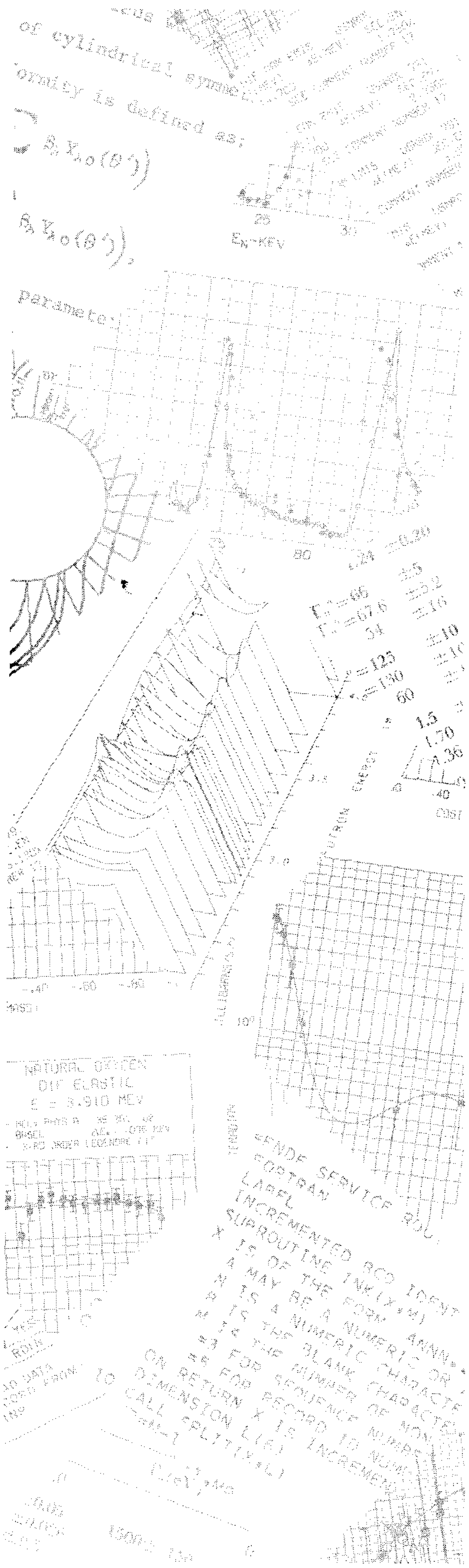

BNL-NCS-50545
(ENDF-243)
Volume I

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

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(Physics, Nuclear - TID-4500)

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BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UNDER CONTRACT NO. EY-76-C-02-0016 WITH THE
UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

Printed in the United States of America
Available from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Price: Printed Copy $11.75; Microfiche $3.00

March 1977 800 copies

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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 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 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 three 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.

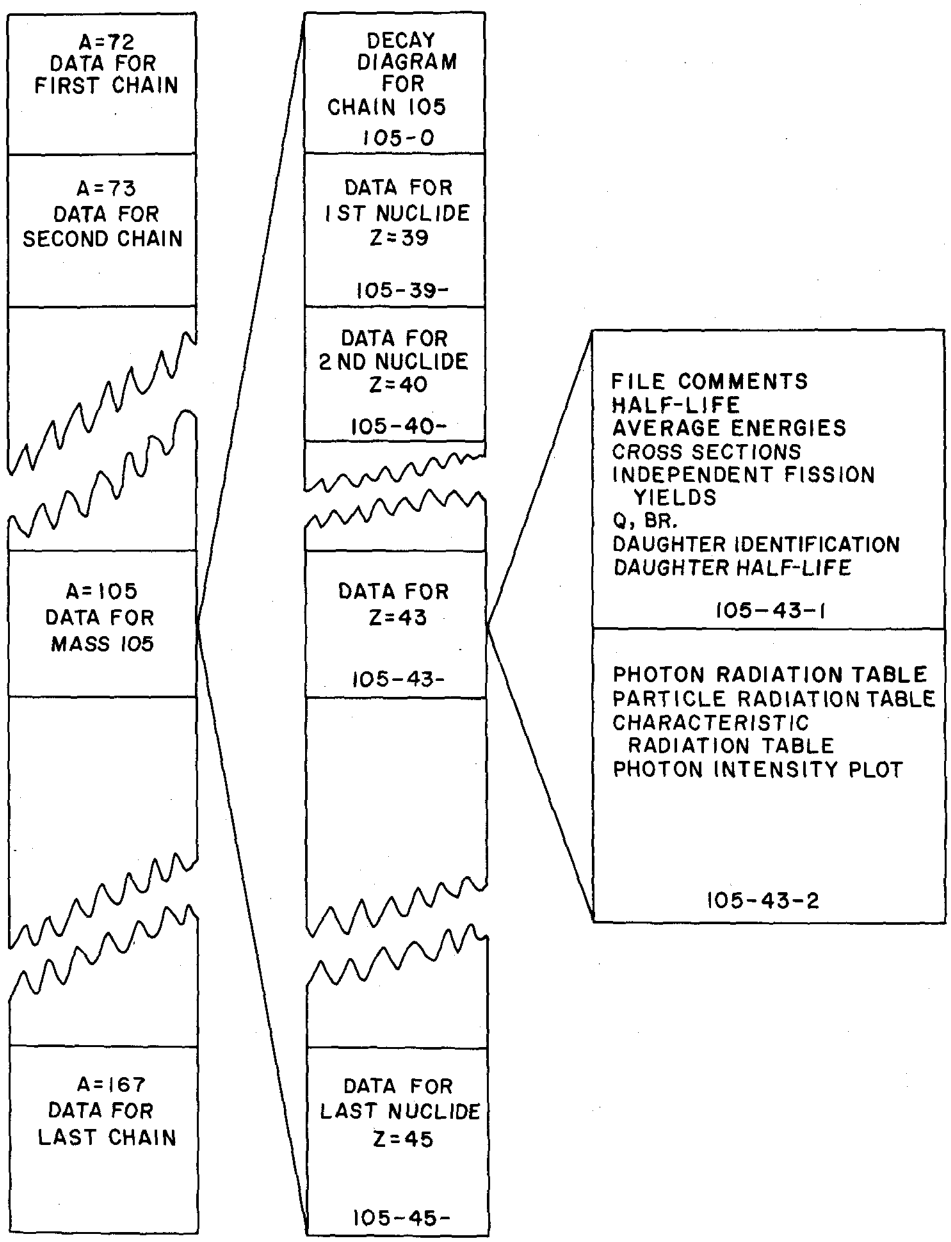

Figure 1. Arrangement of publication and configuration of page numbers.

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)

CALCULATIONAL TECHNIQUES AND ASSUMPTIONS

Conversion Electrons

For many of the decay data files, no total internal conversion coefficients were given and therefore no attempt was made to calculate the conversion-electron or x-ray intensities.

In cases for which the total conversion coefficients were included in $MT=457$, an attempt was made to assign a multipolarity to the γ ray. This assignment is necessary to calculate internal conversion-electron energies and intensities and x-ray and Auger-electron intensities. Since the total conversion coefficient is relatively insensitive to the multipolarity, three simplifying assumptions were made. (1) The transitions were assumed to be pure. (2) If the photon intensity approached zero and the total conversion coefficient was very large, the transition was assumed to be $E0$. (3) It was assumed that $E2$ transitions were most probable, followed in decreasing order of probability by $M1$, $E1$, $E3$, $M2$, $M3$, $E4$, $M4$, $E5$, and $M5$ transitions. The total conversion coefficient from ENDF was compared with values interpolated from the Hager and Seltzer[4] and Trusov[5] tables for each transition in order of probability. If the two values agreed within the given uncertainty, or within 10% where no uncertainty was given, that multipolarity was assigned. In Table 2 the multipolarities selected by the above procedure are compared with the adopted value found in the *Nuclear Data Sheets* or the *Table of Isotopes*. This difficulty in obtaining multipolarities and the K-, L-, and M-shell coefficients has been resolved in the specification of Fission Product Data for ENDF/B-V.

Once a multipolarity was assigned the K, L, and M conversion-electron intensities were calculated, along with the K-, L_1-, L_2-, L_3-, and M-shell vacancies. These values were obtained by interpolation of the Hager-Seltzer,[4] Ewbank,[6] and Trusov[5] tables. The energies of the L and M conversion electrons were assumed to be those for the L_1 and M_1 conversion electrons (binding energies from Appendix 3, *Table of Isotopes*[7]). This assumption introduced an error which is small compared with the uncertainty in the transition energy.

Since there was also an ambiguity in the file as to whether the intensity given for each γ ray was the total transition intensity or the γ ray intensity, a further test was made in the case of isomeric transitions to determine the type of intensity given.

Table 2
Comparison of Multipolarity Assignments by RADAT
With Values Obtained From the Literature*

Parent nucleus	E_γ (keV)	RADAT multipolarity	Multipolarity from *Table of Isotopes*	Multipolarity from *Nuclear Data Sheets*
$^{85m}_{36}$Kr	150.99	$M1$	$M1+0.4\%\ E2$	
	304.47	$M4$		
$^{90m}_{37}$Rb	106.4	$M3$		$(M3)$
$^{90m}_{39}$Y	202.4	$M1$	$M1\ (+E2)$	$M1+7.3\%\ E2$
	482.0	$M4$	$(M4)$	$M4$
$^{90}_{39}$Y	1761.0	$E0$	$E0$	$E0$
$^{90m}_{40}$Zr	132.595	$E3$	$E3$	$E3$
$^{91m}_{39}$Y	555.6	$M4$	$M4$	$M4$
$^{93}_{39}$Y	266.9	$E2$		$60\%\ E2+40\%\ M1$
$^{95}_{40}$Zr	724.184	$E2$	$M1+E2$	$M1+E2$
	756.786	$E2$	$M1+E2$	$M1+E2$
$^{95m}_{41}$Nb	235.6	$M4$	$(M4)$	$M4$
$^{97m}_{41}$Nb	743.	$M4$	$M4$	$M4$
$^{99}_{42}$Mo	40.584	$M1$		$M1$
	140.511	$M1$	$M1\ (+E2)$	$M1+E2$
	181.06	$E2$		$E2$
$^{99m}_{43}$Tc	2.15	$E3$	$E3$	$E3$
$^{103}_{44}$Ru	53.274	$M1$		$M1$
	114.65	$M1$		$M1+(E2)$
$^{105}_{44}$Ru	149.2	$E1$		$M1+E2$
	163.6	$E2$		$(M1+E2)$
	262.9	$E2$		$(M1)$
	316.5	$E2$		$(E1)$
	326.1	$E2$		$M1$
	330.9	$E2$		$M1$
	350.2	$E2$		$(E1)$
	393.4	$E2$		$(M1, E2)$
	413.5	$E2$		$E1$
	469.4	$E2$		$M1, E2$
	470.0	$E2$		
	499.2	$E2$		
	500.4	$E2$		
$^{105}_{44}$Ru	575.3	$E2$		$M1, E2$
	656.1	$E2$		$M1, E2$
	676.4	$E1$		$E1$
	875.8	$E2$		$M1, E2$
	969.4	$E2$		$M1, E2$
$^{105m}_{45}$Rh	129.7	$E3$	$E3$	$E3$
$^{111m}_{46}$Pd	172.2	$M1$		$E3$
$^{111}_{46}$Pd	70.5	$E2$		$(M1)$
$^{125}_{50}$Sn	331.9	$E2$		$M1+E2$

Table 2 (Cont'd.)

Parent nucleus	E_γ (keV)	RADAT multipolarity	Multipolarity from *Table of Isotopes*	Multipolarity from *Nuclear Data Sheets*
$^{125}_{51}Sb$	35.46	$M1$	$M1+0.04\%\ E2$	$M1+<0.1\%\ E2$
	116.94	$E2$		$(E1)$
	176.29	$M1$	$M1(+E2)$	$M1+30\%\ E2$
	380.5	$E2$	$M1, E2$	$E2$
	427.9	$E2$	$E2\ (+M1)$	$E2+40\%\ M1$
$^{125m}_{52}Te$	35.46	$M1$	$M1+0.04\%\ E2$	$M1+<0.1\%\ E2$
	109.27	$M4$	$M4$	$M4$
$^{131m}_{54}Xe$	163.93	$M4$	$M4$	$M4$
$^{132}_{50}Sn$	85.5	$E2$		$M1$
	246.7	$E2$		$M1, E2$
	340.2	$E2$		$M1, E2$
$^{132}_{52}Te$	49.72	$M1$	$M1$	$M1$
	111.76	$M1$		$M1, (E2)$
	116.3	$E2$		$M1, (E2)$
	228.16	$E2$		$E2$
$^{133m}_{54}Xe$	232.9	$M4$	$M4$	$M4$
$^{133}_{54}Xe$	79.62	$E2$	$M1\ (+E2)$	$M1\ (+1.7\%\ E2)$
	80.997	$M1$	$M1+2.6\%\ E2$	$M1\ (+2.9\%\ E2)$
	160.63	$E2$	$M1+E2$	$M1+E2$
$^{134}_{50}Sn$	115.2	$E2$		
	297.	$E2$		
$^{134}_{52}Te$	79.5	$M1$		$(M1+E2$ or $E1+M2)$
$^{134}_{52}Te$	181.1	$E2$		(dipole or quadrupole)
	201.5	$E2$		
	210.8	$E2$		
	278.1	$E2$		
$^{135m}_{54}Xe$	526.62	$M4$	$M4$	$M4$
$^{135}_{54}Xe$	249.741	$E2$		$M1+E2$
$^{137}_{54}Xe$	455.38	$E2$		
$^{137m}_{56}Ba$	661.645	$M4$	$M4$	$M4$
$^{139}_{56}Ba$	165.8	$E2$	$M1+<0.4\%\ E2$	$M1$
$^{140}_{56}Ba$	13.85	$M1$	$M1, <0.1\%\ E2$	$M1$
	29.96	$M1$	$M1, <0.1\%\ E2$	$M1$
	132.7	$E2$		$M1+(<2\%\ E2)$
	162.9	$E2$	$M1, <2\%\ E2$	$M1+(<0.6\%\ E2)$
	304.82	$E2$	$(E2)$	$M1+(<15\%\ E2)$
	537.38	$E2$		$M1$
$^{143}_{58}Ce$	57.365	$M1$	$M1, <0.3\%\ E2$	$M1\ (+E2)$
	231.559	$E2$		$M1+E2$
	293.262	$E2$	$M1+\sim 34\%\ E2$	$M1+E2$
	350.587	$E2$		$E2$.

Table 2 (Cont'd.)				
Parent nucleus	E_γ (keV)	RADAT multipolarity	Multipolarity from *Table of Isotopes*	Multipolarity from *Nuclear Data Sheets*
$^{151}_{60}$Nd	31.77	$M1$		
	58.4	$E2$		
	69.06	$E2$		
	80.83	$E2$		
	85.18	$E2$		
	90.01	$E2$		
	101.94	$E2$		
	102.5	$E2$		
	116.76	$E2$	$(M1)$	
	138.95	$E2$		
	149.65	$E2$		
	170.61	$E2$		
	170.77	$E2$		
	175.0	$E1$		
	183.19	$E2$		
	255.7	$E2$		
	300.58	$E1$		
	324.65	$E2$		
	402.37	$M1$		
	423.55	$M1$		
$^{153}_{61}$Pm	28.3	$M1$		$E1$
	35.9	$M1$		$E1$
	83.3	$E2$		$E1$
	91.0	$E2$		$E1$
	119.5	$E2$		$E1$
	127.3	$E2$		$E1$
	129.3	$E2$		$E1$
	147.3	$E2$		
	175.3	$M1$		$E1$
	183.0	$E1$		$E1$
$^{153}_{62}$Sm	69.672	$E2$	$M1+1.9\%\ E2$	$M1+E2$
	83.367	$E2$	$M1+36\%\ E2$	$M1+E2$
	89.484	$E2$	$M1+{\sim}2\%\ E2$	$M1+E2$
	97.43	$E1$	$E1$	$E1$
	103.179	$E2$	$M1+1.7\%\ E2$	$M1+E2$

*Parentheses indicate tentative assignment.

Beta and Positron Decay

For allowed or unknown transitions, $\bar{E}_\beta$ and $\bar{E}_\nu$ were calculated with use of the approximation[2]

$$\bar{E}_\beta=(E_\beta/4)\frac{10+8x+2x^2}{10+5x+x^2}$$

and

$$\bar{E}_\nu=E_\beta-\bar{E}_\beta,$$

where x ($\equiv E_\beta/511.$) is the β-ray end-point energy (in m_0c^2 units). For the first-forbidden unique transitions noted in the ENDF/B-IV comments,, the more exact approach of Gove and Martin[8] was employed to calculate the average energies. For positron decay, the electron-capture to positron ratio was calculated from the Gove and Martin tables.[7]

X-Ray and Auger-Electron Yields

1. The x-ray fluorescence and Auger-electron yields were calculated by interpolating the tables of Bambynek et al.[9]

2. In the case of electron capture the following equations[7] were employed to obtain the L-subshell vavancies:

(a) for allowed and nonunique transitions,

$$L_1/K=k_1(Z)[E_{EC}-E_{EB}(L_1)]^2/[E_{EC}-E_{EB}(K)]^2;$$

(b) for the first-forbidden unique transitions,

$$L_1/K=k_1(Z)[E_{EC}-E_{EB}(L_1)]^4/[E_{EC}-E_{EB}(K)]^4;$$

(c) for allowed and nonunique transitions,

$$L_3/L_1=0;\text{ and}$$

(d) for the first-forbidden unique transitions,

$$L_3/L_1=k_3(Z)[E_{EC}-E_{EC}(L_3)]^2/[E_{EC}-E_{EB}(L_1)]^4,$$

where E_{EC} is the electron-capture energy and E_{EB} is the electron binding energy. Here $k_1(Z)$ and $k_3(Z)$, as well as the nonunique L_2 and M vacancies, were obtained from Figure 4 of ref. 7.

3. The total M-shell vacancies were calculated from the L-subshell vacancies and K- and M-shell vacancy calculations described above. Note that, because of the simplifying assumptions described in the section on conversion electrons and the lack of theory or systematics for M-shell fluorescence and Auger-electron yields, the values for the M-shell yield should be considered approximate and in many cases have been omitted from the present tables.

Average Energies

The average energy per decay listed in the decay scheme will often differ from the average energies given in the tables for several reasons:

1. In ENDF/B-IV, $\langle E_\beta \rangle$ includes the energy contributed by delayed neutron emission, and in most cases $\langle E_\gamma \rangle$ is the average transition energy per decay. The authors have listed the average energies for each type of radiation separately in the tables.

2. In many cases the evaluators have corrected the average energies for internal conversion, positron emission, and atomic processes, but have failed to include the appropriate information, e.g., the total conversion coefficients needed by the authors to reproduce these corrections.

Therefore, when the tables contain no information on conversion electrons, delayed neutrons, x rays, etc., use of the values from ENDF/B-IV shown on the decay schemes is recommended. Where additional information is available, however, the values given in the tables should be used.

The average neutrino energy has been included here so that the Q-value can be easily calculated from the sum of the average energies.

Uncertainties

The uncertainties have been treated in a consistent manner throughout the calculations. If the decay data file did not include uncertainties, no uncertainties have been assigned to values derived from the data. Uncertainties have been assigned to calculated values such as conversion coefficients or shell populations due to electron capture on one of two bases: (1) If the author quoted an uncertainty, this was used. (2) If no uncertainty was quoted, an attempt was made to estimate a value on the basis of the fit to experimental data. Note that no uncertainties have been quoted for x-ray or Auger-electron energies since the electron-binding energies, in contrast to nuclear transition energies, are well known ($\sim$1 eV uncertainty).

The number of significant digits shown on all the decay schemes and tables is associated with the uncertainty in the quantity. When the uncertainty is $\leqslant 25$ units of the last significant digit of the quantity, the uncertainty is shown to two significant figures and the quantity to the equivalent number of significant figures. For uncertainties >25 units, only one significant figure has been retained in the uncertainty, and the appropriate number of significant figures in the quantity. If no uncertainty is given the quantity is automatically truncated at four significant figures.

Energy and Branching Ratio Checks

For each nucleus the branching ratios were checked to see that they summed to unity within uncertainties. For each nucleus that had spectral information listed, the total energy was calculated and compared with the Q-value. If the branching ratios or total energy did not check, this was noted in the following section. However, no attempt was made to adjust values for agreement, since it was decided that the publication should represent the present state of the ENDF/B-IV data files.

Computer Program

The procedures in this section were completely computerized in a program package called RADAT. The only intervention by the authors was the inclusion of a transition type for β and EC decay and the inclusion of missing fission product nuclei.

DEFICIENCIES AND OMISSIONS

Certain fission product nuclei that were missing from the ENDF/B-IV files have been superficially included in this publication. The conditions for inclusion were (1) the maximum independent yield of a missing fission product, or the maximum yield of its parent, was $\geqslant 1.0\times10^{-9}$; (2) the half-life was known from measurement; and (3) the parent was in the files. The isotopes that were added are listed in Table 3.

Table 3
Missing Nuclides

${}^{84m}_{37}Rb$	${}^{115}_{49}In$	${}^{133}_{54}Xe$
${}^{84}_{37}Rb$	${}^{126}_{53}I$	${}^{137}_{57}La$
${}^{84}_{38}Sr$	${}^{126}_{54}Xe$	${}^{138}_{58}Ce$
${}^{88}_{39}Y$	${}^{132}_{55}Cs$	${}^{167}_{66}Dy$
${}^{114}_{50}Sr$	${}^{132}_{56}Ba$	${}^{167}_{67}Ho$

In addition, note that $A=168$ nuclei were completely neglected in ENDF/B-IV, although several members of this chain satisfy the conditions for inclusion. Also, there is no $MT=457$ for ${}^{99}_{43}Te$, although $T_{1/2}=2.13\times10^5\,y$ on the *Chart of the Nuclides*.

Table 4 presents a comparison of calculated *Q*-values or average energies with ENDF/B-IV tabulations for cases in which results do not agree within one standard deviation. This table is similar to Tables 3 to 5 compiled by England and Schenter.[3]

England and Schenter[3] have pointed out that ${}^{98}_{40}Zr$ decays completely to the 2.8-sec ground state of ${}^{98}_{40}Nb$ rather than the 51-min metastable state as indicated in the files. This error significantly affects decay heat studies.

Omission of the γ normalization factor noted by England and Schenter[3] for ${}^{104m}_{45}Rh$ was deliberate on the part of the evaluators because of serious problems in the decay scheme. The authors note, in addition to typographical errors in the spectra pointed out by England and Schenter, the omission of an important low-energy transition. This 31.86-keV transition has a relative γ intensity of $(9.5\pm0.5)\times10^{-3}$ and a total conversion coefficient of 2.75×10^4.

The authors also note that for ${}^{134m}_{53}I$, ${}^{134}_{55}Cs$, and ${}^{144m}_{59}Pr$, corrections for internal conversion are important. These corrections would increase $\langle E_e\rangle$ and $\langle E_{\rm photon}\rangle$. However, the information in the file is insufficient to make these corrections.

Table 4
Comparison of Calculated Q-Values or Average Energies
With ENDF/B-IV Tabulations for Cases in Which Results Do Not Agree
Within One Standard Deviation (all energies in keV)

Nuclide	MAT	Tape	Q^a_{calc}	Q^b	$\langle E_e \rangle_{\mathrm{calc}}$	$\langle E_\beta \rangle$	$\langle E_{\mathrm{photon}} \rangle_{\mathrm{calc}}$	$\langle E_\gamma \rangle$	Note[c]
$^{83}_{34}$Se	95	414	3744	(3578 ± 30)					1
$^{85m}_{36}$Kr	139	414	845.3	(846 ± 14)	(252 ± 8)	226.1	(157 ± 4)	183.2	2
$^{87}_{35}$Br	121	414	6461	6526					3
$^{90m}_{37}$Rb	160	414	6230	(6110 ± 67)					4
$^{90m}_{39}$Y	195	414	684.9	(685 ± 6)	49.4	0.88	634.1	682.5	2
$^{90}_{39}$Y	194	414	2279.4	(2280 ± 3)	(931 ± 30)	931.0	1.16×10^{-9}	0.28	2
$^{90m}_{40}$Zr	216	415	2315	(2318.7 ± 0.4)	(15.7 ± 0.4)	0	(2290 ± 240)	2315	2
$^{91}_{36}$Kr	145	414	6363	(6120 ± 70)					5
$^{91}_{37}$Rb	161	414	5817	(5680 ± 40)					6
$^{91}_{38}$Sr	178	414	2354	(2363 ± 4)					7
$^{91m}_{39}$Y	197	414	555.2	555.6	28.5	0	527.2	555.2	2
$^{94}_{39}$Y	201	415	4905	(4860 ± 15)					8
$^{95m}_{41}$Nb	241	415	235.5	235.6	166.3	0	69.5	235.5	2
$^{97}_{39}$Y	204	415	5735	(5609 ± 198)					9,10
$^{97}_{40}$Zr	223	415	1972	2032					11
$^{97m}_{41}$Nb	244	415	742.7	743	15.8	0	728.4	742.7	2
$^{98m}_{41}$Nb	246	415	4600	(4600 ± 200)	848.1	848.1	2491	2515	12
$^{99}_{42}$Mo	269	415	1252	(1233.5 ± 10)	(390 ± 12)	384.7	(176 ± 4)	186.1	2
$^{99m}_{43}$Tc	287	415	142.7	(142.63 ± 0.03)	(16.8 ± 0.7)	0	(127.1 ± 0.4)	142.7	2
$^{101}_{42}$Mo	271	415	2921	(2823 ± 25)					13
$^{102}_{43}$Tc	290	415	3932	(4150 ± 100)					14
$^{105}_{44}$Ru	314	415	1930	(1883 ± 4)	(415 ± 17)	412.6	(783 ± 16)	787.7	15
$^{105m}_{45}$Rh	335	415	129.7	(129.7 ± 0.2)	94.7	0	34.5	129.7	2
$^{111m}_{46}$Pd	368	415	851	(861 ± 16)	226.1	167.1	362.8	421.4	2
$^{125m}_{50}$Sn	497	416	2330	(2389 ± 8)	805.4	798.0	(330.4 ± 1.1)	345.9	2,16

Table 4 (Cont'd.)

Nuclide	MAT	Tape	Q^a_{calc}	Q^b	$\langle E_e \rangle_{calc}$	$\langle E_\beta \rangle$	$\langle E_{photon} \rangle_{calc}$	$\langle E_\gamma \rangle$	Note[c]
$^{125}_{51}Sb$	518	416	739.2	(732.6 ± 2.0)	87.33	86.86	(424 ± 7)	452.1	2, 17
$^{125m}_{52}Te$	543	416	143.8	(144.73 ± 0.04)	107.0	0	34.7	143.8	2, 18
$^{129}_{51}Sb$	524	416	2286	(2351 ± 21)					19
$^{129m}_{52}Te$	549	416	588.4	655.2					9, 11
$^{129}_{52}Te$	548	416	1487	(1502 ± 6)					11
$^{130m}_{51}Sb$	526	416	5099	(5900 ± 300)					9, 20
$^{131}_{51}Sb$	527	416	3503	3388					3, 9
$^{131}_{52}Te$	551	416	2139	(2249 ± 6)					21
$^{131m}_{54}Xe$	593	417	167.5	163.93	145.8	0	(20 ± 4)	167.5	2
$^{132}_{50}Sn$	506	416	3018	(3020 ± 200)	(684 ± 80)	660.3	(1253 ± 30)	1323	2
$^{132}_{52}Te$	553	416	484	(505 ± 15)	(81 ± 3)	60.05	(185 ± 10)	268.6	2, 22
$^{132}_{53}I$	571	416	3621	(3580 ± 20)					23
$^{133}_{51}Sb$	530	416	4573	(3943 ± 30)					9, 24
$^{133m}_{54}Xe$	596	417	232.7	(232.9 ± 0.3)	191.4	0	(41 ± 4)	232.7	2
$^{133}_{54}Xe$	595	417	426.9	(427 ± 3)	≈117	101.9	≈17	81.44	2, 25
$^{134m}_{51}Sb$	532	416	8490	(8483 ± 300)	2988	2094	1994	2954	2
$^{134}_{52}Te$	556	416	1314	1400	175	152.1	(761 ± 24)	825.0	3, 2
$^{134}_{53}I$	574	416	4348	(4150 ± 60)					21
$^{134}_{55}Cs$	614	417	2079	(2058.5 ± 0.4)					21
$^{135}_{53}I$	576	416	2541	(2638 ± 34)					26
$^{135m}_{54}Xe$	600	417	526.8	(526.26 ± 0.03)	97.3	0	(432 ± 3)	526.8	2
$^{136}_{55}Cs$	618	417	2551.8	(2243.9 ± 2.0)					9
$^{137m}_{56}Ba$	640	417	662.0	616.45	67	0	(598 ± 3)	662.2	2
$^{138m}_{55}Cs$	621	417	4826	(5360 ± 70)					9, 27
$^{139}_{54}Xe$	604	417	4960	(4880 ± 60)	(1787 ± 160)	1787	(928 ± 11)	927.5	28
$^{139}_{56}Ba$	642	417	2256	(2254 ± 17)	906.7	897.3	36.5	52.29	2
$^{140}_{55}Cs$	623	417	6454	(6300 ± 100)					21
$^{140}_{56}Ba$	643	417	1033	(1035 ± 10)	290.3	280.3	(172 ± 7)	216.9	2, 29

Table 4 (Cont'd.)

Nuclide	MAT	Tape	Q^{a}_{calc}	Q^{b}	$\langle E_e \rangle_{calc}$	$\langle E_\beta \rangle$	$\langle E_{photon} \rangle_{calc}$	$\langle E_\gamma \rangle$	Note[c]
$^{140}_{57}La$	658	417	3577	(3770.8 ± 2.0)					21
$^{141}_{56}Ba$	644	417	3131	(3030 ± 50)					21
$^{142}_{57}La$	660	417	4847	(4517 ± 6)					9, 30
$^{144}_{58}Ce$	678	417	316	(314.8 ± 15)	(83.0 ± 23)	82.96	(16.0 ± 0.9)	28.87	31
$^{145}_{58}Ce$	679	417	2377	(2490 ± 100)					32
$^{146}_{59}Pr$	699	418	3885	(4080 ± 100)					33
$^{147}_{60}Nd$	718	418	841	(894.5 ± 1.0)					34
$^{148m}_{61}Pm$	735	418	2478	(2454 ± 9)					35
$^{148}_{61}Pm$	734	418	2491	(2465 ± 10)					36
$^{149}_{60}Nd$	720	418	1613	(1680 ± 7)					37
$^{151}_{61}Pm$	738	418	1207	(1188 ± 10)					38
$^{152m}_{61}Pm$	740	418	2345	(3600 ± 100)					9, 39
$^{153}_{62}Sm$	759	418	803	(809 ± 4)	248	230.7	(17.86 ± 0.24)	104.5	2, 40
$^{156}_{63}Eu$	779	419	2435	(2453 ± 9)					21

[a] Based on tabulated average energies.
[b] Tabulated Q-values weighted by branching ratios.
[c] See Notes to Table 4.

NOTES TO TABLE 4

1. D. C. Kocher [*Nucl. Data Sheets* **15**, 169 (1975)] notes that the Q-value is not well established and adopts a value of (3700 ± 20) keV based on ${}^{83m}_{34}\mathrm{Se}$ and ${}^{83}_{34}\mathrm{Se}$ β-decay and ${}^{82}\mathrm{Se}(d,p)$ data.

2. The calculated average energies were adjusted for internal conversion.

3. The Q-value from the Wapstra-Gove mass tables is based on systematics. The estimated precision of systematic values is from a few hundred keV to ~1 MeV.

4. Clifford notes that the Mason data are inconsistent with the Q-value, which results in a value ≈800 keV too low. D. C. Kocher [*Nucl. Data Sheets* **16**, 55 (1975)] states that there has been no reliable measurement of the intensity of the 106.4-keV γ ray. Thus it is difficult to estimate the isomeric transition branching ratio. There are also difficulties in ascertaining which γ rays are from ${}^{90m}_{37}\mathrm{Rb}$ decay and which from ${}^{90}_{37}\mathrm{Rb}$ decay and in determining the percentage of the γ intensity for each decay mode.

$$\text{Arbitrary solution:}\quad \mathrm{BR}_{\mathrm{IT}} = 0.03, \qquad \mathrm{BR}_{\beta} = 0.97.$$

5. As the evaluators note, the γ-intensity normalization is uncertain. Since the β-intensity normalization depends on the γ intensities, it also should be considered uncertain. The evaluators have apparently obtained the β energies by using the Clifford Q-value and the adopted decay scheme from the *Nuclear Data Sheets*. Note that (a) the Clifford Q-value depends upon a different decay scheme, and (b) the various measured β energies quoted in the *Nuclear Data Sheets* disagree with the values quoted by the evaluators. In regard to the evaluators' assumption of no direct feeding of the ${}^{91}\mathrm{Rb}$ ground state, the Clifford data suggest the possibility of some direct feeding. A recent paper by Achterberg et al. [*Phys. Rev. C* **9**, 299, (1974)] may clear up many of these problems.

6. The Wapstra-Gove mass tables quote an uncertainty in Q of 150 keV.

7. The adopted decay scheme of the *Nuclear Data Sheets* employed by the evaluators was based in part on the preliminary results of Halbig et al. If the final results of Halbig et al. were used to modify this decay scheme, we would obtain branching ratio to ${}^{91m}_{39}\mathrm{Y} = 0.588 \pm 0.010$, branching ratio to ${}^{91}_{39}\mathrm{Y} = 0.412 \pm 0.010$, $\langle E_\beta \rangle \approx 662$ keV, $\langle E_\gamma \rangle \approx 683$ keV, and Q_β to ${}^{91m}_{39}\mathrm{Y} = (2128 \pm 4)$ keV.

8. D. C. Kocher [*Nuclear Data Sheets* **10**, 241 (1973)] notes that the decay scheme is not well established. The 4860-keV and 3942-keV β's should have uncertainties of ≈15 and ≈11 keV, respectively. Several γ intensities listed in ENDF/B-IV for this isotope differ from the intensities in the *Nuclear Data Sheets*. When $\langle E_\gamma \rangle$ is calculated from the *Nuclear Data Sheet* values, it is reduced from 986.1 to 966.9 keV. This would bring the calculated Q-value into better agreement with the Wapstra-Gove value.

9. See England and Schenter.[3]

10. England and Schenter[3] indicate that there is a problem with this nuclide. However, their corrected value $\langle E_\gamma \rangle = 935$ keV is the value currently in the file.

11. The energy due to internal conversion was neglected. Information in the file is insufficient to calculate $\langle E_\beta \rangle$ and $\langle E_\gamma \rangle$ adjusted for internal conversion.

12. Note the discrepancy between $\langle E_\gamma \rangle = 2515$ keV in ENDF/B-IV and the present calculation of $\langle E_{\mathrm{photon}} \rangle = 2491$ based on the γ spectrum in ENDF/B-IV. No corrections for internal conversion were made in the present calculation.

13. From the radiation spectra, the authors estimate that the uncertainty in Q_{calc} is 75 keV, based on uncertainties in $\langle E_{\text{photon}} \rangle$ and $\langle E_e \rangle$ of 22 and 40 keV, respectively.

14. There seems to be no correspondence between the β and γ energies. See, for example, the *Table of Isotopes*, p. 102. In addition, γ's appear to be missing from the file.

15. The uncertainty in Q_{calc} would be $\approx$40 keV if the uncertainties in the average energies were considered.

16. The sum of the β intensities is not 100%. The normalization factor should be multiplied by 1.025, and the γ-normalization factor should be multiplied by 1.025, so that the sum of transition intensities feeding the ground state is 100%. The results (including correction for internal conversion) will be $\langle E_e \rangle = 826$ keV, $\langle E_{\text{photon}} \rangle = (338.7 \pm 1.1)$ keV, and $Q_{\text{calc}} = 2373$ keV.

17. Note that the Q-value calculated without internal conversion is too high, whereas that calculated with internal conversion is too low. The evaluators, however, have not assigned any uncertainties in the β spectrum.

18. The total transition intensity for the 109.27-keV γ ray does not equal 100%. The intensity of this γ ray should be adjusted from 0.27 to 0.2725. This will result in the following changes (internal conversion included): $\langle E_e \rangle \approx 109.2$ keV, $\langle E_{\text{photon}} \rangle \approx 35.4$ keV, and $Q_{\text{calc}} \approx 144.6$ keV.

19. The β intensities do not sum to 100%. The normalization factor should be multiplied by 1.018. This will change $\langle E_\beta \rangle$ to 366 keV and Q_{calc} to 2305 keV. Probably the normalization factor for the γ spectrum is also incorrect; however, there is insufficient information in the file to ascertain this.

20. England and Schenter[3] suggest that the γ-normalization factor should be changed to 1.17717. It is probable, however, that a more likely explanation for the low calculated Q-value is the neglect of internal conversion.

21. The file does not contain enough information to allow the cause of the discrepancy to be deduced.

22. R. Hiddleston [*Nucl. Data Sheets* **17**, 225 (1976)] notes that the Q-value should be 493 keV if the 215-keV β feeds the 277.88-keV level. Note that in the decay scheme of Martin et al. there are intensity imbalances for the 277.88-keV level (100% in, 96% out) and the 49.72-keV level (96% in, 100% out). This suggests that the intensities of the 111.76-, 116.30-, and 228.16-keV γ rays should be multiplied by 1.042. This would result in (including internal conversion) $\langle E_e \rangle \approx 82$ keV, $\langle E_\gamma \rangle \approx 193$ keV, and $Q_{\text{calc}} \approx 430$ keV, which is still too low.

23. The β spectra in Martin et al. differ substantially from the ENDF/B-IV spectra. For example, they give, for the highest energy beta, $E = 2140$ keV, $I = 21\%$; the equivalents from ENDF/B-IV are 2239.3 keV and 18%.

24. Adjustment of the normalization factor as suggested by England and Schenter[3] would lower the calculated Q-value sufficiently. However, this may not be the correct explanation (see, for example, note 30).

25. The calculated $\langle E_e \rangle$ and $\langle E_{\text{photon}} \rangle$ are approximate because of large uncertainties in the ENDF/B-IV file.

26. The γ spectrum presents a problem. The β spectra adopted in ENDF/B-IV appear to be from Macias et al. [*Nucl. Phys.* **A147**, 513 (1970)]. However, the γ

spectra do not agree with their values, which would give $\langle E_\gamma \rangle \approx 1576$ keV, leading to $Q_{calc} \approx 2661$ keV.

27. England and Schenter[3] suggest that the γ-normalization factor should be increased to 1.23827. However, the neglect of internal conversion seems to be a more likely explanation for the low calculated Q-value.

28. Note the large uncertainties in $\langle E_e \rangle$ and $\langle E_{photon} \rangle$.

29. Note that the calculated Q-value when internal conversion is included is too low. This is probably due to the incorrect multipolarity assigned in RADAT, the editing program (see Table 2).

30. England and Schenter[3] suggest changing the γ-normalization factor to 0.96470. However, the γ intensities adopted by J. F. Lemming and S. Raman [*Nucl. Data Sheets* **10**, 309 (1973)] are in good agreement with the ENDF/B-IV values. The error in the file appears to be in the β spectrum. Use of the values of Lemming and Raman would give $\langle E_\beta \rangle \approx 860$ keV and $Q_{calc} \approx 4668$ keV.

31. Note the discrepancy between $\langle E_{photon} \rangle$ and $\langle E_\gamma \rangle$. Probable cause: only γ intensities are given in the file and no adjustments were made for internal conversion.

32. No internal conversion corrections were made. T. W. Burrows [*Nucl. Data Sheets* **12**, 203 (1974)] adopted a decay scheme substantially different from that employed by the evaluators in ENDF/B-IV. Note also that the intensity of the 63-keV γ ray is only the γ intensity, not the total transition intensity.

33. T. W. Burrows [*Nucl. Data Sheets* **14**, 413 (1975)] notes that unresolved inconsistencies in the decay data preclude an unambiguous normalization of these data.

34. The intensity of the 91.1-keV γ ray does not agree with the sum of the intensities feeding this level. Probable cause: the γ intensity is given instead of the total transition intensity, and no adjustment has been made for internal conversion.

35. Two transitions are missing from the isomeric branch. There also appear to be intensity problems in both spectra.

36. The sum of the 611.1- and 941.9-keV γ rays and the 1922-keV β intensities is greater than the 550.1-keV γ intensity. The 1020.0-keV β intensity is less than the sum of the 914.9- and 1465-keV γ intensities.

37. The sum of the β intensities does not equal 100%. Multiplying the normalization factor by 1.019 will result in $\langle E_\beta \rangle = 483.3$ and $Q_{calc} = 1637$. The γ spectrum may present a similar normalization problem.

38. The sum of the β intensities does not equal 100%. Multiplying the normalization factor by 0.984 will lower $\langle E_\beta \rangle$ to 307 keV and Q_{calc} to 1193.

39. England and Schenter[3] suggest that the β-normalization factor be changed to 2.14551. This is ill advised, since it will distort the β spectra. The evaluators note that they have included in ENDF/B-IV only those betas with intensities that may be significant.

40. The sum of the β intensities does not equal 100%. The normalization factor should be multiplied by 1.006 to give $\langle E_\beta \rangle = 232.2$, $\langle E_e \rangle = 249.5$, and $Q_{calc} = 807$ keV. Note that the calculated Q-value when corrected for internal conversion is 738 keV. This low value may be due to the assignment of pure $E2$ multipolarities by RADAT to transitions that are predominately $M1$.

ACKNOWLEDGMENTS

The authors wish to thank the many people who have helped to make this publication possible. In particular they wish to thank S. Pearlstein for suggesting this publication and for his leadership throughout its preparation.

The authors wish to thank the NNCSC staff and members of the Fission Product Subcommittee of the Cross Section Evaluation Working Group for their helpful suggestions and encouragement.

The authors especially wish to thank R. Kinsey for handling publication details and for programming the subroutines needed to generate the main decay scheme diagrams. They thank R. Kinsey and J. Burt for providing programming assistance in producing RADPLT, the publication plotting code, and W. Kropp for his invaluable assistance in converting RADPLT for FR80 usage.

The authors wish to express special thanks to the Brookhaven Graphic Arts group for their help in producing this publication.

Finally, they wish to thank the many people, including R. Schenter, C. Reich, F. Schmittroth, O. Ozer, N. Holden, and T. England, who made the Fission Product Files a reality.

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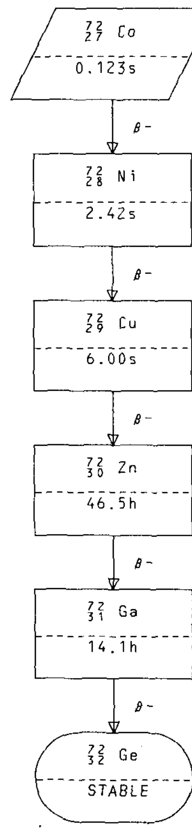


$^{72}_{27}$Co
0.123s
β-
$^{72}_{28}$Ni
2.42s
β-
$^{72}_{29}$Cu
6.00s
β-
$^{72}_{30}$Zn
46.5h
β-
$^{72}_{31}$Ga
14.1h
β-
$^{72}_{32}$Ge
STABLE

$^{72}_{27}$Co

ENDF/B-IV FILE 1 COMMENTS
27-CO- 72 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{72}_{27}$Co

$T_{1/2}$ =.1227s
$\langle E_\beta \rangle$ PER DECAY =5731.
$\langle E_\gamma \rangle$ PER DECAY =2848.

FISSION YIELDS

^{235}U THERMAL	2.8916×10^{-9}
^{235}U FAST	3.1505×10^{-8}
^{238}U FAST	1.4899×10^{-8}

Q_β =14310.
BR_β =1.000

$^{72}_{28}$Ni

2.419s

72 - 27- 1

$^{72}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 72 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{72}_{28}$Ni

$T_{1/2}$ =2.419s
$\langle E_\beta \rangle$ PER DECAY =2004.
$\langle E_\gamma \rangle$ PER DECAY =1203.

FISSION YIELDS

^{235}U THERMAL	9.7953×10^{-8}
^{235}U FAST	9.8116×10^{-7}
^{238}U FAST	1.8098×10^{-7}
^{239}PU THERMAL	1.1398×10^{-7}

Q_β =5610.
BR_β =1.000

$^{72}_{29}$Cu

6.002s

$^{72}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 72 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{72}_{29}$Cu

$T_{1/2}$ =6.002s
$\langle E_\beta \rangle$ PER DECAY =3342.
$\langle E_\gamma \rangle$ PER DECAY =1349.

FISSION YIELDS

^{235}U THERMAL	1.2207×10^{-7}
^{235}U FAST	1.1202×10^{-6}
^{238}U FAST	8.7592×10^{-8}
^{239}PU THERMAL	5.1793×10^{-7}

Q_β =8330.
BR_β =1.000

$^{72}_{30}$Zn

46.50h

72 - 29- 1

$^{72}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 72 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
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

$^{72}_{30}$Zn

$T_{1/2}$ =46.50h
$\langle E_\beta \rangle$ PER DECAY =86.00
$\langle E_\gamma \rangle$ PER DECAY =144.0

FISSION YIELDS

^{235}U THERMAL	2.5414×10^{-8}
^{235}U FAST	2.1804×10^{-7}
^{238}U FAST	6.7394×10^{-9}
^{239}PU THERMAL	4.0494×10^{-7}

Q_β =457.0
BR_β =1.000

$^{72}_{31}$Ga

14.10h

$^{72}_{31}$ Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 72 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{72}_{31}$ Ga

$T_{1/2}$ =14.10h
$\langle E_\beta \rangle$ PER DECAY =501.0
$\langle E_\gamma \rangle$ PER DECAY =2720.

FISSION YIELDS

^{235}U FAST	1.3102×10^{-9}
^{239}PU THERMAL	1.1498×10^{-8}

Q_β =3990.
BR_β =1.000

$^{72}_{32}$ Ge

STABLE OR LONG-LIVED

72 - 31- 1

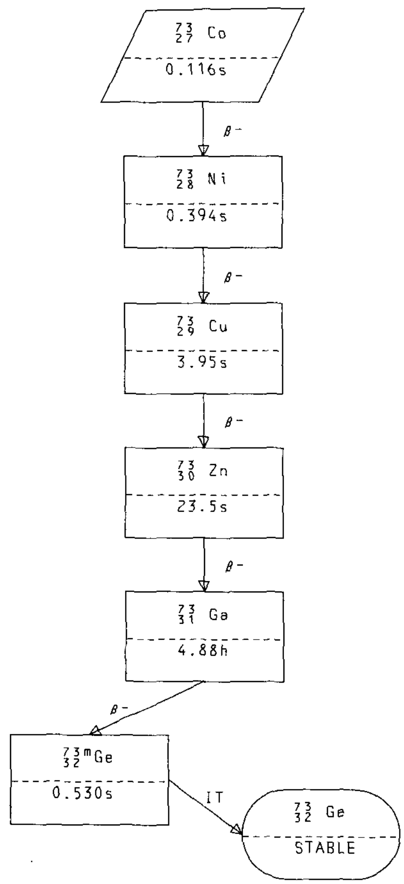
$^{72}_{32}$ Ge

$^{72}_{32}$ Ge

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.7636
WESTCOTT G FACTOR	1.1015
σ CAPTURE 2200M/S	9.8081×10^{-1}
WESTCOTT G FACTOR	1.0240
RESONANCE INTEGRAL TOTAL	$8.8310 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.1500



$^{73}_{27}$Co
0.116s
β-
$^{73}_{28}$Ni
0.394s
β-
$^{73}_{29}$Cu
3.95s
β-
$^{73}_{30}$Zn
23.5s
β-
$^{73}_{31}$Ga
4.88h
β-
$^{73m}_{32}$Ge
0.530s
IT
$^{73}_{32}$Ge
STABLE

$^{73}_{27}$Co

ENDF/B-IV FILE 1 COMMENTS
27-CO- 73 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{73}_{27}$Co

$T_{1/2}$ =.1155s
$\langle E_\beta \rangle$ PER DECAY =4776.
$\langle E_\gamma \rangle$ PER DECAY =2848.

FISSION YIELDS

^{235}U FAST	1.1202×10^{-9}

Q_β =12400.
BR_β =1.000

$^{73}_{28}$Ni

.3936s

$^{73}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 73 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{73}_{28}$Ni

$T_{1/2}$ =.3936s
$\langle E_\beta \rangle$ PER DECAY =3487.
$\langle E_\gamma \rangle$ PER DECAY =1889.

FISSION YIELDS

^{235}U THERMAL	4.9227×10^{-8}
^{235}U FAST	3.6906×10^{-7}
^{238}U FAST	8.4392×10^{-8}
^{239}PU THERMAL	6.6591×10^{-9}

Q_β =9060.
BR_β =1.000

$^{73}_{29}$Cu

3.948s

$^{73}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 73 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{73}_{29}$Cu

$T_{1/2}$ =3.948s
$\langle E_\beta \rangle$ PER DECAY =2272.
$\langle E_\gamma \rangle$ PER DECAY =1186.

FISSION YIELDS

^{235}U THERMAL	4.1022×10^{-7}
^{235}U FAST	3.5106×10^{-6}
^{238}U FAST	2.4798×10^{-7}
^{239}PU THERMAL	2.8096×10^{-7}

Q_β =6150.
BR_β =1.000

$^{73}_{30}$Zn

23.5±1.0s

73 - 29- 1

$^{73}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 73 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{73}_{30}$Zn

$T_{1/2}$ =23.5±1.0s
$\langle E_\beta \rangle$ PER DECAY =1710.
$\langle E_\gamma \rangle$ PER DECAY =745.1

FISSION YIELDS

^{235}U THERMAL	5.6731×10^{-7}
^{235}U FAST	5.4609×10^{-6}
^{238}U FAST	1.2699×10^{-7}
^{239}PU THERMAL	1.6698×10^{-6}

Q_β =4550.
BR_β =1.000

$^{73}_{31}$Ga

4.880h

$^{73}_{31}$Ga

```
              ENDF/B-IV FILE 1 COMMENTS
31-GA- 73  HEDL       EVAL-APR74 R.E.SCHENTER
                      DIST-OCT74
 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
```

$^{73}_{31}$Ga

$T_{1/2}$ =4.880h
$\langle E_\beta \rangle$ PER DECAY =444.0
$\langle E_\gamma \rangle$ PER DECAY =319.0

FISSION YIELDS

^{235}U THERMAL	2.9916×10^{-8}
^{235}U FAST	3.2905×10^{-7}
^{238}U FAST	2.2398×10^{-9}
^{239}PU THERMAL	4.0194×10^{-7}

Q_β =1493.
BR_β =1.000

$^{73m}_{32}$Ge

.5300s

73 - 31- 1

$^{73m}_{32}$Ge

```
              ENDF/B-IV FILE 1 COMMENTS
32-GE- 73M HEDL       EVAL-APR74 R.E.SCHENTER
                      DIST-OCT74
 REFERENCES
  QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED
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$^{73m}_{32}$Ge

$T_{1/2}$ =.5300s
$\langle E_\gamma \rangle$ PER DECAY =67.00

FISSION YIELDS

^{235}U FAST	1.2502×10^{-9}
^{239}PU THERMAL	7.1790×10^{-9}

Q_{IT}=67.00
BR_{IT}=1.000

$^{73}_{32}$Ge

STABLE OR LONG-LIVED

$^{73}_{32}$Ge

$^{73}_{32}$Ge

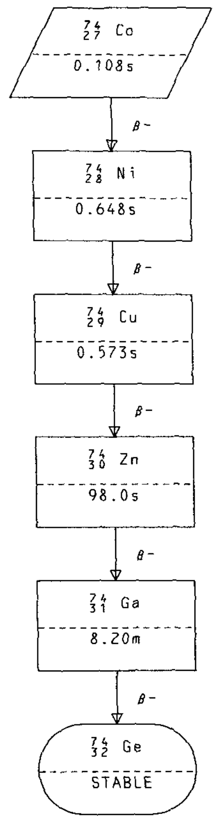
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.5716\times10^{+1}$
WESTCOTT G FACTOR	1.0062
σ CAPTURE 2200M/S	$1.5003\times10^{+1}$
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	$4.7390\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.9960\times10^{+1}$

FISSION YIELDS

^{235}U FAST	1.2502×10^{-9}
^{239}PU THERMAL	7.1790×10^{-9}


$^{74}_{27}$Co
0.108s
β-
$^{74}_{28}$Ni
0.648s
β-
$^{74}_{29}$Cu
0.573s
β-
$^{74}_{30}$Zn
98.0s
β-
$^{74}_{31}$Ga
8.20m
β-
$^{74}_{32}$Ge
STABLE

$^{74}_{27}$Co

ENDF/B-IV FILE 1 COMMENTS
27-CO- 74 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{74}_{27}$Co

$T_{1/2}$ =.1075s
$\langle E_\beta \rangle$ PER DECAY =6203.
$\langle E_\gamma \rangle$ PER DECAY =3335.

FISSION YIELDS

^{235}U FAST	2.2904×10^{-9}
^{238}U FAST	1.9598×10^{-9}

Q_β =15740.
BR_β =1.000

$^{74}_{28}$Ni

.6483s

74 - 27- 1

$^{74}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 74 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{74}_{28}$Ni

$T_{1/2}$ =.6483s
$\langle E_\beta \rangle$ PER DECAY =2573.
$\langle E_\gamma \rangle$ PER DECAY =1677.

FISSION YIELDS

^{235}U THERMAL	1.3707×10^{-7}
^{235}U FAST	8.0213×10^{-7}
^{238}U FAST	2.0198×10^{-7}
^{239}PU THERMAL	1.8597×10^{-8}

Q_β =7140.
BR_β =1.000

$^{74}_{29}$Cu

.5732s

$^{74}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 74 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{74}_{29}$Cu

$T_{1/2}$ =.5732s
$\langle E_\beta \rangle$ PER DECAY =3812.
$\langle E_\gamma \rangle$ PER DECAY =1795.

FISSION YIELDS

^{235}U THERMAL	1.2707×10^{-6}
^{235}U FAST	8.0413×10^{-6}
^{238}U FAST	6.7494×10^{-7}
^{239}PU THERMAL	7.1790×10^{-7}

Q_{β^-}=9600.
BR_β =1.000

$^{74}_{30}$Zn

98.0±2.0s

74 - 29- 1

$^{74}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 74 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{74}_{30}$Zn

$T_{1/2}$ =98.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =760.5
$\langle E_\gamma \rangle$ PER DECAY =430.3

FISSION YIELDS

^{235}U THERMAL	1.9611×10^{-6}
^{235}U FAST	1.3062×10^{-5}
^{238}U FAST	3.8896×10^{-7}
^{239}PU THERMAL	3.9594×10^{-6}

Q_β =2210.
BR_β =1.000

$^{74}_{31}$Ga

8.200m

$^{74}_{31}$Ga

```
              ENDF/B-IV FILE 1 COMMENTS
31-GA- 74  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-OCT74
     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
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$^{74}_{31}$Ga

$T_{1/2}$ =8.200m
$\langle E_\beta \rangle$ PER DECAY =1070.
$\langle E_\gamma \rangle$ PER DECAY =3040.

FISSION YIELDS

^{235}U THERMAL	1.1406×10^{-7}
^{235}U FAST	8.3413×10^{-7}
^{238}U FAST	7.9293×10^{-9}
^{239}PU THERMAL	8.8288×10^{-7}

Q_β =5500.
BR_β =1.000

$^{74}_{32}$Ge

STABLE OR LONG-LIVED

74 - 31- 1

$^{74}_{32}$Ge

$^{74}_{32}$Ge

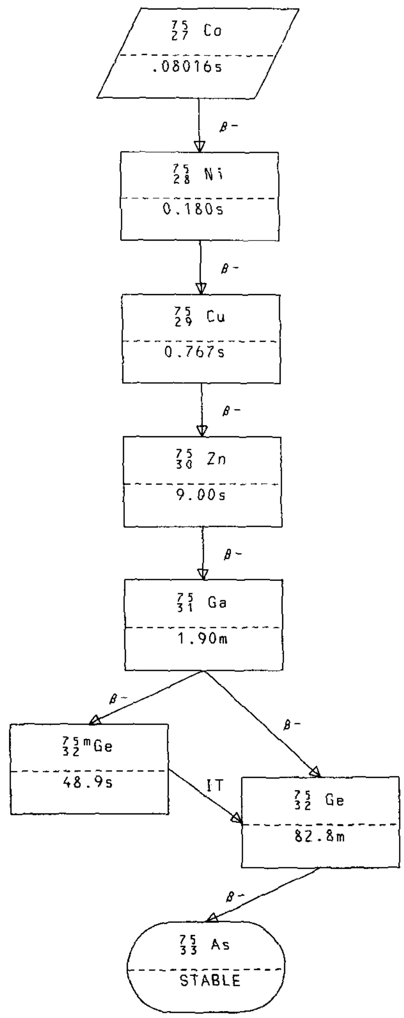
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.7302
WESTCOTT G FACTOR	1.1127
σ CAPTURE 2200M/S	3.8454×10^{-1}
WESTCOTT G FACTOR	1.0136
RESONANCE INTEGRAL TOTAL	$9.2730\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	6.1650×10^{-1}

FISSION YIELDS

^{235}U FAST	6.7111×10^{-9}
^{239}PU THERMAL	2.9096×10^{-8}


75 27 Co
.08016s
β-
75 28 Ni
0.180s
β-
75 29 Cu
0.767s
β-
75 30 Zn
9.00s
β-
75 31 Ga
1.90m
β-
β-
75m 32 Ge
48.9s
IT
75 32 Ge
82.8m
β-
75 33 As
STABLE

$^{75}_{27}$Co

ENDF/B-IV FILE 1 COMMENTS
27-CO- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{75}_{27}$Co

$T_{1/2}$ =.08016s
$\langle E_\beta \rangle$ PER DECAY =5212.
$\langle E_\gamma \rangle$ PER DECAY =3357.

Q_β =13780.
BR_β =1.000

$^{75}_{28}$Ni

.1796s

75 - 27- 1

$^{75}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{75}_{28}$Ni

$T_{1/2}$ =.1796s
$\langle E_\beta \rangle$ PER DECAY =4051.
$\langle E_\gamma \rangle$ PER DECAY =2368.

FISSION YIELDS

^{235}U THERMAL	7.3440×10^{-8}
^{235}U FAST	2.3304×10^{-7}
^{238}U FAST	1.8798×10^{-7}
^{239}PU THERMAL	4.5594×10^{-9}

Q_β =10470.
BR_β =1.000

$^{75}_{29}$Cu

.7666s

$^{75}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{75}_{29}$Cu

$T_{1/2}$ =.7666s
$\langle E_\beta \rangle$ PER DECAY =2865.
$\langle E_\gamma \rangle$ PER DECAY =1641.

FISSION YIELDS

^{235}U THERMAL	1.9811×10^{-6}
^{235}U FAST	6.6011×10^{-6}
^{238}U FAST	1.6898×10^{-6}
^{239}PU THERMAL	5.2593×10^{-7}

Q_β =7690.
BR_β =1.000

$^{75}_{30}$Zn

9.000s

75 - 29- 1

$^{75}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{75}_{30}$Zn

$T_{1/2}$ =9.000s
$\langle E_\beta \rangle$ PER DECAY =2174.
$\langle E_\gamma \rangle$ PER DECAY =1104.

FISSION YIELDS

^{235}U THERMAL	7.8843×10^{-6}
^{235}U FAST	2.7634×10^{-5}
^{238}U FAST	2.4998×10^{-6}
^{239}PU THERMAL	7.7389×10^{-6}

Q_β =5850.
BR_β =1.000

$^{75}_{31}$Ga

1.900m

75 - 30- 1

$^{75}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
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

$^{75}_{31}$Ga

$T_{1/2}$ =1.900m
$\langle E_\beta \rangle$ PER DECAY =1360.
$\langle E_\gamma \rangle$ PER DECAY =20.90

FISSION YIELDS

^{235}U THERMAL	1.2807×10^{-6}
^{235}U FAST	4.6808×10^{-6}
^{238}U FAST	1.4199×10^{-7}
^{239}PU THERMAL	4.4294×10^{-6}

Q_β =3161.
BR_β =.04000

$^{75m}_{32}$Ge

48.90s

Q_β =3300.
BR_β =.9600

$^{75}_{32}$Ge

82.80m

75 - 31- 1

$^{75m}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 75M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{75m}_{32}$Ge

$T_{1/2}$ =48.90s
$\langle E_\gamma \rangle$ PER DECAY =139.0

FISSION YIELDS

^{235}U THERMAL	1.4508×10^{-8}
^{235}U FAST	5.6309×10^{-8}
^{239}PU THERMAL	2.0597×10^{-7}

Q_{IT}=139.0
BR_{IT}=1.000

$^{75}_{32}$Ge

82.80m

$^{75}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 75 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
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

$^{75}_{32}$Ge

$T_{1/2}$ =82.80m
$\langle E_\beta \rangle$ PER DECAY =430.0
$\langle E_\gamma \rangle$ PER DECAY =35.90

FISSION YIELDS

^{235}U THERMAL	1.4508×10^{-8}
^{235}U FAST	5.6309×10^{-8}
^{239}PU THERMAL	2.0597×10^{-7}

Q_β =1190.
BR_β =1.000

$^{75}_{33}$As

STABLE OR LONG-LIVED

75 - 32- 1

$^{75}_{33}$As

$^{75}_{33}$As

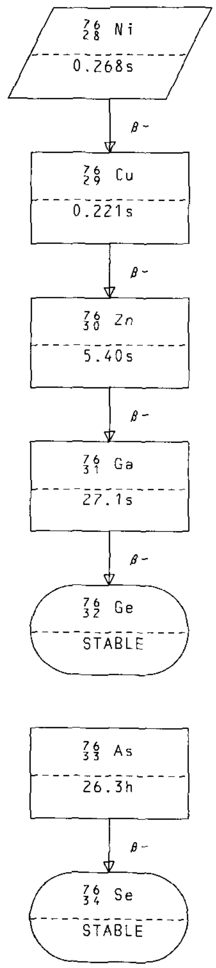
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.0219
WESTCOTT G FACTOR	1.0370
σ CAPTURE 2200M/S	4.3026
WESTCOTT G FACTOR	1.0003
RESONANCE INTEGRAL TOTAL	$2.0700\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.1730\times10^{+1}$

FISSION YIELDS

^{239}PU THERMAL	1.0899×10^{-9}



$^{76}_{28}$Ni
0.268s
β-
$^{76}_{29}$Cu
0.221s
β-
$^{76}_{30}$Zn
5.40s
β-
$^{76}_{31}$Ga
27.1s
β-
$^{76}_{32}$Ge
STABLE
$^{76}_{33}$As
26.3h
β-
$^{76}_{34}$Se
STABLE

$^{76}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS

28-NI- 76 HEDL EVAL-APR74 R.E.SCHENTER

DIST-OCT74

REFERENCES

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

$^{76}_{28}$Ni

$T_{1/2}$ =.2684s

$\langle E_\beta \rangle$ PER DECAY =3097.

$\langle E_\gamma \rangle$ PER DECAY =2176.

FISSION YIELDS

^{235}U THERMAL	2.4713×10^{-8}
^{235}U FAST	7.9313×10^{-8}
^{238}U FAST	6.6894×10^{-8}

Q_β =8520.

BR_β =1.000

$^{76}_{29}$Cu

.2211s

76 - 28- 1

$^{76}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS

29-CU- 76 HEDL EVAL-APR74 R.E.SCHENTER

DIST-OCT74

REFERENCES

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

$^{76}_{29}$Cu

$T_{1/2}$ =.2211s

$\langle E_\beta \rangle$ PER DECAY =4381.

$\langle E_\gamma \rangle$ PER DECAY =2249.

FISSION YIELDS

^{235}U THERMAL	2.0811×10^{-6}
^{235}U FAST	6.4510×10^{-6}
^{238}U FAST	1.5998×10^{-6}
^{239}PU THERMAL	2.4897×10^{-7}

Q_β =11010

BR_β =1.000

$^{76}_{30}$Zn

5.400s

76 - 29- 1

$^{76}_{30}$ Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 76 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{76}_{30}$ Zn

$T_{1/2}$ =5.400s
$\langle E_\beta \rangle$ PER DECAY =1358.
$\langle E_\gamma \rangle$ PER DECAY =841.3

FISSION YIELDS	
^{235}U THERMAL	2.2982×10^{-5}
^{235}U FAST	6.9341×10^{-5}
^{238}U FAST	5.7195×10^{-6}
^{239}PU THERMAL	1.0209×10^{-5}

Q_β =3910.
BR_β =1.000

$^{76}_{31}$ Ga

27.10s

76 - 30- 1

$^{76}_{31}$ Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 76 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{76}_{31}$ Ga

$T_{1/2}$ =27.10s
$\langle E_\beta \rangle$ PER DECAY =1680.
$\langle E_\gamma \rangle$ PER DECAY =2810.

FISSION YIELDS	
^{235}U THERMAL	1.0135×10^{-5}
^{235}U FAST	2.9355×10^{-5}
^{238}U FAST	8.3492×10^{-7}
^{239}PU THERMAL	1.4788×10^{-5}

Q_β =6500.
BR_β =1.000

$^{76}_{32}$ Ge

STABLE OR LONG-LIVED

$^{76}_{32}$Ge

$^{76}_{32}$Ge

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.1203
WESTCOTT G FACTOR	1.1237
σ CAPTURE 2200M/S	1.4326×10^{-1}
WESTCOTT G FACTOR	1.0151
RESONANCE INTEGRAL TOTAL	$7.8930\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.3480

FISSION YIELDS

^{235}U THERMAL	6.9838×10^{-7}
^{235}U FAST	1.9903×10^{-6}
^{238}U FAST	1.6898×10^{-8}
^{239}PU THERMAL	3.7395×10^{-6}

76 - 32- 1

$^{76}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 76 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{76}_{33}$As

$T_{1/2}$ =26.30h
$\langle E_\beta \rangle$ PER DECAY =1137.
$\langle E_\gamma \rangle$ PER DECAY =352.9

FISSION YIELDS

^{235}U THERMAL	1.3407×10^{-9}
^{235}U FAST	3.6906×10^{-9}
^{239}PU THERMAL	3.0096×10^{-8}

Q_β =2980.
BR_β =1.000

$^{76}_{34}$Se

STABLE OR LONG-LIVED

76 - 33- 1

$^{76}_{34}$Se

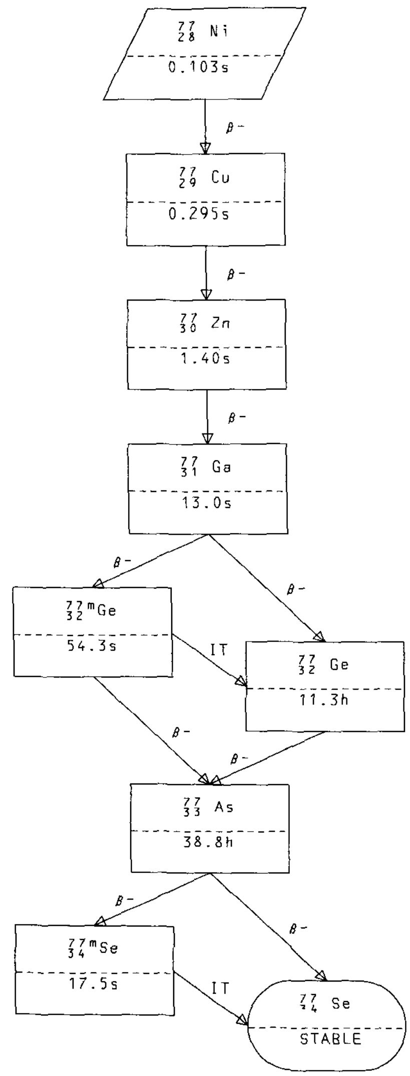
$^{76}_{34}$Se

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$8.6751\times10^{+1}$
WESTCOTT G FACTOR	1.0045
σ CAPTURE 2200M/S	$8.5001\times10^{+1}$
WESTCOTT G FACTOR	1.0019
RESONANCE INTEGRAL TOTAL	$1.5770\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.5210\times10^{+1}$

76 - 34- 1


$^{77}_{28}$Ni
0.103s
β-
$^{77}_{29}$Cu
0.295s
β-
$^{77}_{30}$Zn
1.40s
β-
$^{77}_{31}$Ga
13.0s
β-
β-
$^{77m}_{32}$Ge
54.3s
IT
$^{77}_{32}$Ge
11.3h
β-
β-
$^{77}_{33}$As
38.8h
β-
β-
$^{77m}_{34}$Se
17.5s
IT
$^{77}_{34}$Se
STABLE

$^{77}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{77}_{28}$Ni

$T_{1/2}$ =.1028s
$\langle E_\beta \rangle$ PER DECAY =4510.
$\langle E_\gamma \rangle$ PER DECAY =2879.

FISSION YIELDS

^{235}U THERMAL	3.2418×10^{-9}
^{235}U FAST	1.2402×10^{-8}
^{238}U FAST	2.6998×10^{-8}

Q_β =11900.
BR_β =1.000

$^{77}_{29}$Cu

.2946s

77 - 28- 1

$^{77}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{77}_{29}$Cu

$T_{1/2}$ =.2946s
$\langle E_\beta \rangle$ PER DECAY =3403.
$\langle E_\gamma \rangle$ PER DECAY =2119.

FISSION YIELDS

^{235}U THERMAL	8.5546×10^{-7}
^{235}U FAST	3.1505×10^{-6}
^{238}U FAST	2.0098×10^{-6}
^{239}PU THERMAL	7.3590×10^{-8}

Q_β =9060.
BR_β =1.000

$^{77}_{30}$Zn

1.400s

$^{77}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{77}_{30}$Zn

$T_{1/2}$ =1.400s
$\langle E_\beta \rangle$ PER DECAY =2723.
$\langle E_\gamma \rangle$ PER DECAY =1505.

FISSION YIELDS

^{235}U THERMAL	2.6775×10^{-5}
^{235}U FAST	9.5735×10^{-5}
^{238}U FAST	1.9948×10^{-5}
^{239}PU THERMAL	9.3087×10^{-6}

Q_β =7230.
BR_β =1.000

$^{77}_{31}$Ga

13.00s

77 - 30- 1

$^{77}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{77}_{31}$Ga

$T_{1/2}$ =13.00s
$\langle E_\beta \rangle$ PER DECAY =1681.
$\langle E_\gamma \rangle$ PER DECAY =877.5

FISSION YIELDS

^{235}U THERMAL	4.4804×10^{-5}
^{235}U FAST	1.0641×10^{-4}
^{238}U FAST	7.8793×10^{-6}
^{239}PU THERMAL	3.7245×10^{-5}

Q_β =4591.
BR_β =.8800

$^{77m}_{32}$Ge

54.30s

Q_β =4750.
BR_β =.1200

$^{77}_{32}$Ge

11.30h

77 - 31- 1

$^{77m}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 77M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
QIT-R SCHENTER,THEORY(9/73)
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{77m}_{32}$Ge

$T_{1/2}$ =54.30s
$\langle E_\beta \rangle$ PER DECAY =950.0
$\langle E_\gamma \rangle$ PER DECAY =83.90

FISSION YIELDS

^{235}U THERMAL	3.9421×10^{-6}
^{235}U FAST	1.0122×10^{-5}
^{238}U FAST	2.4398×10^{-7}
^{239}PU THERMAL	1.2878×10^{-5}

Q_β =2909.
BR_β =.7900

Q_{IT}=159.0
BR_{IT}=.2100

$^{77}_{33}$As
38.80h

$^{77}_{32}$Ge
11.30h

77m- 32- 1

$^{77}_{32}$ Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{77}_{32}$ Ge

$T_{1/2}$ =11.30h
$\langle E_\beta \rangle$ PER DECAY =648.0
$\langle E_\gamma \rangle$ PER DECAY =1160.

FISSION YIELDS

^{235}U THERMAL	6.3634×10^{-6}
^{235}U FAST	1.0122×10^{-5}
^{238}U FAST	2.4398×10^{-7}
^{239}PU THERMAL	1.2878×10^{-5}

Q_β =2760.
BR_β =1.000

$^{77}_{33}$ As
38.80h

77 - 32- 1

$^{77}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 77 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{77}_{33}$As

$T_{1/2}$ =38.80h
$\langle E_\beta \rangle$ PER DECAY =241.0
$\langle E_\gamma \rangle$ PER DECAY =103.0

FISSION YIELDS

^{235}U THERMAL	1.2807×10^{-7}
^{235}U FAST	1.1802×10^{-7}
^{239}PU THERMAL	6.3491×10^{-7}

Q_β =440.0
BR_β =.00300

$^{77m}_{34}$Se

17.50s

Q_β =690.0
BR_β =.9970

$^{77}_{34}$Se

STABLE OR LONG-LIVED

77 - 33- 1

$^{77m}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 77M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{77m}_{34}$Se

$T_{1/2}$ =17.50s
$\langle E_\gamma \rangle$ PER DECAY =250.0

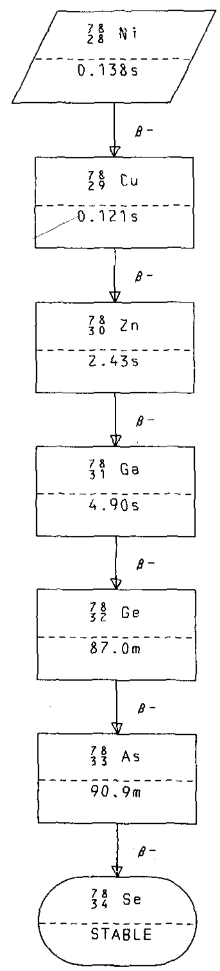
Q_{IT}=250.0
BR_{IT}=1.000

$^{77}_{34}$Se

STABLE OR LONG-LIVED

$^{77}_{34}$Se

$^{77}_{34}$Se	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	$4.4287 \times 10^{+1}$
WESTCOTT G FACTOR	1.0076
σ CAPTURE 2200M/S	$4.2002 \times 10^{+1}$
WESTCOTT G FACTOR	1.0010
RESONANCE INTEGRAL TOTAL	$1.6890 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.6690 \times 10^{+1}$



78 28 Ni
0.138s
β-
78 29 Cu
0.121s
β-
78 30 Zn
2.43s
β-
78 31 Ga
4.90s
β-
78 32 Ge
87.0m
β-
78 33 As
90.9m
β-
78 34 Se
STABLE

$^{78}_{28}$Ni

ENDF/B-IV FILE 1 COMMENTS
28-NI- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{78}_{28}$Ni

$T_{1/2}$ =.1376s
$\langle E_\beta \rangle$ PER DECAY =3597.
$\langle E_\gamma \rangle$ PER DECAY =2707.

