



International Atomic Energy Agency

INDC(NDS)-139/NE

INDC

INTERNATIONAL NUCLEAR DATA COMMITTEE

Proposed Recommended List of Heavy Element Radionuclide Decay Data

Part I. Half-lives

Part II. Alpha Spectra

Part III. Gamma-ray Spectra

December 1982 Edition

(This compilation supersedes the December 1981 Edition
published in INDC(NDS)-127/NE)

A. Lorenz, editor

Compiled by members of the IAEA
Coordinated Research Programme on the
Measurement and Evaluation of Transactinium
Isotope Decay Data

December 1982

IAEA NUCLEAR DATA SECTION, WAGRAMERSTRASSE 5, A-1400 VIENNA

Reproduced by the IAEA in Austria
February 1983
83-1172

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Introduction

The objective of the IAEA Coordinated Research Programme (CRP) on the Measurement and Evaluation of Transactinium Isotope Nuclear Decay Data, is to arrive at a consistent set of transactinium isotope decay data and their uncertainties (including half-lives, branching fractions and gamma-ray and alpha emission spectra) which would satisfy the requirements identified by the community of data users.

Since the beginning of this activity in 1978, the scope of radionuclides covered has widened to include most radionuclides which occur in or result from the nuclear fuel cycle. The sets of heavy radionuclide decay data, compiled and reviewed by members of the CRP, constitutes the "Proposed Recommended List" presented in this report.

In its present form, the enclosed list of half-lives should be regarded as containing tentatively proposed values. The group recognizes that considerable expertise in the area of half-life measurement and evaluation exists within research groups not directly involved in the preparation of this list. Consequently, this group wishes to elicit as wide a range of comments and criticism as possible on this list of proposed values.

Further reference to the activities of this CRP can be found in the Summary Report of their September 1982 meeting, INDC(NDS)-138/NE.

List of Half-Lives - December 1982 Edition

The decay data listed in this tabulation are the result of a critical appraisal of the current status of heavy element radionuclide half-lives and branching fractions by members of the IAEA Coordinated Research Programme on Measurement and Evaluation of Transactinium Isotope Decay Data. Members of this Coordinated Research Programme and those who participated in the critical review of the data (referred to below as the "Group") are listed in Appendix 1.

The data compiled in this list have been drawn from the following existing decay data files:

- ENSDF, the Evaluated Nuclear Structure and Decay Data File compiled by the Nuclear Data Project at Oak Ridge,
- the actinide data file of the Idaho National Engineering Laboratory (INEL) which serves as the source file for the decay data part of the ENDF/B compilation, and
- the UK Chemical Nuclear Data Committee Heavy Element Decay Data File, compiled at the AEE Winfrith laboratory.

Whenever warranted, the data have been supplemented or superseded by the latest known measured and/or evaluated values.

At their meeting in September 1982, the Group reviewed the "Proposed Recommended List of Transactinium Isotope Decay Data. Part I. Half-lives (December 1981 Edition)" published in INDC(NDS)-127/NE, in the light of new measurements which have been completed since the October 1981 meeting.

In reviewing the measurements which have been completed since October 1981, the group made the following changes in the recommended list of half-lives:

1. Two new measurements of the ^{238}U spontaneous fission half-life have been reported in the literature:

$(8.16 \pm 0.13) \times 10^{15}$ y H.G. De Carvalho, et al.
Nucl. Instr. and Methods
197(1982)

$(1.05 \pm 0.03) \times 10^{16}$ y Z.N.R. Baptista, et al.
An.Acad.Brasil.Cienc 53(1981)

The group recommended that these results be evaluated before changing the currently accepted value.

2. A new decay measurement by M. Lindner, et al. (J.inorg.nucl.Chem. 43 12 (1981) 3071-3080) of the ^{236}Np nuclide has yielded the following values:

Total half-life :	$(1.55 \times 10^5)\text{y}$	$(\approx + 0.5 \%)$	
Electron capture:	$(1.29 \times 10^6)\text{y}$	$(+ 0.5 \%)$	BF=.88
Beta decay :	$(1.76 \times 10^5)\text{y}$	$(+ 0.2 \%)$	BF=.12
Alpha decay :	$(9.5 \times 10^7)\text{y}$	$(+ 2.6 \%)$	BF=.002

The group decided to accept these new values.

3. The new half-life value for ^{237}Pu , as measured by R. Vaninbroux of (45.17 ± 0.06) d was accepted by the group.
4. A new ^{238}Pu half-life measurement by V.D. Sevastianov and V.P. Yanin in the USSR was reported in the literature (Nuclear Constants 5(44) (1981)). The group recommended that this new measurement, yielding an evaluated value of 86.96 ± 0.55 years, be evaluated before changing the currently accepted value.
5. With regard to the recent ^{242}Cm half-life measurement by R. Vaninbroux yielding a value of (162.94 ± 0.06) d, the group decided to wait for the results of the ongoing Harwell measurement, so as to resolve the low value obtained in the recent Japanese measurement. It was proposed to have this measurement repeated by CBNM and Harwell, using the sample used in the Japanese measurement.
6. On the basis of the assessment by H.H. Knitter (CBNM) of the spontaneous fission half-lives measured by H.R. von Gunten, et al., (Phys.Rev.C23.1110(1981)) (see INDC(NDS)-126/NE, page 4, and Action # 13 from the October 1981 CRP meeting), the spontaneous fission half-life of $(9.8 \pm 2.8) \cdot 10^{18}\text{y}$ supersedes the earlier value of $(3.5 \pm 0.9) \cdot 10^{17}\text{y}$.

Provisional Lists of Alpha and Gamma-ray Spectra

December 1982 Edition

The alpha and gamma-ray spectra of the heavy element radionuclides given in this report consist of values published in the Nuclear Data Sheets journal, supplemented where warranted by values from the Table of Isotopes (7th Edition), and represent the current status of the published evaluated data. Recommended alpha and gamma-ray spectra for these radionuclides will replace these provisional values after an evaluation of new and on-going measurements will have been performed by the group.

DESCRIPTION OF TABLE ENTRIES

<u>Decay mode:</u>	A	Alpha decay	IT	Isomeric transition
	B-	Beta decay	SF	Spontaneous fission
	EC	Electron capture	T	total half-life (derived from partial half-lives)

<u>Units</u>	:	MS	millisecond	H	hour
		S	second	D	day
		M	minute	Y	year (= 365.2422 days)

Half-life data: expressed in commonly accepted units

Half-life uncertainties:

In ascribing uncertainties to the recommended half-life values, the group adopted the following criteria:

- the total uncertainty be defined as "1 sigma random error plus 1/3 the linear sum of the systematic errors based on a statistical confidence level of 68.3 %", and that
- the total uncertainty be in no case lower than 0.1 %.

It must be noted that not all assigned uncertainties have an experimental basis.

Percent uncertainty: calculated quantity; number of significant figures provides visual check of data consistency

Branching Fractions: defined such that the total decay probability for all modes of decay does not exceed unity.

Reference: identification of data origin, given at end of each table

Comments for the Half-lives Table:

- A Half-life derived from branching fraction
- B Branching fraction derived from half-life
- C Total half-life as defined here equals partial half-life multiplied by branching fraction.
- D Published error value increased to comply with the minimum 0.1 % uncertainty criterion adopted by the members of the coordinated research programme.

Comments for the Gamma-ray Spectra Table

- A Absolute values
- R1 I_{γ} normalized to 1.21 per decay at 84.371 KeV
- R2 I_{γ} normalized to 2.7 per decay at 86.5 KeV

Appendix 1

PARTICIPANTS IN THE REVIEW OF THE DATA

Participants in the Coordinated Research Programme are indicated by an asterisk.

- | | |
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NUCLIDE	DECAY* MODE	* UNITS	HALF-LIFE			BRANCHING FRACTION			* COMMENT
			DATA	UNCERTAINTY	PER-CENT REFERENCE	DATA	UNCERTAINTY	PER-CENT REFERENCE	
80-HG-206	B-	M	(8.15	+ 0.10	)	1.227	NI7801	*	*
81-TL-206	B-	M	(4.20	+ 0.02	)	0.476	NI7802	*	*
81-TL-206M1	IT	M	(3.8	+ 0.2	)	5.263	NI7802	*	*
81-TL-207	B-	M	(4.77	+ 0.03	)	0.629	NI7801	*	*
81-TL-207M1	IT	S	(1.33	+ 0.11	)	8.271	NI7801	*	*
81-TL-208	B-	M	(3.053	+ 0.004	)	0.131	NI7802	*	*
81-TL-209	B-	M	(2.20	+ 0.07	)	3.182	NI7801	*	*
81-TL-210	B-	M	(1.30	+ 0.03	)	2.308	NI7802	*	*
82-PB-205	EC	Y	(1.4	+ 0.1	)E+7	7.143	NI7802	*	*
82-PB-209	B-	H	(3.253	+ 0.014	)	0.430	NI7801	*	*
82-PB-210	A	Y	(1.01	+ 0.32	)E+9	31.683	NI7802	*	*
82-PB-210	B-	Y	(22.2	+ 0.2	)	0.901	NI7802	*	*
82-PB-211	B-	M	(36.1	+ 0.2	)	0.554	NI7801	*	*
82-PB-212	B-	H	(10.64	+ 0.01	)	0.094	NI7802	*	*
82-PB-214	B-	M	(26.8	+ 0.9	)	3.358	NI7801	*	*
83-BI-210	A	Y	(1.056	+ 0.081	)E+4	7.670	NI7802	*	*
83-BI-210	B-	D	(5.013	+ 0.005	)	0.100	NI7802	*	*
83-BI-210M1	A	Y	(3.0	+ 0.2	)E+6	4.667	NI7802	*	*
83-BI-211	A	M	(2.17	+ 0.04	)	1.843	NI7801	*	*
83-BI-211	B-	H	(13.25	+ 0.28	)	2.113	NI7801	*	*
83-BI-212	T	M	(60.60	+ 0.05	)	0.083	NI7802	*	*
83-BI-212	A	M	(168.8	+ 0.5	)	0.294	NI7802	*	*
83-BI-212	B-	M	(94.54	+ 0.17	)	0.180	NI7802	*	*
83-BI-212M1	T	M	(25.	+ 1.0	)	4.000	NI7802	*	*
83-BI-212M1	A	M	(26.9	+ 1.6	)	5.948	NI7802	*	*
83-BI-212M1	B-	M	(357.	+ 204.	)	57.143	NI7802	*	*
83-BI-212M2	B-	M	(9.	+ 1.	)	11.111	NI7802	*	*
83-BI-213	T	M	(45.59	+ 0.06	)	0.132	NI7802	*	*
83-BI-213	A	H	(35.18	+ 2.12	)	6.026	NI7802	*	*
83-BI-213	B-	M	(46.60	+ 0.09	)	0.193	NI7802	*	*
83-BI-214	A	D	(65.8	+ 3.4	)	5.167	NI7802	*	*
83-BI-214	B-	M	(19.9	+ 0.4	)	2.010	NI7802	*	*

