\langle E_\beta \rangle$ PER DECAY =760.0

$\langle E_\gamma \rangle$ PER DECAY =1885.

FISSION YIELDS

^{235}U THERMAL	9.1870×10^{-5}
^{235}U FAST	1.0673×10^{-4}
^{238}U FAST	3.6277×10^{-5}
^{239}PU THERMAL	5.1283×10^{-4}

Q_β =3900.
BR_β =1.000

$^{154}_{62}Sm$

STABLE OR LONG-LIVED

$^{154}_{62}$Sm

$^{154}_{62}$Sm	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	8.7572
WESTCOTT G FACTOR	1.0487
σ CAPTURE 2200M/S	5.5032
WESTCOTT G FACTOR	1.0015
RESONANCE INTEGRAL TOTAL	$2.6060\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.3950\times10^{+1}$
FISSION YIELDS	
^{235}U THERMAL	1.0496×10^{-5}
^{235}U FAST	1.1852×10^{-5}
^{238}U FAST	5.1795×10^{-7}
^{239}PU THERMAL	1.1209×10^{-4}

154 - 62- 1

$^{154}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-154 BNL EVAL-DEC73 H.TAKAHASHI
DIST-DEC74 REV-JUN75
MF=1,MT=457 RADIOACTIVE DECAY DATA SECTION EVALUATED BY
R.SCHENTER (HEDL) FOR ENDF/B-IV FISS.PROD. FILE
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{154}_{63}$Eu	
$T_{1/2}$ =8.594y	
$\langle E_\beta \rangle$ PER DECAY =247.0	
$\langle E_\gamma \rangle$ PER DECAY =1250.	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$1.5123\times10^{+3}$
WESTCOTT G FACTOR	8.9874×10^{-1}
σ CAPTURE 2200M/S	$1.5062\times10^{+3}$
WESTCOTT G FACTOR	8.9787×10^{-1}
RESONANCE INTEGRAL TOTAL	$2.7800\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.5570\times10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.5970
RESONANCE INTEGRAL (N,P)	5.8910×10^{-2}
RESONANCE INTEGRAL (N,α)	1.7720×10^{-2}
FISSION YIELDS	
^{235}U THERMAL	1.6309×10^{-8}
^{235}U FAST	1.7903×10^{-8}
^{239}PU THERMAL	3.5395×10^{-7}

Q_β =1980.
BR_β =1.000

$^{154}_{64}$Gd
STABLE OR LONG-LIVED

154 - 63- 1

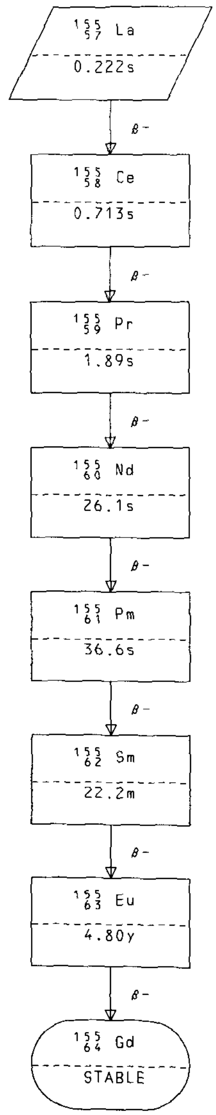
$^{154}_{64}$Gd

$^{154}_{64}$Gd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$8.8434 \times 10^{+1}$
WESTCOTT G FACTOR	1.0059
σ CAPTURE 2200M/S	$8.5001 \times 10^{+1}$
WESTCOTT G FACTOR	1.0009
RESONANCE INTEGRAL TOTAL	$5.6660 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.4780 \times 10^{+2}$


155 57 La
0.222s
β-
155 58 Ce
0.713s
β-
155 59 Pr
1.89s
β-
155 60 Nd
26.1s
β-
155 61 Pm
36.6s
β-
155 62 Sm
22.2m
β-
155 63 Eu
4.80y
β-
155 64 Gd
STABLE

$^{155}_{57}$La

ENDF/B-IV FILE 1 COMMENTS
57-LA-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{155}_{57}$La

$T_{1/2}$ =.2215s
$\langle E_\beta \rangle$ PER DECAY =2240.
$\langle E_\gamma \rangle$ PER DECAY =3881.

Q_β =8360.
BR_β =1.000

$^{155}_{58}$Ce

.7125s

155 - 57- 1

$^{155}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{155}_{58}$Ce

$T_{1/2}$ =.7125s
$\langle E_\beta \rangle$ PER DECAY =1641.
$\langle E_\gamma \rangle$ PER DECAY =2931.

FISSION YIELDS

^{235}U THERMAL	3.2317×10^{-8}
^{235}U FAST	3.9306×10^{-8}
^{238}U FAST	1.3059×10^{-5}
^{239}PU THERMAL	2.3997×10^{-8}

Q_β =6460.
BR_β =1.000

$^{155}_{59}$Pr

1.891s

$^{155}_{59}Pr$

ENDF/B-IV FILE 1 COMMENTS
59-PR-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{155}_{59}Pr$

$T_{1/2}$ =1.891s
$\langle E_\beta \rangle$ PER DECAY =1447.
$\langle E_\gamma \rangle$ PER DECAY =2437.

FISSION YIELDS

^{235}U THERMAL	6.5235×10^{-6}
^{235}U FAST	9.1715×10^{-6}
^{238}U FAST	2.7996×10^{-4}
^{239}PU THERMAL	1.0459×10^{-5}

Q_β =5690.
BR_β =1.000

$^{155}_{60}Nd$

26.06s

155 - 59- 1

$^{155}_{60}Nd$

ENDF/B-IV FILE 1 COMMENTS
60-ND-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{155}_{60}Nd$

$T_{1/2}$ =26.06s
$\langle E_\beta \rangle$ PER DECAY =933.9
$\langle E_\gamma \rangle$ PER DECAY =1619.

FISSION YIELDS

^{235}U THERMAL	1.5985×10^{-4}
^{235}U FAST	2.5651×10^{-4}
^{238}U FAST	9.1125×10^{-4}
^{239}PU THERMAL	5.2056×10^{-4}

Q_β =3920.
BR_β =1.000

$^{155}_{61}Pm$

36.56s

$^{155}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{155}_{61}$Pm

$T_{1/2}$ =36.56s
$\langle E_\beta \rangle$ PER DECAY =747.4
$\langle E_\gamma \rangle$ PER DECAY =1213.

FISSION YIELDS

^{235}U THERMAL	1.4053×10^{-4}
^{235}U FAST	2.6469×10^{-4}
^{238}U FAST	1.1936×10^{-4}
^{239}PU THERMAL	9.0078×10^{-4}

Q_β =3130.
BR_β =1.000

$^{155}_{62}$Sm

22.20m

155 - 61- 1

$^{155}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-155 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{155}_{62}$Sm

$T_{1/2}$ =22.20m
$\langle E_\beta \rangle$ PER DECAY =371.8
$\langle E_\gamma \rangle$ PER DECAY =611.9

FISSION YIELDS

^{235}U THERMAL	2.2602×10^{-5}
^{235}U FAST	4.6578×10^{-5}
^{238}U FAST	2.1498×10^{-6}
^{239}PU THERMAL	2.7269×10^{-4}

Q_β =1650.
BR_β =1.000

$^{155}_{63}$Eu

4.797y

$^{155}_{63}Eu$

ENDF/B-IV FILE 1 COMMENTS
63-EU-155 HEDL,BNL EVAL-NOV74 R.E.SCHENTER AND A.PRINCE
DIST-DEC74

$^{155}_{63}Eu$

$T_{1/2}$ =4.797y
$\langle E_\beta \rangle$ PER DECAY =54.53
$\langle E_\gamma \rangle$ PER DECAY =87.55

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.0453\times10^{+3}$
WESTCOTT G FACTOR	1.0006
σ CAPTURE 2200M/S	$4.0400\times10^{+3}$
WESTCOTT G FACTOR	1.0001
RESONANCE INTEGRAL TOTAL	$2.0370\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.8560\times10^{+3}$
RESONANCE INTEGRAL (N,2N)	1.3380
RESONANCE INTEGRAL (N,P)	1.0670×10^{-3}
RESONANCE INTEGRAL (N,α)	9.7560×10^{-4}

