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ALI AND DAC FOR TRANSURANIC ELEMENTS
BASED ON THE METABOLIC DATA
PRESENTED IN ICRP PUBLICATION 48

July 1987

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ALI and DAC for Transuranic Elements
Based on the Metabolic Data Presented in ICRP Publication 48

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(Received June 18, 1987)

The recently published ICRP report, ICRP Publication 48, presents the new metabolic data of some transuranic elements, compared with those employed in the calculation of ALI and DAC in ICRP Publication 30.

Values of ALI and DAC for 72 radionuclides were calculated using the metabolic data presented in the Publication 48. The calculation was performed by a computer code system DOSDAC, which can systematically calculate ALI and DAC by the same method as that described in the Publication 30.

The calculated values of ALI and DAC were tabulated in the same format as that of the supplements to the Publication 30. For the convenience of using in the dose assessment, also given are values of committed effective dose equivalent per intake of unit activity. It is expected that these values will be applied to the radiation protection purposes.

Keywords ; ICRP Publication 48, Metabolic Data, Transuranic Element, ALI, DAC, ICRP Publication 30, DOSDAC System, Dose Assessment, Committed Effective Dose Equivalent

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ICRP Publication 48 に示された代謝データに基づく
超ウラン元素の年摂取限度と誘導空气中濃度

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(1987年6月18日受理)

最近刊行されたICRPの報告書、ICRP Publication 48には、ICRP Publication 30の年摂取限度(ALI)と誘導空气中濃度(DAC)の計算に採用された代謝データと比較して、いくつかの超ウラン元素について新しいデータが示されている。

Publication 48に示された代謝データを用いて、72個の放射性核種についてALIとDACの値を計算した。この計算は、Publication 30に示された方法でALIとDACを系統的に計算することができる計算コードシステムDOSDACによって行われた。

計算されたALIとDACの値はPublication 30の補遺と同じ形式の表で示した。線量評価に使用する上で都合のよいように、単位放射能摂取当たりの預託実効線量当量の値も同時に掲載した。これらの値は放射線防護の目的に適用されることが期待される。

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1. Introduction

A new concept of radiological protection was recommended by International Commission on Radiological Protection, ICRP, in 1977 (ICRP Publication 26)/1/. Based on this concept, the procedure of estimating the internal dose resulting from intake of radionuclides by workers was described in ICRP Publication 30/2/. The values of Annual Limit on Intake, ALI, and Derived Air Concentration, DAC, were calculated for about 350 radioactive isotopes and were tabulated in the supplements to each part of the publication. Since then, these values have been widely applied to the radiation protection purposes.

The Publication 30 employed the metabolic data of plutonium and other actinides given in ICRP Publication 19/3/, which reviewed the literature published up to January 1971. Recently, ICRP committee 2 issued ICRP Publication 48 entitled 'The Metabolism of Plutonium and Related Elements'/4/. In this publication, the more reasonable metabolic data of some transuranic elements are presented by reviewing the relevant data which had been reported since 1971 till recently. The revision covers the data of 9 transuranic elements about absorption from the gastro-intestinal tract and retention in liver and bone.

Not the procedure of calculating ALI and DAC in the Publication 30 but the values themselves of ALI and DAC in the supplements have been widely used for the radiation protection purposes, since the procedure is complicated and the performance of the calculation is a hard work. As mentioned in the Publication 30, these values of ALI and DAC can be revised if new metabolic data supported by sufficient evidence become available, because the lack of knowledge on metabolism is the most significant source of uncertainty in the estimates of such dosimetric data. Therefore, it is

useful in the dose assessment to re-calculate ALI and DAC based on the more reasonable metabolic data.

In this report, values of ALI and DAC for 72 radionuclides were calculated using the new metabolic data presented in the Publication 48, by the same method as that shown in the Publication 30. These values were tabulated in the same format as that of the supplements to the Publication 30. For the convenience of using in the dose assessment, also given are values of committed effective dose equivalent per intake of unit activity, which were calculated following the definition described in ICRP Publication 26.

2. Metabolic Data Presented in ICRP Publication 48

ICRP Publication 48 contains the important changes in the following metabolic data, compared with those employed in the calculation of ALI and DAC in ICRP Publication 30 ;

- 1) f_1 value ; the fraction of an element which is absorbed from the gastro-intestinal tract,
- 2) the fraction of an element which deposits into liver and bone from the transfer compartment, and
- 3) retention half-life of an element in liver and bone.

The revision covers the data of 9 transuranic elements, which correspond to 72 radionuclides considered in the Publication 30. The new metabolic data are summarized in Table 1 to Table 3 together with those used in the Publication 30.

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The revision covers the data of 9 transuranic elements, which correspond to 72 radionuclides considered in the Publication 30. The new metabolic data are summarized in Table 1 to Table 3 together with those used in the Publication 30.

3. Calculation and Fundamental data

ALI and DAC were calculated by a computer code system DOSDAC (DOSimetric Data Calculation)/5/, which is being developed at Japan Atomic Energy Research Institute, JAERI. The DOSDAC system can systematically calculate ALI and DAC by the same method as that described in ICRP Publication 30. Of the modules constituting this system, the following three modules are equivalent to those in ICRP code/6/ ;

- 1) the SEE program to calculate specific effective energy,
- 2) the TIMED program to calculate the number of transformations in organs or tissues during 50 years, and
- 3) the DOSE program to compute ALI, DAC and to print these results considering the 10 % and 1% rules.

The fundamental data except for metabolic and nuclear decay data are the same as those used in the Publication 30. Values of specific absorbed fraction to calculate Specific Effective Energy, SEE, are the same as those tabulated in ORNL-5000/7/. Radiation data are calculated from the Evaluated Nuclear Structure Data File, ENSDF, as of August 1985/8/, using one of the modules constituting the DOSDAC system which is equivalent to the computer program EDISTR/9/. Calculated values of SEE for some radionuclides are different from those presented in the supplements to the Publication 30 because of the difference in the versions of ENSDF used.

4. Results

4.1 General

Values of ALI, DAC and committed effective dose equivalent per intake of unit activity for 72 radionuclides were calculated using the new metabolic

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4. Results

4.1 General

Values of ALI, DAC and committed effective dose equivalent per intake of unit activity for 72 radionuclides were calculated using the new metabolic

data presented in ICRP Publication 48. These radionuclides were considered in ICRP Publication 30.

Tables of Results in this report give a figure of decay chain, values of SEE, the number of transformations, committed dose equivalent, weighted committed dose equivalent, ALI and DAC for each radionuclide. Finally given are values of committed effective dose equivalent. The values except for the committed effective dose equivalent are shown in the same format as that of the supplements to the Publication 30. Therefore, the following descriptions of the tables refer to those in the supplements.

Results have been selected for inclusion in the tables by first applying the 10 % rule for exclusion of target organs, then the 1 % rule for the exclusion of source organs.

Results for a radioactive daughter refer to that quantity of the daughter that results from transformations of the parent radionuclide within the body. If a radioactive daughter contributes more than 0.1 % to the total weighted committed dose equivalent for at least one of the modes of intake of its inhaled or ingested parent radionuclide, results are printed for that daughter and any other daughters which precede that daughter in decay chain.