83-BI-214

*** 1 ***

83-BI-214

NUCLIDE	DECAY* MODE *	UNITS	HALF-LIFE			PER-CENT	REFERENCE *	BRANCHING FRACTION			PER-CENT	REFERENCE	* COMMENT	
			DATA	UNCERTAINTY				DATA	UNCERTAINTY					
83-BI-215	B- *	M	(7.4	+ 0.6	)	8.108	NI7801	*				*		
84-PO-209	A *	Y	(102.0	+ 5.0	)	4.902	NI7802	*	(0.9974	+ 0.0001	)	0.010	NI7802	*
84-PO-209	EC *	Y	(392.3	+ 24.4	)	6.220	NI7802	*	(2.6	+ 0.1	)E-3	3.846	NI7802	* A
84-PO-210	A *	D	(138.4	+ 0.2	)	0.145	NI7802	*						*
84-PO-211	A *	S	(0.516	+ 0.003	)	0.581	NI7801	*						*
84-PO-211M1	A *	S	(25.5	+ 0.3	)	1.176	NI7801	*	(0.998	+ 0.002	)	0.200	NI7801	*
84-PO-212	A *	S	(3.00	+ 0.05	)E-7	1.667	NI7802	*						*
84-PO-212M1	A *	S	(45.1	+ 0.6	)	1.330	NI7802	*	(1.000	+ 0.015	)	1.500	NI7802	*
84-PO-213	A *	S	(4.2	+ 0.8	)E-6	19.048	NI7802	*						*
84-PO-214	A *	MS	(0.165	+ 0.003	)	1.818	NI7801	*						*
84-PO-215	A *	MS	(1.78	+ 0.01	)	0.562	NI7801	*	1.0					*
84-PO-215	R- *	S	(445.	+ 445.	)	100.000	NI7801	*	(4.	+ 2.	)E-6	50.000	NI7801	* A
84-PO-216	A *	S	(0.15	+ 0.01	)	6.667	NI7801	*						*
84-PO-218	A *	M	(3.05	+ 0.09	)	2.951	NI7801	*	(0.9998	+ 0.0001	)	0.010	NI7801	*
84-PO-218	B- *	D	(10.6	+ 5.3	)	50.000	NI7801	*	(2.	+ 1.	)E-4	50.000	NI7801	* A
85-AT-215	A *	MS	(0.1	+ 0.02	)	20.000	NI7801	*						*
85-AT-217	A *	S	(0.0323	+ 0.0004	)	1.238	NI7802	*	(0.99988	+ 0.00004	)	0.004	NI7802	*
85-AT-217	B- *	S	(270.	+ 90.	)	33.333	NI7802	*	(1.2	+ 0.4	)E-4	33.333	NI7802	* A
85-AT-218	A *	S	(1.6	+ 0.4	)	25.000	NI7801	*	(0.999	+ 0.001	)	0.100	NI7801	*
85-AT-218	B- *	M	(26.7	+ 26.7	)	100.000	NI7801	*	(1.	+ 1.	)E-3	100.000	NI7801	* A
85-AT-219	T *	M	(0.9	+ 0.1	)	11.111	NI7801	*						*
85-AT-219	A *	M	(0.928	+ 0.104	)	11.207	NI7801	*	(0.97	+ 0.01	)	1.031	NI7801	* A
85-AT-219	B- *	M	(30.	+ 10.	)	33.333	NI7801	*	(0.03	+ 0.01	)	33.333	NI7801	* A
86-RN-217	A *	S	(5.4	+ 0.5	)E-4	9.259	NI7802	*						*
86-RN-218	A *	MS	(35.0	+ 6.0	)	17.143	NI7801	*						*
86-RN-219	A *	S	(3.96	+ 0.05	)	1.263	NI7801	*						*
86-RN-220	A *	S	(55.6	+ 0.1	)	0.180	NI7801	*						*
86-RN-222	A *	D	(3.825	+ 0.004	)	0.105	NI7801	*						*
87-FR-221	A *	M	(4.9	+ 0.2	)	4.082	NI7802	*						*
87-FR-223	A *	D	(252.	+ 42.	)	16.667	NI7802	*	(6.	+ 1.	)E-5	16.667	NI7802	* A
87-FR-223	B- *	M	(21.8	+ 0.4	)	1.835	NI7802	*	(0.99994	+ 0.00001	)	0.001	NI7802	*
87-FR-223						***	2	***						

NUCLIDE	DECAY* MODE * UNITS	HALF-LIFE			PFR-CENT	REFERENCE	BRANCHING FRACTION				* COMMENT		
		DATA	UNCERTAINTY				DATA	UNCERTAINTY	PER-CENT	REFERENCE			
88-RA-223	A * D	(11.43	+ 0.02	)	0.175	NI7801	*				*	
88-RA-224	A * D	(3.66	+ 0.04	)	1.093	NI7801	*				*	
88-RA-225	B * D	(14.8	+ 0.2	)	1.351	NI7802	*				*	
88-RA-226	A * Y	(1.600	+ 0.007	)E+3	0.438	NI7801	*				*	
88-RA-228	B * Y	(5.75	+ 0.03	)	0.522	NI7801	*				*	
89-AC-225	A * D	(10.0	+ 0.1	)	1.000	NI7802	*				*	
89-AC-227	T * Y	(21.77	+ 0.03	)	0.138	NI7802	*				* C	
89-AC-227	A * Y	(1578.	+ 11.)	0.697	NI7802	*	(0.0138	+ 0.0001)	0.725	NI7802	* A
89-AC-227	B * Y	(22.07	+ 0.03)	0.136	NI7802	*	(0.9862	+ 0.0001)	0.010	NI7802	* A
89-AC-228	B * H	(6.13	+ 0.09	)	1.468	NI7801	*					*
90-TH-227	A * D	(18.718	+ 0.020	)	0.107	NI7802	*					*
90-TH-228	A * Y	(1.913	+ 0.002	)	0.105	DF8001	*					* D
90-TH-229	A * Y	(7.34	+ 0.16	)E+3	2.180	NI7802	*					*
90-TH-230	A * Y	(7.54	+ 0.03	)E+4	0.398	ME7901	*	1.0				*
90-TH-230	SF * Y	(1.5	+ 1.5)E+17	100.000	LE7801	*	(5.0	+ 5.0)E-13	100.000		* B
90-TH-231	R * H	(25.52	+ 0.03	)	0.118	NI7801	*					*
90-TH-232	A * Y	(1.405	+ 0.006	)E+10	0.427	DF8001	*	1.0				*
90-TH-232	SF * Y	1.E+21				LE7801	*	1.405E-11				* R	
90-TH-233	B * M	(22.3	+ 0.2	)	0.897	NI7802	*					*
90-TH-234	B * D	(24.10	+ 0.03	)	0.124	NI7801	*					*
90-TH-235	B * M	(6.9	+ 0.2	)	2.899	NI7801	*					*
91-PA-231	A * Y	(3.276	+ 0.011	)E+4	0.336	DF8001	*	1.0				*
91-PA-231	SF * Y	1.1E+16				LE7801	*	3.0E-12				* B	
91-PA-232	B * D	(1.31	+ 0.02	)	1.527	DF8001	*	1.0				*
91-PA-232	EC * Y	(120.0	+ 40.0)	33.333	NI7802	*	(3.	+ 1.)E-5	33.333	NI7802	*
91-PA-233	B * D	(27.0	+ 0.1	)	0.370	DF8001	*					*
91-PA-234	B * H	(6.70	+ 0.05	)	0.746	NI7802	*					*
91-PA-234M1	R * M	(1.17	+ 0.01)	0.855	NI7802	*	(0.9987	+ 0.0002)	0.020	NI7802	*
91-PA-234M1	IT * H	(15.	+ 2.3)	15.333	NI7802	*	(0.0013	+ 0.0002)	15.385	NI7802	* A
91-PA-235	B * M	(24.2	+ 0.3	)	1.240	NI7801	*					*

NUCLIDE	DECAY* MODE * UNITS	HALF-LIFE				BRANCHING FRACTION				* COMMENT		
		DATA	UNCERTAINTY	PER-CENT	REFERENCE	DATA	UNCERTAINTY	PER-CENT	REFERENCE			
92-U -232	A * Y	(69.8	+ 1.0	)	1.433	H08101	* 1.0			* A	
92-U -232	SF * Y	(78.	+ 60.	)E+12	76.923	RE7801	* (0.9	+ 0.7	)E 12	77.778 RE7801	* A
92-U -233	A * Y	(1.592	+ 0.002	)E+5	0.126	DF8001	* 1.0				* A
92-U -233	SF * Y	(1.2	+ 0.3	)E+17	25.000	RE7801	* (1.3	+ 0.3	)E-12	23.077 RE7801	* A
92-U -234	A * Y	(2.454	+ 0.006	)E+5	0.244	H08101	* 1.0				* B
92-U -234	SF * Y	(1.42	+ 0.08	)E+16	5.634	G08101	* (1.73	+ 0.10	)E-11	5.780	* B
92-U -235	A * Y	(7.037	+ 0.011	)E+8	0.156	H08101	* 1.0				* B
92-U -235	SF * Y	(9.8	+ 2.8	)E+18	28.571	G08101	* (7.18	+ 2.05	)E-11	28.552	* B
92-U -235M1	IT * M	(26.	+ 2.	)	7.692	NI7801	*				
92-U -236	A * Y	(2.342	+ 0.003	)E+7	0.128	H08101	* 1.0				* B
92-U -236	SF * Y	(2.43	+ 0.13	)E+16	5.350	G08101	* (9.64	+ 0.52	)E-10	5.394	* B
92-U -237	B- * D	(6.75	+ 0.01	)	0.148	DF8001	*				
92-U -238	A * Y	(4.468	+ 0.005	)E+9	0.112	H08101	* 1.0				* B
92-U -238	SF * Y	(8.19	+ 0.09	)E+15	1.099	RE7801	* (5.45	+ 0.06	)E-7	1.101	* B
92-U -239	B- * M	(23.54	+ 0.05	)	0.212	DF8001	*				
92-U -240	B- * H	(14.1	+ 0.2	)	1.418	NI7801	*				
93-NP-236	T * Y	(1.55	+ 0.01	)E+5	0.645	LI8201	*				* C
93-NP-236	A * Y	(9.5	+ 2.5)E+7	26.316	LI8201	* (0.0020	+ 0.0005)	25.000	LI8201	* A
93-NP-236	B- * Y	(1.290	+ 0.007)E+6	0.543	LI8201	* (0.1200	+ 0.0002)	0.167	LI8201	* A
93-NP-236	EC * Y	(1.760	+ 0.004)E+5	0.227	LI8201	* (0.911	+ 0.020)	2.195	LI8201	* A
93-NP-236M1	T * H	(22.5	+ 0.4	)	1.778	DF8001	*				* C
93-NP-236M1	B- * H	(46.88	+ 1.28)	2.730	DF8001	* (0.48	+ 0.01)	2.083	DF8001	* A
93-NP-236M1	EC * H	(43.27	+ 1.13)	2.612	DF8001	* (0.52	+ 0.01)	1.923	DF8001	* A
93-NP-237	A * Y	(2.14	+ 0.01	)E+6	0.467	DF8001	* 1.0				* B
93-NP-237	SF * Y	1.E+18				LE7801	* 2.14E-12				* B	
93-NP-238	B- * D	(2.117	+ 0.002	)	0.094	DF8001	*				
93-NP-239	B- * D	(2.355	+ 0.004	)	0.170	DF8001	*				
93-NP-240	B- * M	(65.	+ 3.	)	4.615	NI7801	*				
93-NP-240M1	B- * M	(7.4	+ 0.2)	2.703	NJ7801	* (0.9989	+ 0.0003)	0.030	NI7801	* A
93-NP-240M1	IT * D	(4.68	+ 1.34)	28.632	NI7801	* (0.0011	+ 0.0003)	27.273	NI7801	* A
93-NP-241	B- * M	(16.	+ 0.2	)	1.250	NI7801	*				
94-PU-236	A * Y	(2.851	+ 0.008	)	0.281	DF8001	* 1.0				* B
94-PU-236	SF * Y	(3.52	+ 1.	)E+9	28.409	LE7801	* (8.1	+ 2.3	)E-10	28.395	* B
94-PU-237	A * Y	(3.77	+ 0.34)E+3	9.019	LE7801	* (0.000033	+ 0.000003)	9.091	LE7801	* A

NUCLIDE	DECAY* MODE * UNITS	DATA	HALF-LIFE		PER-CENT	REFERENCE	*	BRANCHING FRACTION			*		
			UNCERTAINTY					DATA	UNCERTAINTY	PER-CENT		REFERENCE	COMMENT
94-FU-237	EC * D	(45.17	+ 0.06	)	0.133	VAB201	*	0.9999			LE7801	*
94-FU-238	A * Y	(87.74	+ 0.09	)	0.103	DF8001	*	1.0				* D
94-FU-238	SF * Y	(4.77	+ 0.13)E+10	2.725	RE7801	*	(1.84	+ 0.05)E-9	2.717	RE7801	* A
94-FU-239	A * Y	(2.4119	+ 0.0026	)E+4	0.108	ST7801	*	1.0				*
94-FU-239	SF * Y	5.5E+15				RE7801	*	4.4E-12			RE7801	* A	
94-FU-240	A * Y	(6.537	+ 0.010	)E+3	0.153	DF8001	*	1.0				*
94-FU-240	SF * Y	(1.2	+ 0.1)E+11	8.333	TDB101	*	(5.7	+ 0.2)E-8	3.509	TDB101	* B
94-FU-241	A * Y	(6.00	+ 0.25)E+5	4.167	LE7801	*	(2.45	+ 0.08)E-5	3.265	LE7801	* A
94-FU-241	B- * Y	(14.4	+ 0.2	)	1.389	TDB101	*	0.999			TDB101	*
94-FU-242	A * Y	(3.76	+ 0.02	)E+5	0.532	DF8001	*	1.0				*
94-FU-242	SF * Y	(6.84	+ 0.08)E+10	1.170	RE7801	*	(5.5	+ 0.06)E-6	1.091	RE7801	* A
94-FU-243	B- * H	(4.956	+ 0.005	)	0.101	DF8001	*					* D
94-FU-244	A * Y	(8.26	+ 0.09	)E+7	1.090	DF8001	*	1.0				* D
94-FU-244	SF * Y	(6.56	+ 0.32)E+10	4.878	RE7801	*	(1.25	+ 0.06)E-3	4.800	RE7801	* A
94-FU-245	B- * H	(10.5	+ 0.1	)	0.952	NI7801	*					*
94-FU-246	B- * D	(10.85	+ 0.02	)	0.184	NI7801	*					*
95-AM-240	A * Y	(3.05	+ 1.12)E+3	36.721	NI7801	*	(1.9	+ 0.7)E-6	36.842	NI7801	* A
95-AM-240	EC * H	(50.8	+ 0.3	)	0.591	NI7801	*	1.0				*
95-AM-241	A * Y	(432.2	+ 0.5	)	0.116	DF8001	*	1.0				*
95-AM-241	SF * Y	(1.06	+ 0.03)E+14	2.830	RE7801	*	(4.1	+ 0.1)E-12	2.439	RE7801	* A
95-AM-242	T * H	(16.01	+ 0.02	)	0.125	LE7801	*					* C
95-AM-242	B- * H	(19.36	+ 0.07)	0.362	LE7801	*	(0.827	+ 0.003)	0.363	LE7801	* A
95-AM-242	EC * H	(92.5	+ 1.6)	1.730	LE7801	*	(0.173	+ 0.003)	1.734	LE7801	* A
95-AM-242M1	A * Y	(3.13	+ 0.15)E+4	4.792	ZE7901	*	(4.5	+ 0.2)E-3	4.444	ZE7901	* A
95-AM-242M1	SF * Y	(8.8	+ 3.3)E+11	37.500	RE7801	*	(1.6	+ 0.6)E-10	37.500	RE7801	* A
95-AM-242M1	IT * Y	(141.	+ 2.)	1.418	ZE7901	*	0.9955				ZE7901	*
95-AM-243	A * Y	(7.38	+ 0.04	)E+3	0.542	DF8001	*	1.0				*
95-AM-243	SF * Y	(3.35	+ 0.31)E+13	9.254	RE7801	*	(2.2	+ 0.2)E-10	9.091	RE7801	* A
95-AM-244	B- * H	(10.1	+ 0.1	)	0.990	DF8001	*					*
95-AM-244M1	B- * M	26.				NI7801	*	(0.99959	+ 0.00003)	0.003	NI7801	*
95-AM-244M1	EC * D	44.				NI7801	*	(4.1	+ 0.3)E-4	7.317	NI7801	* A
95-AM-245	B- * H	(7.05	+ 0.01)	0.488	NI7801	*					*	
95-AM-246	B- * M	(39.	+ 3.)	7.692	NI7801	*					*	
95-AM-246M1	B- * M	(25.	+ 0.2)	0.800	NI7801	*					*	