FISSION YIELDS

^{235}U THERMAL	1.0205×10^{-7}
^{235}U FAST	2.4904×10^{-7}
^{239}PU THERMAL	2.6696×10^{-6}

Q_β =250.0
BR_β =1.000

$^{155}_{64}Gd$

STABLE OR LONG-LIVED

155 - 63- 1

$^{155}_{64}Gd$

$^{155}_{64}Gd$

STABLE OR LONG-LIVED

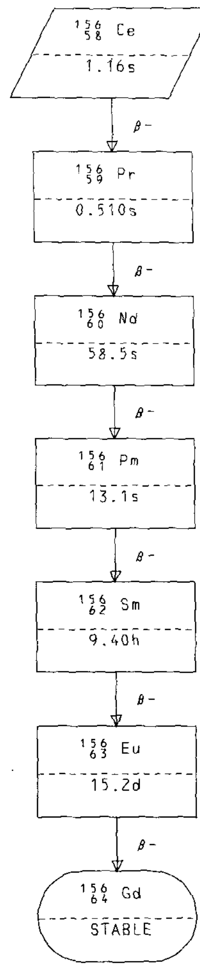
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$6.1110\times10^{+4}$
WESTCOTT G FACTOR	8.4296×10^{-1}
σ CAPTURE 2200M/S	$6.1051\times10^{+4}$
WESTCOTT G FACTOR	8.4281×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.8800\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.5710\times10^{+3}$

FISSION YIELDS

^{239}PU THERMAL	2.8296×10^{-9}

155 - 64- 1


156 58 Ce
1.16s
β-
156 59 Pr
0.510s
β-
156 60 Nd
58.5s
β-
156 61 Pm
13.1s
β-
156 62 Sm
9.40h
β-
156 63 Eu
15.2d
β-
156 64 Gd
STABLE

$^{156}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-156 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{156}_{58}$Ce

$T_{1/2}$ =1.162s
$\langle E_\beta \rangle$ PER DECAY =1303.
$\langle E_\gamma \rangle$ PER DECAY =2528.

FISSION YIELDS

^{235}U FAST	1.0302×10^{-9}
^{238}U FAST	1.3199×10^{-6}
^{239}PU THERMAL	1.2298×10^{-9}

Q_β =5360.
BR_β =1.000

$^{156}_{59}$Pr

.5104s

156 - 58- 1

$^{156}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-156 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{156}_{59}$Pr

$T_{1/2}$ =.5104s
$\langle E_\beta \rangle$ PER DECAY =2114.
$\langle E_\gamma \rangle$ PER DECAY =3395.

FISSION YIELDS

^{235}U THERMAL	4.8326×10^{-7}
^{235}U FAST	6.8811×10^{-7}
^{238}U FAST	6.7454×10^{-5}
^{239}PU THERMAL	1.3598×10^{-6}

Q_β =7880.
BR_β =1.000

$^{156}_{60}$Nd

58.49s

$^{156}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-156 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{156}_{60}$Nd

$T_{1/2}$ =58.49s
$\langle E_\beta \rangle$ PER DECAY =594.4
$\langle E_\gamma \rangle$ PER DECAY =1130.

FISSION YIELDS	
^{235}U THERMAL	3.2788×10^{-5}
^{235}U FAST	5.0708×10^{-5}
^{238}U FAST	4.7919×10^{-4}
^{239}PU THERMAL	1.6274×10^{-4}

Q_β =2620.
BR_β =1.000

$^{156}_{61}$Pm

13.10s

156 - 60- 1

$^{156}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-156 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{156}_{61}$Pm

$T_{1/2}$ =13.10s
$\langle E_\beta \rangle$ PER DECAY =1266.
$\langle E_\gamma \rangle$ PER DECAY =1949.

FISSION YIELDS	
^{235}U THERMAL	7.2359×10^{-5}
^{235}U FAST	1.3244×10^{-4}
^{238}U FAST	1.3730×10^{-4}
^{239}PU THERMAL	6.1863×10^{-4}

Q_β =5000.
BR_β =1.000

$^{156}_{62}$Sm

9.400h

$^{156}_{62}Sm$

ENDF/B-IV FILE 1 COMMENTS
62-SM-156 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{156}_{62}Sm$

$T_{1/2}$ =9.400h
$\langle E_\beta \rangle$ PER DECAY =149.5
$\langle E_\gamma \rangle$ PER DECAY =277.8

FISSION YIELDS

^{235}U THERMAL	2.9136×10^{-5}
^{235}U FAST	5.8570×10^{-5}
^{238}U FAST	5.9195×10^{-6}
^{239}PU THERMAL	4.0644×10^{-4}

Q_β =710.0
BR_β =1.000

$^{156}_{63}Eu$

15.20d

$^{156}_{63}$Eu

```
                    ENDF/B-IV FILE 1 COMMENTS
63-EU-156  ANC,HEDL  EVAL-FEB74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                                DIST-DEC74
FILE INFORMATION

MF=1 MT=457  DECAY DATA
     REFERENCES
        CW REICH,RG HELMER AND MH PUTMAN,ANCR-1157,ENDF210,8/74.
           Q-1973 WAPSTRA-GOVE MASSTABLE
```

$^{156}_{63}$Eu

$T_{1/2}$ =15.20d

$\langle E_\beta \rangle$ PER DECAY =430.2

$\langle E_\gamma \rangle$ PER DECAY =1318.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.8730\times10^{+2}$
WESTCOTT G FACTOR	1.0061
σ CAPTURE 2200M/S	$4.8200\times10^{+2}$
WESTCOTT G FACTOR	1.0005
RESONANCE INTEGRAL TOTAL	$1.6770\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.4920\times10^{+3}$

FISSION YIELDS

^{235}U THERMAL	3.8221×10^{-7}
^{235}U FAST	7.8213×10^{-7}
^{238}U FAST	6.7994×10^{-9}
^{239}PU THERMAL	9.4886×10^{-6}

Q_β =2453.±9.

BR_β =1.000

$^{156}_{64}$Gd

Stable or Long-lived

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
88.80	1	11.40
105.1	1	.6800
199.2	1	.6700
434.3	1	.2400
490.0	1	.2000
511.5	1	.2000
599.3	1	2.260
646.1	1	6.900
709.7	1	1.040
723.3	1	6.190
820.5	4	13.06
949.0	4	5.020
1069.	4	12.93
1155.	4	13.37
1243.	5	20.39
1367.	1	1.850
1682.	1	.2200
1877.	1	1.620
1938.	1	2.000
1966.	1	4.000
2027.	1	3.500
2098.	1	4.100
2181.	1	2.500
2187.	1	3.600
2270.	1	1.070

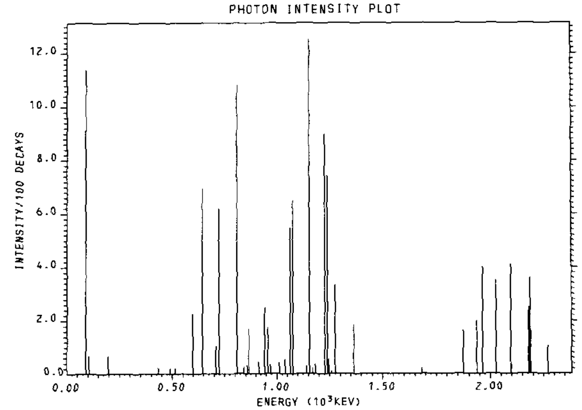
$\langle E_{PHOTON} \rangle$ PER DECAY = 1318.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	244.0	69.03	8.000
β^-	260.4	74.19	9.000
β^-	266.3	76.06	2.200
β^-	420.6	127.5	8.000
β^-	481.3	149.0	33.00
β^-	1080.7	386.9	2.300
β^-	1204.7	440.3	1.300
β^-	1278.0	472.3	6.000
β^-	2447.0	1013.	31.00