FISSION YIELDS

^{238}U FAST	4.8195×10^{-9}

Q_β =9900.
BR_β =1.000

$^{78}_{29}$Cu

.1206s

78 - 28- 1

$^{78}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{78}_{29}$Cu

$T_{1/2}$ =.1206s
$\langle E_\beta \rangle$ PER DECAY =4849.
$\langle E_\gamma \rangle$ PER DECAY =2743.

FISSION YIELDS

^{235}U THERMAL	3.8521×10^{-7}
^{235}U FAST	8.2613×10^{-7}
^{238}U FAST	1.2299×10^{-6}
^{239}PU THERMAL	9.8686×10^{-9}

Q_β =12440.
BR_β =1.000

$^{78}_{30}$Zn

2.430s

$^{78}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{78}_{30}$Zn

$T_{1/2}$ =2.430s
$\langle E_\beta \rangle$ PER DECAY =1850.
$\langle E_\gamma \rangle$ PER DECAY =1244.

FISSION YIELDS

^{235}U THERMAL	3.6700×10^{-5}
^{235}U FAST	8.0763×10^{-5}
^{238}U FAST	3.7077×10^{-5}
^{239}PU THERMAL	4.7793×10^{-6}

Q_β =5280.
BR_β =1.000

$^{78}_{31}$Ga

4.900s

78 - 30- 1

$^{78}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{78}_{31}$Ga

$T_{1/2}$ =4.900s
$\langle E_\beta \rangle$ PER DECAY =3129.
$\langle E_\gamma \rangle$ PER DECAY =1455.

FISSION YIELDS

^{235}U THERMAL	1.2504×10^{-4}
^{235}U FAST	2.5675×10^{-4}
^{238}U FAST	4.1176×10^{-5}
^{239}PU THERMAL	6.4451×10^{-5}

Q_β =7940.
BR_β =1.000

$^{78}_{32}$Ge

87.00m

$^{78}_{32}$ Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{78}_{32}$ Ge

$T_{1/2}$ =87.00m
$\langle E_\beta \rangle$ PER DECAY =238.0
$\langle E_\gamma \rangle$ PER DECAY =277.0

FISSION YIELDS

^{235}U THERMAL	2.1412×10^{-6}
^{235}U FAST	1.4120×10^{-4}
^{238}U FAST	7.7893×10^{-6}
^{239}PU THERMAL	1.4023×10^{-4}

Q_β =980.0
BR_β =1.000

$^{78}_{33}$ As

90.90m

78 - 32- 1

$^{78}_{33}$ As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 78 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{78}_{33}$ As

$T_{1/2}$ =90.90m
$\langle E_\beta \rangle$ PER DECAY =1400.
$\langle E_\gamma \rangle$ PER DECAY =1030.

FISSION YIELDS

^{235}U THERMAL	2.1011×10^{-6}
^{235}U FAST	2.7304×10^{-6}
^{238}U FAST	4.5296×10^{-8}
^{239}PU THERMAL	1.1658×10^{-5}

Q_β =4270.
BR_β =1.000

$^{78}_{34}$ Se

STABLE OR LONG-LIVED

$^{78}_{34}$Se

$^{78}_{34}$Se

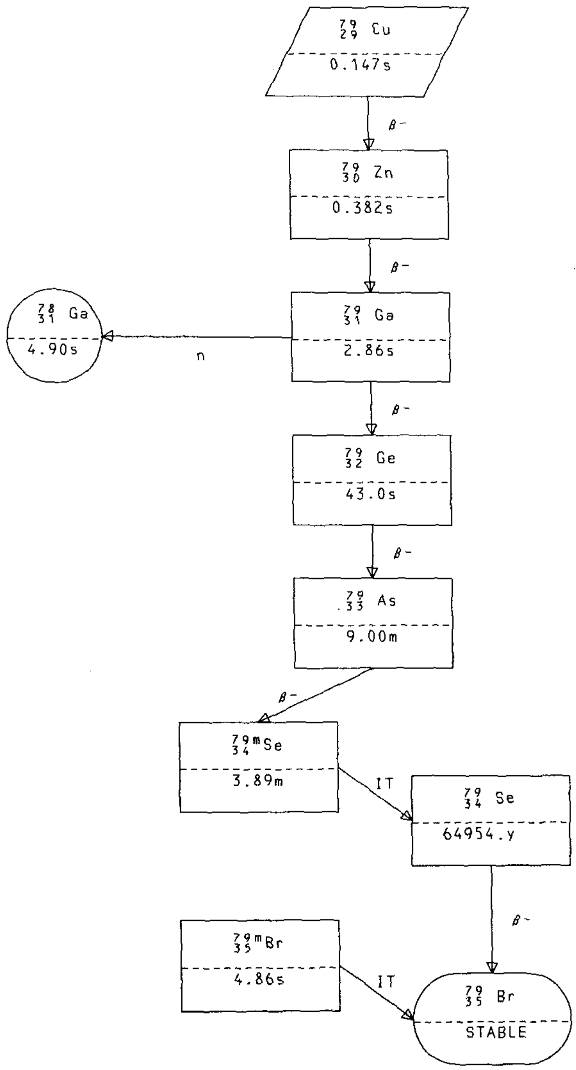
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.8967
WESTCOTT G FACTOR	1.1116
σ CAPTURE 2200M/S	4.0133×10^{-1}
WESTCOTT G FACTOR	1.0028
RESONANCE INTEGRAL TOTAL	$9.3390 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	4.5820

FISSION YIELDS

^{235}U THERMAL	2.3013×10^{-9}
^{235}U FAST	5.9510×10^{-9}
^{239}PU THERMAL	1.2898×10^{-7}


79 29 Cu
0.147s
β-
79 30 Zn
0.382s
β-
78 31 Ga
4.90s
n
79 31 Ga
2.86s
β-
79 32 Ge
43.0s
β-
79 33 As
9.00m
β-
79m 34 Se
3.89m
IT
79 34 Se
64954.y
β-
79m 35 Br
4.86s
IT
79 35 Br
STABLE

$^{79}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 79 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{79}_{29}$Cu

$T_{1/2}$ =.1474s
$\langle E_\beta \rangle$ PER DECAY =3912.
$\langle E_\gamma \rangle$ PER DECAY =2627.

FISSION YIELDS

^{235}U THERMAL	4.6025×10^{-8}
^{235}U FAST	8.8614×10^{-8}
^{238}U FAST	3.0297×10^{-7}

Q_β =10450.
BR_β =1.000

$^{79}_{30}$Zn

.3821s

79 - 29- 1

$^{79}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 79 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{79}_{30}$Zn

$T_{1/2}$ =.3821s
$\langle E_\beta \rangle$ PER DECAY =3271.
$\langle E_\gamma \rangle$ PER DECAY =1990.

FISSION YIELDS

^{235}U THERMAL	1.4798×10^{-5}
^{235}U FAST	2.7555×10^{-5}
^{238}U FAST	2.7887×10^{-5}
^{239}PU THERMAL	1.1398×10^{-6}

Q_β =8660.
BR_β =1.000

$^{79}_{31}$Ga

2.860s

$^{79}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 79 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{79}_{31}$Ga

$T_{1/2}$ =2.860s
$\langle E_\beta \rangle$ PER DECAY =2226.
$\langle E_\gamma \rangle$ PER DECAY =1276.

FISSION YIELDS

^{235}U THERMAL	1.3736×10^{-4}
^{235}U FAST	2.4827×10^{-4}
^{238}U FAST	8.4032×10^{-5}
^{239}PU THERMAL	5.2063×10^{-5}

Q_N =285.7
BR_N =.00140

Q_β =6060.
BR_β =.9986

$^{78}_{31}$Ga
4.900s

$^{79}_{32}$Ge
43.0±2.0s

79 - 31- 1

$^{79}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 79 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q- 1973 WAPSTRA-GOVE MASS TABLE

$^{79}_{32}$Ge

$T_{1/2}$ =43.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =1893.
$\langle E_\gamma \rangle$ PER DECAY =251.4

FISSION YIELDS

^{235}U THERMAL	2.5084×10^{-4}
^{235}U FAST	3.6792×10^{-4}
^{238}U FAST	4.4076×10^{-5}
^{239}PU THERMAL	3.3455×10^{-4}

Q_β =4300.±200.
BR_β =1.000

$^{79}_{33}$As
9.000m

PHOTON RADIATION TABLE

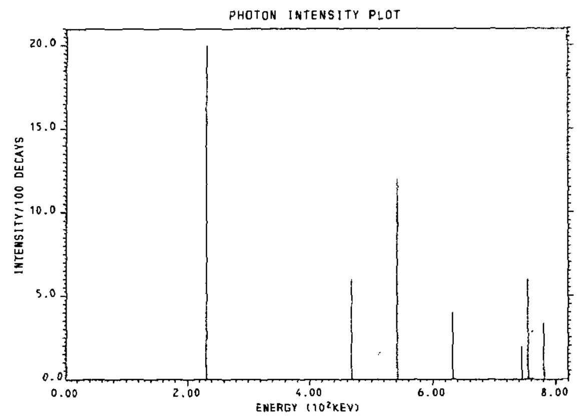
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
230.4	1	20.00
467.8	1	6.000
542.5	1	12.00
633.4	1	4.000
745.5	1	2.000
755.0	1	6.000
781.5	1	3.400

$\langle E_{PHOTON} \rangle$ PER DECAY = 251.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	4070.0	1802.	20.00
β-	4300.0	1915.	80.00

$\langle E_e \rangle$ PER DECAY = 1893.
$\langle E_\nu \rangle$ PER DECAY = 2361.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	4300.	80.00
γ	230.4	20.00
β-	4070.	20.00

$^{79}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 79 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
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

$^{79}_{33}$As

$T_{1/2}$ =9.000m
$\langle E_\beta \rangle$ PER DECAY =861.0
$\langle E_\gamma \rangle$ PER DECAY =18.00

FISSION YIELDS

^{235}U THERMAL	1.0471×10^{-4}
^{235}U FAST	2.1013×10^{-5}
^{238}U FAST	7.9893×10^{-7}
^{239}PU THERMAL	8.6968×10^{-5}

Q_β =1980.
BR_β =1.000

$^{79m}_{34}$Se

3.890m

79 - 33- 1

$^{79m}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 79M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{79m}_{34}$Se

$T_{1/2}$ =3.890m
$\langle E_\beta \rangle$ PER DECAY =.1000
$\langle E_\gamma \rangle$ PER DECAY =95.00

FISSION YIELDS

^{235}U THERMAL	8.1244×10^{-8}
^{235}U FAST	7.5112×10^{-8}
^{239}PU THERMAL	1.6898×10^{-6}

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

$^{79}_{34}$Se

64954.y

$^{79}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 79 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{79}_{34}$Se

$T_{1/2}$ =64954.y
$\langle E_\beta \rangle$ PER DECAY =42.00
$\langle E_\gamma \rangle$ PER DECAY =.1000

FISSION YIELDS

^{235}U THERMAL	8.1044×10^{-8}
^{235}U FAST	7.5112×10^{-8}
^{239}PU THERMAL	1.6898×10^{-6}

Q_β =154.0
BR_β =1.000

$^{79}_{35}$Br

STABLE OR LONG-LIVED

79 - 34- 1

$^{79m}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 79M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{79m}_{35}$Br

$T_{1/2}$ =4.860s
$\langle E_\gamma \rangle$ PER DECAY =210.0

FISSION YIELDS

^{239}PU THERMAL	1.5698×10^{-9}

Q_{IT}=210.0
BR_{IT}=1.000

$^{79}_{35}$Br

STABLE OR LONG-LIVED

$^{79}_{35}Br$

$^{79}_{35}Br$

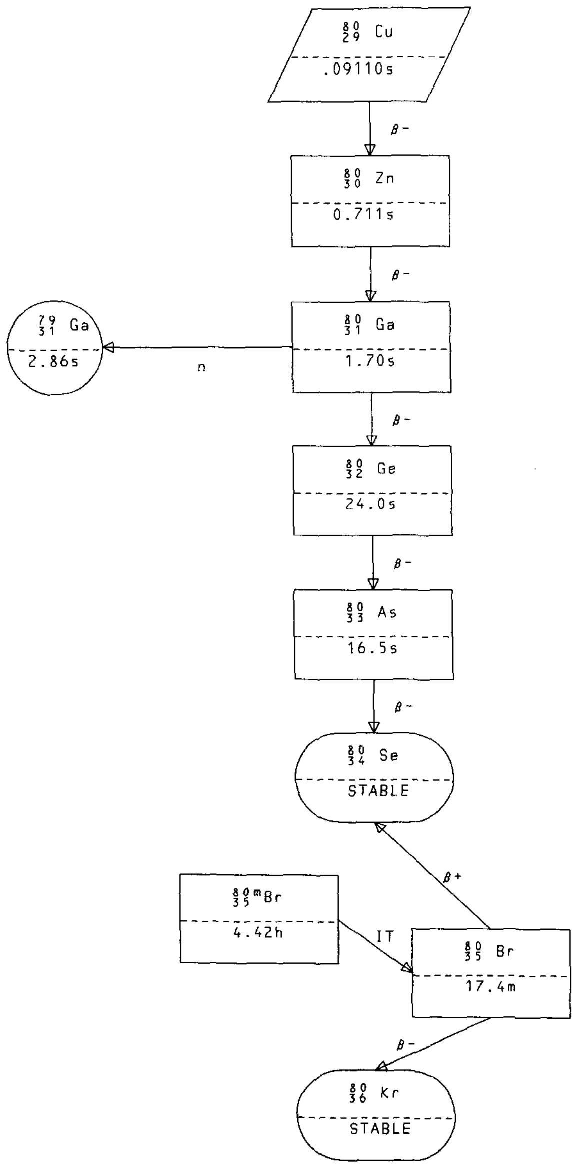
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.3468\times10^{+1}$
WESTCOTT G FACTOR	1.0229
σ CAPTURE 2200M/S	$1.1106\times10^{+1}$
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	$2.7710\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.3650\times10^{+2}$

FISSION YIELDS

^{239}PU THERMAL 1.7198×10^{-9}


$^{80}_{29}$ Cu
.09110s
β-
$^{80}_{30}$ Zn
0.711s
β-
$^{79}_{31}$ Ga
2.86s
n
$^{80}_{31}$ Ga
1.70s
β-
$^{80}_{32}$ Ge
24.0s
β-
$^{80}_{33}$ As
16.5s
β-
$^{80}_{34}$ Se
STABLE
β+
$^{80m}_{35}$Br
4.42h
IT
$^{80}_{35}$ Br
17.4m
β-
$^{80}_{36}$ Kr
STABLE

$^{80}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 80 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{80}_{29}$Cu

$T_{1/2}$ =.09110s
$\langle E_\beta \rangle$ PER DECAY =5812.
$\langle E_\gamma \rangle$ PER DECAY =3726.

FISSION YIELDS

^{235}U THERMAL	6.6136×10^{-9}
^{235}U FAST	9.6916×10^{-9}
^{238}U FAST	8.8892×10^{-8}

Q_β =15350.
BR_β =1.000

$^{80}_{30}$Zn

.7113s

80 - 29- 1

$^{80}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 80 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{80}_{30}$Zn

$T_{1/2}$ =.7113s
$\langle E_\beta \rangle$ PER DECAY =2357.
$\langle E_\gamma \rangle$ PER DECAY =1708.

FISSION YIELDS

^{235}U THERMAL	7.1939×10^{-6}
^{235}U FAST	9.8816×10^{-6}
^{238}U FAST	2.4528×10^{-5}
^{239}PU THERMAL	2.3997×10^{-7}

Q_β =6670.
BR_β =1.000

$^{80}_{31}$Ga

1.700s

$^{80}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 80 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{80}_{31}$Ga

$T_{1/2}$ =1.700s
$\langle E_\beta \rangle$ PER DECAY =3701.
$\langle E_\gamma \rangle$ PER DECAY =1922.

FISSION YIELDS

^{235}U THERMAL	2.0476×10^{-4}
^{235}U FAST	2.6536×10^{-4}
^{238}U FAST	1.9813×10^{-4}
^{239}PU THERMAL	3.4975×10^{-5}

Q_N =936.1
BR_N =.00860

Q_β =9440.
BR_β =.9914

$^{79}_{31}$Ga
2.860s

$^{80}_{32}$Ge
24.0±1.0s

80 - 31- 1

$^{80}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 80 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{80}_{32}$Ge

$T_{1/2}$ =24.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =627.1
$\langle E_\gamma \rangle$ PER DECAY =401.6

FISSION YIELDS

^{235}U THERMAL	8.6369×10^{-4}
^{235}U FAST	1.0505×10^{-3}
^{238}U FAST	2.6339×10^{-4}
^{239}PU THERMAL	6.3613×10^{-4}

Q_β =1860.
BR_β =1.000

$^{80}_{33}$As
16.5±0.3s

80 - 32- 1

$^{80}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 80 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q- 1973 WAPSTRA-GOVE MASS TABLE

$^{80}_{33}$As

$T_{1/2}$ =16.5±0.3s
$\langle E_\beta \rangle$ PER DECAY =2523.
$\langle E_\gamma \rangle$ PER DECAY =606.6

FISSION YIELDS

^{235}U THERMAL	1.4651×10^{-4}
^{235}U FAST	1.7001×10^{-4}
^{238}U FAST	1.3589×10^{-5}
^{239}PU THERMAL	4.3894×10^{-4}

Q_β =6000.±200.
BR_β =1.000

$^{80}_{34}$Se

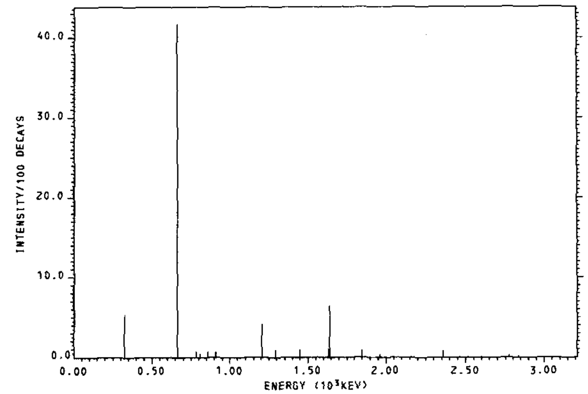
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
321.2	1	5.434
665.8	1	41.80
782.4	1	.7942
811.3	1	.4598
860.7	1	.7106
908.7	1	.7106
1065.	1	.1254
1207.	1	4.180
1294.	1	.9614
1416.	1	.08360
1423.	1	.04180
1449.	1	1.003
1633.	1	1.170
1645.	1	6.521
1848.	1	.9196
1960.	1	.3762
1969.	1	.1254
2157.	1	.08360
2358.	1	.8778
2461.	1	.1254
2514.	1	.1672
2598.	1	.1254
2774.	1	.2926
2836.	1	.2508
2940.	1	.08360
3024.	1	.08360
3061.	1	.04180

$\langle E_{PHOTON} \rangle$ PER DECAY = 606.6

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	3000.0	1279.	.4000
β^-	3500.0	1523.	.5000
β^-	3700.0	1620.	4.300
β^-	4100.0	1817.	3.600
β^-	4200.0	1866.	1.700
β^-	4500.0	2014.	1.400
β^-	5300.0	2410.	32.00
β^-	6000.0	2757.	56.00

$\langle E_e \rangle$ PER DECAY = 2523.
$\langle E_\nu \rangle$ PER DECAY = 3004.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	6000.	56.00
γ	665.8	41.80
β^-	5300.	32.00

$^{80}_{34}$ Se

$^{80}_{34}$ Se	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	1.2854
WESTCOTT G FACTOR	1.0691
σ CAPTURE 2200M/S	6.1010×10^{-1}
WESTCOTT G FACTOR	1.0012
RESONANCE INTEGRAL TOTAL	$1.3630 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.0830
FISSION YIELDS	
^{235}U THERMAL	3.5219×10^{-6}
^{235}U FAST	3.8706×10^{-6}
^{238}U FAST	8.6192×10^{-8}
^{239}PU THERMAL	5.1143×10^{-5}

80 - 34- 1

$^{80m}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 80M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{80m}_{35}$Br	
$T_{1/2}$ =4.420h	
$\langle E_\gamma \rangle$ PER DECAY =86.00	
FISSION YIELDS	
^{235}U THERMAL	3.1117×10^{-9}
^{235}U FAST	1.1102×10^{-9}
^{239}PU THERMAL	4.4394×10^{-8}

Q_{IT}=86.00
BR_{IT}=1.000

$^{80}_{35}$ Br
17.40m

80m- 35- 1

$^{80}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 80 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{80}_{35}$Br

$T_{1/2}$ =17.40m
$\langle E_{\beta}\rangle$ PER DECAY =718.3
$\langle E_{\gamma}\rangle$ PER DECAY =252.9

FISSION YIELDS

^{235}U THERMAL	4.1823×10^{-9}
^{235}U FAST	1.0602×10^{-9}
^{239}PU THERMAL	1.7797×10^{-8}

Q_{β^-} =2010.
BR_{β^-} =.9140

Q_{β^+} =1870.
BR_{β^+} =.08600

$^{80}_{36}$Kr
STABLE OR LONG-LIVED

$^{80}_{34}$Se
STABLE OR LONG-LIVED

80 - 35- 1

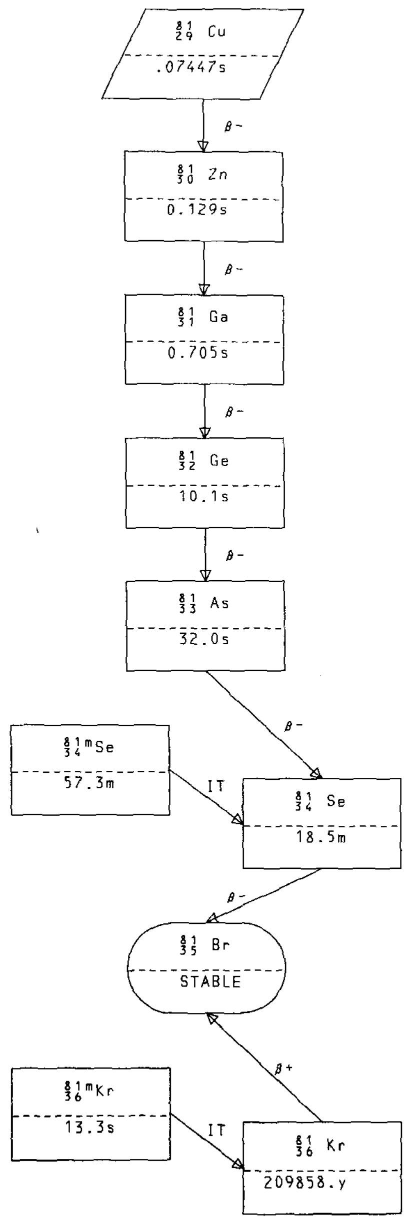
$^{80}_{36}$Kr

$^{80}_{36}$Kr

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.2882\times10^{+1}$
WESTCOTT G FACTOR	1.0479
σ CAPTURE 2200M/S	$1.4311\times10^{+1}$
WESTCOTT G FACTOR	9.9993×10^{-1}
RESONANCE INTEGRAL TOTAL	$2.8210\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$6.1130\times10^{+1}$
RESONANCE INTEGRAL (N,2N)	4.4970×10^{-1}
RESONANCE INTEGRAL (N,P)	3.1940×10^{-2}
RESONANCE INTEGRAL (N,α)	4.3800×10^{-3}


81 29 Cu
.07447s
β-
81 30 Zn
0.129s
β-
81 31 Ga
0.705s
β-
81 32 Ge
10.1s
β-
81 33 As
32.0s
β-
81m 34 Se
57.3m
IT
81 34 Se
18.5m
β-
81 35 Br
STABLE
β+
81m 36 Kr
13.3s
IT
81 36 Kr
209858.y

$^{81}_{29}$Cu

ENDF/B-IV FILE 1 COMMENTS
29-CU- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{81}_{29}$Cu

$T_{1/2}$ =.07447s
$\langle E_\beta \rangle$ PER DECAY =5298.
$\langle E_\gamma \rangle$ PER DECAY =3813.

FISSION YIELDS

^{238}U FAST 9.7091x10^{-9}

Q_β =14410.
BR_β =1.000

$^{81}_{30}$Zn

.1294s

81 - 29- 1

$^{81}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{81}_{30}$Zn

$T_{1/2}$ =.1294s
$\langle E_\beta \rangle$ PER DECAY =4301.
$\langle E_\gamma \rangle$ PER DECAY =2966.

FISSION YIELDS

^{235}U THERMAL	1.2607x10^{-6}
^{235}U FAST	1.7403x10^{-6}
^{238}U FAST	9.3091x10^{-6}
^{239}PU THERMAL	1.9897x10^{-8}

Q_β =11580.
BR_β =1.000

$^{81}_{31}$Ga

.7053s

$^{81}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{81}_{31}$Ga

$T_{1/2}$ =.7053s
$\langle E_\beta \rangle$ PER DECAY =2759.
$\langle E_\gamma \rangle$ PER DECAY =1721.

FISSION YIELDS

^{235}U THERMAL	1.1182×10^{-4}
^{235}U FAST	1.4169×10^{-4}
^{238}U FAST	2.3559×10^{-4}
^{239}PU THERMAL	9.5087×10^{-6}

Q_β =7440.
BR_β =1.000

$^{81}_{32}$Ge

10.1±0.8s

81 - 31- 1

$^{81}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{81}_{32}$Ge

$T_{1/2}$ =10.1±0.8s
$\langle E_\beta \rangle$ PER DECAY =2060.
$\langle E_\gamma \rangle$ PER DECAY =1187.

FISSION YIELDS

^{235}U THERMAL	1.3027×10^{-3}
^{235}U FAST	1.5227×10^{-3}
^{238}U FAST	8.9026×10^{-4}
^{239}PU THERMAL	5.1501×10^{-4}

Q_β =5650.
BR_β =1.000

$^{81}_{33}$As

32.0±1.0s

$^{81}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 81 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASS TABLE

$^{81}_{33}$As

$T_{1/2}$ =32.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1669.

FISSION YIELDS

^{235}U THERMAL	5.9132×10^{-4}
^{235}U FAST	6.4664×10^{-4}
^{238}U FAST	1.3583×10^{-4}
^{239}PU THERMAL	1.0270×10^{-3}

Q_β =3800.±200.
BR_β =1.000

$^{81}_{34}$Se

18.50m

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	3800.0	1669.	100.0

$\langle E_e \rangle$ PER DECAY = 1669.
$\langle E_\nu \rangle$ PER DECAY = 2131.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	3800.	100.0

$^{81m}_{34}Se$

ENDF/B-IV FILE 1 COMMENTS
34-SE- 81M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{81m}_{34}Se$

$T_{1/2}$ =57.30m
$\langle E_\gamma \rangle$ PER DECAY =103.0

FISSION YIELDS

^{235}U THERMAL	7.4170×10^{-5}
^{235}U FAST	2.1574×10^{-5}
^{238}U FAST	1.2799×10^{-6}
^{239}PU THERMAL	5.0063×10^{-5}

Q_{IT}=103.0
BR_{IT}=1.000

$^{81}_{34}Se$

18.50m

81m- 34- 1

$^{81}_{34}Se$

ENDF/B-IV FILE 1 COMMENTS
34-SE- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
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

$^{81}_{34}Se$

$T_{1/2}$ =18.50m
$\langle E_\beta \rangle$ PER DECAY =605.0
$\langle E_\gamma \rangle$ PER DECAY =7.600

FISSION YIELDS

^{235}U THERMAL	2.1952×10^{-5}
^{235}U FAST	2.1844×10^{-5}
^{238}U FAST	1.4599×10^{-6}
^{239}PU THERMAL	1.6022×10^{-4}

Q_β =1580.
BR_β =1.000

$^{81}_{35}Br$

STABLE OR LONG-LIVED

81 - 34- 1

$^{81}_{35}$Br

$^{81}_{35}$Br	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	5.5351
WESTCOTT G FACTOR	1.0662
σ CAPTURE 2200M/S	2.6921
WESTCOTT G FACTOR	1.0005
RESONANCE INTEGRAL TOTAL	$2.0120\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$5.0230\times10^{+1}$
FISSION YIELDS	
^{235}U THERMAL	8.9348×10^{-8}
^{235}U FAST	8.1113×10^{-8}
^{238}U FAST	1.5698×10^{-9}
^{239}PU THERMAL	3.3395×10^{-6}

81 - 35- 1

$^{81m}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 81M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{81m}_{36}$Kr	
$T_{1/2}$ =13.30s	
$\langle E_\gamma \rangle$ PER DECAY =190.0	
FISSION YIELDS	
^{239}PU THERMAL	1.9397×10^{-9}

Q_{IT}=190.0
BR_{IT}=1.000

$^{81}_{36}$Kr
$(2.099)\times10^{+5}$y

$^{81}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 81 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{81}_{36}$Kr

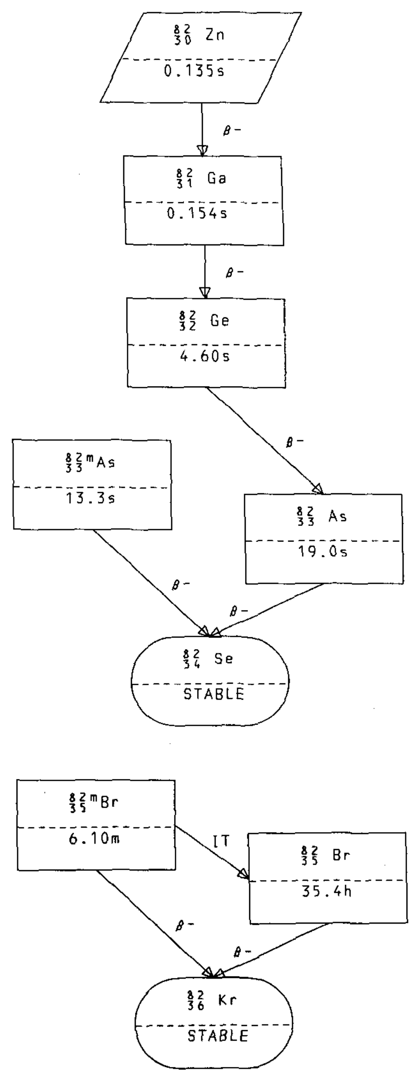
$T_{1/2}$ =$(2.099)\times10^{+5}$y
$\langle E_\gamma \rangle$ PER DECAY =140.0

FISSION YIELDS
^{239}PU THERMAL 1.8397×10^{-9}

$Q_{\beta+}$=300.0
$BR_{\beta+}$=1.000

$^{81}_{35}$Br

STABLE OR LONG-LIVED



$^{82}_{30}$Zn
0.135s
β-
$^{82}_{31}$Ga
0.154s
β-
$^{82}_{32}$Ge
4.60s
β-
$^{82m}_{33}$As
13.3s
$^{82}_{33}$As
19.0s
β-
β-
$^{82}_{34}$Se
STABLE
$^{82m}_{35}$Br
6.10m
IT
$^{82}_{35}$Br
35.4h
β-
β-
$^{82}_{36}$Kr
STABLE

$^{82}_{30}$Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 82 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{82}_{30}$Zn

$T_{1/2}$ =.1353s
$\langle E_\beta \rangle$ PER DECAY =3789.
$\langle E_\gamma \rangle$ PER DECAY =2940.

FISSION YIELDS	
^{235}U THERMAL	1.2607×10^{-7}
^{235}U FAST	1.7603×10^{-7}
^{238}U FAST	1.6798×10^{-6}

Q_β =10630.
BR_β =1.000

$^{82}_{31}$Ga

.1538s

82 - 30- 1

$^{82}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 82 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{82}_{31}$Ga

$T_{1/2}$ =.1538s
$\langle E_\beta \rangle$ PER DECAY =4760.
$\langle E_\gamma \rangle$ PER DECAY =2831.

FISSION YIELDS	
^{235}U THERMAL	3.7360×10^{-5}
^{235}U FAST	4.5057×10^{-5}
^{238}U FAST	1.4402×10^{-4}
^{239}PU THERMAL	1.2398×10^{-6}

Q_β =12350.
BR_β =1.000

$^{82}_{32}$Ge

4.6±.4s

$^{82}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 82 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{82}_{32}$Ge

$T_{1/2}$ =4.6±.4s
$\langle E_\beta \rangle$ PER DECAY =1218.
$\langle E_\gamma \rangle$ PER DECAY =846.3

FISSION YIELDS

^{235}U THERMAL	1.3033×10^{-3}
^{235}U FAST	1.3672×10^{-3}
^{238}U FAST	1.6260×10^{-3}
^{239}PU THERMAL	2.0396×10^{-4}

Q_β =3580.
BR_β =1.000

$^{82}_{33}$As

19.0±2.0s

82 - 32- 1

$^{82m}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 82M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASS TABLE

$^{82m}_{33}$As

$T_{1/2}$ =13.3±0.5s
$\langle E_\beta \rangle$ PER DECAY =1819.
$\langle E_\gamma \rangle$ PER DECAY =2995.

FISSION YIELDS

^{235}U THERMAL	8.2263×10^{-4}
^{235}U FAST	7.6083×10^{-4}
^{238}U FAST	3.6357×10^{-4}
^{239}PU THERMAL	5.1489×10^{-4}

Q_β =7200.±200.
BR_β =1.000

$^{82}_{34}$Se

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
343.5	1	57.02
560.5	1	15.40
654.8	1	71.28
815.5	1	8.554
818.7	1	23.38
902.7	1	2.281
1076.	1	10.83
1080.	1	29.08
1541.	1	7.983
1718.	1	3.421
1731.	1	32.50
1896.	1	35.93
2356.	1	4.562

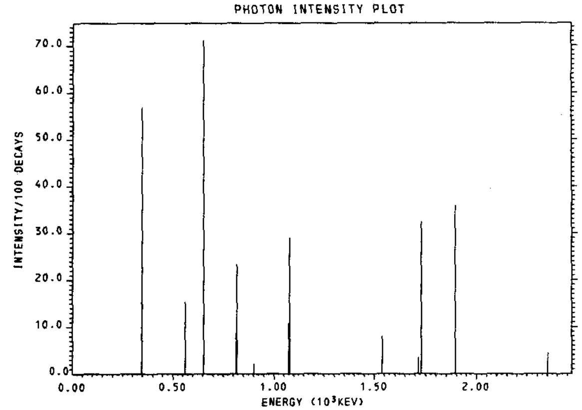
$\langle E_{PHOTON} \rangle$ PER DECAY = 2995.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	3100.0	1328.	14.00
β-	3700.0	1620.	24.00
β-	4300.0	1915.	47.00
β-	5400.0	2459.	14.00

$\langle E_e \rangle$ PER DECAY = 1819.
$\langle E_\nu \rangle$ PER DECAY = 2280.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	654.8	71.28
γ	343.5	57.02
β-	4300.	47.00
γ	1896.	35.93
γ	1731.	32.50
γ	1080.	29.08
β-	3700.	24.00
γ	818.7	23.38

$^{82}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 82 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN, ANCR-1157,ENDF210,8/74.

REFERENCE
Q-1973 WAPSTRA-GOVE MASS TABLE

$^{82}_{33}$As

$T_{1/2}$ =19.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =3211.
$\langle E_\gamma \rangle$ PER DECAY =288.1

FISSION YIELDS

^{235}U THERMAL	8.2602×10^{-4}
^{235}U FAST	7.5784×10^{-4}
^{238}U FAST	3.6198×10^{-4}
^{239}PU THERMAL	5.1493×10^{-4}

Q_β =7200.±200.
BR_β =1.000

$^{82}_{34}$Se

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
654.8	1	11.42
1076.	1	.6395
1731.	1	1.919
2514.	1	1.005
2590.	1	.9136
2605.	1	1.188
2834.	1	1.096
3150.	1	.9136
3666.	1	.9136

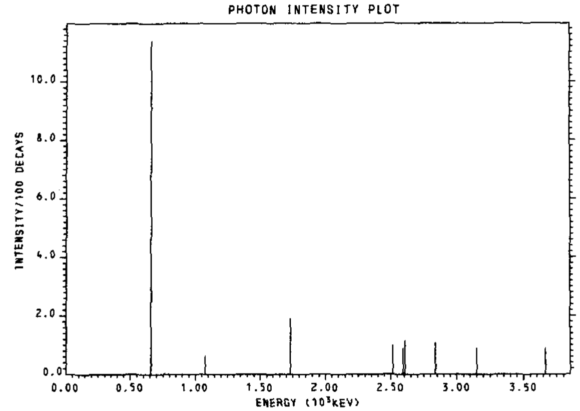
$\langle E_{PHOTON} \rangle$ PER DECAY = 288.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2700.0	1134.	1.000
β^-	2900.0	1231.	2.000
β^-	5500.0	2509.	5.000
β^-	6600.0	3055.	12.00
β^-	7200.0	3354.	80.00

$\langle E_e \rangle$ PER DECAY = 3211.
$\langle E_\nu \rangle$ PER DECAY = 3701.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	7200.	80.00
β^-	6600.	12.00

$^{82}_{34}$Se

$^{82}_{34}$Se

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.9272
WESTCOTT G FACTOR	1.1273
σ CAPTURE 2200M/S	4.5032×10^{-2}
WESTCOTT G FACTOR	1.0290
RESONANCE INTEGRAL TOTAL	$7.5610\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	9.4130×10^{-2}

FISSION YIELDS

^{235}U THERMAL	3.5370×10^{-4}
^{235}U FAST	2.8760×10^{-4}
^{238}U FAST	5.1475×10^{-5}
^{239}PU THERMAL	8.7404×10^{-4}

82 - 34- 1

$^{82m}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 82M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{82m}_{35}$Br

$T_{1/2}$ =6.100m
$\langle E_\beta \rangle$ PER DECAY =27.42
$\langle E_\gamma \rangle$ PER DECAY =55.88

FISSION YIELDS

^{235}U THERMAL	7.1439×10^{-7}
^{235}U FAST	8.4214×10^{-7}
^{238}U FAST	5.0595×10^{-8}
^{239}PU THERMAL	7.2990×10^{-6}

Q_β =3136.
BR_β =.02400

Q_{IT}=46.00
BR_{IT}=.9760

$^{82}_{36}$Kr

STABLE OR LONG-LIVED

$^{82}_{35}$Br

35.40h

82m- 35- 1

$^{82}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 82 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{82}_{35}$Br

$T_{1/2}$ =35.40h
$\langle E_\beta \rangle$ PER DECAY =140.0
$\langle E_\gamma \rangle$ PER DECAY =2650.

FISSION YIELDS

^{235}U THERMAL	5.3629×10^{-7}
^{235}U FAST	8.4314×10^{-7}
^{238}U FAST	5.0595×10^{-8}
^{239}PU THERMAL	3.2295×10^{-5}

Q_β =3090.
BR_β =1.000

$^{82}_{36}$Kr

STABLE OR LONG-LIVED

82 - 35- 1

$^{82}_{36}$Kr

$^{82}_{36}$Kr

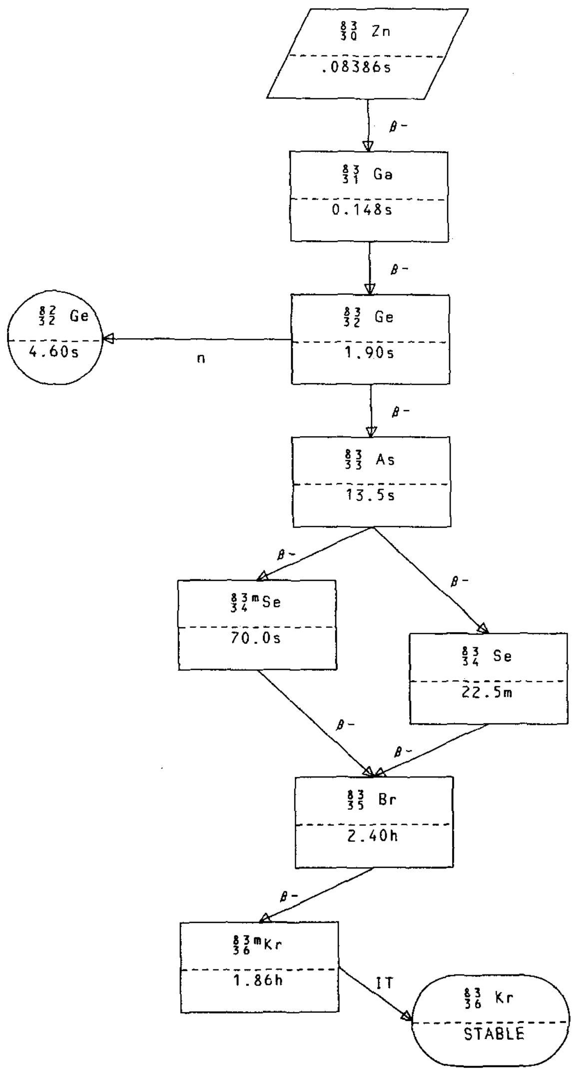
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.0339\times10^{+1}$
WESTCOTT G FACTOR	1.0318
σ CAPTURE 2200M/S	$3.0194\times10^{+1}$
WESTCOTT G FACTOR	9.9944×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.9410\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.8310\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	5.9590×10^{-1}
RESONANCE INTEGRAL (N,P)	1.1280×10^{-2}
RESONANCE INTEGRAL (N,α)	2.4960×10^{-3}

FISSION YIELDS

^{235}U THERMAL	1.0206×10^{-9}
^{235}U FAST	1.0302×10^{-9}
^{239}PU THERMAL	5.4592×10^{-8}



83 30 Zn
.08386s
β-
83 31 Ga
0.148s
β-
82 32 Ge
4.60s
n
83 32 Ge
1.90s
β-
83 33 As
13.5s
β-
β-
83m 34 Se
70.0s
83 34 Se
22.5m
β-
β-
83 35 Br
2.40h
β-
83m 36 Kr
1.86h
IT
83 36 Kr
STABLE

$^{83}_{30}$ Zn

ENDF/B-IV FILE 1 COMMENTS
30-ZN- 83 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{83}_{30}$ Zn

$T_{1/2}$ =.08386s
$\langle E_\beta \rangle$ PER DECAY =4694.
$\langle E_\gamma \rangle$ PER DECAY =3531.

FISSION YIELDS	
^{235}U THERMAL	9.7253×10^{-9}
^{235}U FAST	1.3102×10^{-8}
^{238}U FAST	1.5499×10^{-7}

Q_β =12920.
BR_β =1.000

$^{83}_{31}$ Ga

.1477s

83 - 30- 1

$^{83}_{31}$ Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 83 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{83}_{31}$ Ga

$T_{1/2}$ =.1477s
$\langle E_\beta \rangle$ PER DECAY =4267.
$\langle E_\gamma \rangle$ PER DECAY =2873.

FISSION YIELDS	
^{235}U THERMAL	9.3151×10^{-6}
^{235}U FAST	1.1052×10^{-5}
^{238}U FAST	4.4416×10^{-5}
^{239}PU THERMAL	1.2298×10^{-7}

Q_β =11410.
BR_β =1.000

$^{83}_{32}$ Ge

1.9±.4s

$^{83}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 83 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{83}_{32}$Ge

$T_{1/2}$ =1.9±.4s
$\langle E_\beta \rangle$ PER DECAY =3037.
$\langle E_\gamma \rangle$ PER DECAY =2004.

FISSION YIELDS

^{235}U THERMAL	9.6744×10^{-4}
^{235}U FAST	1.0214×10^{-3}
^{238}U FAST	1.4992×10^{-3}
^{239}PU THERMAL	6.1511×10^{-5}

Q_N =375.0
BR_N =.00160

Q_β =8490.
BR_β =.9984

$^{82}_{32}$Ge
4.6±.4s

$^{83}_{33}$As
13.5±0.4s

83 - 32- 1

$^{83}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 83 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{83}_{33}$As

$T_{1/2}$ =13.5±0.4s
$\langle E_\beta \rangle$ PER DECAY =1676.
$\langle E_\gamma \rangle$ PER DECAY =984.5

FISSION YIELDS

^{235}U THERMAL	3.2447×10^{-3}
^{235}U FAST	3.0865×10^{-3}
^{238}U FAST	1.8325×10^{-3}
^{239}PU THERMAL	8.5243×10^{-4}

Q_β =4580.
BR_β =.6400

Q_β =4830.
BR_β =.3600

$^{83m}_{34}$Se
70.0±1.0s

$^{83}_{34}$Se
22.50±0.20m

$^{83m}_{34}Se$

ENDF/B-IV FILE 1 COMMENTS
34-SE- 83M ANC   EVAL-FEB74 C.W.REICH   DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 11/73   CWR
REFERENCE
Q- F.SCHUSSLER , J. DE PHYS. 29, 385(1967)
OTHER- P.FETTWEIS,S.SADASIVAN, Z.PHYSIK 263,99(1973)

$^{83m}_{34}Se$

$T_{1/2}$ =70.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1302.
$\langle E_\gamma \rangle$ PER DECAY =909.3

FISSION YIELDS

^{235}U THERMAL	6.1716×10^{-4}
^{235}U FAST	8.0495×10^{-4}
^{238}U FAST	1.9314×10^{-4}
^{239}PU THERMAL	9.3643×10^{-4}

Q_β =3920.±20.
BR_β =1.000

$^{83}_{35}Br$

2.400h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
188.90	±	0.10	1	.165	±	.017
231.50	±	0.10	1	.313	±	.017
356.84	±	0.08	4	16.73	±	0.03
442.40	±	0.10	1	.066	±	.017
631.20	±	0.10	1	.45	±	.03
673.88	±	0.07	1	14.4	±	0.5
698.7	±	0.4	1	.082	±	.017
799.00	±	0.10	1	1.17	±	.07
987.90	±	0.10	1	14.6	±	0.5
997.60	±	0.10	1	1.22	±	.07
1035.0	±	0.3	4	26.5	±	1.0
1116.00	±	0.10	1	.51	±	.03
1303.00	±	0.20	1	.89	±	.05
1548.9	±	0.4	1	.049	±	.017
1558.5	±	0.3	1	1.14	±	.07
1660.00	±	0.10	1	1.70	±	.08
1694.50	±	0.20	1	.71	±	.05
1779.00	±	0.20	1	.68	±	.05
2022.1	±	0.5	1	.066	±	.017
2051.40	±	0.20	1	10.4	±	0.4
2452.3	±	0.5	1	.038	±	.010
2734.4	±	0.6	1	.043	±	.010
2810.3	±	1.2	1	.021	±	.007
2945.1	±	0.8	1	.021	±	.007
3090.8	±	0.8	1	.036	±	.010

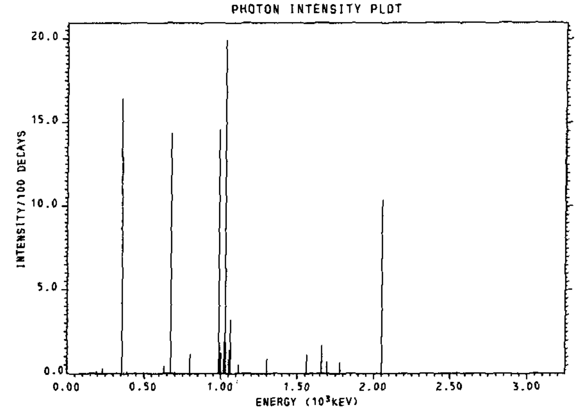
$\langle E_{PHOTON} \rangle$ PER DECAY = 909. ± 15.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	829.0	282.	±	11.	.1000		
β-	1110.0	399.	±	14.	.7000		
β-	1869.0	740.	±	24.	17.60		
β-	2260.0	924.	±	30.	2.500		
β-	2889.0	1225.	±	40.	32.10		
β-	2932.0	1246.	±	40.	12.00		
β-	3053.0	1305.	±	40.	.3500		
β-	3121.0	1338.	±	40.	.5000		
β-	3920.0	1728.	±	50.	34.	±	3.

$\langle E_e \rangle$ PER DECAY = 1302.
$\langle E_\nu \rangle$ PER DECAY = 1738.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	3920.	±	20.	34.	±	3.
β-	2889.	±	20.	32.10		
γ	1030.50	±	0.10	20.0	±	1.0
β-	1869.	±	20.	17.60		
γ	356.66	±	0.06	16.50		
γ	987.90	±	0.10	14.6	±	0.5
γ	673.88	±	0.07	14.4	±	0.5

$^{83}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 83 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 11/73 CWR
REFERENCE
Q - 1973 REVISION OF WAPSTRA-GOVE MASS TABLES.
OTHER- P.FETTWEIS,S.SADASIVAN , Z.PHYSIK 263,99(1973)

$^{83}_{34}$Se

$T_{1/2}$ =22.50±0.20m
$\langle E_\beta \rangle$ PER DECAY =441.9
$\langle E_\gamma \rangle$ PER DECAY =2559.

FISSION YIELDS

^{235}U THERMAL	4.3582×10^{-4}
^{235}U FAST	8.1135×10^{-4}
^{238}U FAST	1.9315×10^{-4}
^{239}PU THERMAL	9.3677×10^{-4}

Q_β =3578.±30.
BR_β =1.000

$^{83}_{35}$Br

2.400h

PHOTON RADIATION TABLE

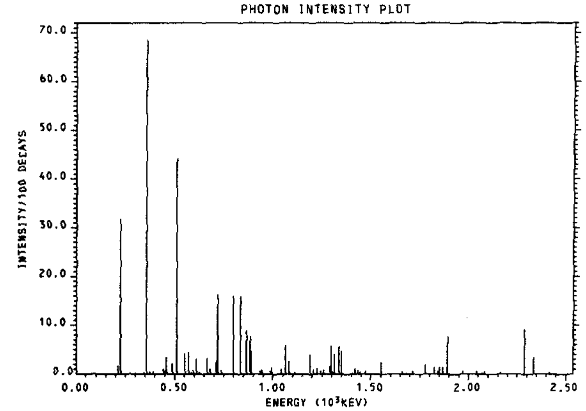
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
208.30	±	0.10	1	1.85	±	.14
225.16	±	0.06	1	31.9	±	1.4
296.10	±	0.20	1	.27	±	.07
356.93	±	0.07	5	70.25	±	0.13
463.2	±	0.5	5	7.8	±	.3
520.1	±	0.7	5	54.1	±	2.0
642.6	±	1.1	4	7.8	±	.3
753.8	±	1.1	5	36.0	±	1.0
859.8	±	0.5	4	37.2	±	0.9
968.9	±	1.4	4	3.50	±	.18
1066.1	±	0.4	4	9.8	±	.4
1110.3	±	0.3	1	.41	±	.07
1191.70	±	0.20	1	4.18	±	.21
1276.4	±	1.1	6	11.2	±	0.5
1336.9	±	0.6	4	15.2	±	0.6
1441.0	±	0.9	4	3.09	±	.14
1554.80	±	0.20	1	2.54	±	.14
1664.6	±	0.6	1	.55	±	.07
1684.2	±	1.0	1	.21	±	.07
1715.9	±	0.3	1	.62	±	.21
1779.90	±	0.20	1	1.9	±	.3
1877.5	±	0.8	5	12.8	±	0.4
1973.2	±	0.4	1	.62	±	.07
2045.2	±	0.5	1	.69	±	.07
2072.4	±	0.7	1	.27	±	.07
2085.4	±	0.4	1	.55	±	.07
2167.3	±	0.4	1	.34	±	.07
2290.2	±	0.3	1	9.3	±	.3
2337.4	±	0.3	1	3.43	±	.21
2419.9	±	0.4	1	.41	±	.07

$\langle E_{PHOTON} \rangle$ PER DECAY = 2559. ± 24.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	632.0	205.	±	12.	8.351
β-	840.0	287.	±	14.	12.81
β-	884.0	305.	±	14.	24.96
β-	931.0	324.	±	15.	32.17
β-	1047.0	373.	±	16.	1.044
β-	1180.0	430.	±	17.	.4745
β-	1774.0	696.	±	24.	2.467
β-	1877.0	744.	±	30.	2.088
β-	2140.0	867.	±	30.	.6643
β-	2486.0	1032.	±	30.	5.694
β-	2556.0	1065.	±	30.	3.037
β-	2711.0	1140.	±	40.	3.322
β-	2779.0	1172.	±	40.	2.942

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	356.66	±	0.06	68.60		
γ	510.04	±	0.08	44.3	±	1.7
β-	931.	±	30.	32.17		
γ	225.16	±	0.06	31.9	±	1.4
β-	884.	±	30.	24.96		
γ	718.00	±	0.10	16.3	±	0.7
γ	799.00	±	0.10	16.0	±	0.7
γ	836.50	±	0.10	15.9	±	0.7
β-	840.	±	30.	12.81		
γ	2290.2	±	0.3	9.3	±	.3
γ	866.00	±	0.10	8.8	±	.3
β-	632.	±	30.	8.351		
γ	1894.80	±	0.20	7.8	±	.3
γ	883.60	±	0.10	7.8	±	.3
γ	1064.10	±	0.10	5.9	±	.3
γ	1299.10	±	0.20	5.8	±	.3
β-	2486.	±	30.	5.694		

PARTICLE RADIATION TABLE

TYPE E_{MAX} MEAN ENERGY INTENSITY/100 DECAYS

$\langle E_{\beta} \rangle$ PER DECAY = 441.9

$\langle E_{\nu} \rangle$ PER DECAY = 743.4

$^{83}_{35}$Br

```
                   ENDF/B-IV FILE 1 COMMENTS
35-BR- 83  HEDL          EVAL-APR74 R.E.SCHENTER
                         DIST-OCT74
     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
```

$^{83}_{35}$Br

$T_{1/2}$ =2.400h
$\langle E_\beta \rangle$ PER DECAY =324.0
$\langle E_\gamma \rangle$ PER DECAY =7.300

FISSION YIELDS

^{235}U THERMAL	3.8231×10^{-5}
^{235}U FAST	2.9505×10^{-5}
^{238}U FAST	2.5198×10^{-6}
^{239}PU THERMAL	1.7228×10^{-4}

Q_β =918.2
BR_β =1.000

$^{83m}_{36}$Kr

1.860h

$^{83m}_{36}$Kr

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                   ENDF/B-IV FILE 1 COMMENTS
36-KR- 83M HEDL          EVAL-APR74 R.E.SCHENTER
                         DIST-OCT74
     REFERENCES
      QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED
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$^{83m}_{36}$Kr

$T_{1/2}$ =1.860h
$\langle E_\gamma \rangle$ PER DECAY =41.80

FISSION YIELDS

^{235}U THERMAL	4.1923×10^{-8}
^{235}U FAST	2.5904×10^{-8}
^{239}PU THERMAL	1.1898×10^{-6}

Q_{IT}=41.80
BR_{IT}=1.000

$^{83}_{36}$Kr

STABLE OR LONG-LIVED

$^{83}_{36}$Kr

$^{83}_{36}$Kr

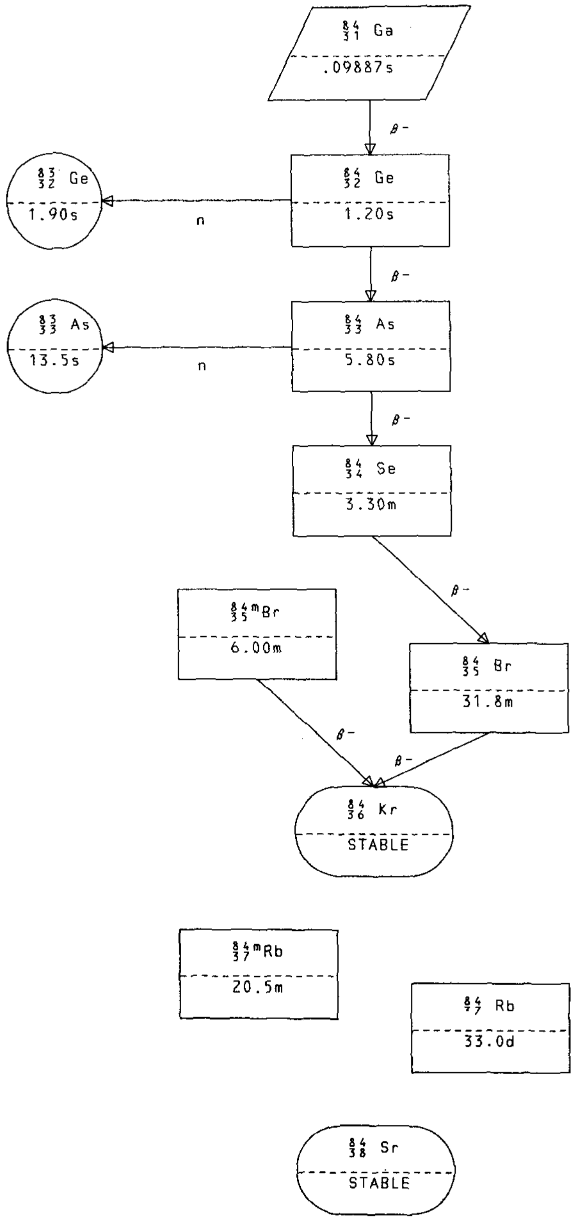
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.1796\times10^{+2}$
WESTCOTT G FACTOR	1.0003
σ CAPTURE 2200M/S	$2.0772\times10^{+2}$
WESTCOTT G FACTOR	9.9416×10^{-1}
RESONANCE INTEGRAL TOTAL	$3.7100\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.9170\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.1360
RESONANCE INTEGRAL (N,P)	1.1910×10^{-2}
RESONANCE INTEGRAL (N,α)	1.6970×10^{-3}

FISSION YIELDS

^{235}U THERMAL	3.8121×10^{-8}
^{235}U FAST	2.5904×10^{-8}
^{239}PU THERMAL	1.0199×10^{-6}



$^{84}_{31}$Ga
.09887s
β-
$^{83}_{32}$Ge
1.90s
n
$^{84}_{32}$Ge
1.20s
β-
$^{83}_{33}$As
13.5s
n
$^{84}_{33}$As
5.80s
β-
$^{84}_{34}$Se
3.30m
β-
$^{84m}_{35}$Br
6.00m
$^{84}_{35}$Br
31.8m
β-
β-
$^{84}_{36}$Kr
STABLE
$^{84m}_{37}$Rb
20.5m
$^{84}_{37}$Rb
33.0d
$^{84}_{38}$Sr
STABLE

$^{84}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 84 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{84}_{31}$Ga

$T_{1/2}$ =.09887s
$\langle E_\beta \rangle$ PER DECAY =5165.
$\langle E_\gamma \rangle$ PER DECAY =3380.

FISSION YIELDS

^{235}U THERMAL	4.4224×10^{-7}
^{235}U FAST	1.2702×10^{-6}
^{238}U FAST	9.7091×10^{-6}
^{239}PU THERMAL	8.1888×10^{-9}

Q_β =13710.
BR_β =1.000

$^{84}_{32}$Ge

1.2±.3s

84 - 31- 1

$^{84}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 84 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{84}_{32}$Ge

$T_{1/2}$ =1.2±.3s
$\langle E_\beta \rangle$ PER DECAY =2421.
$\langle E_\gamma \rangle$ PER DECAY =1914.

FISSION YIELDS

^{235}U THERMAL	1.5985×10^{-4}
^{235}U FAST	4.0778×10^{-4}
^{238}U FAST	1.0923×10^{-3}
^{239}PU THERMAL	1.3528×10^{-5}

Q_N =3386.
BR_N =.09600

Q_β =7540.
BR_β =.9040

$^{83}_{32}$Ge

1.9±.4s

$^{84}_{33}$As

5.8±.4s

$^{84}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 84 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{84}_{33}$As

$T_{1/2}$ =5.8±.4s
$\langle E_\beta \rangle$ PER DECAY =3761.
$\langle E_\gamma \rangle$ PER DECAY =2104.

FISSION YIELDS

^{235}U THERMAL	2.8897×10^{-3}
^{235}U FAST	3.7729×10^{-3}
^{238}U FAST	3.9349×10^{-3}
^{239}PU THERMAL	5.6962×10^{-4}

Q_N =675.8
BR_N =.0013±.0006

Q_β =9990.
BR_β =.9987

$^{83}_{33}$As
13.5±0.4s

$^{84}_{34}$Se
3.30±.20m

84 - 33- 1

$^{84}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 84 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
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 B5, NO. 2 (1971)
Q VALUE IS FROM 1973 REVISION OF WAPSTRA-GOVE MASS TABLES.

$^{84}_{34}$Se

$T_{1/2}$ =3.30±.20m
$\langle E_\beta \rangle$ PER DECAY =530.8
$\langle E_\gamma \rangle$ PER DECAY =407.7

FISSION YIELDS

^{235}U THERMAL	6.4542×10^{-3}
^{235}U FAST	5.7329×10^{-3}
^{238}U FAST	2.4389×10^{-3}
^{239}PU THERMAL	3.3788×10^{-3}

Q_β =1810.±50.
BR_β =1.000

$^{84}_{35}$Br
31.80±0.10m

84 - 34- 1

PHOTON RADIATION TABLE

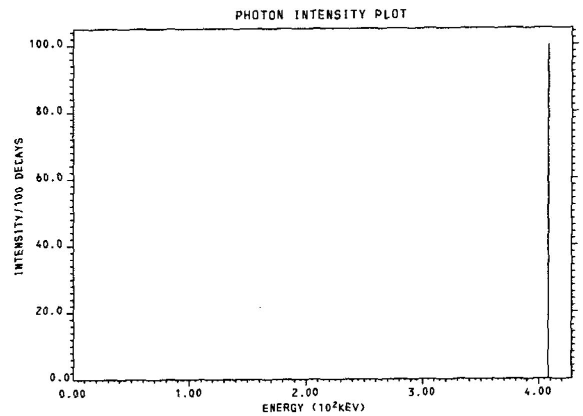
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
407.7 ± 0.5	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 407.7 ± 0.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1410.0	531. ± 25.	100.0

$\langle E_{\beta} \rangle$ PER DECAY = 531. ± 25.
$\langle E_{\nu} \rangle$ PER DECAY = 879. ± 30.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	407.7 ± 0.5	100.0
β-	1410. ± 50.	100.0

$^{84m}_{35}Br$

ENDF/B-IV FILE 1 COMMENTS
35-BR- 84M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 11/73 RES(GULF),CWR
REFERENCE
OTHER (INCL. Q)-J.HATTULA ET AL., NUCL.PHYS.A158,
625(1970)

$^{84m}_{35}Br$

$T_{1/2}$ =6.00±.20m
$\langle E_\beta \rangle$ PER DECAY =895.5
$\langle E_\gamma \rangle$ PER DECAY =2768.

FISSION YIELDS

^{235}U THERMAL	1.9303×10^{-4}
^{235}U FAST	1.6802×10^{-4}
^{238}U FAST	2.7038×10^{-5}
^{239}PU THERMAL	4.0928×10^{-4}

Q_β =4970.±100.
BR_β =1.000

$^{84}_{36}Kr$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

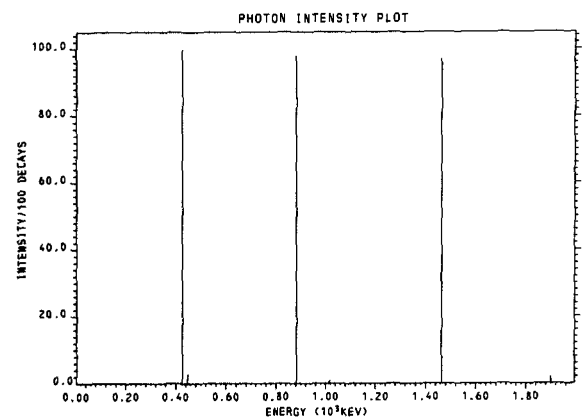
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
424.0	1	100.0
447.0	1	3.000
881.6	1	98.00
1016.	1	1.000
1463.	1	97.00
1897.	1	2.000

$\langle E_{PHOTON} \rangle$ PER DECAY = 2768.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	2200.0	896. ± 50.	100.0

$\langle E_e \rangle$ PER DECAY = 896. ± 50.
$\langle E_\nu \rangle$ PER DECAY = 1304. ± 60.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	424.0	100.0
β-	2200. ± 100.	100.0
γ	881.6	98.00
γ	1463.	97.00

$^{84}_{35}Br$

ENDF/B-IV FILE 1 COMMENTS
35-BR- 84 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
BROMINE-84 PREPARED FOR ENDF/B IV 8/73 DRF(SRL)
REFERENCE
REMAINDER - J.C.HILL AND K.H.WANG, PHYS REV C5,
805(1972)

$^{84}_{35}Br$

$T_{1/2}$ =31.80±0.10m
$\langle E_{\beta} \rangle$ PER DECAY =1256.
$\langle E_{\gamma} \rangle$ PER DECAY =1753.

FISSION YIELDS

^{235}U THERMAL	1.8248×10^{-4}
^{235}U FAST	1.6802×10^{-4}
^{238}U FAST	2.7038×10^{-5}
^{239}PU THERMAL	3.9644×10^{-4}

Q_{β} =4670.±30.
BR_{β} =1.000

$^{84}_{36}Kr$

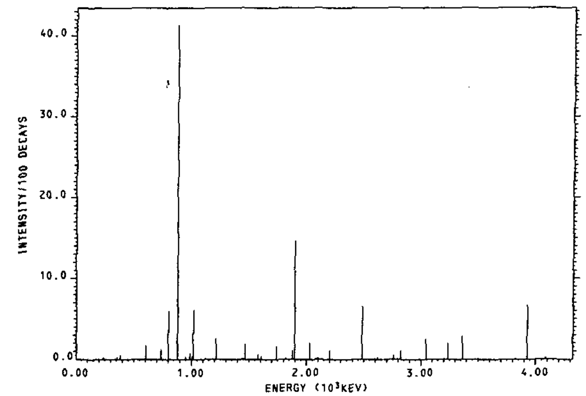
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
230.20	±	0.20	1	.30	±	.04
339.8	±	0.4	1	.070	±	.017
354.70	±	0.20	1	.30	±	.04
382.00	±	0.20	1	.56	±	.08
447.7	±	0.8	1	.041	±	.012
561.4	±	0.5	1	.083	±	.021
604.8	±	0.3	1	1.74	±	.25
688.7	±	0.7	1	.091	±	.025
736.5	±	0.3	1	1.28	±	.21
802.20	±	0.20	1	6.0	±	.6
881.60	±	0.10	1	41.4	±	0.5
947.5	±	0.7	1	.35	±	.08
955.7	±	2.0	1	.06	±	.03
987.3	±	0.4	1	.77	±	.12
1005.7	±	0.7	1	.45	±	.12
1015.9	±	0.3	1	6.1	±	.6
1082.6	±	0.4	1	.141	±	.025
1119.1	±	0.4	1	.141	±	.025
1142.7	±	1.0	1	.033	±	.012
1185.0	±	0.7	1	.108	±	.021
1213.30	±	0.20	1	2.6	±	.3
1255.5	±	0.6	1	.046	±	.008
1438.0	±	0.7	1	.062	±	.017
1463.8	±	0.7	1	1.9	±	.4
1534.7	±	0.6	1	.099	±	.021
1578.1	±	0.4	1	.65	±	.12
1607.6	±	0.4	1	.39	±	.06
1741.2	±	0.4	1	1.61	±	.25
1779.6	±	0.7	1	.062	±	.017
1894.8	±	0.4	4	16.0	±	1.5
2029.6	±	0.5	1	2.1	±	.4
2094.2	±	0.5	1	.21	±	.04
2200.7	±	0.4	1	1.16	±	.17
2218.5	±	1.2	1	.07	±	.03
2484.1	±	0.3	1	6.6	±	.7
2593.7	±	0.6	1	.14	±	.03
2622.9	±	0.5	1	.30	±	.06
2758.7	±	0.5	1	.48	±	.08
2824.1	±	0.4	1	1.12	±	.17
2988.7	±	0.7	1	.17	±	.04
3045.4	±	0.4	1	2.5	±	.4
3202.1	±	0.7	1	.21	±	.04
3235.3	±	0.5	1	2.0	±	.3
3365.8	±	0.4	1	2.9	±	.4
3927.5	±	0.4	1	6.7	±	.7
4084.6	±	0.6	1	.27	±	.04
4115.8	±	1.5	1	.0038	±	.0008

$\langle E_{PHOTON} \rangle$ PER DECAY = 1753. ± 50.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	881.60	±	0.10	41.4	±	0.5
$\beta-$	4670.	±	30.	33.00		
γ	1897.60	±	0.20	14.6	±	1.5
$\beta-$	3788.	±	30.	13.50		
$\beta-$	2772.	±	30.	11.80		
$\beta-$	743.	±	30.	11.50		
$\beta-$	1304.	±	30.	9.400		
$\beta-$	1970.	±	30.	7.300		
γ	3927.5	±	0.4	6.7	±	.7
γ	2484.1	±	0.3	6.6	±	.7
γ	1015.9	±	0.3	6.1	±	.6

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
$\beta-$	480.9	149.	±	10.	.2100
$\beta-$	553.5	175.	±	11.	2.100
$\beta-$	585.8	187.	±	11.	.4800
$\beta-$	742.8	248.	±	12.	11.50
$\beta-$	791.3	267.	±	13.	.2900
$\beta-$	799.7	270.	±	13.	.1700
$\beta-$	964.3	338.	±	15.	2.500
$\beta-$	1194.5	436.	±	17.	.4800
$\beta-$	1304.3	484.	±	18.	9.400
$\beta-$	1587.8	611.	±	22.	3.900

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1911.1	760. ± 30.	1.110
β^-	1970.1	787. ± 30.	7.300
β^-	2047.2	824. ± 30.	1.700
β^-	2180.8	886. ± 30.	.3300
β^-	2324.6	955. ± 30.	.3000
β^-	2772.4	1169. ± 40.	11.80
β^-	2832.7	1198. ± 40.	.06000
β^-	3788.4	1664. ± 50.	13.50
β^-	4670.0	2098. ± 60.	33.00

$\langle E_e \rangle$ PER DECAY = 1256.
$\langle E_\nu \rangle$ PER DECAY = 1659.

$^{84}_{36}$Kr

$^{84}_{36}$Kr	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	6.7941
WESTCOTT G FACTOR	1.1266
σ CAPTURE 2200M/S	8.6418×10^{-2}
WESTCOTT G FACTOR	9.8553×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3740\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	3.5010
RESONANCE INTEGRAL (N,2N)	7.0540×10^{-1}
RESONANCE INTEGRAL (N,P)	4.2670×10^{-3}
RESONANCE INTEGRAL (N,α)	1.3930×10^{-3}
FISSION YIELDS	
^{235}U THERMAL	3.2017×10^{-6}
^{235}U FAST	2.4704×10^{-6}
^{238}U FAST	1.3699×10^{-7}
^{239}PU THERMAL	3.4425×10^{-5}

84 - 36- 1

$^{84m}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB-84M MISSING FROM ENDF/B IV
HALF LIFE R.L.AUBLE, NUCLEAR DATA SHEETS B5,109(1971)

$^{84m}_{37}$Rb	
$T_{1/2}$ =20.50±0.20m	
FISSION YIELDS	
^{239}PU THERMAL	1.4198×10^{-8}

84m- 37- 1

$^{84}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB-84 MISSING FROM ENDF/B IV
HALF LIFE R.L.AUBLE, NUCLEAR DATA SHEETS B5,109(1971)

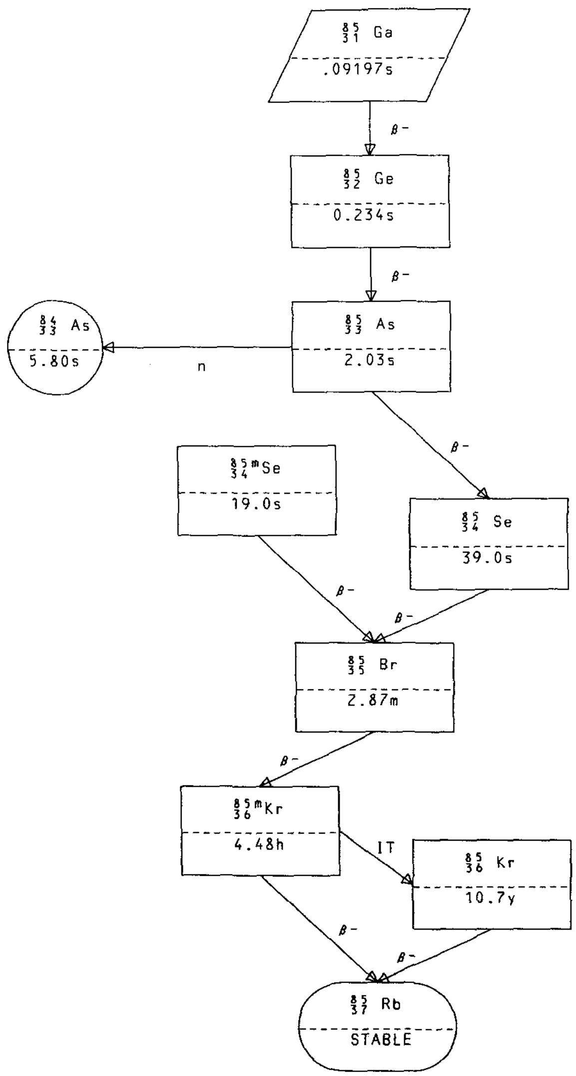
$^{84}_{37}$Rb	
$T_{1/2}$ =33.00±0.20d	
FISSION YIELDS	
^{239}PU THERMAL	1.3998×10^{-8}

84 - 37- 1

$^{84}_{38}$Sr

$^{84}_{38}$Sr
STABLE OR LONG-LIVED

84 - 38- 1


85 31 Ga
.09197s
β-
85 32 Ge
0.234s
β-
84 33 As
5.80s
n
85 33 As
2.03s
β-
85m 34 Se
19.0s
85 34 Se
39.0s
β-
β-
85 35 Br
2.87m
β-
85m 36 Kr
4.48h
IT
85 36 Kr
10.7y
β-
β-
85 37 Rb
STABLE

$^{85}_{31}$Ga

ENDF/B-IV FILE 1 COMMENTS
31-GA- 85 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{85}_{31}$Ga

$T_{1/2}$ =.09197s
$\langle E_\beta \rangle$ PER DECAY =4691.
$\langle E_\gamma \rangle$ PER DECAY =3387.