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96-CN-241

PROPOSED RECOMMENDED HEAVY RADIONUCLIDE HALF-LIVES AND BRANCHING FRACTIONS

NUCLIDE	DECAY* MODE *	UNITS	HALF-LIFE			BRANCHING FRACTION					* COMMENT			
			DATA	UNCERTAINTY	PER-CENT REFERENCE	* DATA	UNCERTAINTY	PER-CENT REFERENCE	* COMMENT					
96-CN-241	T *	D	(32.8	+ 0.2	)	0.610	NI7801	*				* C		
96-CN-241	A *	Y	(8.98	+ 0.90	)	10.022	NI7801	*	(0.010	+ 0.001	)	10.000	NI7801	* A
96-CN-241	EC *	D	(33.1	+ 0.2	)	0.604	NI7801	*	(0.990	+ 0.001	)	0.101	NI7801	* A
96-CN-242	A *	D	(162.8	+ 0.4	)	0.246	DFB001	*	1.0					* *
96-CN-242	SF *	Y	(6.5	+ 0.6	)E+6	9.231	RE7801	*	(6.8	+ 0.6	)E-8	8.824	RE7801	* A
96-CN-243	T *	Y	(28.5	+ 0.2	)	0.707	EL7601	*						* C
96-CN-243	A *	Y	(28.6	+ 0.2	)	0.699	NI7801	*	(0.9976	+ 0.0004	)	0.040	NI7801	* A
96-CN-243	EC *	Y	(1.19	+ 0.20	)E+4	16.807	NI7801	*	(0.0024	+ 0.0004	)	16.667	NI7801	* A
96-CN-244	A *	Y	(18.11	+ 0.02	)	0.110	DFB001	*	1.0					* *
96-CN-244	SF *	Y	(1.344	+ 0.002	)E+7	0.149	RE7801	*	(1.347	+ 0.002	)E-6	0.148	RE7801	* A
96-CN-245	A *	Y	(8500.	+ 100.	)	1.176	EL7601	*						* *
96-CN-246	A *	Y	(4.73	+ 0.1	)E+3	2.114	DFB001	*	1.0					* *
96-CN-246	SF *	Y	(1.81	+ 0.04	)E+7	2.210	RE7801	*	(2.614	+ 0.005	)E-4	0.191	RE7801	* A
96-CN-247	A *	Y	(1.56	+ 0.05	)E+7	3.205	NI7801	*						* *
96-CN-248	T *	Y	(3.397	+ 0.032	)E+5	0.942	RE7801	*						* C
96-CN-248	A *	Y	(3.703	+ 0.035	)E+5	0.945	RE7801	*	(0.9174	+ 0.0003	)	0.033	RE7801	* A
96-CN-248	SF *	Y	(4.113	+ 0.041	)E+6	0.997	RE7801	*	(0.0826	+ 0.0003	)	0.363	RE7801	* A
96-CN-249	B- *	M	(64.15	+ 0.07	)	0.109	NI7801	*						* *
96-CN-250	SF *	Y	(1.13	+ 0.05	)E+4	4.425	LE7801	*						* *
97-BK-249	T *	D	(320.	+ 6.	)	1.875	LE7801	*						* C
97-BK-249	A *	Y	(6.04	+ 0.35	)E+4	5.795	LF7801	*	(1.45	+ 0.08	)E-5	5.517	LE7801	* A
97-BK-249	SF *	Y	(1.864	+ 0.087	)E+9	4.667	RF7801	*	(4.6	+ 0.2	)E-10	4.348	RE7801	* A
97-BK-250	B- *	H	(3.217	+ 0.004	)	0.124	RE8001	*						* *
98-CF-249	A *	Y	(350.6	+ 2.1	)	0.599	DFB001	*	1.0					* *
98-CF-249	SF *	Y	(6.98	+ 0.15	)E+10	2.149	RE7801	*	(5.2	+ 0.1	)E-9	1.923	RE7801	* A
98-CF-250	A *	Y	(13.08	+ 0.09	)	0.688	DFB001	*	1.0					* *
98-CF-250	SF *	Y	(1.70	+ 0.07	)E+4	4.118	RE7801	*	(7.7	+ 0.3	)E-4	3.896	RE7801	* A
98-CF-251	A *	Y	(898.	+ 44.	)	4.900	NI7801	*						* *
98-CF-252	T *	Y	(2.638	+ 0.010	)	0.379	DFB001	*						* C
98-CF-252	A *	Y	(2.72	+ 0.01	)	0.368	RE7801	*	(0.96908	+ 0.00008	)	0.008	RE7801	* A
98-CF-252	SF *	Y	(85.38	+ 0.39	)	0.457	RE7801	*	(0.03092	+ 0.00008	)	0.259	RE7801	* A
98-CF-253	T *	D	(17.81	+ 0.08	)	0.449	NI7801	*						* C
98-CF-253	A *	Y	(15.73	+ 2.03	)	12.905	NI7801	*	(0.0031	+ 0.0004	)	12.903	NI7801	* A
98-CF-253	B- *	D	(17.86	+ 0.08	)	0.448	NI7801	*	(0.9969	+ 0.0004	)	0.040	NI7801	* A
99-ES-253	A *	D	(20.4	+ 0.1)	0.490	KU8001	*	1.0				KU8001	* *
99-ES-253	SF *	Y	(6.42	+ 0.22)E+5	3.427	RE7801	*	(8.7	+ 0.3)E-8	3.448	RE7801	* A

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Heavy Radionuclide Half-Lives and Branching Ratios

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NUCLIDE	DECAY* MODF	* LEVEL	ENERGY (KEV)			PER-CENT	REFERENCE	EMISSION PROBABILITY			* COMMENT		
			DATA	UNCERTAINTY				DATA	UNCERTAINTY	PER CENT REFERENCE			
90-TH-228	A	* 84	(5340.54	+- 0.15	)	0.003	H07601	* (0.267	+- 0.002	)	0.749	H07601	*
90-TH-228	A	* 0	(5423.33	+- 0.22	)	0.004	H07601	* (0.727	+- 0.010	)	1.376	H07601	*
		*											*
90-TH-229	A	* 285	(4797.8	+- 1.2	)	0.025	T07801	* 0.0127				T07801	*
90-TH-229	A	* 268	(4814.6	+- 1.2	)	0.025	T07801	* (0.0930	+- 0.0008	)	0.860	T07801	*
90-TH-229	A	* 244	4837.				T07801	* 0.048				T07801	*
90-TH-229	A	* 236	(4845.3	+- 1.2	)	0.025	T07801	* (0.562	+- 0.002	)	0.356	T07801	*
90-TH-229	A	* 180	(4901.0	+- 1.2	)	0.024	T07801	* (0.1020	+- 0.0008	)	0.784	T07801	*
90-TH-229	A	* 112	(4967.5	+- 1.2	)	0.024	T07801	* (0.0597	+- 0.0006	)	1.005	T07801	*
90-TH-229	A	* 101	(4978.5	+- 1.2	)	0.024	T07801	* (0.0317	+- 0.0004	)	1.262	T07801	*
90-TH-229	A	* 30	5050.				T07801	* 0.052				T07801	*
90-TH-229	A	* 25	5052.				T07801	* 0.016				T07801	*
		*											*
90-TH-230	A	* 68	(4621.0	+- 1.5	)	0.032	EL7703	* (0.234	+- 0.001	)	0.427	EL7701	*
90-TH-230	A	* 0	(4687.5	+- 1.5	)	0.032	EL7703	* (0.763	+- 0.003	)	0.393	EL7701	*
		*											*
91-PA-231	A	* 387	(4680.	+- 3.	)	0.064	LE7801	* (0.021	+- 0.002	)	9.524	LE7801	*
91-PA-231	A	* 354	(4709.	+- 3.	)	0.064	LE7801	* (0.014	+- 0.002	)	14.286	LE7801	*
91-PA-231	A	* 330	(4735.	+- 3.	)	0.063	LE7801	* (0.11	+- 0.03	)	27.273	LE7801	*
91-PA-231	A	* 211	(4852.	+- 3.	)	0.067	LE7801	* (0.014	+- 0.002	)	14.286	LE7801	*
91-PA-231	A	* 127	(4934.	+- 3.	)	0.061	LE7801	* (0.028	+- 0.005	)	17.857	LE7801	*
91-PA-231	A	* 110	(4951.	+- 2.	)	0.040	LE7801	* (0.22	+- 0.04	)	18.182	LE7801	*
91-PA-231	A	* 85	(4984.	+- 3.	)	0.060	LF7801	* (0.023	+- 0.008	)	34.783	LE7801	*
91-PA-231	A	* 46	(5014.	+- 2.	)	0.040	LE7801	* (0.24	+- 0.03	)	12.500	LE7801	*
91-PA-231	A	* 30	(5030.	+- 2.	)	0.040	LE7801	* (0.23	+- 0.04	)	17.391	LE7801	*
91-PA-231	A	* 0	(5059.	+- 2.	)	0.040	LF7801	* (0.10	+- 0.01	)	10.000	LE7801	*
		*											*
92-U -232	A	* 378	(4945.5	+- 2.0	)	0.040	LF7801	* (0.0000017+-	0.0000003)		17.647	LE7801	*
92-U -232	A	* 328	(4997.3	+- 2.0	)	0.040	LE7801	* (0.000029	+- 0.000005	)	17.241	LE7801	*
92-U -232	A	* 187	(5137.3	+- 2.0	)	0.039	LE7801	* (0.0028	+- 0.0002	)	7.143	LE7801	*
92-U -232	A	* 58	(5263.8	+- 1.0	)	0.019	LE7801	* (0.312	+- 0.004	)	1.282	LE7801	*
92-U -232	A	* 0	(5320.7	+- 1.0	)	0.019	LE7801	* (0.686	+- 0.006	)	0.875	LE7801	*
		*											*
92-U -233	A	* 140	(4687.	+- 3.	)	0.064	LE7801	* (0.000028	+- 0.000003	)	10.714	LE7801	*
92-U -233	A	* 125	(4701.	+- 2.	)	0.043	LE7801	* (0.0006	+- 0.00006	)	10.000	LE7801	*
92-U -233	A	* 97	(4729.	+- 2.	)	0.042	LF7801	* (0.0161	+- 0.0042	)	26.087	LE7801	*
92-U -233	A	* 75	(4751.	+- 2.	)	0.042	LE7801	* (0.0001	+- 0.0001	)	100.000	LE7801	*
92-U -233	A	* 72	(4754.	+- 2.	)	0.042	LE7801	* (0.00163	+- 0.00080	)	49.080	LE7801	*
92-U -233	A	* 68	(4758.	+- 2.	)	0.042	LF7801	* (0.00016	+- 0.00002	)	12.500	LE7801	*
92-U -233	A	* 42	(4783.	+- 2.	)	0.042	LE7801	* (0.1323	+- 0.0020	)	1.512	LE7801	*
92-U -233	A	* 29	(4796.	+- 2.	)	0.042	LE7801	* (0.0028	+- 0.0003	)	10.714	LE7801	*
92-U -233	A	* 20	(4804.	+- 3.	)	0.067	LE7801	* (0.00051	+- 0.00005	)	9.804	LE7801	*
92-U -233	A	* 0	(4824.4	+- 2.0	)	0.041	LF7801	* (0.844	+- 0.005	)	0.592	LE7801	*
		*											*
92-U -234	A	* 635	(4152.	+- 2.	)	0.048	EL7701	* (0.0000003+-	0.0000001)		33.333	EL7701	*
92-U -234	A	* 174	(4604.7	+- 2.	)	0.043	EL7701	* (0.0024	+- 0.0003	)	12.500	EL7701	*
92-U -234	A	* 53	(4723.7	+- 2.	)	0.042	EL7701	* (0.275	+- 0.015	)	5.455	EL7701	*
92-U -234	A	* 0	(4775.8	+- 2.	)	0.042	EL7701	* (0.725	+- 0.020	)	2.759	EL7701	*
		*											*
92-U -235	A	* 452	(4145.	+- 6.	)	0.145	LF7801	* (0.009	+- 0.002	)	22.222	LE7801	*
92-U -235	A	* 388	(4209.	+- 4.	)	0.095	LE7801	* (0.057	+- 0.006	)	10.526	LE7801	*
92-U -235	A	* 275	(4322.	+- 4.)	0.093	LF7801	* (0.047	+- 0.005)	10.638	LE7801	*
92-U -235	A	* 237	(4358.	+- 4.)	0.092	LF7801	* (0.17	+- 0.02)	11.765	LE7801	*