$\langle E_e \rangle$ PER DECAY = 430.2
$\langle E_\nu \rangle$ PER DECAY = 686.9

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	1/100 DECAYS
β^-	481.3	33.00
β^-	2447.	31.00
γ	1154.	12.50
γ	88.80	11.40
γ	811.7	10.80
γ	1231.	9.000
β^-	260.4	9.000
β^-	420.6	8.000
β^-	244.0	8.000
γ	1242.	7.430
γ	646.1	6.900
γ	1079.	6.500
γ	723.3	6.190
β^-	1278.	6.000

$^{156}_{64}Gd$

$^{156}_{64}Gd$

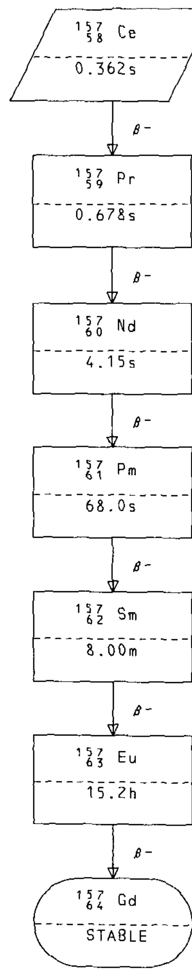
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.7578
WESTCOTT G FACTOR	1.0887
σ CAPTURE 2200M/S	1.4795
WESTCOTT G FACTOR	1.0006
RESONANCE INTEGRAL TOTAL	$3.7430 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.2850 \times 10^{+2}$

FISSION YIELDS

^{235}U FAST	1.8513×10^{-5}
^{239}PU THERMAL	2.5596×10^{-8}



$^{157}_{58}$Ce
0.362s
β-
$^{157}_{59}$Pr
0.678s
β-
$^{157}_{60}$Nd
4.15s
β-
$^{157}_{61}$Pm
68.0s
β-
$^{157}_{62}$Sm
8.00m
β-
$^{157}_{63}$Eu
15.2h
β-
$^{157}_{64}$Gd
STABLE

$^{157}_{58}$Ce

ENDF/B-IV FILE 1 COMMENTS
58-CE-157 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{157}_{58}$Ce

$T_{1/2}$ =.3617s
$\langle E_\beta \rangle$ PER DECAY =1901.
$\langle E_\gamma \rangle$ PER DECAY =3452.

FISSION YIELDS

^{238}U FAST	1.0899×10^{-7}

Q_β =7310.
BR_β =1.000

$^{157}_{59}$Pr

.6779s

157 - 58- 1

$^{157}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-157 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{157}_{59}$Pr

$T_{1/2}$ =.6779s
$\langle E_\beta \rangle$ PER DECAY =1745.
$\langle E_\gamma \rangle$ PER DECAY =3042.

FISSION YIELDS

^{235}U THERMAL	2.6614×10^{-8}
^{235}U FAST	6.2510×10^{-8}
^{238}U FAST	1.3649×10^{-5}
^{239}PU THERMAL	1.1698×10^{-7}

Q_β =6780.
BR_β =1.000

$^{157}_{60}$Nd

4.149s

$^{157}_{60}Nd$

ENDF/B-IV FILE 1 COMMENTS
60-ND-157 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{157}_{60}Nd$

$T_{1/2}$ =4.149s
$\langle E_\beta \rangle$ PER DECAY =1158.
$\langle E_\gamma \rangle$ PER DECAY =2087.

FISSION YIELDS

^{235}U THERMAL	5.0527×10^{-6}
^{235}U FAST	1.2182×10^{-5}
^{238}U FAST	2.1688×10^{-4}
^{239}PU THERMAL	3.4325×10^{-5}

Q_β =4810.
BR_β =1.000

$^{157}_{61}Pm$

68.02s

157 - 60- 1

$^{157}_{61}Pm$

ENDF/B-IV FILE 1 COMMENTS
61-PM-157 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{157}_{61}Pm$

$T_{1/2}$ =68.02s
$\langle E_\beta \rangle$ PER DECAY =977.2
$\langle E_\gamma \rangle$ PER DECAY =1649.

FISSION YIELDS

^{235}U THERMAL	2.9156×10^{-5}
^{235}U FAST	7.1942×10^{-5}
^{238}U FAST	1.3262×10^{-4}
^{239}PU THERMAL	2.9316×10^{-4}

Q_β =4040.
BR_β =1.000

$^{157}_{62}Sm$

8.0±.5m

$^{157}_{62}Sm$

ENDF/B-IV FILE 1 COMMENTS
62-SM-157 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{157}_{62}Sm$

$T_{1/2}$ =8.0±.5m
$\langle E_{\beta} \rangle$ PER DECAY =553.7
$\langle E_{\gamma} \rangle$ PER DECAY =967.8

FISSION YIELDS

^{235}U THERMAL	2.9326×10^{-5}
^{235}U FAST	7.1942×10^{-5}
^{238}U FAST	1.3419×10^{-5}
^{239}PU THERMAL	4.1293×10^{-4}

Q_{β} =2460.
BR_{β} =1.000

$^{157}_{63}Eu$

15.20h

157 - 62- 1

$^{157}_{63}Eu$

ENDF/B-IV FILE 1 COMMENTS
63-EU-157 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-DEC74

$^{157}_{63}Eu$

$T_{1/2}$ =15.20h
$\langle E_{\beta} \rangle$ PER DECAY =280.9
$\langle E_{\gamma} \rangle$ PER DECAY =470.7

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.9532 \times 10^{+2}$
WESTCOTT G FACTOR	1.0128
σ CAPTURE 2200M/S	$1.9000 \times 10^{+2}$
WESTCOTT G FACTOR	9.9925×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.4740 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.3020 \times 10^{+3}$

FISSION YIELDS

^{235}U THERMAL	1.0306×10^{-6}
^{235}U FAST	2.6704×10^{-6}
^{238}U FAST	3.8696×10^{-8}
^{239}PU THERMAL	2.2407×10^{-5}

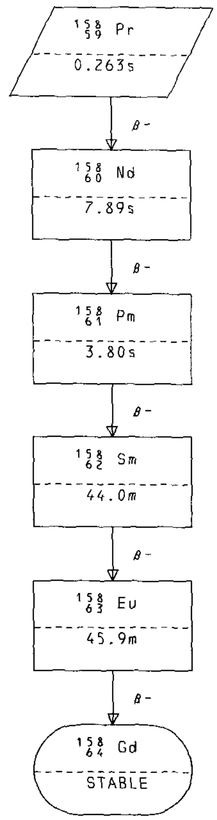
Q_{β} =1270.
BR_{β} =1.000

$^{157}_{64}Gd$

STABLE OR LONG-LIVED

$^{157}_{64}$Gd

$^{157}_{64}$Gd	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$2.5595 \times 10^{+5}$
WESTCOTT G FACTOR	8.5095×10^{-1}
σ CAPTURE 2200M/S	$2.5469 \times 10^{+5}$
WESTCOTT G FACTOR	8.5057×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3480 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$9.9730 \times 10^{+2}$
FISSION YIELDS	
^{235}U THERMAL	4.4324×10^{-8}
^{235}U FAST	1.1902×10^{-8}
^{239}PU THERMAL	1.5098×10^{-7}


158 59 Pr
0.263s
β-
158 60 Nd
7.89s
β-
158 61 Pm
3.80s
β-
158 62 Sm
44.0m
β-
158 63 Eu
45.9m
β-
158 64 Gd
STABLE

$^{158}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-158 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{158}_{59}$Pr

$T_{1/2}$ =.2629s
$\langle E_\beta \rangle$ PER DECAY =2395.
$\langle E_\gamma \rangle$ PER DECAY =3923.

FISSION YIELDS

^{235}U THERMAL	1.0606×10^{-9}
^{235}U FAST	2.1103×10^{-9}
^{238}U FAST	1.2899×10^{-6}
^{239}PU THERMAL	5.8792×10^{-9}

Q_β =8730.
BR_β =1.000

$^{158}_{60}$Nd

7.889s

158 - 59- 1

$^{158}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-158 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{158}_{60}$Nd

$T_{1/2}$ =7.889s
$\langle E_\beta \rangle$ PER DECAY =855.4
$\langle E_\gamma \rangle$ PER DECAY =1681.