Q_β =12770.
BR_β =1.000

$^{85}_{32}$Ge

.2342s

85 - 31- 1

$^{85}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 85 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{85}_{32}$Ge

$T_{1/2}$ =.2342s
$\langle E_\beta \rangle$ PER DECAY =3519.
$\langle E_\gamma \rangle$ PER DECAY =2551.

FISSION YIELDS

^{235}U THERMAL	6.2304×10^{-5}
^{235}U FAST	7.7803×10^{-5}
^{238}U FAST	2.1438×10^{-4}
^{239}PU THERMAL	1.6598×10^{-6}

Q_β =9840.
BR_β =1.000

$^{85}_{33}$As

2.030±.010s

$^{85}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 85 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{85}_{33}$As

$T_{1/2}$ =2.030±.010s
$\langle E_\beta \rangle$ PER DECAY =2868.
$\langle E_\gamma \rangle$ PER DECAY =2169.

FISSION YIELDS

^{235}U THERMAL	1.9823×10^{-3}
^{235}U FAST	2.2065×10^{-3}
^{238}U FAST	2.4458×10^{-3}
^{239}PU THERMAL	2.0836×10^{-4}

Q_N =4946.
BR_N =.20±.04

Q_β =9050.
BR_β =.8000

$^{84}_{33}$As
5.8±.4s

$^{85}_{34}$Se
39.±4.s

85 - 33- 1

$^{85m}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 85M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{85m}_{34}$Se

$T_{1/2}$ =19.00s
$\langle E_\beta \rangle$ PER DECAY =2146.
$\langle E_\gamma \rangle$ PER DECAY =1348.

FISSION YIELDS

^{235}U THERMAL	4.5981×10^{-3}
^{235}U FAST	4.6182×10^{-3}
^{238}U FAST	2.2564×10^{-3}
^{239}PU THERMAL	1.6592×10^{-3}

Q_β =6220.
BR_β =1.000

$^{85}_{35}$Br
2.870±.010m

85m- 34- 1

$^{85}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 85 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{85}_{34}$Se

$T_{1/2}$ =39.±4.s
$\langle E_\beta \rangle$ PER DECAY =2060.
$\langle E_\gamma \rangle$ PER DECAY =1294.

FISSION YIELDS

^{235}U THERMAL	4.5982×10^{-3}
^{235}U FAST	4.6186×10^{-3}
^{238}U FAST	2.3323×10^{-3}
^{239}PU THERMAL	1.6591×10^{-3}

Q_β =5970.
BR_β =1.000

$^{85}_{35}$Br

2.870±.010m

85 - 34- 1

$^{85}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 85 ANC EVAL-JUL74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 6/74 CWR
REFERENCES Q - 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER- H.N. ERTEN, THESIS , M.I.T. (DEC.,1970)

$^{85}_{35}$Br

$T_{1/2}$ =2.870±.010m
$\langle E_\beta \rangle$ PER DECAY =994.9
$\langle E_\gamma \rangle$ PER DECAY =64.68

FISSION YIELDS

^{235}U THERMAL	1.7181×10^{-3}
^{235}U FAST	1.5228×10^{-3}
^{238}U FAST	3.2783×10^{-4}
^{239}PU THERMAL	1.9792×10^{-3}

Q_β =2495.±100.
BR_β =1.000

$^{85m}_{36}$Kr

4.480±.010h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
801.6	1	1.317
832.0	1	5.290
925.1	1	1.093

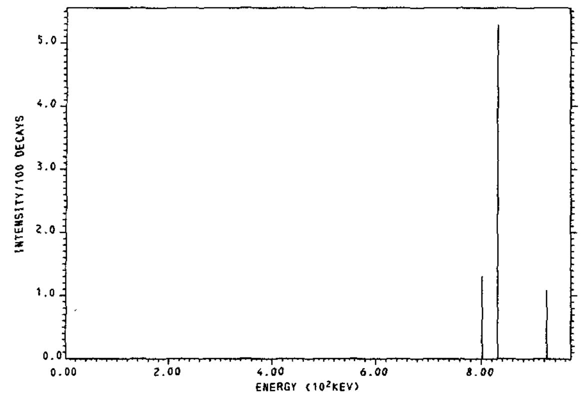
$\langle E_{PHOTON} \rangle$ PER DECAY = 64.68

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1265.0	466.6	1.100
β-	1358.0	507.7	5.300
β-	1388.0	521.0	1.300
β-	2495.0	1036.	92.30

$\langle E_{\beta} \rangle$ PER DECAY = 994.9
$\langle E_{\nu} \rangle$ PER DECAY = 1412.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	2495.	92.30

$^{85m}_{36}Kr$

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                         ENDF/B-IV FILE 1 COMMENTS
36-KR- 85M ANC                EVAL-FEB74 C.W.REICH               DECAY DATA
                              DIST-OCT74
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 TABLES.
                  OTHER DATA  F.K.WOHN ET AL. NUCL. PHYS. A152,561
```

$^{85m}_{36}Kr$

$T_{1/2}$ =4.480±.010h
$\langle E_\beta \rangle$ PER DECAY =226.1
$\langle E_\gamma \rangle$ PER DECAY =183.2

FISSION YIELDS

^{235}U THERMAL	1.5418×10^{-4}
^{235}U FAST	1.9163×10^{-5}
^{238}U FAST	1.5099×10^{-6}
^{239}PU THERMAL	1.0495×10^{-4}

Q_β =991.7±2.0
BR_β =.788±.013

$^{85}_{37}$Rb

STABLE OR LONG-LIVED

Q_{IT}=304.47±0.05
BR_{IT}=.212±.013

$^{85}_{36}$Kr

10.730±0.020y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
11.2	±	0.5	4	6.8	±	1.5
150.99	±	0.05	1	75.	±	3.
304.47	±	0.05	1	14.0	±	0.6

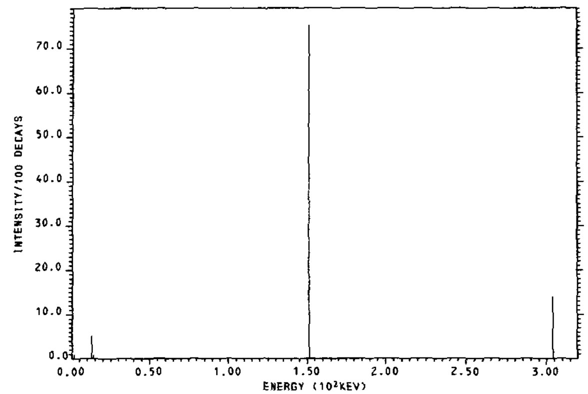
$\langle E_{PHOTON} \rangle$ PER DECAY = 157. ± 4.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	14.0	1.7	±	.4	37.	±	7.
CE	304.2	242.0	±	2.1	10.6	±	0.4
β-	840.7	287.	±	9.	78.8	±	1.3

$\langle E_e \rangle$ PER DECAY = 252. ± 8.
$\langle E_\nu \rangle$ PER DECAY = 436. ± 7.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	840.7	±	2.0	78.8	±	1.3
γ	150.99	±	0.05	75.	±	3.
AU_M	.2890			23.	±	6.

$^{85}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 85 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-OCT74

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- D.J. HOREN, NUCL. DATA SHEETS B 5,NO.2, 131,
(1973).
NOTE FIRST-FORBIDDEN, UNIQUE SHAPE CORRECTION CONSIDERED
IN DERIVING <E-BETA> FOR GROUND-STATE BETA TRANSITION.

$^{85}_{36}$Kr

$T_{1/2}$ =10.730±0.020y
$\langle E_\beta \rangle$ PER DECAY =250.6
$\langle E_\gamma \rangle$ PER DECAY =2.230

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.1940
WESTCOTT G FACTOR	1.1881
σ CAPTURE 2200M/S	1.6600
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.1020\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.6710

FISSION YIELDS

^{235}U THERMAL	2.3333×10^{-5}
^{235}U FAST	1.8823×10^{-5}
^{238}U FAST	1.5099×10^{-6}
^{239}PU THERMAL	6.8730×10^{-5}

Q_β =687.2±2.0
BR_β =1.000

$^{85}_{37}$Rb

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

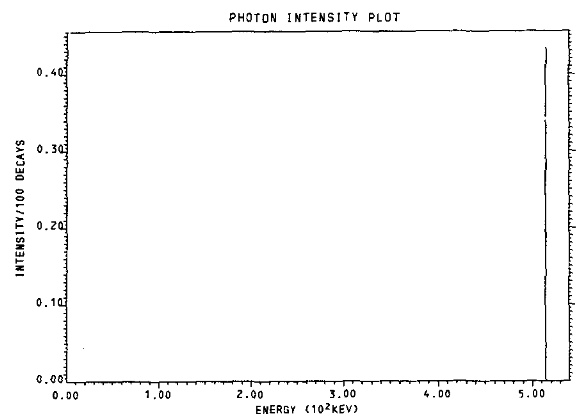
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
513.98	±	0.03	1	.434	±	.011

$\langle E_{PHOTON} \rangle$ PER DECAY = 2.23 ± .06

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	173.2	47.4	±	1.5	.434	±	.011
β-	687.2	251.	±	8.	99.566	±	0.011

$\langle E_e \rangle$ PER DECAY = 251. ± 8.
$\langle E_\nu \rangle$ PER DECAY = 434.38 ± 0.09



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	687.2	±	2.0	99.566	±	0.011

$^{85}_{37}Rb$

$^{85}_{37}Rb$

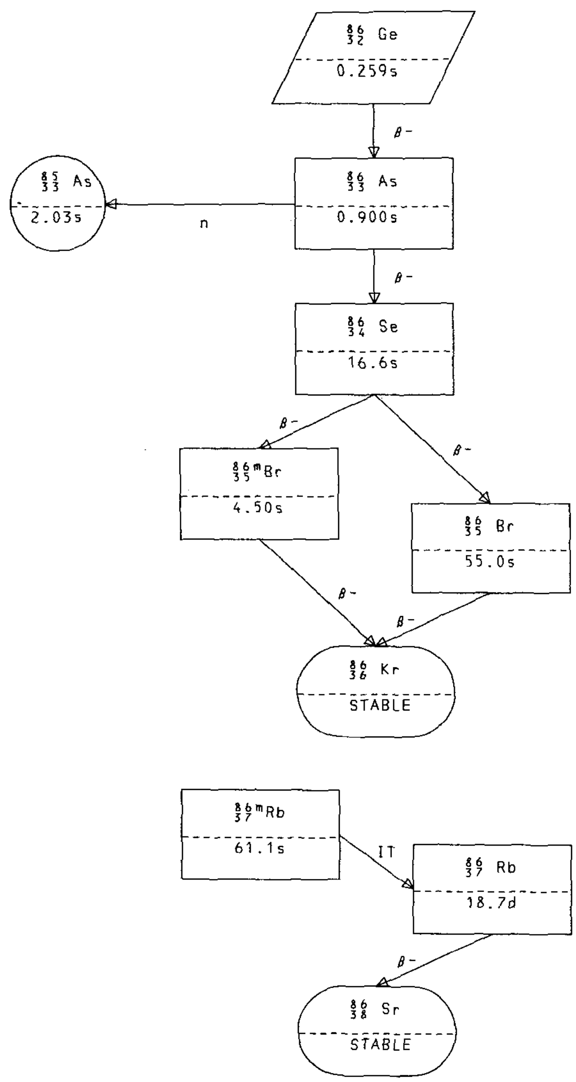
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.0343
WESTCOTT G FACTOR	1.1099
σ CAPTURE 2200M/S	4.6077×10^{-1}
WESTCOTT G FACTOR	1.0036
RESONANCE INTEGRAL TOTAL	$1.1300\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.9440

FISSION YIELDS

^{235}U THERMAL	8.2345×10^{-7}
^{235}U FAST	2.2204×10^{-8}
^{238}U FAST	5.1895×10^{-6}
^{239}PU THERMAL	5.8492×10^{-7}



$^{86}_{32}$Ge
0.259s
β-
$^{86}_{33}$As
0.900s
n
$^{85}_{33}$As
2.03s
β-
$^{86}_{34}$Se
16.6s
β-
β-
$^{86m}_{35}$Br
4.50s
$^{86}_{35}$Br
55.0s
β-
β-
$^{86}_{36}$Kr
STABLE
$^{86m}_{37}$Rb
61.1s
IT
$^{86}_{37}$Rb
18.7d
β-
$^{86}_{38}$Sr
STABLE

$^{86}_{32}$ Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 86 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{86}_{32}$ Ge

$T_{1/2}$ =.2589s
$\langle E_\beta \rangle$ PER DECAY =3086.
$\langle E_\gamma \rangle$ PER DECAY =2471.

FISSION YIELDS

^{235}U THERMAL	1.1436×10^{-5}
^{235}U FAST	1.1022×10^{-5}
^{238}U FAST	4.9345×10^{-5}
^{239}PU THERMAL	1.4498×10^{-7}

Q_β =8910.
BR_β =1.000

$^{86}_{33}$ As

.90±.20s

86 - 32- 1

$^{86}_{33}$ As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 86 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{86}_{33}$ As

$T_{1/2}$ =.90±.20s
$\langle E_\beta \rangle$ PER DECAY =4158.
$\langle E_\gamma \rangle$ PER DECAY =2648.

FISSION YIELDS

^{235}U THERMAL	1.1418×10^{-3}
^{235}U FAST	1.0070×10^{-3}
^{238}U FAST	1.6999×10^{-3}
^{239}PU THERMAL	5.6232×10^{-5}

Q_N =5125.
BR_N =.038±.017

Q_β =11350.
BR_β =.9620

$^{85}_{33}$ As

2.030±.010s

$^{86}_{34}$ Se

16.6±0.3s

$^{86}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 86 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{86}_{34}$Se

$T_{1/2}$ =16.6±0.3s
$\langle E_\beta \rangle$ PER DECAY =1420.
$\langle E_\gamma \rangle$ PER DECAY =1020.

FISSION YIELDS

^{235}U THERMAL	1.1889×10^{-2}
^{235}U FAST	1.2010×10^{-2}
^{238}U FAST	8.4475×10^{-3}
^{239}PU THERMAL	2.5061×10^{-3}

Q_β =3800.
BR_β =.5000

$^{86m}_{35}$Br

4.500s

Q_β =4800.
BR_β =.5000

$^{86}_{35}$Br

55.0±1.0s

86 - 34- 1

$^{86m}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 86M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{86m}_{35}$Br

$T_{1/2}$ =4.500s
$\langle E_\beta \rangle$ PER DECAY =3086.
$\langle E_\gamma \rangle$ PER DECAY =1666.

FISSION YIELDS

^{235}U THERMAL	3.0432×10^{-3}
^{235}U FAST	2.8287×10^{-3}
^{238}U FAST	8.5426×10^{-4}
^{239}PU THERMAL	1.9717×10^{-3}

Q_β =8590.
BR_β =1.000

$^{86}_{36}$Kr

STABLE OR LONG-LIVED

$^{86}_{35}$Br

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                ENDF/B-IV FILE 1 COMMENTS
35-BR- 86  ANC       EVAL-FEB74 C.W.REICH            DECAY DATA
                     DIST-OCT74
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 TABLES
            OTHER- E.ACHTERBERG ET AL., PHYS.REV.C5, 1587 (1972)
```

$^{86}_{35}$Br

$T_{1/2}$ =55.0±1.0s

$\langle E_\beta \rangle$ PER DECAY =1775.

$\langle E_\gamma \rangle$ PER DECAY =3318.

FISSION YIELDS

^{235}U THERMAL	2.9383×10^{-3}
^{235}U FAST	2.8277×10^{-3}
^{238}U FAST	8.5240×10^{-4}
^{239}PU THERMAL	1.9714×10^{-3}

Q_β =7300.±400.

BR_β =1.000

$^{86}_{36}$Kr

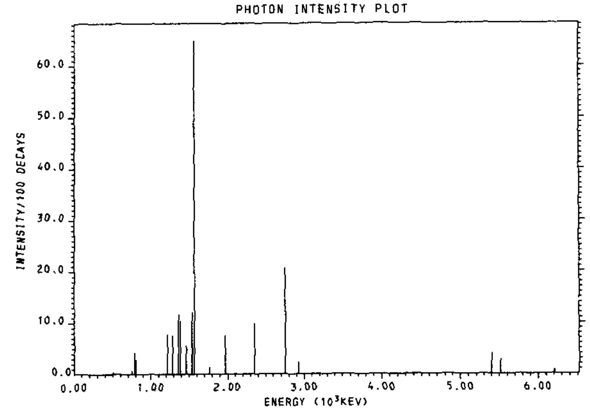
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
499.8	±	0.4	1	.4	±	.3
749.5	±	0.7	1	.72	±	.13
785.14	±	0.18	1	4.3	±	.4
803.5	±	0.3	1	2.9	±	.7
1217.23	±	0.13	1	7.8	±	.8
1285.83	±	0.14	1	7.6	±	1.0
1361.66	±	0.11	1	11.7	±	0.9
1389.76	±	0.13	1	10.5	±	0.9
1464.9	±	0.3	1	5.6	±	.5
1534.6	±	0.3	1	12.1	±	0.9
1564.62	±	0.09	1	65.	±	7.
1768.5	±	0.6	1	1.4	±	.3
1966.1	±	0.3	1	7.5	±	.8
2349.47	±	0.18	1	9.9	±	.8
2751.1	±	0.3	1	20.7	±	2.3
2925.9	±	0.4	1	2.3	±	.4
5406.6	±	0.5	1	4.0	±	1.0
5519.0	±	0.9	1	2.9	±	.7
6209.5	±	1.0	1	.9	±	.4

$\langle E_{PHOTON} \rangle$ PER DECAY = 3318. ± 140.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	1090.0	391.	±	140.	3.800
β-	1781.0	700.	±	160.	2.900
β-	1893.0	751.	±	160.	1.200
β-	2984.0	1271.	±	170.	52.10
β-	4201.0	1867.	±	190.	5.000
β-	4374.0	1952.	±	190.	3.500
β-	4450.0	1989.	±	190.	2.400
β-	4950.0	2236.	±	190.	5.500
β-	5735.0	2625.	±	200.	8.600
β-	7300.0	3403.	±	210.	15.00

$\langle E_e \rangle$ PER DECAY = 1775.
$\langle E_\nu \rangle$ PER DECAY = 2226.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	1564.62	±	0.09	65.	±	7.
β-	2984.	±	400.	52.10		
γ	2751.1	±	0.3	20.7	±	2.3
β-	7300.	±	400.	15.00		
γ	1534.6	±	0.3	12.1	±	0.9
γ	1361.66	±	0.11	11.7	±	0.9
γ	1389.76	±	0.13	10.5	±	0.9
γ	2349.47	±	0.18	9.9	±	.8
β-	5735.	±	400.	8.600		
γ	1217.23	±	0.13	7.8	±	.8

$^{86}_{36}$Kr

$^{86}_{36}$Kr	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	6.0750
WESTCOTT G FACTOR	1.1270
σ CAPTURE 2200M/S	6.3467×10^{-2}
WESTCOTT G FACTOR	9.9606×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.2900 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.4160×10^{-1}
RESONANCE INTEGRAL (N,2N)	7.7630×10^{-1}
RESONANCE INTEGRAL (N,P)	1.5930×10^{-3}
RESONANCE INTEGRAL (N,α)	9.5770×10^{-4}
FISSION YIELDS	
^{235}U THERMAL	4.9676×10^{-4}
^{235}U FAST	4.2402×10^{-4}
^{238}U FAST	4.9865×10^{-5}
^{239}PU THERMAL	1.0751×10^{-3}

86 - 36- 1

$^{86m}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 86M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{86m}_{37}$Rb	
$T_{1/2}$ =61.08s	
$\langle E_\gamma \rangle$ PER DECAY =560.0	
FISSION YIELDS	
^{235}U THERMAL	5.6831×10^{-7}
^{235}U FAST	4.4307×10^{-7}
^{238}U FAST	1.8798×10^{-8}
^{239}PU THERMAL	4.6893×10^{-6}

Q_{IT}=560.0
BR_{IT}=1.000

$^{86}_{37}$Rb
18.65d

$^{86}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS

37-RB- 86 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-OCT74 REV-MAY75

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

$^{86}_{37}$Rb

$T_{1/2}$ =18.65d
$\langle E_\beta \rangle$ PER DECAY =670.0
$\langle E_\gamma \rangle$ PER DECAY =94.30

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	8.4620
WESTCOTT G FACTOR	1.1660
σ CAPTURE 2200M/S	4.9000
WESTCOTT G FACTOR	9.9990×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.4830\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.3930\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	1.8910×10^{-7}
^{235}U FAST	4.4407×10^{-7}
^{238}U FAST	1.8898×10^{-8}
^{239}PU THERMAL	1.1198×10^{-6}

Q_β =1770.
BR_β =1.000

$^{86}_{38}$Sr

STABLE OR LONG-LIVED

$^{86}_{38}$Sr

$^{86}_{38}$Sr

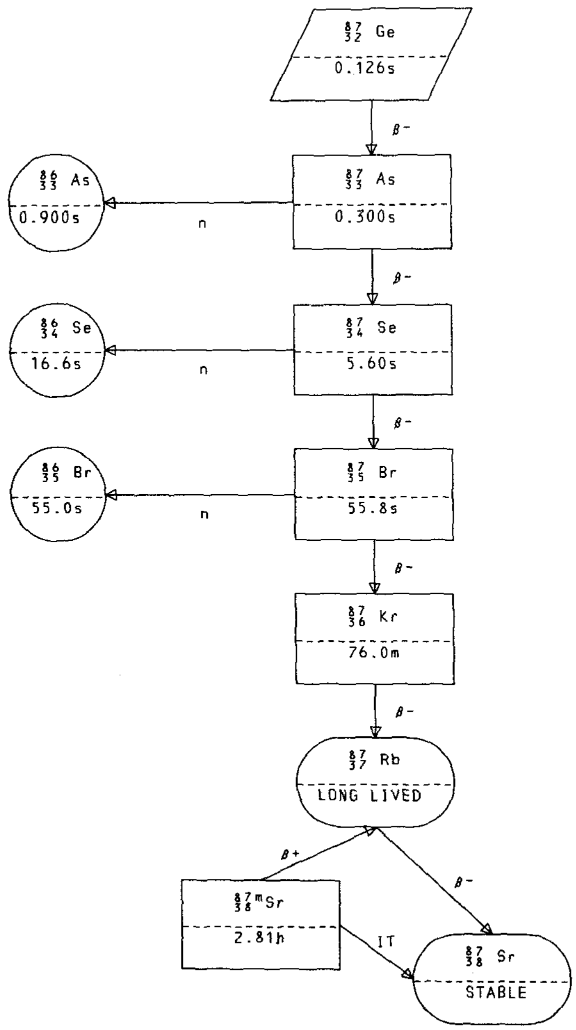
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.0296
WESTCOTT G FACTOR	1.0565
σ CAPTURE 2200M/S	2.8426
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	$1.4570 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.1870

FISSION YIELDS

^{239}PU THERMAL 9.2187×10^{-9}



87 32 Ge
0.126s
β-
87 33 As
0.300s
86 33 As
0.900s
n
β-
87 34 Se
5.60s
86 34 Se
16.6s
n
β-
87 35 Br
55.8s
86 35 Br
55.0s
n
β-
87 36 Kr
76.0m
β-
87 37 Rb
LONG LIVED
β+
87m 38 Sr
2.81h
β-
IT
87 38 Sr
STABLE

$^{87}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 87 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{87}_{32}$Ge

$T_{1/2}$ =.1255s
$\langle E_\beta \rangle$ PER DECAY =4075.
$\langle E_\gamma \rangle$ PER DECAY =3050.

FISSION YIELDS

^{235}U THERMAL	1.9811×10^{-6}
^{235}U FAST	7.8413×10^{-7}
^{238}U FAST	6.0594×10^{-6}
^{239}PU THERMAL	1.6698×10^{-8}

Q_β =11200.
BR_β =1.000

$^{87}_{33}$As

.30±.20s

87 - 32- 1

$^{87}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 87 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{87}_{33}$As

$T_{1/2}$ =.30±.20s
$\langle E_\beta \rangle$ PER DECAY =3111.
$\langle E_\gamma \rangle$ PER DECAY =2786.

FISSION YIELDS

^{235}U THERMAL	7.0159×10^{-4}
^{235}U FAST	2.4646×10^{-4}
^{238}U FAST	6.5682×10^{-4}
^{239}PU THERMAL	2.1617×10^{-5}

Q_N =6306.
BR_N =.3100

Q_β =10410.
BR_β =.6900

$^{86}_{33}$As

.90±.20s

$^{87}_{34}$Se

5.60±.10s

$^{87}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 87 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{87}_{34}$Se

$T_{1/2}$ =5.60±.10s
$\langle E_\beta \rangle$ PER DECAY =2500.
$\langle E_\gamma \rangle$ PER DECAY =1739.

FISSION YIELDS

^{235}U THERMAL	9.3888×10^{-3}
^{235}U FAST	9.0564×10^{-3}
^{238}U FAST	9.1443×10^{-3}
^{239}PU THERMAL	2.9803×10^{-3}

Q_N =695.5
BR_N =.0018±.0003

Q_β =7270.
BR_β =.9982

$^{86}_{34}$Se
16.6±0.3s

$^{87}_{35}$Br
55.8±0.3s

87 - 34- 1

$^{87}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 87 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-G.T.GARVEY, REV. MOD. PHYS. 41, S1 (1969)
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.

$^{87}_{35}$Br

$T_{1/2}$ =55.8±0.3s
$\langle E_\beta \rangle$ PER DECAY =2136.
$\langle E_\gamma \rangle$ PER DECAY =1726.

FISSION YIELDS

^{235}U THERMAL	1.1854×10^{-2}
^{235}U FAST	1.2075×10^{-2}
^{238}U FAST	4.9891×10^{-3}
^{239}PU THERMAL	4.7576×10^{-3}

BR_N =.0230±.0020

Q_β =6680.
BR_β =.9770

$^{86}_{35}$Br
55.0±1.0s

$^{87}_{36}$Kr
76.0±1.0m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
604.0	1	22.85
1419.	1	45.52
1465.	1	16.93
1476.	1	14.93
2561.	1	4.825
4136.	1	8.467

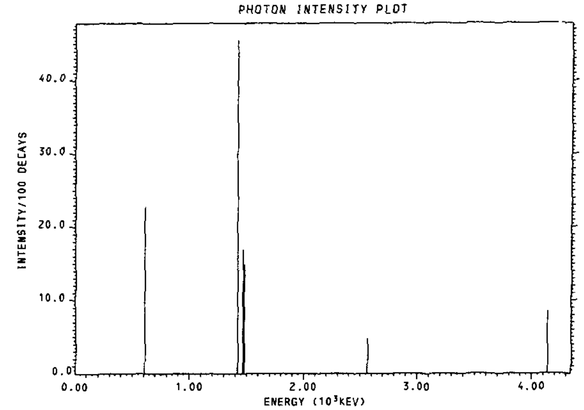
$\langle E_{PHOTON} \rangle$ PER DECAY = 1726.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2600.0	1086.	39.00
β^-	6100.0	2807.	61.00

$\langle E_e \rangle$ PER DECAY = 2136.
$\langle E_\nu \rangle$ PER DECAY = 2599.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	6100.	61.00
γ	1419.	45.52
β^-	2600.	39.00
γ	604.0	22.85

$^{87}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 87 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
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).

$^{87}_{36}$Kr

$T_{1/2}$ =76.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =1335.
$\langle E_\gamma \rangle$ PER DECAY =792.6

FISSION YIELDS

^{235}U THERMAL	3.4927×10^{-3}
^{235}U FAST	2.7407×10^{-3}
^{238}U FAST	4.3756×10^{-4}
^{239}PU THERMAL	1.4302×10^{-3}

Q_β =3891.±6.
BR_β =1.000

$^{87}_{37}$Rb

$(4.697)\times10^{+10}$y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
402.580	±	0.020	1	49.4	±	1.7
673.87	±	0.04	1	1.90	±	.20
814.25	±	0.08	1	.170	±	.020
836.40	±	0.05	1	.76	±	.05
845.45	±	0.04	1	7.5	±	.5
946.80	±	0.20	1	.130	±	.010
1175.40	±	0.08	1	1.15	±	.07
1337.96	±	0.08	1	.68	±	.04
1382.53	±	0.07	1	.290	±	.020
1389.90	±	0.20	1	.120	±	.010
1531.2	±	0.4	1	.36	±	.06
1578.00	±	0.20	1	.120	±	.010
1740.52	±	0.08	1	2.10	±	.20
2011.80	±	0.20	1	3.00	±	.20
2408.8	±	0.3	1	.24	±	.05
2554.90	±	0.20	1	9.5	±	.7
2558.3	±	0.3	1	4.0	±	.4
2811.20	±	0.20	1	.34	±	.03
3308.40	±	0.20	1	.47	±	.04

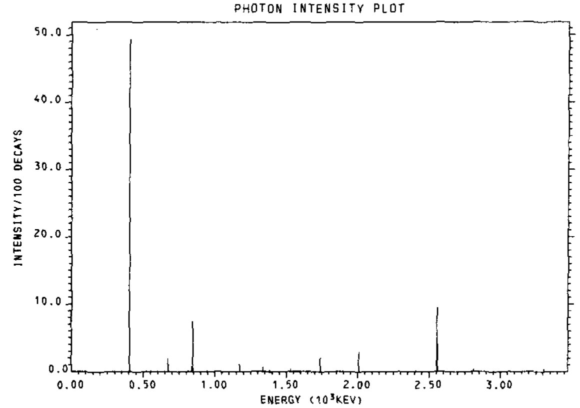
$\langle E_{PHOTON} \rangle$ PER DECAY = 793. ± 23.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	583.0	186.	±	23.	.47	±	.04
β-	931.0	324.	±	30.	4.3	±	.4
β-	1080.0	387.	±	30.	.58	±	.06
β-	1337.0	498.	±	30.	9.7	±	.7
β-	1477.0	561.	±	30.	5.7	±	.3
β-	1514.0	578.	±	30.	.36	±	.06
β-	2151.0	872.	±	40.	.60	±	.20
β-	2314.0	950.	±	40.	.20	±	.10
β-	3046.0	1301.	±	50.	7.1	±	.5
β-	3488.0	1517.	±	50.	40.4	±	1.8
β-	3891.0	1714.	±	60.	30.5	±	2.2

$\langle E_e \rangle$ PER DECAY = 1334. ± 60.
$\langle E_\nu \rangle$ PER DECAY = 1764. ± 60.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	402.580	±	0.020	49.4	±	1.7
β-	3488.	±	70.	40.4	±	1.8
β-	3891.	±	70.	30.5	±	2.2
β-	1337.	±	70.	9.7	±	.7
γ	2554.90	±	0.20	9.5	±	.7

$^{87}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 87 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-OCT74 REV-MAY75

$^{87}_{37}$Rb

$T_{1/2}$ =(4.697)x10^{+10}y
$\langle E_\beta \rangle$ PER DECAY =92.19
$\langle E_\gamma \rangle$ PER DECAY =48.57

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.3795
WESTCOTT G FACTOR	1.1228
σ CAPTURE 2200M/S	1.2020x10^{-1}
WESTCOTT G FACTOR	1.0089
RESONANCE INTEGRAL TOTAL	1.0030x10^{+2}
RESONANCE INTEGRAL CAPTURE	2.0900

FISSION YIELDS

^{235}U THERMAL	2.6134x10^{-5}
^{235}U FAST	3.1995x10^{-5}
^{238}U FAST	1.0099x10^{-6}
^{239}PU THERMAL	3.0207x10^{-4}

Q_β =280.0
BR_β =1.000

$^{87}_{38}$Sr

STABLE OR LONG-LIVED

$^{87m}_{38}Sr$

ENDF/B-IV FILE 1 COMMENTS
38-SR- 87M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{87m}_{38}Sr$

$T_{1/2}$ =2.810h
$\langle E_\beta \rangle$ PER DECAY =.1053
$\langle E_\gamma \rangle$ PER DECAY =386.9

FISSION YIELDS

^{235}U THERMAL	1.0105×10^{-8}
^{235}U FAST	7.8913×10^{-9}
^{239}PU THERMAL	1.4798×10^{-7}

Q_{IT}=388.0
BR_{IT}=.9970

$Q_{\beta+}$=108.0
$BR_{\beta+}$=.00300

$^{87}_{38}Sr$
STABLE OR LONG-LIVED

$^{87}_{37}Rb$
$(4.697)\times10^{+10}y$

$^{87}_{38}Sr$

$^{87}_{38}Sr$

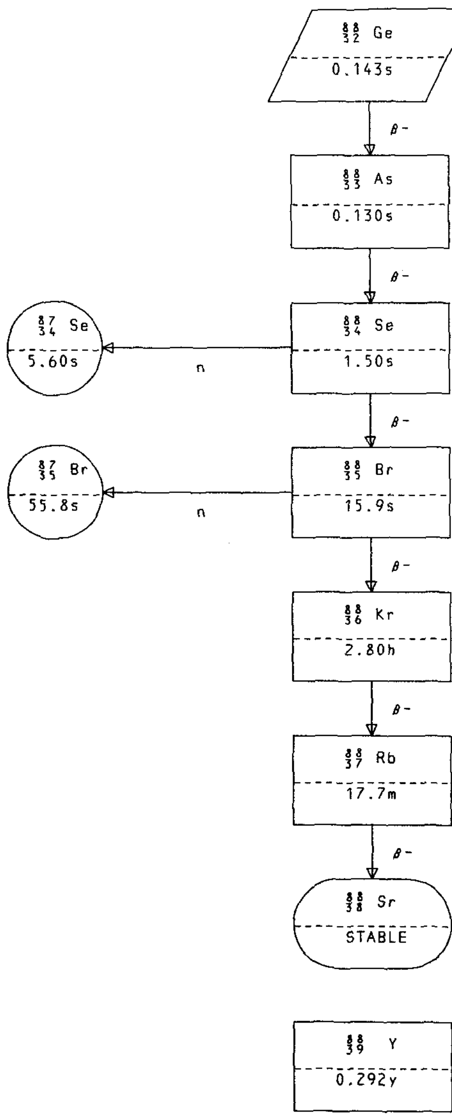
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.9225\times10^{+1}$
WESTCOTT G FACTOR	1.0263
σ CAPTURE 2200M/S	$1.6008\times10^{+1}$
WESTCOTT G FACTOR	1.0059
RESONANCE INTEGRAL TOTAL	$2.1460\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1850\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	1.1206×10^{-8}
^{235}U FAST	2.0403×10^{-8}
^{238}U FAST	2.3498×10^{-9}
^{239}PU THERMAL	1.4398×10^{-7}



88 32 Ge
0.143s
β-
88 33 As
0.130s
β-
87 34 Se
5.60s
n
88 34 Se
1.50s
β-
87 35 Br
55.8s
n
88 35 Br
15.9s
β-
88 36 Kr
2.80h
β-
88 37 Rb
17.7m
β-
88 38 Sr
STABLE
88 39 Y
0.292y

$^{88}_{32}$Ge

ENDF/B-IV FILE 1 COMMENTS
32-GE- 88 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{88}_{32}$Ge

$T_{1/2}$ =.1427s
$\langle E_{\beta}\rangle$ PER DECAY =3509.
$\langle E_{\gamma}\rangle$ PER DECAY =2990.

FISSION YIELDS

^{235}U THERMAL	1.8810×10^{-8}
^{235}U FAST	3.3505×10^{-8}
^{238}U FAST	4.7696×10^{-7}

Q_{β} =10040.
BR_{β} =1.000

$^{88}_{33}$As

.1299s

88 - 32- 1

$^{88}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 88 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{88}_{33}$As

$T_{1/2}$ =.1299s
$\langle E_{\beta}\rangle$ PER DECAY =4804.
$\langle E_{\gamma}\rangle$ PER DECAY =3103.

FISSION YIELDS

^{235}U THERMAL	2.4453×10^{-5}
^{235}U FAST	3.8366×10^{-5}
^{238}U FAST	1.7893×10^{-4}
^{239}PU THERMAL	9.8586×10^{-7}

Q_{β} =12710.
BR_{β} =1.000

$^{88}_{34}$Se

1.50±.10s

$^{88}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 88 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{88}_{34}$Se

$T_{1/2}$ =1.50±.10s
$\langle E_\beta \rangle$ PER DECAY =2101.
$\langle E_\gamma \rangle$ PER DECAY =1626.

FISSION YIELDS

^{235}U THERMAL	3.3830×10^{-3}
^{235}U FAST	4.7155×10^{-3}
^{238}U FAST	7.7359×10^{-3}
^{239}PU THERMAL	4.4979×10^{-4}

Q_N =1476.
BR_N =.005±.003

Q_β =6330.
BR_β =.9950

$^{87}_{34}$Se
5.60±.10s

$^{88}_{35}$Br
15.90±0.20s

88 - 34- 1

$^{88}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 88 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{88}_{35}$Br

$T_{1/2}$ =15.90±0.20s
$\langle E_\beta \rangle$ PER DECAY =3067.
$\langle E_\gamma \rangle$ PER DECAY =1881.

FISSION YIELDS

^{235}U THERMAL	2.1806×10^{-2}
^{235}U FAST	1.8391×10^{-2}
^{238}U FAST	1.1836×10^{-2}
^{239}PU THERMAL	5.7500×10^{-3}

Q_N =1685.
BR_N =.046±.004

Q_β =8910.
BR_β =.9540

$^{87}_{35}$Br
55.8±0.3s

$^{88}_{36}$Kr
2.800±.020h

$^{88}_{36}Kr$

ENDF/B-IV FILE 1 COMMENTS

```
36-KR- 88  ANC        EVAL-FEB74 C.W.REICH              DECAY DATA
                      DIST-OCT74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
 PREPARED FOR FILE    8/73                        CWR
 REFERENCES  Q - J.R. CLIFFORD ET AL.,PHYS. REV. C 7, 2535(1973)
             OTHER - R.L. BUNTING, AEC REPORT IS-T-551 (NOV.,1972)
```

$^{88}_{36}Kr$

$T_{1/2}$ =2.800±.020h
$\langle E_\beta \rangle$ PER DECAY =248.6
$\langle E_\gamma \rangle$ PER DECAY =2212.

FISSION YIELDS

^{235}U THERMAL	1.0730×10^{-2}
^{235}U FAST	1.2404×10^{-2}
^{238}U FAST	3.1477×10^{-3}
^{239}PU THERMAL	7.0559×10^{-3}

Q_β =2930.±30.
BR_β =1.000

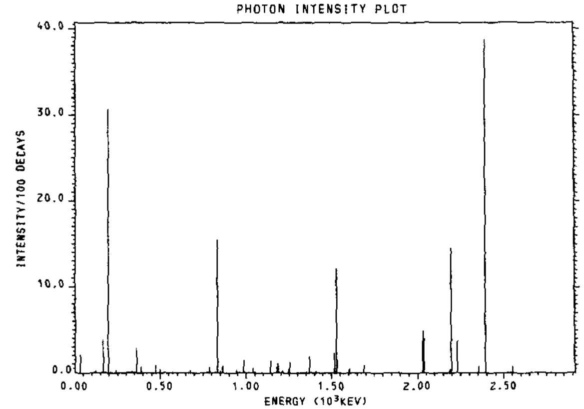
$^{88}_{37}Rb$

17.70±0.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
27.53	±	0.04	1	2.17	±	.16
71.9	±	1.0	1	.019	±	.008
192.0	±	0.3	8	35.0	±	1.9
210.81	±	0.20	1	.12	±	.05
232.88	±	0.25	1	.022	±	.007
240.67	±	0.04	1	.297	±	.019
365.4	±	0.4	6	4.07	±	.16
416.7	±	0.4	1	.078	±	.019
471.760	±	0.020	1	.90	±	.05
499.94	±	0.15	1	.41	±	.05
517.0	±	0.4	1	.042	±	.018
573.26	±	0.14	1	.102	±	.014
578.8	±	0.4	1	.031	±	.014
602.79	±	0.25	1	.062	±	.016
665.90	±	0.17	1	.112	±	.019
677.35	±	0.05	1	.310	±	.024
774.	±	3.	9	1.32	±	.08
836.47	±	0.12	6	16.7	±	0.9
976.6	±	0.7	6	2.20	±	.10
1043.3	±	1.0	5	.89	±	.04
1141.45	±	0.03	1	1.47	±	.08
1179.61	±	0.04	1	1.09	±	.06
1184.98	±	0.05	1	.74	±	.05
1245.1	±	1.0	5	2.15	±	.09
1363.3	±	1.2	5	2.4	±	.3
1406.92	±	0.09	1	.241	±	.021
1414.3	±	0.4	1	.050	±	.019
1464.85	±	0.23	1	.115	±	.022
1518.45	±	0.05	1	2.33	±	.16
1524.9	±	0.3	1	.16	±	.08
1529.79	±	0.03	1	12.2	±	0.6
1654.9	±	2.0	4	1.59	±	.09
1789.2	±	0.5	1	.054	±	.020
1793.4	±	0.6	1	.049	±	.019
1801.4	±	0.7	1	.044	±	.020
1892.8	±	0.3	1	.13	±	.03
1908.67	±	0.23	1	.104	±	.018
2029.95	±	0.04	1	4.9	±	.3
2035.58	±	0.04	1	4.00	±	.19
2186.2	±	0.3	1	.43	±	.09
2195.860	±	0.020	1	14.6	±	0.7
2231.80	±	0.03	1	3.74	±	.19
2259.6	±	0.7	1	.036	±	.016
2352.11	±	0.03	1	.81	±	.04
2364.8	±	0.6	1	.035	±	.016
2392.14	±	0.03	1	38.8	±	2.1
2408.96	±	0.13	1	.131	±	.016
2545.6	±	1.0	4	.92	±	.06
2706.5	±	0.5	1	.041	±	.012
2708.9	±	0.7	1	.029	±	.012
2771.16	±	0.11	1	.164	±	.013

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	538.	±	30.	74.50		
γ	2392.14	±	0.03	38.8	±	2.1
γ	196.34	±	0.03	30.7	±	1.9
γ	834.82	±	0.03	15.5	±	0.9
γ	2195.860	±	0.020	14.6	±	0.7
γ	1529.79	±	0.03	12.2	±	0.6
β-	698.	±	30.	9.900		

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	159.0	43.	±	8.	.4000
β-	374.0	111.	±	10.	.2000
β-	382.0	114.	±	10.	3.400
β-	538.0	170.	±	11.	74.50
β-	698.0	230.	±	12.	9.900
β-	977.0	343.	±	15.	.2000
β-	1014.0	359.	±	15.	.3000
β-	1215.0	445.	±	17.	2.100
β-	1269.0	468.	±	18.	.3000
β-	1578.0	607.	±	22.	.1000
β-	1685.0	655.	±	23.	.2000
β-	1748.0	684.	±	24.	1.500
β-	2068.0	833.	±	30.	2.700
β-	2568.0	1071.	±	30.	.4000

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS

$\langle E_{PHOTON} \rangle$ PER DECAY = 2212. ± 50.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	2734.0	1151. ± 40.	3.800

$\langle E_e \rangle$ PER DECAY = 248.6
$\langle E_\nu \rangle$ PER DECAY = 471.2

$^{88}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 88 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
RUBIDIUM-88 PREPARED FOR ENDF/B IV 8/73 DRF(SRL)
REFERENCE
REMAINDER - R.C.RAGAINI AND R.A.MEYER, PHYS. REV.
C5, 890 (1972)

$^{88}_{37}$Rb

$T_{1/2}$ =17.70±0.10m
$\langle E_\beta \rangle$ PER DECAY =2083.
$\langle E_\gamma \rangle$ PER DECAY =673.9

FISSION YIELDS

^{235}U THERMAL	3.2217×10^{-4}
^{235}U FAST	3.0630×10^{-4}
^{238}U FAST	2.5328×10^{-5}
^{239}PU THERMAL	4.3674×10^{-4}

Q_β =5300.±60.
BR_β =1.000

$^{88}_{38}$Sr

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

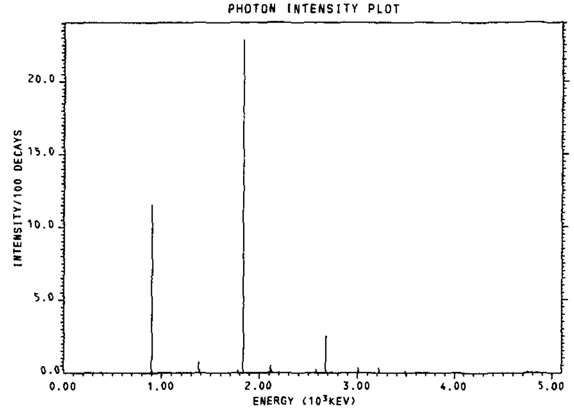
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
459.	±	4.	4	.053	±	.008
625.27	±	0.15	1	.014	±	.003
890.7	±	0.4	1	.16	±	.09
898.014	±	0.019	1	11.6	±	0.3
916.9	±	0.8	1	.011	±	.005
1027.3	±	0.3	1	.012	±	.005
1234.	±	6.	4	.082	±	.011
1313.9	±	0.5	1	.007	±	.007
1382.770	±	0.022	1	.745	±	.021
1555.7	±	0.8	1	.023	±	.018
1635.0	±	0.8	1	.007	±	.007
1668.8	±	0.8	1	.025	±	.011
1679.9	±	0.3	1	.049	±	.010
1779.72	±	0.10	1	.229	±	.012
1799.52	±	0.15	1	.042	±	.009
1836.130	±	0.025	1	22.9	±	0.5
2121.5	±	1.3	4	.67	±	.03
2388.0	±	0.8	1	.029	±	.009
2577.90	±	0.08	1	.247	±	.015
2621.9	±	0.9	1	.012	±	.003
2677.99	±	0.06	1	2.57	±	.06
2734.17	±	0.05	1	.103	±	.008
2797.4	±	0.5	1	.0016	±	.0009
3009.82	±	0.08	1	.382	±	.012
3017.60	±	0.20	1	.0046	±	.0023
3218.75	±	0.11	1	.355	±	.020
3486.76	±	0.12	1	.179	±	.006
3525.0	±	1.0	1	.0069	±	.0023
3611.5	±	1.0	1	.0034	±	.0016
3966.2	±	0.8	1	.0069	±	.0023
4037.2	±	0.6	1	.0114	±	.0023
4633.50	±	0.10	1	.0027	±	.0009
4743.53	±	0.05	1	.112	±	.003
4853.9	±	0.3	1	.0082	±	.0014

$\langle E_{PHOTON} \rangle$ PER DECAY = 674. ± 15.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	446.0	136.	±	19.	.5200
β^-	454.0	139.	±	19.	.5300
β^-	556.3	176.	±	20.	.1300
β^-	666.4	218.	±	21.	.00400
β^-	785.9	265.	±	22.	2.800
β^-	885.9	305.	±	23.	.2800
β^-	1075.8	385.	±	24.	.02900
β^-	1262.7	466.	±	30.	.01100
β^-	1333.7	497.	±	30.	.00700
β^-	1348.1	503.	±	30.	.05500

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	5300.	±	60.	76.20		
γ	1836.130	±	0.025	22.9	±	0.5
γ	898.014	±	0.019	11.6	±	0.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	1664.3	646.	±	30.	.04700
β^-	1688.4	657.	±	30.	.00300
β^-	1775.0	697.	±	30.	.00700
β^-	1813.2	714.	±	30.	.1500
β^-	2081.1	839.	±	30.	1.100
β^-	2565.8	1070.	±	40.	10.80
β^-	3463.9	1505.	±	50.	7.300
β^-	5300.0	2410.	±	80.	76.20

$\langle E_e \rangle$ PER DECAY = 2083.
$\langle E_\nu \rangle$ PER DECAY = 2544.

$^{88}_{38}$Sr

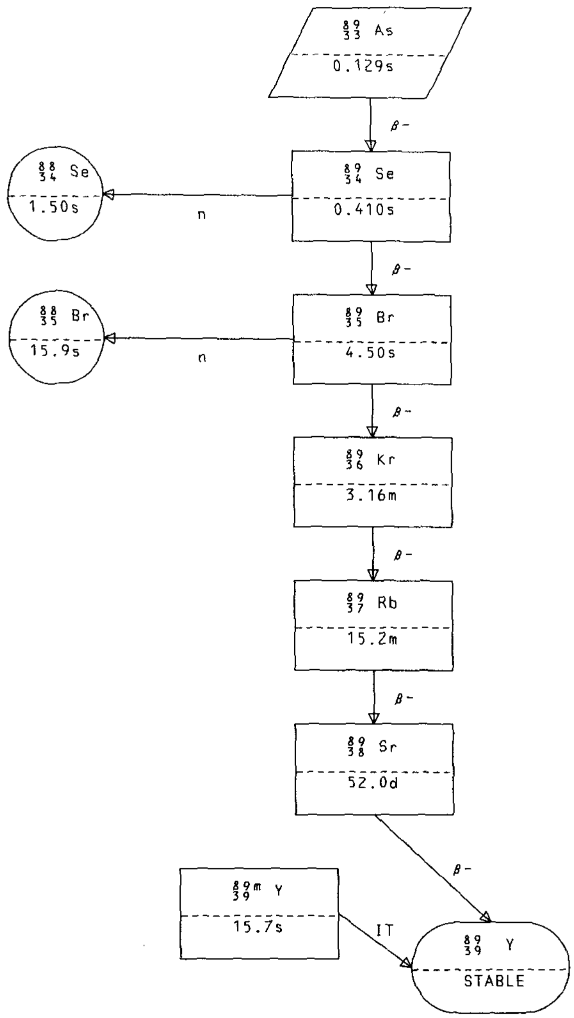
$^{88}_{38}$Sr	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	3.6220
WESTCOTT G FACTOR	1.1376
σ CAPTURE 2200M/S	6.0287×10^{-3}
WESTCOTT G FACTOR	6.6726
RESONANCE INTEGRAL TOTAL	$7.0560 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	5.2720×10^{-2}
FISSION YIELDS	
^{235}U THERMAL	1.0105×10^{-6}
^{235}U FAST	8.9415×10^{-7}
^{238}U FAST	2.2998×10^{-8}
^{239}PU THERMAL	5.4192×10^{-6}

88 - 38- 1

$^{88}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39-Y-88   MISSING FROM ENDF/B IV
HALF LIFE   R.L. BUNTING AND J.J. KRAUSHAAR,
NUCLEAR DATA 18,87(1976)

$^{88}_{39}$Y	
$T_{1/2}$ = .29185±.00011y	
FISSION YIELDS	
^{239}PU THERMAL	1.2498×10^{-9}



$^{89}_{33}$As
0.129s
β-
$^{88}_{34}$Se
1.50s
n
$^{89}_{34}$Se
0.410s
β-
$^{88}_{35}$Br
15.9s
n
$^{89}_{35}$Br
4.50s
β-
$^{89}_{36}$Kr
3.16m
β-
$^{89}_{37}$Rb
15.2m
β-
$^{89}_{38}$Sr
52.0d
β-
$^{89m}_{39}$Y
15.7s
IT
$^{89}_{39}$Y
STABLE

$^{89}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 89 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{89}_{33}$As

$T_{1/2}$ =.1294s
$\langle E_\beta \rangle$ PER DECAY =4216.
$\langle E_\gamma \rangle$ PER DECAY =3117.

FISSION YIELDS

^{235}U THERMAL	1.9410×10^{-6}
^{235}U FAST	2.9705×10^{-6}
^{238}U FAST	2.0598×10^{-5}
^{239}PU THERMAL	3.7595×10^{-8}

Q_β =11550.
BR_β =1.000

$^{89}_{34}$Se
.41±.04s

89 - 33- 1

$^{89}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 89 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{89}_{34}$Se

$T_{1/2}$ =.41±.04s
$\langle E_\beta \rangle$ PER DECAY =2938.
$\langle E_\gamma \rangle$ PER DECAY =2157.

FISSION YIELDS

^{235}U THERMAL	8.8267×10^{-4}
^{235}U FAST	1.2411×10^{-3}
^{238}U FAST	3.0864×10^{-3}
^{239}PU THERMAL	5.6712×10^{-5}

Q_N =2477.
BR_N =.050±.015

Q_β =8630.
BR_β =.9500

$^{88}_{34}$Se
1.50±.10s

$^{89}_{35}$Br
4.50±.10s

$^{89}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 89 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{89}_{35}$Br

$T_{1/2}$ =4.50±.10s
$\langle E_\beta \rangle$ PER DECAY =2815.
$\langle E_\gamma \rangle$ PER DECAY =1982.

FISSION YIELDS

^{235}U THERMAL	1.8564×10^{-2}
^{235}U FAST	1.4622×10^{-2}
^{238}U FAST	1.4381×10^{-2}
^{239}PU THERMAL	2.1935×10^{-3}

Q_N =2756.
BR_N =.086±.009

Q_β =8680.
BR_β =.9140

$^{88}_{35}$Br
15.90±0.20s

$^{89}_{36}$Kr
3.160±.020m

89 - 35- 1

$^{89}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 89 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 8/73 CWR
REFERENCES Q - J.R. CLIFFORD ET AL.,PHYS. REV. C 7,2535(1973).
OTHER - E.A. HENRY ET AL., PHYS. REV. C 7,222(1973).

$^{89}_{36}$Kr

$T_{1/2}$ =3.160±.020m
$\langle E_\beta \rangle$ PER DECAY =1241.
$\langle E_\gamma \rangle$ PER DECAY =2063.

FISSION YIELDS

^{235}U THERMAL	2.7331×10^{-2}
^{235}U FAST	2.7720×10^{-2}
^{238}U FAST	1.1505×10^{-2}
^{239}PU THERMAL	1.2109×10^{-2}

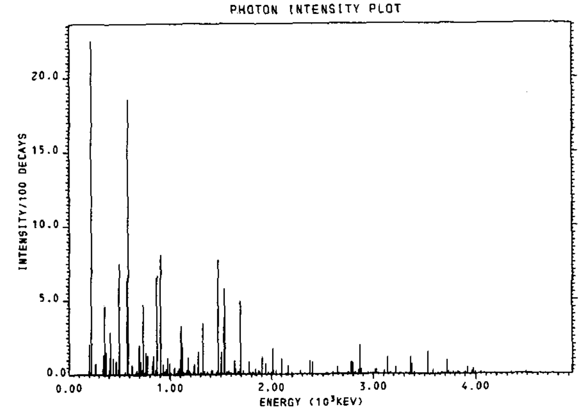
Q_β =4930.±60.
BR_β =1.000

$^{89}_{37}$Rb
15.20±0.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
196.2	±	0.5	1	.24	±	.12
197.5	±	0.3	1	2.05	±	.16
222.51	±	0.15	7	23.5	±	1.3
356.73	±	0.23	8	9.1	±	.3
471.3	±	1.4	9	14.5	±	0.7
583.23	±	0.16	7	25.3	±	1.1
671.6	±	1.1	12	3.90	±	.16
742.9	±	0.9	9	9.5	±	.4
858.9	±	0.4	5	9.3	±	.4
922.7	±	0.8	12	11.7	±	0.5
1062.8	±	1.1	10	1.61	±	.07
1125.2	±	0.8	11	8.3	±	.3
1259.2	±	0.9	10	2.66	±	.12
1328.7	±	0.4	8	4.37	±	.21
1468.9	±	0.3	11	9.2	±	.4
1529.5	±	0.3	7	11.6	±	0.4
1680.8	±	0.8	10	7.2	±	.3
1763.2	±	1.2	9	1.49	±	.08
1846.8	±	1.0	13	1.58	±	.07
1926.5	±	1.5	7	2.27	±	.13
2020.1	±	0.7	7	2.48	±	.12
2131.0	±	2.3	8	2.04	±	.10
2267.	±	3.	4	.36	±	.05
2321.6	±	0.5	1	.058	±	.016
2330.0	±	0.8	1	.040	±	.016
2377.4	±	0.9	1	.90	±	.07
2407.2	±	1.5	4	.91	±	.07
2549.9	±	2.5	7	.47	±	.04
2622.8	±	1.0	1	.025	±	.014
2645.26	±	0.15	1	.47	±	.03
2659.1	±	0.5	1	.097	±	.018
2779.7	±	0.9	10	2.09	±	.09
2863.5	±	0.5	6	2.89	±	.13
2917.4	±	0.7	1	.034	±	.011
2946.9	±	0.4	1	.088	±	.016
2998.4	±	0.6	1	.049	±	.014
3030.2	±	1.5	4	.68	±	.05
3139.1	±	0.6	5	1.60	±	.10
3227.8	±	1.2	4	.64	±	.04
3361.8	±	0.7	9	2.40	±	.12
3439.6	±	0.6	1	.049	±	.014
3463.3	±	1.2	1	.05	±	.03
3541.6	±	0.8	4	1.88	±	.10
3651.6	±	1.5	6	.41	±	.03
3727.3	±	0.9	5	1.32	±	.09
3843.	±	3.	6	.48	±	.03
3951.2	±	1.3	5	1.39	±	.05
4053.0	±	2.1	4	.268	±	.022
4162.	±	3.	6	.164	±	.019
4253.3	±	1.0	1	.016	±	.007
4267.7	±	0.6	1	.031	±	.007

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	220.90	±	0.07	22.5	±	1.3
γ	585.80	±	0.07	18.6	±	1.0
β-	2332.	±	60.	17.00		
β-	4930.	±	60.	14.00		
β-	3236.	±	60.	11.00		
γ	904.27	±	0.07	8.1	±	.5
γ	1472.76	±	0.10	7.7	±	.4
γ	497.5	±	0.3	7.5	±	.6
γ	867.08	±	0.07	6.7	±	.3
γ	576.96	±	0.10	6.3	±	.4
β-	2529.	±	60.	6.300		
γ	1533.68	±	0.15	5.8	±	.3
γ	1693.70	±	0.10	4.9	±	.3
γ	738.39	±	0.07	4.72	±	.25
γ	356.06	±	0.07	4.66	±	.25
β-	2064.	±	60.	4.500		
β-	4353.	±	60.	4.300		
β-	3606.	±	60.	4.000		
γ	1530.04	±	0.15	3.73	±	.23
γ	1324.28	±	0.07	3.44	±	.20

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
4279.4 ± 0.7	1	.022 ± .007
4344.8 ± 1.8	4	.187 ± .015
4481.7 ± 2.2	4	.187 ± .016
4631.5 ± 0.8	1	.031 ± .007
4655.6 ± 0.7	1	.011 ± .005
4685.6 ± 1.2	1	.009 ± .005
4701.5 ± 0.9	1	.011 ± .005

$\langle E_{PHOTON} \rangle$ PER DECAY = 2063. ± 19.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	244.0	69. ± 17.	.1000
β-	299.0	87. ± 18.	.6700
β-	442.0	135. ± 19.	.6200
β-	452.0	139. ± 19.	.4000
β-	525.0	165. ± 19.	.1900
β-	563.0	179. ± 20.	.6600
β-	589.0	188. ± 20.	.2400
β-	592.0	190. ± 20.	.1800
β-	623.0	201. ± 20.	.1600
β-	699.0	231. ± 21.	.2300
β-	714.0	236. ± 21.	.2000
β-	732.0	243. ± 21.	.08000
β-	786.0	265. ± 22.	.6200
β-	849.0	290. ± 22.	.7700
β-	881.0	303. ± 23.	.5600
β-	952.0	333. ± 23.	.5000
β-	964.0	338. ± 23.	.2200
β-	1031.0	366. ± 24.	.1900
β-	1096.0	393. ± 25.	.5800
β-	1210.0	443. ± 30.	.3800
β-	1212.0	443. ± 30.	2.700
β-	1397.0	525. ± 30.	1.700
β-	1465.0	555. ± 30.	.3500
β-	1559.0	598. ± 30.	2.600
β-	1568.0	602. ± 30.	1.800
β-	1603.0	618. ± 30.	2.200
β-	1680.0	653. ± 30.	.3000
β-	1912.0	760. ± 30.	.7400
β-	2064.0	831. ± 30.	4.500
β-	2141.0	868. ± 40.	.3100
β-	2148.0	871. ± 40.	1.700
β-	2332.0	958. ± 40.	17.00
β-	2529.0	1052. ± 40.	6.300
β-	2542.0	1058. ± 40.	.3500
β-	2565.0	1069. ± 40.	.2200
β-	2660.0	1115. ± 40.	.09000
β-	2711.0	1140. ± 40.	.2500

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	2770.0	1168. ± 40.	3.200
β-	2931.0	1246. ± 50.	2.300
β-	3065.0	1311. ± 50.	.5200
β-	3109.0	1332. ± 50.	.2500
β-	3236.0	1394. ± 50.	11.00
β-	3400.0	1474. ± 50.	3.200
β-	3590.0	1567. ± 50.	.7000
β-	3606.0	1574. ± 50.	4.000
β-	3933.0	1735. ± 60.	1.500
β-	3999.0	1767. ± 60.	.5100
β-	4063.0	1799. ± 60.	.1900
β-	4344.0	1937. ± 60.	2.600
β-	4353.0	1941. ± 60.	4.300
β-	4432.0	1980. ± 70.	1.200
β-	4930.0	2226. ± 70.	14.00

$\langle E_e \rangle$ PER DECAY = 1241.
$\langle E_\nu \rangle$ PER DECAY = 1658.

$^{89}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 89 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
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 - E.A. HENRY, PHYS. REV. C 7,222(1973).

$^{89}_{37}$Rb

$T_{1/2}$ =15.20±0.10m
$\langle E_\beta \rangle$ PER DECAY =929.3
$\langle E_\gamma \rangle$ PER DECAY =2289.

FISSION YIELDS

^{235}U THERMAL	1.6554×10^{-3}
^{235}U FAST	2.0174×10^{-3}
^{238}U FAST	7.5760×10^{-4}
^{239}PU THERMAL	2.6447×10^{-3}

Q_β =4486.±12.
BR_β =1.000

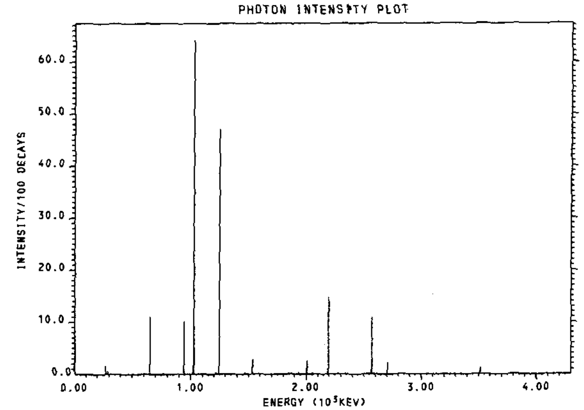
$^{89}_{38}$Sr

52.00d

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
118.3	±	0.5	1	.013	±	.006
205.7	±	0.4	1	.013	±	.006
272.45	±	0.10	1	1.56	±	.08
289.76	±	0.10	1	.60	±	.03
466.62	±	0.15	1	.077	±	.019
562.50	±	0.20	1	.051	±	.006
596.0	±	0.3	1	.026	±	.006
657.71	±	0.07	1	11.0	±	0.6
699.6	±	0.4	1	.026	±	.006
766.79	±	0.15	1	.179	±	.019
776.19	±	0.25	1	.077	±	.019
801.1	±	0.5	1	.019	±	.013
822.0	±	0.4	1	.032	±	.013
947.69	±	0.07	1	10.2	±	0.5
975.32	±	0.20	1	.064	±	.013
1031.88	±	0.07	4	64.	±	3.
1138.5	±	0.5	1	.013	±	.006
1160.47	±	0.25	1	.038	±	.006
1247.88	±	0.07	5	47.	±	3.
1419.57	±	0.10	1	.103	±	.013
1429.6	±	0.5	1	.013	±	.006
1473.22	±	0.20	1	.39	±	.03
1501.07	±	0.20	1	.218	±	.019
1538.08	±	0.10	1	2.82	±	.19
1596.1	±	0.5	1	.019	±	.006
1644.1	±	0.3	1	.026	±	.006
1770.2	±	0.8	1	.013	±	.006
1940.2	±	0.3	1	.37	±	.03
1979.7	±	0.5	1	.026	±	.006
2007.54	±	0.10	1	2.63	±	.19
2058.0	±	1.1	1	.26	±	.10
2109.7	±	0.5	1	.019	±	.006
2196.00	±	0.15	1	14.7	±	1.0
2231.3	±	0.4	1	.026	±	.006
2280.06	±	0.10	1	.199	±	.019
2372.8	±	0.9	1	.013	±	.006
2451.90	±	0.20	1	.058	±	.006
2570.14	±	0.10	1	10.9	±	0.6
2668.0	±	0.5	1	.013	±	.006
2685.5	±	0.4	1	.032	±	.006
2707.20	±	0.10	1	2.24	±	.13
2818.1	±	0.5	1	.013	±	.006
2947.9	±	0.4	1	.019	±	.006
2955.0	±	1.2	1	.006	±	.003
3037.5	±	0.4	1	.013	±	.006
3141.7	±	0.3	1	.058	±	.006
3227.88	±	0.15	1	.083	±	.006
3263.6	±	0.3	1	.019	±	.006
3303.5	±	0.8	1	.006	±	.003
3508.84	±	0.25	1	1.27	±	.08
3651.8	±	0.4	1	.038	±	.013

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			1/100 DECAYS		
γ	1031.88	±	0.07	64.	±	3.
γ	1248.10	±	0.07	47.0	±	2.5
β-	2206.	±	12.	37.20		
β-	1258.	±	12.	36.20		
β-	4486.	±	12.	18.00		
γ	2196.00	±	0.15	14.7	±	1.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	392.0	118.	±	5.	.08000
β-	437.0	133.	±	5.	.06000
β-	498.0	155.	±	6.	.06000
β-	640.0	208.	±	7.	.05000
β-	834.0	284.	±	9.	.1000
β-	977.0	343.	±	11.	1.670
β-	1182.0	430.	±	14.	.2500
β-	1258.0	464.	±	15.	36.20
β-	1779.0	699.	±	21.	2.450
β-	1916.0	762.	±	23.	3.250
β-	2034.0	817.	±	25.	.1500
β-	2206.0	898.	±	30.	37.20
β-	2428.0	1004.	±	30.	.4900
β-	2478.0	1028.	±	30.	.4800
β-	2546.0	1060.	±	30.	.2300

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
3781.8	±	0.5	1	.013	±	.006
3845.4	±	0.6	1	.032	±	.006
3989.1	±	0.8	1	.019	±	.006
4093.7	±	0.6	1	.083	±	.013

$\langle E_{PHOTON} \rangle$ PER DECAY = 2289. ± 50.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
$\beta-$	3013.0	1285.	±	40.	.2500
$\beta-$	4486.0	2007.	±	60.	18.00

$\langle E_{\beta} \rangle$ PER DECAY = 929.3
$\langle E_{\nu} \rangle$ PER DECAY = 1322.

$^{89}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 89 HEDL,ANC EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74 REV-MAY75

$^{89}_{38}$Sr

$T_{1/2}$ =52.00d
$\langle E_\beta \rangle$ PER DECAY =582.0

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.0640
WESTCOTT G FACTOR	1.1710
σ CAPTURE 2200M/S	4.2000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0050\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.2670×10^{-1}

FISSION YIELDS

^{235}U THERMAL	2.4293×10^{-5}
^{235}U FAST	1.9393×10^{-5}
^{238}U FAST	1.1499×10^{-6}
^{239}PU THERMAL	8.7668×10^{-5}

Q_β =1489.±3.
BR_β =1.000

$^{89}_{39}$Y

STABLE OR LONG-LIVED

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	±		INTENSITY/100 DECAYS
β^-	1489.4	582.	±	18.	100.0

$\langle E_e \rangle$ PER DECAY = 582. ± 18.
$\langle E_\nu \rangle$ PER DECAY = 907.4 ± 2.1

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	±		I/100 DECAYS
β^-	1489.	±	3.	100.0

$^{89m}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS
39- Y- 89M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{89m}_{39}Y$

$T_{1/2}$ =15.70s
$\langle E_\gamma \rangle$ PER DECAY =910.0

FISSION YIELDS

^{235}U THERMAL	2.9216×10^{-9}
^{235}U FAST	2.2904×10^{-9}
^{239}PU THERMAL	3.7395×10^{-8}

Q_{IT}=910.0
BR_{IT}=1.000

$^{89}_{39}Y$

STABLE OR LONG-LIVED

89m- 39- 1

$^{89}_{39}Y$

$^{89}_{39}Y$

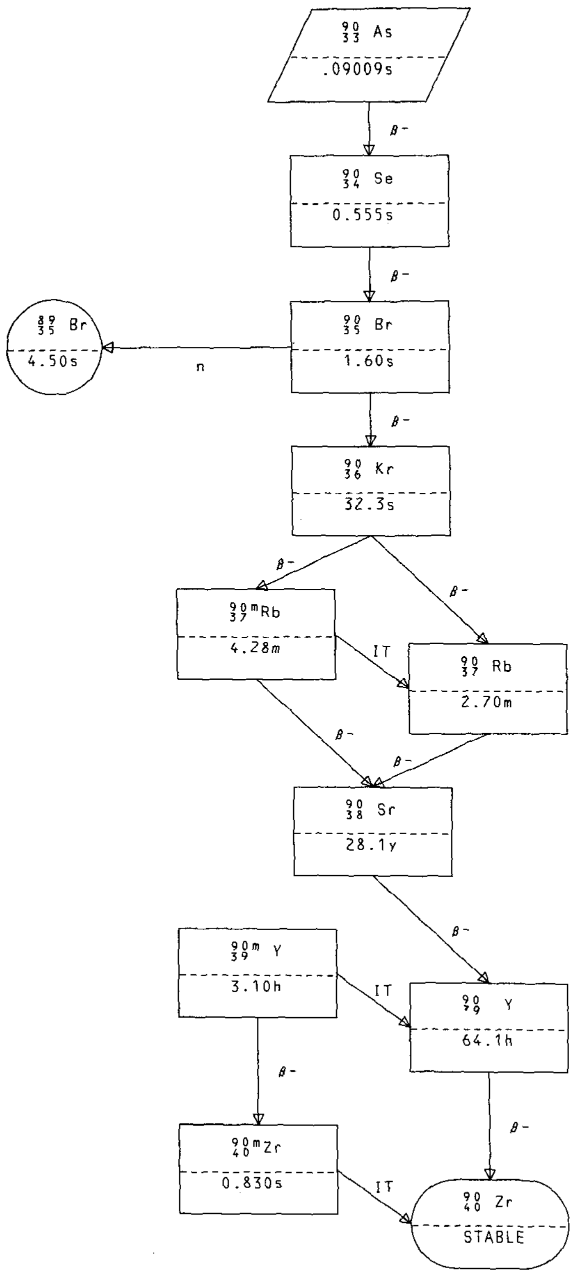
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.7375
WESTCOTT G FACTOR	1.1005
σ CAPTURE 2200M/S	1.2804
WESTCOTT G FACTOR	1.0236
RESONANCE INTEGRAL TOTAL	$8.4500\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	1.0020

FISSION YIELDS

^{235}U THERMAL	2.9216×10^{-9}
^{235}U FAST	8.4414×10^{-9}
^{239}PU THERMAL	5.4892×10^{-8}



90 33 As
.09009s
β-
90 34 Se
0.555s
β-
89 35 Br
4.50s
n
90 35 Br
1.60s
β-
90 36 Kr
32.3s
β-
β-
90m 37 Rb
4.28m
IT
90 37 Rb
2.70m
β-
β-
90 38 Sr
28.1y
β-
90m 39 Y
3.10h
IT
90 39 Y
64.1h
β-
β-
90m 40 Zr
0.830s
IT
90 40 Zr
STABLE

$^{90}_{33}$As

ENDF/B-IV FILE 1 COMMENTS
33-AS- 90 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{90}_{33}$As

$T_{1/2}$ =.09009s
$\langle E_\beta \rangle$ PER DECAY =5363.
$\langle E_\gamma \rangle$ PER DECAY =3665.