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ALPHA RADIATION ENERGIES AND EMISSION PROBABILITIES

NUCLIDE	DECAY*	MODIF *	LEVEL	ENERGY (KEV)			PER-CENT REFERENCE *	DATA	EMISSION PROBABILITY			* COMMENT			
				DATA	UNCERTAINTY				UNCERTAINTY	PER-CENT REFERENCE *					
92-U -235	A	*	205	(4392.	+- 3.	)	0.068	LF7801	*	(0.54	+- 0.03	)	5.556	LE7801	*
92-U -235	A	*	186	(4414.	+- 5.	)	0.113	LE7801	*	(0.021	+- 0.002	)	9.524	LE7801	*
92-U -235	A	*	162	(4435.	+- 5.	)	0.113	LF7801	*	(0.007	+- 0.002	)	28.571	LE7801	*
92-U -235	A	*	96	(4501.	+- 4.	)	0.089	LE7801	*	(0.017	+- 0.002	)	11.765	LE7801	*
92-U -235	A	*	42	(4555.	+- 3.	)	0.066	LE7801	*	(0.045	+- 0.005	)	11.111	LE7801	*
92-U -235	A	*	0	(4597.	+- 3.	)	0.065	LE7801	*	(0.054	+- 0.005	)	9.259	LE7801	*
									*						*
92-U -236	A	*	162	(4335.	+- 5.	)	0.115	BA7801	*	(0.0015	+- 0.0001	)	6.667	BA7801	*
92-U -236	A	*	49	(4445.3	+- 1.0	)	0.022	BA7801	*	(0.224	+- 0.005	)	2.232	BA7801	*
92-U -236	A	*	0	(4495.5	+- 1.0	)	0.022	BA7801	*	(0.775	+- 0.009	)	1.161	BA7801	*
									*						*
92-U -238	A	*	160	(4039.	+- 5.	)	0.124	LE7801	*	(0.0023	+- 0.0007	)	30.435	LE7801	*
92-U -238	A	*	50	(4149.	+- 5.	)	0.121	LE7801	*	(0.23	+- 0.04	)	17.391	LE7801	*
92-U -238	A	*	0	(4196.	+- 4.	)	0.095	LE7801	*	(0.77	+- 0.04	)	5.195	LE7801	*
									*						*
93-NP-237	A	*	300	(4581.	+- 2.	)	0.044	EL7801	*	(0.0040	+- 0.0004	)	10.000	EL7801	*
93-NP-237	A	*	280	(4599.	+- 2.	)	0.043	EL7801	*	(0.0034	+- 0.0004	)	11.765	EL7801	*
93-NP-237	A	*	238	(4640.	+- 2.	)	0.043	EL7801	*	(0.0618	+- 0.0012	)	1.942	EL7801	*
93-NP-237	A	*	212	(4664.	+- 2.	)	0.043	EL7801	*	(0.0332	+- 0.0010	)	3.012	EL7801	*
93-NP-237	A	*	109	(4766.1	+- 1.5	)	0.031	EL7801	*	(0.08	+- 0.03	)	37.500	EL7801	*
93-NP-237	A	*	104	(4771.1	+- 1.5	)	0.031	EL7801	*	(0.25	+- 0.06	)	24.000	EL7801	*
93-NP-237	A	*	86	(4788.1	+- 1.5	)	0.031	EL7801	*	(0.47	+- 0.09	)	19.149	EL7801	*
93-NP-237	A	*	71	(4803.	+- 2.	)	0.042	EL7801	*	(0.016	+- 0.010	)	62.500	EL7801	*
93-NP-237	A	*	57	(4817.	+- 2.	)	0.042	EL7801	*	(0.025	+- 0.004	)	16.000	EL7801	*
93-NP-237	A	*	0	(4873.	+- 2.	)	0.041	EL7801	*	(0.026	+- 0.002	)	7.692	EL7801	*
									*						*
94-PU-236	A	*	157	(5615.	+- 2.	)	0.036	LE7801	*	(0.0018	+- 0.0005	)	27.778	LE7801	*
94-PU-236	A	*	48	(5721.	+- 1.	)	0.017	LF7801	*	(0.309	+- 0.005	)	1.618	LE7801	*
94-PU-236	A	*	0	(5768.	+- 1.	)	0.017	N18001	*	(0.691	+- 0.008	)	1.158	N18001	*
									*						*
94-PU-238	A	*	296	(5205.6	+- 0.3	)	0.006	EL7701	*	(0.00003	+- 0.00002	)	66.667	EL7701	*
94-PU-238	A	*	143	(5357.7	+- 0.1	)	0.003	EL7701	*	(0.0010	+- 0.0003	)	30.000	EL7701	*
94-PU-238	A	*	43	(5456.5	+- 0.4	)	0.007	EL7701	*	(0.283	+- 0.006	)	2.120	EL7701	*
94-PU-238	A	*	0	(5499.21	+- 0.20	)	0.004	EL7701	*	(0.716	+- 0.006	)	0.838	EL7701	*
									*						*
94-PU-239	A	*	333	(4828.	+- 3.	)	0.062	SC7701	*	(0.000025	+- 0.000006	)	24.000	SC7701	*
94-PU-239	A	*	295	(4866.	+- 5.	)	0.103	SC7701	*	(0.00001	+- 0.000002	)	20.000	SC7701	*
94-PU-239	A	*	291	(4871.	+- 5.	)	0.103	SC7701	*	(0.000019	+- 0.000004	)	21.053	SC7701	*
94-PU-239	A	*	249	(4912.	+- 5.	)	0.102	SC7701	*	(0.000005	+- 0.000003	)	60.000	SC7701	*
94-PU-239	A	*	225	(4934.	+- 3.	)	0.061	SC7701	*	(0.00004	+- 0.00001	)	25.000	SC7701	*
94-PU-239	A	*	197	(4960.	+- 5.	)	0.101	SC7701	*	(0.00006	+- 0.00003	)	50.000	SC7701	*
94-PU-239	A	*	171	(4987.	+- 3.	)	0.060	SC7701	*	(0.00007	+- 0.00002	)	28.571	SC7701	*
94-PU-239	A	*	150	(5006.	+- 5.	)	0.100	SC7701	*	(0.00013	+- 0.00005	)	38.462	SC7701	*
94-PU-239	A	*	129	(5028.	+- 3.	)	0.060	SC7701	*	(0.00005	+- 0.00001	)	20.000	SC7701	*
94-PU-239	A	*	103	(5054.	+- 5.	)	0.099	SC7701	*	(0.00025	+- 0.00005	)	20.000	SC7701	*
94-PU-239	A	*	82	(5076.	+- 5.	)	0.099	SC7701	*	(0.00036	+- 0.00003	)	8.333	SC7701	*
94-PU-239	A	*	52	(5104.6	+- 1.0	)	0.020	SC7701	*	(0.115	+- 0.002	)	1.739	SC7701	*
94-PU-239	A	*	13	(5142.9	+- 0.8	)	0.016	SC7701	*	(0.151	+- 0.002	)	1.325	SC7701	*
94-PU-239	A	*	0	(5155.4	+- 0.7	)	0.014	SC7701	*	(0.733	+- 0.007	)	0.955	SC7701	*
									*						*
94-PU-240	A	*	310	(4864.	+- 1.	)	0.021	BA7701	*	(0.00001	+- 0.00001	)	100.000	BA7701	*
94-PU-240	A	*	149	(5021.5	+- 0.5)	0.010	BA7701	*	(0.00071	+- 0.00001)	1.408	BA7701	*
94-PU-240	A	*	45	(5123.62	+- 0.25)	0.005	BA7701	*	(0.264	+- 0.002)	0.758	BA7701	*

94-PU-240

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94-PU-240

NUCLIDE	DECAY* MODE	* LEVEL	ENERGY (KEV)			PER-CENT REFERENCE	*	EMISSION PROBABILITY				*	
			DATA	UNCERTAINTY				DATA	UNCERTAINTY	PER-CENT REFERENCE	COMMENT		
94-FU-240	A	* 0	(5168.30	+ 0.15	)	0.003	BA7701	* (0.735	+ 0.004	)	0.544	BA7701	*
		*											*
94-FU-241	A	* 274	(4784.	+ 5.	)	0.105	EL7801	* (0.002	+ 0.001	)	50.000	EL7801	*
94-FU-241	A	* 261	(4799.	+ 3.	)	0.063	EL7801	* (0.012	+ 0.001	)	8.333	EL7801	*
94-FU-241	A	* 204	(4853.5	+ 1.2	)	0.025	FL7801	* (0.121	+ 0.002	)	1.453	EL7801	*
94-FU-241	A	* 160	(4896.5	+ 1.2	)	0.025	EL7801	* (0.832	+ 0.005	)	0.601	FL7801	*
94-FU-241	A	* 83	(4972.	+ 3.	)	0.060	EL7801	* (0.013	+ 0.001	)	7.692	EL7801	*
94-FU-241	A	* 56	(4998.	+ 2.	)	0.040	EL7801	* (0.0041	+ 0.0005	)	12.195	EL7801	*
94-FU-241	A	* 11	(5042.	+ 2.	)	0.040	EL7801	* 0.0102				EL7801	*
94-FU-241	A	* 0	(5054.	+ 2.	)	0.040	EL7801	* 0.0035				EL7801	*
		*											*
94-FU-242	A	* 307	(4598.5	+ 1.6	)	0.035	SC7703	* (0.000013	+ 0.000005	)	38.462	SC7703	*
94-FU-242	A	* 148	(4754.6	+ 1.3	)	0.027	SC7703	* (0.00098	+ 0.00017	)	17.347	SC7703	*
94-FU-242	A	* 45	(4856.3	+ 1.2	)	0.025	SC7703	* (0.224	+ 0.020	)	8.929	SC7703	*
94-FU-242	A	* 0	(4900.6	+ 1.2	)	0.024	SC7703	* (0.775	+ 0.030	)	3.871	SC7703	*
		*											*
95-AM-241	A	* 460	(5092.	+ 5.	)	0.098	EL7801	* (0.000004	+ 0.000002	)	50.000	EL7801	*
95-AM-241	A	* 452	(5099.	+ 4.	)	0.078	EL7801	* (0.000004	+ 0.000002	)	50.000	EL7801	*
95-AM-241	A	* 434	(5114.	+ 4.	)	0.078	EL7801	* (0.000004	+ 0.000002	)	50.000	EL7801	*
95-AM-241	A	* 396	(5156.	+ 2.	)	0.039	EL7801	* (0.000005	+ 0.000003	)	60.000	EL7801	*
95-AM-241	A	* 371	(5178.	+ 2.	)	0.039	EL7801	* (0.000003	+ 0.000001	)	33.333	EL7801	*
95-AM-241	A	* 369	(5182.	+ 2.	)	0.039	EL7801	* (0.000009	+ 0.000002	)	22.222	EL7801	*
95-AM-241	A	* 324	(5223.	+ 2.	)	0.038	FL7801	* (0.000013	+ 0.000003	)	23.077	EL7801	*
95-AM-241	A	* 305	(5244.	+ 2.	)	0.038	FL7801	* (0.000024	+ 0.000008	)	33.333	EL7801	*
95-AM-241	A	* 268	(5280.	+ 3.	)	0.057	FL7801	* (0.000005	+ 0.000001	)	20.000	EL7801	*
95-AM-241	A	* 226	(5322.	+ 2.	)	0.038	EL7801	* (0.00015	+ 0.00005	)	33.333	EL7801	*
95-AM-241	A	* 159	(5388.	+ 1.	)	0.019	EL7801	* (0.014	+ 0.002	)	14.286	EL7801	*
95-AM-241	A	* 103	(5442.98	+ 0.13	)	0.002	EL7801	* (0.128	+ 0.002	)	1.562	EL7801	*
95-AM-241	A	* 76	(5469.	+ 1.	)	0.018	EL7801	* (0.0004	+ 0.0002	)	50.000	EL7801	*
95-AM-241	A	* 60	(5485.74	+ 0.12	)	0.002	EL7801	* (0.852	+ 0.008	)	0.939	EL7801	*
95-AM-241	A	* 33	(5512.	+ 2.	)	0.036	EL7801	* (0.0020	+ 0.0005	)	25.000	EL7801	*
95-AM-241	A	* 0	(5544.3	+ 0.3	)	0.005	EL7801	* (0.0034	+ 0.0005	)	14.706	EL7801	*
		*											*
95-AM-243	A	* 359	(4997.	+ 3.	)	0.060	LE7801	* (0.000016	+ 0.000004	)	25.000	LE7801	*
95-AM-243	A	* 348	(5008.	+ 3.	)	0.060	LE7801	* (0.000016	+ 0.000004	)	25.000	LE7801	*
95-AM-243	A	* 326	(5029.	+ 3.	)	0.060	LF7801	* (0.000022	+ 0.000005	)	22.727	LE7801	*
95-AM-243	A	* 320	(5035.	+ 3.	)	0.060	LE7801	* (0.000022	+ 0.000005	)	22.727	LE7801	*
95-AM-243	A	* 267	(5088.	+ 3.	)	0.059	LE7801	* (0.000004	+ 0.000001	)	25.000	LE7801	*
95-AM-243	A	* 241	(5113.	+ 1.	)	0.020	LE7801	* (0.000054	+ 0.000001	)	18.519	LE7801	*
95-AM-243	A	* 173	(5181.	+ 1.	)	0.019	LE7801	* (0.011	+ 0.003	)	27.273	LE7801	*
95-AM-243	A	* 118	(5234.	+ 1.	)	0.019	LF7801	* (0.106	+ 0.005	)	4.717	LE7801	*
95-AM-243	A	* 75	(5276.	+ 1.	)	0.019	LE7801	* (0.879	+ 0.005	)	0.569	LE7801	*
95-AM-243	A	* 31	(5321.	+ 1.	)	0.019	LF7801	* (0.0012	+ 0.0012	)	100.000	LE7801	*
95-AM-243	A	* 0	(5350.	+ 1.	)	0.019	LE7801	* (0.0016	+ 0.0009	)	56.250	LE7801	*
		*											*
95-AM-244	A	* 43	(5762.84	+ 0.03	)	0.001	SC7601	* (0.236	+ 0.002	)	0.847	SC7601	*
95-AM-244	A	* 0	(5804.96	+ 0.05	)	0.001	SC7601	* (0.764	+ 0.002	)	0.262	SC7601	*
		*											*
96-CM-243	A	* 451	(5622.	+ 3.	)	0.053	EL7601	* (0.0006	+ 0.0001	)	16.667	EL7601	*
96-CM-243	A	* 434	(5639.	+ 3.	)	0.053	EL7601	* (0.0014	+ 0.0001	)	7.143	EL7601	*
96-CM-243	A	* 425	(5646.	+ 3.	)	0.053	EL7601	* (0.0003	+ 0.0001	)	33.333	EL7601	*
96-CM-243	A	* 392	(5682.	+ 3.	)	0.053	EL7601	* (0.002	+ 0.002	)	100.000	EL7601	*
96-CM-243	A	* 387	(5686.	+ 3.	)	0.053	FL7601	* (0.016	+ 0.004	)	25.000	EL7601	*