FISSION YIELDS

^{235}U THERMAL	5.7831×10^{-7}
^{235}U FAST	1.2902×10^{-6}
^{238}U FAST	5.5765×10^{-5}
^{239}PU THERMAL	4.4494×10^{-6}

Q_β =3720.
BR_β =1.000

$^{158}_{61}$Pm

3.801s

$^{158}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-158 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{158}_{61}$Pm

$T_{1/2}$ =3.801s
$\langle E_\beta \rangle$ PER DECAY =1591.
$\langle E_\gamma \rangle$ PER DECAY =2554.

FISSION YIELDS

^{235}U THERMAL	8.7247×10^{-6}
^{235}U FAST	2.1703×10^{-5}
^{238}U FAST	8.5072×10^{-5}
^{239}PU THERMAL	9.0477×10^{-5}

Q_β =6220.
BR_β =1.000

$^{158}_{62}$Sm

43.97m

158 - 61- 1

$^{158}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-158 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{158}_{62}$Sm

$T_{1/2}$ =43.97m
$\langle E_\beta \rangle$ PER DECAY =241.5
$\langle E_\gamma \rangle$ PER DECAY =465.2

FISSION YIELDS

^{235}U THERMAL	2.0941×10^{-5}
^{235}U FAST	5.6359×10^{-5}
^{238}U FAST	2.2568×10^{-5}
^{239}PU THERMAL	2.7889×10^{-4}

Q_β =1130.
BR_β =1.000

$^{158}_{63}$Eu

45.90m

$^{158}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-158 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{158}_{63}$Eu

$T_{1/2}$ =45.90m
$\langle E_\beta \rangle$ PER DECAY =824.9
$\langle E_\gamma \rangle$ PER DECAY =1305.

FISSION YIELDS

^{235}U THERMAL	1.9410×10^{-6}
^{235}U FAST	5.9010×10^{-6}
^{238}U FAST	1.9098×10^{-7}
^{239}PU THERMAL	3.5035×10^{-5}

Q_β =3500.
BR_β =1.000

$^{158}_{64}$Gd

STABLE OR LONG-LIVED

158 - 63- 1

$^{158}_{64}$Gd

$^{158}_{64}$Gd

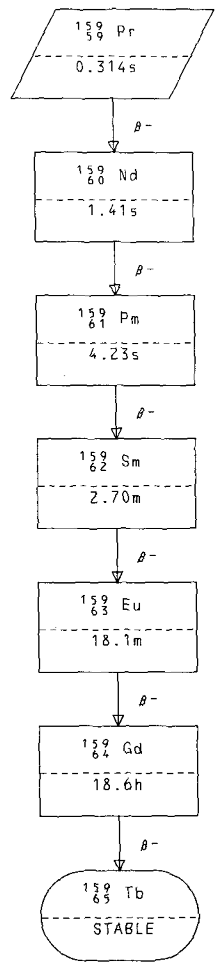
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.8151
WESTCOTT G FACTOR	1.0740
σ CAPTURE 2200M/S	2.5014
WESTCOTT G FACTOR	1.0015
RESONANCE INTEGRAL TOTAL	$2.2630\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.3100\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	2.4313×10^{-8}
^{235}U FAST	8.2513×10^{-8}
^{239}PU THERMAL	5.9891×10^{-7}


$^{159}_{59}Pr$
0.314s
β^-
$^{159}_{60}Nd$
1.41s
β^-
$^{159}_{61}Pm$
4.23s
β^-
$^{159}_{62}Sm$
2.70m
β^-
$^{159}_{63}Eu$
18.1m
β^-
$^{159}_{64}Gd$
18.6h
β^-
$^{159}_{65}Tb$
STABLE

$^{159}_{59}$Pr

ENDF/B-IV FILE 1 COMMENTS
59-PR-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{159}_{59}$Pr

$T_{1/2}$ =.3141s
$\langle E_\beta \rangle$ PER DECAY =2045.
$\langle E_\gamma \rangle$ PER DECAY =3683.

FISSION YIELDS

^{238}U FAST	5.4995×10^{-8}

Q_β =7850.
BR_β =1.000

$^{159}_{60}$Nd
1.408s

$^{159}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{159}_{60}$Nd

$T_{1/2}$ =1.408s
$\langle E_\beta \rangle$ PER DECAY =1397.
$\langle E_\gamma \rangle$ PER DECAY =2561.

FISSION YIELDS

^{235}U THERMAL	2.9016×10^{-8}
^{235}U FAST	4.4007×10^{-8}
^{238}U FAST	8.2392×10^{-6}
^{239}PU THERMAL	3.1996×10^{-7}

Q_β =5660.
BR_β =1.000

$^{159}_{61}$Pm
4.230s

$^{159}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{159}_{61}$Pm

$T_{1/2}$ =4.230s
$\langle E_\beta \rangle$ PER DECAY =1257.
$\langle E_\gamma \rangle$ PER DECAY =2199.

FISSION YIELDS

^{235}U THERMAL	1.2607×10^{-6}
^{235}U FAST	2.6104×10^{-6}
^{238}U FAST	3.8386×10^{-5}
^{239}PU THERMAL	1.8437×10^{-5}

Q_β =5130.
BR_β =1.000

$^{159}_{62}$Sm

2.704m

$^{159}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{159}_{62}$Sm

$T_{1/2}$ =2.704m
$\langle E_\beta \rangle$ PER DECAY =701.1
$\langle E_\gamma \rangle$ PER DECAY =1276.

FISSION YIELDS

^{235}U THERMAL	7.1839×10^{-6}
^{235}U FAST	2.0853×10^{-5}
^{238}U FAST	2.9487×10^{-5}
^{239}PU THERMAL	1.4527×10^{-4}

Q_β =3080.
BR_β =1.000

$^{159}_{63}$Eu

18.10m

$^{159}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{159}_{63}$Eu

$T_{1/2}$ =18.10m
$\langle E_\beta \rangle$ PER DECAY =576.4
$\langle E_\gamma \rangle$ PER DECAY =1005.

FISSION YIELDS

^{235}U THERMAL	1.8610×10^{-6}
^{235}U FAST	6.7411×10^{-6}
^{238}U FAST	8.8992×10^{-7}
^{239}PU THERMAL	4.6093×10^{-5}

Q_β =2570.
BR_β =1.000

$^{159}_{64}$Gd

18.60h

159 - 63- 1

$^{159}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-159 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{159}_{64}$Gd

$T_{1/2}$ =18.60h
$\langle E_\beta \rangle$ PER DECAY =199.2
$\langle E_\gamma \rangle$ PER DECAY =351.3

FISSION YIELDS

^{235}U THERMAL	6.4735×10^{-8}
^{235}U FAST	3.4406×10^{-7}
^{238}U FAST	3.1597×10^{-9}
^{239}PU THERMAL	2.2297×10^{-6}

Q_β =940.0
BR_β =1.000

$^{159}_{65}$Tb

STABLE OR LONG-LIVED

$^{159}_{65}$Tb

$^{159}_{65}$Tb

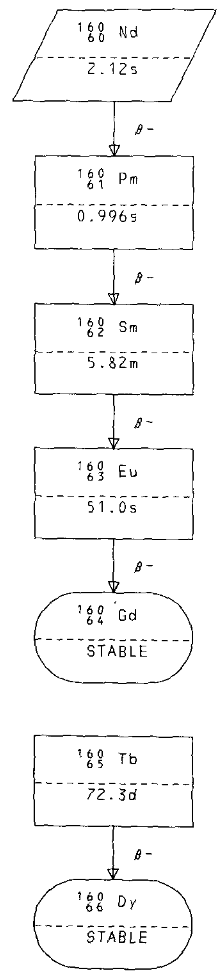
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.9704 \times 10^{+1}$
WESTCOTT G FACTOR	1.0197
σ CAPTURE 2200M/S	$2.5505 \times 10^{+1}$
WESTCOTT G FACTOR	1.0019
RESONANCE INTEGRAL TOTAL	$8.2900 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.5820 \times 10^{+2}$

FISSION YIELDS

^{239}PU THERMAL 2.8996×10^{-9}


$^{160}_{60}$Nd
2.12s
β-
$^{160}_{61}$Pm
0.996s
β-
$^{160}_{62}$Sm
5.82m
β-
$^{160}_{63}$Eu
51.0s
β-
$^{160}_{64}$Gd
STABLE
$^{160}_{65}$Tb
72.3d
β-
$^{160}_{66}$Dy
STABLE

$^{160}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-160 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{160}_{60}$Nd

$T_{1/2}$ =2.121s
$\langle E_\beta \rangle$ PER DECAY =1114.
$\langle E_\gamma \rangle$ PER DECAY =2258.