4.2 Specific Effective Energy

Values of SEE in a number of target organs from transformations arising in a number of source organs are given for the specified radionuclides and, where appropriate, for any radioactive daughters that are produced from transformations of the specified radionuclide within the body.

4.3 Number of Transformations

Values are given for the number of transformations, U_s , that occur in source organs during the 50 years following the ingestion and inhalation of unit activity of the specified radionuclide. Where appropriate, value of U_s are also given for any radioactive daughters that are formed from transformations of the specified radionuclide within the body. For ingestion, values of U_s are given for each appropriate value of f_1 , and for inhalation, for each appropriate inhalation class D, W or Y.

Transformations in the transfer compartment are assumed to be uniformly distributed throughout all organs and tissues of the body. Therefore, the number of transformations given for a particular organ or tissue is the sum of the following two components ;

- 1) the number of transformations in the organ or tissue calculated from the metabolic model, and
- 2) a fraction of the transformations in the transfer compartment.

4.4 Committed Dose Equivalent and Weighted Committed Dose Equivalent

For ingestion, values of committed dose equivalent and weighted committed dose equivalent per intake of unit activity are given for each appropriate value of f_1 , and for inhalation, for each appropriate inhalation class D, W or Y.

The committed dose equivalent in the gonads is taken to be the larger of the committed dose equivalents for the testes and ovaries. The value of committed dose equivalent for each organ or tissue listed under an inhalation class applies to an aerosol of activity median aerodynamic diameter of 1 μm . The percentages of the committed dose equivalent that

result from material deposited in the nasal passage (N-P), the trachea and bronchial tree (T-B) and the pulmonary parenchyma (P) regions of the lung respectively are given in parentheses beneath the value of committed dose equivalent.

'Remainder' is the name given to describe collectively all those target organs and tissues not mentioned in ;

- 1) the metabolic model,
- 2) the gastro-intestinal tract model, and
- 3) the table of weighting factors.

The committed dose equivalent assigned to the 'Remainder' is the maximum committed dose equivalent in any target organ or tissue, which is not included in 1), 2) and 3) above. In the table of committed dose equivalent, a weighting factor is given in the parenthesis under the committed dose equivalent for the 'Remainder'. This weighting factor is determined by the number of target organs and tissues, up to a maximum of 5, which are not eliminated under the 10 % rule or included in 1), 2) and 3) above. If there are no such organs or tissues, then no committed dose equivalent, or weighted committed dose equivalent, is given for remainder tissues.

Two kinds of annotations 'A' and 'B' are printed on the right side of values in these tables, which are not printed in the supplements to ICRP Publication 30. The values annotated with 'A' are those corresponding to the largest weighted committed dose equivalent and the values with 'B' resulting solely from irradiation from nearby organs.

4.5 Annual Limit on Intake and Derived Air Concentration

For ingestion, values of ALI are given for each appropriate value of f_1 , and for inhalation, for each appropriate inhalation class D, W or Y. Values of DAC are given for each appropriate inhalation class.

It is emphasized that the ALI is the basic secondary limit for workers. If ALI is determined by the non-stochastic limit on dose equivalent in a particular organ or tissue, that organ or tissue is listed beneath the value of ALI. The greatest value of the annual intake that satisfies the Commission's recommendation for limiting stochastic effects is also listed in parenthesis. When an ALI is determined by the stochastic limit, no organ is listed beneath the value of ALI.

The value of DAC should always be used with caution. It applies only to a Reference Man working for 2000 hours per year (50 weeks at 40 hours per week) under conditions of 'light activity'.

4.6 Committed Effective Dose Equivalent

For the convenience of using in the dose assessment, given are values of committed effective dose equivalent per unit intake of activity. These values are calculated following the definition shown in ICRP Publication 26, that is, the 10 % rule for exclusion of target organs and the 1 % rule for the exclusion of source organs are not applied to these values.

5. Concluding Remarks

Values of ALI and DAC shown in the supplements to ICRP Publication 30 should be revised if more reasonable metabolic data become available.

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because the lack of knowledge on metabolism is the most significant source of uncertainty in the estimates of such dosimetric data.

In this report, the values of ALI, DAC and committed effective dose equivalent per intake of unit activity for 72 radionuclides were calculated using the new metabolic data presented in ICRP Publication 48. It is expected that the calculated values will be applied to the radiation protection purposes since the calculation includes some important radionuclides in the dose assessment.

Acknowledgement

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Table 1 f_1 Value Presented in ICRP Publication 48

Element	Type of exposure, compound	$f_1 \times 10^4$	Publication 48	Publication 30
Pu	Occupational exposure			
	oxides, excluding 'polydisperse' oxides	0.1		0.1
	nitrates	1		1
	other compounds or unknown mixtures	10		1
	Population exposure (via food chains)			
	all compounds	10		
Np	Occupational and population exposure			
	all compounds	10		100
Am Cm Cf	Occupational and population exposure			
	all compounds	10		5

Table 2 Fractional Deposition into Liver and Bone Presented in ICRP Publication 48

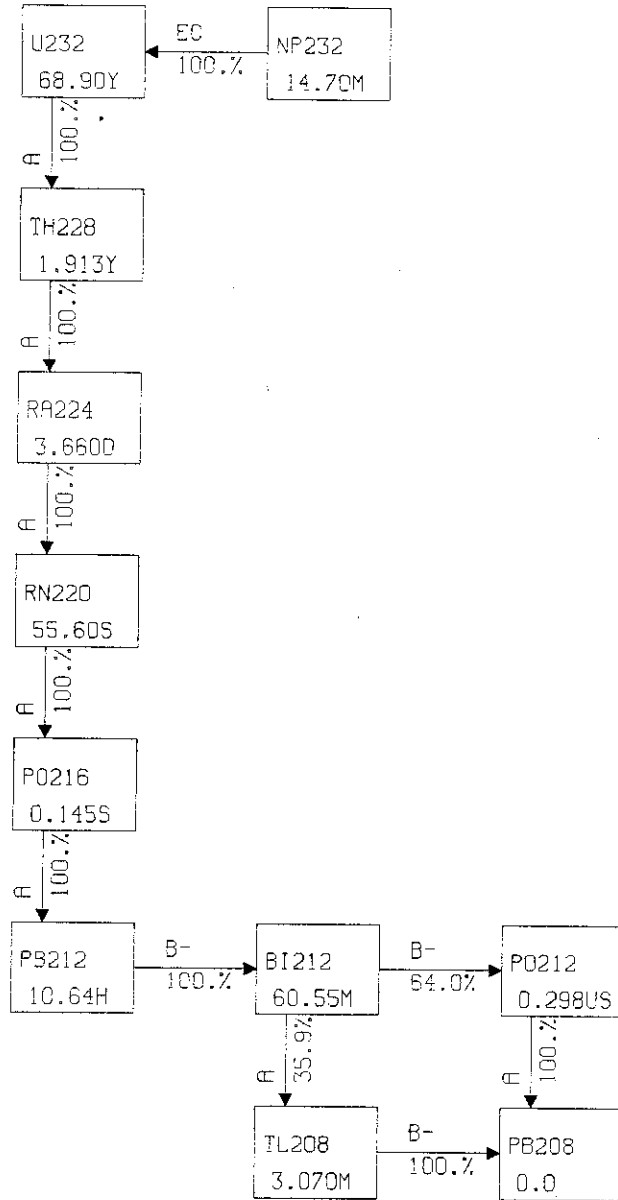
Element	Organ	Fractional deposition (%)		
		Publication 48	Publication 30	
Cf	}	Liver	25	45
Bk		Bone	65	45
Es				
Np	}	Liver	15	45
		Bone	75	45