NUCLIDE	DECAY* MODE * LEVEL	DATA	ENERGY (KEV)			PER-CENT	REFERENCE	*	EMISSION PROBABILITY			*	COMMENT
			UNCERTAINTY						DATA	UNCERTAINTY	PER-CENT			REFERENCE
96-CM-243	A * 330	(5741.6	+ - 1.0	)	0.017	EL 7601	*	(0.115	+ - 0.003	)	2.609	EL7601	*
96-CM-243	A * 285	(5784.5	+ - 1.0	)	0.017	EL7601	*	(0.735	+ - 0.010	)	1.361	EL7601	*
96-CM-243	A * 193	(5876.	+ - 3.	)	0.051	EL 7601	*	(0.006	+ - 0.001	)	16.667	EL7601	*
96-CM-243	A * 164	(5907.	+ - 3.	)	0.051	EL7601	*	(0.001	+ - 0.001	)	100.000	EL7601	*
96-CM-243	A * 76	(5993.	+ - 3.	)	0.050	EL7601	*	(0.056	+ - 0.010	)	17.857	EL7601	*
96-CM-243	A * 57	(6010.	+ - 3.	)	0.050	EL7601	*	(0.010	+ - 0.001	)	10.000	EL7601	*
96-CM-243	A * 8	(6057.	+ - 3.	)	0.050	EL7601	*	(0.047	+ - 0.005	)	10.638	EL7601	*
96-CM-243	A * 0	(6067.	+ - 3.	)	0.049	EL 7601	*	(0.015	+ - 0.002	)	13.333	EL7601	*
	*						*						*
96-CM-245	A * 299	(5240.	+ - 3.	)	0.057	LE7801	*	(0.005	+ - 0.002	)	40.000	LE7801	*
96-CM-245	A * 229	(5307.	+ - 2.	)	0.038	LE7801	*	(0.062	+ - 0.010	)	16.129	LE7801	*
96-CM-245	A * 172	(5360.	+ - 2.	)	0.037	LE7801	*	(0.910	+ - 0.020	)	2.198	LE7801	*
96-CM-245	A * 94	(5448.	+ - 5.	)	0.092	LE7801	*	(0.002	+ - 0.002	)	100.000	LE7801	*
96-CM-245	A * 42	(5498.	+ - 5.	)	0.091	LE7801	*	(0.009	+ - 0.001	)	11.111	LE7801	*
96-CM-245	A * 0	(5531.	+ - 3.	)	0.054	LE7801	*	(0.011	+ - 0.005	)	45.455	LE7801	*
	*						*						*
96-CM-246	A * 45	(5343.	+ - 2.	)	0.037	LE7801	*	(0.21	+ - 0.01	)	4.762	LE7801	*
96-CM-246	A * 0	(5386.	+ - 3.	)	0.056	LE7801	*	(0.79	+ - 0.01	)	1.266	LE7801	*
	*						*						*
98-CF-252	A * 144	5976.6				SC8101	*	(0.0023	+ - 0.0004	)	17.391	SC8101	*
98-CF-252	A * 43	(6075.7	+ - 0.5)	0.008	SC8101	*	(0.152	+ - 0.003)	1.974	SC8101	*
98-CF-252	A * 0	(6118.3	+ - 0.5)	0.008	SC8101	*	(0.816	+ - 0.003)	0.368	SC8101	*

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NUCLIDE	DECAY* MODE * LEVEL	ENERGY (KEV)				EMISSION PROBABILITY				* COMMENT			
		DATA	UNCERTAINTY	PER-CENT	REFERENCE	DATA	UNCERTAINTY	PER CENT	REFERENCE				
90-TH-228	*	(74.4	+ 0.1	)	0.134	LE7801	*	(0.00040	+ 0.00015	)	37.500	LE7801	* R1
90-TH-228	*	(84.371	+ 0.003	)	0.004	LE7801	*	(1.21	+ 0.06	)	4.959	LE7801	* R1
90-TH-228	*	(131.610	+ 0.004	)	0.003	LE7801	*	(0.123	+ 0.006	)	4.878	LE7801	* R1
90-TH-228	*	(166.407	+ 0.004	)	0.002	LE7801	*	(0.956	+ 0.048	)	5.021	LE7801	* R1
90-TH-228	*	(205.93	+ 0.05	)	0.024	LE7801	*	(0.0184	+ 0.0008	)	4.348	LE7801	* R1
90-TH-228	*	(215.979	+ 0.005	)	0.002	LE7801	*	(0.238	+ 0.013	)	5.462	LE7801	* R1
90-TH-229	*	(17.36	+ 0.03	)	0.173	T07801	*	0.001734				T07801	* A
90-TH-229	*	(25.39	+ 0.02	)	0.079	T07801	*	0.000357				T07801	* A
90-TH-229	*	(31.3	+ 0.2	)	0.639	T07801	*	0.0408				T07801	* A
90-TH-229	*	(42.76	+ 0.03	)	0.070	T07801	*	0.001632				T07801	* A
90-TH-229	*	(56.60	+ 0.03	)	0.053	T07801	*	0.003264				T07801	* A
90-TH-229	*	(68.18	+ 0.07	)	0.103	T07801	*	0.00102				T07801	* A
90-TH-229	*	(68.90	+ 0.04	)	0.058	T07801	*	0.001122				T07801	* A
90-TH-229	*	(75.20	+ 0.07	)	0.093	T07801	*	0.005202				T07801	* A
90-TH-229	*	(86.3	+ 0.1	)	0.116	T07801	*	0.003774				T07801	* A
90-TH-229	*	(86.44	+ 0.5	)	0.578	T07801	*	0.0306				T07801	* A
90-TH-229	*	(107.17	+ 0.05	)	0.047	T07801	*	0.008364				T07801	* A
90-TH-229	*	(124.5	+ 0.1	)	0.080	T07801	*	0.01224				T07801	* A
90-TH-229	*	(124.7	+ 0.1	)	0.080	T07801	*	0.00612				T07801	* A
90-TH-229	*	(131.97	+ 0.05	)	0.038	T07801	*	0.003264				T07801	* A
90-TH-229	*	(137.03	+ 0.06	)	0.044	T07801	*	0.01632				T07801	* A
90-TH-229	*	(142.95	+ 0.10	)	0.070	T07801	*	0.004284				T07801	* A
90-TH-229	*	(148.3	+ 0.2	)	0.135	T07801	*	0.013872				T07801	* A
90-TH-229	*	(154.40	+ 0.07	)	0.045	T07801	*	0.00663				T07801	* A
90-TH-229	*	(156.48	+ 0.04	)	0.036	T07801	*	0.01122				T07801	* A
90-TH-229	*	(172.9	+ 0.1	)	0.058	T07801	*	0.002244				T07801	* A
90-TH-229	*	(179.8	+ 0.2	)	0.111	T07801	*	0.0051				T07801	* A
90-TH-229	*	(184.0	+ 0.1	)	0.054	T07801	*	0.002346				T07801	* A
90-TH-229	*	(193.63	+ 0.6	)	0.310	T07801	*	0.0459				T07801	* A
90-TH-229	*	(210.97	+ 0.10	)	0.047	T07801	*	0.03264				T07801	* A
90-TH-229	*	(218.1	+ 0.2	)	0.092	T07801	*	0.001428				T07801	* A
90-TH-229	*	(236.2	+ 0.2	)	0.085	T07801	*	0.000357				T07801	* A
90-TH-230	*	(67.73	+ 0.03	)	0.044	EL7703	*	0.0038				EL7703	* A
90-TH-230	*	(143.6	+ 0.2	)	0.139	EL7703	*	0.00045				EL7703	* A
90-TH-230	*	(185.8	+ 0.4	)	0.215	EL7703	*	0.000089				EL7703	* A
90-TH-230	*	(253.5	+ 0.5	)	0.197	EL7703	*	0.000108				EL7703	* A
90-TH-233	*	(29.36	+ 0.04	)	0.136	EL7801	*	0.025				EL7801	* R2
90-TH-233	*	(86.50	+ 0.05	)	0.058	EL7801	*	0.027				EL7801	* R2
90-TH-233	*	(88.0	+ 0.2	)	0.227	EL7801	*	0.003				EL7801	* R2
90-TH-233	*	(94.68	+ 0.05	)	0.053	EL7801	*	0.008				EL7801	* R2
90-TH-233	*	162.5		)		EL7801	*	0.0015				EL7801	* R2
90-TH-233	*	(162.5	+ 0.1	)	0.067	EL7801	*	0.0017				EL7801	* R2
90-TH-233	*	(169.1	+ 0.2	)	0.118	EL7801	*	0.0034				EL7801	* R2
90-TH-233	*	(170.7	+ 0.3	)	0.176	EL7801	*	0.0013				EL7801	* R2
90-TH-233	*	(190.54	+ 0.08	)	0.042	EL7801	*	0.0013				EL7801	* R2
90-TH-233	*	(194.90	+ 0.05	)	0.026	EL7801	*	0.0016				EL7801	* R2
90-TH-233	*	(359.9	+ 0.2	)	0.056	EL7801	*	0.0012				EL7801	* R2
90-TH-233	*	(441.0	+ 0.3	)	0.068	EL7801	*	0.0023				EL7801	* R2
90-TH-233	*	(447.7	+ 0.3	)	0.067	EL7801	*	0.0015				EL7801	* R2
90-TH-233	*	(459.2	+ 0.2	)	0.044	EL7801	*	0.014				EL7801	* R2