FISSION YIELDS

^{235}U THERMAL	7.4641×10^{-9}
^{235}U FAST	2.5504×10^{-8}
^{238}U FAST	8.2992×10^{-7}
^{239}PU THERMAL	2.0097×10^{-8}

Q_β =4780.
BR_β =1.000

$^{160}_{61}$Pm

.9963s

160 - 60- 1

$^{160}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-160 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{160}_{61}$Pm

$T_{1/2}$ =.9963s
$\langle E_\beta \rangle$ PER DECAY =1854.
$\langle E_\gamma \rangle$ PER DECAY =3039.

FISSION YIELDS

^{235}U THERMAL	3.7320×10^{-7}
^{235}U FAST	1.3502×10^{-6}
^{238}U FAST	9.4991×10^{-6}
^{239}PU THERMAL	2.9296×10^{-6}

Q_β =7080.
BR_β =1.000

$^{160}_{62}$Sm

5.819m

$^{160}_{62}Sm$

ENDF/B-IV FILE 1 COMMENTS
62-SM-160 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{160}_{62}Sm$

$T_{1/2}$ =5.819m
$\langle E_\beta \rangle$ PER DECAY =598.3
$\langle E_\gamma \rangle$ PER DECAY =1193.

FISSION YIELDS

^{235}U THERMAL	2.6014×10^{-6}
^{235}U FAST	9.8216×10^{-6}
^{238}U FAST	1.7318×10^{-5}
^{239}PU THERMAL	5.3332×10^{-5}

Q_β =2760.
BR_β =1.000

$^{160}_{63}Eu$

51.±10.s

160 - 62- 1

$^{160}_{63}Eu$

ENDF/B-IV FILE 1 COMMENTS
63-EU-160 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{160}_{63}Eu$

$T_{1/2}$ =51.±10.s
$\langle E_\beta \rangle$ PER DECAY =855.2
$\langle E_\gamma \rangle$ PER DECAY =1413.

FISSION YIELDS

^{235}U THERMAL	7.3240×10^{-7}
^{235}U FAST	2.8805×10^{-6}
^{238}U FAST	1.2599×10^{-6}
^{239}PU THERMAL	3.6785×10^{-5}

Q_β =3590.
BR_β =1.000

$^{160}_{64}Gd$

STABLE OR LONG-LIVED

$^{160}_{64}$Gd

$^{160}_{64}$Gd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.3541
WESTCOTT G FACTOR	1.1070
σ CAPTURE 2200M/S	7.7124×10^{-1}
WESTCOTT G FACTOR	1.0061
RESONANCE INTEGRAL TOTAL	$1.9700 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	8.5630

FISSION YIELDS

^{235}U THERMAL	3.0817×10^{-8}
^{235}U FAST	1.2902×10^{-7}
^{238}U FAST	1.1699×10^{-8}
^{239}PU THERMAL	4.2794×10^{-6}

160 - 64- 1

$^{160}_{65}$Tb

ENDF/B-IV FILE 1 COMMENTS
65-TB-160 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-DEC74

$^{160}_{65}$Tb

$T_{1/2}$ =72.30d
$\langle E_\beta \rangle$ PER DECAY =401.2
$\langle E_\gamma \rangle$ PER DECAY =640.2

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$5.3039 \times 10^{+2}$
WESTCOTT G FACTOR	1.0046
σ CAPTURE 2200M/S	$5.2500 \times 10^{+2}$
WESTCOTT G FACTOR	9.9939×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3940 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.1350 \times 10^{+3}$

FISSION YIELDS

^{239}PU THERMAL	1.4398×10^{-8}

Q_β =1810.
BR_β =1.000

$^{160}_{66}$Dy

STABLE OR LONG-LIVED

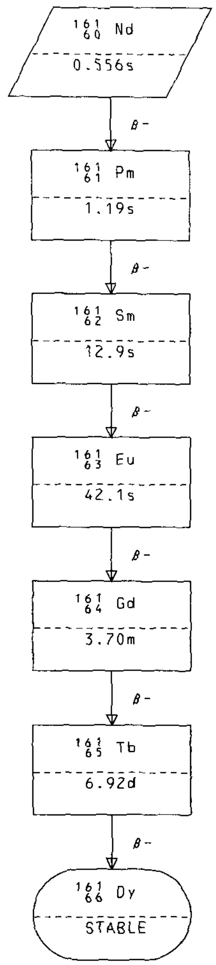
$^{160}_{66}$Dy

$^{160}_{66}$Dy

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$6.2980 \times 10^{+1}$
WESTCOTT G FACTOR	1.0122
σ CAPTURE 2200M/S	$6.1034 \times 10^{+1}$
WESTCOTT G FACTOR	1.0087
RESONANCE INTEGRAL TOTAL	$2.3530 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.6770 \times 10^{+3}$



$^{161}_{60}$Nd
0.556s
β-
$^{161}_{61}$Pm
1.19s
β-
$^{161}_{62}$Sm
12.9s
β-
$^{161}_{63}$Eu
42.1s
β-
$^{161}_{64}$Gd
3.70m
β-
$^{161}_{65}$Tb
6.92d
β-
$^{161}_{66}$Dy
STABLE

$^{161}_{60}$Nd

ENDF/B-IV FILE 1 COMMENTS
60-ND-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{161}_{60}$Nd

$T_{1/2}$ =.5558s
$\langle E_\beta \rangle$ PER DECAY =1656.
$\langle E_\gamma \rangle$ PER DECAY =3212.

FISSION YIELDS

^{238}U FAST	8.9492×10^{-8}

Q_β =6750.
BR_β =1.000

$^{161}_{61}$Pm

1.188s

161 - 60- 1

$^{161}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{161}_{61}$Pm

$T_{1/2}$ =1.188s
$\langle E_\beta \rangle$ PER DECAY =1538.
$\langle E_\gamma \rangle$ PER DECAY =2784.

FISSION YIELDS

^{235}U THERMAL	5.5930×10^{-9}
^{235}U FAST	2.4804×10^{-8}
^{238}U FAST	2.5298×10^{-6}
^{239}PU THERMAL	3.3595×10^{-7}

Q_β =6200.
BR_β =1.000

$^{161}_{62}$Sm

12.88s

$^{161}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{161}_{62}$Sm

$T_{1/2}$ =12.88s
$\langle E_\beta \rangle$ PER DECAY =962.9
$\langle E_\gamma \rangle$ PER DECAY =1783.

FISSION YIELDS

^{235}U THERMAL	2.7215×10^{-7}
^{235}U FAST	1.2302×10^{-6}
^{238}U FAST	1.0019×10^{-5}
^{239}PU THERMAL	1.5838×10^{-5}

Q_β =4120.
BR_β =1.000

$^{161}_{63}$Eu

42.06s

161 - 62- 1

$^{161}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{161}_{63}$Eu

$T_{1/2}$ =42.06s
$\langle E_\beta \rangle$ PER DECAY =739.0
$\langle E_\gamma \rangle$ PER DECAY =1338.