Table 3 Retention Half-Life in Liver and Bone Presented in ICRP Publication 48

Element	Organ	Retention half-life (years)		
		Publication 48	Publication 30	
Np	}	Liver	20	40
Pu		Bone	50	100
Am				
Other actinides				

Tables of Results

Neptunium



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-232

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E-02	4.1E-06	4.0E-05	3.9E-05	3.8E-06	3.8E-06
R MARROW	1.4E-05	4.4E-06	1.1E-05	9.3E-06	1.4E-05	4.8E-05
BONE SURF	4.0E-06	2.6E-06	3.5E-06	3.1E-06	1.4E-04	1.4E-04
ST WALL	3.2E-06	4.2E-04	1.4E-05	1.5E-05	2.2E-06	2.2E-06
SI WALL	4.6E-05	1.0E-05	2.6E-04	6.5E-05	3.3E-06	3.3E-06
ULI WALL	4.4E-05	1.3E-05	9.5E-05	4.1E-04	3.0E-06	3.0E-06
PANCREAS	3.0E-06	6.8E-05	8.1E-06	8.3E-06	3.9E-06	3.9E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-232

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	9.8E+00	5.1E-10	6.0E-08	7.6E-08	1.2E-09	1.2E-09
R MARROW	1.0E-08	2.1E-09	1.2E-08	8.6E-09	1.7E-07	3.5E-02
BONE SURF	2.7E-09	1.4E-09	3.2E-09	2.3E-09	2.2E-01	2.2E-01
ST WALL	6.8E-10	2.2E-03	9.7E-09	1.3E-08	8.9E-10	8.9E-10
SI WALL	6.7E-08	3.6E-09	1.3E-03	1.3E-07	1.2E-09	1.2E-09
ULI WALL	1.4E-07	8.0E-09	8.3E-07	2.4E-03	1.3E-09	1.3E-09
PANCREAS	3.5E-10	6.9E-08	1.9E-09	2.1E-09	1.9E-09	1.9E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.0E+01	3.8E-09	1.2E-07	1.3E-07	5.6E-09	5.6E-09
R MARROW	4.9E-08	1.3E-08	4.0E-08	3.3E-08	1.5E-07	3.6E-02
BONE SURF	1.3E-08	7.5E-09	1.1E-08	9.8E-09	2.3E-01	2.3E-01
ST WALL	5.8E-09	2.2E-03	3.2E-08	3.5E-08	4.3E-09	4.3E-09
SI WALL	1.3E-07	2.1E-08	1.4E-03	2.0E-07	5.9E-09	5.9E-09
ULI WALL	1.7E-07	3.0E-08	7.6E-07	2.5E-03	5.6E-09	5.6E-09
PANCREAS	3.4E-09	1.7E-07	1.5E-08	1.7E-08	7.3E-09	7.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.6E-08	3.6E-07	4.1E-07	2.6E-08	2.6E-08
R MARROW	1.4E-07	4.5E-08	1.1E-07	9.8E-08	1.2E-07	3.8E-02
BONE SURF	4.1E-08	2.5E-08	3.5E-08	3.1E-08	2.4E-01	2.4E-01
ST WALL	2.8E-08	2.3E-03	1.3E-07	1.3E-07	2.0E-08	2.0E-08
SI WALL	4.2E-07	9.2E-08	1.4E-03	5.8E-07	2.7E-08	2.7E-08
ULI WALL	4.0E-07	1.2E-07	8.3E-07	2.5E-03	2.6E-08	2.6E-08
PANCREAS	1.8E-08	6.3E-07	7.2E-08	8.3E-08	3.7E-08	3.7E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	7.9E-10	1.2E-08	1.6E-08	1.4E-09	1.4E-09
R MARROW	4.1E-09	1.4E-09	3.3E-09	2.8E-09	4.1E-09	4.2E-02
BONE SURF	1.2E-09	8.0E-10	1.0E-09	9.5E-10	2.6E-01	2.6E-01
ST WALL	1.1E-09	2.5E-03	4.5E-09	4.8E-09	7.7E-10	7.7E-10
SI WALL	1.6E-08	3.5E-09	1.6E-03	2.1E-08	1.1E-09	1.1E-09
ULI WALL	1.5E-08	4.3E-09	3.0E-08	2.8E-03	9.4E-10	9.4E-10
PANCREAS	7.8E-10	2.3E-08	2.7E-09	2.4E-09	1.2E-09	1.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-216

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E+01	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	4.5E-02
BONE SURF	0.0	0.0	0.0	0.0	2.8E-01	2.8E-01
ST WALL	0.0	2.7E-03	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	1.7E-03	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	3.0E-03	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-212

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	1.6E-02	2.4E-07	5.7E-06	6.2E-06	3.9E-07	3.9E-07
R MARROW	2.5E-06	7.4E-07	2.0E-06	1.7E-06	2.2E-06	6.1E-05
BONE SURF	7.2E-07	4.2E-07	5.9E-07	5.3E-07	3.3E-04	3.3E-04
ST WALL	4.1E-07	3.8E-04	1.9E-06	2.0E-06	2.9E-07	2.9E-07
SI WALL	6.5E-06	1.4E-06	2.4E-04	9.1E-06	4.0E-07	4.0E-07
ULI WALL	6.1E-06	1.9E-06	1.3E-05	4.2E-04	3.8E-07	3.8E-07
PANCREAS	2.5E-07	9.8E-06	1.1E-06	1.2E-06	5.2E-07	5.2E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-212

TARGETS	SOURCES					
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE
GONADS	4.1E+00	3.5E-07	3.1E-06	3.2E-06	3.4E-07	3.4E-07
R MARROW	1.0E-06	3.4E-07	8.4E-07	7.2E-07	1.2E-06	1.5E-02
BONE SURF	3.1E-07	2.1E-07	2.7E-07	2.4E-07	9.1E-02	9.1E-02
ST WALL	3.0E-07	1.9E-03	1.2E-06	1.2E-06	2.0E-07	2.0E-07
SI WALL	3.9E-06	8.7E-07	1.2E-03	5.4E-06	2.8E-07	2.8E-07
ULI WALL	3.7E-06	1.1E-06	8.1E-06	2.1E-03	2.6E-07	2.6E-07
PANCREAS	2.3E-07	5.7E-06	6.7E-07	6.9E-07	3.5E-07	3.5E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-232