NUCLIDE	DECAY* MODE * LEVEL	ENERGY (KEV)			PER CENT REFERENCE	*	EMISSION PROBABILITY			*	COMMENT		
		DATA	UNCERTAINTY				DATA	UNCERTAINTY	PER-CENT REFERENCE				
90-TH-233	*	(490.8	+ 0.3	)	0.061	EL7801	*	0.0017			FL7801	* R2	
90-TH-233	*	(499.0	+ 0.3	)	0.060	FL7801	*	0.0021			EL7801	* R2	
90-TH-233	*	(595.2	+ 0.2	)	0.034	EL7801	*	0.0016			EL7801	* R2	
90-TH-233	*	(669.8	+ 0.2	)	0.030	FL7801	*	0.0068			EL7801	* R2	
90-TH-233	*	(764.4	+ 0.4	)	0.052	EL7801	*	0.0012			EL7801	* R2	
90-TH-233	*	(890.1	+ 0.5	)	0.056	FL7801	*	0.0014			EL7801	* R2	
	*						*					*	
91-FA-231	*	(27.36	+ 0.01	)	0.037	SC7701	*	0.093			SC7703	* A	
91-FA-231	*	(29.95	+ 0.02	)	0.067	SC7701	*	(0.00092	+ 0.00009	)	9.783	SC7703	* A
91-FA-231	*	(35.82	+ 0.03	)	0.084	SC7701	*	(0.00016	+ 0.00002	)	12.500	SC7703	* A
91-FA-231	*	(38.20	+ 0.02	)	0.052	SC7701	*	(0.00149	+ 0.00015	)	10.067	SC7703	* A
91-FA-231	*	(44.16	+ 0.02	)	0.045	SC7701	*	(0.00060	+ 0.00007	)	11.667	SC7703	* A
91-FA-231	*	(46.37	+ 0.02	)	0.043	SC7701	*	(0.00208	+ 0.00002	)	0.962	SC7703	* A
91-FA-231	*	(52.74	+ 0.02	)	0.038	SC7701	*	(0.00085	+ 0.00009	)	10.588	SC7703	* A
91-FA-231	*	(54.61	+ 0.02	)	0.037	SC7701	*	(0.00081	+ 0.00008	)	9.877	SC7703	* A
91-FA-231	*	(57.19	+ 0.03	)	0.052	SC7701	*	(0.00039	+ 0.00004	)	10.256	SC7703	* A
91-FA-231	*	(63.67	+ 0.03	)	0.047	SC7701	*	(0.00050	+ 0.00005	)	10.000	SC7703	* A
91-FA-231	*	(74.18	+ 0.04	)	0.054	SC7701	*	(0.00025	+ 0.00003	)	12.000	SC7703	* A
91-FA-231	*	(77.36	+ 0.03	)	0.039	SC7701	*	(0.00068	+ 0.00007	)	10.294	SC7703	* A
91-FA-231	*	(96.88	+ 0.03	)	0.031	SC7701	*	(0.00088	+ 0.00009	)	10.227	SC7703	* A
91-FA-231	*	(100.92	+ 0.04	)	0.040	SC7701	*	(0.00032	+ 0.00005	)	15.625	SC7703	* A
91-FA-231	*	(102.5	+ 0.04	)	0.039	SC7701	*	(0.00044	+ 0.00015	)	34.091	SC7703	* A
91-FA-231	*	(243.10	+ 0.08	)	0.033	SC7701	*	(0.00034	+ 0.00003	)	8.824	SC7703	* A
91-FA-231	*	(255.80	+ 0.07	)	0.027	SC7701	*	(0.00101	+ 0.00006	)	5.941	SC7703	* A
91-FA-231	*	(260.22	+ 0.08	)	0.031	SC7701	*	(0.00173	+ 0.00011	)	6.358	SC7703	* A
91-FA-231	*	(273.16	+ 0.08	)	0.029	SC7701	*	(0.00058	+ 0.00003	)	5.172	SC7703	* A
91-FA-231	*	(277.09	+ 0.09	)	0.032	SC7701	*	(0.00067	+ 0.00004	)	5.970	SC7703	* A
91-FA-231	*	(283.67	+ 0.06	)	0.021	SC7701	*	(0.0160	+ 0.0010	)	6.250	SC7703	* A
91-FA-231	*	(300.08	+ 0.06	)	0.020	SC7701	*	(0.0230	+ 0.0010	)	4.348	SC7703	* A
91-FA-231	*	(302.67	+ 0.06	)	0.020	SC7701	*	(0.0230	+ 0.0010	)	4.348	SC7703	* A
91-FA-231	*	(313.04	+ 0.08	)	0.026	SC7701	*	(0.00095	+ 0.00006	)	6.316	SC7703	* A
91-FA-231	*	(327.2	+ 0.1	)	0.031	SC7701	*	(0.00030	+ 0.00002	)	6.667	SC7703	* A
91-FA-231	*	330.07				SC7701	*	(0.0130	+ 0.0020	)	15.385	SC7703	* A
91-FA-231	*	(340.81	+ 0.07	)	0.021	SC7701	*	(0.00165	+ 0.00008	)	4.848	SC7703	* A
91-FA-231	*	(354.59	+ 0.08	)	0.023	SC7701	*	(0.00095	+ 0.00006	)	6.316	SC7703	* A
91-FA-231	*	(357.16	+ 0.07	)	0.020	SC7701	*	(0.00173	+ 0.00010	)	5.780	SC7703	* A
91-FA-231	*	(379.33	+ 0.08	)	0.021	SC7701	*	(0.00049	+ 0.00004	)	8.163	SC7703	* A
91-FA-231	*	(407.97	+ 0.06	)	0.015	SC7701	*	(0.00036	+ 0.00003	)	8.333	SC7703	* A
	*						*					*	
91-FA-233	*	(28.54	+ 0.05	)	0.175	FL7802	*	(0.00065	+ 0.00008	)	12.308	EL7802	* A
91-FA-233	*	(40.35	+ 0.01	)	0.025	EL7802	*	(0.00036	+ 0.00008	)	22.222	EL7802	* A
91-FA-233	*	(75.28	+ 0.01	)	0.013	FL7802	*	(0.0117	+ 0.0010	)	8.547	EL7802	* A
91-FA-233	*	(86.59	+ 0.01	)	0.012	EL7802	*	(0.0176	+ 0.0024	)	13.636	EL7802	* A
91-FA-233	*	(103.86	+ 0.02	)	0.019	EL7802	*	(0.0069	+ 0.0024	)	34.783	EL7802	* A
91-FA-233	*	(248.5	+ 0.5	)	0.201	EL7802	*	(0.00054	+ 0.00022	)	40.741	EL7802	* A
91-FA-233	*	(271.48	+ 0.08	)	0.029	EL7802	*	(0.00284	+ 0.00033	)	11.620	EL7802	* A
91-FA-233	*	(300.12	+ 0.03	)	0.010	EL7802	*	(0.0619	+ 0.0045	)	7.270	EL7802	* A
91-FA-233	*	(311.98	+ 0.03	)	0.010	EL7802	*	(0.36	+ 0.02	)	5.556	EL7802	* A
91-FA-233	*	(340.50	+ 0.04	)	0.012	EL7802	*	(0.0421	+ 0.0049	)	11.639	EL7802	* A
91-FA-233	*	(375.45	+ 0.04	)	0.011	EL7802	*	(0.0058	+ 0.0011	)	18.966	EL7802	* A
91-FA-233	*	(398.62	+ 0.08)	0.020	EL7802	*	(0.0119	+ 0.0016)	13.445	EL7802	* A
91-FA-233	*	(415.76	+ 0.04)	0.010	FL7802	*	(0.0151	+ 0.0017)	11.258	EL7802	* A
	*						*					*	

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EVALUATED GAMMA-RAY TRANSITION ENERGIES AND EMISSION PROBABILITIES PER DECAY

NUCLIDE	DECAY* MODE * LEVEL	ENERGY (KEV)			PER-CENT	REFERENCE	EMISSION PROBABILITY				* COMMENT			
		DATA	UNCERTAINTY				DATA	UNCERTAINTY	PER-CENT	REFERENCE				
92-U -232	*		57.70			SC7705	*	0.0021			SC7705	* A		
92-U -232	*		(129.0	+ 0.2	)	0.155	SC7705	*	0.00075		SC7705	* A	
92-U -232	*		(270.5	+ 0.3	)	0.111	SC7705	*	0.000038		SC7705	* A	
92-U -232	*		(327.8	+ 0.3	)	0.092	SC7705	*	0.000034		SC7705	* A	
92-U -233	*		(25.27	+ 0.12	)	0.475	FL7802	*	1.21E-5		EL7802	* A	
92-U -233	*		(29.15	+ 0.09	)	0.309	EL7802	*	6.8E-5		EL7802	* A	
92-U -233	*		(42.48	+ 0.03	)	0.071	EL7802	*	6.03E-4		EL7802	* A	
92-U -233	*		(53.59	+ 0.05)	0.093	EL7802	*	(4.9	+ 0.9)E-5	18.367	EL7802	* A
92-U -233	*		(54.74	+ 0.05	)	0.091	EL7802	*	1.4E-4		EL7802	* A	
92-U -233	*		(66.13	+ 0.05	)	0.076	EL7802	*	8.45E-6		EL7802	* A	
92-U -233	*		(68.03	+ 0.05	)	0.073	EL7802	*	3.18E-6		EL7802	* A	
92-U -233	*		(70.30	+ 0.05	)	0.071	EL7802	*	5.95E-6		EL7802	* A	
92-U -233	*		(71.84	+ 0.04	)	0.056	EL7802	*	2.65E-5		EL7802	* A	
92-U -233	*		(72.88	+ 0.07	)	0.096	EL7802	*	5.88E-6		EL7802	* A	
92-U -233	*		(74.55	+ 0.10	)	0.134	EL7802	*	1.64E-5		EL7802	* A	
92-U -233	*		(76.38	+ 0.10	)	0.131	EL7802	*	3.9E-6		EL7802	* A	
92-U -233	*		(91.03	+ 0.10	)	0.110	EL7802	*	3.3E-6		EL7802	* A	
92-U -233	*		(96.21	+ 0.04	)	0.042	EL7802	*	1.39E-5		EL7802	* A	
92-U -233	*		(97.14	+ 0.05	)	0.051	EL7802	*	2.218E-4		EL7802	* A	
92-U -233	*		(112.0	+ 0.1)	0.089	EL7802	*	(4.7	+ 1.0)E-6	21.277	EL7802	* A
92-U -233	*		(114.4	+ 0.3)	0.262	EL7802	*	(2.5	+ 0.9)E-6	36.000	EL7802	* A
92-U -233	*		(117.18	+ 0.3	)	0.256	EL7802	*	2.49E-5		EL7802	* A	
92-U -233	*		(118.98	+ 0.04	)	0.034	EL7802	*	3.18E-5		EL7802	* A	
92-U -233	*		(120.82	+ 0.05	)	0.041	EL7802	*	2.06E-5		EL7802	* A	
92-U -233	*		(123.84	+ 0.05	)	0.040	EL7802	*	6.48E-6		EL7802	* A	
92-U -233	*		(135.37	+ 0.03	)	0.022	EL7802	*	2.18E-5		EL7802	* A	
92-U -233	*		(144.4	+ 0.2)	0.139	EL7802	*	(2.95	+ 0.88)E-6	29.831	EL7802	* A
92-U -233	*		(145.34	+ 0.04)	0.028	EL7802	*	(1.65	+ 0.43)E-5	26.061	EL7802	* A
92-U -233	*		(146.39	+ 0.03	)	0.020	EL7802	*	6.28E-5		EL7802	* A	
92-U -233	*		(148.20	+ 0.05	)	0.034	EL7802	*	3.6E-6		EL7802	* A	
92-U -233	*		(164.54	+ 0.01	)	0.006	EL7802	*	6.65E-5		EL7802	* A	
92-U -233	*		(165.72	+ 0.10	)	0.060	EL7802	*	3.85E-6		EL7802	* A	
92-U -233	*		(187.97	+ 0.01	)	0.005	EL7802	*	2.04E-5		EL7802	* A	
92-U -233	*		(208.17	+ 0.02	)	0.010	EL7802	*	2.5E-5		EL7802	* A	
92-U -233	*		(216.2	+ 0.2	)	0.093	EL7802	*	6.63E-6		EL7802	* A	
92-U -233	*		(217.13	+ 0.04	)	0.018	EL7802	*	3.52E-5		EL7802	* A	
92-U -233	*		(240.39	+ 0.06	)	0.025	EL7802	*	3.8E-6		EL7802	* A	
92-U -233	*		(245.32	+ 0.02	)	0.008	EL7802	*	3.98E-5		EL7802	* A	
92-U -233	*		(248.69	+ 0.03	)	0.012	EL7802	*	1.56E-5		EL7802	* A	
92-U -233	*		(261.91	+ 0.09	)	0.034	EL7802	*	3.1E-6		EL7802	* A	
92-U -233	*		(268.66	+ 0.03	)	0.011	EL7802	*	2.55E-6		EL7802	* A	
92-U -233	*		(274.68	+ 0.05	)	0.018	EL7802	*	4.35E-6		EL7802	* A	
92-U -233	*		(278.08	+ 0.02	)	0.007	EL7802	*	1.18E-5		EL7802	* A	
92-U -233	*		(288.00	+ 0.03	)	0.010	EL7802	*	1.06E-5		EL7802	* A	
92-U -233	*		(291.34	+ 0.01	)	0.003	EL7802	*	5.75E-5		EL7802	* A	
92-U -233	*		(317.16	+ 0.01	)	0.003	EL7802	*	8.18E-5		EL7802	* A	
92-U -233	*		(320.54	+ 0.01	)	0.003	EL7802	*	3.03E-5		EL7802	* A	
92-U -233	*		(323.4	+ 0.2	)	0.062	FL7802	*	8.5E-6		EL7802	* A	
92-U -233	*		(336.62	+ 0.02	)	0.006	FL7802	*	5.9E-6		EL7802	* A	
92-U -233	*		(365.79	+ 0.01)	0.003	EL7802	*	8.2E-6		EL7802	* A		
92-U -234	*		(53.20	+ 0.05)	0.094	EL7701	*	(0.00119	+ 0.00010)	8.403	EL7701	* A