Q_β =14390.
BR_β =1.000

$^{90}_{34}$Se

.5545s

90 - 33- 1

$^{90}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 90 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{90}_{34}$Se

$T_{1/2}$ =.5545s
$\langle E_\beta \rangle$ PER DECAY =2512.
$\langle E_\gamma \rangle$ PER DECAY =2078.

FISSION YIELDS

^{235}U THERMAL	3.3847×10^{-4}
^{235}U FAST	2.0988×10^{-4}
^{238}U FAST	7.3621×10^{-4}
^{239}PU THERMAL	5.7792×10^{-6}

Q_β =7470.
BR_β =1.000

$^{90}_{35}$Br

1.60±.10s

$^{90}_{35}$ Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 90 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{90}_{35}$ Br

$T_{1/2}$ =1.60±.10s
$\langle E_\beta \rangle$ PER DECAY =3358.
$\langle E_\gamma \rangle$ PER DECAY =2316.

FISSION YIELDS

^{235}U THERMAL	1.3128×10^{-2}
^{235}U FAST	7.4578×10^{-3}
^{238}U FAST	9.9032×10^{-3}
^{239}PU THERMAL	7.4839×10^{-4}

Q_N =4756.
BR_N =.12±.03

Q_β =9910.
BR_β =.8800

$^{89}_{35}$ Br
4.50±.10s

$^{90}_{36}$ Kr
32.30±0.10s

90 - 35- 1

$^{90}_{36}$ Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 90 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 7/73 CWR
REFERENCE
REMAINING DATA- J.F. MASON AND M.W. JOHNS, CAN,. J. PHYS 48,
2056(1970).

$^{90}_{36}$ Kr

$T_{1/2}$ =32.30±0.10s
$\langle E_\beta \rangle$ PER DECAY =1187.
$\langle E_\gamma \rangle$ PER DECAY =1749.

FISSION YIELDS

^{235}U THERMAL	3.3968×10^{-2}
^{235}U FAST	3.8713×10^{-2}
^{238}U FAST	2.1096×10^{-2}
^{239}PU THERMAL	1.2243×10^{-2}

Q_β =4304.±30.
BR_β =.16±.03

Q_β =4410.±30.
BR_β =.84±.03

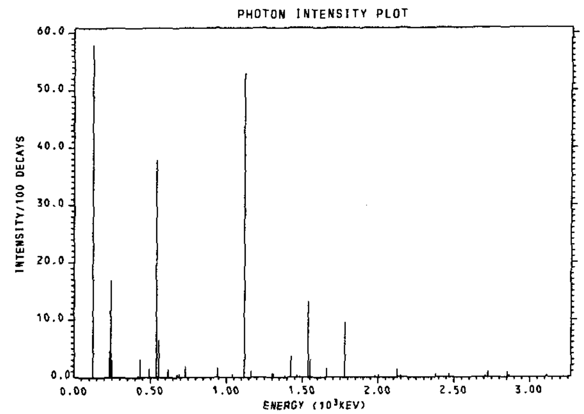
$^{90m}_{37}$Rb
4.280m

$^{90}_{37}$ Rb
2.70±.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
121.50	±	0.20	1	58.	±	6.
234.10	±	0.20	1	4.6	±	.5
241.90	±	0.20	1	17.0	±	2.0
249.00	±	0.20	1	3.0	±	.3
419.30	±	0.20	1	.30	±	.06
434.10	±	0.20	1	3.2	±	.3
492.90	±	0.20	1	1.50	±	.20
539.80	±	0.20	1	38.	±	4.
554.50	±	0.20	1	6.5	±	.6
619.30	±	0.20	1	1.40	±	.10
677.20	±	0.20	1	.50	±	.10
690.60	±	0.20	1	.50	±	.10
731.10	±	0.20	1	1.90	±	.20
941.90	±	0.20	1	1.60	±	.20
1039.5	±	0.4	1	.50	±	.10
1118.70	±	0.20	1	53.	±	5.
1165.2	±	0.3	1	1.10	±	.10
1303.0	±	0.5	1	.70	±	.10
1310.0	±	0.5	1	.60	±	.10
1386.2	±	0.3	1	.30	±	.06
1423.7	±	0.3	1	3.7	±	.4
1463.50	±	0.20	1	.40	±	.10
1480.9	±	0.5	1	.20	±	.04
1537.70	±	0.20	1	13.2	±	1.3
1552.10	±	0.20	1	3.1	±	.3
1618.6	±	0.4	1	.15	±	.05
1658.20	±	0.20	1	1.60	±	.20
1780.00	±	0.20	1	9.6	±	1.0
1885.0	±	0.4	1	.20	±	.05
1980.0	±	0.5	1	.30	±	.06
2005.0	±	0.5	1	.50	±	.10
2126.4	±	0.4	1	1.50	±	.20
2148.2	±	0.4	1	.30	±	.06
2378.0	±	0.9	1	.50	±	.10
2469.0	±	0.5	1	.60	±	.10
2708.5	±	1.3	1	.30	±	.06
2726.0	±	0.8	1	1.00	±	.10
2853.5	±	0.9	1	1.00	±	.10
2865.0	±	0.6	1	.30	±	.06
3113.0	±	0.6	1	.30	±	.06

$\langle E_{PHOTON} \rangle$ PER DECAY = 1749. ± 70.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	2630.	±	30.	77.00		
γ	121.50	±	0.20	58.	±	6.
γ	1118.70	±	0.20	53.	±	5.
γ	539.80	±	0.20	38.	±	4.
γ	241.90	±	0.20	17.0	±	2.0
γ	1537.70	±	0.20	13.2	±	1.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	1316.0	489.	±	18.	1.700
β-	2284.0	935.	±	30.	2.900
β-	2630.0	1101.	±	40.	77.00
β-	2736.0	1152.	±	40.	5.700
β-	3170.0	1362.	±	40.	.5000
β-	3572.0	1558.	±	50.	.3000
β-	3669.0	1605.	±	50.	.4000
β-	3749.0	1644.	±	50.	1.000
β-	3796.0	1667.	±	50.	.4000
β-	4054.0	1794.	±	60.	.5000
β-	4168.0	1850.	±	60.	.4000
β-	4288.0	1909.	±	60.	.1000
β-	4410.0	1970.	±	60.	9.100

$\langle E_e \rangle$ PER DECAY = 1187.
$\langle E_\nu \rangle$ PER DECAY = 1619.

$^{90m}_{37}Rb$

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                   ENDF/B-IV FILE 1 COMMENTS
37-RB- 90M ANC        EVAL-JUL74 C.W.REICH            DECAY DATA
                      DIST-OCT74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE    7/74                          CWR
REFERENCE   Q- J.R. CLIFFORD, PHYS. REV. C 7, 2535(1973).
            OTHER- J.F. MASON AND M.W. JOHNS, CANADIAN JOURNAL OF
                   PHYSICS 48, 2056(1970).
    NOTE  THE LISTED GAMMA-RAY INTENSITIES HAVE BEEN DEDUCED
          FROM THE RB-90,RB-90M DECAY SCHEME PROPOSED BY MASON
          AND JOHNS AND GIVEN BY THEM IN FIG. 16 OF THEIR PAPER.
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$^{90m}_{37}Rb$

$T_{1/2}$ =4.280m
$\langle E_\beta \rangle$ PER DECAY =1106.
$\langle E_\gamma \rangle$ PER DECAY =3616.

FISSION YIELDS

^{235}U THERMAL	4.3289×10^{-3}
^{235}U FAST	3.9375×10^{-3}
^{238}U FAST	8.9524×10^{-4}
^{239}PU THERMAL	3.7408×10^{-3}

Q_β =6426.±70.
BR_β =.9500

Q_{IT}=106.4±0.5
BR_{IT}=.05000

$^{90}_{38}Sr$

28.10y

$^{90}_{37}Rb$

2.70±.10m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
13.12			4	2.551
106.4	±	0.5	1	.4000
315.0	±	1.0	1	1.300
551.0	±	1.0	1	1.000
720.4	±	0.4	1	1.000
824.00	±	0.20	1	3.800
831.50	±	0.10	1	98.40
952.50	±	0.20	1	1.000
1060.60	±	0.10	1	11.00
1272.00	±	0.20	1	3.000
1375.20	±	0.10	1	26.00
1377.			1	3.000
1489.5	±	0.7	1	.02000
1665.70	±	0.20	1	7.600
1739.7	±	0.4	1	4.700
1838.0	±	1.0	1	2.000
1892.2	±	0.6	1	.5800
2127.90	±	0.20	1	7.300
2254.	±	3.	1	2.000
2551.0	±	2.0	1	.03000
2752.0	±	0.3	1	19.00
2834.0	±	2.0	1	3.600
3147.5	±	1.0	1	8.400
3317.00	±	0.20	1	18.00
3383.3	±	0.3	1	1.000
3505.3	±	1.0	1	4.000
4206.	±	3.	1	1.500

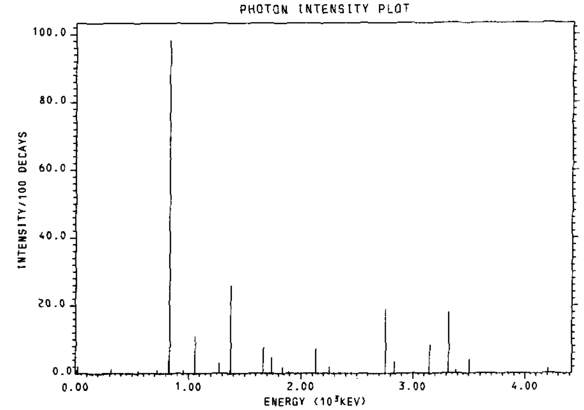
$\langle E_{PHOTON} \rangle$ PER DECAY = 3611.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	14.9	1.756			15.09
CE	106.1	93.7	±	0.4	4.600
β^-	1386.0	520.1			13.68
β^-	2090.0	843.7			14.06
β^-	2278.0	932.5			18.43
β^-	2842.0	1203.			21.66
β^-	3498.0	1522.			3.990
β^-	3855.0	1696.			4.655
β^-	3929.0	1733.			5.795
β^-	4219.0	1875.			13.02

$\langle E_e \rangle$ PER DECAY = 1111.
$\langle E_\nu \rangle$ PER DECAY = 1508.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	831.50	±	0.10	98.40
γ	1375.20	±	0.10	26.00
β^-	2842.			21.66
γ	2752.0	±	0.3	19.00
β^-	2278.			18.43
γ	3317.00	±	0.20	18.00
β^-	2090.			14.06
β^-	1386.			13.68
β^-	4219.			13.02
γ	1060.60	±	0.10	11.00
AU_M	.3220			8.934

$^{90}_{37}$Rb

```
                ENDF/B-IV FILE 1 COMMENTS
37-RB- 90  ANC       EVAL-JUL74 C.W.REICH            DECAY DATA
                     DIST-OCT74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE   7/74                      CWR
REFERENCE   Q- J.R. CLIFFORD, PHYS. REV. C 7, 2535(1973).
          OTHER- J.F. MASON AND M.W. JOHNS, CANADIAN JOURNAL OF
                 PHYSICS 48, 2056(1970).
    NOTE  THE LISTED GAMMA-RAY INTENSITIES HAVE BEEN DEDUCED
          FROM THE RB-90,RB-90M DECAY SCHEME PROPOSED BY MASON
          AND JOHNS AND GIVEN BY THEM IN FIG. 16 OF THEIR PAPER.
```

$^{90}_{37}$Rb

$T_{1/2}$ =2.70±.10m
$\langle E_\beta \rangle$ PER DECAY =1659.
$\langle E_\gamma \rangle$ PER DECAY =2660.

FISSION YIELDS

^{235}U THERMAL	7.0820×10^{-3}
^{235}U FAST	4.4981×10^{-3}
^{238}U FAST	8.9365×10^{-4}
^{239}PU THERMAL	3.6559×10^{-3}

Q_β =6320.±70.
BR_β =1.000

$^{90}_{38}$Sr

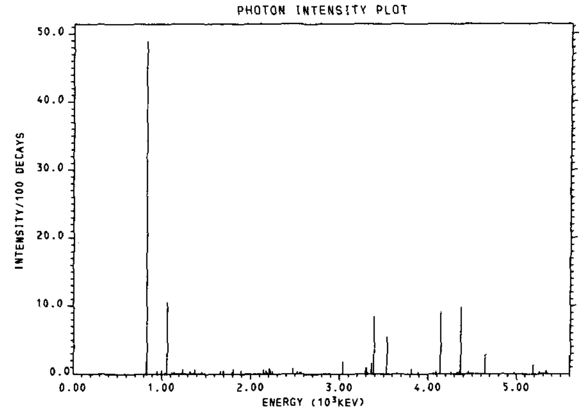
28.10y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
315.0	±	1.0	1	.03000
551.0	±	1.0	1	.02000
586.3	±	0.6	1	.1000
831.33	±	0.10	4	51.00
952.50	±	0.20	1	.5000
997.20	±	0.20	1	.6000
1038.8	±	0.3	1	.2600
1060.60	±	0.10	1	10.60
1118.6	±	0.6	1	.2000
1142.6	±	2.0	1	.3000
1242.6			1	.7200
1326.8			1	.4000
1375.20	±	0.10	1	.6600
1377.			1	.3000
1455.	±	3.	1	.3000
1489.5	±	0.7	1	.2000
1665.70	±	0.20	1	.4600
1696.1	±	0.6	1	.5000
1793.9	±	0.8	1	.3000
1803.9	±	0.4	1	.7300
1892.2	±	0.6	1	.5600
2157.1	±	0.4	4	1.650
2218.6	±	0.4	4	1.870
2474.5	±	0.5	1	.8600
2525.0	±	2.0	1	.4000
2551.0	±	2.0	1	.3000
2566.0	±	2.0	1	.3000
2754.0	±	2.0	1	.1000
3038.5	±	0.5	1	1.900
3295.3	±	0.6	1	.8600
3371.8	±	0.3	4	11.33
3534.20	±	0.20	1	5.500
3654.0	±	2.0	1	.2000
3815.0	±	1.0	1	.7900
3889.0	±	2.0	1	.4000
4060.0	±	2.0	1	.2000
4089.0	±	2.0	1	.5000
4136.0	±	0.3	1	9.200
4260.0	±	2.0	1	.3000
4332.0	±	2.0	1	.3000
4356.0	±	2.0	1	.4000
4366.00	±	0.20	1	9.900
4454.0	±	2.0	1	.4000
4646.6	±	0.6	1	2.900
4974.0	±	2.0	1	.3000
5070.0	±	1.0	1	.2000
5187.80	±	0.20	1	1.400
5254.5	±	0.6	1	.3300
5333.6	±	0.3	1	.5600

$\langle E_{PHOTON} \rangle$ PER DECAY = 2660.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	831.50	±	0.10	49.00
β-	5488.			24.30
β-	1954.			16.60
β-	6320.			15.20
γ	1060.60	±	0.10	10.60
γ	4366.00	±	0.20	9.900
β-	2184.			9.900
γ	4136.0	±	0.3	9.200
γ	3383.3	±	0.3	8.500
β-	2937.			8.100
β-	4428.			6.800

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	986.0	346.8	.6000
β-	1035.0	367.4	.4000
β-	1066.0	380.6	2.100
β-	1132.0	408.8	3.800
β-	1157.0	419.6	.3000
β-	1229.0	450.9	.3000
β-	1250.0	460.1	.2000
β-	1346.0	502.4	.4000
β-	1399.0	525.9	.5000
β-	1429.0	539.3	.2000

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1673.0	649.9	3.800
β^-	1954.0	779.9	16.60
β^-	2184.0	888.0	9.900
β^-	2284.0	935.3	.7000
β^-	2287.0	936.8	.7000
β^-	2421.0	1001.	.4000
β^-	2870.0	1216.	1.300
β^-	2937.0	1249.	8.100
β^-	3281.0	1416.	1.600
β^-	3793.0	1666.	1.000
β^-	4428.0	1978.	6.800
β^-	4664.0	2095.	1.000
β^-	5488.0	2503.	24.30
β^-	6320.0	2916.	15.20

$\langle E_e \rangle$ PER DECAY = 1659.
$\langle E_\nu \rangle$ PER DECAY = 2095.

$^{90}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 90 ANC,HEDL EVAL-FEB74 C.W.REICH DECAY DATA
EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
CROSS SECTION DATA
DIST-OCT74 REV-MAY75
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 MASS TABLE
FIRST-FORBIDDEN,UNIQUE SHAPE CORRECTION CONSIDERED IN DERIVING
<E-BETA> FOR GROUND-STATE BETA TRANSITION

$^{90}_{38}$Sr

$T_{1/2}$ =28.10y
$\langle E_\beta \rangle$ PER DECAY =198.0

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.5710
WESTCOTT G FACTOR	1.1847
σ CAPTURE 2200M/S	9.0000×10^{-1}
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$9.0250 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	5.1060×10^{-1}

FISSION YIELDS

^{235}U THERMAL	2.8856×10^{-4}
^{235}U FAST	2.3848×10^{-4}
^{238}U FAST	1.9808×10^{-5}
^{239}PU THERMAL	7.7963×10^{-4}

Q_β =546.0±2.0
BR_β =1.000

$^{90}_{39}$Y

64.08h

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	546.0	198.0	100.0

$\langle E_e \rangle$ PER DECAY = 198.0
$\langle E_\nu \rangle$ PER DECAY = 348.0

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	546.0	100.0

$^{90m}_{39}Y$

```
                    ENDF/B-IV FILE 1 COMMENTS
39- Y- 90M ANC          EVAL-JUL74 C.W.REICH             DECAY DATA
                        DIST-OCT74
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.B. BALL, M.W. JOHNS AND K. WAY , NUCLEAR
                        DATA TABLES A 8, NO. 4, 407 (1970).
    FIRST-FORBIDDEN, UNIQUE SHAPE FACTOR CONSIDERED IN
    CALCULATING <E-BETA> FOR BETA TRANSITION.
```

$^{90m}_{39}Y$

$T_{1/2}$ =3.100h

$\langle E_\beta \rangle$ PER DECAY =.8800

$\langle E_\gamma \rangle$ PER DECAY =682.5

FISSION YIELDS	
^{235}U THERMAL	1.2707×10^{-7}
^{235}U FAST	1.0302×10^{-7}
^{238}U FAST	2.3498×10^{-9}
^{239}PU THERMAL	9.9286×10^{-7}

Q_β =638.±6.
BR_β =.00380

Q_{IT}=685.±6.
BR_{IT}=.9962

$^{90m}_{40}Zr$

.83±.03s

$^{90}_{39}Y$

64.08h

PHOTON RADIATION TABLE

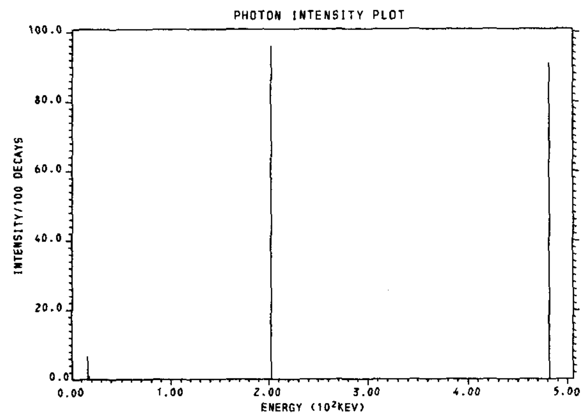
MEAN ENERGY			LINES	PHOTONS/100 DECAYS
14.52			4	8.043
202.4	±	0.3	1	96.00
482.	±	5.	1	91.00

$\langle E_{PHOTON} \rangle$ PER DECAY = 634.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	16.9	1.980			42.72
CE	481.6	388.	±	3.	12.28
β^-	638.0	232.	±	7.	.3800

$\langle E_e \rangle$ PER DECAY = 49.38
$\langle E_\nu \rangle$ PER DECAY = 1.544



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	202.4	±	0.3	96.00
γ	482.	±	5.	91.00
AU_M	.3950			26.57

$^{90}_{39}$Y

```
                ENDF/B-IV FILE 1 COMMENTS
39- Y- 90  ANC,HEDL  EVAL-JUL74 C.W.REICH   DECAY DATA
                     EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                     DIST-OCT74 REV-MAY75
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-  J.B. BALL, M.W. JOHNS AND K. WAY, NUCLEAR
                      DATA TABLES A 8, NO.4, 407 (1970).
       FIRST-FORBIDDEN, UNIQUE SHAPE FACTOR CONSIDERED IN
       CALCULATING <E-BETA> FOR GROUND-STATE BETA TRANSITION.
```

$^{90}_{39}$Y

$T_{1/2}$ =64.08h
$\langle E_\beta \rangle$ PER DECAY =931.0
$\langle E_\gamma \rangle$ PER DECAY =.2800

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	7.1710
WESTCOTT G FACTOR	1.1814
σ CAPTURE 2200M/S	3.5000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.2200 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	4.7540

FISSION YIELDS

^{235}U THERMAL	2.2212×10^{-6}
^{235}U FAST	2.8805×10^{-6}
^{238}U FAST	2.5798×10^{-9}
^{239}PU THERMAL	1.1298×10^{-6}

Q_β =2280.±3.
BR_β =1.000

$^{90}_{40}$Zr

STABLE OR LONG-LIVED

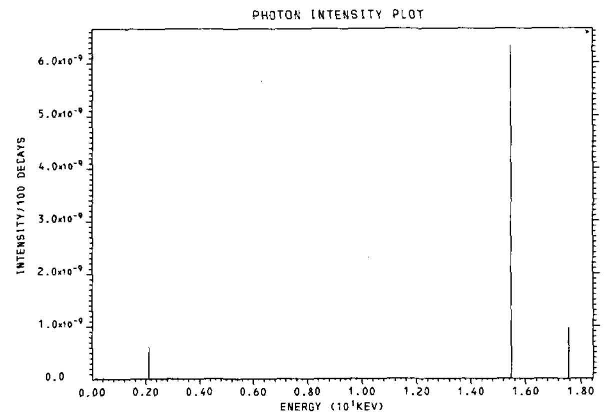
PHOTON RADIATION TABLE

$\langle E_{PHOTON} \rangle$ PER DECAY = 1.162×10^{-9}

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	17.6	1.212			27.84
CE	1743.0	1743.			.016
$\beta-$	518.5	162.	±	5.	.02000
$\beta-$	2279.5	931.	±	30.	99.98

$\langle E_e \rangle$ PER DECAY = 931. ± 30.
$\langle E_\nu \rangle$ PER DECAY = 1348.1 ± 0.3



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
$\beta-$	2280.	±	3.	99.98

$^{90m}_{40}Zr$

ENDF/B-IV FILE 1 COMMENTS
40-ZR- 90M 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.
REFERENCE SEE J.B. BALL, M.W. JOHNS AND K. WAY, NUCLEAR
DATA TABLES A 8, NO. 4, 407(1970).

$^{90m}_{40}Zr$

$T_{1/2}$ =.83±.03s
$\langle E_{\gamma} \rangle$ PER DECAY =2315.

Q_{IT}=2318.7±0.4
BR_{IT}=1.000

$^{90}_{40}Zr$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
14.4	±	0.5	4	7.4	±	2.1
132.59	±	0.03	1	4.4	±	.6
2186.2	±	0.4	1	18.	±	3.
2318.6	±	0.4	1	82.	±	10.

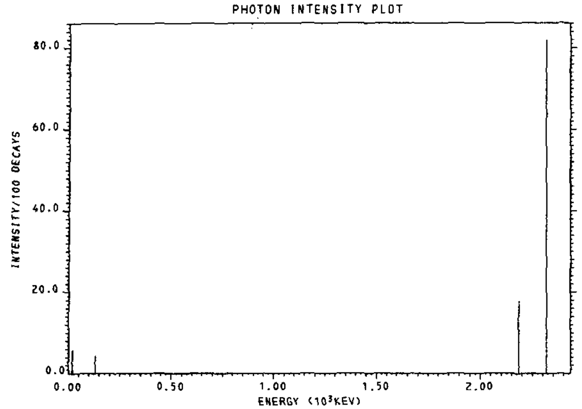
$\langle E_{PHOTON} \rangle$ PER DECAY = 2299. ± 240.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	17.6	1.7	±	.3	60.	±	7.
CE	132.2	118.7	±	0.9	12.4	±	2.1

$\langle E_e \rangle$ PER DECAY = 15.7 ± 2.4

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	2318.6	±	0.4	82.	±	10.
AU_M	.4310			45.	±	6.
γ	2186.2	±	0.4	18.	±	3.

$^{90}_{40}Zr$

$^{90}_{40}Zr$

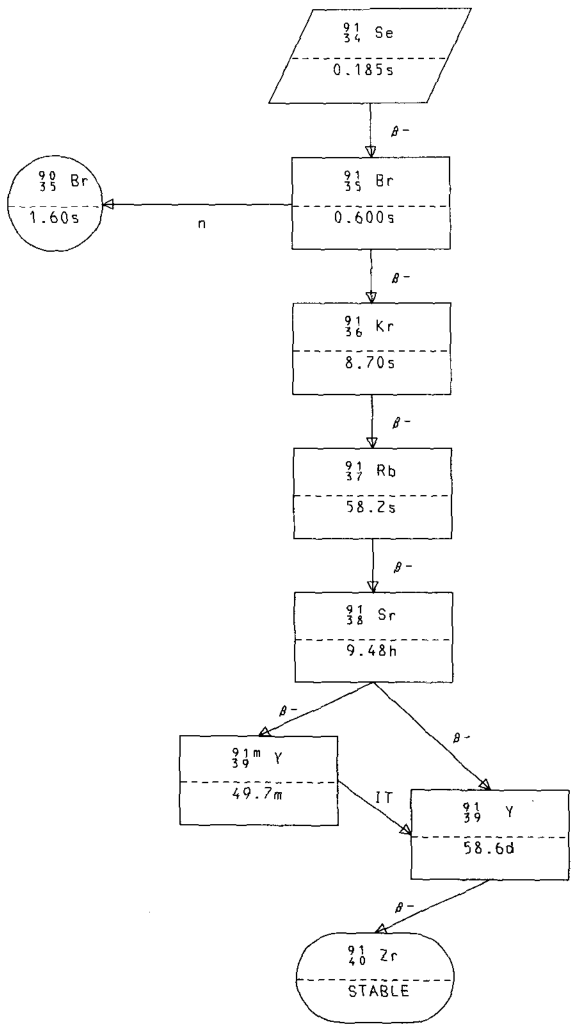
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.2037
WESTCOTT G FACTOR	1.1254
σ CAPTURE 2200M/S	1.0080×10^{-1}
WESTCOTT G FACTOR	1.0178
RESONANCE INTEGRAL TOTAL	$8.3380\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	3.6090×10^{-1}

FISSION YIELDS

^{235}U FAST	6.6457×10^{-4}



$^{91}_{34}$Se
0.185s
β-
$^{91}_{35}$Br
0.600s
n
$^{90}_{35}$Br
1.60s
β-
$^{91}_{36}$Kr
8.70s
β-
$^{91}_{37}$Rb
58.2s
β-
$^{91}_{38}$Sr
9.48h
β-
$^{91m}_{39}$Y
49.7m
β-
IT
$^{91}_{39}$Y
58.6d
β-
$^{91}_{40}$Zr
STABLE

$^{91}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 91 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{91}_{34}$Se

$T_{1/2}$ =.1845s
$\langle E_\beta \rangle$ PER DECAY =3719.
$\langle E_\gamma \rangle$ PER DECAY =2827.

FISSION YIELDS

^{235}U THERMAL	3.4479×10^{-5}
^{235}U FAST	1.6633×10^{-5}
^{238}U FAST	1.1854×10^{-4}
^{239}PU THERMAL	3.8095×10^{-7}

Q_β =10310.
BR_β =1.000

$^{91}_{35}$Br

.60±.10s

91 - 34- 1

$^{91}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 91 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{91}_{35}$Br

$T_{1/2}$ =.60±.10s
$\langle E_\beta \rangle$ PER DECAY =3065.
$\langle E_\gamma \rangle$ PER DECAY =2327.

FISSION YIELDS

^{235}U THERMAL	4.2191×10^{-3}
^{235}U FAST	1.8090×10^{-3}
^{238}U FAST	4.7028×10^{-3}
^{239}PU THERMAL	1.6148×10^{-4}

Q_N =4186.
BR_N =.07

$^{90}_{35}$Br

1.60±.10s

Q_β =9180.
BR_β =.9300

$^{91}_{36}$Kr

8.70±.20s

$^{91}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS

36-KR- 91 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 11/73 CWR
REFERENCE Q- J.R.CLIFFORD ET AL., PHYS.REV.C 7, 2535 (1973)
HALF-LIFE G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
PANEL ON FISSION PRODUCT DATA (BOLOGNA,1973), APP.B.
OTHER- NUCLEAR DATA SHEETS B 8, NO.6, 447 (1972).
NOTE NORMALIZATION OF GAMMA-RAY INTENSITIES IS UNCERTAIN.
WE HAVE ASSUMED NO DIRECT BETA FEEDING OF GROUND
STATE AND THAT SUM OF INTENSITIES OF 108.6-,506.8-
AND 721.5-KEV GAMMA RAYS IS 100 PERCENT. (SEE NDS).

$^{91}_{36}$Kr

$T_{1/2}$ =8.70±.20s
$\langle E_\beta \rangle$ PER DECAY =2578.
$\langle E_\gamma \rangle$ PER DECAY =723.6

FISSION YIELDS

^{235}U THERMAL	3.0961×10^{-2}
^{235}U FAST	2.5235×10^{-2}
^{238}U FAST	2.6561×10^{-2}
^{239}PU THERMAL	7.8194×10^{-3}

Q_β =6120.±70.
BR_β =1.000

$^{91}_{37}$Rb

58.2±0.3s

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
108.60	±	0.20	1	65.01
397.8	±	0.3	1	3.300
412.0	±	0.5	1	3.300
506.80	±	0.20	1	33.00
613.20	±	0.20	1	13.86
721.5			1	.9900
1108.6	±	0.5	1	11.55
2488.0	±	2.0	1	5.610
2734.0	±	2.0	1	3.630

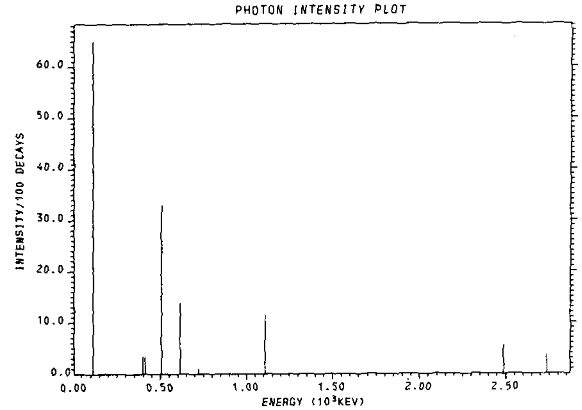
$\langle E_{PHOTON} \rangle$ PER DECAY = 723.6

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	4505.0	2016.	12.00
β^-	5398.0	2458.	15.00
β^-	5613.0	2565.	25.00
β^-	6011.0	2762.	48.00

$\langle E_e \rangle$ PER DECAY = 2578.
$\langle E_\nu \rangle$ PER DECAY = 3061.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	108.60	±	0.20	65.01
β^-	6011.			48.00
γ	506.80	±	0.20	33.00
β^-	5613.			25.00
β^-	5398.			15.00

$^{91}_{37}$Rb

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              ENDF/B-IV FILE 1 COMMENTS
37-RB- 91  ANC      EVAL-FEB74 C.W.REICH            DECAY DATA
                    DIST-OCT74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
RUBIDIUM-91          PREPARED FOR ENDF/B IV 8/73  DRF(SRL)
REFERENCES  HALF-LIFE   G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
            PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B
            REMAINDER - J.F.MASON AND M.W.JOHNS, CAN. JOUR. PHYS
                              48, 2895 (1970)
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$^{91}_{37}$Rb

$T_{1/2}$ =58.2±0.3s

$\langle E_\beta \rangle$ PER DECAY =1334.

$\langle E_\gamma \rangle$ PER DECAY =2733.

FISSION YIELDS

^{235}U THERMAL	2.2375×10^{-2}
^{235}U FAST	2.1804×10^{-2}
^{238}U FAST	7.1359×10^{-3}
^{239}PU THERMAL	1.3135×10^{-2}

Q_β =5680.±40.

BR_β =1.000

$^{91}_{38}$Sr

9.480±.010h

PHOTON RADIATION TABLE

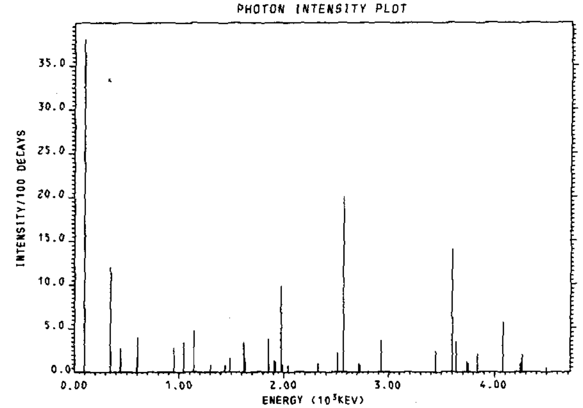
MEAN ENERGY			LINES	PHOTONS/100 DECAYS
93.1	±	0.3	1	38.00
346.0	±	0.5	1	12.00
439.3	±	0.5	1	2.700
593.10	±	0.20	1	1.700
602.70	±	0.20	1	4.000
947.8	±	0.3	1	2.800
1041.3	±	0.3	1	3.400
1137.40	±	0.20	1	4.700
1301.0	±	2.0	1	.8000
1436.0	±	1.0	1	.8000
1483.2	±	0.8	1	1.600
1616.0	±	0.5	1	3.400
1625.0	±	0.7	1	1.600
1629.1	±	0.8	1	1.200
1849.50	±	0.20	1	3.800
1960.1	±	0.3	4	13.10
2036.0	±	2.0	1	.8000
2322.0	±	1.0	1	1.000
2505.0	±	1.0	1	2.200
2564.30	±	0.20	1	20.00
2712.0	±	1.0	1	1.000
2722.0	±	2.0	1	.8000
2925.7	±	0.6	1	3.600
3446.0	±	1.0	1	2.400
3600.0	±	0.3	1	14.00
3640.0	±	1.0	1	3.500
3738.0	±	2.0	1	1.200
3752.0	±	2.0	1	1.000
3842.0	±	1.0	1	2.100
4078.5	±	0.5	1	5.700
4252.0	±	1.0	1	1.000
4265.0	±	1.0	1	2.000
4497.	±	3.	1	.5000

$\langle E_{PHOTON} \rangle$ PER DECAY = 2733.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	1182.0	430.	±	19.	.5000
β-	1415.0	533.	±	22.	3.000
β-	1428.0	539.	±	22.	1.000
β-	1601.5	617.	±	24.	4.200
β-	1745.0	683.	±	30.	2.100
β-	1928.0	768.	±	30.	2.000
β-	1943.0	775.	±	30.	3.400
β-	1986.8	795.	±	30.	15.20
β-	2754.3	1160.	±	40.	3.600
β-	3022.6	1290.	±	40.	25.10
β-	3336.0	1442.	±	50.	1.300

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	93.1	±	0.3	38.00
β-	3023.	±	40.	25.10
γ	2564.30	±	0.20	20.00
β-	1987.	±	40.	15.20
γ	3600.0	±	0.3	14.00
γ	346.0	±	0.5	12.00
β-	5587.	±	40.	10.60
γ	1971.2	±	0.3	9.800
β-	3616.	±	40.	8.500
β-	4639.	±	40.	5.800
γ	4078.5	±	0.5	5.700
γ	1137.40	±	0.20	4.700
β-	5241.	±	40.	4.300
β-	1602.	±	40.	4.200
γ	602.70	±	0.20	4.000
γ	1849.50	±	0.20	3.800
γ	2925.7	±	0.6	3.600
β-	2754.	±	40.	3.600

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	3615.7	1579.	±	50.	8.500
β-	3737.4	1639.	±	50.	2.800
β-	4449.4	1989.	±	60.	2.500

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	4638.6	2082. ± 60.	5.800
β^-	5240.8	2380. ± 70.	4.300
β^-	5586.9	2552. ± 80.	10.60

$\langle E_e \rangle$ PER DECAY = 1334.
$\langle E_\nu \rangle$ PER DECAY = 1750.

$^{91}_{38}Sr$

ENDF/B-IV FILE 1 COMMENTS

38-SR- 91 ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-OCT74

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

PREPARED FOR FILE 9/73 RES(GULF), CWR
REFERENCE NUCLEAR DATA B8, NO. 6 (1972)
Q- J.K.HALBIG ET AL., NUCL. PHYS. A203, 532 (1973)
PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.

$^{91}_{38}Sr$

$T_{1/2}$ =9.480±.010h
$\langle E_\beta \rangle$ PER DECAY =652.3
$\langle E_\gamma \rangle$ PER DECAY =695.4

FISSION YIELDS

^{235}U THERMAL	1.5984×10^{-3}
^{235}U FAST	7.0164×10^{-3}
^{238}U FAST	2.2486×10^{-4}
^{239}PU THERMAL	3.7459×10^{-3}

Q_β =2126.±4.
BR_β =.5760

Q_β =2684.±4.
BR_β =.4240

$^{91m}_{39}Y$

49.70±0.10m

$^{91}_{39}Y$

58.60±0.10d

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
118.50	±	0.20	1	.144	±	.010
261.20	±	0.20	1	.44	±	.03
272.7	±	0.4	1	.167	±	.023
274.70	±	0.20	1	1.14	±	.07
359.0	±	1.0	1	.050	±	.010
380.0	±	1.0	1	.20	±	.07
486.3	±	1.0	1	.077	±	.017
593.1	±	0.5	1	.110	±	.017
647.6	±	0.4	5	13.3	±	1.0
749.80	±	0.10	1	23.0	±	1.0
761.30	±	0.10	1	.53	±	.03
793.8	±	1.0	1	.057	±	.020
879.8	±	0.4	1	.167	±	.023
892.6	±	0.6	1	.07	±	.03
926.3	±	0.3	4	4.15	±	.14
1024.30	±	0.10	1	33.4		
1054.60	±	0.20	1	.23	±	.03
1140.8	±	0.5	1	.114	±	.020
1280.9	±	0.5	1	.94	±	.10
1327.2	±	1.0	1	.040	±	.010
1353.2	±	1.0	1	.023	±	.010
1413.40	±	0.10	1	.92	±	.07
1473.7	±	1.0	1	.15	±	.05
1546.0	±	1.0	1	.063	±	.010
1651.4	±	0.5	1	.37	±	.07
1724.0	±	0.5	1	.19	±	.03
2016.0	±	1.0	1	.005	±	.003

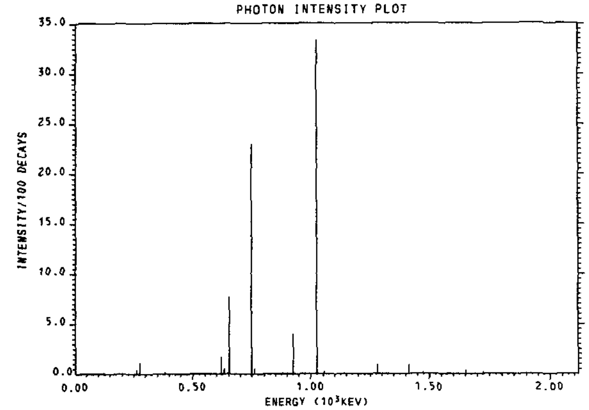
$\langle E_{PHOTON} \rangle$ PER DECAY = 695. ± 10.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β^-	370.0	110.1			.2400
β^-	460.0	141.4			1.400
β^-	610.0	196.4			1.900
β^-	690.0	227.1			.3300
β^-	1093.0	392.1			34.90
β^-	1120.0	403.7			1.800
β^-	1200.0	438.2			.04000
β^-	1359.0	508.1			24.60
β^-	1480.0	562.2			.5600
β^-	1740.0	680.7			.07000
β^-	2030.0	815.5			3.600
β^-	2682.0	1126.	±	30.	30.50

$\langle E_e \rangle$ PER DECAY = 652.3
$\langle E_\nu \rangle$ PER DECAY = 1006.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	1093.			34.90		
γ	1024.30	±	0.10	33.4		
β^-	2682.	±	4.	30.50		
β^-	1359.			24.60		
γ	749.80	±	0.10	23.0	±	1.0

$^{91m}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS
39- Y- 91M ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.

$^{91m}_{39}Y$

$T_{1/2}$ =49.70±0.10m
$\langle E_{\gamma}\rangle$ PER DECAY =555.2

FISSION YIELDS

^{235}U THERMAL	2.7815×10^{-6}
^{235}U FAST	2.3104×10^{-6}
^{238}U FAST	1.0499×10^{-7}
^{239}PU THERMAL	4.0404×10^{-5}

Q_{IT}=555.6
BR_{IT}=1.000

$^{91}_{39}Y$

58.60±0.10d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
14.51	4	3.357
555.6	1	94.80

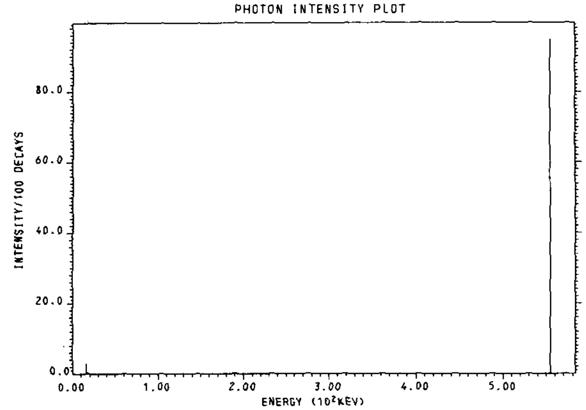
$\langle E_{PHOTON} \rangle$ PER DECAY = 527.2

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	16.9	1.364	60.65
CE	555.2	540.2	5.119

$\langle E_e \rangle$ PER DECAY = 28.48

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	555.6	94.80
AU_M	.3950	52.05

$^{91}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS

```
39- Y- 91  HEDL,ANC  EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
                                CROSS SECTION DATA
                     EVAL-FEB74 C.W.REICH   DECAY DATA
                     DIST-OCT74 REV-MAY75
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 MASS TABLE
 FIRST-FORBIDDEN,UNIQUE SHAPE CORRECTION CONSIDERED IN DERIVING
 <E-BETA> FOR GROUND-STATE BETA TRANSITION
```

$^{91}_{39}Y$

$T_{1/2}$ =58.60±0.10d

$\langle E_\beta \rangle$ PER DECAY =606.0

$\langle E_\gamma \rangle$ PER DECAY =2.660

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.0980
WESTCOTT G FACTOR	1.1862
σ CAPTURE 2200M/S	1.4000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0970 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	1.6670

FISSION YIELDS

^{235}U THERMAL	2.7815×10^{-6}
^{235}U FAST	3.0925×10^{-5}
^{238}U FAST	2.8297×10^{-7}
^{239}PU THERMAL	5.5332×10^{-5}

Q_β =1545.±5.

BR_β =1.000

$^{91}_{40}Zr$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

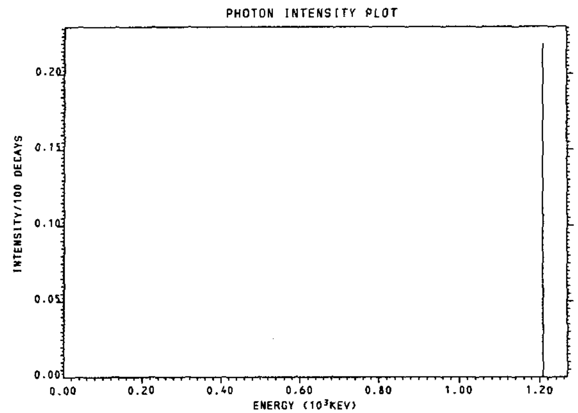
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
1208.	1	.2200

$\langle E_{PHOTON} \rangle$ PER DECAY = 2.658

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	337.0	99.06	.3000
β^-	1545.0	607.5	99.70

$\langle E_e \rangle$ PER DECAY = 606.0
$\langle E_\nu \rangle$ PER DECAY = 935.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	1545.	99.70

$^{91}_{40}Zr$

$^{91}_{40}Zr$

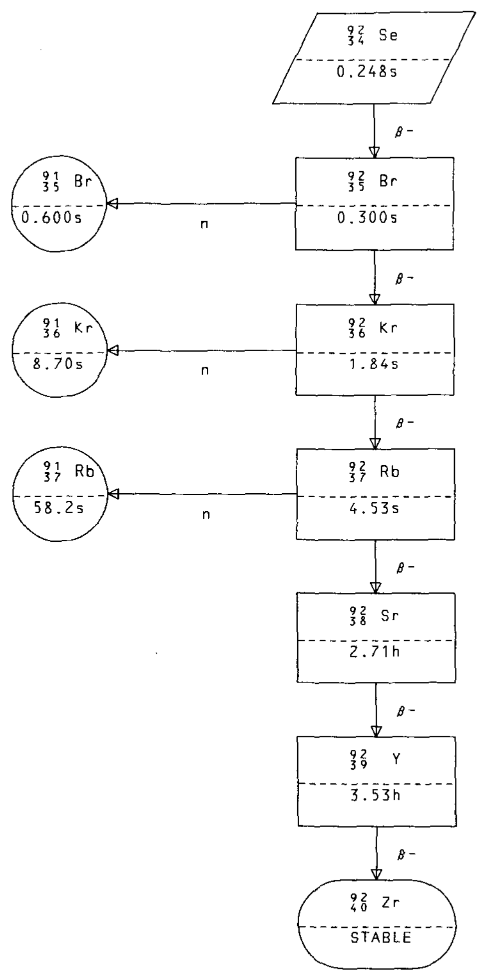
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.1754
WESTCOTT G FACTOR	1.0975
σ CAPTURE 2200M/S	1.0327
WESTCOTT G FACTOR	1.0029
RESONANCE INTEGRAL TOTAL	$1.1980\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.8520

FISSION YIELDS

^{235}U THERMAL	1.5809×10^{-9}
^{235}U FAST	6.7511×10^{-8}
^{239}PU THERMAL	1.4028×10^{-5}



92 34 Se
0.248s
β-
91 35 Br
0.600s
n
92 35 Br
0.300s
β-
91 36 Kr
8.70s
n
92 36 Kr
1.84s
β-
91 37 Rb
58.2s
n
92 37 Rb
4.53s
β-
92 38 Sr
2.71h
β-
92 39 Y
3.53h
β-
92 40 Zr
STABLE

$^{92}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 92 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{92}_{34}$Se

$T_{1/2}$ =.2478s
$\langle E_\beta \rangle$ PER DECAY =2963.
$\langle E_\gamma \rangle$ PER DECAY =2607.

FISSION YIELDS

^{235}U THERMAL	4.4824×10^{-7}
^{235}U FAST	6.9411×10^{-7}
^{238}U FAST	1.4829×10^{-5}
^{239}PU THERMAL	1.7697×10^{-8}

Q_β =8730.
BR_β =1.000

$^{92}_{35}$Br

.30±.10s

92 - 34- 1

$^{92}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 92 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{92}_{35}$Br

$T_{1/2}$ =.30±.10s
$\langle E_\beta \rangle$ PER DECAY =3704.
$\langle E_\gamma \rangle$ PER DECAY =2986.

FISSION YIELDS

^{235}U THERMAL	1.8056×10^{-4}
^{235}U FAST	2.5335×10^{-4}
^{238}U FAST	1.7546×10^{-3}
^{239}PU THERMAL	2.3567×10^{-5}

Q_N =5795.
BR_N =.2600

Q_β =12010.
BR_β =.7400

$^{91}_{35}$Br

.60±.10s

$^{92}_{36}$Kr

1.840±.020s

$^{92}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 92 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 9/73 RES(GULF),CWR
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.
REFERENCE NUCLEAR DATA B7, NO. 4 (1972)
Q VALUE IS FROM PHYS REV C7 2535 (1973). Q VALUE DISAGREES
WITH ABOVE REF.
NORMALIZATION FOR TRANSITION INTENSITIES IS CONSIDERED
UNCERTAIN. SEE REF.
PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.

$^{92}_{36}$Kr

$T_{1/2}$ =1.840±.020s
$\langle E_\beta \rangle$ PER DECAY =2403.
$\langle E_\gamma \rangle$ PER DECAY =751.8

FISSION YIELDS

^{235}U THERMAL	1.5273×10^{-2}
^{235}U FAST	1.0678×10^{-2}
^{238}U FAST	2.6414×10^{-2}
^{239}PU THERMAL	3.3442×10^{-3}

Q_N =.000
BR_N =.00040±.00007

Q_β =5970.±80.
BR_β =.99960±.00007

$^{91}_{36}$Kr

8.70±.20s

$^{92}_{37}$Rb

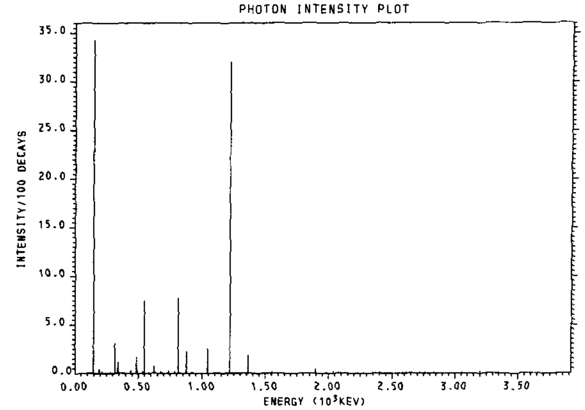
4.53±.03s

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
143.17	±	0.12	5	34.9	±	1.8
214.90	±	0.10	1	.192	±	.017
281.95	±	0.15	1	.144	±	.014
326.1	±	0.5	6	4.54	±	.19
477.7	±	0.6	5	2.55	±	.11
535.00	±	0.10	1	.220	±	.021
548.30	±	0.10	1	7.5	±	.4
585.90	±	0.20	1	.120	±	.021
639.1	±	1.0	4	1.11	±	.05
728.4	±	0.4	1	.062	±	.017
737.40	±	0.20	1	.27	±	.03
785.70	±	0.10	1	.24	±	.03
827.1	±	0.9	4	10.2	±	0.4
921.00	±	0.20	1	.147	±	.021
928.0	±	0.4	1	.072	±	.021
1044.20	±	0.10	1	2.54	±	.14
1115.8	±	0.3	1	.055	±	.010
1178.9	±	0.3	1	.055	±	.014
1218.93	±	0.12	7	32.3	±	1.6
1359.5	±	0.3	4	1.97	±	.10
1415.10	±	0.20	1	.089	±	.010
1474.1	±	0.3	1	.051	±	.010
1552.7	±	1.8	4	.30	±	.03
1658.	±	3.	4	.123	±	.021
1762.8	±	0.4	1	.038	±	.010
1896.80	±	0.20	1	.45	±	.07
1976.6	±	1.7	4	.281	±	.024
2055.2	±	2.2	5	.41	±	.03
2128.7	±	0.5	1	.045	±	.014
2271.0	±	0.5	1	.027	±	.010
2277.3	±	0.3	1	.062	±	.010
2440.6	±	2.4	6	.34	±	.03
2585.1	±	0.7	1	.07	±	.03
2587.5	±	0.4	1	.13	±	.03
2611.40	±	0.20	1	.158	±	.017
2742.9	±	2.1	4	.340	±	.024
2832.80	±	0.20	1	.161	±	.017
2854.5	±	0.7	1	.038	±	.014
3056.9	±	0.3	1	.069	±	.014
3099.8	±	0.5	1	.048	±	.014
3149.0	±	0.4	1	.065	±	.014
3199.50	±	0.20	1	.233	±	.017
3272.3	±	0.5	1	.034	±	.010
3324.4	±	0.7	1	.024	±	.007
3342.7	±	0.7	1	.021	±	.007
3659.6	±	0.5	1	.045	±	.010
3727.3	±	0.8	1	.021	±	.010

$\langle E_{PHOTON} \rangle$ PER DECAY = 752. ± 21.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	5970.			50.00		
β-	4570.			46.80		
γ	142.40	±	0.10	34.3	±	1.7
γ	1218.60	±	0.10	32.0	±	1.6

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1770.0	694.5	.1600
β-	2270.0	928.7	.07000
β-	2670.0	1120.	.4200
β-	2870.0	1216.	.3700
β-	3070.0	1313.	.3200
β-	3270.0	1410.	.1200
β-	3370.0	1459.	.7600
β-	3670.0	1606.	.1700
β-	3870.0	1704.	.1100
β-	3970.0	1753.	.8600
β-	4270.0	1901.	.1300
β-	4570.0	2048.	46.80
β-	5070.0	2296.	.3800
β-	5270.0	2395.	.08000
β-	5370.0	2444.	.3200
β-	5470.0	2494.	.2000
β-	5970.0	2742.	50.00

$\langle E_e \rangle$ PER DECAY = 2403.
$\langle E_\nu \rangle$ PER DECAY = 2888.

$^{92}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS

37-RB- 92 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74

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

PREPARED FOR FILE 9/73 RES(GULF), CWR
Q- J.R.CLIFFORD ET AL., PHYS.REV.C 7,2535 (1973).
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.
REFERENCE NUCLEAR DATA B7, NO. 4 (1972)
NORMALIZATIONS FOR TRANSITION INTENSITIES IS CONSIDERED
UNCERTAIN . SEE REF.
PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.

$^{92}_{37}$Rb

$T_{1/2}$ =4.53±.03s
$\langle E_\beta \rangle$ PER DECAY =3459.
$\langle E_\gamma \rangle$ PER DECAY =261.4

FISSION YIELDS

^{235}U THERMAL	3.2784×10^{-2}
^{235}U FAST	3.0995×10^{-2}
^{238}U FAST	1.0452×10^{-2}
^{239}PU THERMAL	1.4993×10^{-2}

Q_N =.000
BR_N =.00012±.00004

Q_β =7580.±150.
BR_β =.99988±.00004

$^{91}_{37}$Rb

58.2±0.3s

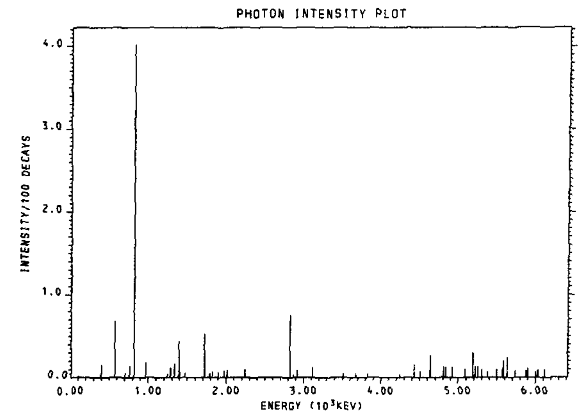
$^{92}_{38}$Sr

2.710±.010h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
96.7	±	0.6	1	.020	±	.009
386.1	±	0.3	1	.031	±	.005
393.50	±	0.10	1	.153	±	.008
569.80	±	0.10	1	.68	±	.04
703.6	±	0.3	1	.056	±	.012
756.00	±	0.20	1	.137	±	.012
814.70	±	0.10	1	4.02	±	.22
963.50	±	0.20	1	.185	±	.016
1238.9	±	0.6	1	.044	±	.016
1273.40	±	0.20	1	.121	±	.016
1325.80	±	0.20	1	.169	±	.020
1384.6	±	0.3	1	.44	±	.08
1399.0	±	0.6	1	.064	±	.020
1464.7	±	0.6	1	.049	±	.018
1712.30	±	0.20	1	.53	±	.04
1778.3	±	1.0	1	.044	±	.024
1789.2	±	0.9	1	.048	±	.024
1816.7	±	0.5	1	.072	±	.016
1895.1	±	0.6	1	.068	±	.020
1968.8	±	0.6	1	.084	±	.024
2006.5	±	0.5	1	.088	±	.024
2232.0	±	0.5	1	.096	±	.024
2820.60	±	0.20	1	.76	±	.06
2860.3	±	2.1	1	.03	±	.03
2913.2	±	0.6	1	.088	±	.024
3110.0	±	0.7	1	.12	±	.04
3502.0	±	1.6	1	.04	±	.03
3670.8	±	1.2	1	.052	±	.024
3823.6	±	1.6	1	.04	±	.03
4240.4	±	1.6	1	.040	±	.024
4427.9	±	0.9	1	.16	±	.03
4508.2	±	1.2	1	.076	±	.020
4637.7	±	0.9	1	.27	±	.04
4809.3	±	1.5	1	.13	±	.06
4835.9	±	1.1	1	.12	±	.03
4922.6	±	1.1	1	.133	±	.024
5086.2	±	1.2	1	.10	±	.05
5188.1	±	0.8	1	.30	±	.05
5215.1	±	1.0	1	.13	±	.05
5248.7	±	1.2	1	.13	±	.03
5301.7	±	1.3	1	.10	±	.03
5376.6	±	1.5	1	.07	±	.03
5497.7	±	1.3	1	.10	±	.03
5573.7	±	1.7	1	.10	±	.06
5584.2	±	1.1	1	.20	±	.04
5632.2	±	1.0	1	.24	±	.04
5739.4	±	1.4	1	.08	±	.03
5879.4	±	1.5	1	.08	±	.03
5900.6	±	1.4	1	.11	±	.03
6004.1	±	1.5	1	.072	±	.024
6030.0	±	1.5	1	.10	±	.03

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	7580.	94.00

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	220.0	61.58	.3300
β-	630.0	204.0	.2000
β-	1460.0	553.2	.2000
β-	1550.0	593.8	.2700
β-	1580.0	607.5	.3700
β-	1680.0	653.1	.2200
β-	1690.0	657.7	.2000
β-	1840.0	726.9	.2200
β-	2530.0	1053.	.1800
β-	2940.0	1250.	.4200
β-	4760.0	2142.	.6800
β-	4800.0	2162.	.1500
β-	4960.0	2241.	.06000
β-	5050.0	2286.	.4000
β-	5440.0	2479.	.2800
β-	5490.0	2504.	.1800
β-	5800.0	2658.	.1500
β-	6200.0	2856.	.7700
β-	6770.0	3140.	1.470
β-	7580.0	3543.	94.00

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
6114.8 ± 1.5	1	.10 ± .03

$\langle E_{PHOTON} \rangle$ PER DECAY = 261. ± 10.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS

$\langle E_e \rangle$ PER DECAY = 3459.
$\langle E_\nu \rangle$ PER DECAY = 3953.

$^{92}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 92 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR DATA FILE 9/73 RES(GULF), CWR
Q- J.R.CLIFFORD ET AL., PHYS.REV.C 7,2535 (1973).
REFERENCE NUCLEAR DATA B7, NO. 4 (1972)
PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.

$^{92}_{38}$Sr

$T_{1/2}$ =2.710±.010h
$\langle E_{\beta} \rangle$ PER DECAY =192.3
$\langle E_{\gamma} \rangle$ PER DECAY =1339.

FISSION YIELDS

^{235}U THERMAL	1.1283×10^{-2}
^{235}U FAST	1.5074×10^{-2}
^{238}U FAST	3.3900×10^{-3}
^{239}PU THERMAL	1.1498×10^{-2}

Q_{β} =1930.±30.
BR_{β} =1.000

$^{92}_{39}$Y

3.530±.020h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
241.52	±	0.03	1	2.97	±	.09
430.56	±	0.05	1	3.33	±	.18
491.30	±	0.20	1	.26	±	.04
650.80	±	0.10	1	.37	±	.03
892.2	±	0.4	1	.10	±	.03
953.32	±	0.09	1	3.60	±	.18
1142.30	±	0.10	1	2.88	±	.18
1383.94	±	0.06	1	90.	±	4.

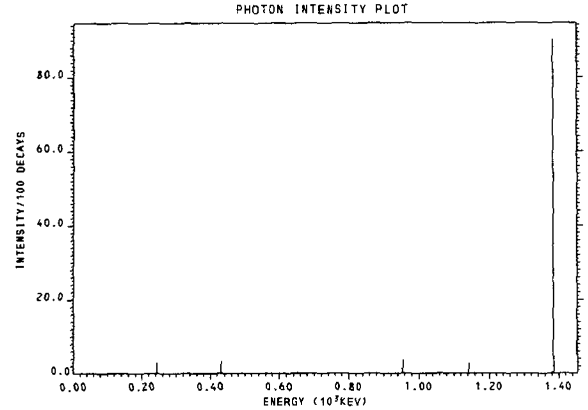
$\langle E_{PHOTON} \rangle$ PER DECAY = 1339. ± 50.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	550.0	174.0	95.50
β^-	1040.0	369.6	.2100
β^-	1930.0	768.7	3.300

$\langle E_\beta \rangle$ PER DECAY = 192.3
$\langle E_\nu \rangle$ PER DECAY = 398.8

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	550.0			95.50		
γ	1383.94	±	0.06	90.	±	4.

$^{92}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 92 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
REFERENCE
Q-1973 WAPSTRA-GOVE MASSTABLE
FIRST-FORBIDDEN,UNIQUE SHAPE CORRECTION CONSIDERED IN DERIVING
<E-BETA> FOR GROUND-STATE BETA TRANSITION

$^{92}_{39}$Y

$T_{1/2}$ =3.530±.020h
$\langle E_\beta \rangle$ PER DECAY =1464.
$\langle E_\gamma \rangle$ PER DECAY =248.2

FISSION YIELDS

^{235}U THERMAL	7.7962×10^{-5}
^{235}U FAST	2.4160×10^{-4}
^{238}U FAST	8.2012×10^{-5}
^{239}PU THERMAL	3.1548×10^{-4}

Q_β =3623.±20.
BR_β =1.000

$^{92}_{40}$Zr

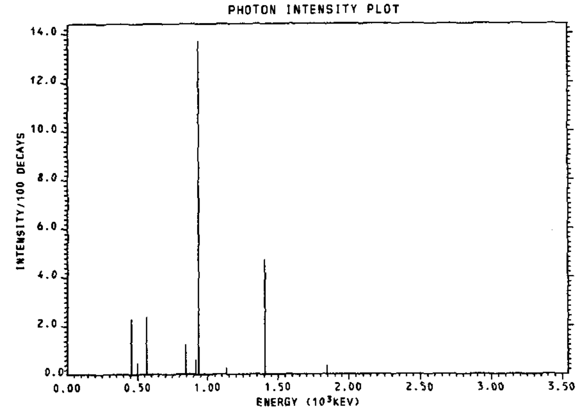
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
448.5	1	2.303
492.6	1	.4785
561.1	1	2.372
844.3	1	1.234
912.8	1	.6197
934.5	1	13.71
972.3	1	.06718
1132.	1	.2399
1405.	1	4.716
1847.	1	.3551
1885.	1	.02742
1989.	1	.00548
2106.	1	.01919
2340.	1	.01371
2437.	1	.00274
2473.	1	.00548
2820.	1	.00411
3264.	1	.00137
3371.	1	.00274

$\langle E_{PHOTON} \rangle$ PER DECAY = 248.2

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	252.0	71.54	.01000
β^-	359.0	106.4	.000
β^-	583.0	186.2	.02000
β^-	803.0	271.7	.1000
β^-	1150.0	416.6	.01000
β^-	1283.0	474.5	6.440
β^-	1556.0	596.6	.2400
β^-	1776.0	697.3	.4300
β^-	2127.0	861.1	1.130
β^-	2240.0	914.5	2.300
β^-	2688.0	1128.	3.420
β^-	3623.0	1583.	85.90

$\langle E_e \rangle$ PER DECAY = 1464.
$\langle E_\nu \rangle$ PER DECAY = 1910.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	3623.	85.90
γ	934.5	13.71

$^{92}_{40}Zr$

$^{92}_{40}Zr$

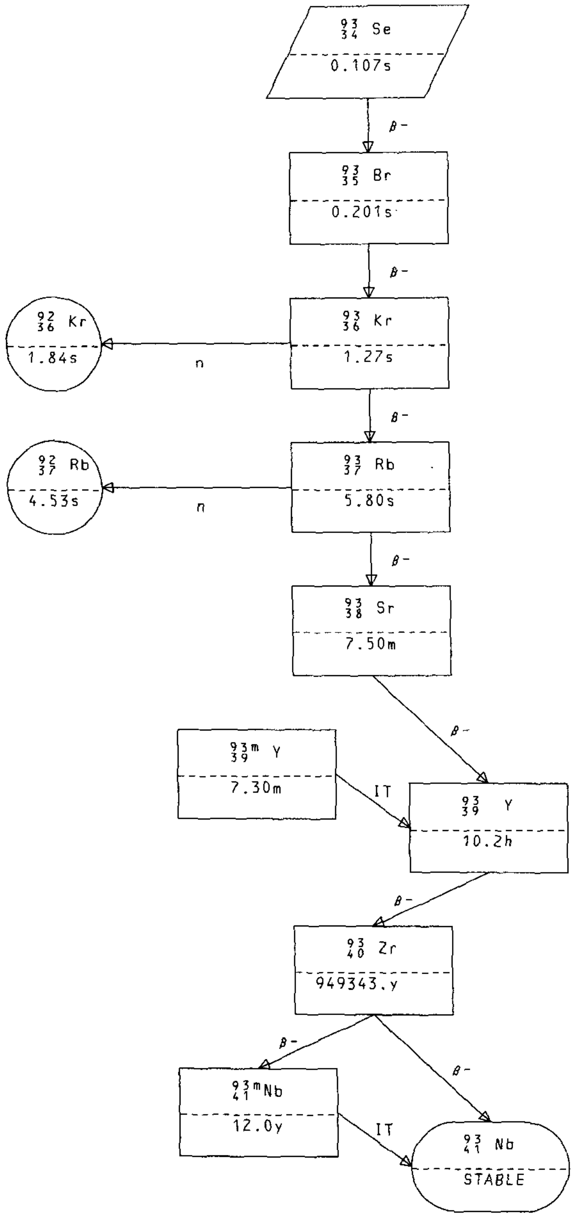
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.7837
WESTCOTT G FACTOR	1.1179
σ CAPTURE 2200M/S	2.6064×10^{-1}
WESTCOTT G FACTOR	1.0086
RESONANCE INTEGRAL TOTAL	$9.6960\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	8.6490×10^{-1}

FISSION YIELDS

^{235}U THERMAL	7.6542×10^{-8}
^{235}U FAST	1.0502×10^{-7}
^{238}U FAST	3.7797×10^{-7}
^{239}PU THERMAL	1.0199×10^{-6}



93 34 Se
0.107s
β-
93 35 Br
0.201s
β-
92 36 Kr
1.84s
n
93 36 Kr
1.27s
β-
92 37 Rb
4.53s
n
93 37 Rb
5.80s
β-
93 38 Sr
7.50m
β-
93m 39 Y
7.30m
IT
93 39 Y
10.2h
β-
93 40 Zr
949343.y
β-
β-
93m 41 Nb
12.0y
IT
93 41 Nb
STABLE

$^{93}_{34}$Se

ENDF/B-IV FILE 1 COMMENTS
34-SE- 93 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{93}_{34}$Se

$T_{1/2}$ =.1068s
$\langle E_\beta \rangle$ PER DECAY =4096.
$\langle E_\gamma \rangle$ PER DECAY =3419.

Q_β =11610.
BR_β =1.000

$^{93}_{35}$Br

.2012s

93 - 34- 1

$^{93}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 93 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{93}_{35}$Br

$T_{1/2}$ =.2012s
$\langle E_\beta \rangle$ PER DECAY =3687.
$\langle E_\gamma \rangle$ PER DECAY =2877.

FISSION YIELDS

^{235}U THERMAL	5.0808×10^{-5}
^{235}U FAST	2.2204×10^{-5}
^{238}U FAST	3.5253×10^{-4}
^{239}PU THERMAL	1.8097×10^{-6}

Q_β =10430.
BR_β =1.000

$^{93}_{36}$Kr

1.270±.020s

$^{93}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 93 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{93}_{36}$Kr

$T_{1/2}$ =1.270±.020s
$\langle E_\beta \rangle$ PER DECAY =2758.
$\langle E_\gamma \rangle$ PER DECAY =2040.

FISSION YIELDS

^{235}U THERMAL	5.3053×10^{-3}
^{235}U FAST	2.8916×10^{-3}
^{238}U FAST	1.4820×10^{-2}
^{239}PU THERMAL	7.9960×10^{-4}

Q_N =2016.
BR_N =.032±.006

Q_β =8150.
BR_β =.9680

$^{92}_{36}$Kr
1.840±.020s

$^{93}_{37}$Rb
5.80±.10s

93 - 36- 1

$^{93}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 93 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{93}_{37}$Rb

$T_{1/2}$ =5.80±.10s
$\langle E_\beta \rangle$ PER DECAY =2027.
$\langle E_\gamma \rangle$ PER DECAY =1415.

FISSION YIELDS

^{235}U THERMAL	3.0636×10^{-2}
^{235}U FAST	2.7753×10^{-2}
^{238}U FAST	2.4738×10^{-2}
^{239}PU THERMAL	1.1498×10^{-2}

Q_N =1466.
BR_N =.0162±.0023

Q_β =6070.
BR_β =.9838

$^{92}_{37}$Rb
4.53±.03s

$^{93}_{38}$Sr
7.50±.10m

93 - 37- 1

$^{93}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS

38-SR- 93 ANC EVAL-FEB74 C.W.REICH DECAY DATA

DIST-OCT74

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

REFERENCE

Q-1973 WAPSTRA-GOVE MASSTABLE

$^{93}_{38}$Sr

$T_{1/2}$ =7.50±.10m

$\langle E_{\beta} \rangle$ PER DECAY =1161.

$\langle E_{\gamma} \rangle$ PER DECAY =1395.

FISSION YIELDS

^{235}U THERMAL	2.6677×10^{-2}
^{235}U FAST	2.9703×10^{-2}
^{238}U FAST	8.4532×10^{-3}
^{239}PU THERMAL	2.4788×10^{-2}

Q_{β} =4150.±70.

BR_{β} =1.000

$^{93}_{39}$Y

10.20±0.10h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
168.6	1	16.51
260.5	1	6.314
347.4	1	2.914
378.2	1	.9714
434.0	1	.9714
446.7	1	1.943
483.6	1	2.914
590.9	1	48.57
612.1	1	.9714
664.3	1	.9714
689.8	1	.9714
711.3	1	15.06
718.0	1	.9714
835.4	1	.9714
876.9	1	17.00
889.5	1	15.06
1041.	1	2.914
1094.	1	.9714
1123.	1	2.914
1142.	1	.9714
1216.	1	1.943
1270.	1	5.343
1322.	1	1.943
1386.	1	3.886
1472.	1	.4857
1552.	1	.4857
1681.	6	8.257
1707.	1	.4857
1766.	1	.4857
1812.	1	.9714
1930.	1	.4857
2231.	1	.9714
2365.	1	.9714
2544.	1	2.428
2689.	1	1.457

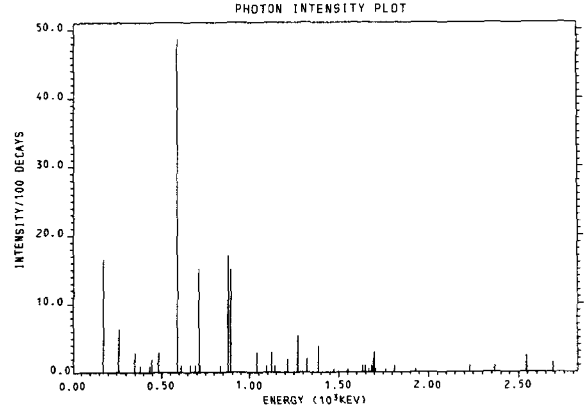
$\langle E_{PHOTON} \rangle$ PER DECAY = 1395.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	2200.0	895.5	10.00
$\beta-$	2600.0	1086.	25.00
$\beta-$	2900.0	1231.	65.00

$\langle E_e \rangle$ PER DECAY = 1161.
$\langle E_\nu \rangle$ PER DECAY = 1594.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	2900.	65.00
γ	590.9	48.57
$\beta-$	2600.	25.00
γ	876.9	17.00
γ	168.6	16.51
γ	889.5	15.06
γ	711.3	15.06
$\beta-$	2200.	10.00

$^{93m}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS
39- Y- 93M HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{93m}_{39}Y$

$T_{1/2}$ =7.300m
$\langle E_\gamma \rangle$ PER DECAY =250.0

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

$^{93}_{39}Y$

10.20±0.10h

93m- 39- 1

$^{93}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS
39- Y- 93 ANC EVAL-FEB74 C.W.REICH DECAY DATA
DIST-OCT74
FOR FILE DESCRIPTION SEE CW REICH,RG HELMER AND MH PUTMAN,
ANCR-1157,ENDF210,8/74.
PREPARED FOR FILE 11/73 CWR
REFERENCE
Q- 1973 REVISION OF WAPSTRA-GOVE MASS TABLE
OTHER- W.L.TALBERT,JR. AND R.J.HANSON, PHYS. REV.C8,
1945(1973).