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-208

TARGETS	SOURCES				ORGAN	ISOTOPE	DRAL		INHALATION	
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT			CLASS W			
GONADS	6.1E-02	9.0E-06	8.5E-05	1.1E-04	GONADS	NP-232	f1=1.E-03		f1=1.E-03	
R MARROW	2.8E-05	9.9E-06	2.3E-05	2.0E-05	GONADS	U-232	f1=1.E-03		f1=1.E-03	
BONE SURF	8.9E-06	6.0E-06	7.7E-06	7.0E-06	GONADS	TH-228	f1=1.E-03		f1=1.E-03	
ST WALL	1.0E-05	1.7E-03	3.3E-05	3.4E-05	GONADS	RA-224	f1=1.E-03		f1=1.E-03	
SI WALL	1.1E-04	2.6E-05	1.0E-03	1.4E-04	GONADS	RN-220	f1=1.E-03		f1=1.E-03	
ULI WALL	1.0E-04	3.0E-05	2.1E-04	1.7E-03	GONADS	PB-216	f1=1.E-03		f1=1.E-03	
PANCREAS	5.6E-06	1.5E-04	2.0E-05	2.4E-05	GONADS	BI-212	f1=1.E-03		f1=1.E-03	
					GONADS	TL-208	f1=1.E-03		f1=1.E-03	
					GONADS	PO-212	f1=1.E-03		f1=1.E-03	
					GONADS	NP-232	4.8E-06		7.0E-03	
					GONADS	U-232	5.5E-05		6.6E-03	
					GONADS	TH-228	5.2E-05		6.4E-03	
					GONADS	RA-224	5.2E-05		6.4E-03	
					GONADS	RN-220	5.2E-05		6.4E-03	
					GONADS	PO-216	5.2E-05		6.4E-03	
					GONADS	PB-212	5.2E-05		6.4E-03	
					GONADS	BI-212	5.2E-05		6.4E-03	
					GONADS	TL-208	1.9E-05		2.3E-03	
					GONADS	PO-212	3.4E-05		4.1E-03	

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-212

TARGETS	SOURCES				ORGAN	ISOTOPE	DRAL		INHALATION	
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT			CLASS W			
GONADS	1.6E+01	0.0	0.0	0.0	ST CONTENT	NP-232	9.4E+02		8.2E+00	
R MARROW	0.0	0.0	0.0	0.0	ST CONTENT	U-232	1.1E-03		7.4E-04	
BONE SURF	0.0	0.0	0.0	0.0	ST CONTENT	TH-228	4.5E-08		1.0E-05	
					ST CONTENT	RA-224	3.5E-10		9.2E-06	
					ST CONTENT	RN-220	3.4E-10		9.2E-06	
					ST CONTENT	PO-216	3.4E-10		9.2E-06	
					ST CONTENT	PB-212	2.1E-11		9.1E-06	
					ST CONTENT	BI-212	8.5E-12		9.1E-06	
					ST CONTENT	TL-208	2.8E-12		3.5E-06	
					ST CONTENT	PO-212	5.4E-12		5.8E-06	
ST WALL	0.0	3.5E-03	0.0	0.0	SI CONTENT	NP-232	3.1E+02		2.7E+00	
SI WALL	0.0	0.0	2.2E-03	0.0	SI CONTENT	U-232	5.7E-03		3.0E-03	
ULI WALL	0.0	0.0	0.0	0.0	SI CONTENT	TH-228	1.1E-06		4.2E-05	
PANCREAS	0.0	0.0	0.0	0.0	SI CONTENT	RA-224	3.6E-08		3.7E-05	
					SI CONTENT	RN-220	3.5E-08		3.7E-05	
					SI CONTENT	PO-216	3.5E-08		3.7E-05	
					SI CONTENT	PB-212	7.4E-09		3.6E-05	
					SI CONTENT	BI-212	5.4E-09		3.6E-05	
					SI CONTENT	TL-208	1.9E-09		1.3E-05	
					SI CONTENT	PO-212	3.5E-09		2.3E-05	
ULI CONTENT					ULI CONTENT	NP-232	2.6E+01		2.3E-01	
ULI CONTENT					ULI CONTENT	U-232	1.9E-02		9.7E-03	
ULI CONTENT					ULI CONTENT	TH-228	1.4E-05		1.4E-04	
ULI CONTENT					ULI CONTENT	RA-224	1.4E-06		1.2E-04	
ULI CONTENT					ULI CONTENT	RN-220	1.4E-06		1.2E-04	
ULI CONTENT					ULI CONTENT	PO-216	1.4E-06		1.2E-04	
ULI CONTENT					ULI CONTENT	PB-212	6.5E-07		1.2E-04	
ULI CONTENT					ULI CONTENT	BI-212	5.9E-07		1.2E-04	
ULI CONTENT					ULI CONTENT	TL-208	2.1E-07		4.3E-05	
ULI CONTENT					ULI CONTENT	PO-212	3.8E-07		7.7E-05	

(Continued)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-232

CORT BONE	NP-232	1.9E-03	3.1E+00
CORT BONE	U -232	1.4E-01	1.7E+01
CORT BONE	TH-228	1.3E-01	1.6E+01
CORT BONE	RA-224	1.3E-01	1.6E+01
CORT BONE	RN-220	1.3E-01	1.6E+01
CORT BONE	PO-216	1.3E-01	1.6E+01
CORT BONE	PB-212	1.3E-01	1.6E+01
CORT BONE	BI-212	1.3E-01	1.6E+01
CORT BONE	TL-208	4.6E-02	5.7E+00
CORT BONE	PO-212	8.3E-02	1.0E+01
TRAB BONE	NP-232	4.0E-04	6.6E-01
TRAB BONE	U -232	1.4E-01	1.7E+01
TRAB BONE	TH-228	1.3E-01	1.6E+01
TRAB BONE	RA-224	1.3E-01	1.6E+01
TRAB BONE	RN-220	1.3E-01	1.6E+01
TRAB BONE	PO-216	1.3E-01	1.6E+01
TRAB BONE	PB-212	1.3E-01	1.6E+01
TRAB BONE	BI-212	1.3E-01	1.6E+01
TRAB BONE	TL-208	4.6E-02	5.7E+00
TRAB BONE	PO-212	8.3E-02	1.0E+01