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NUCLIDE	DECAY* MODE	* LEVEL	ENERGY (KEV)		PER-CENT REFERENCE	*	EMISSION PROBABILITY				*			
			DATA	UNCERTAINTY			DATA	UNCERTAINTY	PER-CENT REFERENCE	* COMMENT				
92-U -235	*		(72.7	+- 0.2	)	0.275	SC7704	*	0.0011			SC7704	* A	
92-U -235	*		(109.14	+- 0.02	)	0.018	SC7704	*	(0.015	+- 0.001	)	13.333	SC7704	* A
92-U -235	*		(140.77	+- 0.08	)	0.057	SC7704	*	(0.0022	+- 0.0003	)	13.636	SC7704	* A
92-U -235	*		(143.76	+- 0.02	)	0.014	SC7704	*	(0.105	+- 0.008	)	7.619	SC7704	* A
92-U -235	*		(163.35	+- 0.02	)	0.012	SC7704	*	(0.047	+- 0.004	)	8.511	SC7704	* A
92-U -235	*		(182.7	+- 0.2	)	0.109	SC7704	*	(0.0040	+- 0.0005	)	12.500	SC7704	* A
92-U -235	*		(185.715	+- 0.005	)	0.003	SC7704	*	0.54				SC7704	* A
92-U -235	*		(194.94	+- 0.01	)	0.005	SC7704	*	(0.0059	+- 0.0006	)	10.169	SC7704	* A
92-U -235	*		(202.12	+- 0.02	)	0.010	SC7704	*	(0.010	+- 0.001	)	10.000	SC7704	* A
92-U -235	*		(205.311	+- 0.010	)	0.005	SC7704	*	(0.047	+- 0.004	)	8.511	SC7704	* A
92-U -235	*		(221.38	+- 0.02	)	0.009	SC7704	*	(0.0010	+- 0.0001	)	10.000	SC7704	* A
	*							*						*
92-U -236	*		(112.750	+- 0.015	)	0.013	SC7706	*	(0.00019	+- 0.00002	)	10.526	SC7706	* A
	*							*						*
92-U -237	*		(26.348	+- 0.010	)	0.038	EL7803	*	(0.02241	+- 0.00328	)	14.636	EL7803	* A
92-U -237	*		(33.195	+- 0.011	)	0.033	FL7803	*	(0.00112	+- 0.00048	)	42.857	EL7803	* A
92-U -237	*		(51.01	+- 0.03	)	0.059	EL7803	*	(0.00205	+- 0.00096	)	46.829	EL7803	* A
92-U -237	*		(59.543	+- 0.015	)	0.025	EL7803	*	(0.3348	+- 0.0492	)	14.695	EL7803	* A
92-U -237	*		(64.83	+- 0.02	)	0.031	EL7803	*	(0.01163	+- 0.00174	)	14.961	EL7803	* A
92-U -237	*		(164.61	+- 0.02	)	0.012	FL7803	*	(0.018321	+- 0.00205	)	11.189	EL7803	* A
92-U -237	*		(208.005	+- 0.023	)	0.011	EL7803	*	0.2167				EL7803	* A
92-U -237	*		(267.54	+- 0.04	)	0.015	EL7803	*	(0.00712	+- 0.00078	)	10.955	EL7803	* A
92-U -237	*		(332.36	+- 0.04	)	0.012	FL7803	*	(0.0120	+- 0.0015	)	12.500	EL7803	* A
92-U -237	*		(370.94	+- 0.04	)	0.011	EL7803	*	(0.00111	+- 0.00014	)	12.613	EL7803	* A
	*							*						*
92-U -238	*		(49.55	+- 0.06	)	0.121	EL7705	*	(0.23	+- 0.03	)	13.043	EL7705	* A
	*							*						*
92-U -239	*		(43.534	+- 0.003	)	0.007	SC7701	*					SC7701	* A
92-U -239	*		(74.670	+- 0.003	)	0.004	SC7701	*	(0.50	+- 0.05	)	10.000	SC7701	* A
92-U -239	*		(86.72	+- 0.07	)	0.081	SC7701	*	(0.00060	+- 0.00003	)	5.000	SC7701	* A
92-U -239	*		(117.66	+- 0.03	)	0.025	SC7701	*	(0.00145	+- 0.00015	)	10.345	SC7701	* A
92-U -239	*		(486.87	+- 0.02	)	0.004	SC7701	*	(0.00060	+- 0.00003	)	5.000	SC7701	* A
92-U -239	*		(631.09	+- 0.03	)	0.005	SC7701	*	(0.00075	+- 0.00008	)	10.667	SC7701	* A
92-U -239	*		(662.24	+- 0.03	)	0.005	SC7701	*	(0.00175	+- 0.00018	)	10.286	SC7701	* A
92-U -239	*		(748.08	+- 0.04	)	0.005	SC7701	*	(0.00105	+- 0.00011	)	10.476	SC7701	* A
92-U -239	*		(812.93	+- 0.04	)	0.005	SC7701	*	(0.00080	+- 0.00008	)	10.000	SC7701	* A
92-U -239	*		(819.22	+- 0.04	)	0.005	SC7701	*	(0.00150	+- 0.00015	)	10.000	SC7701	* A
92-U -239	*		(844.10	+- 0.04	)	0.005	SC7701	*	(0.00165	+- 0.00017	)	10.303	SC7701	* A
92-U -239	*		(964.30	+- 0.04	)	0.004	SC7701	*	(0.00090	+- 0.00009	)	10.000	SC7701	* A
	*							*						*
93-NP-237	*		(29.373	+- 0.010	)	0.034	EL7803	*	(0.1399	+- 0.0248	)	17.727	EL7803	* A
93-NP-237	*		(46.53	+- 0.04	)	0.086	EL7803	*	(0.00140	+- 0.00025	)	17.857	EL7803	* A
93-NP-237	*		(57.15	+- 0.04	)	0.070	EL7803	*	(0.00416	+- 0.00057	)	13.702	EL7803	* A
93-NP-237	*		(86.503	+- 0.020	)	0.023	EL7803	*	(0.126	+- 0.013	)	10.317	EL7803	* A
93-NP-237	*		(88.04	+- 0.16	)	0.182	FL7803	*	(0.00160	+- 0.00026	)	16.250	EL7803	* A
93-NP-237	*		(94.66	+- 0.05	)	0.053	EL7803	*	(0.00832	+- 0.00123	)	14.784	EL7803	* A
93-NP-237	*		(117.681	+- 0.030	)	0.025	EL7803	*	(0.00170	+- 0.00027	)	15.882	EL7803	* A
93-NP-237	*		(143.208	+- 0.025	)	0.017	EL7803	*	(0.00416	+- 0.00057	)	13.702	EL7803	* A
93-NP-237	*		(151.37	+- 0.04	)	0.026	EL7803	*	(0.00250	+- 0.00040	)	16.000	EL7803	* A
93-NP-237	*		(195.096	+- 0.020	)	0.010	FL7803	*	(0.0021	+- 0.0003	)	14.286	EL7803	* A
93-NP-237	*		(212.415	+- 0.025	)	0.012	EL7803	*	(0.00160	+- 0.00026	)	16.250	EL7803	* A
	*							*						*
93-NP-238	*		(101.88	+- 0.02	)	0.020	FL7705	*	(0.00209	+- 0.00005	)	2.392	EL7705	* A

NUCLIDE	DECAY* MODE * LEVEL	ENERGY (KEV)			PER-CENT	REFERENCE	*	EMISSION PROBABILITY				* COMMENT	
		DATA	UNCERTAINTY					DATA	UNCERTAINTY	PER-CENT	REFERENCE		
93-NP-238	*	(120.14	+ 0.05	)	0.042	EL7705	*	(0.00976	+ 0.00005	)	0.512	EL7705	* A
93-NP-238	*	(174.06	+ 0.08	)	0.046	EL7705	*	(0.00026	+ 0.00002	)	7.692	EL7705	* A
93-NP-238	*	(357.64	+ 0.07	)	0.020	EL7705	*	(0.00052	+ 0.00005	)	9.615	EL7705	* A
93-NP-238	*	(515.47	+ 0.17	)	0.033	EL7705	*	(0.00033	+ 0.00005	)	15.152	EL7705	* A
93-NP-238	*	(561.15	+ 0.07	)	0.012	EL7705	*	(0.00102	+ 0.00005	)	4.902	EL7705	* A
93-NP-238	*	(605.14	+ 0.09	)	0.015	EL7705	*	(0.00074	+ 0.00007	)	9.459	EL7705	* A
93-NP-238	*	(617.39	+ 0.11	)	0.018	EL7705	*	(0.00069	+ 0.00007	)	10.145	EL7705	* A
93-NP-238	*	(882.63	+ 0.03	)	0.003	EL7705	*	(0.00759	+ 0.00038	)	5.007	EL7705	* A
93-NP-238	*	(918.69	+ 0.04	)	0.004	EL7705	*	(0.00514	+ 0.00026	)	5.058	EL7705	* A
93-NP-238	*	(923.98	+ 0.02	)	0.002	EL7705	*	(0.02475	+ 0.00119	)	4.808	EL7705	* A
93-NP-238	*	924.		)		EL7705	*	0.00057		)		EL7705	* A
93-NP-238	*	(936.61	+ 0.06	)	0.006	EL7705	*	(0.00308	+ 0.00017	)	5.519	EL7705	* A
93-NP-238	*	(938.9	+ 0.2	)	0.021	EL7705	*	(0.00031	+ 0.00014	)	45.161	EL7705	* A
93-NP-238	*	(941.38	+ 0.05	)	0.005	EL7705	*	(0.00455	+ 0.00024	)	5.275	EL7705	* A
93-NP-238	*	(962.77	+ 0.03	)	0.003	EL7705	*	(0.00609	+ 0.00031	)	5.090	EL7705	* A
93-NP-238	*	(984.45	+ 0.02	)	0.002	EL7705	*	0.238		)		EL7705	* A
93-NP-238	*	(1025.87	+ 0.02	)	0.002	EL7705	*	(0.08211	+ 0.00041	)	0.499	EL7705	* A
93-NP-238	*	(1028.54	+ 0.02	)	0.002	EL7705	*	(0.17255	+ 0.00857	)	4.967	EL7705	* A
	*)			*)			*
93-NP-239	*	(44.65	+ 0.02	)	0.045	SC7701	*	(0.00090	+ 0.00023	)	25.556	SC7701	* A
93-NP-239	*	(49.41	+ 0.02	)	0.040	SC7701	*	(0.00100	+ 0.00021	)	21.000	SC7701	* A
93-NP-239	*	(57.26	+ 0.02	)	0.035	SC7701	*	(0.00151	+ 0.00020	)	13.245	SC7701	* A
93-NP-239	*	(61.480	+ 0.004	)	0.007	SC7701	*	(0.00959	+ 0.00144	)	15.016	SC7701	* A
93-NP-239	*	(67.88	+ 0.03	)	0.044	SC7701	*	(0.00090	+ 0.00023	)	25.556	SC7701	* A
93-NP-239	*	(106.13	+ 0.01	)	0.009	SC7701	*	(0.227	+ 0.013	)	5.727	SC7701	* A
93-NP-239	*	(106.47	+ 0.04	)	0.038	SC7701	*	(0.00048	+ 0.00009	)	18.750	SC7701	* A
93-NP-239	*	(166.39	+ 0.06	)	0.036	SC7701	*	(0.00017	+ 0.00007	)	41.176	SC7701	* A
93-NP-239	*	(181.71	+ 0.06	)	0.033	SC7701	*	(0.00111	+ 0.00014	)	12.613	SC7701	* A
93-NP-239	*	(209.75	+ 0.01	)	0.005	SC7701	*	(0.03243	+ 0.00244	)	7.524	SC7701	* A
93-NP-239	*	(226.42	+ 0.08	)	0.035	SC7701	*	(0.00338	+ 0.00043	)	12.722	SC7701	* A
93-NP-239	*	(228.19	+ 0.01	)	0.004	SC7701	*	(0.1072	+ 0.0064	)	5.970	SC7701	* A
93-NP-239	*	(254.41	+ 0.08	)	0.031	SC7701	*	(0.00100	+ 0.00017	)	17.000	SC7701	* A
93-NP-239	*	(272.84	+ 0.07	)	0.026	SC7701	*	(0.00078	+ 0.00010	)	12.821	SC7701	* A
93-NP-239	*	(277.60	+ 0.03	)	0.011	SC7701	*	(0.141	+ 0.004	)	2.837	SC7701	* A
93-NP-239	*	(285.41	+ 0.03	)	0.011	SC7701	*	(0.00776	+ 0.00074	)	9.536	SC7701	* A
93-NP-239	*	(315.88	+ 0.04	)	0.013	SC7701	*	(0.01593	+ 0.00109	)	6.842	SC7701	* A
93-NP-239	*	(334.30	+ 0.05	)	0.015	SC7701	*	(0.0203	+ 0.0018	)	8.867	SC7701	* A
	*)			*)			*
94-PU-238	*	(43.48	+ 0.01	)	0.023	EL7705	*	(390.	+ 5.	)E-6	1.282	EL7705	* A
94-PU-238	*	(99.86	+ 0.01	)	0.010	EL7705	*	(72.4	+ 2.0	)E-6	2.762	EL7705	* A
94-PU-238	*	(152.70	+ 0.03	)	0.020	EL7705	*	(10.1	+ 2.0	)E-6	19.802	EL7705	* A
94-PU-238	*	(766.41	+ 0.02	)	0.003	EL7705	*	(0.33	+ 0.03	)E-6	9.091	EL7705	* A
	*)			*)			*
94-PU-239	*	(129.28	+ 0.03	)	0.023	SC7701	*	(62.0	+ 0.6	)E-6	0.968	SC7701	* A
94-PU-239	*	(144.19	+ 0.08	)	0.055	SC7701	*	(2.86	+ 0.10	)E-6	3.497	SC7701	* A
94-PU-239	*	(161.45	+ 0.05	)	0.031	SC7701	*	(1.30	+ 0.04	)E-6	3.077	SC7701	* A
94-PU-239	*	(171.35	+ 0.08	)	0.047	SC7701	*	(1.09	+ 0.02	)E-6	1.835	SC7701	* A
94-PU-239	*	(179.17	+ 0.08	)	0.045	SC7701	*	(0.639	+ 0.013	)E-6	2.034	SC7701	* A
94-PU-239	*	(189.34	+ 0.07	)	0.037	SC7701	*	(0.776	+ 0.015	)E-6	1.933	SC7701	* A
94-PU-239	*	(195.65	+ 0.07	)	0.036	SC7701	*	(1.07	+ 0.02	)E-6	1.869	SC7701	* A
94-PU-239	*	(203.52	+ 0.04	)	0.020	SC7701	*	(5.60	+ 0.11	)E-6	1.964	SC7701	* A
94-PU-239	*	(255.33	+ 0.07	)	0.027	SC7701	*	(0.803	+ 0.008	)E-6	0.996	SC7701	* A
94-PU-239	*	(297.43	+ 0.07	)	0.024	SC7701	*	(0.500	+ 0.005	)E-6	1.000	SC7701	* A