FISSION YIELDS

^{235}U THERMAL	4.6325×10^{-7}
^{235}U FAST	2.1504×10^{-6}
^{238}U FAST	1.7798×10^{-6}
^{239}PU THERMAL	2.6166×10^{-5}

Q_β =3250.
BR_β =1.000

$^{161}_{64}$Gd

3.700m

$^{161}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{161}_{64}$Gd

$T_{1/2}$ =3.700m
$\langle E_\beta \rangle$ PER DECAY =431.1
$\langle E_\gamma \rangle$ PER DECAY =792.9

FISSION YIELDS

^{235}U THERMAL	1.3607×10^{-7}
^{235}U FAST	6.4811×10^{-7}
^{238}U FAST	4.2896×10^{-8}
^{239}PU THERMAL	7.5089×10^{-6}

Q_β =2010.
BR_β =1.000

$^{161}_{65}$Tb

6.920d

161 - 64- 1

$^{161}_{65}$Tb

ENDF/B-IV FILE 1 COMMENTS
65-TB-161 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{161}_{65}$Tb

$T_{1/2}$ =6.920d
$\langle E_\beta \rangle$ PER DECAY =121.9
$\langle E_\gamma \rangle$ PER DECAY =215.8

FISSION YIELDS

^{235}U THERMAL	1.3007×10^{-9}
^{235}U FAST	6.3210×10^{-9}
^{239}PU THERMAL	6.9390×10^{-8}

Q_β =580.0
BR_β =1.000

$^{161}_{66}$Dy

STABLE OR LONG-LIVED

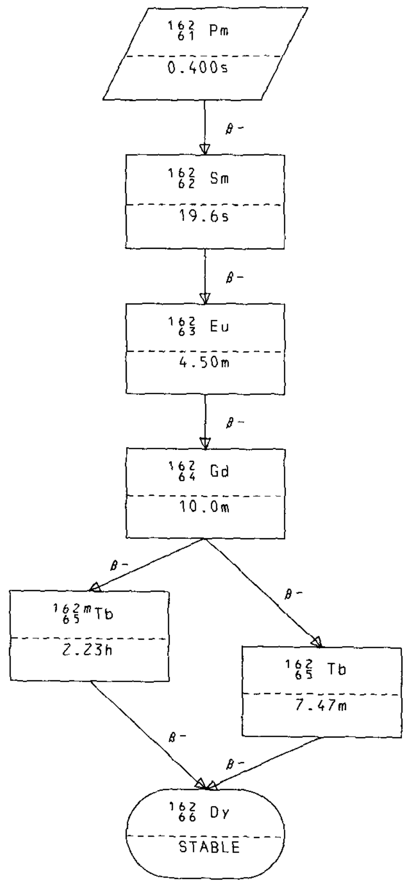
$^{161}_{66}Dy$

$^{161}_{66}Dy$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$6.0940 \times 10^{+2}$
WESTCOTT G FACTOR	9.9655×10^{-1}
σ CAPTURE 2200M/S	0.0000
WESTCOTT G FACTOR	0.0000
RESONANCE INTEGRAL TOTAL	$1.5980 \times 10^{+3}$



$^{162}_{61}$Pm
0.400s
β-
$^{162}_{62}$Sm
19.6s
β-
$^{162}_{63}$Eu
4.50m
β-
$^{162}_{64}$Gd
10.0m
β-
β-
$^{162m}_{65}$Tb
2.23h
$^{162}_{65}$Tb
7.47m
β-
β-
$^{162}_{66}$Dy
STABLE

$^{162}_{61}$Pm

ENDF/B-IV FILE 1 COMMENTS
61-PM-162 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{162}_{61}$Pm

$T_{1/2}$ =.3999s
$\langle E_\beta \rangle$ PER DECAY =2125.
$\langle E_\gamma \rangle$ PER DECAY =3693.

FISSION YIELDS

^{235}U FAST	2.1103×10^{-9}
^{238}U FAST	8.5492×10^{-8}
^{239}PU THERMAL	4.5394×10^{-9}

Q_β =8160.
BR_β =1.000

$^{162}_{62}$Sm

19.59s

162 - 61- 1

$^{162}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-162 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{162}_{62}$Sm

$T_{1/2}$ =19.59s
$\langle E_\beta \rangle$ PER DECAY =712.3
$\langle E_\gamma \rangle$ PER DECAY =1467.

FISSION YIELDS

^{235}U THERMAL	3.1817×10^{-8}
^{235}U FAST	3.0805×10^{-7}
^{238}U FAST	2.1998×10^{-6}
^{239}PU THERMAL	1.2198×10^{-6}

Q_β =3240.
BR_β =1.000

$^{162}_{63}$Eu

4.497m

$^{162}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-162 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{162}_{63}$Eu

$T_{1/2}$ =4.497m
$\langle E_\beta \rangle$ PER DECAY =1246.
$\langle E_\gamma \rangle$ PER DECAY =2103.

FISSION YIELDS

^{235}U THERMAL	1.4208×10^{-7}
^{235}U FAST	1.4002×10^{-6}
^{238}U FAST	2.1098×10^{-6}
^{239}PU THERMAL	9.6286×10^{-6}

Q_β =5100.
BR_β =1.000

$^{162}_{64}$Gd
10.00m

162 - 63- 1

$^{162}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-162 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{162}_{64}$Gd

$T_{1/2}$ =10.00m
$\langle E_\beta \rangle$ PER DECAY =202.6
$\langle E_\gamma \rangle$ PER DECAY =410.4

FISSION YIELDS

^{235}U THERMAL	1.0906×10^{-7}
^{235}U FAST	1.0902×10^{-6}
^{238}U FAST	3.4097×10^{-7}
^{239}PU THERMAL	1.2598×10^{-5}

Q_β =750.0
BR_β =.02000

Q_β =1000.
BR_β =.9800

$^{162m}_{65}$Tb
2.230h

$^{162}_{65}$Tb
7.470m

$^{162m}_{65}Tb$

ENDF/B-IV FILE 1 COMMENTS
65-TB-162M HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{162m}_{65}Tb$

$T_{1/2}$ =2.230h
$\langle E_\beta \rangle$ PER DECAY =686.0
$\langle E_\gamma \rangle$ PER DECAY =1146.

FISSION YIELDS

^{235}U THERMAL	1.4908×10^{-9}
^{235}U FAST	1.5502×10^{-8}
^{239}PU THERMAL	3.1595×10^{-7}

Q_β =3060.
BR_β =1.000

$^{162}_{66}Dy$

STABLE OR LONG-LIVED

162m- 65- 1

$^{162}_{65}Tb$

ENDF/B-IV FILE 1 COMMENTS
65-TB-162 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{162}_{65}Tb$

$T_{1/2}$ =7.470m
$\langle E_\beta \rangle$ PER DECAY =629.9
$\langle E_\gamma \rangle$ PER DECAY =1052.

FISSION YIELDS

^{235}U THERMAL	1.5008×10^{-9}
^{235}U FAST	1.5502×10^{-8}
^{239}PU THERMAL	3.1495×10^{-7}

Q_β =2810.
BR_β =1.000

$^{162}_{66}Dy$

STABLE OR LONG-LIVED

$^{162}_{66}Dy$

$^{162}_{66}Dy$

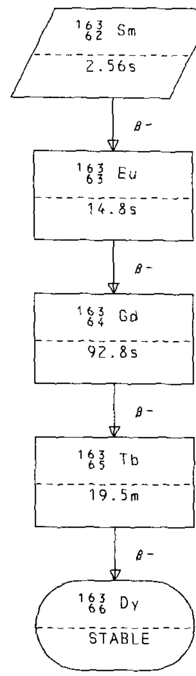
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.9781\times10^{+2}$
WESTCOTT G FACTOR	1.0041
σ CAPTURE 2200M/S	$1.9914\times10^{+2}$
WESTCOTT G FACTOR	1.0050
RESONANCE INTEGRAL TOTAL	$3.5030\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$2.7850\times10^{+3}$

FISSION YIELDS

^{239}PU THERMAL 3.8994×10^{-9}



163 62 Sm
2.56s
β-
163 63 Eu
14.8s
β-
163 64 Gd
92.8s
β-
163 65 Tb
19.5m
β-
163 66 Dy
STABLE

$^{163}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-163 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{163}_{62}$Sm

$T_{1/2}$ =2.563s
$\langle E_\beta \rangle$ PER DECAY =1208.
$\langle E_\gamma \rangle$ PER DECAY =2372.