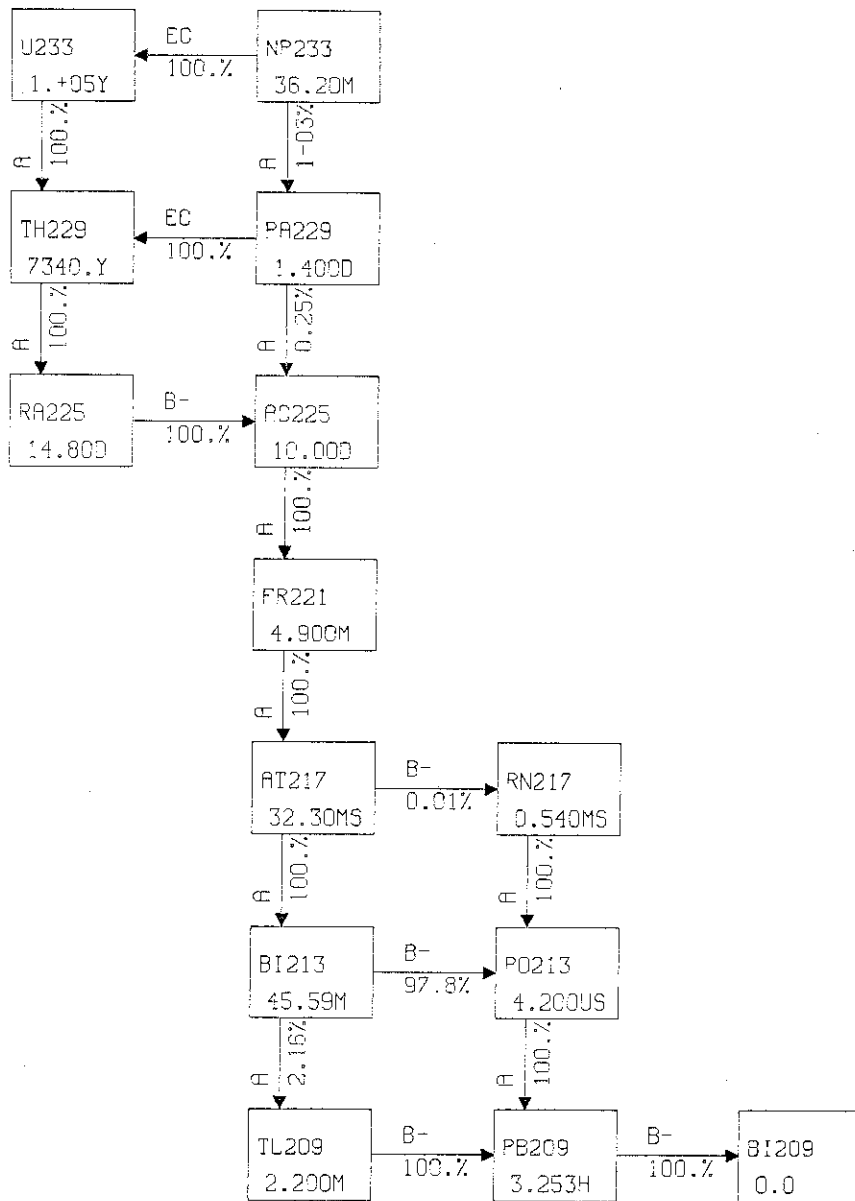
COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-232

ORAL		INHALATION	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
GONADS	R MARROW	GONADS	R MARROW
3.3E-12	6.3E-10 B	8.3E-13	7.6E-11 B
	(25, 33, 42)		(25, 33, 42)
R MARROW	BONE SURF	R MARROW	BONE SURF
6.4E-12 B	7.9E-09 AB	6.4E-12 B	7.9E-09 AB
	(25, 33, 42)		(25, 33, 42)
BONE SURF		BONE SURF	
6.5E-11 B		2.0E-12 B	

ORAL		INHALATION	
ST WALL		ST WALL	
6.4E-11 A		3.8E-12 A	
SI WALL		SI WALL	
1.4E-11		8.6E-13	
ULI WALL		ULI WALL	
8.3E-12		5.0E-13	
REMAINDER		REMAINDER	
1.1E-11 B		6.4E-13 B	
WT=0.6			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-232

ALI (Bq)		DAC (Bq/m3)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
5.E+09	f1=1.E-03	6.E+07	f1=1.E-03
		(2.E+08)	
		BONE SURF	3.E+04



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-233

TARGETS	SOURCES						
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	2.7E-08	1.8E-07	3.7E-06	4.1E-06	6.0E-06	2.4E-07	2.4E-07
LUNGS	2.2E-05	5.9E-07	6.9E-08	8.4E-08	2.4E-08	3.1E-07	3.1E-07
BONE SURF	5.5E-07	3.3E-07	4.6E-07	4.2E-07	6.1E-07	2.8E-05	2.8E-05
ST WALL	6.2E-07	4.8E-05	1.2E-06	1.3E-06	5.9E-07	1.8E-07	1.8E-07
SI WALL	6.0E-08	9.1E-07	3.1E-05	6.0E-06	3.3E-06	2.4E-07	2.4E-07
ULI WALL	7.2E-08	1.2E-06	1.0E-05	4.9E-05	1.5E-06	2.2E-07	2.2E-07
PANCREAS	8.8E-07	6.2E-06	6.8E-07	7.4E-07	2.5E-07	2.5E-07	2.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PA-229

TARGETS	SOURCES						
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E-09	9.1E-09	1.4E-06	1.9E-06	4.2E-06	2.2E-08	2.2E-08
LUNGS	5.6E-04	6.6E-08	3.3E-09	4.0E-09	1.1E-09	3.6E-08	3.6E-08
BONE SURF	8.9E-08	2.6E-08	6.8E-08	4.5E-08	1.3E-07	1.1E-03	1.1E-03
ST WALL	9.6E-08	5.3E-04	2.0E-07	3.0E-07	3.9E-08	2.0E-08	2.0E-08
SI WALL	2.8E-09	7.1E-08	3.4E-04	3.2E-06	1.7E-06	2.6E-08	2.6E-08
ULI WALL	3.4E-09	1.6E-07	2.3E-05	6.0E-04	1.2E-06	3.0E-08	3.0E-08
PANCREAS	5.3E-08	1.5E-06	3.5E-08	3.9E-08	1.2E-08	4.4E-08	4.4E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -233

TARGETS	SOURCES						
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.7E-11	4.6E-10	1.3E-05	1.9E-05	4.0E-05	4.6E-08	4.6E-08
LUNGS	1.0E-01	2.3E-07	1.9E-10	2.2E-10	6.5E-11	1.8E-07	1.8E-07
BONE SURF	4.3E-07	5.3E-08	4.1E-07	1.8E-07	7.8E-07	2.1E-01	2.1E-01
ST WALL	5.7E-07	1.2E-02	1.2E-06	2.2E-06	3.8E-08	1.3E-07	1.3E-07
SI WALL	1.6E-10	2.1E-07	7.9E-03	2.7E-05	1.5E-05	1.5E-07	1.5E-07
ULI WALL	2.0E-10	8.7E-07	3.0E-04	1.4E-02	1.3E-05	2.0E-07	2.0E-07
PANCREAS	2.9E-08	9.2E-06	3.0E-09	3.5E-09	6.3E-10	3.6E-07	3.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-229