$^{93}_{39}Y$

$T_{1/2}$ =10.20±0.10h
$\langle E_\beta \rangle$ PER DECAY =1184.
$\langle E_\gamma \rangle$ PER DECAY =89.57

FISSION YIELDS

^{235}U THERMAL	1.0364×10^{-3}
^{235}U FAST	5.9234×10^{-4}
^{238}U FAST	7.0124×10^{-5}
^{239}PU THERMAL	1.9061×10^{-3}

Q_β =2890.±20.
BR_β =1.000

$^{93}_{40}Zr$

$(9.493)\times10^{+5}$y

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
14.58			4	.1161		
266.90	±	0.10	1	6.7	±	.4
680.20	±	0.10	1	.61	±	.03
714.40	±	0.20	1	.0161	±	.0021
947.46	±	0.11	4	1.98	±	.10
1158.50	±	0.20	1	.028	±	.003
1168.60	±	0.20	1	.010	±	.004
1183.50	±	0.10	1	.042	±	.004
1203.30	±	0.10	1	.103	±	.006
1237.40	±	0.10	1	.027	±	.006
1425.40	±	0.10	1	.238	±	.013
1450.50	±	0.10	1	.336	±	.018
1470.10	±	0.10	1	.068	±	.004
1642.70	±	0.10	1	.047	±	.004
1651.70	±	0.20	1	.022	±	.003
1827.80	±	0.20	1	.022	±	.003
1917.80	±	0.10	1	1.41	±	.07
2184.60	±	0.10	1	.155	±	.012
2190.80	±	0.10	1	.171	±	.010
2457.3	±	0.3	1	.0063	±	.0014
2473.80	±	0.20	1	.0112	±	.0014

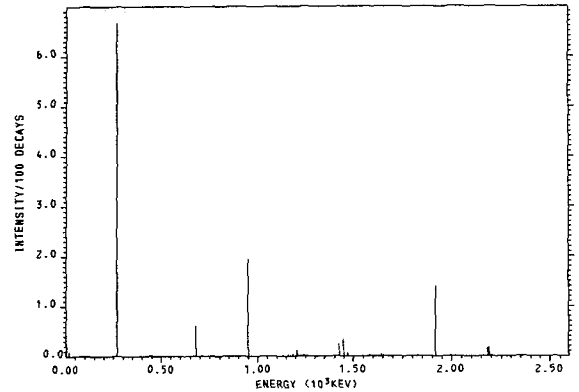
$\langle E_{PHOTON} \rangle$ PER DECAY = 88.7 ± 2.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	17.6	1.187			54.88		
CE	266.5	250.90	±	0.09	.1666		
β-	416.0	126.	±	7.	.011	±	.003
β-	432.0	131.	±	7.	.19	±	.04
β-	705.0	233.	±	10.	1.6	±	.4
β-	795.0	268.	±	11.	.022	±	.006
β-	971.0	341.	±	12.	.028	±	.007
β-	980.0	344.	±	12.	.058	±	.014
β-	1420.0	535.	±	18.	.15	±	.03
β-	1440.0	544.	±	18.	.38	±	.09
β-	1465.0	555.	±	18.	.27	±	.06
β-	1943.0	775.	±	25.	2.5	±	.6
β-	2623.0	1097.	±	30.	4.5	±	1.1
β-	2890.0	1226.	±	40.	90.3	±	2.2

$\langle E_e \rangle$ PER DECAY = 1186. ± 40.
$\langle E_\nu \rangle$ PER DECAY = 1617. ± 40.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	2890.	±	20.	90.3	±	2.2
AU_M	.4310			52.31		

$^{93}_{40}Zr$

ENDF/B-IV FILE 1 COMMENTS
40-ZR- 93 HEDL EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
DIST-NOV74

$^{93}_{40}Zr$

$T_{1/2}$ =(9.493)x10^{+5}y
<E_β> PER DECAY =12.54
<E_γ> PER DECAY =7.416

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.2520
WESTCOTT G FACTOR	1.1817
σ CAPTURE 2200M/S	2.5000
WESTCOTT G FACTOR	1.0003
RESONANCE INTEGRAL TOTAL	1.6160x10^{+2}
RESONANCE INTEGRAL CAPTURE	2.8000x10^{+1}

FISSION YIELDS

^{235}U THERMAL	2.4113x10^{-6}
^{235}U FAST	1.7603x10^{-6}
^{238}U FAST	7.3793x10^{-8}
^{239}PU THERMAL	1.9217x10^{-5}

Q_β =39.60
BR_β =.9500

$^{93m}_{41}Nb$

11.99y

Q_β =70.00
BR_β =.05000

$^{93}_{41}Nb$

.1387s

$^{93m}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 93M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{93m}_{41}$Nb

$T_{1/2}$ =11.99y
$\langle E_{\gamma} \rangle$ PER DECAY =30.40

FISSION YIELDS
^{239}PU THERMAL 2.3697x10^{-9}

Q_{IT}=30.40
BR_{IT}=1.000

$^{93}_{41}$ Nb

.1387s

93m- 41- 1

$^{93}_{41}$ Nb

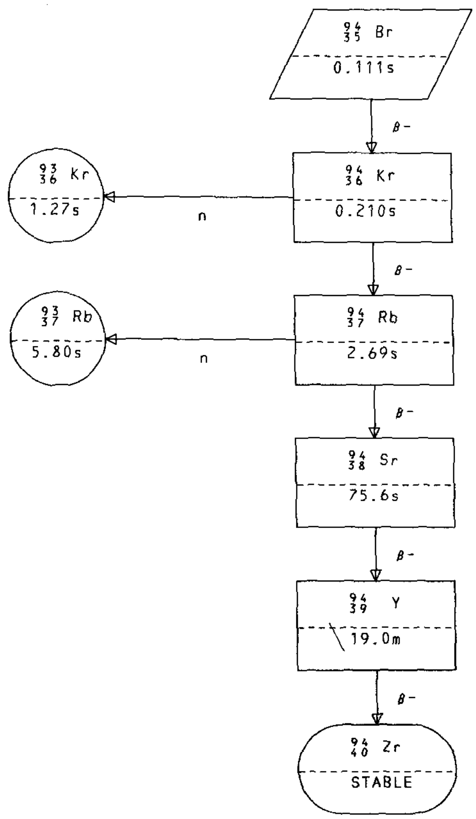
$^{93}_{41}$ Nb

STABLE OR LONG-LIVED

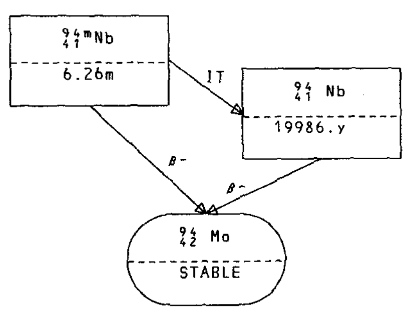
CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.8183
WESTCOTT G FACTOR	1.1085
σ CAPTURE 2200M/S	1.1543
WESTCOTT G FACTOR	1.0108
RESONANCE INTEGRAL TOTAL	1.2240x10^{+2}
RESONANCE INTEGRAL CAPTURE	9.4610
RESONANCE INTEGRAL (N,2N)	7.2400x10^{-1}
RESONANCE INTEGRAL (N,P)	3.4540x10^{-2}
RESONANCE INTEGRAL (N,α)	6.7280x10^{-3}

FISSION YIELDS
^{239}PU THERMAL 2.3697x10^{-9}



$^{94}_{35}$Br
0.111s
β-
$^{93}_{36}$Kr
1.27s
n
$^{94}_{36}$Kr
0.210s
β-
$^{93}_{37}$Rb
5.80s
n
$^{94}_{37}$Rb
2.69s
β-
$^{94}_{38}$Sr
75.6s
β-
$^{94}_{39}$Y
19.0m
β-
$^{94}_{40}$Zr
STABLE



$^{94m}_{41}$Nb
6.26m
IT
$^{94}_{41}$Nb
19986.y
β-
β-
$^{94}_{42}$Mo
STABLE

$^{94}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 94 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{94}_{35}$Br

$T_{1/2}$ =.1105s
$\langle E_\beta \rangle$ PER DECAY =4854.
$\langle E_\gamma \rangle$ PER DECAY =3601.

FISSION YIELDS

^{235}U THERMAL	3.1617×10^{-6}
^{235}U FAST	4.0307×10^{-6}
^{238}U FAST	3.7616×10^{-5}
^{239}PU THERMAL	1.1498×10^{-7}

Q_β =13310.
BR_β =1.000

$^{94}_{36}$Kr

.210±.010s

94 - 35- 1

$^{94}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 94 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{94}_{36}$Kr

$T_{1/2}$ =.210±.010s
$\langle E_\beta \rangle$ PER DECAY =2070.
$\langle E_\gamma \rangle$ PER DECAY =1798.

FISSION YIELDS

^{235}U THERMAL	2.3586×10^{-3}
^{235}U FAST	1.6820×10^{-3}
^{238}U FAST	4.7443×10^{-3}
^{239}PU THERMAL	1.6365×10^{-4}

Q_N =2226.
BR_N =.04400

Q_β =6560.
BR_β =.9560

$^{93}_{36}$Kr

1.270±.020s

$^{94}_{37}$Rb

2.69±.04s

$^{94}_{37}$Rb

```
                 ENDF/B-IV FILE 1 COMMENTS
37-RB- 94  HEDL      EVAL-APR74 R.E.SCHENTER
                     DIST-OCT74
    REFERENCES
     DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)
```

$^{94}_{37}$Rb

$T_{1/2}$ =2.69±.04s
$\langle E_\beta \rangle$ PER DECAY =3010.
$\langle E_\gamma \rangle$ PER DECAY =1981.

FISSION YIELDS

^{235}U THERMAL	1.4937×10^{-2}
^{235}U FAST	1.9815×10^{-2}
^{238}U FAST	1.8937×10^{-2}
^{239}PU THERMAL	5.9813×10^{-3}

Q_N =1736.
BR_N =.111±.010

Q_β =9180.
BR_β =.8890

$^{93}_{37}$Rb

5.80±.10s

$^{94}_{38}$Sr

75.6±0.9s

94 - 37- 1

$^{94}_{38}$Sr

```
                 ENDF/B-IV FILE 1 COMMENTS
38-SR- 94  ANC       EVAL-FEB74 C.W.REICH             DECAY DATA
                     DIST-OCT74
FOR FILE DESCRIPTION SEE  CW REICH,RG HELMER AND MH PUTMAN,
                          ANCR-1157,ENDF210,8/74.
STRONTIUM-94        PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
REFERENCES - Q(BETA), M.I.MACIAS ET. AL., LEYSIN CONF.,
                             CERN-70-30, VOL.1,321(1970)
             REMAINDER, W.GRIMM AND W.HERZOG, ZEIT. PHYSIK 259,
                             67(1973)
           HALF-LIFE   G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
            PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.
```

$^{94}_{38}$Sr

$T_{1/2}$ =75.6±0.9s
$\langle E_\beta \rangle$ PER DECAY =869.6
$\langle E_\gamma \rangle$ PER DECAY =1242.

FISSION YIELDS

^{235}U THERMAL	4.3278×10^{-2}
^{235}U FAST	3.7552×10^{-2}
^{238}U FAST	2.1061×10^{-2}
^{239}PU THERMAL	3.1387×10^{-2}

Q_β =3350.±80.
BR_β =1.000

$^{94}_{39}$Y

19.0±1.0m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS		
621.9	1	1.82	±	.12
704.3	1	1.85	±	.12
724.1	1	2.18	±	.17
806.4	1	1.56	±	.09
1428.	1	83.3	±	2.0

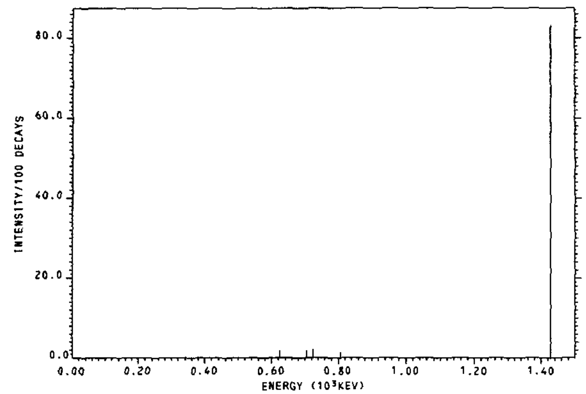
$\langle E_{PHOTON} \rangle$ PER DECAY = 1242.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	1921.7	765.	±	40.	84.40		
β-	2625.9	1099.	±	50.	.3	±	.3
β-	2728.1	1148.	±	50.	.26	±	.20
β-	3350.0	1449.	±	60.	15.00		

$\langle E_e \rangle$ PER DECAY = 869.6
$\langle E_\nu \rangle$ PER DECAY = 1271.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	1922.	±	80.	84.40		
γ	1428.			83.3	±	2.0

$^{94}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 94 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 - 1973 REVISION OF WAPSTRA-GOVE MASS TABLE.
OTHER - SEE D.C. KOCHER, NUCLEAR DATA SHEETS 10,
241 (1973).
FIRST-FORBIDDEN, UNIQUE SHAPE CORRECTION FACTOR CONSIDERED
IN CALCULATING <E-BETA> FOR GROUND-STATE BETA TRANSITION.

$^{94}_{39}$Y

$T_{1/2}$ =19.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =1717.
$\langle E_\gamma \rangle$ PER DECAY =986.1

FISSION YIELDS

^{235}U THERMAL	3.6260×10^{-3}
^{235}U FAST	2.7914×10^{-3}
^{238}U FAST	4.8457×10^{-4}
^{239}PU THERMAL	6.6775×10^{-3}

Q_β =4860.±15.
BR_β =1.000

$^{94}_{40}$Zr

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
202.0			1	.07350
381.75	±	0.18	1	2.205
550.10	±	0.23	1	6.321
588.0			1	.3675
694.0			1	.2205
750.52	±	0.23	1	2.278
918.24	±	0.23	1	73.50
1139.1	±	0.4	1	7.791
1162.			1	1.103
1232.8	±	0.4	1	.8085
1447.			1	.5145
1668.6	±	0.9	1	3.234
1893.			1	1.103
2140.4	±	1.0	1	1.543
2444.			1	.1470
2834.	±	3.	1	.5880

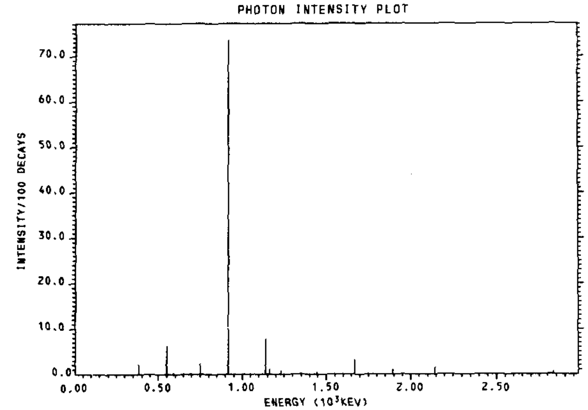
$\langle E_{PHOTON} \rangle$ PER DECAY = 986.1

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS		
β-	1314.0	488.2	.4000		
β-	1477.0	560.9	.7000		
β-	1496.0	569.4	1.100		
β-	1640.0	634.8	1.100		
β-	1801.0	708.8	1.000		
β-	2026.0	813.6	.7000		
β-	2494.0	1035.	.5000		
β-	2709.0	1139.	1.300		
β-	2803.0	1184.	6.400		
β-	3191.0	1372.	5.900		
β-	3392.0	1470.	4.900		
β-	3560.0	1552.	2.300		
β-	3942.0	1739.	52.40		
β-	4860.0	2148.	23.	±	3.

$\langle E_e \rangle$ PER DECAY = 1717.
$\langle E_\nu \rangle$ PER DECAY = 2202.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	918.24	±	0.23	73.50		
β-	3942.			52.40		
β-	4860.			23.	±	3.
γ	1139.1	±	0.4	7.791		

$^{94}_{40}$Zr

$^{94}_{40}$Zr	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	3.3679
WESTCOTT G FACTOR	1.1269
σ CAPTURE 2200M/S	5.6435×10^{-2}
WESTCOTT G FACTOR	1.0160
RESONANCE INTEGRAL TOTAL	$8.6460\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	3.5550×10^{-1}
FISSION YIELDS	
^{235}U THERMAL	3.4809×10^{-5}
^{235}U FAST	2.6734×10^{-5}
^{238}U FAST	1.1799×10^{-6}
^{239}PU THERMAL	2.0689×10^{-4}

$^{94m}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 94M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{94m}_{41}$Nb	
$T_{1/2}$ =6.260m	
$\langle E_\beta \rangle$ PER DECAY =1.349	
$\langle E_\gamma \rangle$ PER DECAY =41.28	
FISSION YIELDS	
^{235}U THERMAL	4.5725×10^{-9}
^{235}U FAST	3.1005×10^{-9}
^{239}PU THERMAL	8.3088×10^{-8}

Q_β =2101.
BR_β =.00200

Q_{IT}=40.70
BR_{IT}=.9980

$^{94}_{42}$Mo
STABLE OR LONG-LIVED

$^{94}_{41}$Nb
19986.y

$^{94}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 94 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

$^{94}_{41}$Nb

$T_{1/2}$ =19986.y
$\langle E_\beta \rangle$ PER DECAY =191.0
$\langle E_\gamma \rangle$ PER DECAY =1560.

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.7141 \times 10^{+1}$
WESTCOTT G FACTOR	1.0275
σ CAPTURE 2200M/S	$1.3603 \times 10^{+1}$
WESTCOTT G FACTOR	1.0013
RESONANCE INTEGRAL TOTAL	$2.3760 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1720 \times 10^{+2}$

FISSION YIELDS

^{235}U THERMAL	4.5325×10^{-9}
^{235}U FAST	3.1105×10^{-9}
^{239}PU THERMAL	8.3388×10^{-8}

Q_β =2050.
BR_β =1.000

$^{94}_{42}$Mo

STABLE OR LONG-LIVED

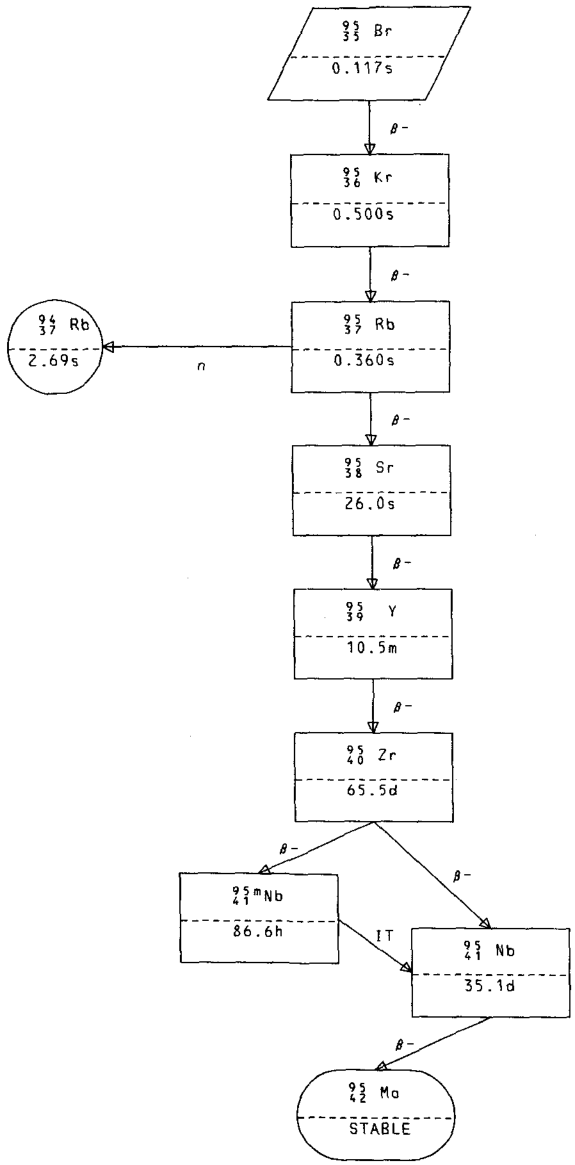
$^{94}_{42}$Mo

$^{94}_{42}$Mo

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.5845
WESTCOTT G FACTOR	1.1279
σ CAPTURE 2200M/S	1.6187×10^{-2}
WESTCOTT G FACTOR	1.0167
RESONANCE INTEGRAL TOTAL	$9.1600 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	9.0320×10^{-1}



95 35 Br
0.117s
β-
95 36 Kr
0.500s
β-
95 37 Rb
0.360s
n
94 37 Rb
2.69s
β-
95 38 Sr
26.0s
β-
95 39 Y
10.5m
β-
95 40 Zr
65.5d
β-
β-
95m 41 Nb
86.6h
IT
95 41 Nb
35.1d
β-
95 42 Mo
STABLE

$^{95}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 95 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{95}_{35}$Br

$T_{1/2}$ =.1166s
$\langle E_\beta \rangle$ PER DECAY =4094.
$\langle E_\gamma \rangle$ PER DECAY =3402.

FISSION YIELDS

^{235}U THERMAL	5.7888×10^{-8}
^{235}U FAST	1.8176×10^{-7}
^{238}U FAST	2.7798×10^{-6}
^{239}PU THERMAL	2.8812×10^{-9}

Q_β =11590.
BR_β =1.000

$^{95}_{36}$Kr

.5000s

$^{95}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 95 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{95}_{36}$Kr

$T_{1/2}$ =.5000s
$\langle E_\beta \rangle$ PER DECAY =3255.
$\langle E_\gamma \rangle$ PER DECAY =2634.

FISSION YIELDS

^{235}U THERMAL	8.0566×10^{-5}
^{235}U FAST	2.4842×10^{-4}
^{238}U FAST	1.2367×10^{-3}
^{239}PU THERMAL	1.1935×10^{-5}

Q_β =9450.
BR_β =1.000

$^{95}_{37}$Rb

.360±.020s

$^{95}_{37}$ Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 95 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{95}_{37}$ Rb

$T_{1/2}$ =.360±.020s
$\langle E_\beta \rangle$ PER DECAY =2550.
$\langle E_\gamma \rangle$ PER DECAY =1972.

FISSION YIELDS

^{235}U THERMAL	8.9864×10^{-3}
^{235}U FAST	8.8342×10^{-3}
^{238}U FAST	1.3798×10^{-2}
^{239}PU THERMAL	1.7571×10^{-3}

Q_N =2956.
BR_N =.071±.009

Q_β =7870.
BR_β =.9290

$^{94}_{37}$ Rb
2.69±.04s

$^{95}_{38}$ Sr
26.0±1.0s

95 - 37- 1

$^{95}_{38}$ Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 95 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{95}_{38}$ Sr

$T_{1/2}$ =26.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1939.
$\langle E_\gamma \rangle$ PER DECAY =1361.

FISSION YIELDS

^{235}U THERMAL	4.5769×10^{-2}
^{235}U FAST	4.5150×10^{-2}
^{238}U FAST	3.5855×10^{-2}
^{239}PU THERMAL	2.9242×10^{-2}

Q_β =5800.
BR_β =1.000

$^{95}_{39}$ Y
10.50±0.20m

$^{95}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 95 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

$^{95}_{39}$Y

$T_{1/2}$ =10.50±0.20m
$\langle E_{\beta} \rangle$ PER DECAY =1746.
$\langle E_{\gamma} \rangle$ PER DECAY =488.3

FISSION YIELDS

^{235}U THERMAL	9.5100×10^{-3}
^{235}U FAST	9.3174×10^{-3}
^{238}U FAST	2.3220×10^{-3}
^{239}PU THERMAL	1.6762×10^{-2}

Q_{β} =4430.±20.
BR_{β} =1.000

$^{95}_{40}$Zr

65.50±0.20d

PHOTON RADIATION TABLE

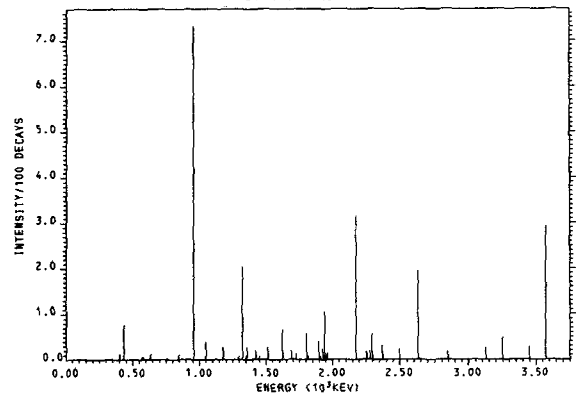
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
396.8	1	.1319
431.4	1	.7697
569.2	1	.06597
580.5	1	.05864
632.5	1	.1246
844.3	1	.1099
954.2	1	7.330
1049.	1	.3958
1174.	1	.2712
1294.	1	.08063
1324.	1	2.030
1350.	1	.08796
1357.	1	.2785
1419.	1	.1979
1445.	1	.07330
1512.	1	.2639
1619.	1	.6670
1684.	1	.1979
1721.	1	.1393
1806.	1	.5717
1814.	1	.08063
1893.	1	.4032
1938.	4	1.532
2176.	1	3.159
2253.	1	.1759
2279.	1	.1833
2296.	1	.5571
2373.	1	.3152
2498.	1	.2199
2633.	1	1.957
2847.	1	.1833
3130.	1	.2639
3251.	1	.4911
3452.	1	.2785
3577.	1	2.939

$\langle E_{PHOTON} \rangle$ PER DECAY = 488.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	370.0	110.1	.01000
β^-	420.0	127.3	.01000
β^-	550.0	174.0	.01000
β^-	720.0	238.8	.1000
β^-	860.0	294.8	4.200
β^-	980.0	344.3	.5000
β^-	1190.0	433.9	1.500
β^-	1310.0	486.4	4.800
β^-	1440.0	544.3	.1000

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	4430.	82.00
γ	954.2	7.330
β^-	1310.	4.800
β^-	860.0	4.200

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1590.0	612.0	.1000
β^-	1720.0	671.5	.1000
β^-	2070.0	834.3	2.100
β^-	2190.0	890.8	.6000
β^-	2500.0	1038.	.6000
β^-	2550.0	1062.	.2000
β^-	3120.0	1337.	.7000
β^-	3270.0	1410.	.4000
β^-	3490.0	1518.	2.000
β^-	4430.0	1979.	82.00

$\langle E_e \rangle$ PER DECAY = 1746.
$\langle E_\nu \rangle$ PER DECAY = 2196.

$^{95}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS

```
40-ZR- 95  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 TABLE
            GAMMA-RAY ENERGIES -R.G.HELMER, R.C.GREENWOOD AND
                       R.J.GEHRKE, NUCL.INSTR.AND METHODS 96,
                       173 (1971).
            GAMMA-RAY INTENSITIES- R.G.HELMER AND R.C.GREENWOOD,
                       TRANS.AM.NUCL.SOC. 17,517 (1973).
```

$^{95}_{40}$Zr

$T_{1/2}$ =65.50±0.20d

$\langle E_\beta \rangle$ PER DECAY =116.3

$\langle E_\gamma \rangle$ PER DECAY =736.1

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.2960
WESTCOTT G FACTOR	1.1715
σ CAPTURE 2200M/S	4.9000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0850\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	5.3550

FISSION YIELDS

^{235}U THERMAL	2.9711×10^{-4}
^{235}U FAST	2.8308×10^{-4}
^{238}U FAST	2.0488×10^{-5}
^{239}PU THERMAL	1.4426×10^{-3}

Q_β =888.1
BR_β =.01200

Q_β =1124.±4.
BR_β =.9880

$^{95m}_{41}$Nb

86.6±1.0h

$^{95}_{41}$Nb

35.10±0.10d

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
15.30			4	.1221		
724.184	±	0.018	1	44.1	±	0.5
756.786	±	0.019	1	54.7	±	0.5

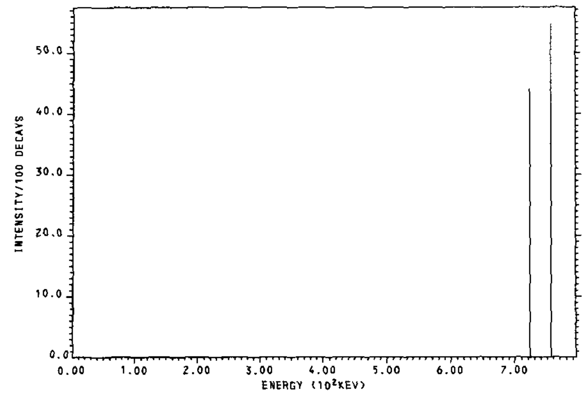
$\langle E_{PHOTON} \rangle$ PER DECAY = 734. ± 5.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	18.5	1.268			54.89
CE	756.3	725.113	±	0.012	.1724
β^-	361.0	107.1			44.30
β^-	400.0	120.4			54.90
β^-	888.0	306.2			.9000

$\langle E_{e} \rangle$ PER DECAY = 118.2
$\langle E_{\nu} \rangle$ PER DECAY = 271.2

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	400.0			54.90		
γ	756.786	±	0.019	54.7	±	0.5
AU_{H}	.4690			52.31		
β^-	361.0			44.30		

$^{95m}_{41}Nb$

ENDF/B-IV FILE 1 COMMENTS
41-NB- 95M 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.

$^{95m}_{41}Nb$

$T_{1/2}$ =86.6±1.0h
$\langle E_\gamma \rangle$ PER DECAY =235.5

FISSION YIELDS

^{235}U THERMAL	1.4608×10^{-6}
^{235}U FAST	1.1002×10^{-7}
^{238}U FAST	2.2498×10^{-9}
^{239}PU THERMAL	7.4589×10^{-6}

Q_{IT}=235.6
BR_{IT}=1.000

$^{95}_{41}Nb$

35.10±0.10d

PHOTON RADIATION TABLE

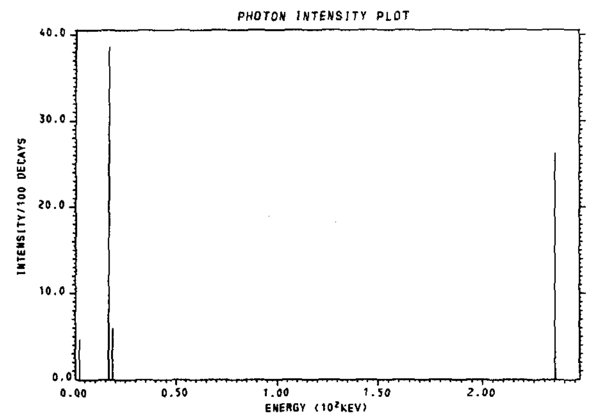
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
15.21	4	49.37
235.6	1	26.30

$\langle E_{PHOTON} \rangle$ PER DECAY = 69.47

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	18.5	3.231	139.8
CE	235.1	219.7	73.64

$\langle E_e \rangle$ PER DECAY = 166.3



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
AU_L	2.229	70.05
CE_K	216.6	59.73
AU_M	.4690	52.31
X_K	16.29	38.64

$^{95}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 95 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 WAPSTRA-GOVE MASSTABLE

$^{95}_{41}$Nb

$T_{1/2}$ =35.10±0.10d
$\langle E_\beta \rangle$ PER DECAY =43.56
$\langle E_\gamma \rangle$ PER DECAY =765.8

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.3060
WESTCOTT G FACTOR	1.1830
σ CAPTURE 2200M/S	1.5000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3100\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.1920\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	1.8110×10^{-7}
^{235}U FAST	1.1002×10^{-7}
^{238}U FAST	7.8193×10^{-9}
^{239}PU THERMAL	7.4589×10^{-6}

Q_β =925.6±0.5
BR_β =1.000

$^{95}_{42}$Mo

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

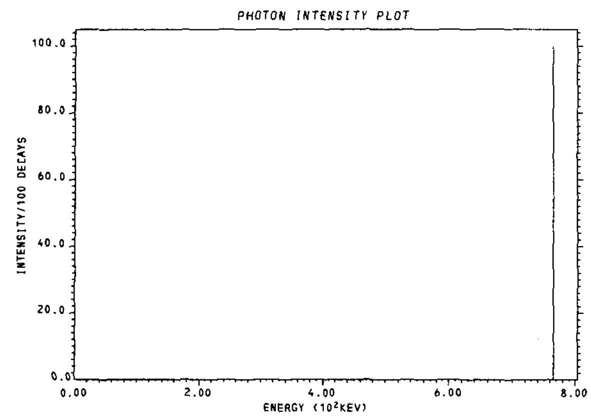
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
765.8	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 765.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	160.0	43.56	100.0

$\langle E_e \rangle$ PER DECAY = 43.56
$\langle E_\nu \rangle$ PER DECAY = 116.4



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	765.8	100.0
$\beta-$	160.0	100.0

$^{95}_{42}$Mo

$^{95}_{42}$Mo

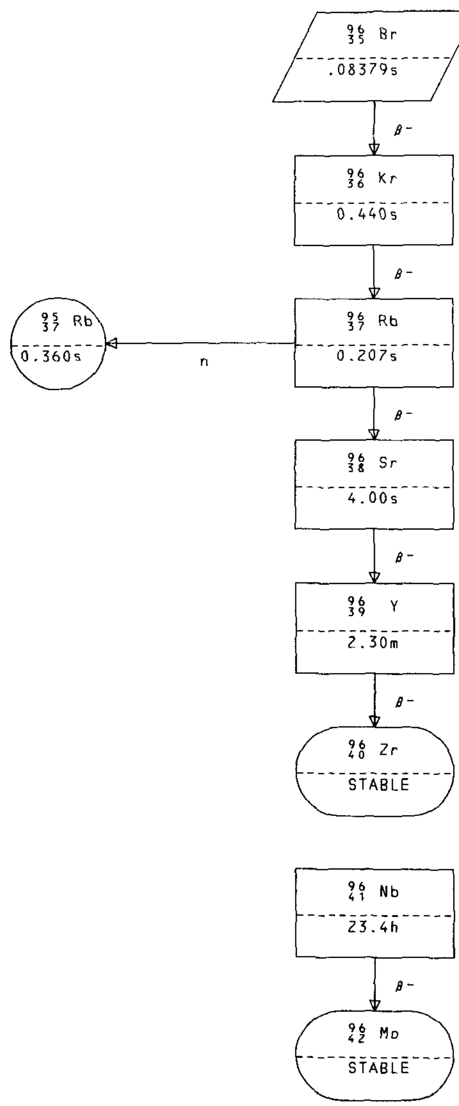
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.6929 \times 10^{+1}$
WESTCOTT G FACTOR	1.0190
σ CAPTURE 2200M/S	$1.4473 \times 10^{+1}$
WESTCOTT G FACTOR	1.0004
RESONANCE INTEGRAL TOTAL	$3.2170 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1320 \times 10^{+2}$

FISSION YIELDS

^{239}PU THERMAL 1.0499×10^{-9}



$^{96}_{35}$Br
.08379s
β-
$^{96}_{36}$Kr
0.440s
β-
$^{96}_{37}$Rb
0.207s
n
$^{95}_{37}$Rb
0.360s
β-
$^{96}_{38}$Sr
4.00s
β-
$^{96}_{39}$Y
2.30m
β-
$^{96}_{40}$Zr
STABLE
$^{96}_{41}$Nb
23.4h
β-
$^{96}_{42}$Mo
STABLE

$^{96}_{35}$Br

ENDF/B-IV FILE 1 COMMENTS
35-BR- 96 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{96}_{35}$Br

$T_{1/2}$ =.08379s
$\langle E_\beta \rangle$ PER DECAY =5291.
$\langle E_\gamma \rangle$ PER DECAY =4078.

FISSION YIELDS

^{235}U THERMAL	3.0517×10^{-9}
^{235}U FAST	5.3409×10^{-9}
^{238}U FAST	1.9298×10^{-7}

Q_β =14660.
BR_β =1.000

$^{96}_{36}$Kr

.4404s

96 - 35- 1

$^{96}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 96 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{96}_{36}$Kr

$T_{1/2}$ =.4404s
$\langle E_\beta \rangle$ PER DECAY =2542.
$\langle E_\gamma \rangle$ PER DECAY =2311.

FISSION YIELDS

^{235}U THERMAL	1.5599×10^{-5}
^{235}U FAST	2.4064×10^{-5}
^{238}U FAST	2.4277×10^{-4}
^{239}PU THERMAL	1.4298×10^{-6}

Q_β =7720.
BR_β =1.000

$^{96}_{37}$Rb

.207±.003s

$^{96}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 96 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-L TOMLINSON,ADANDT,12,179(9/73)

$^{96}_{37}$Rb

$T_{1/2}$ =.207±.003s
$\langle E_\beta \rangle$ PER DECAY =3511.
$\langle E_\gamma \rangle$ PER DECAY =2660.

FISSION YIELDS

^{235}U THERMAL	1.9124×10^{-3}
^{235}U FAST	2.6169×10^{-3}
^{238}U FAST	7.9059×10^{-3}
^{239}PU THERMAL	4.7719×10^{-4}

Q_N =4136.
BR_N =.127±.015

Q_β =10760.
BR_β =.8730

$^{95}_{37}$Rb
.360±.020s

$^{96}_{38}$Sr
4.00±.20s

96 - 37- 1

$^{96}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 96 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

$^{96}_{38}$Sr

$T_{1/2}$ =4.00±.20s
$\langle E_\beta \rangle$ PER DECAY =1352.
$\langle E_\gamma \rangle$ PER DECAY =1120.

FISSION YIELDS

^{235}U THERMAL	3.5672×10^{-2}
^{235}U FAST	3.6528×10^{-2}
^{238}U FAST	3.7405×10^{-2}
^{239}PU THERMAL	1.8526×10^{-2}

Q_β =4320.
BR_β =1.000

$^{96}_{39}$Y
2.3±.3m

96 - 38- 1

$^{96}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 96 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{96}_{39}$Y

$T_{1/2}$ =2.3±.3m
$\langle E_\beta \rangle$ PER DECAY =2408.
$\langle E_\gamma \rangle$ PER DECAY =1461.

FISSION YIELDS

^{235}U THERMAL	2.2745×10^{-2}
^{235}U FAST	1.9935×10^{-2}
^{238}U FAST	7.1652×10^{-3}
^{239}PU THERMAL	2.5751×10^{-2}

Q_β =6900.
BR_β =1.000

$^{96}_{40}$Zr

STABLE OR LONG-LIVED

96 - 39- 1

$^{96}_{40}$Zr

$^{96}_{40}$Zr

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.3214
WESTCOTT G FACTOR	1.1279
σ CAPTURE 2200M/S	1.6261×10^{-2}
WESTCOTT G FACTOR	9.9966×10^{-1}
RESONANCE INTEGRAL TOTAL	$9.5640\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	5.2280

FISSION YIELDS

^{235}U THERMAL	2.1758×10^{-3}
^{235}U FAST	1.7580×10^{-3}
^{238}U FAST	1.9820×10^{-4}
^{239}PU THERMAL	6.1751×10^{-3}

$^{96}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 96 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

$^{96}_{41}$Nb

$T_{1/2}$ =23.40h
$\langle E_\beta \rangle$ PER DECAY =249.0
$\langle E_\gamma \rangle$ PER DECAY =2460.

FISSION YIELDS

^{235}U THERMAL	5.9933×10^{-6}
^{235}U FAST	4.3907×10^{-6}
^{238}U FAST	1.4099×10^{-7}
^{239}PU THERMAL	3.7765×10^{-5}

Q_β =3190.
BR_β =1.000

$^{96}_{42}$Mo

STABLE OR LONG-LIVED

96 - 41- 1

$^{96}_{42}$Mo

$^{96}_{42}$Mo

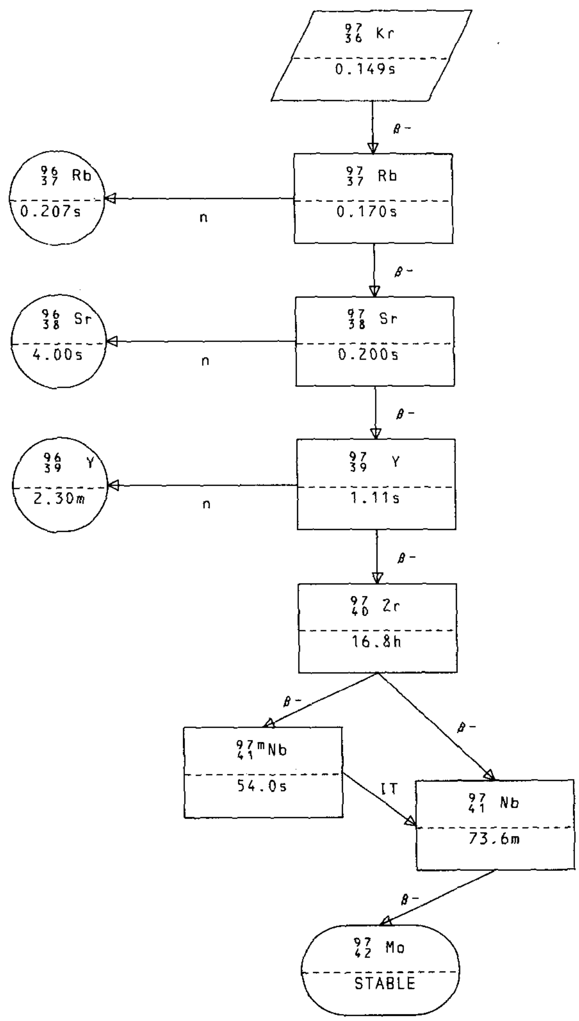
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.9309
WESTCOTT G FACTOR	1.0963
σ CAPTURE 2200M/S	1.0010
WESTCOTT G FACTOR	1.0012
RESONANCE INTEGRAL TOTAL	$1.6300 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.9460 \times 10^{+1}$

FISSION YIELDS

^{235}U THERMAL	1.7509×10^{-9}
^{235}U FAST	1.1102×10^{-9}
^{239}PU THERMAL	3.7595×10^{-8}


97 36 Kr
0.149s
β-
97 37 Rb
0.170s
n
96 37 Rb
0.207s
β-
97 38 Sr
0.200s
n
96 38 Sr
4.00s
β-
97 39 Y
1.11s
n
96 39 Y
2.30m
β-
97 40 Zr
16.8h
β-
97m 41 Nb
54.0s
β-
IT
97 41 Nb
73.6m
β-
97 42 Mo
STABLE

$^{97}_{36}$Kr

ENDF/B-IV FILE 1 COMMENTS
36-KR- 97 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{97}_{36}$Kr

$T_{1/2}$ =.1485s
$\langle E_\beta \rangle$ PER DECAY =3804.
$\langle E_\gamma \rangle$ PER DECAY =3191.

FISSION YIELDS

^{235}U THERMAL	2.6014×10^{-7}
^{235}U FAST	1.4202×10^{-6}
^{238}U FAST	8.1992×10^{-6}
^{239}PU THERMAL	6.7690×10^{-8}

Q_β =10800.
BR_β =1.000

$^{97}_{37}$Rb

.170±.010s

97 - 36- 1

$^{97}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 97 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{97}_{37}$Rb

$T_{1/2}$ =.170±.010s
$\langle E_\beta \rangle$ PER DECAY =2727.
$\langle E_\gamma \rangle$ PER DECAY =2504.

FISSION YIELDS

^{235}U THERMAL	3.4408×10^{-4}
^{235}U FAST	5.0210×10^{-4}
^{238}U FAST	7.6908×10^{-4}
^{239}PU THERMAL	7.0810×10^{-5}

Q_N =5106.
BR_N =.2100

Q_β =9030.
BR_β =.7900

$^{96}_{37}$Rb

.207±.003s

$^{97}_{38}$Sr

.2000s

$^{97}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 97 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{97}_{38}$Sr

$T_{1/2}$ =.2000s
$\langle E_\beta \rangle$ PER DECAY =2350.
$\langle E_\gamma \rangle$ PER DECAY =1838.

FISSION YIELDS

^{235}U THERMAL	1.8824×10^{-2}
^{235}U FAST	2.0596×10^{-2}
^{238}U FAST	3.1447×10^{-2}
^{239}PU THERMAL	7.9882×10^{-3}

Q_N =395.7
BR_N =.00095

Q_β =7100.
BR_β =.9990

$^{96}_{38}$Sr
4.00±.20s

$^{97}_{39}$Y
1.11±.03s

97 - 38- 1

$^{97}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 97 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.
REFERENCE
Q- J. EIDENS NUCL. PHYS. A141, 289(1970)
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.

$^{97}_{39}$Y

$T_{1/2}$ =1.11±.03s
$\langle E_\beta \rangle$ PER DECAY =2162.
$\langle E_\gamma \rangle$ PER DECAY =935.0

FISSION YIELDS

^{235}U THERMAL	3.1403×10^{-2}
^{235}U FAST	3.0150×10^{-2}
^{238}U FAST	2.1592×10^{-2}
^{239}PU THERMAL	2.8851×10^{-2}

BR_N =.016±.003

Q_β =5700.±200.
BR_β =.984±.003

$^{96}_{39}$Y
2.3±.3m

$^{97}_{40}$Zr
16.80±0.10h

PHOTON RADIATION TABLE

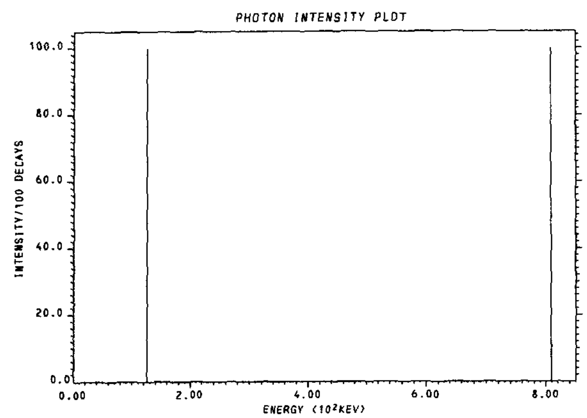
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
125.0	1	100.0
810.0	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 935.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	4800.0	2162.	100.0

$\langle E_e \rangle$ PER DECAY = 2162.
$\langle E_\nu \rangle$ PER DECAY = 2638.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	810.0	100.0
γ	125.0	100.0
$\beta-$	4800.	100.0

$^{97}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS

40-ZR- 97 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

$^{97}_{40}$Zr

$T_{1/2}$ =16.80±0.10h

$\langle E_{\beta} \rangle$ PER DECAY =707.1

$\langle E_{\gamma} \rangle$ PER DECAY =181.8

FISSION YIELDS

^{235}U THERMAL	8.9077×10^{-3}
^{235}U FAST	7.5653×10^{-3}
^{238}U FAST	1.3611×10^{-3}
^{239}PU THERMAL	1.8063×10^{-2}

Q_{β} =1930.
BR_{β} =.8620

$^{97m}_{41}$Nb

54.0±1.0s

Q_{β} =2671.±13.
BR_{β} =.1380

$^{97}_{41}$Nb

73.6±0.3m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
111.6	1	.05640
185.0	1	.03760
256.0	5	1.824
330.4	1	.1128
355.4	1	2.303
400.4	1	.3290
507.6	1	5.123
513.4	1	.5640
602.4	1	1.410
690.6	1	.2538
699.2	1	.1222
703.8	1	.9400
804.5	1	.6580
829.8	1	.2256
854.9	1	.3384
971.4	1	.2914
1021.	1	1.363
1110.	1	.1128
1148.	1	2.679
1276.	1	.9870
1363.	1	1.363
1750.	1	1.363
1852.	1	.3572

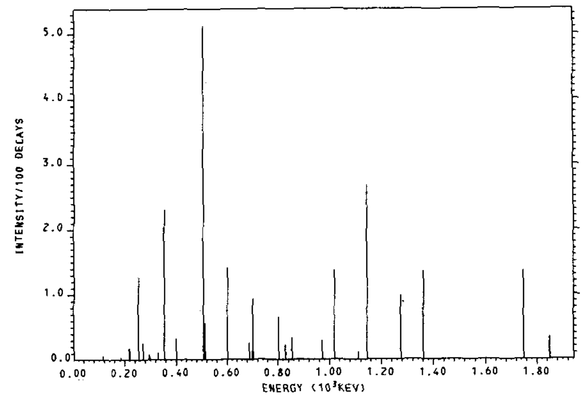
$\langle E_{PHOTON} \rangle$ PER DECAY = 181.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	420.0	127.3	.3000
β-	560.0	177.7	5.200
β-	820.0	278.5	.4000
β-	910.0	315.2	2.000
β-	920.0	319.4	.7000
β-	1020.0	361.1	.2000
β-	1120.0	403.7	1.300
β-	1390.0	521.9	.2000
β-	1420.0	535.3	3.400
β-	1930.0	768.7	86.20

$\langle E_{\beta} \rangle$ PER DECAY = 707.1
$\langle E_{\nu} \rangle$ PER DECAY = 1083.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1930.	86.20
β-	560.0	5.200
γ	507.6	5.123

$^{97m}_{41}Nb$

ENDF/B-IV FILE 1 COMMENTS
41-NB- 97M 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.

$^{97m}_{41}Nb$

$T_{1/2}$ =54.0±1.0s
$\langle E_\gamma \rangle$ PER DECAY =742.7

FISSION YIELDS

^{235}U THERMAL	3.7510×10^{-5}
^{235}U FAST	2.9040×10^{-4}
^{238}U FAST	1.9998×10^{-6}
^{239}PU THERMAL	1.9740×10^{-4}

Q_{IT}=743.0
BR_{IT}=1.000

$^{97}_{41}Nb$

73.6±0.3m

PHOTON RADIATION TABLE

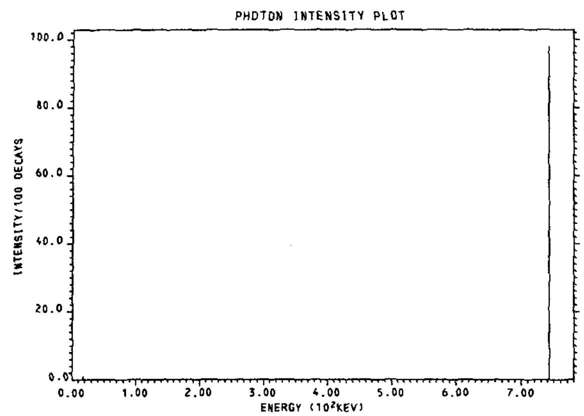
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
15.29	4	1.420
743.0	1	98.00

$\langle E_{PHOTON} \rangle$ PER DECAY = 728.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	18.5	2.631	61.48
CE	742.5	726.0	1.960

$\langle E_e \rangle$ PER DECAY = 15.85



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	1/100 DECAYS
γ	743.0	98.00
AU_M	.4690	52.31

$^{97}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 97 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

$^{97}_{41}$Nb

$T_{1/2}$ =73.6±0.3m
$\langle E_\beta \rangle$ PER DECAY =467.9
$\langle E_\gamma \rangle$ PER DECAY =677.0

FISSION YIELDS

^{235}U THERMAL	1.0844×10^{-4}
^{235}U FAST	4.9818×10^{-4}
^{238}U FAST	1.2215×10^{-4}
^{239}PU THERMAL	8.2101×10^{-4}

Q_β =1933.±16.
BR_β =1.000

$^{97}_{42}$Mo

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

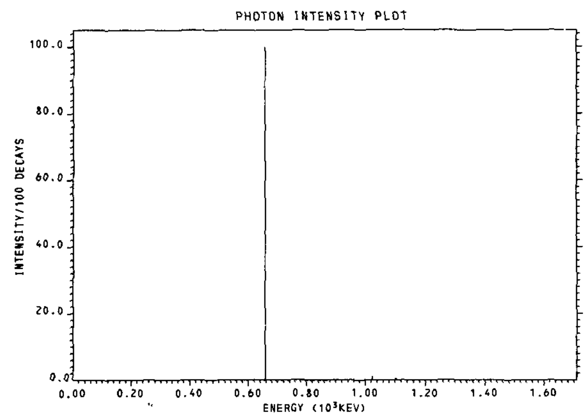
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
178.0	1	.05000
238.4	1	.05000
549.3	1	.05000
657.9	1	100.0
719.5	1	.09000
857.5	1	.05000
909.6	1	.04000
1025.	1	1.100
1117.	1	.09000
1149.	1	.05000
1269.	1	.1600
1516.	1	.1200
1629.	1	.03000

$\langle E_{PHOTON} \rangle$ PER DECAY = 677.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	420.0	127.3	.2000
β-	640.0	207.8	.1000
β-	670.0	219.3	.1000
β-	820.0	278.5	.1000
β-	910.0	315.2	1.200
β-	1020.0	361.1	.06000
β-	1210.0	442.6	.1000
β-	1275.0	471.0	98.20

$\langle E_e \rangle$ PER DECAY = 467.9
$\langle E_\nu \rangle$ PER DECAY = 799.8



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	1/100 DECAYS
γ	657.9	100.0
β-	1275.	98.20

$^{97}_{42}$Mo

$^{97}_{42}$Mo

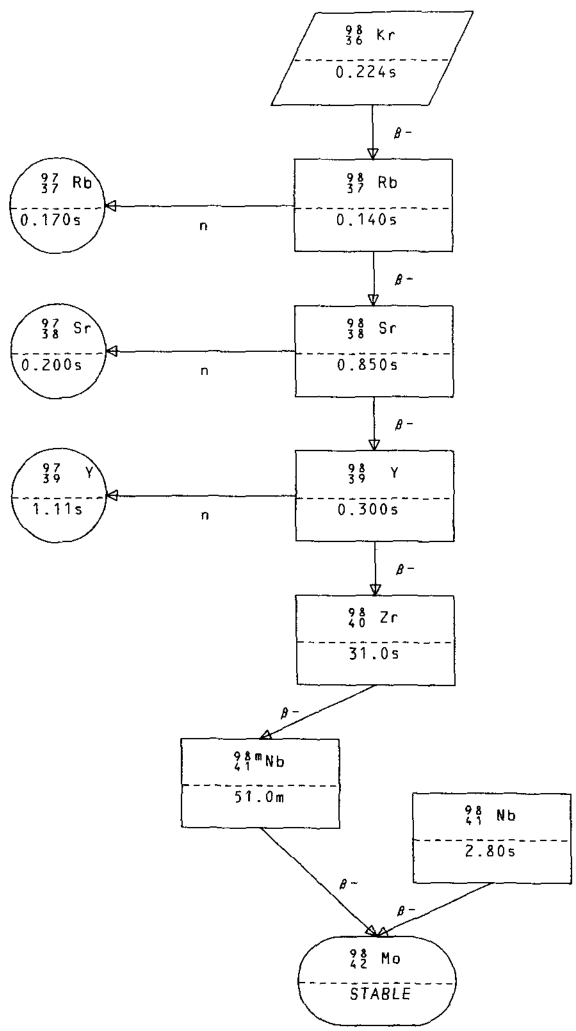
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.7281
WESTCOTT G FACTOR	1.0823
σ CAPTURE 2200M/S	2.1745
WESTCOTT G FACTOR	1.0066
RESONANCE INTEGRAL TOTAL	$1.1480 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.6120 \times 10^{+1}$

FISSION YIELDS

^{235}U THERMAL	6.8737×10^{-8}
^{235}U FAST	1.5002×10^{-6}
^{239}PU THERMAL	9.9986×10^{-7}



$^{98}_{36}$Kr
0.224s
β-
$^{97}_{37}$Rb
0.170s
n
$^{98}_{37}$Rb
0.140s
β-
$^{97}_{38}$Sr
0.200s
n
$^{98}_{38}$Sr
0.850s
β-
$^{97}_{39}$Y
1.11s
n
$^{98}_{39}$Y
0.300s
β-
$^{98}_{40}$Zr
31.0s
β-
$^{98m}_{41}$Nb
51.0m
$^{98}_{41}$Nb
2.80s
β-
β-
$^{98}_{42}$Mo
STABLE

$^{98}_{36}$Kr

```
                 ENDF/B-IV FILE 1 COMMENTS
36-KR- 98  HEDL       EVAL-APR74 R.E.SCHENTER
                      DIST-OCT74
     REFERENCES
      HALF LIFE-R SCHENTER,THEORY(9/73)
```

98/36 Kr

$T_{1/2}$ =.2243s
$\langle E_\beta \rangle$ PER DECAY =2908.
$\langle E_\gamma \rangle$ PER DECAY =2799.

FISSION YIELDS

^{235}U THERMAL	4.0622×10^{-8}
^{235}U FAST	5.4809×10^{-8}
^{238}U FAST	2.6497×10^{-6}
^{239}PU THERMAL	1.8897×10^{-9}

Q_β =8750.
BR_β =1.000

$^{98}_{37}$Rb
.140±.010s

98 - 36- 1

$^{98}_{37}$Rb

```
                 ENDF/B-IV FILE 1 COMMENTS
37-RB- 98  HEDL       EVAL-APR74 R.E.SCHENTER
                      DIST-OCT74
     REFERENCES
      DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)
```

$^{98}_{37}$Rb

$T_{1/2}$ =.140±.010s
$\langle E_\beta \rangle$ PER DECAY =3642.
$\langle E_\gamma \rangle$ PER DECAY =3163.

FISSION YIELDS

^{235}U THERMAL	5.1178×10^{-5}
^{235}U FAST	6.2820×10^{-5}
^{238}U FAST	7.1452×10^{-4}
^{239}PU THERMAL	6.2891×10^{-6}

Q_N =5715.
BR_N =.2600

Q_β =12110.
BR_β =.7400

$^{97}_{37}$Rb
.170±.010s

$^{98}_{38}$Sr
.85±.05s

98 - 37- 1

$^{98}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 98 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{98}_{38}$Sr

$T_{1/2}$ =.85±.05s
$\langle E_\beta \rangle$ PER DECAY =1690.
$\langle E_\gamma \rangle$ PER DECAY =1496.

FISSION YIELDS

^{235}U THERMAL	6.8760×10^{-3}
^{235}U FAST	7.7209×10^{-3}
^{238}U FAST	2.2836×10^{-2}
^{239}PU THERMAL	2.1361×10^{-3}

Q_N =705.8
BR_N =.00500

Q_β =5370.
BR_β =.9950

$^{97}_{38}$Sr .2000s

$^{98}_{39}$Y .3000s

98 - 38- 1

$^{98}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 98 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{98}_{39}$Y

$T_{1/2}$ =.3000s
$\langle E_\beta \rangle$ PER DECAY =2845.
$\langle E_\gamma \rangle$ PER DECAY =1943.

FISSION YIELDS

^{235}U THERMAL	2.9044×10^{-2}
^{235}U FAST	3.0114×10^{-2}
^{238}U FAST	2.6637×10^{-2}
^{239}PU THERMAL	2.0849×10^{-2}

Q_N =1105.
BR_N =.00480

Q_β =8260.
BR_β =.9952

$^{97}_{39}$Y 1.11±.03s

$^{98}_{40}$Zr 31.0±2.0s

$^{98}_{40}$Zr

```
              ENDF/B-IV FILE 1 COMMENTS
40-ZR- 98  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
```

$^{98}_{40}$Zr

$T_{1/2}$ =31.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =902.0
$\langle E_\gamma \rangle$ PER DECAY =1.000

FISSION YIELDS

^{235}U THERMAL	2.1084×10^{-2}
^{235}U FAST	2.0307×10^{-2}
^{238}U FAST	5.3163×10^{-3}
^{239}PU THERMAL	3.2582×10^{-2}

Q_β =1250.
BR_β =1.000

$^{98m}_{41}$Nb

51.0±1.0m

98 - 40- 1

$^{98m}_{41}$Nb

```
              ENDF/B-IV FILE 1 COMMENTS
41-NB- 98M 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-K. HUBENTHAL  NUCL. PHYS. A128, 577(1969)
```

$^{98m}_{41}$Nb

$T_{1/2}$ =51.0±1.0m
$\langle E_\beta \rangle$ PER DECAY =848.1
$\langle E_\gamma \rangle$ PER DECAY =2515.

FISSION YIELDS

^{235}U THERMAL	2.7616×10^{-4}
^{235}U FAST	2.4346×10^{-4}
^{238}U FAST	1.6358×10^{-5}
^{239}PU THERMAL	1.0261×10^{-3}

Q_β =4600.±200.
BR_β =1.000

$^{98}_{42}$Mo

STABLE OR LONG-LIVED

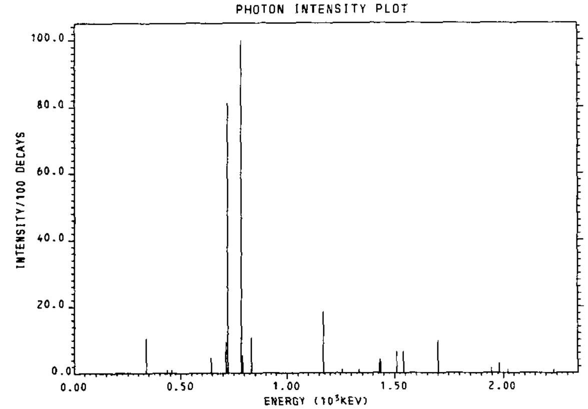
98m- 41- 1

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
335.5	1	10.63
434.0	1	1.053
455.0	1	1.053
644.6	1	4.737
757.0	4	195.5
833.3	1	10.74
1169.	1	18.42
1258.	1	1.053
1334.	1	1.053
1431.	1	3.158
1435.	1	4.210
1511.	1	6.421
1542.	1	6.631
1701.	1	9.684
1946.	1	1.579
1981.	1	2.947
2021.	1	1.053
2235.	1	1.053

$\langle E_{PHOTON} \rangle$ PER DECAY = 2491.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	900.0	311.1	15.00
β^-	1500.0	571.2	10.00
β^-	1960.0	782.7	35.00
β^-	2430.0	1005.	20.00
β^-	3140.0	1347.	20.00

$\langle E_e \rangle$ PER DECAY = 848.1
$\langle E_\nu \rangle$ PER DECAY = 1237.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	787.2	100.00
γ	722.3	81.05
β^-	1960.	35.00
β^-	3140.	20.00
β^-	2430.	20.00
γ	1169.	18.42
β^-	900.0	15.00

$^{98}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 98 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-K. HUBENTHAL NUCL. PHYS. A128, 577(1969)

$^{98}_{41}$Nb

$T_{1/2}$ =2.800s
$\langle E_{\beta} \rangle$ PER DECAY =1865.
$\langle E_{\gamma} \rangle$ PER DECAY =140.2

FISSION YIELDS

^{235}U THERMAL	4.7826×10^{-4}
^{235}U FAST	2.4347×10^{-4}
^{238}U FAST	1.4219×10^{-5}
^{239}PU THERMAL	1.9527×10^{-3}

Q_{β} =4300.±200.
BR_{β} =1.000

$^{98}_{42}$Mo

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
87.00	1	.02945
158.0	1	.02945
172.0	1	.1531
335.5	1	.5949
434.0	1	.05890
455.0	1	.05890
644.6	1	.2651
756.0	4	10.64
971.0	1	.05890
995.0	1	.1178
1025.	1	.1178
1169.	1	1.031
1431.	1	.4241
1511.	1	.3593
1542.	1	.3711
1701.	1	.5419
1886.	1	.2003
1946.	1	.08835
1981.	1	.1649

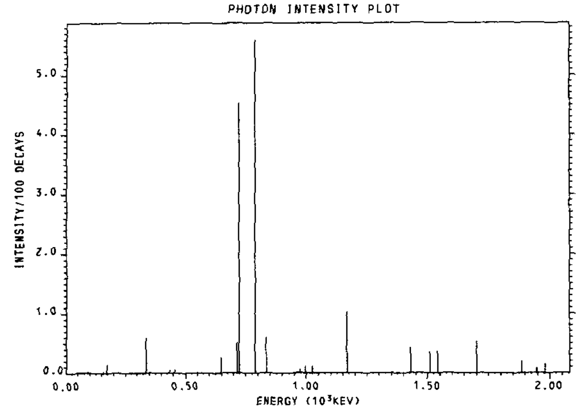
$\langle E_{PHOTON} \rangle$ PER DECAY = 140.2

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2540.0	1057.	4.500
β^-	2870.0	1216.	2.000
β^-	3550.0	1547.	4.500
β^-	4300.0	1915.	90.00

$\langle E_e \rangle$ PER DECAY = 1865.
$\langle E_\nu \rangle$ PER DECAY = 2336.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	4300.	90.00

$^{98}_{42}$Mo

$^{98}_{42}$Mo

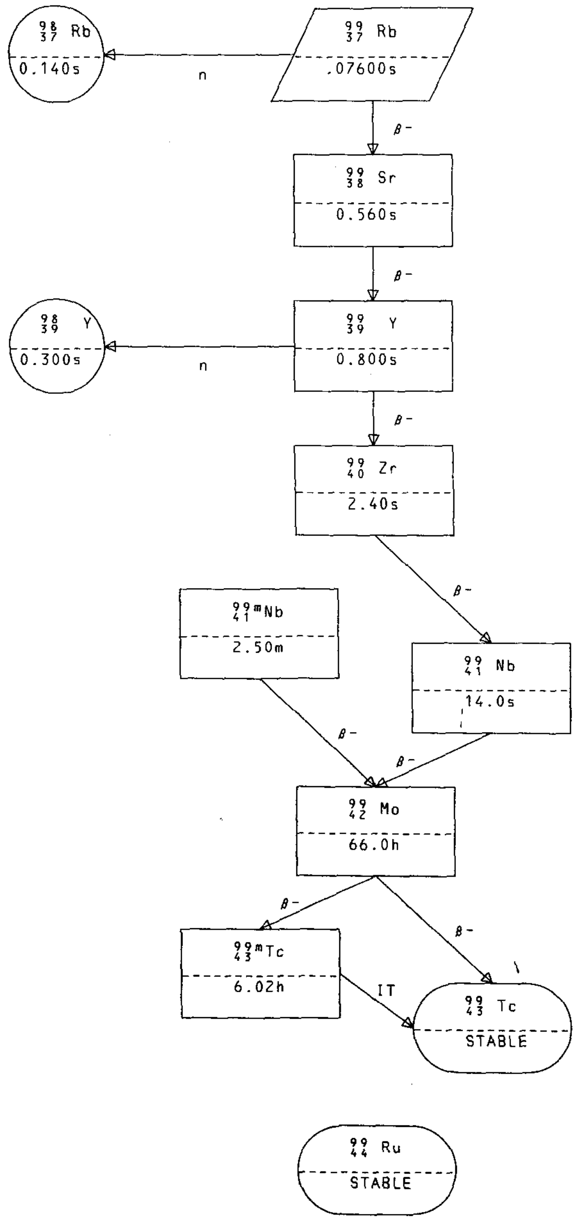
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.6656
WESTCOTT G FACTOR	1.1248
σ CAPTURE 2200M/S	1.2803×10^{-1}
WESTCOTT G FACTOR	1.0184
RESONANCE INTEGRAL TOTAL	$1.0940 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	6.8700

FISSION YIELDS

^{235}U THERMAL	1.6809×10^{-6}
^{235}U FAST	1.3502×10^{-6}
^{238}U FAST	2.1298×10^{-8}
^{239}PU THERMAL	1.6058×10^{-5}



98 37 Rb
0.140s
n
99 37 Rb
.07600s
β-
99 38 Sr
0.560s
β-
98 39 Y
0.300s
n
99 39 Y
0.800s
β-
99 40 Zr
2.40s
β-
99m 41 Nb
2.50m
99 41 Nb
14.0s
β-
β-
99 42 Mo
66.0h
β-
β-
99m 43 Tc
6.02h
IT
99 43 Tc
STABLE
99 44 Ru
STABLE

$^{99}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB- 99 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{99}_{37}$Rb

$T_{1/2}$ =.07600s
$\langle E_\beta \rangle$ PER DECAY =2852.
$\langle E_\gamma \rangle$ PER DECAY =3171.

FISSION YIELDS

^{235}U THERMAL	4.0913×10^{-6}
^{235}U FAST	3.8623×10^{-6}
^{238}U FAST	8.1503×10^{-5}
^{239}PU THERMAL	3.3391×10^{-7}

Q_N =6976.
BR_N =.3700

Q_β =10070.
BR_β =.6300

$^{98}_{37}$Rb
.140±.010s

$^{99}_{38}$Sr
.5600s

99 - 37- 1

$^{99}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR- 99 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{99}_{38}$Sr

$T_{1/2}$ =.5600s
$\langle E_\beta \rangle$ PER DECAY =2870.
$\langle E_\gamma \rangle$ PER DECAY =2334.

FISSION YIELDS

^{235}U THERMAL	1.5285×10^{-3}
^{235}U FAST	1.6050×10^{-3}
^{238}U FAST	1.0708×10^{-2}
^{239}PU THERMAL	3.2769×10^{-4}

Q_β =8450.
BR_β =1.000

$^{99}_{39}$Y
.8±.7s

$^{99}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y- 99 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
DELAYED NEUTRON BRANCHING-T ENGLAND,THEORY(2/74)

$^{99}_{39}$Y

$T_{1/2}$ =.8±.7s
$\langle E_\beta \rangle$ PER DECAY =2092.
$\langle E_\gamma \rangle$ PER DECAY =1647.

FISSION YIELDS

^{235}U THERMAL	1.8598×10^{-2}
^{235}U FAST	1.8449×10^{-2}
^{238}U FAST	3.3353×10^{-2}
^{239}PU THERMAL	9.8477×10^{-3}

Q_N =2086.
BR_N =.03800

Q_β =6510.
BR_β =.9620

$^{98}_{39}$Y
.3000s

$^{99}_{40}$Zr
2.40±.10s

99 - 39- 1

$^{99}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR- 99 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. EIDENS NUCL. PHYS A141, 289(1970)

$^{99}_{40}$Zr

$T_{1/2}$ =2.40±.10s
$\langle E_\beta \rangle$ PER DECAY =1621.
$\langle E_\gamma \rangle$ PER DECAY =793.7

FISSION YIELDS

^{235}U THERMAL	3.8194×10^{-2}
^{235}U FAST	3.4453×10^{-2}
^{238}U FAST	1.7989×10^{-2}
^{239}PU THERMAL	4.3342×10^{-2}

Q_β =4500.±200.
BR_β =1.000

$^{99}_{41}$Nb
14.0±1.0s

99 - 40- 1

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
430.0	1	10.00
468.0	1	50.00
548.0	1	40.00
595.0	1	50.00

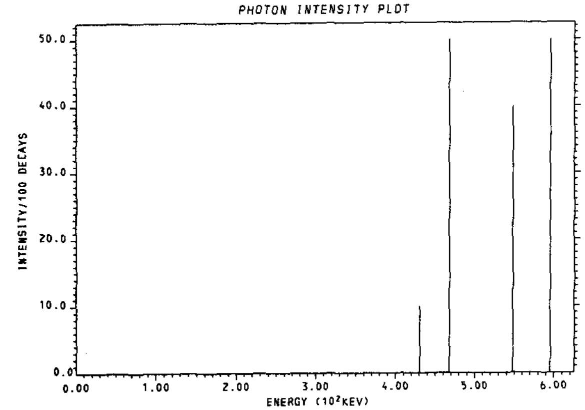
$\langle E_{PHOTON} \rangle$ PER DECAY = 793.7

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	3500.0	1523.	50.00
$\beta-$	3900.0	1719.	50.00

$\langle E_e \rangle$ PER DECAY = 1621.
$\langle E_\nu \rangle$ PER DECAY = 2079.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	595.0	50.00
γ	468.0	50.00
$\beta-$	3900.	50.00
$\beta-$	3500.	50.00

$^{99m}_{41}Nb$

```
                ENDF/B-IV FILE 1 COMMENTS
41-NB- 99M 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-EST. VAL., P. CAVALLINI, RADCHIM.ACTA 15,105(1971)
```

$^{99m}_{41}Nb$

$T_{1/2}$ =2.5±.5m
$\langle E_\beta \rangle$ PER DECAY =953.6
$\langle E_\gamma \rangle$ PER DECAY =1994.

FISSION YIELDS

^{235}U THERMAL	1.5291×10^{-3}
^{235}U FAST	1.2308×10^{-3}
^{238}U FAST	1.6700×10^{-4}
^{239}PU THERMAL	3.8668×10^{-3}

Q_β =4300.
BR_β =1.000

$^{99}_{42}Mo$

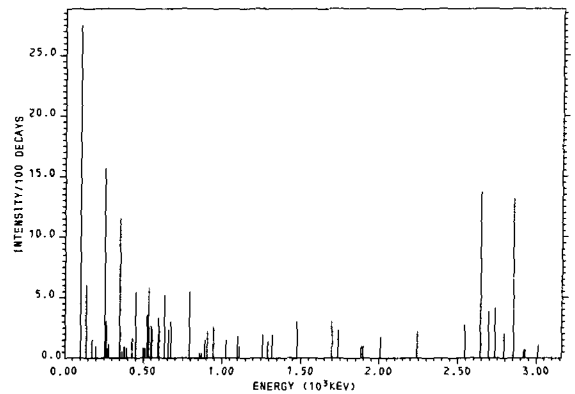
66.020±0.010h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
98.00	1	27.47
137.5	1	6.043
173.5	1	1.511
197.0	1	.9615
257.4	4	20.47
356.9	4	13.87
427.0	1	1.648
451.0	1	5.494
498.0	1	.8241
551.4	7	20.33
631.0	1	5.219
655.5	1	2.335
673.5	1	3.022
793.0	1	5.494
856.0	1	.4121
868.0	1	.4121
889.0	1	1.511
905.0	1	2.198
945.0	1	2.610
1027.	1	1.511
1100.	1	1.786
1112.	1	.9615
1259.	1	1.923
1293.	1	1.374
1317.	1	1.923
1475.	1	3.022
1698.	1	3.022
1735.	1	2.335
1886.	1	.9615
1898.	1	.9615
2010.	1	1.786
2241.	1	2.198
2544.	1	2.747
2642.	1	13.74
2693.	1	3.846
2734.	1	4.121
2791.	1	2.060
2854.	1	13.19
2918.	1	.6867
2927.	1	.6867
3010.	1	1.099

$\langle E_{PHOTON} \rangle$ PER DECAY = 1994.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	98.00	27.47
β^-	1659.	22.89
γ	254.0	15.66
β^-	1348.	14.46
γ	2642.	13.74
γ	2854.	13.19
β^-	1509.	12.05
γ	352.0	11.54
β^-	1566.	8.430
β^-	3751.	7.230
γ	137.5	6.043
β^-	3434.	6.020
γ	533.5	5.769
γ	793.0	5.494
γ	451.0	5.494
γ	631.0	5.219
β^-	2909.	4.820
γ	2734.	4.121
γ	2693.	3.846
β^-	3410.	3.610

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1348.0	503.2	14.46
β-	1509.0	575.3	12.05
β-	1566.0	601.1	8.430
β-	1659.0	643.5	22.89
β-	2565.0	1069.	2.410
β-	2909.0	1235.	4.820
β-	3091.0	1323.	2.410
β-	3101.0	1328.	3.610
β-	3395.0	1471.	3.610
β-	3410.0	1479.	3.610
β-	3434.0	1490.	6.020
β-	3507.0	1526.	2.410
β-	3546.0	1545.	2.410
β-	3684.0	1613.	1.200
β-	3751.0	1645.	7.230
β-	3774.0	1657.	2.410

$\langle E_e \rangle$ PER DECAY = 953.6
$\langle E_\nu \rangle$ PER DECAY = 1352.