FISSION YIELDS

^{235}U THERMAL	2.4413×10^{-9}
^{235}U FAST	1.4702×10^{-8}
^{238}U FAST	2.4898×10^{-7}
^{239}PU THERMAL	8.6588×10^{-8}

Q_β =5200.
BR_β =1.000

$^{163}_{63}$Eu

14.84s

163 - 62- 1

$^{163}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-163 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{163}_{63}$Eu

$T_{1/2}$ =14.84s
$\langle E_\beta \rangle$ PER DECAY =1046.
$\langle E_\gamma \rangle$ PER DECAY =1962.

FISSION YIELDS

^{235}U THERMAL	3.0517×10^{-8}
^{235}U FAST	1.8803×10^{-7}
^{238}U FAST	6.2994×10^{-7}
^{239}PU THERMAL	1.9697×10^{-6}

Q_β =4540.
BR_β =1.000

$^{163}_{64}$Gd

92.77s

$^{163}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-163 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{163}_{64}$Gd

$T_{1/2}$ =92.77s
$\langle E_\beta \rangle$ PER DECAY =580.1
$\langle E_\gamma \rangle$ PER DECAY =1087.

FISSION YIELDS

^{235}U THERMAL	6.1333×10^{-8}
^{235}U FAST	3.8006×10^{-7}
^{238}U FAST	2.7597×10^{-7}
^{239}PU THERMAL	6.7490×10^{-6}

Q_β =2630.
BR_β =1.000

$^{163}_{65}$Tb

19.50m

163 - 64- 1

$^{163}_{65}$Tb

ENDF/B-IV FILE 1 COMMENTS
65-TB-163 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{163}_{65}$Tb

$T_{1/2}$ =19.50m
$\langle E_\beta \rangle$ PER DECAY =358.4
$\langle E_\gamma \rangle$ PER DECAY =659.3

FISSION YIELDS

^{235}U THERMAL	4.7826×10^{-9}
^{235}U FAST	3.0805×10^{-8}
^{238}U FAST	4.1296×10^{-9}
^{239}PU THERMAL	9.3187×10^{-7}

Q_β =1680.
BR_β =1.000

$^{163}_{66}$Dy

STABLE OR LONG-LIVED

$^{163}_{66}Dy$

$^{163}_{66}Dy$

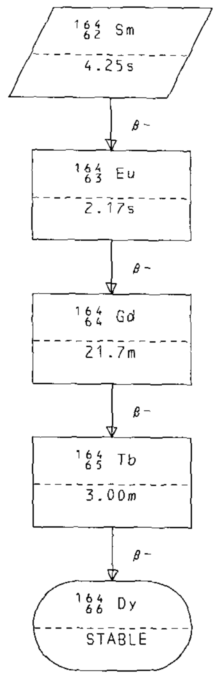
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.3624 \times 10^{+2}$
WESTCOTT G FACTOR	1.0042
σ CAPTURE 2200M/S	$1.3442 \times 10^{+2}$
WESTCOTT G FACTOR	1.0027
RESONANCE INTEGRAL TOTAL	$1.8140 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.4670 \times 10^{+3}$

FISSION YIELDS

^{239}PU THERMAL 1.7897×10^{-8}



$^{164}_{62}$Sm
4.25s
β−
$^{164}_{63}$Eu
2.17s
β−
$^{164}_{64}$Gd
21.7m
β−
$^{164}_{65}$Tb
3.00m
β−
$^{164}_{66}$Dy
STABLE

$^{164}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-164 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{164}_{62}$Sm

$T_{1/2}$ =4.247s
$\langle E_\beta \rangle$ PER DECAY =940.8
$\langle E_\gamma \rangle$ PER DECAY =1997.

FISSION YIELDS

^{238}U FAST	2.3398×10^{-8}
^{239}PU THERMAL	3.9094×10^{-9}

Q_β =4220.
BR_β =1.000

$^{164}_{63}$Eu

2.170s

164 - 62- 1

$^{164}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-164 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{164}_{63}$Eu

$T_{1/2}$ =2.170s
$\langle E_\beta \rangle$ PER DECAY =1578.
$\langle E_\gamma \rangle$ PER DECAY =2832.

FISSION YIELDS

^{235}U THERMAL	3.7020×10^{-9}
^{235}U FAST	3.3005×10^{-8}
^{238}U FAST	1.6098×10^{-7}
^{239}PU THERMAL	2.6796×10^{-7}

Q_β =6500.
BR_β =1.000

$^{164}_{64}$Gd

21.69m

$^{164}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-164 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{164}_{64}$Gd

$T_{1/2}$ =21.69m
$\langle E_\beta \rangle$ PER DECAY =347.3
$\langle E_\gamma \rangle$ PER DECAY =727.3

FISSION YIELDS

^{235}U THERMAL	1.9611×10^{-8}
^{235}U FAST	1.7703×10^{-7}
^{238}U FAST	1.8498×10^{-7}
^{239}PU THERMAL	2.4597×10^{-6}

Q_β =1680.
BR_β =1.000

$^{164}_{65}$Tb

3.000m

$^{164}_{65}$Tb

ENDF/B-IV FILE 1 COMMENTS
65-TB-164 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{164}_{65}$Tb

$T_{1/2}$ =3.000m
$\langle E_\beta \rangle$ PER DECAY =872.8
$\langle E_\gamma \rangle$ PER DECAY =1490.

FISSION YIELDS

^{235}U THERMAL	4.1723×10^{-9}
^{235}U FAST	3.8706×10^{-8}
^{238}U FAST	8.1193×10^{-9}
^{239}PU THERMAL	8.9987×10^{-7}

Q_β =3790.
BR_β =1.000

$^{164}_{66}$Dy

STABLE OR LONG-LIVED

$^{164}_{66}Dy$

$^{164}_{66}Dy$

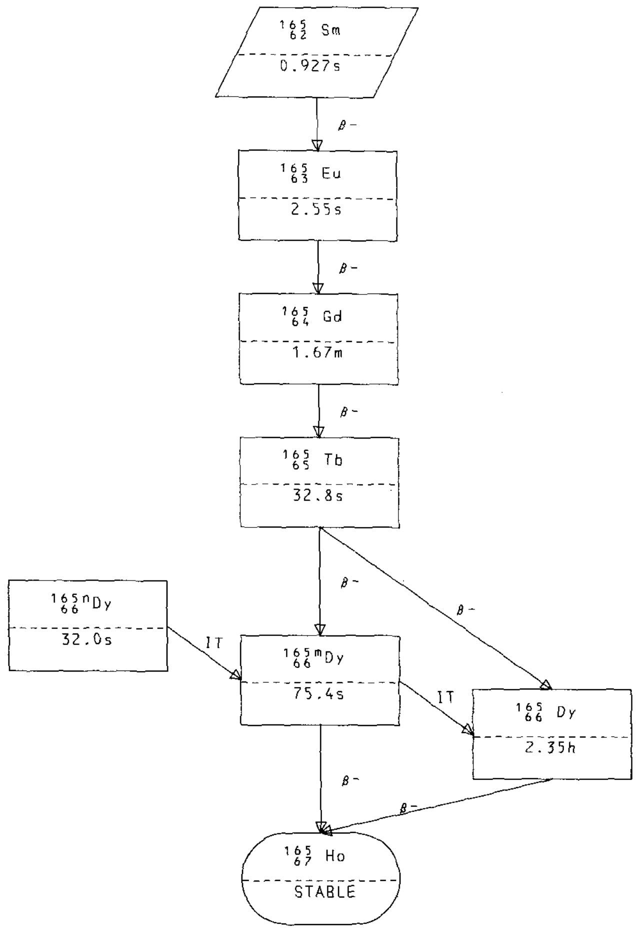
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.9090 \times 10^{+3}$
WESTCOTT G FACTOR	1.0031
σ CAPTURE 2200M/S	$2.5200 \times 10^{+3}$
WESTCOTT G FACTOR	9.8763×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.0360 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$3.2850 \times 10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.2240
RESONANCE INTEGRAL (N,P)	1.0130×10^{-3}
RESONANCE INTEGRAL (N,α)	4.5310×10^{-3}

FISSION YIELDS

^{235}U FAST	1.2402×10^{-9}
^{239}PU THERMAL	5.1693×10^{-8}


$^{165}_{62}$Sm
0.927s
β-
$^{165}_{63}$Eu
2.55s
β-
$^{165}_{64}$Gd
1.67m
β-
$^{165}_{65}$Tb
32.8s
β-
β-
$^{165n}_{66}$Dy
32.0s
IT
$^{165m}_{66}$Dy
75.4s
IT
$^{165}_{66}$Dy
2.35h
β-
β-
$^{165}_{67}$Ho
STABLE

$^{165}_{62}$Sm

ENDF/B-IV FILE 1 COMMENTS
62-SM-165 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{165}_{62}$Sm

$T_{1/2}$ =.9274s
$\langle E_\beta \rangle$ PER DECAY =1458.
$\langle E_\gamma \rangle$ PER DECAY =2931.