TARGETS	SOURCES						
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.9E-08	1.0E-07	2.5E-06	2.7E-06	4.5E-06	1.5E-07	1.5E-07
LUNGS	9.9E-02	3.7E-07	4.2E-08	5.0E-08	1.5E-08	2.0E-07	2.0E-07
BONE SURF	3.4E-07	1.9E-07	2.8E-07	2.5E-07	3.8E-07	2.0E-01	2.0E-01
ST WALL	4.0E-07	2.1E-03	7.8E-07	8.3E-07	3.6E-07	1.1E-07	1.1E-07
SI WALL	3.6E-08	5.5E-07	1.3E-03	4.1E-06	2.3E-06	1.5E-07	1.5E-07
ULI WALL	4.3E-08	7.6E-07	8.9E-06	2.3E-03	1.1E-06	1.4E-07	1.4E-07
PANCREAS	5.4E-07	4.1E-06	4.1E-07	4.6E-07	1.4E-07	1.8E-07	1.8E-07

JAERI-M 87-099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-225

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.4E-09	1.5E-08	7.9E-07	8.2E-07	1.8E-06	4.1E-08	4.1E-08
LUNGS	1.1E-04	1.0E-07	3.0E-09	4.0E-09	6.9E-10	4.5E-08	4.5E-08
BONE SURF	1.3E-07	5.0E-08	8.0E-08	7.2E-08	1.6E-07	2.2E-04	2.2E-04
ST WALL	1.0E-07	2.2E-04	1.9E-07	2.6E-07	7.6E-08	1.7E-08	1.7E-08
SI WALL	2.4E-09	1.1E-07	1.4E-04	1.6E-06	8.3E-07	2.8E-08	2.8E-08
ULI WALL	3.4E-09	2.1E-07	3.3E-06	2.5E-04	3.5E-07	2.4E-08	2.4E-08
PANCREAS	1.3E-07	1.5E-06	6.0E-08	6.3E-08	1.3E-08	2.8E-08	2.8E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AC-225

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.1E-09	2.1E-08	4.6E-07	5.0E-07	7.7E-07	3.0E-08	3.0E-08
LUNGS	1.2E-01	7.3E-08	9.3E-09	1.1E-08	3.2E-09	4.0E-08	4.0E-08
BONE SURF	6.2E-08	3.7E-08	5.2E-08	4.7E-08	6.9E-08	2.4E-01	2.4E-01
ST WALL	7.8E-08	2.3E-03	1.5E-07	1.6E-07	7.4E-08	2.3E-08	2.3E-08
SI WALL	7.8E-09	1.1E-07	1.4E-03	7.2E-07	4.0E-07	3.1E-08	3.1E-08
ULI WALL	9.5E-09	1.5E-07	1.1E-06	2.6E-03	1.8E-07	2.9E-08	2.9E-08
PANCREAS	1.1E-07	7.7E-07	8.5E-08	9.5E-08	3.0E-08	3.6E-08	3.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FR-221

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E-08	4.4E-08	1.0E-06	1.1E-06	1.9E-06	7.1E-08	7.1E-08
LUNGS	1.3E-01	1.7E-07	2.5E-08	2.7E-08	8.4E-09	9.6E-08	9.6E-08
BONE SURF	1.2E-07	7.4E-08	1.0E-07	9.2E-08	1.3E-07	2.6E-01	2.6E-01
ST WALL	1.8E-07	2.6E-03	3.6E-07	3.7E-07	1.7E-07	5.6E-08	5.6E-08
SI WALL	2.0E-08	2.6E-07	1.6E-03	1.7E-06	9.3E-07	7.5E-08	7.5E-08
ULI WALL	2.4E-08	3.5E-07	2.4E-06	2.9E-03	4.2E-07	7.2E-08	7.2E-08
PANCREAS	2.5E-07	1.8E-06	2.0E-07	2.3E-07	6.8E-08	1.0E-07	1.0E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AT-217

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	1.4E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	2.9E-01	2.9E-01
ST WALL	0.0	2.8E-03	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	1.8E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	3.1E-03	0.0	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-213

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.2E-08	1.5E-07	2.6E-06	3.5E-06	4.8E-06	2.8E-07	2.8E-07
LUNGS	3.0E-03	5.2E-07	9.0E-08	9.4E-08	2.9E-08	2.8E-07	2.8E-07
BONE SURF	3.0E-07	1.8E-07	2.4E-07	2.2E-07	3.2E-07	5.3E-03	5.4E-03
ST WALL	5.3E-07	9.7E-04	9.9E-07	1.0E-06	5.1E-07	1.7E-07	1.7E-07
SI WALL	7.5E-08	7.5E-07	6.1E-04	4.7E-06	2.6E-06	2.3E-07	2.3E-07
ULI WALL	1.0E-07	9.6E-07	6.6E-06	1.1E-03	1.2E-06	2.0E-07	2.0E-07
PANCREAS	7.7E-07	5.0E-06	5.9E-07	5.5E-07	2.1E-07	2.7E-07	2.7E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-217

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	1.6E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	3.2E-01	3.2E-01
ST WALL	0.0	3.1E-03	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	1.9E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	3.5E-03	0.0	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-209

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E-06	5.5E-06	5.2E-05	5.3E-05	1.1E-04	6.0E-06	6.0E-06
LUNGS	7.8E-04	1.2E-05	2.2E-06	2.7E-06	1.1E-06	6.4E-06	6.4E-06
BONE SURF	6.5E-06	4.0E-06	5.3E-06	4.8E-06	6.8E-06	1.3E-04	1.9E-04
ST WALL	1.3E-05	1.7E-03	2.3E-05	2.1E-05	1.1E-05	3.9E-06	3.9E-06
SI WALL	2.1E-06	1.6E-05	1.1E-03	9.8E-05	5.6E-05	5.0E-06	5.0E-06
ULI WALL	2.8E-06	2.3E-05	1.4E-04	1.8E-03	2.8E-05	4.8E-06	4.8E-06
PANCREAS	1.6E-05	1.1E-04	1.2E-05	1.3E-05	4.5E-06	7.2E-06	7.2E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-213

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	1.7E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	3.5E-01	3.5E-01
ST WALL	0.0	3.4E-03	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	2.1E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	3.7E-03	0.0	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-233