$^{*}{}^{99}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB- 99 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-J. EIDENS NUCL. PHYS. A141, 289(1970)

${}^{99}_{41}$Nb

$T_{1/2}$ =14.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1523.
$\langle E_\gamma \rangle$ PER DECAY =199.7

FISSION YIELDS

^{235}U THERMAL	1.3897×10^{-3}
^{235}U FAST	1.2433×10^{-3}
^{238}U FAST	1.6719×10^{-4}
^{239}PU THERMAL	3.8612×10^{-3}

Q_β =3700.±200.
BR_β =1.000

${}^{99}_{42}$Mo

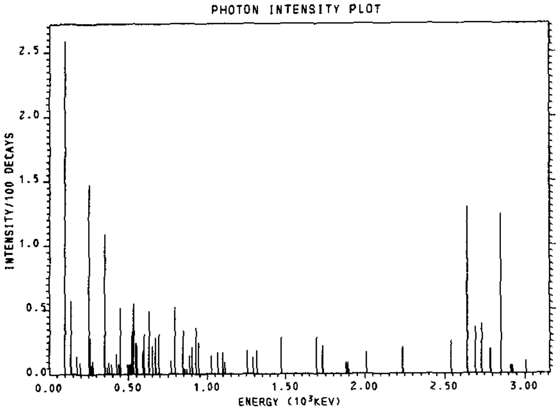
66.020±0.010h

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
98.00	1	2.590
137.5	1	.5698
173.5	1	.1424
197.0	1	.09065
257.4	4	1.930
356.9	4	1.308
449.9	4	.8288
550.1	8	1.994
659.4	4	1.308
767.5	1	.1036
793.0	1	.5180
859.8	4	.5569
905.0	1	.2072
928.0	1	.3626
945.0	1	.2461
1027.	1	.1424
1070.	1	.1683
1100.	1	.1683
1112.	1	.09065
1259.	1	.1813
1293.	1	.1295
1317.	1	.1813
1475.	1	.2849
1698.	1	.2849
1735.	1	.2201
1886.	1	.09065
1898.	1	.09065
2010.	1	.1683
2241.	1	.2072
2544.	1	.2590
2642.	1	1.295
2693.	1	.3626
2734.	1	.3885
2791.	1	.1943
2854.	1	1.243
2918.	1	.06475
2927.	1	.06475
3010.	1	.1036

$\langle E_{PHOTON} \rangle$ PER DECAY = 199.7

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	3500.	100.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	3500.0	1523.	100.0

$\langle E_e \rangle$ PER DECAY = 1523.
$\langle E_\nu \rangle$ PER DECAY = 1977.

$^{99}_{42}$ Mo

```
                    ENDF/B-IV FILE 1 COMMENTS
42-MO- 99  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,ENDFZ10,8/74.
             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, 1 (1970)
```

$^{99}_{42}$Mo

$T_{1/2}$ =66.020±0.010h

$\langle E_\beta \rangle$ PER DECAY =384.7

$\langle E_\gamma \rangle$ PER DECAY =186.1

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.6120
WESTCOTT G FACTOR	1.1780
σ CAPTURE 2200M/S	1.7000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.2920\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.7310\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	2.9576×10^{-5}
^{235}U FAST	2.2984×10^{-5}
^{238}U FAST	7.0593×10^{-7}
^{239}PU THERMAL	1.9660×10^{-4}

Q_β =1214.0±1.0
BR_β =.863±.010

$^{99m}_{43}$Tc

6.020±.010h

Q_β =1356.6±1.0
BR_β =.137±.010

$^{99}_{43}$ Tc

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

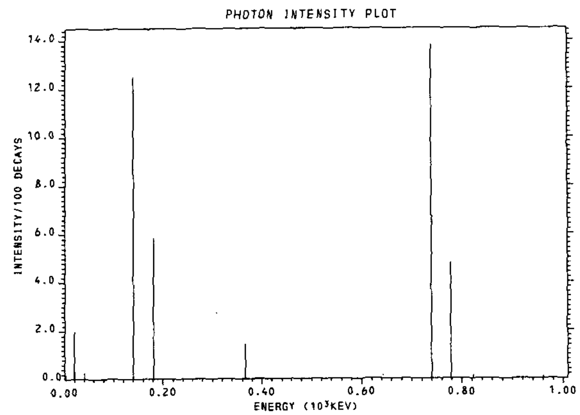
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
19.4	±	0.6	5	2.8	±	.6
140.511	±	0.006	1	12.5	±	0.4
181.06	±	0.04	1	5.83	±	.17
366.40	±	0.10	1	1.46	±	.09
411.5	±	0.5	1	.024	±	.003
528.90	±	0.20	1	.054	±	.006
620.70	±	0.20	1	.024	±	.004
739.70	±	0.10	1	13.8	±	0.5
778.20	±	0.10	1	4.8	±	.3
823.10	±	0.10	1	.140	±	.010
961.00	±	0.20	1	.110	±	.010

$\langle E_{PHOTON} \rangle$ PER DECAY = 176. ± 4.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	20.5	3.01	±	.11	63.1	±	1.1
CE	180.5	101.9	±	0.5	3.40	±	.10
β^-	215.0	60.0	±	1.8	.110	±	.010
β^-	352.0	104.	±	3.	.140	±	.010
β^-	436.0	133.	±	4.	18.6	±	0.6
β^-	596.0	191.	±	6.	.024	±	.004
β^-	685.0	225.	±	7.	.054	±	.006
β^-	848.0	290.	±	9.	1.44	±	.09
β^-	1214.0	444.	±	13.	80.0	±	1.1

$\langle E_e \rangle$ PER DECAY = 390. ± 12.
$\langle E_\nu \rangle$ PER DECAY = 681. ± 9.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β^-	1214.0	±	1.0	80.0	±	1.1
AU_M	.5440			52.31		
β^-	436.0	±	1.0	18.6	±	0.6
γ	739.70	±	0.10	13.8	±	0.5

$^{99m}_{43}Tc$

ENDF/B-IV FILE 1 COMMENTS

43-TC- 99M 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 11/73 CWR

REFERENCE

OTHER- M.J.MARTIN AND P.H.BLICHERT-TOFT, NUCLEAR DATA TABLES A8, NOS.1 AND 2, 1 (1970).

NOTE INTENSITY AND CONVERSION-COEFFICIENT VALUES LISTED FOR 2.15-KEV TRANSITION HAVE BEEN CHOSEN SO THAT THE TOTAL INTENSITY (99.1 PERCENT) IS PREDICTED. ALTHOUGH THESE VALUES CORRECTLY INDICATE THAT NEGLIGIBLE GAMMA RADIATION IS ASSOCIATED WITH THIS TRANSITION, THEY ARE NOT INTENDED TO BE USED AS A RELIABLE MEASURE OF THE ACTUAL GAMMA-RAY/CONVERSION-ELECTRON INTENSITY RATIO.

$^{99m}_{43}Tc$

$T_{1/2}$ =6.020±.010h

$\langle E_\gamma \rangle$ PER DECAY =142.7

FISSION YIELDS

^{235}U THERMAL	3.4319×10^{-9}
^{235}U FAST	2.7404×10^{-9}
^{239}PU THERMAL	6.2691×10^{-8}

Q_{IT}=142.63±0.03

BR_{IT}=1.000

$^{99}_{43}Tc$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
17.2	±	0.4	5	7.8	±	1.9
140.511	±	0.006	1	88.6		
142.63	±	0.03	1	.91	±	.16

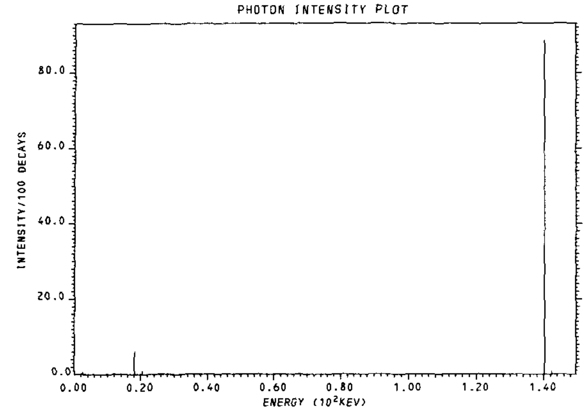
$\langle E_{PHOTON} \rangle$ PER DECAY = 127.1 ± 0.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	20.5	3.3	±	.3	71.	±	4.
CE	140.0	13.2	±	0.6	109.6	±	0.6

$\langle E_e \rangle$ PER DECAY = 16.76

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
CE_M	1.61	±	.03	99.10
γ	140.511	±	0.006	88.6
AU_M	.5440			52.31

$^{99}_{43}$Tc

$^{99}_{43}$Tc

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.4068 \times 10^{+1}$
WESTCOTT G FACTOR	1.0296
σ CAPTURE 2200M/S	$1.9032 \times 10^{+1}$
WESTCOTT G FACTOR	1.0036
RESONANCE INTEGRAL TOTAL	$4.8190 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$3.5340 \times 10^{+2}$
RESONANCE INTEGRAL (N,2N)	9.4440×10^{-1}

FISSION YIELDS

^{235}U THERMAL	3.4319×10^{-9}
^{235}U FAST	3.3505×10^{-6}
^{239}PU THERMAL	6.2691×10^{-8}

99 - 43- 1

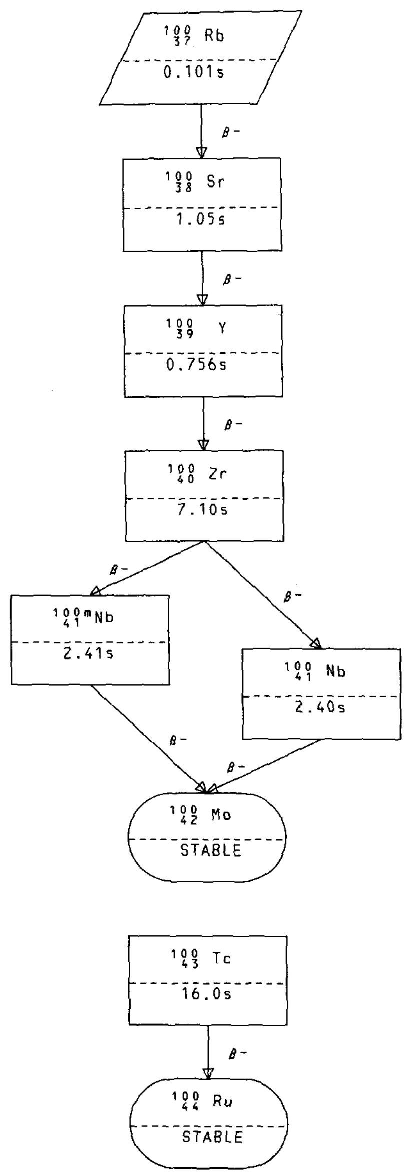
$^{99}_{44}$Ru

$^{99}_{44}$Ru

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	8.5142
WESTCOTT G FACTOR	1.0540
σ CAPTURE 2200M/S	5.0044
WESTCOTT G FACTOR	1.0019
RESONANCE INTEGRAL TOTAL	$2.4450 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.3720 \times 10^{+2}$



100 37 Rb
0.101s
β-
100 38 Sr
1.05s
β-
100 39 Y
0.756s
β-
100 40 Zr
7.10s
β-
β-
100m 41 Nb
2.41s
100 41 Nb
2.40s
β-
β-
100 42 Mo
STABLE
100 43 Tc
16.0s
β-
100 44 Ru
STABLE

$^{100}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB-100 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{100}_{37}$Rb

$T_{1/2}$ =.1006s
$\langle E_\beta \rangle$ PER DECAY =4731.
$\langle E_\gamma \rangle$ PER DECAY =3729.

FISSION YIELDS	
^{235}U THERMAL	1.6209×10^{-7}
^{235}U FAST	2.2604×10^{-7}
^{238}U FAST	1.0139×10^{-5}
^{239}PU THERMAL	1.0698×10^{-8}

Q_β =13190.
BR_β =1.000

$^{100}_{38}$Sr

1.046s

100 - 37- 1

$^{100}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR-100 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{100}_{38}$Sr

$T_{1/2}$ =1.046s
$\langle E_\beta \rangle$ PER DECAY =2043.
$\langle E_\gamma \rangle$ PER DECAY =1921.

FISSION YIELDS	
^{235}U THERMAL	2.3103×10^{-4}
^{235}U FAST	2.8482×10^{-4}
^{238}U FAST	2.8815×10^{-3}
^{239}PU THERMAL	4.0284×10^{-5}

Q_β =6400.
BR_β =1.000

$^{100}_{39}$Y

.7564s

$^{100}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-100 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{100}_{39}$Y

$T_{1/2}$ =.7564s
$\langle E_\beta \rangle$ PER DECAY =3398.
$\langle E_\gamma \rangle$ PER DECAY =2428.

FISSION YIELDS

^{235}U THERMAL	8.4679×10^{-3}
^{235}U FAST	9.3013×10^{-3}
^{238}U FAST	2.3902×10^{-2}
^{239}PU THERMAL	3.6796×10^{-3}

Q_β =9590.
BR_β =1.000

$^{100}_{40}$Zr
7.100s

100 - 39- 1

$^{100}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-100 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-DC KOCHER NUCLEAR DATA SHEETS VOL.11,P.279, MARCH 1974.

$^{100}_{40}$Zr

$T_{1/2}$ =7.100s
$\langle E_\beta \rangle$ PER DECAY =737.0
$\langle E_\gamma \rangle$ PER DECAY =632.3

FISSION YIELDS

^{235}U THERMAL	4.4555×10^{-2}
^{235}U FAST	4.4136×10^{-2}
^{238}U FAST	3.2796×10^{-2}
^{239}PU THERMAL	4.3885×10^{-2}

Q_β =2370.
BR_β =.5000

$^{100m}_{41}$Nb
2.410s

Q_β =2620.
BR_β =.5000

$^{100}_{41}$Nb
2.4±.3s

$^{100m}_{41}Nb$

ENDF/B-IV FILE 1 COMMENTS
41-NB-100M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QIT-R SCHENTER,THEORY(9/73)
HALF LIFE- SEE DISCUSSION GIVEN IN THE PREVIOUS ISOTOPE
FILE FOR THE GROUND STATE NB-100(MAT=249,FILE1).

$^{100m}_{41}Nb$

$T_{1/2}$ =2.410s
$\langle E_\beta \rangle$ PER DECAY =2119.
$\langle E_\gamma \rangle$ PER DECAY =1366.

FISSION YIELDS

^{235}U THERMAL	4.7527×10^{-3}
^{235}U FAST	4.2475×10^{-3}
^{238}U FAST	8.6324×10^{-4}
^{239}PU THERMAL	1.0336×10^{-2}

Q_β =6340.
BR_β =1.000

$^{100}_{42}Mo$

STABLE OR LONG-LIVED

$^{100}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-100 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
REFERENCE W. HERZOG, Z. PHYSIK 256, 448(1972).
NOTE (ADDED 7/74) RECENT MEASUREMENTS REVEAL THE EXISTENCE OF ACTIVITIES WITH HALF-LIVES OF 1.5 SEC AND 3.1 SEC. THE 1.5-SEC ACTIVITY IS FED IN THE DECAY OF ZR-100, WHILE THE 3.1-SEC ACTIVITY IS APPARENTLY NOT. THE DATA OF HERZOG ON 2.4-SEC NB-100 PROBABLY INCLUDE CONTRIBUTIONS FROM BOTH OF THESE ACTIVITIES. (SEE D.C. KOCHER, NUCLEAR DATA SHEETS 11, NO.5,279(1974).) THEIR RELATIVE CONTRIBUTIONS ARE AS YET UNKNOWN. IN USING THE DATA LISTED HERE, ONE SHOULD THUS BEAR IN MIND THE FACT THAT THEY MAY IN ACTUALITY CORRESPOND TO TWO ACTIVITIES.

$^{100}_{41}$Nb

$T_{1/2}$ =2.4±.3s
$\langle E_\beta \rangle$ PER DECAY =2060.
$\langle E_\gamma \rangle$ PER DECAY =1921.

FISSION YIELDS

^{235}U THERMAL	4.7527×10^{-3}
^{235}U FAST	4.2475×10^{-3}
^{238}U FAST	8.6324×10^{-4}
^{239}PU THERMAL	1.0336×10^{-2}

Q_β =6300.±200.
BR_β =1.000

$^{100}_{42}$Mo

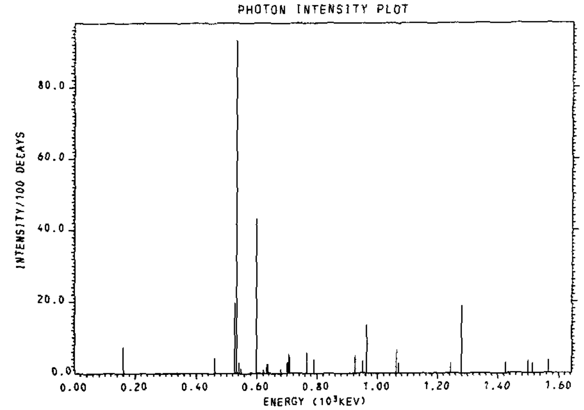
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS		
159.3	1	7.5	±	.8
461.8	1	4.3	±	.6
534.34	4	117.5	±	2.4
606.3	5	51.	±	5.
737.9	5	22.5	±	1.5
928.1	1	5.0	±	.7
952.5	1	3.5	±	.6
966.1	1	13.7	±	1.9
1064.	1	6.7	±	1.0
1071.	1	2.9	±	.5
1245.	1	2.9	±	.6
1280.	1	19.	±	3.
1428.	1	3.2	±	.6
1500.	1	3.5	±	.6
1515.	1	2.8	±	.6
1566.	1	3.5	±	.7

$\langle E_{PHOTON} \rangle$ PER DECAY = 1921.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	3737.0	1639.	±	100.	14.80
β-	3884.0	1711.	±	100.	22.40
β-	4199.0	1866.	±	110.	15.60
β-	4530.0	2029.	±	110.	3.800
β-	4534.0	2031.	±	110.	6.000
β-	4837.0	2180.	±	110.	4.800
β-	5165.0	2343.	±	110.	5.000
β-	5237.0	2378.	±	120.	14.60
β-	5765.0	2640.	±	120.	14.20

$\langle E_e \rangle$ PER DECAY = 2060.
$\langle E_\nu \rangle$ PER DECAY = 2536.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	535.2			93.30		
γ	600.1			43.	±	5.
β-	3884.	±	200.	22.40		
γ	527.9			19.8	±	2.3
γ	1280.			19.	±	3.
β-	4199.	±	200.	15.60		
β-	3737.	±	200.	14.80		
β-	5237.	±	200.	14.60		
β-	5765.	±	200.	14.20		
γ	966.1			13.7	±	1.9
γ	159.3			7.5	±	.8

$^{100}_{42}$Mo

$^{100}_{42}$Mo

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.6683
WESTCOTT G FACTOR	1.1222
σ CAPTURE 2200M/S	1.9959×10^{-1}
WESTCOTT G FACTOR	1.0100
RESONANCE INTEGRAL TOTAL	$1.2100 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	3.8540

FISSION YIELDS

^{235}U THERMAL	2.9517×10^{-4}
^{235}U FAST	2.3502×10^{-4}
^{238}U FAST	1.1269×10^{-5}
^{239}PU THERMAL	1.5474×10^{-3}

100 - 42- 1

$^{100}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-100 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

$^{100}_{43}$Tc

$T_{1/2}$ =16.00s
$\langle E_\beta \rangle$ PER DECAY =1400.
$\langle E_\gamma \rangle$ PER DECAY =78.00

FISSION YIELDS

^{235}U THERMAL	2.3813×10^{-7}
^{235}U FAST	1.6703×10^{-7}
^{238}U FAST	1.7498×10^{-9}
^{239}PU THERMAL	3.2395×10^{-6}

Q_β =3370.
BR_β =1.000

$^{100}_{44}$Ru

STABLE OR LONG-LIVED

100 - 43- 1

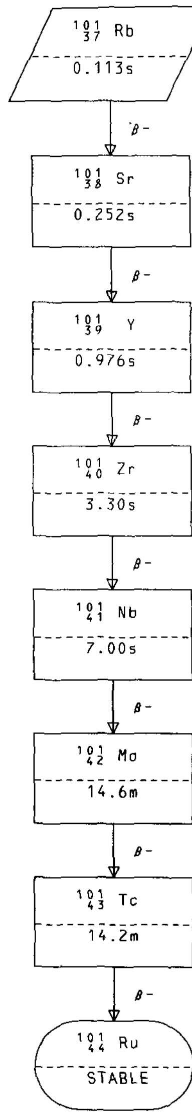
$^{100}_{44}Ru$

$^{100}_{44}Ru$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	9.7143
WESTCOTT G FACTOR	1.0676
σ CAPTURE 2200M/S	5.8006
WESTCOTT G FACTOR	1.0266
RESONANCE INTEGRAL TOTAL	$1.1040 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	9.9520


$^{101}_{37}$Rb
0.113s
β-
$^{101}_{38}$Sr
0.252s
β-
$^{101}_{39}$Y
0.976s
β-
$^{101}_{40}$Zr
3.30s
β-
$^{101}_{41}$Nb
7.00s
β-
$^{101}_{42}$Mo
14.6m
β-
$^{101}_{43}$Tc
14.2m
β-
$^{101}_{44}$Ru
STABLE

101-0

$^{101}_{37}$Rb

ENDF/B-IV FILE 1 COMMENTS
37-RB-101 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{101}_{37}$Rb

$T_{1/2}$ =.1133s
$\langle E_\beta \rangle$ PER DECAY =3875.
$\langle E_\gamma \rangle$ PER DECAY =3499.

Q_β =11250.
BR_β =1.000

$^{101}_{38}$Sr

.2519s

101 - 37- 1

$^{101}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR-101 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{101}_{38}$Sr

$T_{1/2}$ =.2519s
$\langle E_\beta \rangle$ PER DECAY =3268.
$\langle E_\gamma \rangle$ PER DECAY =2827.

FISSION YIELDS

^{235}U THERMAL	2.8896×10^{-5}
^{235}U FAST	3.5386×10^{-5}
^{238}U FAST	5.0539×10^{-4}
^{239}PU THERMAL	2.5996×10^{-6}

Q_β =9530.
BR_β =1.000

$^{101}_{39}$Y

.9762s

$^{101}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-101 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{101}_{39}$Y

$T_{1/2}$ =.9762s
$\langle E_\beta \rangle$ PER DECAY =2521.
$\langle E_\gamma \rangle$ PER DECAY =2092.

FISSION YIELDS

^{235}U THERMAL	2.6476×10^{-3}
^{235}U FAST	3.0501×10^{-3}
^{238}U FAST	1.2445×10^{-2}
^{239}PU THERMAL	7.2487×10^{-4}

Q_β =7550.
BR_β =1.000

$^{101}_{40}$Zr

3.3±.6s

101 - 39- 1

$^{101}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-101 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

$^{101}_{40}$Zr

$T_{1/2}$ =3.3±.6s
$\langle E_\beta \rangle$ PER DECAY =2400.
$\langle E_\gamma \rangle$ PER DECAY =352.9

FISSION YIELDS

^{235}U THERMAL	3.1659×10^{-2}
^{235}U FAST	3.4528×10^{-2}
^{238}U FAST	4.5867×10^{-2}
^{239}PU THERMAL	2.3873×10^{-2}

Q_β =6500.
BR_β =1.000

$^{101}_{41}$Nb

7.00±.20s

101 - 40- 1

$^{101}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-101 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. EIDENS ET AL., NUCL. PHYS. A141, 289 (1970)

$^{101}_{41}$Nb

$T_{1/2}$ =7.00±.20s
$\langle E_\beta \rangle$ PER DECAY =1901.
$\langle E_\gamma \rangle$ PER DECAY =330.0

FISSION YIELDS

^{235}U THERMAL	1.4973×10^{-2}
^{235}U FAST	1.5481×10^{-2}
^{238}U FAST	6.8349×10^{-3}
^{239}PU THERMAL	2.8605×10^{-2}

Q_β =4600.±250.
BR_β =1.000

$^{101}_{42}$Mo

14.60±0.10m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
273.0	1	69.84
399.0	1	34.92

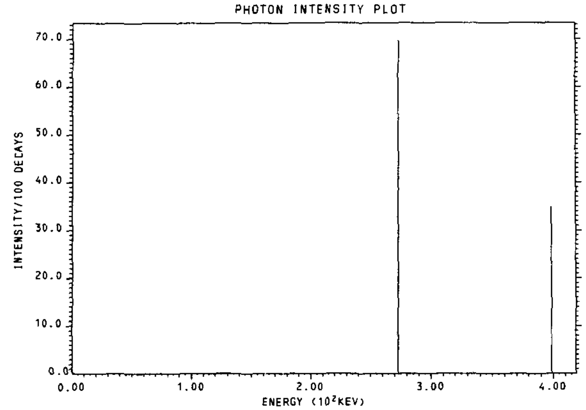
$\langle E_{PHOTON} \rangle$ PER DECAY = 330.0

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	4100.0	1817.	30.00
β^-	4300.0	1915.	60.00
β^-	4600.0	2063.	10.00

$\langle E_e \rangle$ PER DECAY = 1901.
$\langle E_\nu \rangle$ PER DECAY = 2369.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	273.0	69.84
β^-	4300.	60.00
γ	399.0	34.92

$^{101}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS

```
42-MO-101  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.
MOLYBDENUM-101     PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
          Q BETA     - 1973 REVISION WAPSTRA-GOVE MASS TABLES
          REMAINDER - W.B.COOK AND M.W.JOHNS, CAN. J. PHYSICS
                         50, 1957(1972)
```

$^{101}_{42}$Mo

$T_{1/2}$ =14.60±0.10m
$\langle E_\beta \rangle$ PER DECAY =595.0
$\langle E_\gamma \rangle$ PER DECAY =1386.

FISSION YIELDS

^{235}U THERMAL	1.1237×10^{-3}
^{235}U FAST	1.0990×10^{-3}
^{238}U FAST	1.4204×10^{-4}
^{239}PU THERMAL	5.8720×10^{-3}

Q_β =2823.±25.
BR_β =1.000

$^{101}_{43}$Tc

14.20±0.10m

PHOTON RADIATION TABLE

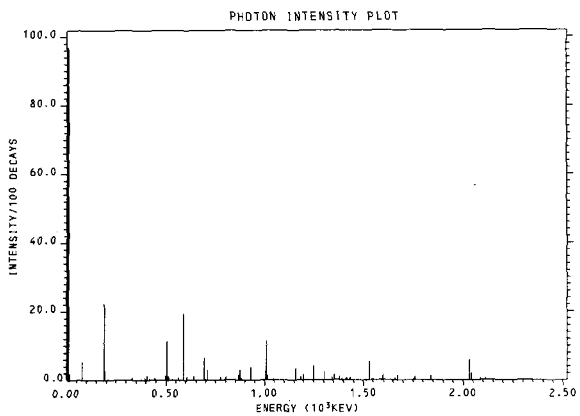
MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
10.20	±	0.21	4	184.	±	3.
190.96	±	0.12	6	25.5	±	1.6
223.7	±	2.4	5	.64	±	.06
364.3	±	1.3	11	3.08	±	.15
450.0	±	1.6	13	4.65	±	.19
556.2	±	1.6	10	34.6	±	1.5
677.4	±	1.3	8	9.2	±	.6
730.7	±	1.3	9	5.3	±	.3
865.8	±	0.9	12	7.4	±	.3
938.1	±	0.6	5	4.5	±	.3
1014.8	±	0.3	8	17.6	±	1.1
1175.2	±	0.9	5	6.5	±	.4
1252.1	±	0.4	5	4.7	±	.4
1343.2	±	1.3	11	7.7	±	.3
1430.0	±	0.7	9	2.76	±	.14
1545.9	±	1.2	10	8.4	±	.5
1666.6	±	0.7	6	2.43	±	.17
1753.9	±	0.8	4	1.75	±	.15
1840.40	±	0.20	1	1.26	±	.13
1882.4	±	0.6	1	.070	±	.015
1933.5	±	1.5	4	.23	±	.03
2038.5	±	0.5	4	8.9	±	.5
2116.8	±	0.5	4	.62	±	.05
2202.6	±	0.7	1	.025	±	.004
2221.6	±	0.5	1	.152	±	.016
2402.0	±	1.0	1	.019	±	.004

$\langle E_{PHOTON} \rangle$ PER DECAY = 1386. ± 22.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	404.7	122.	±	8.	.13	±	.03
β-	469.1	145.	±	9.	.29	±	.07
β-	570.4	182.	±	10.	.095	±	.020
β-	585.2	187.	±	10.	.36	±	.04
β-	672.7	220.	±	11.	.13	±	.03
β-	693.8	229.	±	11.	1.94	±	.14
β-	766.6	257.	±	11.	2.87	±	.21
β-	775.4	261.	±	11.	19.3	±	1.1
β-	822.0	279.	±	12.	.85	±	.07
β-	860.9	295.	±	12.	14.2	±	0.8
β-	894.1	309.	±	13.	.64	±	.06
β-	925.5	322.	±	13.	3.1	±	.3
β-	930.1	324.	±	13.	.090	±	.020
β-	1016.7	360.	±	14.	2.90	±	.21
β-	1047.7	373.	±	14.	1.39	±	.17
β-	1145.2	415.	±	15.	.25	±	.09
β-	1208.3	442.	±	16.	1.49	±	.16
β-	1224.1	449.	±	16.	.11	±	.11

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
γ	9.317	±	.010	97.0	±	1.0
γ	6.281	±	.007	80.	±	3.
γ	191.93	±	0.04	22.3	±	1.6
γ	590.82	±	0.05	19.4	±	1.0
β-	775.	±	25.	19.3	±	1.1
β-	861.	±	25.	14.2	±	0.8
β-	2615.	±	25.	13.6	±	1.7
β-	2217.	±	25.	11.7	±	1.2
γ	1012.35	±	0.10	11.4	±	1.0
γ	505.88	±	0.05	11.4	±	0.8
β-	1795.	±	25.	7.9	±	1.1
γ	695.53	±	0.07	6.6	±	.5
β-	1504.	±	25.	6.2	±	.5
γ	2031.95	±	0.20	6.1	±	.5
γ	1532.27	±	0.17	5.5	±	.5
γ	80.92	±	0.03	5.5	±	.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	1228.6	451.	±	16.	1.46	±	.11
β-	1257.9	464.	±	17.	.25	±	.04
β-	1374.0	515.	±	18.	.73	±	.10
β-	1503.5	573.	±	20.	6.2	±	.5
β-	1591.7	613.	±	21.	.21	±	.05

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	1625.7	628.	±	21.	.080	±	.020
β-	1635.0	632.	±	21.	.03	±	.03
β-	1681.5	654.	±	22.	.28	±	.03
β-	1719.5	671.	±	22.	.34	±	.04
β-	1795.1	706.	±	23.	7.9	±	1.1
β-	1797.4	707.	±	23.	3.3	±	.4
β-	1936.4	772.	±	30.	.8	±	.8
β-	2080.8	839.	±	30.	.10	±	.05
β-	2111.9	854.	±	30.	1.5	±	.7
β-	2153.5	874.	±	30.	.24	±	.07
β-	2200.9	896.	±	30.	.30	±	.09
β-	2206.8	899.	±	30.	.33	±	.17
β-	2216.6	903.	±	30.	11.7	±	1.2
β-	2289.5	938.	±	30.	1.4	±	1.4
β-	2307.8	947.	±	30.	1.6	±	1.6
β-	2322.5	954.	±	30.	.06	±	.07
β-	2428.6	1004.	±	30.	.15	±	.10
β-	2534.5	1055.	±	30.	.6	±	.6
β-	2615.5	1094.	±	30.	13.6	±	1.7

$\langle E_e \rangle$ PER DECAY = 595. ± 40.
$\langle E_\nu \rangle$ PER DECAY = 940. ± 60.

$^{101}_{43}Tc$

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              ENDF/B-IV FILE 1 COMMENTS
43-TC-101  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.
TECHNETIUM-101     PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
           Q BETA    - 1973 REVISION WAPSTRA-GOVE MASS TABLES
           REMAINDER - W.B.COOK AND M.W.JOHNS, CAN. J. PHYSICS
                              50, 1957(1972)
```

$^{101}_{43}Tc$

$T_{1/2}$ =14.20±0.10m

$\langle E_\beta \rangle$ PER DECAY =480.0

$\langle E_\gamma \rangle$ PER DECAY =336.3

FISSION YIELDS

^{235}U THERMAL	2.3513×10^{-6}
^{235}U FAST	2.1603×10^{-6}
^{238}U FAST	7.4593×10^{-8}
^{239}PU THERMAL	3.7325×10^{-5}

Q_β =1632.±24.

BR_β =1.000

$^{101}_{44}Ru$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
151.9	±	1.3	4	4.90	±	.23
233.71	±	0.07	1	.26	±	.03
238.26	±	0.07	1	.27	±	.03
294.8	±	0.3	1	.060	±	.020
306.86	±	0.04	1	88.	±	5.
311.3	±	0.4	1	.31	±	.06
393.20	±	0.20	1	.090	±	.020
422.4	±	0.4	1	.050	±	.020
489.0	±	0.5	1	.035	±	.010
516.10	±	0.25	1	.11	±	.03
531.41	±	0.10	1	1.05	±	.09
545.11	±	0.07	1	6.0	±	.4
625.7	±	0.3	4	.69	±	.06
715.59	±	0.13	1	.71	±	.07
720.00	±	0.20	1	.23	±	.03
810.9	±	0.4	1	.060	±	.015
842.75	±	0.13	1	.22	±	.03
928.90	±	0.25	1	.120	±	.020
938.4	±	0.3	1	.090	±	.020

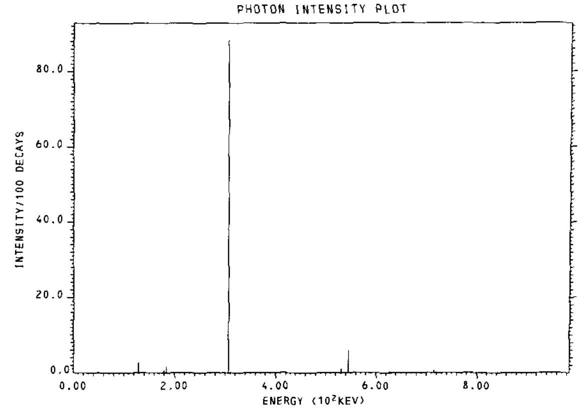
$\langle E_{PHOTON} \rangle$ PER DECAY = 336. ± 15.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
β-	693.7	228.	±	10.	.840	±	.003
β-	703.0	232.	±	11.	.2800	±	.0008
β-	789.2	266.	±	11.	2.000	±	.006
β-	912.0	316.	±	13.	.2700	±	.0008
β-	1015.8	359.	±	14.	.03000	±	.00009
β-	1086.9	390.	±	15.	6.500	±	.020
β-	1325.1	493.	±	17.	90.4	±	0.3

$\langle E_e \rangle$ PER DECAY = 480. ± 13.
$\langle E_\nu \rangle$ PER DECAY = 815.0 ± 2.5

PHOTON INTENSITY PLOT

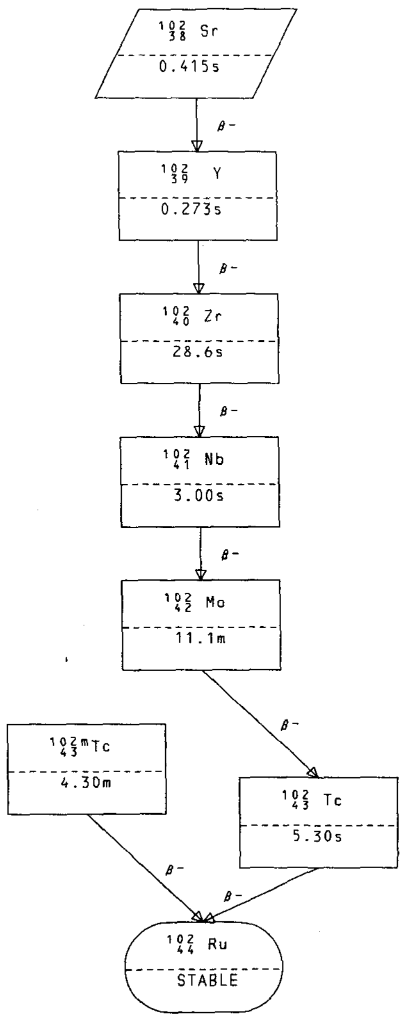


CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	1325.	±	24.	90.4	±	0.3
γ	306.86	±	0.04	88.	±	5.

$^{101}_{44}Ru$

$^{101}_{44}Ru$	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	6.6917
WESTCOTT G FACTOR	1.0696
σ CAPTURE 2200M/S	3.1008
WESTCOTT G FACTOR	1.0015
RESONANCE INTEGRAL TOTAL	$1.9610 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$9.5220 \times 10^{+1}$
FISSION YIELDS	
^{239}PU THERMAL	2.5096×10^{-8}


102 38 Sr
0.415s
β-
102 39 Y
0.273s
β-
102 40 Zr
28.6s
β-
102 41 Nb
3.00s
β-
102 42 Mo
11.1m
β-
102m 43 Tc
4.30m
102 43 Tc
5.30s
β-
β-
102 44 Ru
STABLE

$^{102}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR-102 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{102}_{38}$Sr

$T_{1/2}$ =.4147s
$\langle E_\beta \rangle$ PER DECAY =2446.
$\langle E_\gamma \rangle$ PER DECAY =2433.

FISSION YIELDS

^{235}U THERMAL	1.9711×10^{-6}
^{235}U FAST	2.0203×10^{-6}
^{238}U FAST	5.0435×10^{-5}
^{239}PU THERMAL	1.7597×10^{-7}

Q_β =7590.
BR_β =1.000

$^{102}_{39}$Y

.2726s

102 - 38- 1

$^{102}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-102 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{102}_{39}$Y

$T_{1/2}$ =.2726s
$\langle E_\beta \rangle$ PER DECAY =3815.
$\langle E_\gamma \rangle$ PER DECAY =2919.

FISSION YIELDS

^{235}U THERMAL	5.3462×10^{-4}
^{235}U FAST	5.6317×10^{-4}
^{238}U FAST	4.0912×10^{-3}
^{239}PU THERMAL	1.3616×10^{-4}

Q_β =10670.
BR_β =1.000

$^{102}_{40}$Zr

28.62s

$^{102}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-102 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{102}_{40}$Zr

$T_{1/2}$ =28.62s
$\langle E_\beta \rangle$ PER DECAY =1132.
$\langle E_\gamma \rangle$ PER DECAY =1038.

FISSION YIELDS

^{235}U THERMAL	1.7179×10^{-2}
^{235}U FAST	1.8547×10^{-2}
^{238}U FAST	4.3851×10^{-2}
^{239}PU THERMAL	1.1555×10^{-2}

Q_β =3700.
BR_β =1.000

$^{102}_{41}$Nb

3.00±.10s

102 - 40- 1

$^{102}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-102 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{102}_{41}$Nb

$T_{1/2}$ =3.00±.10s
$\langle E_\beta \rangle$ PER DECAY =2487.
$\langle E_\gamma \rangle$ PER DECAY =1689.

FISSION YIELDS

^{235}U THERMAL	2.0179×10^{-2}
^{235}U FAST	2.2229×10^{-2}
^{238}U FAST	1.8673×10^{-2}
^{239}PU THERMAL	3.2355×10^{-2}

Q_β =7260.
BR_β =1.000

$^{102}_{42}$Mo

11.1±0.3m

102 - 41- 1

$^{102}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS

42-MO-102 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-G.T.GARVEY ET AL., REVS. MOD. PHYS. 41,NO. 4,
PART II (OCT.,1969).

$^{102}_{42}$Mo

$T_{1/2}$ =11.1±0.3m
$\langle E_\beta \rangle$ PER DECAY =311.1

FISSION YIELDS

^{235}U THERMAL	4.0719×10^{-3}
^{235}U FAST	4.5636×10^{-3}
^{238}U FAST	1.2518×10^{-3}
^{239}PU THERMAL	1.5772×10^{-2}

Q_β =900.0
BR_β =1.000

$^{102}_{43}$Tc

5.30±.20s

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	900.0	311.1	100.0

$\langle E_e \rangle$ PER DECAY = 311.1
$\langle E_\nu \rangle$ PER DECAY = 588.9

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	900.0	100.0

$^{102m}_{43}Tc$

ENDF/B-IV FILE 1 COMMENTS
43-TC-102M 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. BLACHOT ET AL., NUCL. PHYS. A139, 434 (L969)

$^{102m}_{43}Tc$

$T_{1/2}$ =4.30±.10m
$\langle E_\beta \rangle$ PER DECAY =719.5
$\langle E_\gamma \rangle$ PER DECAY =2547.

FISSION YIELDS

^{235}U THERMAL	1.2537×10^{-5}
^{235}U FAST	1.4502×10^{-5}
^{238}U FAST	1.1599×10^{-6}
^{239}PU THERMAL	1.3186×10^{-4}

Q_β =4450.±100.
BR_β =1.000

$^{102}_{44}Ru$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
415.8	1	1.916
418.8	1	2.874
474.8	1	93.91
636.5	4	49.15
904.0	1	.9579
921.0	1	.9579
1046.	1	11.98
1073.	1	.9579
1145.	4	24.44
1293.	1	5.081
1332.	1	3.446
1511.	1	2.686
1596.	1	4.789
1613.	1	6.902
1617.	1	10.44
1710.	1	5.174
1810.	1	6.611
1907.	1	.9579
1950.	1	.9579
2142.	1	.9579
2227.	1	6.705
2244.	1	12.65
2339.	1	.9579
2438.	1	4.310

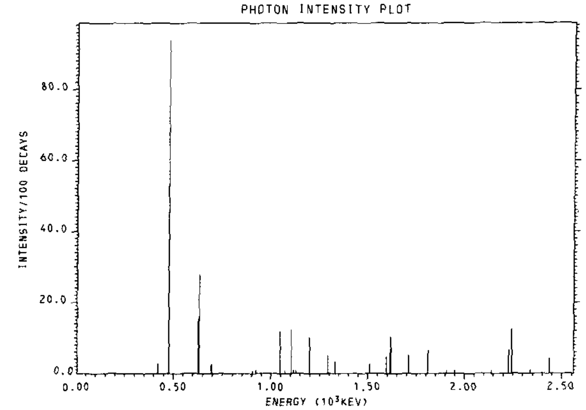
$\langle E_{PHOTON} \rangle$ PER DECAY = 2547.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1537.0	588.0	15.31
β^-	1636.0	633.0	12.24
β^-	1731.0	676.5	44.90
β^-	1748.0	684.3	12.24
β^-	1834.0	724.1	4.080
β^-	2652.0	1111.	8.160
β^-	3344.0	1446.	3.060

$\langle E_e \rangle$ PER DECAY = 719.5
$\langle E_\nu \rangle$ PER DECAY = 1101.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	474.8	93.91
β^-	1731.	44.90
γ	630.8	27.88
γ	627.5	16.00
β^-	1537.	15.31
γ	2244.	12.65
γ	1105.	12.36
β^-	1748.	12.24
β^-	1636.	12.24
γ	1046.	11.98
γ	1617.	10.44

$^{102}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-102 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. BLACHOT ET AL., NUCL.PHYS. A139, 434 (1969)

$^{102}_{43}$Tc

$T_{1/2}$ =5.30±.20s
$\langle E_\beta \rangle$ PER DECAY =1509.
$\langle E_\gamma \rangle$ PER DECAY =463.8

FISSION YIELDS

^{235}U THERMAL	1.2537×10^{-5}
^{235}U FAST	1.4502×10^{-5}
^{238}U FAST	1.0199×10^{-6}
^{239}PU THERMAL	1.3185×10^{-4}

Q_β =4150.±100.
BR_β =1.000

$^{102}_{44}$Ru

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
468.0	1	7.950
475.0	1	53.00
628.0	1	10.07
1102.	1	5.830
1106.	1	4.240

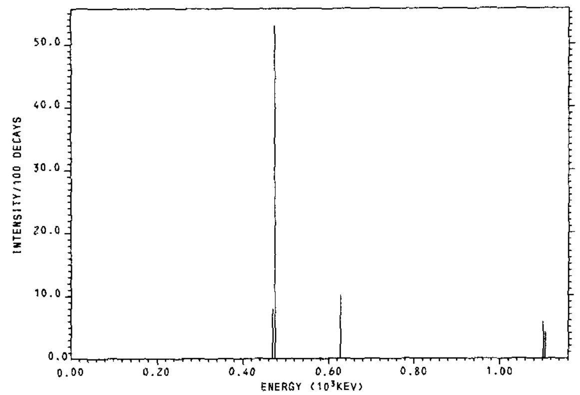
$\langle E_{PHOTON} \rangle$ PER DECAY = 463.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2200.0	895.5	20.00
β^-	3400.0	1474.	39.00
β^-	4150.0	1841.	41.00

$\langle E_e \rangle$ PER DECAY = 1509.
$\langle E_\nu \rangle$ PER DECAY = 1959.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	1/100 DECAYS
γ	475.0	53.00
β^-	4150.	41.00
β^-	3400.	39.00
β^-	2200.	20.00

$^{102}_{44}$Ru

$^{102}_{44}$Ru

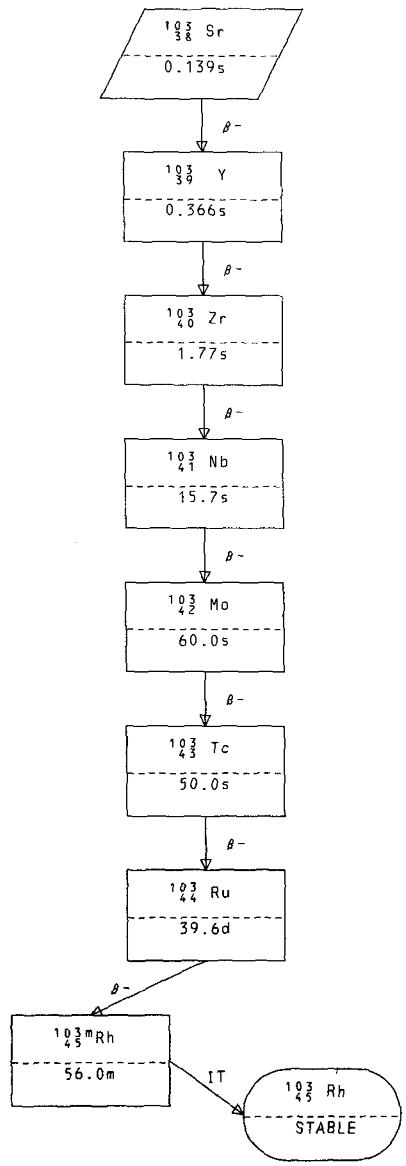
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.2496
WESTCOTT G FACTOR	1.1026
σ CAPTURE 2200M/S	1.3003
WESTCOTT G FACTOR	1.0239
RESONANCE INTEGRAL TOTAL	$9.7240 \times 10^{+1}$
RESONANCE INTEGRAL CAPTURE	4.0270

FISSION YIELDS

^{235}U THERMAL	1.6409×10^{-8}
^{235}U FAST	1.9503×10^{-8}
^{239}PU THERMAL	4.9593×10^{-7}



$^{103}_{38}$Sr
0.139s
β-
$^{103}_{39}$Y
0.366s
β-
$^{103}_{40}$Zr
1.77s
β-
$^{103}_{41}$Nb
15.7s
β-
$^{103}_{42}$Mo
60.0s
β-
$^{103}_{43}$Tc
50.0s
β-
$^{103}_{44}$Ru
39.6d
β-
$^{103m}_{45}$Rh
56.0m
IT
$^{103}_{45}$Rh
STABLE

$^{103}_{38}$Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74

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

$^{103}_{38}$Sr

$T_{1/2}$ =.1386s
$\langle E_\beta \rangle$ PER DECAY =3648.
$\langle E_\gamma \rangle$ PER DECAY =3375.

FISSION YIELDS

^{235}U THERMAL	4.9280×10^{-8}
^{235}U FAST	3.9787×10^{-8}
^{238}U FAST	1.6880×10^{-6}
^{239}PU THERMAL	4.7291×10^{-9}

Q_β =10670.
BR_β =1.000

$^{103}_{39}$Y
.3660s

103 - 38- 1

$^{103}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{103}_{39}$Y

$T_{1/2}$ =.3660s
$\langle E_\beta \rangle$ PER DECAY =2942.
$\langle E_\gamma \rangle$ PER DECAY =2598.

FISSION YIELDS

^{235}U THERMAL	5.3570×10^{-5}
^{235}U FAST	5.2979×10^{-5}
^{238}U FAST	7.7879×10^{-4}
^{239}PU THERMAL	1.5093×10^{-5}

Q_β =8730.
BR_β =1.000

$^{103}_{40}$Zr
1.770s

$^{103}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{103}_{40}$Zr

$T_{1/2}$ =1.770s
$\langle E_\beta \rangle$ PER DECAY =2249.
$\langle E_\gamma \rangle$ PER DECAY =1888.

FISSION YIELDS

^{235}U THERMAL	5.2601×10^{-3}
^{235}U FAST	5.3353×10^{-3}
^{238}U FAST	2.5634×10^{-2}
^{239}PU THERMAL	3.8275×10^{-3}

Q_β =6820.
BR_β =1.000

$^{103}_{41}$Nb

15.67s

103 - 40- 1

$^{103}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{103}_{41}$Nb

$T_{1/2}$ =15.67s
$\langle E_\beta \rangle$ PER DECAY =1736.
$\langle E_\gamma \rangle$ PER DECAY =1382.

FISSION YIELDS

^{235}U THERMAL	1.6764×10^{-2}
^{235}U FAST	1.7398×10^{-2}
^{238}U FAST	3.0638×10^{-2}
^{239}PU THERMAL	2.8632×10^{-2}

Q_β =5390.
BR_β =1.000

$^{103}_{42}$Mo

60.0±2.0s

$^{103}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{103}_{42}$Mo

$T_{1/2}$ =60.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =1307.
$\langle E_\gamma \rangle$ PER DECAY =987.5

FISSION YIELDS

^{235}U THERMAL	9.1189×10^{-3}
^{235}U FAST	9.9179×10^{-3}
^{238}U FAST	6.2706×10^{-3}
^{239}PU THERMAL	3.5736×10^{-2}

Q_β =4170.
BR_β =1.000

$^{103}_{43}$Tc

50.±4.s

103 - 42- 1

$^{103}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-103 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{103}_{43}$Tc

$T_{1/2}$ =50.±4.s
$\langle E_\beta \rangle$ PER DECAY =718.9
$\langle E_\gamma \rangle$ PER DECAY =508.3

FISSION YIELDS

^{235}U THERMAL	1.7672×10^{-4}
^{235}U FAST	1.9475×10^{-4}
^{238}U FAST	3.9766×10^{-5}
^{239}PU THERMAL	1.6924×10^{-3}

Q_β =2350.
BR_β =1.000

$^{103}_{44}$Ru

39.60±0.20d

$^{103}_{44}Ru$

```
                 ENDF/B-IV FILE 1 COMMENTS
44-RU-103  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.
   PREPARED FOR FILE  9/73                           RES (GULF)
   REFERENCE  H. PETTERSON ET AL., Z. PHYSIK 233, 260 (1970)
   Q VALUE IS FROM 1973 REVISION OF WAPSTRA-GOVE MASS TABLES.
     GAMMA-RAY ENERGIES ARE WEIGHTED AVERAGE ENERGIES FROM
     TABLE 2 OF REF.
   GAMMA-RAY INTENSITIES AND INTENSITY UNCERTAINTIES ARE TAKEN
   FROM TABLE 1 OF REF., EXCEPT FOR 610.29-KEV GAMMA RAYS, FOR
   THESE GAMMA RAYS, INTENSITY DATA FROM FIG. 4 WERE ALSO USED.
   INTERNAL CONVERSION COEFFICIENTS WERE OBTAINED FROM DATA IN RE
   BETA-RAY DATA WERE TAKEN FROM FIG. 4 OF REF.
```

$^{103}_{44}Ru$

$T_{1/2}$ =39.60±0.20d
$\langle E_\beta \rangle$ PER DECAY =67.53
$\langle E_\gamma \rangle$ PER DECAY =490.0

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.1717\times10^{+1}$
WESTCOTT G FACTOR	1.1511
σ CAPTURE 2200M/S	7.7000
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.7810\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$7.0310\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	3.8721×10^{-7}
^{235}U FAST	4.3807×10^{-7}
^{238}U FAST	2.6698×10^{-8}
^{239}PU THERMAL	9.8586×10^{-6}

Q_β =722.±4.
BR_β =1.000

$^{103m}_{45}Rh$

56.0±2.0m

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
32.1	±	0.4	5	.287	±	.006
114.65	±	0.05	1	.009	±	.004
241.82	±	0.13	1	.013	±	.004
294.88	±	0.06	1	.256	±	.014
357.27	±	0.13	1	.00630		
443.82	±	0.07	1	.362	±	.016
497.080	±	0.013	1	90.00		
557.09	±	0.09	1	.80	±	.03
610.29	±	0.19	1	5.364		
611.53	±	0.25	1	.3960		

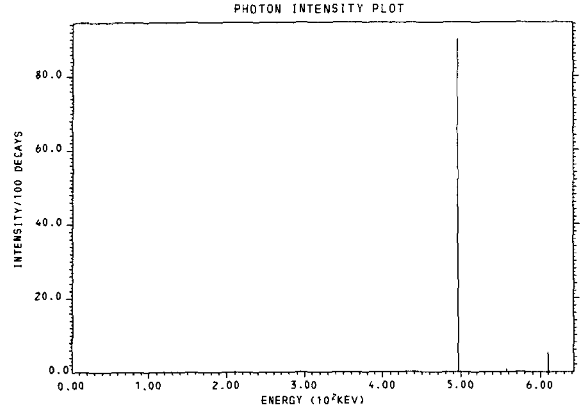
$\langle E_{PHOTON} \rangle$ PER DECAY = 489.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	22.6	3.469			60.32
CE	114.0	33.112	±	0.009	.2388
β^-	111.0	29.49			.4000
β^-	112.0	29.77			6.200
β^-	225.0	63.12			90.00
β^-	405.0	122.1			.01000
β^-	467.0	143.9			.2500
β^-	722.0	239.5			3 500

$\langle E_e \rangle$ PER DECAY = 69.70
$\langle E_\nu \rangle$ PER DECAY = 168.8

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
γ	497.080	±	0.013	90.00
β^-	225.0			90.00
AU_M	.6270			52.31

$^{103m}_{45}Rh$