NUCLIDE	DECAY* MODE	* LEVEL	ENERGY (KEV)			* PER-CENT REFERENCE *	EMISSION PROBABILITY			* COMMENT			
			DATA	UNCERTAINTY			DATA	UNCERTAINTY	PER-CENT REFERENCE				
94-FU-239	*		(332.80	+ 0.04	)	0.017	SC7701	*(5.05	+ 0.05	)E-6	0.990	SC7701	* A
94-FU-239	*		(344.96	+ 0.06	)	0.017	SC7701	*(5.61E-6				SC7701	* A
94-FU-239	*		375.02				SC7701	*(15.8	+ 0.2	)E-6	1.266	SC7701	* A
94-FU-239	*		(413.69	+ 0.03	)	0.007	SC7701	*(15.1	+ 0.2	)E-6	1.325	SC7701	* A
94-FU-240	*		(45.242	+ 0.006	)	0.013	SC7702	*(450.	+ 5.	)E-6	1.111	SC7702	* A
94-FU-240	*		(104.233	+ 0.005	)	0.005	SC7702	*(70.	+ 1.	)E-6	1.429	SC7702	* A
94-FU-240	*		(160.310	+ 0.008	)	0.005	SC7702	*(4.20	+ 4.	)E-6	95.238	SC7702	* A
94-FU-241	*		(103.680	+ 0.005	)	0.005	EL7801	*(1.007	+ 0.012	)E-6	1.192	EL7801	* A
94-FU-241	*		(148.567	+ 0.010	)	0.007	EL7801	*(1.862	+ 0.019	)E-6	1.020	EL7801	* A
94-FU-242	*		(44.915	+ 0.013	)	0.029	EL7702	*(0.036				EL7702	* A
94-FU-242	*		(103.50	+ 0.04	)	0.039	EL7702	*(0.00781	+ 0.00079	)	10.115	EL7702	* A
94-FU-242	*		(158.80	+ 0.08	)	0.050	EL7702	*(0.00045	+ 0.00015	)	33.333	EL7702	* A
95-AM-241	*		(26.345	+ 0.001	)	0.004	EL7801	*(24000.	+ 1000.	)E-6	4.167	EL7801	* A
95-AM-241	*		(59.537	+ 0.001	)	0.002	EL7801	*(359000.	+ 600.	)E-6	0.167	EL7801	* A
95-AM-241	*		(102.97	+ 0.003	)	0.003	EL7801	*(195.	+ 10.	)E-6	5.128	EL7801	* A
95-AM-241	*		(122.99	+ 0.003	)	0.002	EL7801	*(10.	+ 1.	)E-6	10.000	EL7801	* A
95-AM-241	*		(125.29	+ 0.03	)	0.024	EL7801	*(40.	+ 1.	)E-6	2.500	EL7801	* A
95-AM-241	*		(146.55	+ 0.02	)	0.014	EL7801	*(4.6	+ 0.2	)E-6	4.348	EL7801	* A
95-AM-241	*		(169.56	+ 0.03	)	0.018	EL7801	*(1.7	+ 0.2	)E-6	11.765	EL7801	* A
95-AM-241	*		(208.02	+ 0.02	)	0.010	FL7801	*(8.0	+ 2.0	)E-6	25.000	EL7801	* A
95-AM-241	*		(322.54	+ 0.03	)	0.009	EL7801	*(1.52	+ 0.03	)E-6	1.974	EL7801	* A
95-AM-241	*		(332.35	+ 0.02	)	0.006	EL7801	*(1.5	+ 0.3	)E-6	20.000	EL7801	* A
95-AM-241	*		(335.40	+ 0.03	)	0.009	FL7801	*(4.96	+ 0.10	)E-6	2.016	EL7801	* A
95-AM-241	*		(368.60	+ 0.02	)	0.005	EL7801	*(2.2	+ 0.2	)E-6	9.091	EL7801	* A
95-AM-241	*		(376.60	+ 0.10	)	0.027	EL7801	*(1.38	+ 0.05	)E-6	3.623	EL7801	* A
95-AM-241	*		(662.42	+ 0.03	)	0.005	FL7801	*(3.6	+ 0.2	)E-6	5.556	EL7801	* A
95-AM-241	*		721.96				EL7801	*(0.6E-6				EL7801	* A
96-CM-243	*		(44.663	+ 0.005	)	0.011	EL8101	*(0.0012	+ 0.0002	)	16.667	EL8101	* A
96-CM-243	*		(57.273	+ 0.004	)	0.007	EL8101	*(0.0009	+ 0.0003	)	33.333	EL8101	* A
96-CM-243	*		57.30				EL8101	*(0.0005	+ 0.0003	)	60.000	EL8101	* A
96-CM-243	*		(209.753	+ 0.002	)	0.001	EL8101	*(0.0330	+ 0.0010	)	3.030	EL8101	* A
96-CM-243	*		(228.184	+ 0.002	)	0.001	FL8101	*(0.10575	+ 0.00299	)	2.827	EL8101	* A
96-CM-243	*		(254.41	+ 0.08	)	0.031	EL8101	*(0.0011	+ 0.0001	)	9.091	EL8101	* A
96-CM-243	*		(272.87	+ 0.09	)	0.033	EL8101	*(0.0008	+ 0.0001	)	12.500	EL8101	* A
96-CM-243	*		(277.599	+ 0.002	)	0.001	EL8101	*(0.13997	+ 0.00399	)	2.851	EL8101	* A
96-CM-243	*		(285.460	+ 0.002	)	0.001	EL8101	*(0.0073	+ 0.0002	)	2.740	EL8101	* A
96-CM-243	*		(311.7	+ 0.2	)	0.064	EL8101	*(0.00017	+ 0.00002	)	11.765	EL8101	* A
96-CM-243	*		(315.880	+ 0.003	)	0.001	EL8101	*(0.00018	+ 0.00002	)	11.111	EL8101	* A
96-CM-243	*		(322.3	+ 0.2	)	0.062	EL8101	*(0.00007	+ 0.00001	)	14.286	EL8101	* A
96-CM-243	*		(334.310	+ 0.003	)	0.001	EL8101	*(0.00024	+ 0.00002	)	8.333	EL8101	* A
96-CM-245	*		(48.80	+ 0.02	)	0.041	EL8102	*(17.2	+ 1.1	)	6.395	EL8102	* R
96-CM-245	*		54.8				EL8102	*(37.				EL8102	* R
96-CM-245	*		(66.69	+ 0.05	)	0.075	EL8102	*(59.	+ 9.	)	15.254	EL8102	* R
96-CM-245	*		(121.50	+ 0.10	)	0.082	EL8102	*(100.				EL8102	* R
96-CM-245	*		(198.0	+ 0.1	)	0.051	EL8102	*(0.54	+ 0.08	)	14.815	EL8102	* R
96-CM-245	*		(229.50	+ 0.10	)	0.044	EL8102	*(100.				EL8102	* R
96-CM-245	*		(241.00	+ 0.05	)	0.021	EL8102	*(100.				EL8102	* R

NUCLIDE	DECAY* MODE * LEVEL	ENERGY (KEV)				EMISSION PROBABILITY					
		DATA	UNCERTAINTY	PER-CENT	REFERENCE	* DATA	UNCERTAINTY	PER-CENT	REFERENCE	* COMMENT	
96-CM-245	*	(252.85	+ 0.05	)	0.020	EL8102	*	100.		EL8102	* R
96-CM-245	*	(255.7	+ 0.2	)	0.078	FL8102	*	100.		EL8102	* R
96-CM-245	*	(295.80	+ 0.04	)	0.014	EL8102	*	(71.	+ 4.	5.634	EL8102 * R
96-CM-245	*	(321.40	+ 0.05	)	0.016	EL8102	*	100.		EL8102	* R
96-CM-245	*	(333.40	+ 0.05	)	0.015	EL8102	*	(21.80	+ 0.03	0.138	EL8102 * R
96-CM-245	*	(350.5	+ 0.1	)	0.029	EL8102	*	100.		EL8102	* R
96-CM-245	*	(365.8	+ 0.1	)	0.027	EL8102	*	100.		EL8102	* R
96-CM-245	*	(380.8	+ 0.1	)	0.026	EL8102	*	100.		EL8102	* R
96-CM-245	*	(385.0	+ 0.1	)	0.026	FL8102	*	100.		EL8102	* R
96-CM-245	*	(388.30	+ 0.05	)	0.013	EL8102	*	100.		EL8102	* R
96-CM-245	*	(390.5	+ 0.2	)	0.051	FL8102	*	(38.	+ 10.	26.316	EL8102 * R
96-CM-245	*	(406.00	+ 0.10	)	0.025	EL8102	*	100.		EL8102	* R
96-CM-245	*	(407.8	+ 0.2	)	0.049	EL8102	*	37.		EL8102	* R
96-CM-245	*	(408.7	+ 0.1	)	0.024	EL8102	*	(51.	+ 9.	17.647	EL8102 * R
96-CM-245	*	(488.2	+ 0.2	)	0.041	EL8102	*	(2.5	+ 0.6	24.000	EL8102 * R
96-CM-245	*	(589.00	+ 0.10	)	0.017	FL8102	*	(5.5	+ 1.3	23.636	EL8102 * R
96-CM-245	*	(643.2	+ 0.3	)	0.047	EL8102	*	(29.	+ 12.	41.379	EL8102 * R
96-CM-245	*	700.)		EL8102	*	55.		EL8102	* R
96-CM-246	*	(44.545	+ 0.009)	0.020	SC8101	*	0.000276		SC8101	* A

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