ORGAN	ISOTOPE	ORAL		INHALATION		ULI CONTENT	NP-233	2.4E+02	5.1E+00
		f1=1.E-03	f1=1.E-03	CLASS W	f1=1.E-03				
LUNGS	NP-233	f1=1.E-03	f1=1.E-03	9.3E+02	f1=1.E-03	LLI CONTENT	NP-233	1.6E+01	3.3E-01
LUNGS	PA-229	f1=1.E-03	f1=1.E-03	0.0	f1=1.E-03	LLI CONTENT	PA-229	0.0	0.0
LUNGS	U-233	f1=1.E-03	f1=1.E-03	4.5E-04	f1=1.E-03	LLI CONTENT	U-233	3.7E-05	1.9E-05
LUNGS	TH-229	f1=1.E-03	f1=1.E-03	8.8E-09	f1=1.E-03	LLI CONTENT	TH-229	1.7E-11	8.2E-11
LUNGS	RA-225	f1=1.E-03	f1=1.E-03	6.9E-09	f1=1.E-03	LLI CONTENT	RA-225	9.1E-13	5.6E-11
LUNGS	AC-225	f1=1.E-03	f1=1.E-03	5.8E-09	f1=1.E-03	LLI CONTENT	AC-225	6.6E-14	4.6E-11
LUNGS	FR-221	f1=1.E-03	f1=1.E-03	5.8E-09	f1=1.E-03	LLI CONTENT	FR-221	6.5E-14	4.6E-11
LUNGS	AT-217	f1=1.E-03	f1=1.E-03	5.8E-09	f1=1.E-03	LLI CONTENT	AT-217	6.5E-14	4.6E-11
LUNGS	BI-213	f1=1.E-03	f1=1.E-03	5.8E-13	f1=1.E-03	LLI CONTENT	BI-213	6.5E-14	4.6E-11
LUNGS	RN-217	f1=1.E-03	f1=1.E-03	5.8E-13	f1=1.E-03	LLI CONTENT	RN-217	6.5E-18	4.6E-15
LUNGS	TL-209	f1=1.E-03	f1=1.E-03	1.3E-10	f1=1.E-03	LLI CONTENT	TL-209	1.4E-15	9.9E-13
LUNGS	PO-213	f1=1.E-03	f1=1.E-03	5.7E-09	f1=1.E-03	LLI CONTENT	PO-213	6.1E-14	4.5E-11
ST CONTENT	NP-233	1.7E+03	3.5E+01	3.5E+01	3.5E+01	CORT BONE	NP-233	2.2E-02	1.4E+01
ST CONTENT	PA-229	0.0	0.0	0.0	0.0	CORT BONE	PA-229	0.0	0.0
ST CONTENT	U-233	8.3E-07	7.8E-07	7.8E-07	7.8E-07	CORT BONE	U-233	1.8E-04	2.2E-02
ST CONTENT	TH-229	9.0E-15	3.1E-12	3.1E-12	3.1E-12	CORT BONE	TH-229	3.9E-07	4.7E-05
ST CONTENT	RA-225	1.7E-17	2.3E-12	2.3E-12	2.3E-12	CORT BONE	RA-225	3.9E-07	4.7E-05
ST CONTENT	AC-225	5.0E-20	1.9E-12	1.9E-12	1.9E-12	CORT BONE	AC-225	3.9E-07	4.7E-05
ST CONTENT	FR-221	4.5E-20	1.9E-12	1.9E-12	1.9E-12	CORT BONE	FR-221	3.9E-07	4.7E-05
ST CONTENT	AT-217	4.5E-20	1.9E-12	1.9E-12	1.9E-12	CORT BONE	AT-217	3.9E-07	4.7E-05
ST CONTENT	BI-213	2.1E-20	1.9E-12	1.9E-12	1.9E-12	CORT BONE	BI-213	3.9E-07	4.7E-05
ST CONTENT	RN-217	4.5E-24	1.9E-16	1.9E-16	1.9E-16	CORT BONE	RN-217	3.9E-11	4.7E-09
ST CONTENT	TL-209	4.4E-22	4.0E-14	4.0E-14	4.0E-14	CORT BONE	TL-209	8.5E-09	1.0E-06
ST CONTENT	PO-213	2.1E-20	1.8E-12	1.8E-12	1.8E-12	CORT BONE	PO-213	3.8E-07	4.6E-05
SI CONTENT	NP-233	1.2E+03	2.5E+01	2.5E+01	2.5E+01	TRAB BONE	NP-233	8.9E-03	5.4E+00
SI CONTENT	PA-229	0.0	0.0	0.0	0.0	TRAB BONE	PA-229	0.0	0.0
SI CONTENT	U-233	5.7E-06	3.2E-06	3.2E-06	3.2E-06	TRAB BONE	U-233	1.8E-04	2.2E-02
SI CONTENT	TH-229	2.8E-13	1.2E-11	1.2E-11	1.2E-11	TRAB BONE	TH-229	3.9E-07	4.7E-05
SI CONTENT	RA-225	2.2E-15	9.0E-12	9.0E-12	9.0E-12	TRAB BONE	RA-225	3.9E-07	4.7E-05
SI CONTENT	AC-225	2.6E-17	7.5E-12	7.5E-12	7.5E-12	TRAB BONE	AC-225	3.9E-07	4.7E-05
SI CONTENT	FR-221	2.5E-17	7.5E-12	7.5E-12	7.5E-12	TRAB BONE	FR-221	3.9E-07	4.7E-05
SI CONTENT	AT-217	2.5E-17	7.5E-12	7.5E-12	7.5E-12	TRAB BONE	AT-217	3.9E-07	4.7E-05
SI CONTENT	BI-213	2.0E-17	7.5E-12	7.5E-12	7.5E-12	TRAB BONE	BI-213	3.9E-07	4.7E-05
SI CONTENT	RN-217	2.5E-21	7.5E-16	7.5E-16	7.5E-16	TRAB BONE	RN-217	3.9E-11	4.7E-09
SI CONTENT	TL-209	4.2E-19	1.6E-13	1.6E-13	1.6E-13	TRAB BONE	TL-209	8.5E-09	1.0E-06
SI CONTENT	PO-213	1.9E-17	7.3E-12	7.3E-12	7.3E-12	TRAB BONE	PO-213	3.8E-07	4.6E-05

(Continued)

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COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-233