```
              ENDF/B-IV FILE 1 COMMENTS
45-RH-103M 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.
```

$^{103m}_{45}Rh$

$T_{1/2}$ =56.0±2.0m

$\langle E_\gamma \rangle$ PER DECAY =39.78

Q_{IT}=39.78

BR_{IT}=1.000

$^{103}_{45}$ Rh

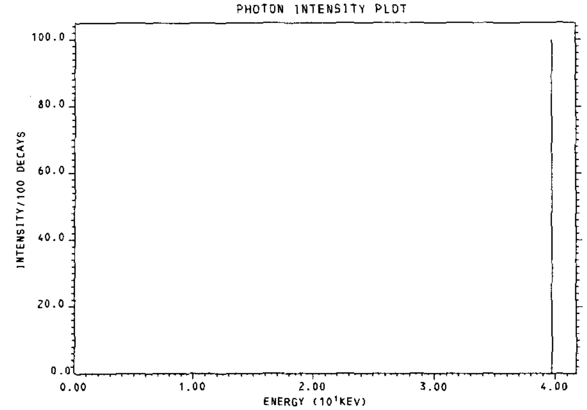
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
39.78	1	100.0

$\langle \dot{E}_{PHOTON} \rangle$ PER DECAY = 39.78

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	39.78	100.0

$^{103}_{45}$Rh

$^{103}_{45}$Rh

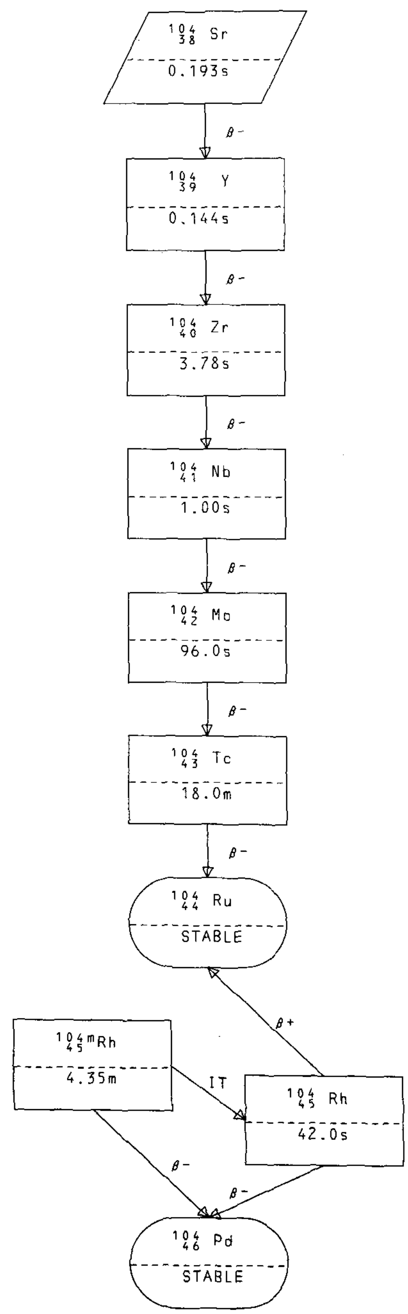
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.5172 \times 10^{+2}$
WESTCOTT G FACTOR	1.0248
σ CAPTURE 2200M/S	$1.4824 \times 10^{+2}$
WESTCOTT G FACTOR	1.0225
RESONANCE INTEGRAL TOTAL	$1.1650 \times 10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.0480 \times 10^{+3}$
RESONANCE INTEGRAL (N,2N)	4.4470×10^{-1}

FISSION YIELDS

^{235}U FAST	6.3810×10^{-9}



$^{104}_{38}$Sr
0.193s
β-
$^{104}_{39}$Y
0.144s
β-
$^{104}_{40}$Zr
3.78s
β-
$^{104}_{41}$Nb
1.00s
β-
$^{104}_{42}$Mo
96.0s
β-
$^{104}_{43}$Tc
18.0m
β-
$^{104}_{44}$Ru
STABLE
β+
$^{104m}_{45}$Rh
4.35m
IT
$^{104}_{45}$Rh
42.0s
β-
β-
$^{104}_{46}$Pd
STABLE

$^{104}_{38}$ Sr

ENDF/B-IV FILE 1 COMMENTS
38-SR-104 HEDL EVAL-APR74 R.E.SCHENTER
DIST-OCT74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{104}_{38}$ Sr

$T_{1/2}$ =.1925s
$\langle E_\beta \rangle$ PER DECAY =2916.
$\langle E_\gamma \rangle$ PER DECAY =3056.

FISSION YIELDS

^{238}U FAST	7.3293×10^{-8}

Q_β =8960.
BR_β =1.000

$^{104}_{39}$ Y

.1442s

104 - 38- 1

$^{104}_{39}$ Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-104 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{104}_{39}$ Y

$T_{1/2}$ =.1442s
$\langle E_\beta \rangle$ PER DECAY =4184.
$\langle E_\gamma \rangle$ PER DECAY =3443.

FISSION YIELDS

^{235}U THERMAL	2.5514×10^{-6}
^{235}U FAST	2.4904×10^{-6}
^{238}U FAST	7.4173×10^{-5}
^{239}PU THERMAL	6.1991×10^{-7}

Q_β =11810.
BR_β =1.000

$^{104}_{40}$ Zr

3.783s

$^{104}_{40}Zr$

ENDF/B-IV FILE 1 COMMENTS
40-ZR-104 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{104}_{40}Zr$

$T_{1/2}$ =3.783s
$\langle E_\beta \rangle$ PER DECAY =1509.
$\langle E_\gamma \rangle$ PER DECAY =1468.

FISSION YIELDS

^{235}U THERMAL	7.9589×10^{-4}
^{235}U FAST	8.4647×10^{-4}
^{238}U FAST	8.1076×10^{-3}
^{239}PU THERMAL	5.2891×10^{-4}

Q_β =4880.
BR_β =1.000

$^{104}_{41}Nb$

1.00±.10s

104 - 40- 1

$^{104}_{41}Nb$

ENDF/B-IV FILE 1 COMMENTS
41-NB-104 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{104}_{41}Nb$

$T_{1/2}$ =1.00±.10s
$\langle E_\beta \rangle$ PER DECAY =2943.
$\langle E_\gamma \rangle$ PER DECAY =2153.

FISSION YIELDS

^{235}U THERMAL	7.1898×10^{-3}
^{235}U FAST	8.2617×10^{-3}
^{238}U FAST	2.8469×10^{-2}
^{239}PU THERMAL	1.2015×10^{-2}

Q_β =8510.
BR_β =1.000

$^{104}_{42}Mo$

96.±6.s

$^{104}_{42}$ Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-104 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{104}_{42}$ Mo

$T_{1/2}$ =96.±6.s
$\langle E_\beta \rangle$ PER DECAY =547.7
$\langle E_\gamma \rangle$ PER DECAY =487.5

FISSION YIELDS

^{235}U THERMAL	9.7126×10^{-3}
^{235}U FAST	1.3186×10^{-2}
^{238}U FAST	1.7343×10^{-2}
^{239}PU THERMAL	4.1182×10^{-2}

Q_β =1870.
BR_β =1.000

$^{104}_{43}$ Tc

18.00±0.10m

104 - 42- 1

$^{104}_{43}$ Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-104 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. A. PINSTON ET AL., NUCL. PHYS. A157, 323 (1970)

$^{104}_{43}$ Tc

$T_{1/2}$ =18.00±0.10m
$\langle E_\beta \rangle$ PER DECAY =1193.
$\langle E_\gamma \rangle$ PER DECAY =1448.

FISSION YIELDS

^{235}U THERMAL	5.3717×10^{-4}
^{235}U FAST	8.1487×10^{-4}
^{238}U FAST	3.7118×10^{-4}
^{239}PU THERMAL	5.6967×10^{-3}

Q_β =4250.±100.
BR_β =1.000

$^{104}_{44}$ Ru

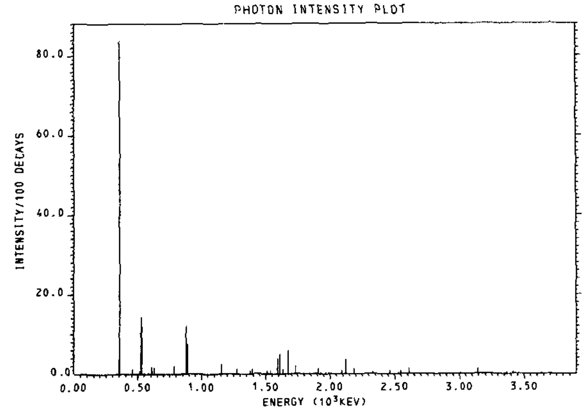
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
350.0	1	3.773
357.8	1	83.84
462.0	1	1.258
532.8	4	27.75
609.0	1	1.844
614.0	1	.8384
629.0	1	1.677
792.5	1	2.096
838.0	1	.1677
883.5	1	12.16
892.9	1	7.546
1158.	1	2.515
1282.	1	1.258
1381.	1	.8384
1397.	1	1.258
1516.	1	.8384
1541.	1	.8384
1597.	1	3.857
1612.	1	5.114
1635.	1	1.258
1677.	1	6.036
1737.	1	1.928
1910.	1	1.258
1930.	1	.4192
1971.	1	.4192
2094.	1	.8384
2124.	1	3.689
2190.	1	1.341
2330.	1	.4192
2465.	1	.8384
2532.	1	.4192
2548.	1	.8384
2610.	1	1.341
3010.	1	.3354
3146.	1	1.258
3369.	1	.5030
3415.	1	.5030
3635.	1	.2515
3713.	1	.1677

$\langle E_{PHOTON} \rangle$ PER DECAY = 1448.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	357.8	83.84
$\beta-$	3894.	18.00
γ	530.4	14.50
$\beta-$	3009.	14.00
γ	883.5	12.16
γ	534.9	11.99
$\beta-$	3362.	11.00
$\beta-$	3357.	10.00
γ	892.9	7.546
γ	1677.	6.036
$\beta-$	2216.	6.000
γ	1612.	5.114
$\beta-$	2279.	5.000
$\beta-$	1768.	4.000
$\beta-$	477.0	4.000

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	477.0	147.4	4.000
$\beta-$	537.0	169.2	.2000
$\beta-$	615.0	198.3	.3000
$\beta-$	747.0	249.4	3.000
$\beta-$	881.0	303.3	1.000
$\beta-$	1427.0	538.4	1.000
$\beta-$	1702.0	663.2	2.000
$\beta-$	1760.0	689.9	3.000
$\beta-$	1768.0	693.6	4.000
$\beta-$	1960.0	782.7	1.000
$\beta-$	1981.0	792.5	2.000
$\beta-$	2156.0	874.8	1.000
$\beta-$	2216.0	903.1	6.000
$\beta-$	2257.0	922.5	1.000
$\beta-$	2279.0	933.0	5.000
$\beta-$	2351.0	967.2	1.000
$\beta-$	2376.0	979.1	1.000
$\beta-$	2734.0	1151.	2.000
$\beta-$	2748.0	1157.	2.000
$\beta-$	2895.0	1228.	1.000
$\beta-$	3009.0	1283.	14.00
$\beta-$	3263.0	1407.	2.000
$\beta-$	3357.0	1453.	10.00
$\beta-$	3362.0	1455.	11.00
$\beta-$	3894.0	1716.	18.00
$\beta-$	4250.0	1891.	3.500

$\langle E_e \rangle$ PER DECAY = 1193.
$\langle E_\nu \rangle$ PER DECAY = 1610.

$^{104}_{44}Ru$

$^{104}_{44}Ru$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.2063
WESTCOTT G FACTOR	1.1172
σ CAPTURE 2200M/S	4.3846×10^{-1}
WESTCOTT G FACTOR	1.0194
RESONANCE INTEGRAL TOTAL	$1.0840 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	6.5340

FISSION YIELDS

^{235}U THERMAL	3.9021×10^{-6}
^{235}U FAST	6.3610×10^{-6}
^{238}U FAST	9.1091×10^{-7}
^{239}PU THERMAL	1.0909×10^{-4}

$^{104m}_{45}Rh$

ENDF/B-IV FILE 1 COMMENTS
45-RH-104M 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 PHYS. REV. C5, 948 (1972)
Q VALUE FOR BETA-RAY DECAY IS FROM WAPSTRA-GOVE MASS TABLES.
BRANCHING FOR BETA-RAY DECAY WAS OBTAINED FROM SUMMING
BETA-RAY INTENSITIES.
BETA-RAY ENERGIES WERE COMPUTED FROM STATED ENERGY OF
BETA-RAY FROM RH-104 FEEDING THE GROUND STATE OF PD-104,
FROM Q VALUE OF ISOMERIC STATE, AND FROM ENERGIES OF PD-104
LEVELS.
AVERAGE GAMMA-RAY ENERGY ON CARD 5 WAS OBTAINED FROM Q VALUE
FOR ISOMERIC TRANSITIONS, Q VALUE FOR BETA-RAY DECAY MODE,
BRANCHING FOR ISOMERIC TRANSITIONS, AND ENERGIES AND
BRANCHING FOR BETA RAYS.
THE ISOMERIC TRANSITIONS HAVE INTERNAL CONVERSION
COEFFICIENTS WHICH ARE NOT GIVEN HERE.
THE NORMALIZATION FACTOR FOR THE GAMMA RAYS IS NOT GIVEN
HERE.
THE INFORMATION ON INTENSITIES OF GAMMA RAYS FOLLOWING BETA
DECAY IS LIMITED. SOMETIMES THE GAMMA-RAY DATA, BETA-RAY
DATA, AND DECAY SCHEME APPEAR SOME WHAT INCONSISTENT. ALSO
THE DECAY SCHEME INDICATES A 555.81-KEV GAMMA RAY (IN
ADDITION TO THOSE GIVEN IN THE LIST OF GAMMA RAYS FROM
DIRECT BETA DECAY OF RH-104M).
PHOTON INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF
RELATIVE INTENSITIES.

$^{104m}_{45}Rh$

$T_{1/2}$ =4.35±.03m
$\langle E_\beta \rangle$ PER DECAY =.5800
$\langle E_\gamma \rangle$ PER DECAY =132.2

FISSION YIELDS
^{239}PU THERMAL 2.6196×10^{-8}

Q_β =2575.±7.
BR_β =.00200

Q_{IT}=129.0
BR_{IT}=.9980

$^{104}_{46}$ Pd
STABLE OR LONG-LIVED

$^{104}_{45}$ Rh
42.0±1.0s

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	309.0	89.83	.02000
β^-	393.0	118.0	.02700
β^-	493.0	153.2	.05800
β^-	1251.0	460.5	.09500

$\langle E_e \rangle$ PER DECAY = .5761
$\langle E_\nu \rangle$ PER DECAY = 1.066

$^{104}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-104 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 PHYS. REV. C5, 948 (1972)
Q VALUE FOR BETA-RAY DECAY IS FROM WAPSTRA-GOVE MASS TABLES.
Q VALUE FOR ELECTRON CAPTURE IS NOT GIVEN IN THIS TABULATION.
PHOTON-INTENSITY UNCERTAINTIES ARE TAKEN FROM LIST OF RELATIVE INTENSITIES.
BRANCHING FOR BETA-RAY DECAY WAS OBTAINED FROM SUMMING BETA-RAY INTENSITIES. BRANCHING FOR ELECTRON CAPTURE WAS OBTAINED BY SUBTRACTING BETA BRANCHING FROM ONE.
RELATIVE INTENSITIES GIVEN FOR 785.88-, 1264.84-, AND 1341.67-KEV GAMMA RAYS ARE UPPER LIMITS, SINCE PART OF THE INTENSITY FOR EACH GAMMA RAY MAY BE FROM THE ISOMERIC STATE.
BETA-RAY ENERGIES WERE COMPUTED FROM STATED ENERGY OF BETA RAY FEEDING THE GROUND STATE AND FROM ENERGIES OF LEVEL

$^{104}_{45}$Rh

$T_{1/2}$ =42.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1003.
$\langle E_\gamma \rangle$ PER DECAY =11.49

FISSION YIELDS
^{239}PU THERMAL 2.6896x10^{-8}

Q_β =2446.±7.
BR_β =.9988

$Q_{\beta+}$=.000
$BR_{\beta+}$=.00121

$^{104}_{46}$Pd
STABLE OR LONG-LIVED

$^{104}_{44}$Ru
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
358.12	±	0.15	1	.0153	±	.0011
451.16	±	0.12	1	.0055	±	.0006
555.81	±	0.04	1	1.9	±	1.9
777.77	±	0.07	1	.0055	±	.0006
1237.05	±	0.05	1	.068	±	.004
1689.1	±	0.3	1	.00040	±	.00011
1793.83	±	0.09	1	.00091	±	.00011

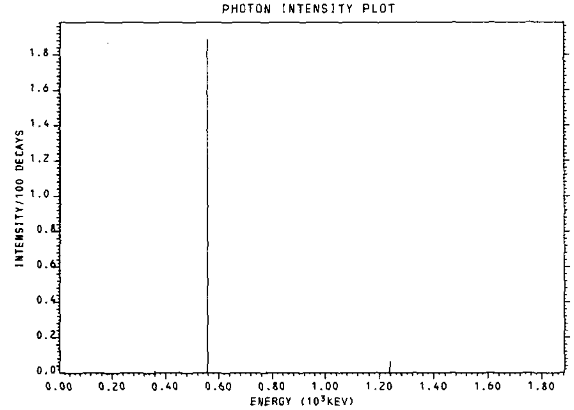
$\langle E_{PHOTON} \rangle$ PER DECAY = 11. ± 11.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	195.0	53.97	.00060
β-	646.0	210.1	.00100
β-	647.0	210.5	.07800
β-	1098.0	394.2	.00300
β-	1106.0	397.7	.00600
β-	1884.0	747.3	1.790
β-	2440.0	1010.	98.00

$\langle E_e \rangle$ PER DECAY = 1003.
$\langle E_\nu \rangle$ PER DECAY = 1423.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	2440.	98.00

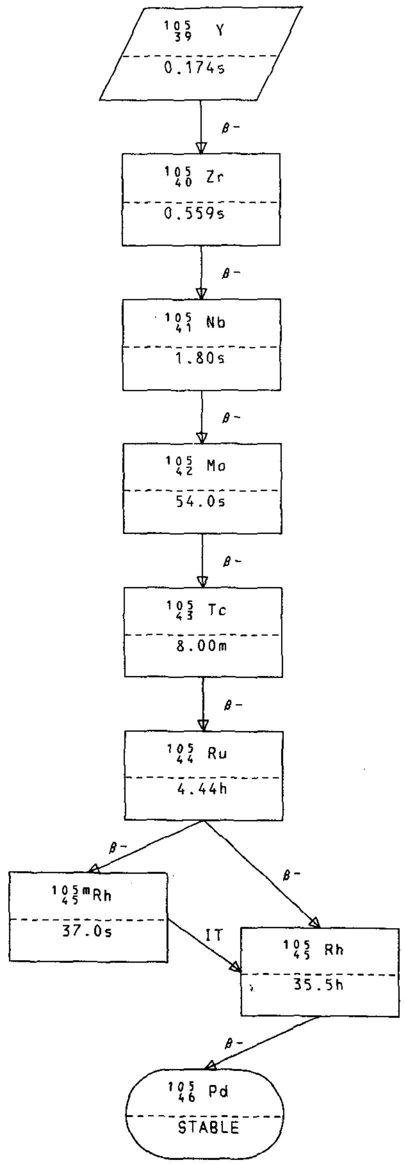
$^{104}_{46}$Pd

$^{104}_{46}$Pd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.0906
WESTCOTT G FACTOR	1.1161
σ CAPTURE 2200M/S	3.8882×10^{-1}
WESTCOTT G FACTOR	9.9919×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.3290\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.7950\times10^{+1}$


105 39 Y
0.174s
β-
105 40 Zr
0.559s
β-
105 41 Nb
1.80s
β-
105 42 Mo
54.0s
β-
105 43 Tc
8.00m
β-
105 44 Ru
4.44h
β-
β-
105m 45 Rh
37.0s
IT
105 45 Rh
35.5h
β-
105 46 Pd
STABLE

$^{105}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-105 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{105}_{39}$Y

$T_{1/2}$ =.1736s
$\langle E_\beta \rangle$ PER DECAY =3435.
$\langle E_\gamma \rangle$ PER DECAY =3212.

FISSION YIELDS

^{235}U THERMAL	7.5234×10^{-8}
^{235}U FAST	1.2807×10^{-6}
^{238}U FAST	3.7612×10^{-6}
^{239}PU THERMAL	2.0562×10^{-8}

Q_β =10100.
BR_β =1.000

$^{105}_{40}$Zr

.5586s

105 - 39- 1

$^{105}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-105 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{105}_{40}$Zr

$T_{1/2}$ =.5586s
$\langle E_\beta \rangle$ PER DECAY =2634.
$\langle E_\gamma \rangle$ PER DECAY =2377.

FISSION YIELDS

^{235}U THERMAL	6.2599×10^{-5}
^{235}U FAST	3.8130×10^{-4}
^{238}U FAST	1.2450×10^{-3}
^{239}PU THERMAL	5.4082×10^{-5}

Q_β =7960.
BR_β =1.000

$^{105}_{41}$Nb

1.8±.8s

$^{105}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-105 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{105}_{41}$Nb

$T_{1/2}$ =1.8±.8s
$\langle E_\beta \rangle$ PER DECAY =2137.
$\langle E_\gamma \rangle$ PER DECAY =1820.

FISSION YIELDS

^{235}U THERMAL	1.7839×10^{-3}
^{235}U FAST	3.7353×10^{-3}
^{238}U FAST	1.3524×10^{-2}
^{239}PU THERMAL	3.8103×10^{-3}

Q_β =6570.
BR_β =1.000

$^{105}_{42}$Mo

54.±6.s

105 - 41- 1

$^{105}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-105 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{105}_{42}$Mo

$T_{1/2}$ =54.±6.s
$\langle E_\beta \rangle$ PER DECAY =1719.
$\langle E_\gamma \rangle$ PER DECAY =1397.

FISSION YIELDS

^{235}U THERMAL	7.2789×10^{-3}
^{235}U FAST	6.6105×10^{-3}
^{238}U FAST	2.5616×10^{-2}
^{239}PU THERMAL	3.5967×10^{-2}

Q_β =5430.
BR_β =1.000

$^{105}_{43}$Tc

8.00±.20m

$^{105}_{43}Tc$

ENDF/B-IV FILE 1 COMMENTS
43-TC-105 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{105}_{43}Tc$

$T_{1/2}$ =8.00±.20m
$\langle E_\beta \rangle$ PER DECAY =1054.
$\langle E_\gamma \rangle$ PER DECAY =807.3

FISSION YIELDS

^{235}U THERMAL	1.0531×10^{-3}
^{235}U FAST	3.6914×10^{-4}
^{238}U FAST	1.6885×10^{-3}
^{239}PU THERMAL	1.3566×10^{-2}

Q_β =3410.
BR_β =1.000

$^{105}_{44}Ru$

4.440±.010h

$^{105}_{44}$Ru

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              ENDF/B-IV FILE 1 COMMENTS
44-RU-105  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.
RUTHENIUM-105        PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
            Q BETA     - 1973 REVISION OF WAPSTRA-GOVE MASS TABLES
            REMAINDER - S.O.SHRIBER AND M.W.JOHNS, NUC. PHYS.
                            A96, 337(1967)
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$^{105}_{44}$Ru

$T_{1/2}$ =4.440±.010h
$\langle E_\beta \rangle$ PER DECAY =412.6
$\langle E_\gamma \rangle$ PER DECAY =787.7

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.2690
WESTCOTT G FACTOR	1.1558
σ CAPTURE 2200M/S	2.0000×10^{-1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0290\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	7.3470

FISSION YIELDS

^{235}U THERMAL	2.6284×10^{-5}
^{235}U FAST	2.8705×10^{-6}
^{238}U FAST	2.1298×10^{-5}
^{239}PU THERMAL	7.9554×10^{-4}

Q_β =1787.±4.
BR_β =.2580

Q_β =1917.±4.
BR_β =.7420

$^{105m}_{45}$Rh

37.±3.s

$^{105}_{45}$Rh

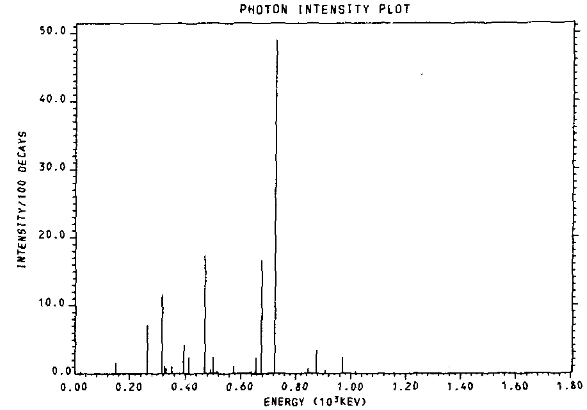
35.50±0.20h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
43.	±	4.	14	.65	±	.11
151.83	±	0.22	4	1.87	±	.05
261.99	±	0.20	4	7.3	±	.3
337.1	±	0.7	8	19.3	±	0.5
466.7	±	0.4	6	24.3	±	1.0
552.4	±	1.7	7	2.15	±	.11
672.1	±	0.3	7	20.2	±	0.7
724.50	±	0.20	1	49.0	±	2.0
738.3	±	0.4	1	.060	±	.007
867.3	±	0.4	7	4.60	±	.15
907.70	±	0.20	1	.59	±	.03
952.8	±	0.3	1	.043	±	.014
969.40	±	0.20	1	2.34	±	.09
1017.20	±	0.20	1	.340	±	.017
1059.0	±	0.3	1	.023	±	.007
1215.2	±	0.3	1	.084	±	.008
1221.2	±	0.3	1	.0180	±	.0010
1250.9	±	0.3	1	.023	±	.004
1321.30	±	0.20	1	.230	±	.010
1376.8	±	0.3	1	.056	±	.006
1697.4	±	0.3	1	.085	±	.005
1720.2	±	0.3	1	.0320	±	.0020

$\langle E_{PHOTON} \rangle$ PER DECAY = 783. ± 16.

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS		
AU	22.6	5.1	±	1.9	.62	±	.19
CE	875.2	345.	±	11.	.56	±	.06
β-	196.6	54.5	±	1.9	.070	±	.010
β-	219.3	61.4	±	2.1	.110	±	.011
β-	430.2	131.	±	4.	.340	±	.022
β-	474.8	147.	±	5.	.20	±	.05
β-	539.7	170.	±	5.	1.32	±	.06
β-	571.6	182.	±	6.	4.47	±	.20
β-	595.5	191.	±	6.	.56	±	.03
β-	647.8	211.	±	6.	.20	±	.05
β-	701.6	232.	±	7.	.110	±	.011
β-	947.3	331.	±	10.	5.22	±	.22
β-	1110.7	400.	±	12.	20.2	±	0.9
β-	1130.9	408.	±	12.	17.8	±	0.7
β-	1154.8	419.	±	13.	.29	±	.05
β-	1192.3	435.	±	13.	49.9	±	2.5
β-	1447.4	548.	±	16.	1.50	±	.11
β-	1524.2	582.	±	18.	.10	±	.03
β-	1787.1	702.	±	21.	.28	±	.07

$\langle E_e \rangle$ PER DECAY = 415. ± 17.
$\langle E_\nu \rangle$ PER DECAY = 730. ± 30.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS		
β-	1192.	±	4.	49.9	±	2.5
γ	724.50	±	0.20	49.0	±	2.0
β-	1111.	±	4.	20.2	±	0.9
β-	1131.	±	4.	17.8	±	0.7
γ	469.40	±	0.20	17.3	±	1.0
γ	676.40	±	0.20	16.7	±	0.7
γ	316.50	±	0.20	11.6	±	0.4

$^{105m}_{45}Rh$

ENDF/B-IV FILE 1 COMMENTS
45-RH-105M 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- S.O.SCHRIBER AND M.W.JOHNS, NUCL. PHYS. A96,
337 (1967).

$^{105m}_{45}Rh$

$T_{1/2}$ =37.±3.s
$\langle E_\gamma \rangle$ PER DECAY =129.7

FISSION YIELDS

^{235}U THERMAL	8.2745×10^{-9}
^{238}U FAST	1.4999×10^{-9}
^{239}PU THERMAL	6.3691×10^{-7}

Q_{IT}=129.70±0.20
BR_{IT}=1.000

$^{105}_{45}$Rh

35.50±0.20h

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS
18.96			4	45.14
129.70	±	0.20	1	20.00

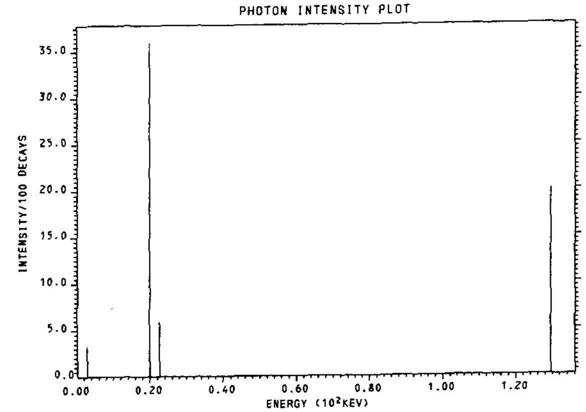
$\langle E_{PHOTON} \rangle$ PER DECAY = 34.50

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	22.6	4.700			81.58
CE	129.1	113.58	±	0.14	80.00

$\langle E_e \rangle$ PER DECAY = 94.70

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
AU_L	2.785			71.48
CE_K	106.48	±	0.20	51.99
X_K	19.81			36.02
CE_L	126.29	±	0.20	23.40

$^{105}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-105 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 REVISION OF WAPSTRA-GOVE MASS TABLES
OTHER- S.O.SCHRIBER AND M.W.JOHNS, NUCL. PHYS. A96, 337 (1967).
A GROUND-STATE BETA BRANCH OF 75 PERCENT HAS BEEN USED IN OBTAINING THE BETA-RAY INTENSITIES.

$^{105}_{45}$Rh

$T_{1/2}$ =35.50±0.20h
$\langle E_\beta \rangle$ PER DECAY =152.3
$\langle E_\gamma \rangle$ PER DECAY =78.77

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.6004\times10^{+4}$
WESTCOTT G FACTOR	7.8358×10^{-1}
σ CAPTURE 2200M/S	$1.6000\times10^{+4}$
WESTCOTT G FACTOR	7.8287×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.5870\times10^{+4}$
RESONANCE INTEGRAL CAPTURE	$1.5760\times10^{+4}$

FISSION YIELDS

^{235}U THERMAL	1.0506×10^{-8}
^{235}U FAST	4.2165×10^{-4}
^{238}U FAST	1.4999×10^{-9}
^{239}PU THERMAL	6.3691×10^{-7}

Q_β =566.±3.
BR_β =1.000

$^{105}_{46}$Pd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
280.10	±	0.20	1	.170	±	.010
306.10	±	0.20	1	5.20	±	.20
318.90	±	0.10	1	19.5	±	0.8
442.8	±	0.7	1	.043	±	.005

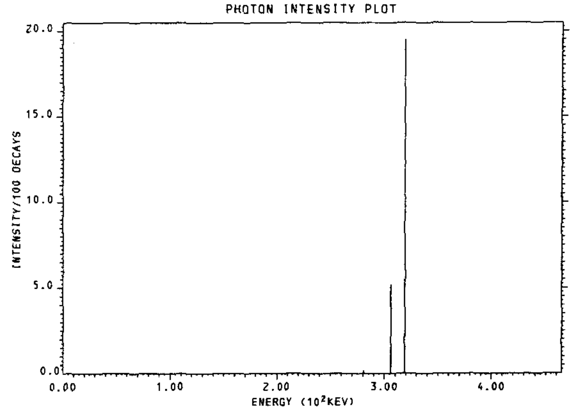
$\langle E_{PHOTON} \rangle$ PER DECAY = 79. ± 3.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	123.0	32.88	.04300
β^-	247.0	69.97	19.50
β^-	259.0	73.75	5.200
β^-	565.5	179.7	75.00

$\langle E_e \rangle$ PER DECAY = 152.3
$\langle E_\nu \rangle$ PER DECAY = 333.5

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			1/100 DECAYS		
β^-	565.5			75.00		
γ	318.90	±	0.10	19.5	±	0.8

$^{105}_{46}$Pd

$^{105}_{46}$Pd

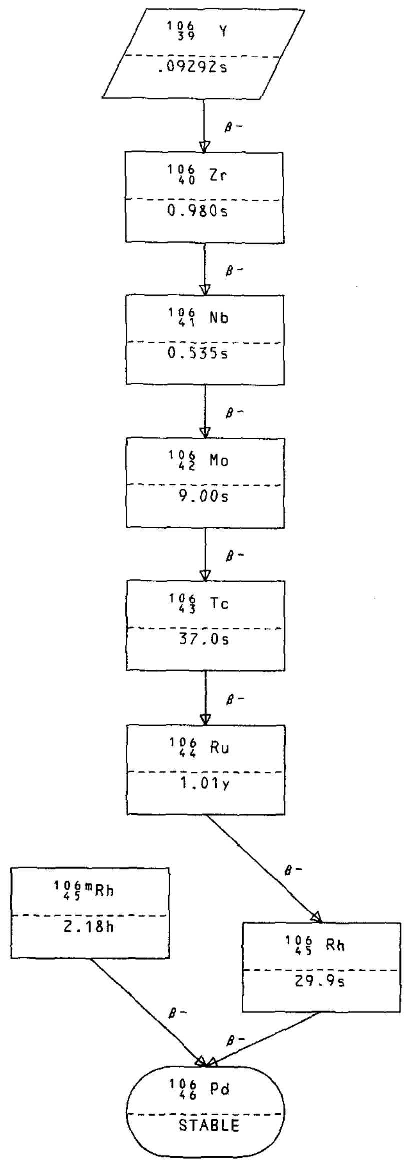
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.7814 \times 10^{+1}$
WESTCOTT G FACTOR	1.0283
σ CAPTURE 2200M/S	$1.4002 \times 10^{+1}$
WESTCOTT G FACTOR	1.0011
RESONANCE INTEGRAL TOTAL	$1.8060 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$9.1680 \times 10^{+1}$

FISSION YIELDS

^{235}U FAST	3.6406×10^{-8}
^{238}U FAST	5.7895×10^{-6}



$^{106}_{39}$Y
.09292s
β-
$^{106}_{40}$Zr
0.980s
β-
$^{106}_{41}$Nb
0.535s
β-
$^{106}_{42}$Mo
9.00s
β-
$^{106}_{43}$Tc
37.0s
β-
$^{106}_{44}$Ru
1.01y
β-
$^{106m}_{45}$Rh
2.18h
$^{106}_{45}$Rh
29.9s
β-
β-
$^{106}_{46}$Pd
STABLE

$^{106}_{39}Y$

ENDF/B-IV FILE 1 COMMENTS
39- Y-106 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{106}_{39}Y$

$T_{1/2}$ =.09292s
$\langle E_\beta \rangle$ PER DECAY =4550.
$\langle E_\gamma \rangle$ PER DECAY =3911.

Q_β =13010.
BR_β =1.000

$^{106}_{40}Zr$

.9801s

$^{106}_{40}Zr$

ENDF/B-IV FILE 1 COMMENTS
40-ZR-106 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{106}_{40}Zr$

$T_{1/2}$ =.9801s
$\langle E_\beta \rangle$ PER DECAY =1951.
$\langle E_\gamma \rangle$ PER DECAY =2009.

FISSION YIELDS

^{235}U THERMAL	2.3022×10^{-5}
^{235}U FAST	3.7176×10^{-5}
^{238}U FAST	9.6651×10^{-5}
^{239}PU THERMAL	2.5696×10^{-6}

Q_β =6250.
BR_β =1.000

$^{106}_{41}Nb$

.5352s

$^{106}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-106 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{106}_{41}$Nb

$T_{1/2}$ =.5352s
$\langle E_\beta \rangle$ PER DECAY =3352.
$\langle E_\gamma \rangle$ PER DECAY =2653.

FISSION YIELDS

^{235}U THERMAL	6.5522×10^{-4}
^{235}U FAST	9.9793×10^{-4}
^{238}U FAST	3.6236×10^{-3}
^{239}PU THERMAL	5.9903×10^{-4}

Q_β =9660.
BR_β =1.000

$^{106}_{42}$Mo

9.0±1.0s

106 - 41- 1

$^{106}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-106 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{106}_{42}$Mo

$T_{1/2}$ =9.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =920.5
$\langle E_\gamma \rangle$ PER DECAY =874.5

FISSION YIELDS

^{235}U THERMAL	2.7549×10^{-3}
^{235}U FAST	4.0591×10^{-3}
^{238}U FAST	1.9448×10^{-2}
^{239}PU THERMAL	1.6752×10^{-2}

Q_β =3110.
BR_β =1.000

$^{106}_{43}$Tc

37.±4.s

$^{106}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-106 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{106}_{43}$Tc

$T_{1/2}$ =37.±4.s
$\langle E_\beta \rangle$ PER DECAY =2285.
$\langle E_\gamma \rangle$ PER DECAY =1602.

FISSION YIELDS

^{235}U THERMAL	4.6790×10^{-4}
^{235}U FAST	6.4415×10^{-4}
^{238}U FAST	4.2208×10^{-3}
^{239}PU THERMAL	1.7319×10^{-2}

Q_β =6870.
BR_β =1.000

$^{106}_{44}$Ru

1.010±.005y

$^{106}_{44}Ru$

ENDF/B-IV FILE 1 COMMENTS
44-RU-106 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 WAPSTRA-GOVE MASSTABLE

$^{106}_{44}Ru$

$T_{1/2}$ =1.010±.005y
$\langle E_\beta \rangle$ PER DECAY =9.970

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.2410
WESTCOTT G FACTOR	1.1516
σ CAPTURE 2200M/S	1.4600×10^{-1}
WESTCOTT G FACTOR	10.0000×10^{-1}
RESONANCE INTEGRAL TOTAL	$9.5870\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	2.0910

FISSION YIELDS

^{235}U THERMAL	1.1266×10^{-5}
^{235}U FAST	1.4542×10^{-5}
^{238}U FAST	1.3455×10^{-4}
^{239}PU THERMAL	8.0759×10^{-3}

Q_β =39.4±0.3
BR_β =1.000

$^{106}_{45}Rh$

2.18±.03h

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	39.0	9.970	100.0

$\langle E_e \rangle$ PER DECAY = 9.970
$\langle E_\nu \rangle$ PER DECAY = 29.03

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	1/100 DECAYS
$\beta-$	39.00	100.0

$^{106m}_{45}Rh$

ENDF/B-IV FILE 1 COMMENTS
45-RH-106M 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-O. J. SEGAERT, NUCL. PHYS. A16, 429 (1960)

$^{106m}_{45}Rh$

$T_{1/2}$ =2.18±.03h
$\langle E_\beta \rangle$ PER DECAY =348.7
$\langle E_\gamma \rangle$ PER DECAY =2645.

FISSION YIELDS

^{235}U THERMAL	3.4619×10^{-9}
^{235}U FAST	4.3807×10^{-9}
^{238}U FAST	5.5895×10^{-8}
^{239}PU THERMAL	4.9393×10^{-6}

Q_β =3630.±30.
BR_β =1.000

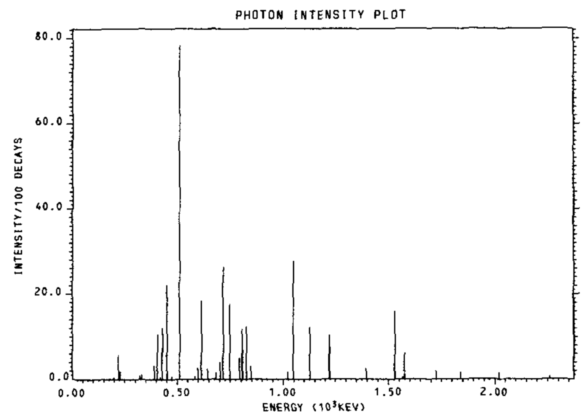
$^{106}_{46}$ Pd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
195.1	1	.5487
221.8	1	5.878
228.6	1	1.881
319.6	1	.7838
328.3	1	1.097
390.8	1	3.214
434.9	5	46.32
511.7	1	78.38
586.0	1	.7838
621.8	4	25.47
733.9	5	53.46
816.7	4	34.33
1021.	1	1.803
1048.	1	27.82
1128.	1	12.31
1221.	1	10.42
1224.	1	7.446
1396.	1	2.587
1529.	1	16.07
1565.	1	.5487
1574.	1	6.114
1725.	1	2.038
1841.	1	1.724
2020.	1	1.568
2260.	1	.7838

$\langle E_{PHOTON} \rangle$ PER DECAY = 2645.



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	790.0	266.5	40.00
β-	950.0	331.8	38.00
β-	1180.0	429.6	11.00
β-	1600.0	616.6	1.000
β-	1620.0	625.7	10.00

$\langle E_e \rangle$ PER DECAY = 348.7
$\langle E_\nu \rangle$ PER DECAY = 636.1

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	511.7	78.38
β-	790.0	40.00
β-	950.0	38.00
γ	1048.	27.82
γ	717.2	26.49
γ	450.8	22.18
γ	616.1	18.50
γ	748.5	17.71
γ	1529.	16.07
γ	825.0	12.46
γ	1128.	12.31
γ	429.4	12.15
γ	804.6	11.91

$^{106}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-106 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

$^{106}_{45}$Rh

$T_{1/2}$ =29.90±0.20s
$\langle E_\beta \rangle$ PER DECAY =1446.
$\langle E_\gamma \rangle$ PER DECAY =199.4

FISSION YIELDS

^{235}U THERMAL	3.4619×10^{-9}
^{235}U FAST	5.4809×10^{-9}
^{238}U FAST	5.6095×10^{-8}
^{239}PU THERMAL	9.6786×10^{-6}

Q_β =3540.±9.
BR_β =1.000

$^{106}_{46}$Pd

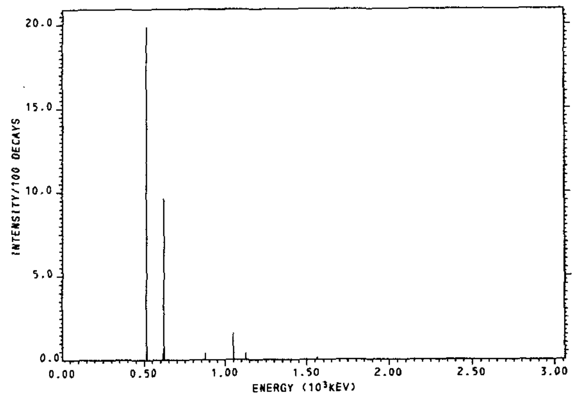
STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
511.8	1	19.92
616.0	1	.6773
622.0	1	9.661
873.0	1	.3984
1050.	1	1.594
1061.	1	.02191
1136.	4	.4960
1261.	1	.00797
1489.	1	.00199
1497.	1	.02789
1562.	1	.1594
1606.	1	.00199
1765.	1	.02988
1796.	1	.02789
1927.	1	.01195
1988.	1	.02390
2112.	1	.03187
2194.	1	.00797
2353.	4	.03586
2407.	1	.01195
2441.	1	.00398
2546.	1	.00199
2575.	1	.00199
2710.	1	.00398
2916.	1	.00199

$\langle E_{PHOTON} \rangle$ PER DECAY = 199.4

PHOTON INTENSITY PLOT



PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	660.0	215.5	.1000
β-	910.0	315.2	.1000
β-	1100.0	395.1	.1000
β-	1270.0	468.8	.1000
β-	1539.0	588.9	.4000
β-	1978.0	791.1	1.000
β-	2409.0	994.8	9.800
β-	3028.0	1293.	10.70
β-	3540.0	1542.	77.70

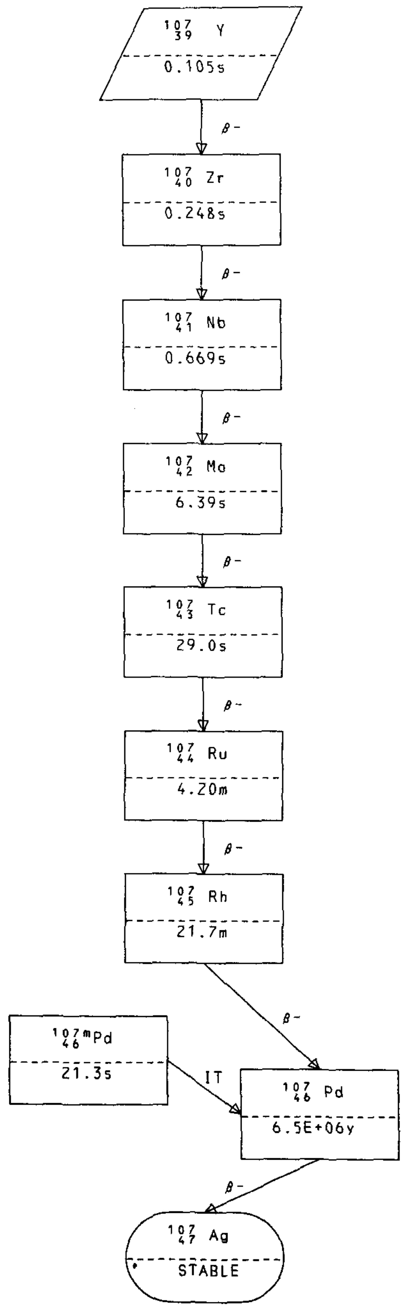
$\langle E_e \rangle$ PER DECAY = 1446.
$\langle E_\nu \rangle$ PER DECAY = 1895.

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	3540.	77.70
γ	511.8	19.92
β-	3028.	10.70

$^{106}_{46}$Pd

$^{106}_{46}$Pd	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	3.9689
WESTCOTT G FACTOR	1.1213
σ CAPTURE 2200M/S	2.3870×10^{-1}
WESTCOTT G FACTOR	1.0080
RESONANCE INTEGRAL TOTAL	$1.2420 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	7.1800
FISSION YIELDS	
^{235}U FAST	1.0402×10^{-9}
^{239}PU THERMAL	1.0698×10^{-8}



$^{107}_{39}$Y
0.105s
β-
$^{107}_{40}$Zr
0.248s
β-
$^{107}_{41}$Nb
0.669s
β-
$^{107}_{42}$Mo
6.39s
β-
$^{107}_{43}$Tc
29.0s
β-
$^{107}_{44}$Ru
4.20m
β-
$^{107}_{45}$Rh
21.7m
β-
$^{107m}_{46}$Pd
21.3s
IT
$^{107}_{46}$Pd
6.5E+06y
β-
$^{107}_{47}$Ag
STABLE

$^{107}_{39}$Y

ENDF/B-IV FILE 1 COMMENTS
39- Y-107 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{107}_{39}$Y

$T_{1/2}$ =.1046s
$\langle E_\beta \rangle$ PER DECAY =3764.
$\langle E_\gamma \rangle$ PER DECAY =3713.

FISSION YIELDS

^{238}U FAST	1.5634×10^{-9}

Q_β =11240.
BR_β =1.000

$^{107}_{40}$Zr

.2485s

107 - 39- 1

$^{107}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-107 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{107}_{40}$Zr

$T_{1/2}$ =.2485s
$\langle E_\beta \rangle$ PER DECAY =3092.
$\langle E_\gamma \rangle$ PER DECAY =2908.

FISSION YIELDS

^{235}U THERMAL	1.0200×10^{-6}
^{235}U FAST	2.3912×10^{-6}
^{238}U FAST	4.6425×10^{-6}
^{239}PU THERMAL	4.1595×10^{-8}

Q_β =9170.
BR_β =1.000

$^{107}_{41}$Nb

.6694s

$^{107}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-107 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{107}_{41}$Nb

$T_{1/2}$ =.6694s
$\langle E_\beta \rangle$ PER DECAY =2607.
$\langle E_\gamma \rangle$ PER DECAY =2362.

FISSION YIELDS

^{235}U THERMAL	9.0369×10^{-5}
^{235}U FAST	2.7099×10^{-4}
^{238}U FAST	4.0777×10^{-4}
^{239}PU THERMAL	4.4002×10^{-5}

Q_β =7940.
BR_β =1.000

$^{107}_{42}$Mo

6.391s

107 - 41- 1

$^{107}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-107 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{107}_{42}$Mo

$T_{1/2}$ =6.391s
$\langle E_\beta \rangle$ PER DECAY =1967.
$\langle E_\gamma \rangle$ PER DECAY =1726.

FISSION YIELDS

^{235}U THERMAL	1.0373×10^{-3}
^{235}U FAST	2.5148×10^{-3}
^{238}U FAST	7.0942×10^{-3}
^{239}PU THERMAL	3.8450×10^{-3}

Q_β =6190.
BR_β =1.000

$^{107}_{43}$Tc

29.±3.s

$^{107}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-107 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{107}_{43}$Tc

$T_{1/2}$ =29.±3.s
$\langle E_\beta \rangle$ PER DECAY =1535.
$\langle E_\gamma \rangle$ PER DECAY =1266.

FISSION YIELDS

^{235}U THERMAL	4.6672×10^{-4}
^{235}U FAST	9.2581×10^{-4}
^{238}U FAST	4.7020×10^{-3}
^{239}PU THERMAL	1.1034×10^{-2}

Q_β =4920.
BR_β =1.000

$^{107}_{44}$Ru

4.20±.20m

107 - 43- 1

$^{107}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-107 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

$^{107}_{44}$Ru

$T_{1/2}$ =4.20±.20m
$\langle E_\beta \rangle$ PER DECAY =1237.
$\langle E_\gamma \rangle$ PER DECAY =251.4

FISSION YIELDS

^{235}U THERMAL	3.3188×10^{-5}
^{235}U FAST	5.2808×10^{-5}
^{238}U FAST	5.1227×10^{-4}
^{239}PU THERMAL	1.7166×10^{-2}

Q_β =3150.±300.
BR_β =1.000

$^{107}_{45}$Rh

21.7±0.4m

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
194.1	1	11.91
220.6	1	.5955
268.5	1	1.906
359.6	1	1.191
374.5	1	4.169
405.9	1	2.382
462.7	1	4.407
489.1	1	1.548
579.2	1	2.858
703.2	1	1.191
737.7	1	1.072
847.8	1	6.550
1042.	1	3.216
1272.	1	3.335

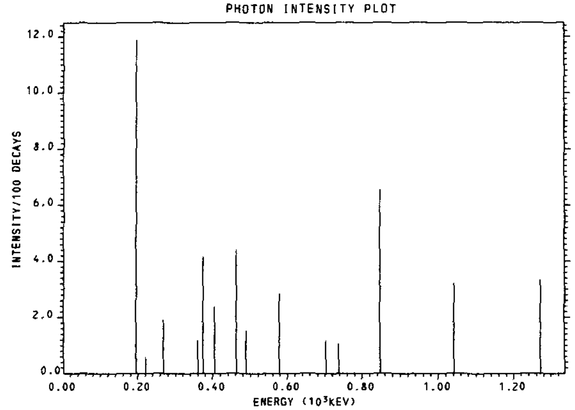
$\langle E_{PHOTON} \rangle$ PER DECAY = 251.4

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	1910.0	759.4	5.000
$\beta-$	2150.0	871.9	11.00
$\beta-$	2270.0	928.7	4.000
$\beta-$	2630.0	1101.	6.000
$\beta-$	3150.0	1352.	74.00

$\langle E_e \rangle$ PER DECAY = 1237.
$\langle E_\nu \rangle$ PER DECAY = 1674.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	3150.	74.00
γ	194.1	11.91
$\beta-$	2150.	11.00
γ	847.8	6.550
$\beta-$	2630.	6.000
$\beta-$	1910.	5.000

$^{107}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-107 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

$^{107}_{45}$Rh

$T_{1/2}$ =21.7±0.4m
$\langle E_\beta \rangle$ PER DECAY =421.2
$\langle E_\gamma \rangle$ PER DECAY =312.2

FISSION YIELDS

^{235}U THERMAL	6.5636×10^{-8}
^{235}U FAST	8.2013×10^{-8}
^{238}U FAST	1.6099×10^{-6}
^{239}PU THERMAL	2.6560×10^{-4}

Q_β =1510.±40.
BR_β =1.000

$^{107}_{46}$Pd

$(6.495)\times10^{+6}$y

PHOTON RADIATION TABLE

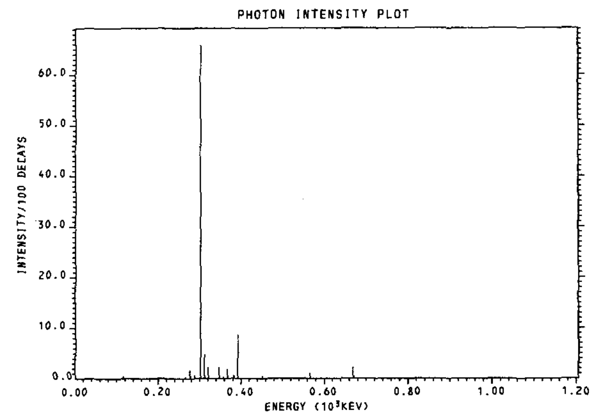
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
80.10	1	.05000
96.60	1	.01000
126.8	4	.6500
274.0	5	3.020
316.3	8	86.94
431.7	1	.03000
451.9	1	.5100
471.2	1	.1200
564.8	4	1.280
643.9	1	.03000
670.1	1	2.220
696.7	1	.01000
752.8	4	.1800
836.5	1	.01000
845.4	1	.02000
863.4	1	.04000
1102.	1	.01000
1120.	1	.02000
1149.	1	.04000

$\langle E_{PHOTON} \rangle$ PER DECAY = 312.3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	352.0	104.1	.08000
β^-	398.0	119.7	.2000
β^-	830.0	282.6	9.000
β^-	933.0	324.7	2.000
β^-	1107.0	398.1	7.000
β^-	1188.0	433.0	4.000
β^-	1197.0	436.9	65.00
β^-	1272.0	469.7	12.72

$\langle E_e \rangle$ PER DECAY = 421.2
$\langle E_\nu \rangle$ PER DECAY = 738.1



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	302.8	65.90
β^-	1197.	65.00
β^-	1272.	12.72
β^-	830.0	9.000

$^{107m}_{46}Pd$

ENDF/B-IV FILE 1 COMMENTS
46-PD-107M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{107m}_{46}Pd$

$T_{1/2}$ =21.30s
$\langle E_\gamma \rangle$ PER DECAY =210.0

FISSION YIELDS
^{239}PU THERMAL 1.8397x10^{-7}

Q_{IT}=210.0
BR_{IT}=1.000

$^{107}_{46}Pd$

$(6.495)\times10^{+6}$y

107m- 46- 1

$^{107}_{46}Pd$

ENDF/B-IV FILE 1 COMMENTS
46-PD-107 HEDL EVAL-OCT74 F.SCHMITTROTH AND R.E.SCHENTER
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

$^{107}_{46}Pd$

$T_{1/2}$ =$(6.495)\times10^{+6}$y
$\langle E_\beta \rangle$ PER DECAY =10.30
$\langle E_\gamma \rangle$ PER DECAY =.1000

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	1.4121x10^{+1}
WESTCOTT G FACTOR	1.1362
σ CAPTURE 2200M/S	1.0000x10^{+1}
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	1.6940x10^{+2}
RESONANCE INTEGRAL CAPTURE	6.9900x10^{+1}

FISSION YIELDS
^{239}PU THERMAL 3.3095x10^{-7}

Q_β =35.00
BR_β =1.000

$^{107}_{47}Ag$

STABLE OR LONG-LIVED

107 - 46- 1

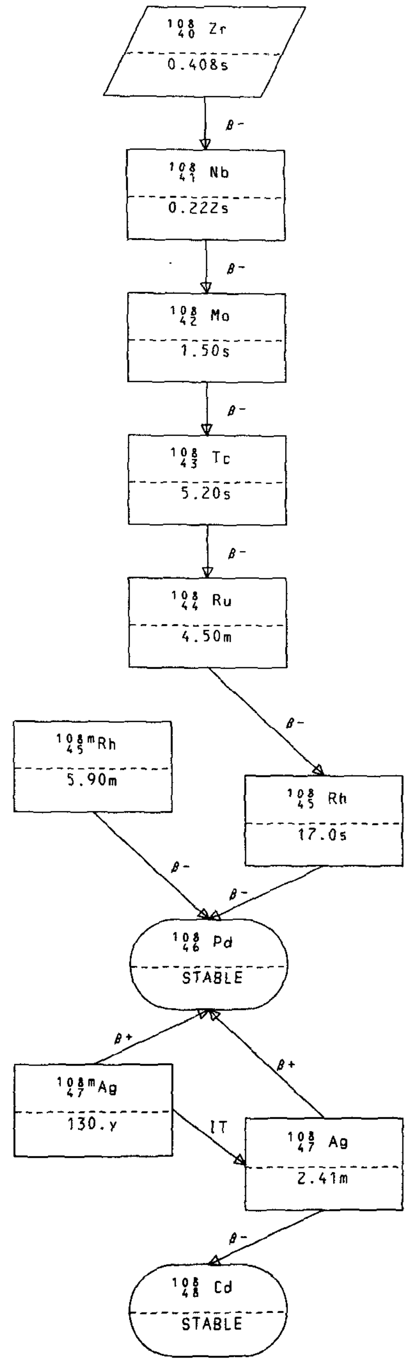
$^{107}_{47}$Ag

$^{107}_{47}$Ag

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$4.2473\times10^{+1}$
WESTCOTT G FACTOR	1.0176
σ CAPTURE 2200M/S	$3.6851\times10^{+1}$
WESTCOTT G FACTOR	1.0007
RESONANCE INTEGRAL TOTAL	$2.4680\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1630\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	8.8840×10^{-1}
RESONANCE INTEGRAL (N,P)	1.0880×10^{-2}
RESONANCE INTEGRAL (N,α)	1.8590×10^{-2}



108 40 Zr
0.408s
β-
108 41 Nb
0.222s
β-
108 42 Mo
1.50s
β-
108 43 Tc
5.20s
β-
108 44 Ru
4.50m
β-
108m 45 Rh
5.90m
108 45 Rh
17.0s
β-
β-
108 46 Pd
STABLE
β+
β+
108m 47 Ag
130.y
IT
108 47 Ag
2.41m
β-
108 48 Cd
STABLE

$^{108}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-108 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{108}_{40}$Zr

$T_{1/2}$ =.4076s
$\langle E_\beta \rangle$ PER DECAY =2330.
$\langle E_\gamma \rangle$ PER DECAY =2526.

FISSION YIELDS

^{235}U THERMAL	1.4508×10^{-8}
^{235}U FAST	1.0602×10^{-7}
^{238}U FAST	2.3298×10^{-6}
^{239}PU THERMAL	1.9697×10^{-9}

Q_β =7390.
BR_β =1.000

$^{108}_{41}$Nb

.2220s

108 - 40- 1

$^{108}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-108 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{108}_{41}$Nb

$T_{1/2}$ =.2220s
$\langle E_\beta \rangle$ PER DECAY =3833.
$\langle E_\gamma \rangle$ PER DECAY =3180.

FISSION YIELDS

^{235}U THERMAL	5.4830×10^{-6}
^{235}U FAST	2.7864×10^{-5}
^{238}U FAST	2.5972×10^{-4}
^{239}PU THERMAL	4.8293×10^{-6}

Q_β =10850.
BR_β =1.000

$^{108}_{42}$Mo

1.5±.5s

$^{108}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-108 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{108}_{42}$Mo

$T_{1/2}$ =1.5±.5s
$\langle E_\beta \rangle$ PER DECAY =1340.
$\langle E_\gamma \rangle$ PER DECAY =1354.

FISSION YIELDS

^{235}U THERMAL	2.3819×10^{-4}
^{235}U FAST	8.6899×10^{-4}
^{238}U FAST	3.7122×10^{-3}
^{239}PU THERMAL	1.2233×10^{-3}

Q_β =4480.
BR_β =1.000

$^{108}_{43}$Tc

5.20±.10s

108 - 42- 1

$^{108}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-108 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{108}_{43}$Tc

$T_{1/2}$ =5.20±.10s
$\langle E_\beta \rangle$ PER DECAY =2620.
$\langle E_\gamma \rangle$ PER DECAY =2001.

FISSION YIELDS

^{235}U THERMAL	3.6813×10^{-4}
^{235}U FAST	9.9300×10^{-4}
^{238}U FAST	2.0652×10^{-3}
^{239}PU THERMAL	9.1511×10^{-3}

Q_β =7850.
BR_β =1.000

$^{108}_{44}$Ru

4.50±.20m

$^{108}_{44}Ru$

ENDF/B-IV FILE 1 COMMENTS
44-RU-108 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

$^{108}_{44}Ru$

$T_{1/2}$ =4.50±.20m
$\langle E_\beta \rangle$ PER DECAY =470.1
$\langle E_\gamma \rangle$ PER DECAY =46.20

FISSION YIELDS

^{235}U THERMAL	9.8033×10^{-5}
^{235}U FAST	1.9335×10^{-4}
^{238}U FAST	1.8704×10^{-4}
^{239}PU THERMAL	1.1419×10^{-2}

Q_β =1320.±100.
BR_β =1.000

$^{108}_{45}Rh$

17.0±1.0s

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
165.0	1	28.00

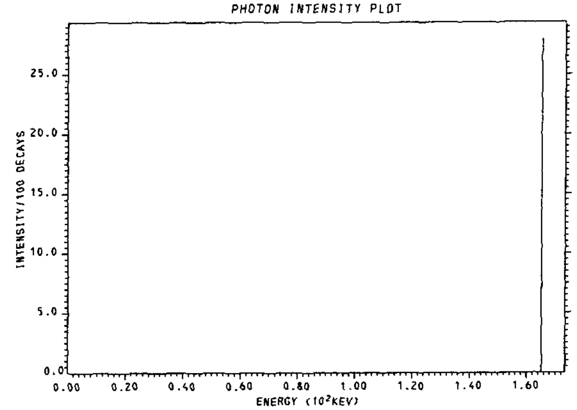
$\langle E_{PHOTON} \rangle$ PER DECAY = 46.20

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1150.0	416.6	28.00
β^-	1320.0	490.9	72.00

$\langle E_e \rangle$ PER DECAY = 470.1
$\langle E_\nu \rangle$ PER DECAY = 802.3

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	1320.	72.00
γ	165.0	28.00

$^{108m}_{45}Rh$

ENDF/B-IV FILE 1 COMMENTS
45-RH-108M 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.A. PINSTON , REPORT CEA-R-4286 (1972)

$^{108m}_{45}Rh$

$T_{1/2}$ =5.90±.20m
$\langle E_\beta \rangle$ PER DECAY =804.1
$\langle E_\gamma \rangle$ PER DECAY =2439.

FISSION YIELDS

^{235}U THERMAL	4.1423×10^{-7}
^{235}U FAST	5.7909×10^{-7}
^{238}U FAST	2.3998×10^{-7}
^{239}PU THERMAL	2.7047×10^{-4}

Q_β =4430.±50.
BR_β =1.000

$^{108}_{46}Pd$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

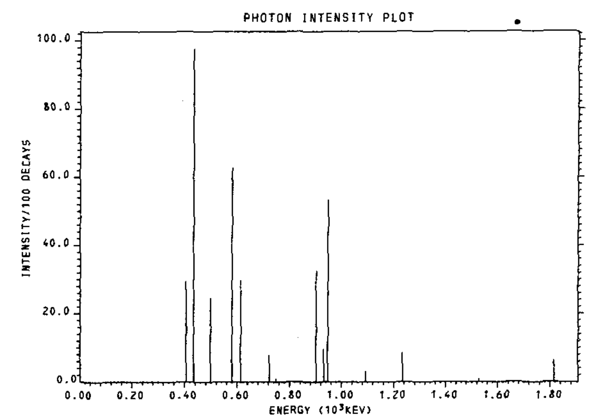
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
404.6	1	29.54
434.2	1	97.81
497.3	1	24.65
581.1	1	62.89
614.6	1	29.83
723.0	1	7.825
747.0	1	.9781
901.4	1	32.77
931.3	1	9.585
947.1	1	53.40
1093.	1	3.130
1234.	1	8.509
1528.	1	.9781
1816.	1	6.358

$\langle E_{PHOTON} \rangle$ PER DECAY = 2439.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	1570.0	602.9	80.00
β-	2660.0	1115.	5.000
β-	3380.0	1464.	6.000
β-	4430.0	1979.	9.000

$\langle E_e \rangle$ PER DECAY = 804.1
$\langle E_\nu \rangle$ PER DECAY = 1186.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	434.2	97.81
β-	1570.	80.00
γ	581.1	62.89
γ	947.1	53.40
γ	901.4	32.77
γ	614.6	29.83

$^{108}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-108 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.A. PINSTON , REPORT CEA-R-4286 (1972)

$^{108}_{45}$Rh

$T_{1/2}$ =17.0±1.0s
$\langle E_{\beta} \rangle$ PER DECAY =1828.
$\langle E_{\gamma} \rangle$ PER DECAY =708.5

FISSION YIELDS

^{235}U THERMAL	4.1423×10^{-7}
^{235}U FAST	5.7909×10^{-7}
^{238}U FAST	2.3998×10^{-7}
^{239}PU THERMAL	2.7050×10^{-4}

Q_{β} =4500.±600.
BR_{β} =1.000

$^{108}_{46}$Pd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
434.2	1	46.35
497.3	1	43.13
614.6	1	23.71
1528.	1	5.382
2000.	1	3.243

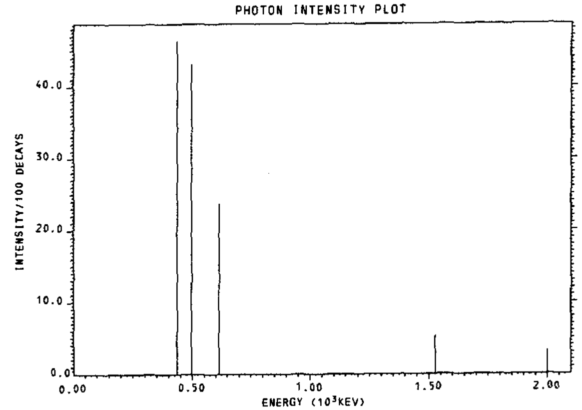
$\langle E_{PHOTON} \rangle$ PER DECAY = 708.5

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	3500.0	1523.	22.00
β^-	3600.0	1571.	10.00
β^-	4100.0	1817.	17.00
β^-	4500.0	2014.	51.00

$\langle E_e \rangle$ PER DECAY = 1828.
$\langle E_\nu \rangle$ PER DECAY = 2294.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β^-	4500.	51.00
γ	434.2	46.35
γ	497.3	43.13
γ	614.6	23.71
β^-	3500.	22.00

$^{108}_{46}$Pd

```
....................................................
.                    108/46 Pd                       .
.                                                    .
.           STABLE OR LONG-LIVED                     .
.                                                    .
.           CROSS SECTIONS (BARNS)                   .
.  σ TOTAL 2200M/S               1.4533x10^+1        .
.    WESTCOTT G FACTOR           1.0208              .
.  σ CAPTURE 2200M/S             1.2208x10^+1        .
.    WESTCOTT G FACTOR           1.0004              .
.  RESONANCE INTEGRAL TOTAL      4.7810x10^+2        .
.  RESONANCE INTEGRAL CAPTURE    2.2440x10^+2        .
.                                                    .
.                  FISSION YIELDS                    .
.        239PU THERMAL   3.1495x10^-6                .
....................................................
```

108 - 46- 1

$^{108m}_{47}$Ag

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                ENDF/B-IV FILE 1 COMMENTS
47-AG-108M HEDL       EVAL-APR74 R.E.SCHENTER
                      DIST-NOV74
     REFERENCES
      QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED
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....................................................
.                    108m/47 Ag                      .
.                                                    .
.         T1/2 =129.9y                               .
.         <Eγ> PER DECAY =900.0                      .
.                                                    .
....................................................

Q IT=110.0                              Q β+=2020.
BR IT=.07700                            BRβ+=.9230

.........................        .........................
.       108/47 Ag       .        .       108/46 Pd       .
.                       .        .                       .
. STABLE OR LONG-LIVED  .        . STABLE OR LONG-LIVED  .
.........................        .........................
```

$^{108}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-108 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{108}_{47}$Ag

$T_{1/2}$ =2.410m
$\langle E_\beta \rangle$ PER DECAY =501.3
$\langle E_\gamma \rangle$ PER DECAY =284.1

Q_β =1640.
BR_β =.9770

$Q_{\beta+}$=1910.
$BR_{\beta+}$=.02300

$^{108}_{48}$Cd
.1024s

$^{108}_{46}$Pd
STABLE OR LONG-LIVED

108 - 47- 1

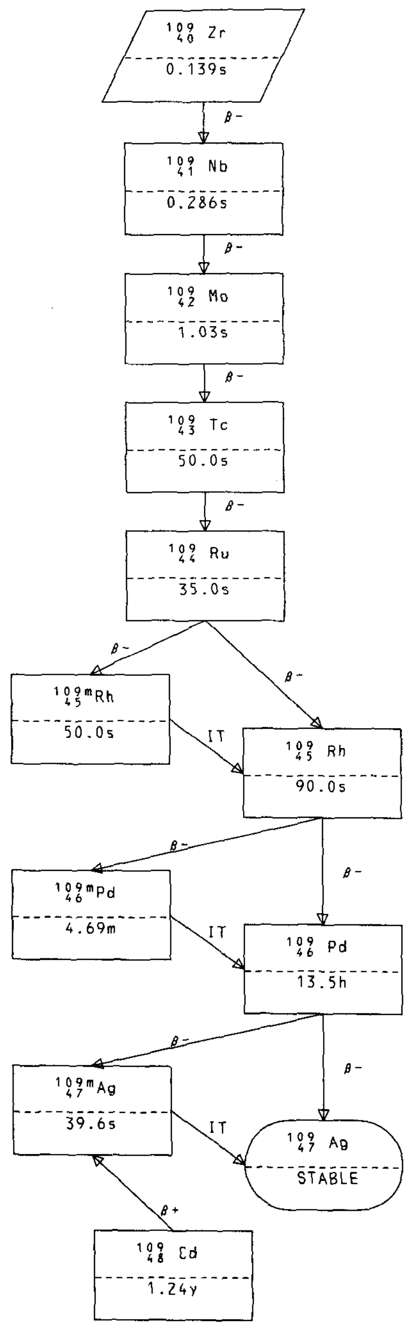
$^{108}_{48}$Cd

$^{108}_{48}$Cd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.2460
WESTCOTT G FACTOR	1.1820
σ CAPTURE 2200M/S	1.1000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$1.0170 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	4.2840



109 40 Zr
0.139s
β-
109 41 Nb
0.286s
β-
109 42 Mo
1.03s
β-
109 43 Tc
50.0s
β-
109 44 Ru
35.0s
β-
β-
109m 45 Rh
50.0s
IT
109 45 Rh
90.0s
β-
β-
109m 46 Pd
4.69m
IT
109 46 Pd
13.5h
β-
β-
109m 47 Ag
39.6s
IT
109 47 Ag
STABLE
β+
109 48 Cd
1.24y

$^{109}_{40}$Zr

ENDF/B-IV FILE 1 COMMENTS
40-ZR-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{109}_{40}$Zr

$T_{1/2}$ =.1387s
$\langle E_\beta \rangle$ PER DECAY =3419.
$\langle E_\gamma \rangle$ PER DECAY =3442.

FISSION YIELDS
^{238}U FAST 2.1993x10^{-7}

Q_β =10280.
BR_β =1.000

$^{109}_{41}$Nb

.2861s

109 - 40- 1

$^{109}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{109}_{41}$Nb

$T_{1/2}$ =.2861s
$\langle E_\beta \rangle$ PER DECAY =3009.
$\langle E_\gamma \rangle$ PER DECAY =2887.

FISSION YIELDS

^{235}U THERMAL	1.4914x10^{-7}
^{235}U FAST	7.8623x10^{-7}
^{238}U FAST	5.0115x10^{-5}
^{239}PU THERMAL	1.3757x10^{-6}

Q_β =9080.
BR_β =1.000

$^{109}_{42}$Mo

1.033s

$^{109}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{109}_{42}$Mo

$T_{1/2}$ =1.033s
$\langle E_\beta \rangle$ PER DECAY =2394.
$\langle E_\gamma \rangle$ PER DECAY =2198.

FISSION YIELDS

^{235}U THERMAL	2.2833×10^{-5}
^{235}U FAST	1.3053×10^{-4}
^{238}U FAST	1.1541×10^{-3}
^{239}PU THERMAL	4.5539×10^{-4}

Q_β =7390.
BR_β =1.000

$^{109}_{43}$Tc

50.00s

109 - 42- 1

$^{109}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{109}_{43}$Tc

$T_{1/2}$ =50.00s
$\langle E_\beta \rangle$ PER DECAY =1979.
$\langle E_\gamma \rangle$ PER DECAY =1744.

FISSION YIELDS

^{235}U THERMAL	1.3538×10^{-4}
^{235}U FAST	5.7856×10^{-4}
^{238}U FAST	1.3624×10^{-3}
^{239}PU THERMAL	4.8186×10^{-3}

Q_β =6280.
BR_β =1.000

$^{109}_{44}$Ru

35.0±1.9s

$^{109}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{109}_{44}$Ru

$T_{1/2}$ =35.0±1.9s
$\langle E_\beta \rangle$ PER DECAY =1287.
$\langle E_\gamma \rangle$ PER DECAY =1095.

FISSION YIELDS

^{235}U THERMAL	1.3605×10^{-4}
^{235}U FAST	4.4186×10^{-4}
^{238}U FAST	2.7192×10^{-4}
^{239}PU THERMAL	8.2794×10^{-3}

Q_β =4100.
BR_β =.5000

$^{109m}_{45}$Rh
50.00s

Q_β =4350.
BR_β =.5000

$^{109}_{45}$Rh
90.±4.s

109 - 44- 1

$^{109m}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-109M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
QIT-R SCHENTER,THEORY(9/73)

$^{109m}_{45}$Rh

$T_{1/2}$ =50.00s
$\langle E_\gamma \rangle$ PER DECAY =250.0

FISSION YIELDS

^{235}U THERMAL	2.5314×10^{-6}
^{235}U FAST	6.0810×10^{-6}
^{238}U FAST	8.3692×10^{-7}
^{239}PU THERMAL	2.7693×10^{-4}

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

$^{109}_{45}$Rh
90.±4.s

$^{109}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{109}_{45}$Rh

$T_{1/2}$ =90.±4.s
$\langle E_\beta \rangle$ PER DECAY =712.8
$\langle E_\gamma \rangle$ PER DECAY =562.3

FISSION YIELDS

^{235}U THERMAL	2.5314×10^{-6}
^{235}U FAST	6.0810×10^{-6}
^{238}U FAST	8.3692×10^{-7}
^{239}PU THERMAL	2.7692×10^{-4}

Q_β =2250.
BR_β =.5000

$^{109m}_{46}$Pd

4.690±.010m

Q_β =2500.
BR_β =.5000

$^{109}_{46}$Pd

13.460±0.020h

109 - 45- 1

$^{109m}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-109M 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

$^{109m}_{46}$Pd

$T_{1/2}$ =4.690±.010m
$\langle E_\gamma \rangle$ PER DECAY =188.0

FISSION YIELDS

^{235}U THERMAL	1.1306×10^{-8}
^{235}U FAST	1.9603×10^{-8}
^{239}PU THERMAL	2.3597×10^{-6}

Q_{IT}=188.0
BR_{IT}=1.000

$^{109}_{46}$Pd

13.460±0.020h

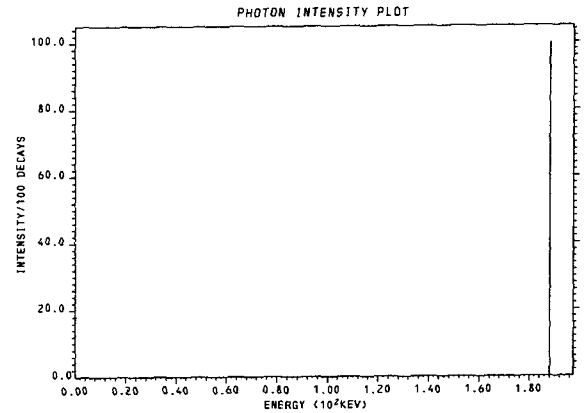
PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
188.0	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 188.0

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	188.0	100.0



$^{109}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-109 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

$^{109}_{46}$Pd

$T_{1/2}$ =13.460±0.020h
$\langle E_\beta \rangle$ PER DECAY =364.1
$\langle E_\gamma \rangle$ PER DECAY =.2100

FISSION YIELDS

^{235}U THERMAL	1.1306×10^{-8}
^{235}U FAST	1.9603×10^{-8}
^{239}PU THERMAL	2.3597×10^{-6}

Q_β =1027.
BR_β =.9998

$^{109m}_{47}$Ag

39.60±0.20s

Q_β =1116.0±2.0
BR_β =.00016

$^{109}_{47}$Ag

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
44.80	1	.00044
103.6	1	.00022
134.7	1	.00044
145.9	1	.00033
311.5	1	.01232
390.9	1	.00033
416.3	4	.00660
551.3	1	.00022
557.8	1	.00077
602.4	1	.00264
636.1	1	.00330
647.3	1	.00803
756.9	4	.00638
863.0	1	.00011

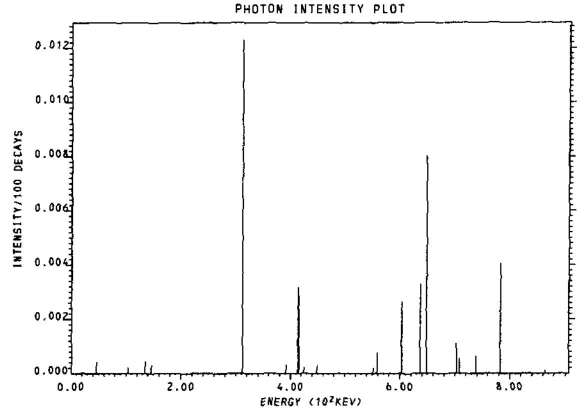
$\langle E_{PHOTON} \rangle$ PER DECAY ≈ .2123

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	260.0	74.06	.02000
β-	400.0	120.4	.01000
β-	1027.3	364.2	99.97

$\langle E_e \rangle$ PER DECAY = 364.1
$\langle E_\nu \rangle$ PER DECAY = 663.0

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1027.	99.97

$^{109m}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS

47-AG-109M 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

$^{109m}_{47}Ag$

$T_{1/2}$ =39.60±0.20s

$\langle E_\gamma \rangle$ PER DECAY =87.70

Q_{IT}=87.70

BR_{IT}=1.000

$^{109}_{47}Ag$

STABLE OR LONG-LIVED

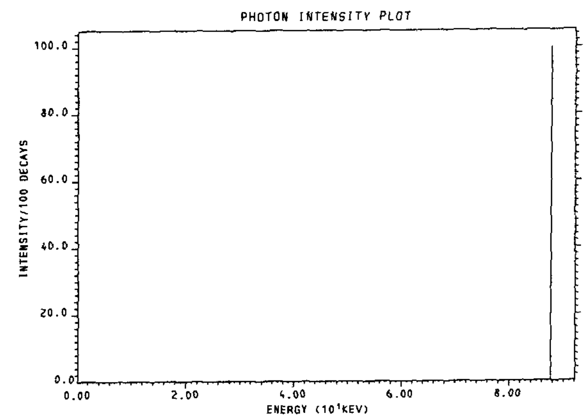
PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
87.70	1	100.0

$\langle E_{PHOTON} \rangle$ PER DECAY = 87.70

CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	87.70	100.0



$^{109}_{47}$Ag

$^{109}_{47}$Ag

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$9.3476\times10^{+1}$
WESTCOTT G FACTOR	1.0073
σ CAPTURE 2200M/S	$9.1795\times10^{+1}$
WESTCOTT G FACTOR	1.0052
RESONANCE INTEGRAL TOTAL	$1.7050\times10^{+3}$
RESONANCE INTEGRAL CAPTURE	$1.4580\times10^{+3}$
RESONANCE INTEGRAL (N,2N)	8.4750×10^{-1}
RESONANCE INTEGRAL (N,P)	1.0740×10^{-2}
RESONANCE INTEGRAL (N,α)	8.3800×10^{-3}

$^{109}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS

48-CD-109 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

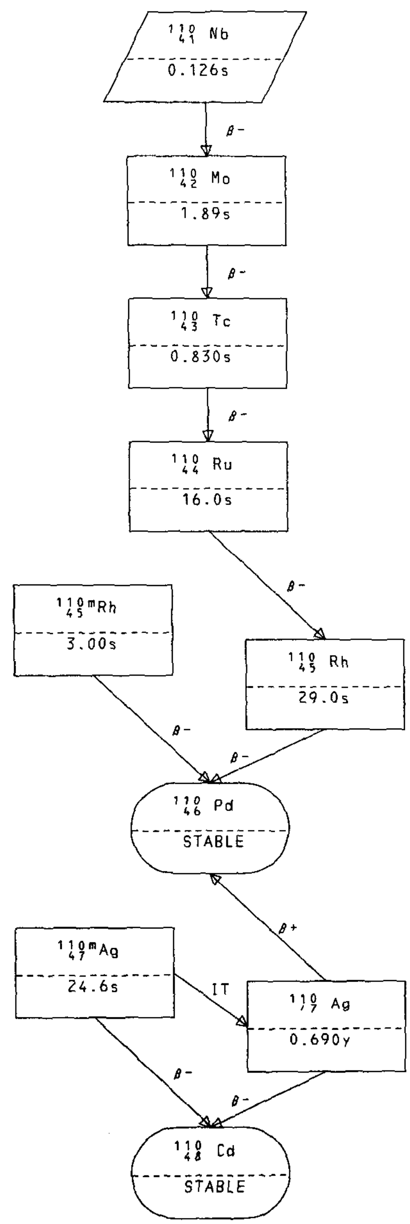
$^{109}_{48}$Cd

$T_{1/2}$ =1.242y
$\langle E_{\beta}\rangle$ PER DECAY =24.65
$\langle E_{\gamma}\rangle$ PER DECAY =15.99

$Q_{\beta+}$=90.00
$BR_{\beta+}$=1.000

$^{109m}_{47}$Ag

39.60±0.20s



$^{110}_{41}$Nb
0.126s
β-
$^{110}_{42}$Mo
1.89s
β-
$^{110}_{43}$Tc
0.830s
β-
$^{110}_{44}$Ru
16.0s
β-
$^{110m}_{45}$Rh
3.00s
$^{110}_{45}$Rh
29.0s
β-
β-
$^{110}_{46}$Pd
STABLE
β+
$^{110m}_{47}$Ag
24.6s
IT
$^{110}_{47}$Ag
0.690y
β-
β-
$^{110}_{48}$Cd
STABLE

$^{110}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-110 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{110}_{41}$Nb

$T_{1/2}$ =.1258s
$\langle E_\beta \rangle$ PER DECAY =4138.
$\langle E_\gamma \rangle$ PER DECAY =3695.

FISSION YIELDS

^{235}U THERMAL	6.8037×10^{-9}
^{235}U FAST	2.2104×10^{-8}
^{238}U FAST	2.0298×10^{-6}
^{239}PU THERMAL	1.4898×10^{-8}

Q_β =11970.
BR_β =1.000

$^{110}_{42}$Mo

1.892s

110 - 41- 1

$^{110}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-110 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{110}_{42}$Mo

$T_{1/2}$ =1.892s
$\langle E_\beta \rangle$ PER DECAY =1698.
$\langle E_\gamma \rangle$ PER DECAY =1810.

FISSION YIELDS

^{235}U THERMAL	3.8321×10^{-6}
^{235}U FAST	1.2812×10^{-5}
^{238}U FAST	2.0975×10^{-4}
^{239}PU THERMAL	2.1757×10^{-5}

Q_β =5620.
BR_β =1.000

$^{110}_{43}$Tc

.83±.04s

$^{110}_{43}$ Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-110 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{110}_{43}$ Tc

$T_{1/2}$ =.83±.04s
$\langle E_\beta \rangle$ PER DECAY =3125.
$\langle E_\gamma \rangle$ PER DECAY =2513.

FISSION YIELDS

^{235}U THERMAL	5.9372×10^{-5}
^{235}U FAST	2.0344×10^{-4}
^{238}U FAST	6.9988×10^{-4}
^{239}PU THERMAL	8.1788×10^{-4}

Q_β =9190.
BR_β =1.000

$^{110}_{44}$ Ru

16.0±1.0s

110 - 43- 1

$^{110}_{44}$ Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-110 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{110}_{44}$ Ru

$T_{1/2}$ =16.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =774.8
$\langle E_\gamma \rangle$ PER DECAY =764.1

FISSION YIELDS

^{235}U THERMAL	1.4630×10^{-4}
^{235}U FAST	5.0502×10^{-4}
^{238}U FAST	4.0278×10^{-4}
^{239}PU THERMAL	4.3864×10^{-3}

Q_β =2710.
BR_β =1.000

$^{110}_{45}$ Rh

29.0±2.0s

$^{110m}_{45}Rh$

ENDF/B-IV FILE 1 COMMENTS
45-RH-110M 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-M. KARRAS AND J. KANTELE, PHYS. LETT. 6, 98 (1963)

$^{110m}_{45}Rh$

$T_{1/2}$ =3.00±.20s
$\langle E_\beta \rangle$ PER DECAY =2481.
$\langle E_\gamma \rangle$ PER DECAY =56.07

FISSION YIELDS

^{235}U THERMAL	6.9838×10^{-6}
^{235}U FAST	2.5034×10^{-5}
^{238}U FAST	4.1096×10^{-6}
^{239}PU THERMAL	4.8039×10^{-4}

Q_β =5500.±500.
BR_β =1.000

$^{110}_{46}Pd$

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
373.8	1	15.00

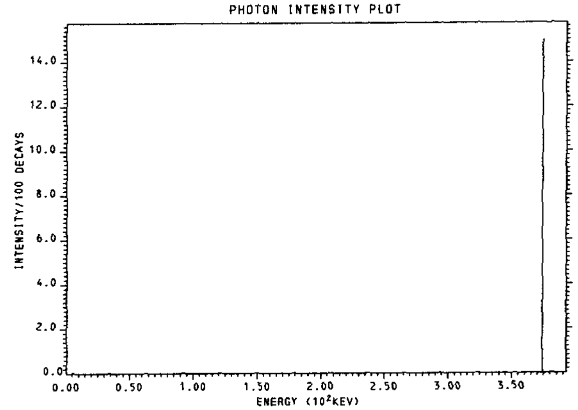
$\langle E_{PHOTON} \rangle$ PER DECAY = 56.07

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
$\beta-$	5130.0	2325.	15.00
$\beta-$	5500.0	2509.	85.00

$\langle E_e \rangle$ PER DECAY = 2481.
$\langle E_\nu \rangle$ PER DECAY = 2963.

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
$\beta-$	5500.	85.00
γ	373.8	15.00

$^{110}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-110 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

$^{110}_{45}$Rh

$T_{1/2}$ =29.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =1346.
$\langle E_\gamma \rangle$ PER DECAY =2268.

FISSION YIELDS

^{235}U THERMAL	6.9838×10^{-6}
^{235}U FAST	2.5034×10^{-5}
^{238}U FAST	4.1096×10^{-6}
^{239}PU THERMAL	4.7981×10^{-4}

Q_β =5400.±100.
BR_β =1.000

$^{110}_{46}$Pd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

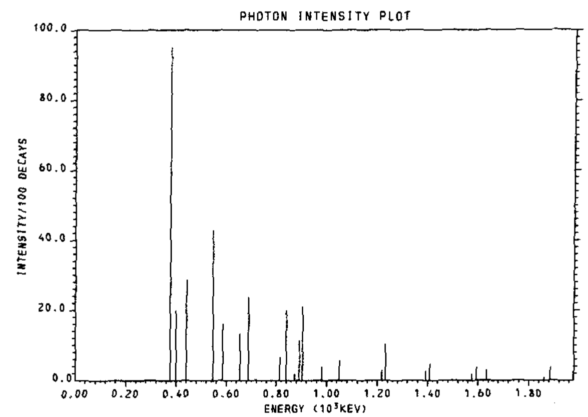
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
373.8	1	95.33
398.5	1	20.02
440.0	1	28.60
546.3	1	42.90
584.0	1	16.21
653.6	1	13.35
688.0	1	23.83
851.1	4	40.04
904.3	1	20.97
980.0	1	3.813
1049.	1	5.720
1217.	1	2.860
1230.	1	10.49
1392.	1	2.860
1407.	1	4.766
1577.	1	1.907
1593.	1	3.813
1633.	1	2.860
1860.	1	.9533
1884.	1	3.813

$\langle E_{PHOTON} \rangle$ PER DECAY = 2268.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	2596.0	1084.	42.00
β^-	2609.0	1090.	21.00
β^-	2954.0	1257.	9.000
β^-	4188.0	1860.	9.000
β^-	4480.0	2004.	19.00

$\langle E_e \rangle$ PER DECAY = 1346.
$\langle E_\nu \rangle$ PER DECAY = 1787.



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	373.8	95.33
γ	546.3	42.90
β^-	2596.	42.00
γ	440.0	28.60
γ	688.0	23.83
β^-	2609.	21.00
γ	904.3	20.97
γ	838.7	20.02
γ	398.5	20.02
β^-	4480.	19.00
γ	584.0	16.21

$^{110}_{46}$Pd

$^{110}_{46}$Pd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.4170
WESTCOTT G FACTOR	1.1569
σ CAPTURE 2200M/S	2.2000×10^{-1}
WESTCOTT G FACTOR	1.0005
RESONANCE INTEGRAL TOTAL	$1.0160 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	7.0550

FISSION YIELDS

^{235}U THERMAL	1.7910×10^{-7}
^{235}U FAST	6.6011×10^{-7}
^{238}U FAST	1.8998×10^{-8}
^{239}PU THERMAL	3.0596×10^{-5}

110 - 46- 1

$^{110m}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-110M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

REFERENCES
QBETA -A TOBIAS(10/72) RD/B/M2453
QIT-R SCHENTER,THEORY(9/73)
EBETA-A TOBIAS(10/72) RD/B/M2453
EGAMMA-A TOBIAS(10/72) RD/B/M2453

$^{110m}_{47}$Ag

$T_{1/2}$ =24.60s
$\langle E_\beta \rangle$ PER DECAY =68.00
$\langle E_\gamma \rangle$ PER DECAY =2790.