FISSION YIELDS

^{238}U FAST	1.6598×10^{-9}

Q_β =6160.
BR_β =1.000

$^{165}_{63}$Eu

2.548s

$^{165}_{63}$Eu

ENDF/B-IV FILE 1 COMMENTS
63-EU-165 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{165}_{63}$Eu

$T_{1/2}$ =2.548s
$\langle E_\beta \rangle$ PER DECAY =1287.
$\langle E_\gamma \rangle$ PER DECAY =2494.

FISSION YIELDS

^{235}U FAST	3.8106×10^{-9}
^{238}U FAST	3.2697×10^{-8}
^{239}PU THERMAL	2.5096×10^{-8}

Q_β =5510.
BR_β =1.000

$^{165}_{64}$Gd

1.670m

$^{165}_{64}$Gd

ENDF/B-IV FILE 1 COMMENTS
64-GD-165 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{165}_{64}$Gd

$T_{1/2}$ =1.670m
$\langle E_\beta \rangle$ PER DECAY =777.6
$\langle E_\gamma \rangle$ PER DECAY =1549.

FISSION YIELDS

^{235}U THERMAL	8.0944×10^{-9}
^{235}U FAST	5.6109×10^{-8}
^{238}U FAST	9.8891×10^{-8}
^{239}PU THERMAL	6.4791×10^{-7}

Q_β =3550.
BR_β =1.000

$^{165}_{65}$Tb

32.75s

165 - 64- 1

$^{165}_{65}$Tb

ENDF/B-IV FILE 1 COMMENTS
65-TB-165 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{165}_{65}$Tb

$T_{1/2}$ =32.75s
$\langle E_\beta \rangle$ PER DECAY =585.6
$\langle E_\gamma \rangle$ PER DECAY =1117.

FISSION YIELDS

^{235}U THERMAL	4.5525×10^{-9}
^{235}U FAST	3.2105×10^{-8}
^{238}U FAST	1.1999×10^{-8}
^{239}PU THERMAL	6.2191×10^{-7}

Q_β =2652.
BR_β =.5000

$^{165m}_{66}$Dy

75.36s

Q_β =2760.
BR_β =.5000

$^{165}_{66}$Dy

2.350h

$^{165n}_{66}Dy$

ENDF/B-IV FILE 1 COMMENTS
66-DY-165N HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{165n}_{66}Dy$

$T_{1/2}$ =32.00s
$\langle E_\gamma \rangle$ PER DECAY =250.0

Q_{IT}=250.0
BR_{IT}=1.000

$^{165m}_{66}Dy$

75.36s

$^{165m}_{66}Dy$

ENDF/B-IV FILE 1 COMMENTS
66-DY-165M HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{165m}_{66}Dy$

$T_{1/2}$ =75.36s
$\langle E_\beta \rangle$ PER DECAY =7.300
$\langle E_\gamma \rangle$ PER DECAY =119.1

FISSION YIELDS

^{235}U FAST	1.5002×10^{-9}
^{239}PU THERMAL	5.0493×10^{-8}

Q_β =1408.
BR_β =.02500

Q_{IT}=108.0
BR_{IT}=.9750

$^{165}_{67}Ho$

STABLE OR LONG-LIVED

$^{165}_{66}Dy$

2.350h

$^{165}_{66}$Dy

ENDF/B-IV FILE 1 COMMENTS
66-DY-165 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{165}_{66}$Dy

$T_{1/2}$ =2.350h
$\langle E_\beta \rangle$ PER DECAY =269.6
$\langle E_\gamma \rangle$ PER DECAY =511.4

FISSION YIELDS

^{235}U FAST	1.5002×10^{-9}
^{239}PU THERMAL	5.0493×10^{-8}

Q_β =1300.
BR_β =1.000

$^{165}_{67}$Ho

STABLE OR LONG-LIVED

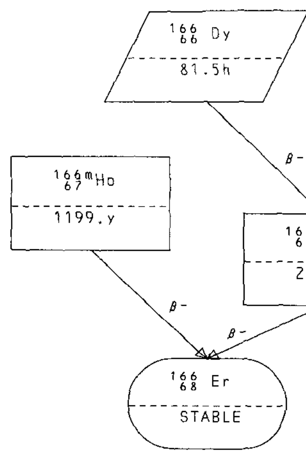
$^{165}_{67}$*Ho*

$^{165}_{67}$Ho

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$6.9544\times10^{+1}$
WESTCOTT G FACTOR	1.0073
σ CAPTURE 2200M/S	$6.6512\times10^{+1}$
WESTCOTT G FACTOR	1.0019
RESONANCE INTEGRAL TOTAL	$1.1540\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$7.6210\times10^{+2}$


$^{166}_{66}$Dy
81.5h
β-
$^{166m}_{67}$Ho
1199.y
$^{166}_{67}$Ho
26.8h
β-
β-
$^{166}_{68}$Er
STABLE

$^{166}_{66}$Dy

ENDF/B-IV FILE 1 COMMENTS
66-DY-166 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{166}_{66}$Dy

$T_{1/2}$ =81.50h
$\langle E_\beta \rangle$ PER DECAY =117.5
$\langle E_\gamma \rangle$ PER DECAY =80.00

FISSION YIELDS
^{235}U FAST 7.7112x10^{-9}
^{239}PU THERMAL 1.6398x10^{-7}

Q_β =481.0
BR_β =1.000

$^{166}_{67}$Ho

26.80h

166 - 66- 1

$^{166m}_{67}$Ho

ENDF/B-IV FILE 1 COMMENTS
67-HO-166M HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{166m}_{67}$Ho

$T_{1/2}$ =1199.y
$\langle E_\beta \rangle$ PER DECAY =442.7
$\langle E_\gamma \rangle$ PER DECAY =787.3

FISSION YIELDS
^{239}PU THERMAL 1.2198x10^{-9}

Q_β =2090.
BR_β =1.000

$^{166}_{68}$Er

STABLE OR LONG-LIVED

$^{166}_{67}$Ho

ENDF/B-IV FILE 1 COMMENTS
67-HO-166 HEDL EVAL-APR74 R.E.SCHENTER
DIST-DEC74

$^{166}_{67}$Ho

$T_{1/2}$ =26.80h
$\langle E_\beta \rangle$ PER DECAY =389.7
$\langle E_\gamma \rangle$ PER DECAY =693.1

FISSION YIELDS
^{239}PU THERMAL 1.2198x10^{-9}

Q_β =1840.
BR_β =1.000

$^{166}_{68}$Er

STABLE OR LONG-LIVED

$^{166}_{68}$Er

$^{166}_{68}$Er

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.8562x10^{+1}
WESTCOTT G FACTOR	1.0129
σ CAPTURE 2200M/S	3.4969x10^{+1}
WESTCOTT G FACTOR	1.0011
RESONANCE INTEGRAL TOTAL	3.7090x10^{+2}
RESONANCE INTEGRAL CAPTURE	1.4080x10^{+2}