FISSION YIELDS

^{239}PU THERMAL 1.2698×10^{-8}

Q_β =2986.
BR_β =.9860

Q_{IT}=116.0
BR_{IT}=.01400

$^{110}_{48}$Cd

STABLE OR LONG-LIVED

$^{110}_{47}$Ag

.6899y

$^{110}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-110 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

$^{110}_{47}$Ag

$T_{1/2}$ =.6899y
$\langle E_{\beta} \rangle$ PER DECAY =1180.
$\langle E_{\gamma} \rangle$ PER DECAY =41.60

FISSION YIELDS
^{239}PU THERMAL 1.1398x10^{-8}

Q_{β} =2890.
BR_{β} =.9970

$Q_{\beta+}$ =870.0
$BR_{\beta+}$ =.00300

$^{110}_{48}$Cd
STABLE OR LONG-LIVED

$^{110}_{46}$Pd
STABLE OR LONG-LIVED

110 - 47- 1

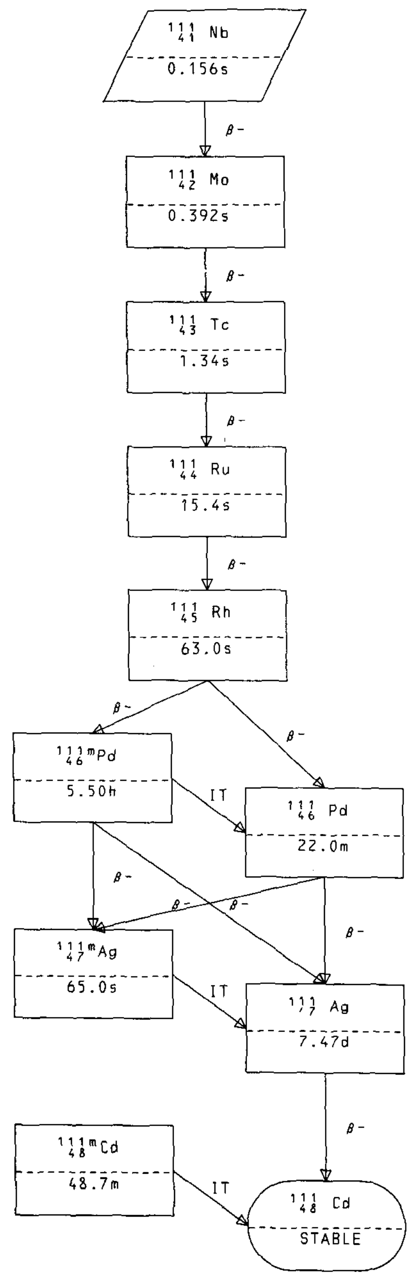
$^{110}_{48}$Cd

$^{110}_{48}$Cd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	1.4312x10^{+1}
WESTCOTT G FACTOR	1.0301
σ CAPTURE 2200M/S	1.1101x10^{+1}
WESTCOTT G FACTOR	1.0016
RESONANCE INTEGRAL TOTAL	1.7530x10^{+2}
RESONANCE INTEGRAL CAPTURE	4.2600x10^{+1}



111 41 Nb
0.156s
β-
111 42 Mo
0.392s
β-
111 43 Tc
1.34s
β-
111 44 Ru
15.4s
β-
111 45 Rh
63.0s
β-
β-
111m 46 Pd
5.50h
IT
111 46 Pd
22.0m
β-
β-
β-
β-
111m 47 Ag
65.0s
IT
111 47 Ag
7.47d
β-
111m 48 Cd
48.7m
IT
111 48 Cd
STABLE

$^{111}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-111 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{111}_{41}$Nb

$T_{1/2}$ =.1561s
$\langle E_\beta \rangle$ PER DECAY =3367.
$\langle E_\gamma \rangle$ PER DECAY =3406.

FISSION YIELDS

^{238}U FAST	1.9561×10^{-7}

Q_β =10140.
BR_β =1.000

$^{111}_{42}$Mo

.3917s

111 - 41- 1

$^{111}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-111 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{111}_{42}$Mo

$T_{1/2}$ =.3917s
$\langle E_\beta \rangle$ PER DECAY =2758.
$\langle E_\gamma \rangle$ PER DECAY =2721.

FISSION YIELDS

^{235}U THERMAL	2.5395×10^{-7}
^{235}U FAST	4.3912×10^{-7}
^{238}U FAST	3.8349×10^{-5}
^{239}PU THERMAL	8.2137×10^{-7}

Q_β =8510.
BR_β =1.000

$^{111}_{43}$Tc

1.336s

$^{111}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-111 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{111}_{43}$Tc

$T_{1/2}$ =1.336s
$\langle E_\beta \rangle$ PER DECAY =2358.
$\langle E_\gamma \rangle$ PER DECAY =2210.

FISSION YIELDS

^{235}U THERMAL	1.7516×10^{-5}
^{235}U FAST	3.7907×10^{-5}
^{238}U FAST	2.6718×10^{-4}
^{239}PU THERMAL	1.2243×10^{-4}

Q_β =7410.
BR_β =1.000

$^{111}_{44}$Ru

15.42s

$^{111}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-111 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{111}_{44}$Ru

$T_{1/2}$ =15.42s
$\langle E_\beta \rangle$ PER DECAY =1713.
$\langle E_\gamma \rangle$ PER DECAY =1530.

FISSION YIELDS

^{235}U THERMAL	1.3448×10^{-4}
^{235}U FAST	3.0495×10^{-4}
^{238}U FAST	4.7921×10^{-4}
^{239}PU THERMAL	1.6601×10^{-3}

Q_β =5510.
BR_β =1.000

$^{111}_{45}$Rh

63.0±2.0s

$^{111}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-111 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{111}_{45}$Rh

$T_{1/2}$ =63.0±2.0s
$\langle E_\beta \rangle$ PER DECAY =1231.
$\langle E_\gamma \rangle$ PER DECAY =1044.

FISSION YIELDS

^{235}U THERMAL	4.3404×10^{-5}
^{235}U FAST	9.9176×10^{-5}
^{238}U FAST	3.1987×10^{-5}
^{239}PU THERMAL	8.8408×10^{-4}

Q_β =3810.
BR_β =.00430

Q_β =4060.
BR_β =.9957

$^{111m}_{46}$Pd 5.50±.10h

$^{111}_{46}$Pd 22.0±1.0m

111 - 45- 1

$^{111m}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-111M 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.
PALLADIUM-111M PREPARED FOR ENDF/B IV 8/73 DRF(SRL)
REFERENCE
Q BETA - 1973 REVISION WAPSTRA-GOVE MASS TABLES
REMAINDER - G.BERZINS ET.AL, NUC. PHYS. A126,
273(1969)

$^{111m}_{46}$Pd

$T_{1/2}$ =5.50±.10h
$\langle E_\beta \rangle$ PER DECAY =167.1
$\langle E_\gamma \rangle$ PER DECAY =421.4

FISSION YIELDS

^{235}U THERMAL	9.8554×10^{-7}
^{235}U FAST	2.4704×10^{-6}
^{238}U FAST	1.4399×10^{-7}
^{239}PU THERMAL	3.7895×10^{-5}

Q_β =2312.±50.
BR_β =.2540

Q_β =2372.±50.
BR_β =.06600

Q_{IT}=172.2±0.5
BR_{IT}=.6800

$^{111m}_{47}$Ag 65.0±2.0s

$^{111}_{47}$Ag 7.470±.010d

$^{111}_{46}$Pd 22.0±1.0m

PHOTON RADIATION TABLE

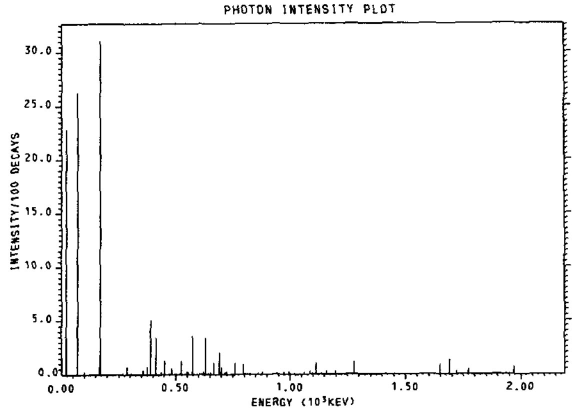
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
44. ± 3.	5	55. ± 7.
171.5 ± 0.5	6	32.2 ± 1.0
263.0 ± 1.0	1	.020 ± .010
272.0 ± 0.5	1	.13 ± .03
289.8 ± 0.5	1	.71 ± .10
385.7	5	6.36
432.6 ± 1.8	6	5.7 ± .5
560.1 ± 1.3	6	5.4 ± .3
656.1 ± 1.5	8	7.2 ± .4
754. ± 3.	8	3.29 ± .23
852. ± 4.	5	.57 ± .10
974. ± 5.	4	.61 ± .14
1060. ± 5.	8	.96 ± .15
1115.6 ± 0.7	1	1.07 ± .15
1140.0 ± 2.0	1	.10 ± .05
1163.1 ± 0.5	1	.31 ± .08
1200.0 ± 1.0	1	.31 ± .08
1223.6 ± 1.0	1	.05 ± .03
1282.6 ± 1.0	1	1.17 ± .15
1309.0 ± 1.0	1	.05 ± .03
1381.0 ± 1.0	1	.036 ± .020
1418.0 ± 1.0	1	.09 ± .03
1651.1 ± 0.5	1	.92 ± .10
1691.1 ± 0.5	1	1.38 ± .10
1721.8 ± 0.5	1	.28 ± .05
1775.2 ± 0.5	1	.48 ± .10
1904.7 ± 1.0	1	.08 ± .03
1939.0 ± 1.0	1	.08 ± .03
1970.6 ± 1.0	1	.71 ± .08
2064.1 ± 1.0	1	.025 ± .015
2086.1 ± 1.0	1	.041 ± .015

$\langle E_{PHOTON} \rangle$ PER DECAY = 362.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
AU	23.7	6.6 ± 1.9	43. ± 12.
CE	171.5	150.6 ± 0.5	37.3 ± 2.4
β-	272.0	78. ± 15.	.9200
β-	285.0	82. ± 15.	.2400
β-	303.0	88. ± 15.	.2000
β-	384.0	115. ± 15.	1.600
β-	466.0	144. ± 16.	1.000
β-	551.0	174. ± 17.	5.400
β-	591.0	189. ± 17.	1.300
β-	624.0	202. ± 17.	.2300
β-	666.0	218. ± 18.	.5900
β-	823.0	280. ± 19.	1.700
β-	829.0	282. ± 19.	.2500

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
AU_L	2.935	34. ± 11.
CE_K	147.9 ± 0.5	32.6 ± 2.4
γ	172.2 ± 0.5	31.1 ± 1.0
γ	70.50 ± 0.20	26.3 ± 1.9
X_K	20.74	23. ± 7.
β-	2242. ± 50.	8.800
β-	551. ± 50.	5.400
γ	391.3 ± 0.5	5.100
AU_{KM}	23.68	4.8 ± .5
AU_K	17.14	4. ± 7.
CE_L	168.6 ± 0.5	4.0 ± .3

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	909.0	315. ± 20.	.1400
β-	1213.0	444. ± 23.	.3600
β-	1413.0	532. ± 25.	2.000
β-	1496.0	569. ± 30.	.08600
β-	1548.0	593. ± 30.	1.400
β-	1667.0	647. ± 30.	.5700
β-	2242.0	915. ± 30.	8.800
β-	2312.0	949. ± 40.	4.000

$\langle E_e \rangle$ PER DECAY = 226.2
$\langle E_\nu \rangle$ PER DECAY = 262.5

$^{111}_{46}$Pd

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                  ENDF/B-IV FILE 1 COMMENTS
46-PD-111  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.
PALLADIUM-111       PREPARED FOR ENDF/B IV  8/73  DRF(SRL)
REFERENCE
             AND PRIVATE COMMUNICATION (SEPT.,1973)
             Q BETA    - 1973 REVISION WAPSTRA-GOVE MASS TABLES
             REMAINDER - G.BERZINS ET.AL, NUC. PHYS. A126,
                                273(1969)
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$^{111}_{46}$Pd

$T_{1/2}$ =22.0±1.0m

$\langle E_\beta \rangle$ PER DECAY =844.2

$\langle E_\gamma \rangle$ PER DECAY =52.88

FISSION YIELDS

^{235}U THERMAL	1.0005×10^{-6}
^{235}U FAST	2.4704×10^{-6}
^{238}U FAST	1.3599×10^{-7}
^{239}PU THERMAL	3.7935×10^{-5}

Q_β =2140.±50.
BR_β =.9925±.0003

$^{111m}_{47}$Ag

65.0±2.0s

Q_β =2200.±50.
BR_β =.00750

$^{111}_{47}$Ag

7.470±.010d

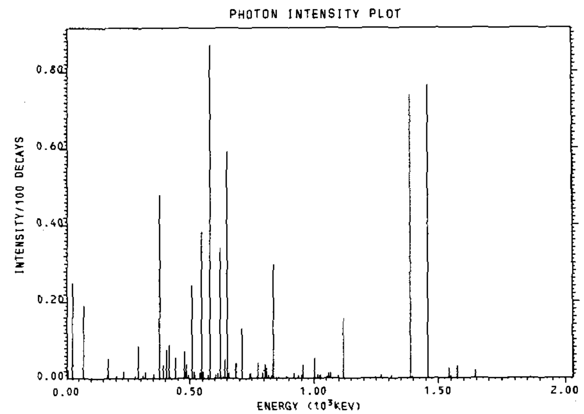
PHOTON RADIATION TABLE

MEAN ENERGY			LINES	PHOTONS/100 DECAYS		
39.5	±	1.5	5	.502	±	.025
166.9	±	1.3	4	.063	±	.020
275.4	±	2.1	4	.113	±	.011
374.7	±	0.6	5	.55	±	.06
441.	±	3.	8	.35	±	.04
559.2	±	1.8	8	1.56	±	.12
641.6	±	1.2	9	1.08	±	.09
733.	±	4.	6	.21	±	.03
831.1	±	1.4	7	.38	±	.04
945.3	±	2.4	4	.064	±	.012
1028.	±	5.	8	.114	±	.021
1120.2	±	0.5	1	.16	±	.05
1246.0	±	1.0	1	.0035	±	.0018
1269.7	±	0.5	1	.009	±	.003
1311.2	±	1.0	1	.008	±	.004
1388.4	±	0.5	1	.74	±	.11
1395.0	±	1.0	1	.004	±	.003
1458.7	±	0.5	1	.77	±	.11
1559.	±	3.	4	.064	±	.011
1644.3	±	1.0	1	.020	±	.005
1705.0	±	1.0	1	.0009	±	.0009
1863.2	±	1.0	1	.0026	±	.0018
1933.0	±	1.0	1	.0009	±	.0009

$\langle E_{PHOTON} \rangle$ PER DECAY = 51. ± 6.

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
AU	24.8	22.91			5.282
CE	69.8	51.90	±	0.15	.5069
β-	206.0	57.	±	14.	.00400
β-	495.0	154.	±	16.	.08300
β-	526.0	165.	±	16.	.02200
β-	578.0	184.	±	17.	.01600
β-	681.0	224.	±	18.	1.850
β-	694.0	229.	±	18.	.00700
β-	990.0	348.	±	20.	.02400
β-	1020.0	361.	±	21.	.1800
β-	1030.0	365.	±	21.	.03000
β-	1080.0	387.	±	21.	.1000
β-	1113.0	401.	±	22.	.1500
β-	1115.0	402.	±	22.	.07000
β-	1138.0	411.	±	22.	.1000
β-	1391.0	522.	±	24.	.01700
β-	1490.0	567.	±	30.	1.430
β-	1517.0	579.	±	30.	.05200
β-	1558.0	597.	±	30.	.02000
β-	1593.0	613.	±	30.	.4100
β-	1631.0	631.	±	30.	.2400



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY			I/100 DECAYS
β-	2140.	±	50.	94.80

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY			INTENSITY/100 DECAYS
β-	1654.0	641.	±	30.	.1200
β-	1809.0	713.	±	30.	.03200
β-	1823.0	719.	±	30.	.1800
β-	1910.0	759.	±	30.	.03500
β-	2140.0	867.	±	30.	94.80

$\langle E_e \rangle$ PER DECAY = 845.7
$\langle E_\nu \rangle$ PER DECAY = 1244.

$^{111m}_{47}Ag$

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              ENDF/B-IV FILE 1 COMMENTS
47-AG-111M 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
           HALF-LIFE   G.RUDSTAM ET AL., REVIEW PAPER 12, IAEA
            PANEL ON FISSION-PRODUCT DATA (BOLOGNA, 1973), APP.B.
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$^{111m}_{47}Ag$

$T_{1/2}$ =65.0±2.0s

$\langle E_\gamma \rangle$ PER DECAY =65.00

FISSION YIELDS

^{235}U THERMAL	1.3107×10^{-9}
^{235}U FAST	3.3005×10^{-9}
^{239}PU THERMAL	9.1887×10^{-8}

Q_{IT}=65.00

BR_{IT}=1.000

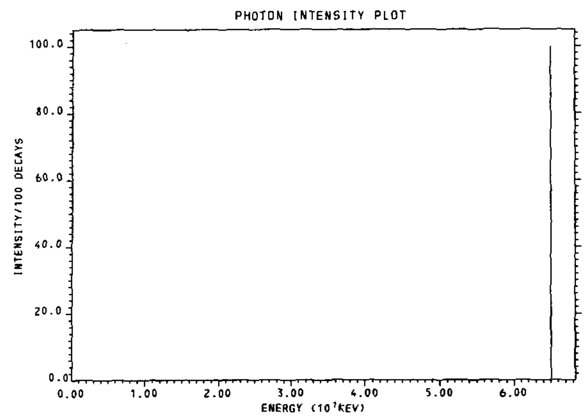
$^{111}_{47}Ag$

7.470±.010d

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
65.00	1	100.0

$<E_{PHOTON}>$ PER DECAY = 65.00



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
γ	65.00	100.0

$^{111}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS

47-AG-111 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

$^{111}_{47}$Ag

$T_{1/2}$ =7.470±.010d
$\langle E_\beta \rangle$ PER DECAY =354.8
$\langle E_\gamma \rangle$ PER DECAY =26.97

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	7.2230
WESTCOTT G FACTOR	1.1778
σ CAPTURE 2200M/S	3.0000
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$2.0430\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.0390\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	1.2607×10^{-9}
^{235}U FAST	3.3005×10^{-9}
^{239}PU THERMAL	9.1987×10^{-8}

Q_β =1028.±3.
BR_β =1.000

$^{111}_{48}$Cd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

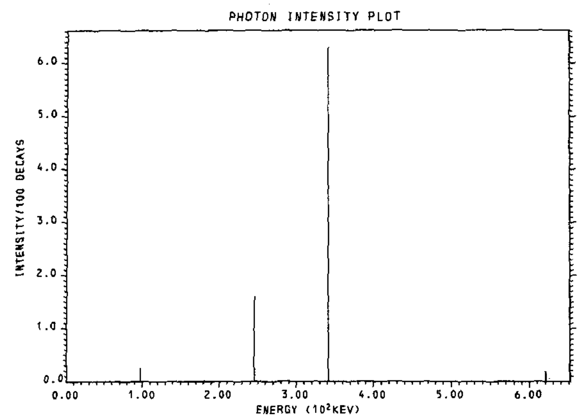
MEAN ENERGY	LINES	PHOTONS/100 DECAYS
96.30	1	.2600
245.5	1	1.600
342.1	1	6.300
620.6	1	.2000

$\langle E_{PHOTON} \rangle$ PER DECAY = 26.97

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	686.0	225.5	6.200
β-	782.0	263.3	1.100
β-	1028.0	364.5	92.70

$\langle E_e \rangle$ PER DECAY = 354.8
$\langle E_\nu \rangle$ PER DECAY = 649.3



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	1028.	92.70

$^{111m}_{48}Cd$

ENDF/B-IV FILE 1 COMMENTS
48-CD-111M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{111m}_{48}Cd$

$T_{1/2}$ =48.70m
$\langle E_\gamma \rangle$ PER DECAY =396.0

Q_{IT}=396.0
BR_{IT}=1.000

$^{111}_{48}Cd$

STABLE OR LONG-LIVED

111m- 48- 1

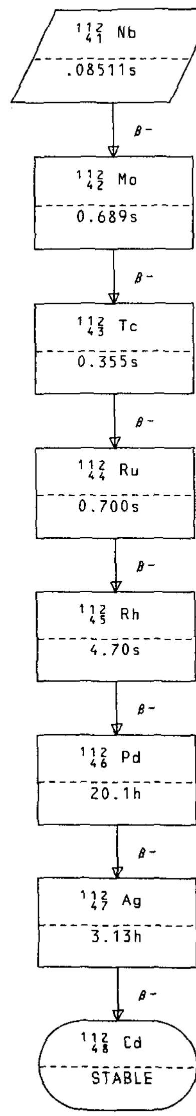
$^{111}_{48}Cd$

$^{111}_{48}Cd$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$2.7983\times10^{+1}$
WESTCOTT G FACTOR	1.0192
σ CAPTURE 2200M/S	$2.4302\times10^{+1}$
WESTCOTT G FACTOR	1.0026
RESONANCE INTEGRAL TOTAL	$1.5210\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$5.4730\times10^{+1}$


$^{112}_{41}$Nb
.08511s
β-
$^{112}_{42}$Mo
0.689s
β-
$^{112}_{43}$Tc
0.355s
β-
$^{112}_{44}$Ru
0.700s
β-
$^{112}_{45}$Rh
4.70s
β-
$^{112}_{46}$Pd
20.1h
β-
$^{112}_{47}$Ag
3.13h
β-
$^{112}_{48}$Cd
STABLE

$^{112}_{41}$Nb

ENDF/B-IV FILE 1 COMMENTS
41-NB-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{112}_{41}$Nb

$T_{1/2}$ =.08510s
$\langle E_\beta \rangle$ PER DECAY =4445.
$\langle E_\gamma \rangle$ PER DECAY =4159.

Q_β =13050.
BR_β =1.000

$^{112}_{42}$Mo

.6892s

112 - 41- 1

$^{112}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{112}_{42}$Mo

$T_{1/2}$ =.6892s
$\langle E_\beta \rangle$ PER DECAY =2042.
$\langle E_\gamma \rangle$ PER DECAY =2292.

FISSION YIELDS

^{235}U THERMAL	1.7610×10^{-8}
^{235}U FAST	7.2612×10^{-8}
^{238}U FAST	3.0697×10^{-6}
^{239}PU THERMAL	3.8995×10^{-8}

Q_β =6690.
BR_β =1.000

$^{112}_{43}$Tc

.3553s

$^{112}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{112}_{43}$Tc

$T_{1/2}$ =.3553s
$\langle E_\beta \rangle$ PER DECAY =3504.
$\langle E_\gamma \rangle$ PER DECAY =3046.

FISSION YIELDS

^{235}U THERMAL	2.9816×10^{-6}
^{235}U FAST	1.1222×10^{-5}
^{238}U FAST	9.4401×10^{-5}
^{239}PU THERMAL	1.1908×10^{-5}

Q_β =10300.
BR_β =1.000

$^{112}_{44}$Ru

.7±.5s

112 - 43- 1

$^{112}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{112}_{44}$Ru

$T_{1/2}$ =.7±.5s
$\langle E_\beta \rangle$ PER DECAY =1078.
$\langle E_\gamma \rangle$ PER DECAY =1128.

FISSION YIELDS

^{235}U THERMAL	6.2214×10^{-5}
^{235}U FAST	2.1519×10^{-4}
^{238}U FAST	3.3513×10^{-4}
^{239}PU THERMAL	4.2568×10^{-4}

Q_β =3730.
BR_β =1.000

$^{112}_{45}$Rh

4.70±.10s

$^{112}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{112}_{45}$Rh

$T_{1/2}$ =4.70±.10s
$\langle E_\beta \rangle$ PER DECAY =2300.
$\langle E_\gamma \rangle$ PER DECAY =1773.

FISSION YIELDS

^{235}U THERMAL	5.4910×10^{-5}
^{235}U FAST	1.3426×10^{-4}
^{238}U FAST	7.6693×10^{-5}
^{239}PU THERMAL	4.9925×10^{-4}

Q_β =7010.
BR_β =1.000

$^{112}_{46}$Pd

20.10h

112 - 45- 1

$^{112}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-112 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{112}_{46}$Pd

$T_{1/2}$ =20.10h
$\langle E_\beta \rangle$ PER DECAY =79.09
$\langle E_\gamma \rangle$ PER DECAY =76.05

FISSION YIELDS

^{235}U THERMAL	6.4835×10^{-6}
^{235}U FAST	1.9153×10^{-5}
^{238}U FAST	3.8396×10^{-6}
^{239}PU THERMAL	1.3263×10^{-4}

Q_β =290.0
BR_β =1.000

$^{112}_{47}$Ag

3.130±.010h

$^{112}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS

47-AG-112 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

$^{112}_{47}$Ag

$T_{1/2}$ =3.130±.010h
$\langle E_\beta \rangle$ PER DECAY =1429.
$\langle E_\gamma \rangle$ PER DECAY =663.8

FISSION YIELDS

^{235}U THERMAL	7.6041×10^{-9}
^{235}U FAST	5.8309×10^{-8}
^{238}U FAST	1.0599×10^{-9}
^{239}PU THERMAL	7.6389×10^{-7}

Q_β =3958.±30.
BR_β =1.000

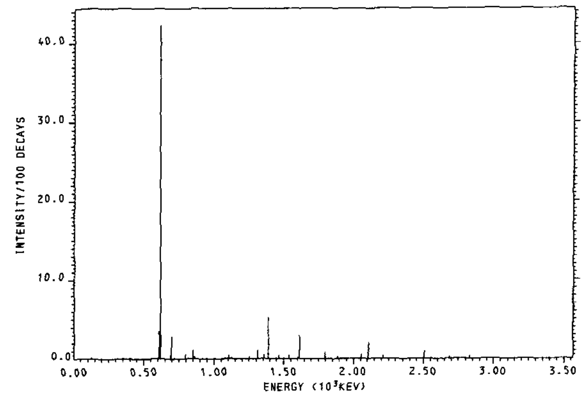
$^{112}_{48}$Cd

STABLE OR LONG-LIVED

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
119.9	1	.2115
225.5	1	.02115
278.3	1	.03384
310.7	1	.02115
351.3	1	.03384
358.8	1	.02961
401.1	1	.05499
456.8	1	.06768
534.4	4	.1269
621.4	9	49.25
772.5	6	.9771
848.6	6	1.510
918.0	1	.1058
946.8	1	.1058
957.3	1	.03384
1006.	1	.1058
1063.	1	.08460
1071.	1	.03384
1119.	4	.6387
1253.	1	.3172
1281.	1	.1058
1372.	6	6.984
1462.	5	.7149
1535.	4	.6979
1613.	1	2.876
1653.	1	.04230
1683.	1	.05076
1788.	4	.9687
1888.	1	.2792
1943.	5	.2707
2051.	1	.1481
2057.	1	.5499
2068.	1	.03384
2106.	1	2.115
2148.	1	.07614
2156.	1	.04230
2212.	1	.4061
2330.	1	.00423
2362.	1	.00423
2506.	1	.9729
2552.	1	.08037
2577.	1	.03384
2686.	1	.2496
2748.	4	.1734
2832.	6	.4611
2921.	1	.01269
2960.	1	.01692
3091.	1	.00423
3148.	4	.01692
3231.	1	.00423
3244.	1	.00423

PHOTON INTENSITY PLOT



CHARACTERISTIC RADIATION TABLE

TYPE	ENERGY	I/100 DECAYS
β-	3960.	54.00
γ	616.8	42.30
β-	3343.	20.50
β-	1956.	5.300
γ	1387.	5.245
γ	606.1	3.469

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β-	592.0	189.6	.06000
β-	658.0	214.7	.4000
β-	729.0	242.3	.02000
β-	791.0	266.9	.3000
β-	831.0	283.0	.2400
β-	893.0	308.2	.2000
β-	1000.0	352.7	.02000
β-	1095.0	393.0	.4200
β-	1132.0	408.8	.9000
β-	1195.0	436.1	.08000
β-	1237.0	454.4	2.300
β-	1287.0	476.3	.6000
β-	1293.0	478.9	.7000
β-	1352.0	505.0	.05000
β-	1453.0	550.1	1.200

PHOTON RADIATION TABLE

MEAN ENERGY	LINES	PHOTONS/100 DECAYS
3375.	1	.01269
3393.	1	.00423

$\langle E_{PHOTON} \rangle$ PER DECAY = 663.8

PARTICLE RADIATION TABLE

TYPE	E_{MAX}	MEAN ENERGY	INTENSITY/100 DECAYS
β^-	1545.0	591.6	1.300
β^-	1731.0	676.5	3.100
β^-	1805.0	710.7	.5000
β^-	1897.0	753.3	.1000
β^-	1956.0	780.8	5.300
β^-	1989.0	796.3	.05000
β^-	2090.0	843.7	.2500
β^-	2492.0	1034.	1.200
β^-	2528.0	1052.	.3200
β^-	2546.0	1060.	.3200
β^-	2648.0	1109.	2.100
β^-	2737.0	1152.	3.200
β^-	3343.0	1446.	20.50
β^-	3960.0	1748.	54.00

$\langle E_e \rangle$ PER DECAY = 1429.
$\langle E_\nu \rangle$ PER DECAY = 1867.

$^{112}_{48}$Cd

$^{112}_{48}$Cd

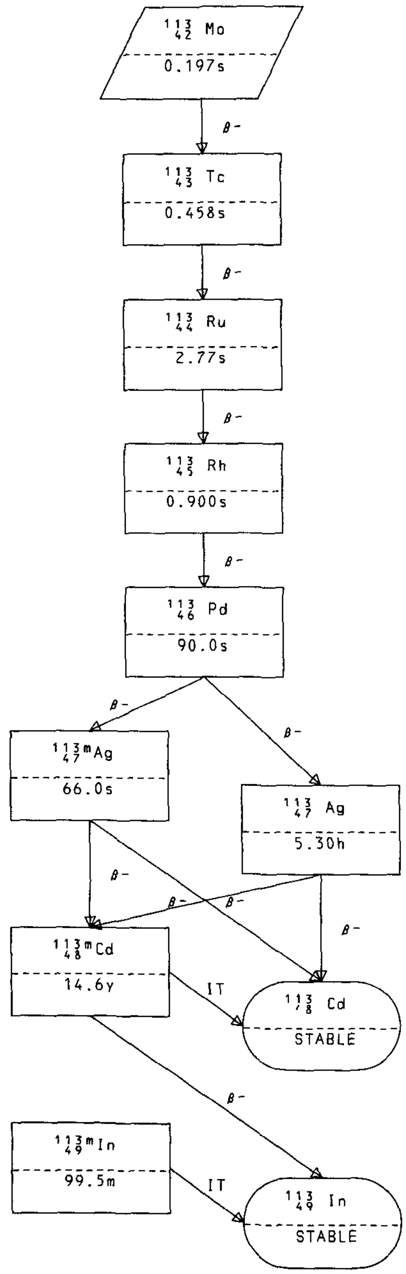
STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.9294
WESTCOTT G FACTOR	1.0849
σ CAPTURE 2200M/S	2.2004
WESTCOTT G FACTOR	1.0105
RESONANCE INTEGRAL TOTAL	$1.0990 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.3840 \times 10^{+1}$

FISSION YIELDS

^{235}U THERMAL 1.4308×10^{-6}



113 42 Mo
0.197s
β-
113 43 Tc
0.458s
β-
113 44 Ru
2.77s
β-
113 45 Rh
0.900s
β-
113 46 Pd
90.0s
β-
β-
113m 47 Ag
66.0s
113 47 Ag
5.30h
β-
β-
β-
β-
113m 48 Cd
14.6y
IT
113 48 Cd
STABLE
β-
113m 49 In
99.5m
IT
113 49 In
STABLE

$^{113}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{113}_{42}$Mo

$T_{1/2}$ =.1971s
$\langle E_\beta \rangle$ PER DECAY =3156.
$\langle E_\gamma \rangle$ PER DECAY =3256.

FISSION YIELDS

^{235}U THERMAL	1.6664×10^{-9}
^{235}U FAST	3.2154×10^{-9}
^{238}U FAST	4.5778×10^{-7}

Q_β =9600.
BR_β =1.000

$^{113}_{43}$Tc

.4583s

113 - 42- 1

$^{113}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{113}_{43}$Tc

$T_{1/2}$ =.4583s
$\langle E_\beta \rangle$ PER DECAY =2725.
$\langle E_\gamma \rangle$ PER DECAY =2702.

FISSION YIELDS

^{235}U THERMAL	7.7847×10^{-7}
^{235}U FAST	1.8984×10^{-6}
^{238}U FAST	3.4636×10^{-5}
^{239}PU THERMAL	1.0960×10^{-6}

Q_β =8480.
BR_β =1.000

$^{113}_{44}$Ru

2.766s

$^{113}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{113}_{44}$Ru

$T_{1/2}$ =2.766s
$\langle E_\beta \rangle$ PER DECAY =2058.
$\langle E_\gamma \rangle$ PER DECAY =1986.

FISSION YIELDS

^{235}U THERMAL	3.4619×10^{-5}
^{235}U FAST	1.0490×10^{-4}
^{238}U FAST	2.9798×10^{-4}
^{239}PU THERMAL	1.1778×10^{-4}

Q_β =6620.
BR_β =1.000

$^{113}_{45}$Rh

.90±.10s

$^{113}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{113}_{45}$Rh

$T_{1/2}$ =.90±.10s
$\langle E_\beta \rangle$ PER DECAY =1581.
$\langle E_\gamma \rangle$ PER DECAY =1433.

FISSION YIELDS

^{235}U THERMAL	6.6286×10^{-5}
^{235}U FAST	1.7690×10^{-4}
^{238}U FAST	1.3318×10^{-4}
^{239}PU THERMAL	4.0458×10^{-4}

Q_β =5160.
BR_β =1.000

$^{113}_{46}$Pd

90.00s

$^{113}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{113}_{46}$Pd

$T_{1/2}$ =90.00s
$\langle E_\beta \rangle$ PER DECAY =1064.
$\langle E_\gamma \rangle$ PER DECAY =922.1

FISSION YIELDS

^{235}U THERMAL	2.1612×10^{-5}
^{235}U FAST	5.4239×10^{-5}
^{238}U FAST	9.1791×10^{-6}
^{239}PU THERMAL	2.5262×10^{-4}

Q_β =3350.
BR_β =.1000

$^{113m}_{47}$Ag
66.00s

Q_β =3600.
BR_β =.9000

$^{113}_{47}$Ag
5.300h

113 - 46- 1

$^{113m}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-113M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{113m}_{47}$Ag

$T_{1/2}$ =66.00s
$\langle E_\beta \rangle$ PER DECAY =649.5
$\langle E_\gamma \rangle$ PER DECAY =531.3

FISSION YIELDS

^{235}U THERMAL	1.1406×10^{-7}
^{235}U FAST	2.6904×10^{-7}
^{238}U FAST	8.7492×10^{-9}
^{239}PU THERMAL	2.5096×10^{-6}

Q_β =1980.
BR_β =.04500

$^{113m}_{48}$Cd
14.59y

Q_β =2250.
BR_β =.9550

$^{113}_{48}$Cd
STABLE OR LONG-LIVED

${}^{113}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-113 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

${}^{113}_{47}$Ag

$T_{1/2}$ =5.300h
$\langle E_\beta \rangle$ PER DECAY =579.5
$\langle E_\gamma \rangle$ PER DECAY =474.0

FISSION YIELDS

^{235}U THERMAL	1.1406×10^{-7}
^{235}U FAST	2.6804×10^{-7}
^{238}U FAST	8.7492×10^{-9}
^{239}PU THERMAL	2.5396×10^{-6}

Q_β =1730.
BR_β =.01300

${}^{113m}_{48}$Cd
14.59y

Q_β =2000.
BR_β =.9870

${}^{113}_{48}$Cd
STABLE OR LONG-LIVED

${}^{113m}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-113M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

${}^{113m}_{48}$Cd

$T_{1/2}$ =14.59y
$\langle E_\beta \rangle$ PER DECAY =158.4
$\langle E_\gamma \rangle$ PER DECAY =125.4

FISSION YIELDS

^{235}U THERMAL	7.3940×10^{-7}
^{239}PU THERMAL	5.9992×10^{-9}

Q_β =570.0
BR_β =.9990

${}^{113}_{49}$In
STABLE OR LONG-LIVED

Q_{IT}=270.0
BR_{IT}=.00100

${}^{113}_{48}$Cd
STABLE OR LONG-LIVED

$^{113}_{48}$Cd

$^{113}_{48}$Cd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.9901\times10^{+4}$
WESTCOTT G FACTOR	1.3397
σ CAPTURE 2200M/S	$1.9877\times10^{+4}$
WESTCOTT G FACTOR	1.3386
RESONANCE INTEGRAL TOTAL	$5.3060\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$4.0580\times10^{+2}$
RESONANCE INTEGRAL (N,2N)	1.2260
RESONANCE INTEGRAL (N,P)	8.5060×10^{-3}
RESONANCE INTEGRAL (N,α)	1.0650×10^{-3}

FISSION YIELDS

^{239}PU THERMAL 5.9992×10^{-9}

113 - 48- 1

$^{113m}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-113M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{113m}_{49}$In

$T_{1/2}$ =99.48m
$\langle E_\gamma \rangle$ PER DECAY =393.0

Q_{IT}=393.0
BR_{IT}=1.000

$^{113}_{49}$In

STABLE OR LONG-LIVED

113m- 49- 1

$^{113}_{49}$In

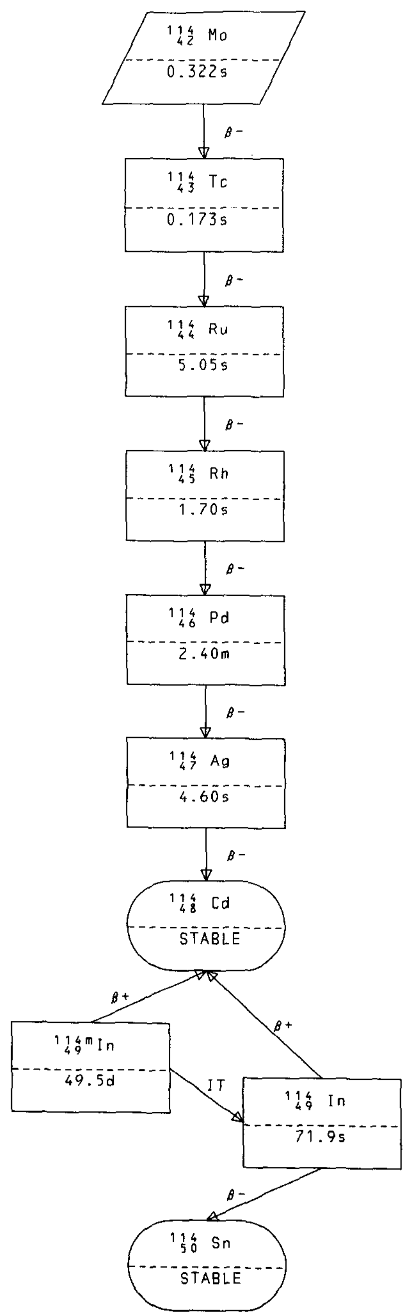
$^{113}_{49}$In

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$1.5104\times10^{+1}$
WESTCOTT G FACTOR	1.0352
σ CAPTURE 2200M/S	$1.1407\times10^{+1}$
WESTCOTT G FACTOR	1.0052
RESONANCE INTEGRAL TOTAL	$3.2900\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$2.2650\times10^{+2}$

113 - 49- 1


114 42 Mo
0.322s
β-
114 43 Tc
0.173s
β-
114 44 Ru
5.05s
β-
114 45 Rh
1.70s
β-
114 46 Pd
2.40m
β-
114 47 Ag
4.60s
β-
114 48 Cd
STABLE
β+
114m 49 In
49.5d
IT
β+
114 49 In
71.9s
β-
114 50 Sn
STABLE

$^{114}_{42}$ Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{114}_{42}$ Mo

$T_{1/2}$ =.3215s
$\langle E_\beta \rangle$ PER DECAY =2386.
$\langle E_\gamma \rangle$ PER DECAY =2810.

FISSION YIELDS

^{238}U FAST	2.6198×10^{-8}

Q_β =7740.
BR_β =1.000

$^{114}_{43}$ Tc

.1734s

114 - 42- 1

$^{114}_{43}$ Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{114}_{43}$ Tc

$T_{1/2}$ =.1734s
$\langle E_\beta \rangle$ PER DECAY =3908.
$\langle E_\gamma \rangle$ PER DECAY =3573.

FISSION YIELDS

^{235}U THERMAL	8.7848×10^{-8}
^{235}U FAST	2.9705×10^{-7}
^{238}U FAST	6.2794×10^{-6}
^{239}PU THERMAL	4.7193×10^{-8}

Q_β =11390.
BR_β =1.000

$^{114}_{44}$ Ru

5.053s

$^{114}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{114}_{44}$Ru

$T_{1/2}$ =5.053s
$\langle E_\beta \rangle$ PER DECAY =1399.
$\langle E_\gamma \rangle$ PER DECAY =1547.

FISSION YIELDS	
^{235}U THERMAL	1.2497×10^{-5}
^{235}U FAST	3.9736×10^{-5}
^{238}U FAST	1.7990×10^{-4}
^{239}PU THERMAL	1.6508×10^{-5}

Q_β =4790.
BR_β =1.000

$^{114}_{45}$Rh

1.70±.10s

114 - 44- 1

$^{114}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{114}_{45}$Rh

$T_{1/2}$ =1.70±.10s
$\langle E_\beta \rangle$ PER DECAY =2642.
$\langle E_\gamma \rangle$ PER DECAY =2216.

FISSION YIELDS	
^{235}U THERMAL	5.5570×10^{-5}
^{235}U FAST	1.6741×10^{-4}
^{238}U FAST	1.9017×10^{-4}
^{239}PU THERMAL	1.6553×10^{-4}

Q_β =8050.
BR_β =1.000

$^{114}_{46}$Pd

2.400m

$^{114}_{46}$ Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{114}_{46}$ Pd

$T_{1/2}$ =2.400m
$\langle E_\beta \rangle$ PER DECAY =579.2
$\langle E_\gamma \rangle$ PER DECAY =593.7

FISSION YIELDS

^{235}U THERMAL	4.3213×10^{-5}
^{235}U FAST	1.2161×10^{-4}
^{238}U FAST	3.4137×10^{-5}
^{239}PU THERMAL	2.6843×10^{-4}

Q_β =2100.
BR_β =1.000

$^{114}_{47}$ Ag

4.60±.10s

114 - 46- 1

$^{114}_{47}$ Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-114 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

$^{114}_{47}$ Ag

$T_{1/2}$ =4.60±.10s
$\langle E_\beta \rangle$ PER DECAY =2113.
$\langle E_\gamma \rangle$ PER DECAY =87.00

FISSION YIELDS

^{235}U THERMAL	1.1706×10^{-6}
^{235}U FAST	3.1705×10^{-6}
^{238}U FAST	1.8798×10^{-7}
^{239}PU THERMAL	1.7178×10^{-5}

Q_β =4850.
BR_β =1.000

$^{114}_{48}$ Cd

STABLE OR LONG-LIVED

$^{114}_{48}$Cd

$^{114}_{48}$Cd

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	3.7230
WESTCOTT G FACTOR	1.1167
σ CAPTURE 2200M/S	3.3802×10^{-1}
WESTCOTT G FACTOR	9.9883×10^{-1}
RESONANCE INTEGRAL TOTAL	$1.4190\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.9270\times10^{+1}$

FISSION YIELDS

^{235}U THERMAL	3.7921×10^{-9}
^{235}U FAST	9.6115×10^{-9}
^{239}PU THERMAL	1.3798×10^{-7}

114 - 48- 1

$^{114m}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-114M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{114m}_{49}$In

$T_{1/2}$ =49.51d
$\langle E_\beta \rangle$ PER DECAY =16.72
$\langle E_\gamma \rangle$ PER DECAY =196.1

Q_{IT}=191.6
BR_{IT}=.9650

$Q_{\beta+}$=1632.
$BR_{\beta+}$=.03500

$^{114}_{49}$In

71.90s

$^{114}_{48}$Cd

STABLE OR LONG-LIVED

114m- 49- 1

$^{114}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-114 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{114}_{49}$In

$T_{1/2}$ =71.90s
$\langle E_\beta \rangle$ PER DECAY =1000.
$\langle E_\gamma \rangle$ PER DECAY =387.5

Q_β =2000.
BR_β =.9800

$Q_{\beta+}$=1440.
$BR_{\beta+}$=.02000

$^{114}_{50}$Sn

STABLE OR LONG-LIVED

$^{114}_{48}$Cd

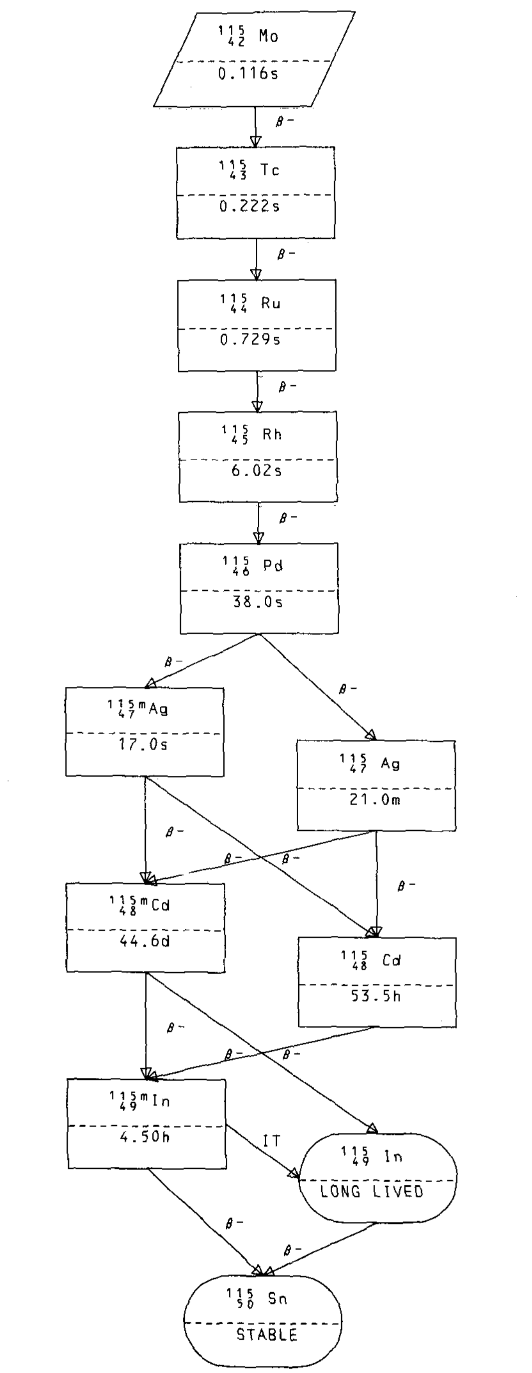
STABLE OR LONG-LIVED

114 - 49- 1

$^{114}_{50}$Sn

$^{114}_{50}$Sn

STABLE OR LONG-LIVED


115 42 Mo
0.116s
β-
115 43 Tc
0.222s
β-
115 44 Ru
0.729s
β-
115 45 Rh
6.02s
β-
115 46 Pd
38.0s
β-
β-
115m 47 Ag
17.0s
115 47 Ag
21.0m
β-
β-
β-
β-
115m 48 Cd
44.6d
115 48 Cd
53.5h
β-
β-
β-
115m 49 In
4.50h
IT
115 49 In
LONG LIVED
β-
β-
115 50 Sn
STABLE

$^{115}_{42}$Mo

ENDF/B-IV FILE 1 COMMENTS
42-MO-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{115}_{42}$Mo

$T_{1/2}$ =.1160s
$\langle E_\beta \rangle$ PER DECAY =3492.
$\langle E_\gamma \rangle$ PER DECAY =3726.

FISSION YIELDS

^{238}U FAST	1.5229×10^{-9}

Q_β =10710.
BR_β =1.000

$^{115}_{43}$Tc

.2225s

115 - 42- 1

$^{115}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{115}_{43}$Tc

$T_{1/2}$ =.2225s
$\langle E_\beta \rangle$ PER DECAY =3092.
$\langle E_\gamma \rangle$ PER DECAY =3232.

FISSION YIELDS

^{235}U THERMAL	7.2652×10^{-9}
^{235}U FAST	2.2211×10^{-8}
^{238}U FAST	1.1685×10^{-6}
^{239}PU THERMAL	3.2460×10^{-9}

Q_β =9530.
BR_β =1.000

$^{115}_{44}$Ru

.7294s

$^{115}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{115}_{44}$Ru

$T_{1/2}$ =.7294s
$\langle E_\beta \rangle$ PER DECAY =2430.
$\langle E_\gamma \rangle$ PER DECAY =2460.

FISSION YIELDS

^{235}U THERMAL	2.7142×10^{-6}
^{235}U FAST	8.8292×10^{-6}
^{238}U FAST	8.2442×10^{-5}
^{239}PU THERMAL	2.8764×10^{-6}

Q_β =7700.
BR_β =1.000

$^{115}_{45}$Rh

6.022s

115 - 44- 1

$^{115}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{115}_{45}$Rh

$T_{1/2}$ =6.022s
$\langle E_\beta \rangle$ PER DECAY =1928.
$\langle E_\gamma \rangle$ PER DECAY =1858.

FISSION YIELDS

^{235}U THERMAL	3.2087×10^{-5}
^{235}U FAST	9.8816×10^{-5}
^{238}U FAST	2.2771×10^{-4}
^{239}PU THERMAL	6.9090×10^{-5}

Q_β =6230.
BR_β =1.000

$^{115}_{46}$Pd

38.00s

$^{115}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{115}_{46}$Pd

$T_{1/2}$ =38.00s
$\langle E_\beta \rangle$ PER DECAY =1329.
$\langle E_\gamma \rangle$ PER DECAY =1251.

FISSION YIELDS

^{235}U THERMAL	6.0973×10^{-5}
^{235}U FAST	1.7932×10^{-4}
^{238}U FAST	1.0803×10^{-4}
^{239}PU THERMAL	2.5976×10^{-4}

Q_β =4280.
BR_β =.2700

Q_β =4530.
BR_β =.7300

$^{115m}_{47}$Ag
17.00s

$^{115}_{47}$Ag
21.00m

115 - 46- 1

$^{115m}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-115M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{115m}_{47}$Ag

$T_{1/2}$ =17.00s
$\langle E_\beta \rangle$ PER DECAY =1015.
$\langle E_\gamma \rangle$ PER DECAY =892.6

FISSION YIELDS

^{235}U THERMAL	2.5114×10^{-6}
^{235}U FAST	6.2910×10^{-6}
^{238}U FAST	8.7592×10^{-7}
^{239}PU THERMAL	1.8067×10^{-5}

Q_β =3330.
BR_β =.2700

Q_β =3510.
BR_β =.7300

$^{115m}_{48}$Cd
44.60d

$^{115}_{48}$Cd
53.50h

$^{115}_{47}$Ag

ENDF/B-IV FILE 1 COMMENTS
47-AG-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{115}_{47}$Ag

$T_{1/2}$ =21.00m
$\langle E_\beta \rangle$ PER DECAY =951.8
$\langle E_\gamma \rangle$ PER DECAY =836.7

FISSION YIELDS

^{235}U THERMAL	3.8021×10^{-6}
^{235}U FAST	6.2910×10^{-6}
^{238}U FAST	8.7592×10^{-7}
^{239}PU THERMAL	1.8317×10^{-5}

Q_β =3080.
BR_β =.08500

$^{115m}_{48}$Cd
44.60d

Q_β =3260.
BR_β =.9150

$^{115}_{48}$Cd
53.50h

115 - 47- 1

$^{115m}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-115M 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

$^{115m}_{48}$Cd

$T_{1/2}$ =44.60d
$\langle E_\beta \rangle$ PER DECAY =463.7
$\langle E_\gamma \rangle$ PER DECAY =388.3

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	$3.5324\times10^{+1}$
WESTCOTT G FACTOR	1.0973
σ CAPTURE 2200M/S	$3.1000\times10^{+1}$
WESTCOTT G FACTOR	1.0000
RESONANCE INTEGRAL TOTAL	$3.0870\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.9610\times10^{+2}$

FISSION YIELDS

^{235}U THERMAL	2.3713×10^{-8}
^{235}U FAST	9.1715×10^{-8}
^{238}U FAST	1.5899×10^{-9}
^{239}PU THERMAL	3.6695×10^{-7}

Q_β =1295.
BR_β =9.000×10^{-5}

$^{115m}_{49}$In
4.500h

Q_β =1630.
BR_β =.9999

$^{115}_{49}$In
$(4.997)\times10^{+14}$y

115m- 48- 1

$^{115}_{48}$Cd

ENDF/B-IV FILE 1 COMMENTS
48-CD-115 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{115}_{48}$Cd

$T_{1/2}$ =53.50h
$\langle E_\beta \rangle$ PER DECAY =317.2
$\langle E_\gamma \rangle$ PER DECAY =265.6

FISSION YIELDS

^{235}U THERMAL	9.0849×10^{-7}
^{235}U FAST	5.6809×10^{-8}
^{238}U FAST	1.9198×10^{-9}
^{239}PU THERMAL	4.0194×10^{-7}

Q_β =1115.
BR_β =1.000

$^{115m}_{49}$In

4.500h

115 - 48- 1

$^{115m}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-115M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{115m}_{49}$In

$T_{1/2}$ =4.500h
$\langle E_\beta \rangle$ PER DECAY =8.366
$\langle E_\gamma \rangle$ PER DECAY =329.3

Q_β =825.0
BR_β =.03700

Q_{IT}=335.0
BR_{IT}=.9630

$^{115}_{50}$ Sn

STABLE OR LONG-LIVED

$^{115}_{49}$ In

$4.997\times10^{+14}$y

$^{115}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-115 HEDL EVAL-OCT74 R.E.SCHENTER AND F.SCHMITTROTH
DIST-NOV74

$^{115}_{49}$In

$T_{1/2}$ =4.997x10^{+14}y
$\langle E_\beta \rangle$ PER DECAY =134.3
$\langle E_\gamma \rangle$ PER DECAY =107.6

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	2.0381x10^{+2}
WESTCOTT G FACTOR	1.0200
σ CAPTURE 2200M/S	2.0209x10^{+2}
WESTCOTT G FACTOR	1.0192
RESONANCE INTEGRAL TOTAL	3.4990x10^{+3}
RESONANCE INTEGRAL CAPTURE	3.2740x10^{+3}

Q_β =490.0
BR_β =1.000

$^{115}_{50}$Sn

STABLE OR LONG-LIVED

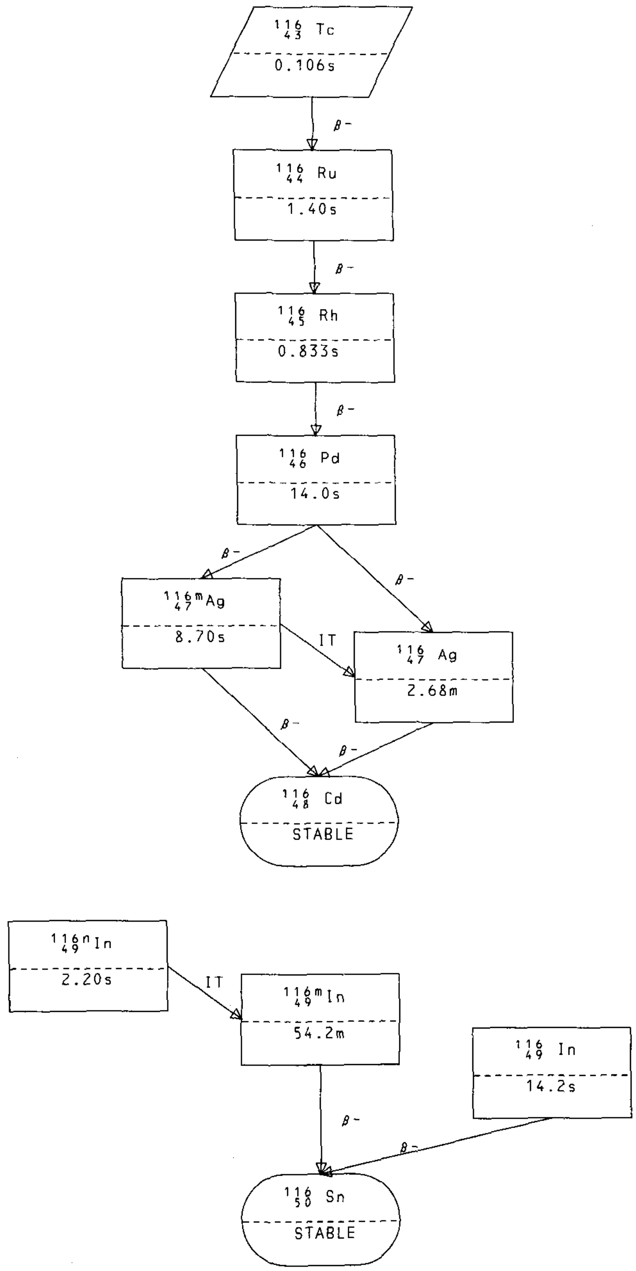
$^{115}_{50}$Sn

$^{115}_{50}$Sn

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	5.4278x10^{+1}
WESTCOTT G FACTOR	1.0318
σ CAPTURE 2200M/S	5.0001x10^{+1}
WESTCOTT G FACTOR	1.0236
RESONANCE INTEGRAL TOTAL	1.2010x10^{+2}
RESONANCE INTEGRAL CAPTURE	2.4500x10^{+1}



$^{116}_{43}$Tc
0.106s
β-
$^{116}_{44}$Ru
1.40s
β-
$^{116}_{45}$Rh
0.833s
β-
$^{116}_{46}$Pd
14.0s
β-
β-
$^{116m}_{47}$Ag
8.70s
IT
$^{116}_{47}$Ag
2.68m
β-
β-
$^{116}_{48}$Cd
STABLE
$^{116n}_{49}$In
2.20s
IT
$^{116m}_{49}$In
54.2m
$^{116}_{49}$In
14.2s
β-
β-
$^{116}_{50}$Sn
STABLE

$^{116}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS

43-TC-116 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{116}_{43}$Tc

$T_{1/2}$ =.1062s
$\langle E_\beta \rangle$ PER DECAY =4238.
$\langle E_\gamma \rangle$ PER DECAY =4025.

FISSION YIELDS

^{235}U FAST	1.4902×10^{-9}
^{238}U FAST	9.4891×10^{-8}

Q_β =12500.
BR_β =1.000

$^{116}_{44}$Ru

1.405s

116 - 43- 1

$^{116}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS

44-RU-116 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{116}_{44}$Ru

$T_{1/2}$ =1.405s
$\langle E_\beta \rangle$ PER DECAY =1724.
$\langle E_\gamma \rangle$ PER DECAY =2005.

FISSION YIELDS

^{235}U THERMAL	4.5525×10^{-7}
^{235}U FAST	1.7603×10^{-6}
^{238}U FAST	2.2618×10^{-5}
^{239}PU THERMAL	4.0894×10^{-7}

Q_β =5840.
BR_β =1.000

$^{116}_{45}$Rh

.8333s

$^{116}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-116 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{116}_{45}$Rh

$T_{1/2}$ =.8333s
$\langle E_\beta \rangle$ PER DECAY =3043.
$\langle E_\gamma \rangle$ PER DECAY =2694.

FISSION YIELDS

^{235}U THERMAL	1.5318×10^{-5}
^{235}U FAST	5.4419×10^{-5}
^{238}U FAST	1.6008×10^{-4}
^{239}PU THERMAL	2.6436×10^{-5}

Q_β =9140.
BR_β =1.000

$^{116}_{46}$Pd

14.00s

$^{116}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-116 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{116}_{46}$Pd

$T_{1/2}$ =14.00s
$\langle E_\beta \rangle$ PER DECAY =751.7
$\langle E_\gamma \rangle$ PER DECAY =817.1

FISSION YIELDS

^{235}U THERMAL	7.5031×10^{-5}
^{235}U FAST	2.4558×10^{-4}
^{238}U FAST	1.8837×10^{-4}
^{239}PU THERMAL	2.3073×10^{-4}

Q_β =2570.
BR_β =.5000

$^{116m}_{47}$Ag

8.70±.20s

Q_β =2820.
BR_β =.5000

$^{116}_{47}$Ag

2.680±.010m

$^{116m}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS
47-AG-116M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{116m}_{47}Ag$

$T_{1/2}$ =8.70±.20s
$\langle E_\beta \rangle$ PER DECAY =1962.
$\langle E_\gamma \rangle$ PER DECAY =1595.

FISSION YIELDS

^{235}U THERMAL	7.3940×10^{-6}
^{235}U FAST	2.2474×10^{-5}
^{238}U FAST	4.2496×10^{-6}
^{239}PU THERMAL	4.0464×10^{-5}

Q_β =6350.
BR_β =.9800

Q_{IT}=250.0
BR_{IT}=.02000

$^{116}_{48}Cd$

STABLE OR LONG-LIVED

$^{116}_{47}Ag$

2.680±.010m

116m- 47- 1

$^{116}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS
47-AG-116 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

$^{116}_{47}Ag$

$T_{1/2}$ =2.680±.010m
$\langle E_\beta \rangle$ PER DECAY =2185.
$\langle E_\gamma \rangle$ PER DECAY =709.6

FISSION YIELDS

^{235}U THERMAL	7.3940×10^{-6}
^{235}U FAST	2.2474×10^{-5}
^{238}U FAST	4.2496×10^{-6}
^{239}PU THERMAL	4.0464×10^{-5}

Q_β =6300.
BR_β =1.000

$^{116}_{48}Cd$

STABLE OR LONG-LIVED

$^{116}_{48}$Cd

$^{116}_{48}$Cd	
STABLE OR LONG-LIVED	
CROSS SECTIONS (BARNS)	
σ TOTAL 2200M/S	4.3076
WESTCOTT G FACTOR	1.1267
σ CAPTURE 2200M/S	7.7139×10^{-2}
WESTCOTT G FACTOR	1.0234
RESONANCE INTEGRAL TOTAL	$9.3870\times10^{+1}$
RESONANCE INTEGRAL CAPTURE	2.4380
FISSION YIELDS	
^{235}U THERMAL	4.2223×10^{-7}
^{235}U FAST	1.1702×10^{-6}
^{238}U FAST	4.6496×10^{-8}
^{239}PU THERMAL	4.3694×10^{-6}

116 - 48- 1

$^{116n}_{49}$In

ENDF/B-IV FILE 1 COMMENTS
49-IN-116N HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
OIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{116n}_{49}$In

$T_{1/2}$ =2.200s
$\langle E_\gamma \rangle$ PER DECAY =250.0

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

$^{116m}_{49}$In

54.20m

$^{116m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-116M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{116m}_{49}In$

$T_{1/2}$ =54.20m
$\langle E_\beta \rangle$ PER DECAY =1011.
$\langle E_\gamma \rangle$ PER DECAY =727.6

FISSION YIELDS
^{239}PU THERMAL 3.1996x10^{-9}

Q_β =3380.
BR_β =1.000

$^{116}_{50}Sn$

STABLE OR LONG-LIVED

116m- 49- 1

$^{116}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-116 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{116}_{49}In$

$T_{1/2}$ =14.20s
$\langle E_\beta \rangle$ PER DECAY =992.7
$\langle E_\gamma \rangle$ PER DECAY =714.7

FISSION YIELDS
^{239}PU THERMAL 3.1996x10^{-9}

Q_β =3320.
BR_β =1.000

$^{116}_{50}Sn$

STABLE OR LONG-LIVED

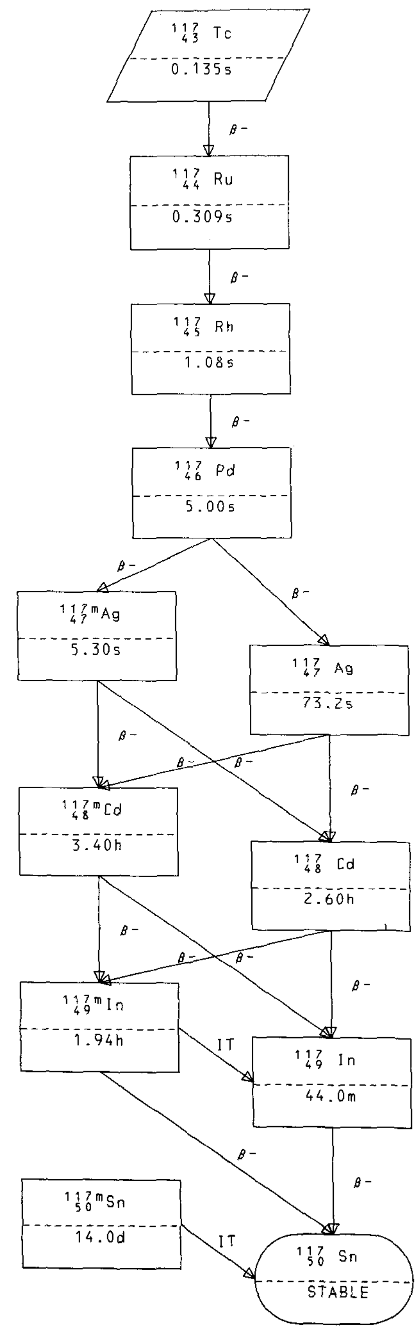
$^{116}_{50}Sn$

$^{116}_{50}Sn$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	4.1001
WESTCOTT G FACTOR	1.1248
σ CAPTURE 2200M/S	1.2112×10^{-1}
WESTCOTT G FACTOR	1.0066
RESONANCE INTEGRAL TOTAL	$1.1810 \times 10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.1740 \times 10^{+1}$


$^{117}_{43}$Tc
0.135s
β-
$^{117}_{44}$Ru
0.309s
β-
$^{117}_{45}$Rh
1.08s
β-
$^{117}_{46}$Pd
5.00s
β-
β-
$^{117m}_{47}$Ag
5.30s
$^{117}_{47}$Ag
73.2s
β-
β-
β-
β-
$^{117m}_{48}$Cd
3.40h
$^{117}_{48}$Cd
2.60h
β-
β-
β-
β-
$^{117m}_{49}$In
1.94h
IT
$^{117}_{49}$In
44.0m
β-
β-
$^{117m}_{50}$Sn
14.0d
IT
$^{117}_{50}$Sn
STABLE

$^{117}_{43}$Tc

ENDF/B-IV FILE 1 COMMENTS
43-TC-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{117}_{43}$Tc

$T_{1/2}$ =.1352s
$\langle E_\beta \rangle$ PER DECAY =3347.
$\langle E_\gamma \rangle$ PER DECAY =3676.

FISSION YIELDS

^{238}U FAST	4.6330×10^{-9}

Q_β =10370.
BR_β =1.000

$^{117}_{44}$Ru

.3089s

117 - 43- 1

$^{117}_{44}$Ru

ENDF/B-IV FILE 1 COMMENTS
44-RU-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
HALF LIFE-R SCHENTER,THEORY(9/73)

$^{117}_{44}$Ru

$T_{1/2}$ =.3089s
$\langle E_\beta \rangle$ PER DECAY =2840.
$\langle E_\gamma \rangle$ PER DECAY =2980.

FISSION YIELDS

^{235}U THERMAL	3.0219×10^{-7}
^{235}U FAST	8.1319×10^{-7}
^{238}U FAST	3.5224×10^{-6}
^{239}PU THERMAL	3.0491×10^{-8}

Q_β =8820.
BR_β =1.000

$^{117}_{45}$Rh

1.076s

$^{117}_{45}$Rh

ENDF/B-IV FILE 1 COMMENTS
45-RH-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

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

$^{117}_{45}$Rh

$T_{1/2}$ =1.076s
$\langle E_\beta \rangle$ PER DECAY =2272.
$\langle E_\gamma \rangle$ PER DECAY =2317.

FISSION YIELDS

^{235}U THERMAL	3.7698×10^{-5}
^{235}U FAST	1.1234×10^{-4}
^{238}U FAST	8.5925×10^{-5}
^{239}PU THERMAL	7.5584×10^{-6}

Q_β =7270.
BR_β =1.000

$^{117}_{46}$Pd
5.0±1.0s

117 - 45- 1

$^{117}_{46}$Pd

ENDF/B-IV FILE 1 COMMENTS
46-PD-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{117}_{46}$Pd

$T_{1/2}$ =5.0±1.0s
$\langle E_\beta \rangle$ PER DECAY =1692.
$\langle E_\gamma \rangle$ PER DECAY =1677.

FISSION YIELDS

^{235}U THERMAL	6.4995×10^{-5}
^{235}U FAST	1.7746×10^{-4}
^{238}U FAST	2.4320×10^{-4}
^{239}PU THERMAL	1.6999×10^{-4}

Q_β =5470.
BR_β =.5000

$^{117m}_{47}$Ag
5.300s

Q_β =5720.
BR_β =.5000

$^{117}_{47}$Ag
73.20s

$^{117m}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS
47-AG-117M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-R SCHENTER,THEORY(9/73)

$^{117m}_{47}Ag$

$T_{1/2}$ =5.300s
$\langle E_\beta \rangle$ PER DECAY =1341.
$\langle E_\gamma \rangle$ PER DECAY =1259.

FISSION YIELDS

^{235}U THERMAL	2.3513×10^{-6}
^{235}U FAST	5.9410×10^{-6}
^{238}U FAST	1.4089×10^{-5}
^{239}PU THERMAL	7.2180×10^{-5}

Q_β =4457.
BR_β =.5000

Q_β =4590.
BR_β =.5000

$^{117m}_{48}Cd$
3.400h

$^{117}_{48}Cd$
2.600h

117m- 47- 1

$^{117}_{47}Ag$

ENDF/B-IV FILE 1 COMMENTS
47-AG-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{117}_{47}Ag$

$T_{1/2}$ =73.20s
$\langle E_\beta \rangle$ PER DECAY =1279.
$\langle E_\gamma \rangle$ PER DECAY =1201.

FISSION YIELDS

^{235}U THERMAL	2.3513×10^{-6}
^{235}U FAST	5.9410×10^{-6}
^{238}U FAST	1.4089×10^{-5}
^{239}PU THERMAL	7.2180×10^{-5}

Q_β =4207.
BR_β =.2000

Q_β =4340.
BR_β =.8000

$^{117m}_{48}Cd$
3.400h

$^{117}_{48}Cd$
2.600h

$^{117m}_{48}Cd$

ENDF/B-IV FILE 1 COMMENTS
48-CD-117M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{117m}_{48}Cd$

$T_{1/2}$ =3.400h
$\langle E_\beta \rangle$ PER DECAY =715.7
$\langle E_\gamma \rangle$ PER DECAY =655.3

FISSION YIELDS

^{235}U THERMAL	2.1912×10^{-8}
^{235}U FAST	5.0608×10^{-8}
^{238}U FAST	2.1998×10^{-7}
^{239}PU THERMAL	1.0279×10^{-5}

Q_β =2339.
BR_β =.4400

Q_β =2653.
BR_β =.5600

$^{117m}_{49}In$
1.940h

$^{117}_{49}In$
44.00m

117m- 48- 1

$^{117}_{48}Cd$

ENDF/B-IV FILE 1 COMMENTS
48-CD-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{117}_{48}Cd$

$T_{1/2}$ =2.600h
$\langle E_\beta \rangle$ PER DECAY =634.0
$\langle E_\gamma \rangle$ PER DECAY =580.6

FISSION YIELDS

^{235}U THERMAL	2.1912×10^{-8}
^{235}U FAST	5.0608×10^{-8}
^{238}U FAST	2.1998×10^{-7}
^{239}PU THERMAL	1.0279×10^{-5}

Q_β =2206.
BR_β =.9300

Q_β =2520.
BR_β =.07000

$^{117m}_{49}In$
1.940h

$^{117}_{49}In$
44.00m

$^{117m}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-117M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{117m}_{49}In$

$T_{1/2}$ =1.940h
$\langle E_\beta \rangle$ PER DECAY =262.1
$\langle E_\gamma \rangle$ PER DECAY =374.5

FISSION YIELDS
^{239}PU THERMAL 4.3494×10^{-8}

Q_β =1784.
BR_β =.5300

Q_{IT}=314.0
BR_{IT}=.4700

$^{117}_{50}Sn$
STABLE OR LONG-LIVED

$^{117}_{49}In$
44.00m

117m- 49- 1

$^{117}_{49}In$

ENDF/B-IV FILE 1 COMMENTS
49-IN-117 HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74

$^{117}_{49}In$

$T_{1/2}$ =44.00m
$\langle E_\beta \rangle$ PER DECAY =407.4
$\langle E_\gamma \rangle$ PER DECAY =352.8

FISSION YIELDS
^{239}PU THERMAL 4.3494×10^{-8}

Q_β =1470.
BR_β =1.000

$^{117}_{50}Sn$
STABLE OR LONG-LIVED

$^{117m}_{50}Sn$

ENDF/B-IV FILE 1 COMMENTS
50-SN-117M HEDL EVAL-APR74 R.E.SCHENTER
DIST-NOV74
REFERENCES
QIT-C LEDERER ET AL TABLE OF ISOTOPES 6TH ED

$^{117m}_{50}Sn$

$T_{1/2}$ =14.00d
$\langle E_\gamma \rangle$ PER DECAY =317.0

Q_{IT}=317.0
BR_{IT}=1.000

$^{117}_{50}Sn$

STABLE OR LONG-LIVED

117m- 50- 1

$^{117}_{50}Sn$

$^{117}_{50}Sn$

STABLE OR LONG-LIVED

CROSS SECTIONS (BARNS)

σ TOTAL 2200M/S	6.8406
WESTCOTT G FACTOR	1.0823
σ CAPTURE 2200M/S	2.6008
WESTCOTT G FACTOR	1.0070
RESONANCE INTEGRAL TOTAL	$1.1220\times10^{+2}$
RESONANCE INTEGRAL CAPTURE	$1.8630\times10^{+1}$