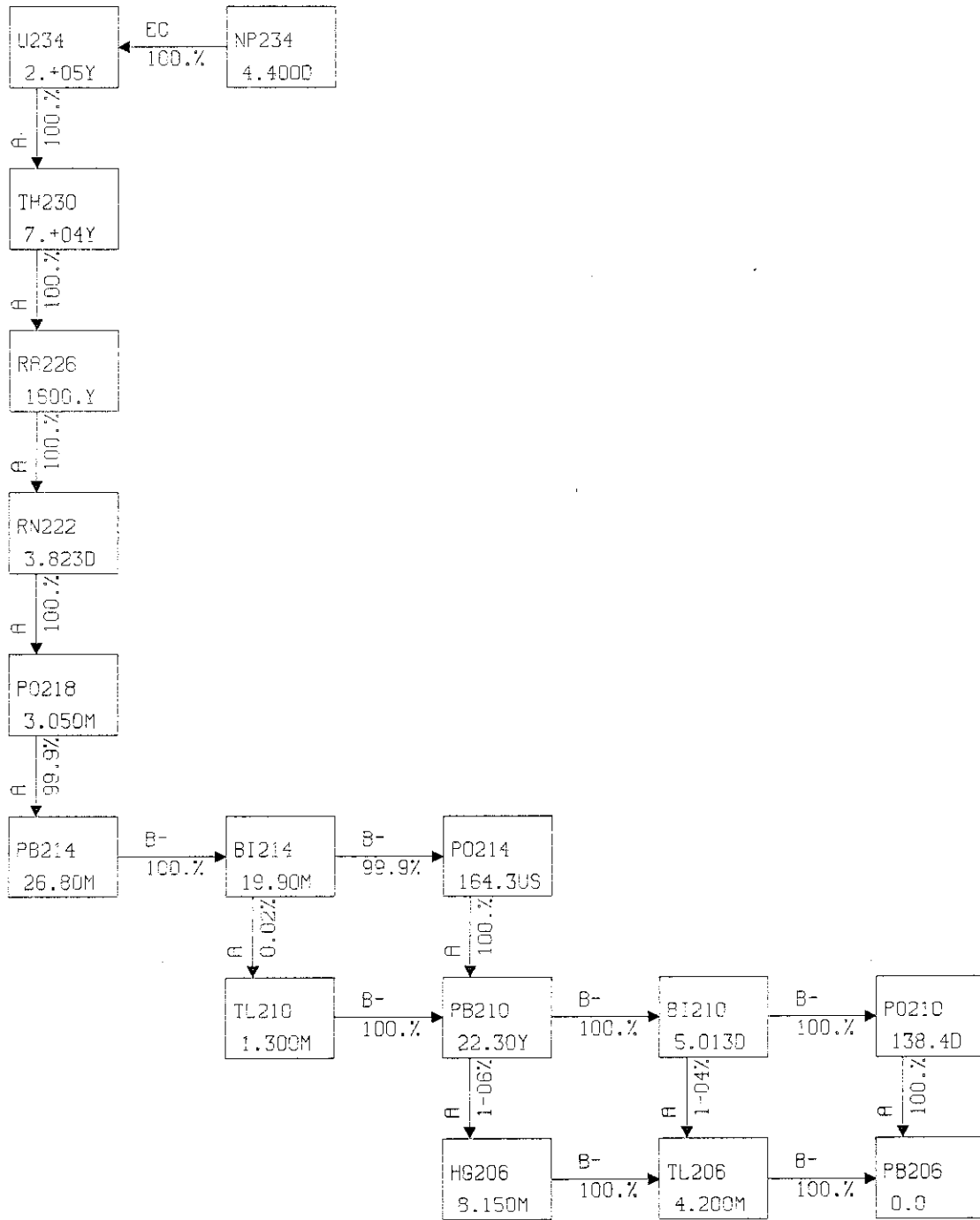
<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 9.4E-13	LUNGS 3.3E-12 A (0, 16, 84)
ST WALL 1.3E-11 A	BONE SURF 1.7E-12 B (25, 34, 41)
SI WALL 6.3E-12	
ULI WALL 4.2E-12	
REMAINDER 1.8E-12 B WT=.06	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-233

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 2.3E-13	LUNGS 3.9E-13 A
ST WALL 7.9E-13 A	BONE SURF 5.0E-14 B
SI WALL 3.8E-13	
ULI WALL 2.5E-13	
REMAINDER 1.1E-13 B	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-233

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
3.E+10	1.E+11	5.E+07



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-234

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	5.6E-03	6.2E-07	3.5E-06	2.9E-05	2.6E-05	5.7E-05	3.3E-06	3.2E-06	3.2E-06
BREAST	6.8E-06	4.6E-06	4.9E-06	5.3E-06	5.1E-06	5.8E-06	3.9E-06	3.9E-06	3.9E-06
R MARROW	1.1E-05	4.5E-06	3.5E-06	8.7E-06	7.5E-06	1.1E-05	3.8E-06	1.1E-05	2.1E-05
LUNGS	5.8E-07	8.3E-05	6.2E-06	1.2E-06	1.5E-06	6.0E-07	8.6E-06	3.4E-06	3.4E-06
SI WALL	3.8E-05	1.1E-06	8.5E-06	1.4E-04	5.3E-05	3.0E-05	5.7E-06	2.7E-06	2.7E-06
ULI WALL	3.7E-05	1.5E-06	1.2E-05	7.9E-05	2.2E-04	1.5E-05	7.7E-06	2.6E-06	2.6E-06
LLI WALL	4.7E-05	2.5E-07	4.9E-06	2.4E-05	1.0E-05	2.9E-04	1.3E-06	3.5E-06	3.5E-06
LIVER	2.4E-06	8.1E-06	7.0E-06	6.4E-06	8.6E-06	1.5E-06	1.0E-04	2.6E-06	2.6E-06
UTERUS	5.7E-05	8.4E-07	3.5E-06	2.8E-05	1.7E-05	2.0E-05	2.1E-06	2.3E-06	2.3E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -234

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	8.8E+00	3.4E-11	2.7E-10	4.7E-08	6.1E-08	1.4E-07	1.9E-10	7.5E-10	7.5E-10
BREAST	1.6E-08	1.2E-08	3.5E-09	4.7E-09	2.9E-09	3.9E-09	4.0E-09	2.1E-09	2.1E-09
R MARROW	6.6E-09	3.7E-09	1.2E-09	9.0E-09	5.9E-09	1.9E-08	2.3E-09	1.4E-07	3.2E-02
LUNGS	1.8E-11	9.7E-02	2.3E-09	7.7E-11	9.8E-11	2.5E-11	8.4E-09	1.2E-09	1.2E-09
SI WALL	5.3E-08	6.5E-11	2.2E-09	1.2E-03	1.1E-07	5.8E-08	1.3E-09	8.1E-10	8.1E-10
ULI WALL	1.2E-07	8.2E-11	5.6E-09	7.0E-07	2.2E-03	3.9E-08	2.3E-09	9.2E-10	9.2E-10
LLI WALL	1.5E-07	1.8E-11	6.7E-10	8.8E-08	1.0E-08	3.6E-03	7.4E-11	2.3E-09	2.3E-09
LIVER	2.0E-10	6.5E-09	1.5E-09	1.8E-09	2.3E-09	8.4E-11	5.4E-02	6.9E-10	6.9E-10
UTERUS	3.5E-08	2.9E-11	2.6E-10	1.6E-08	3.5E-09	4.8E-09	1.5E-10	2.5E-10	2.5E-10

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NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-234

ORGAN	ISOTOPE	ORAL	INHALATION
			CLASS W
	NP-234	f1=1.E-03	f1=1.E-03
	U -234	f1=1.E-03	f1=1.E-03
GONADS	NP-234	6.0E-02	4.5E+00
GONADS	U -234	8.5E-06	1.0E-03
LUNGS	NP-234		8.9E+04
LUNGS	U -234		4.6E-02
ST CONTENT	NP-234	3.6E+03	1.3E+03
ST CONTENT	U -234	1.2E-06	2.5E-05
SI CONTENT	NP-234	1.4E+04	5.2E+03
SI CONTENT	U -234	2.3E-05	1.1E-04
ULI CONTENT	NP-234	4.2E+04	1.5E+04
ULI CONTENT	U -234	2.5E-04	4.1E-04
LLI CONTENT	NP-234	6.7E+04	2.5E+04
LLI CONTENT	U -234	9.7E-04	9.5E-04
LIVER	NP-234	7.6E+01	5.8E+03
LIVER	U -234	5.4E-03	6.6E-01
CORT BONE	NP-234	1.9E+02	1.4E+04
CORT BONE	U -234	2.1E-02	2.5E+00
TRAB BONE	NP-234	1.9E+02	1.4E+04
TRAB BONE	U -234	2.1E-02	2.5E+00

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-234

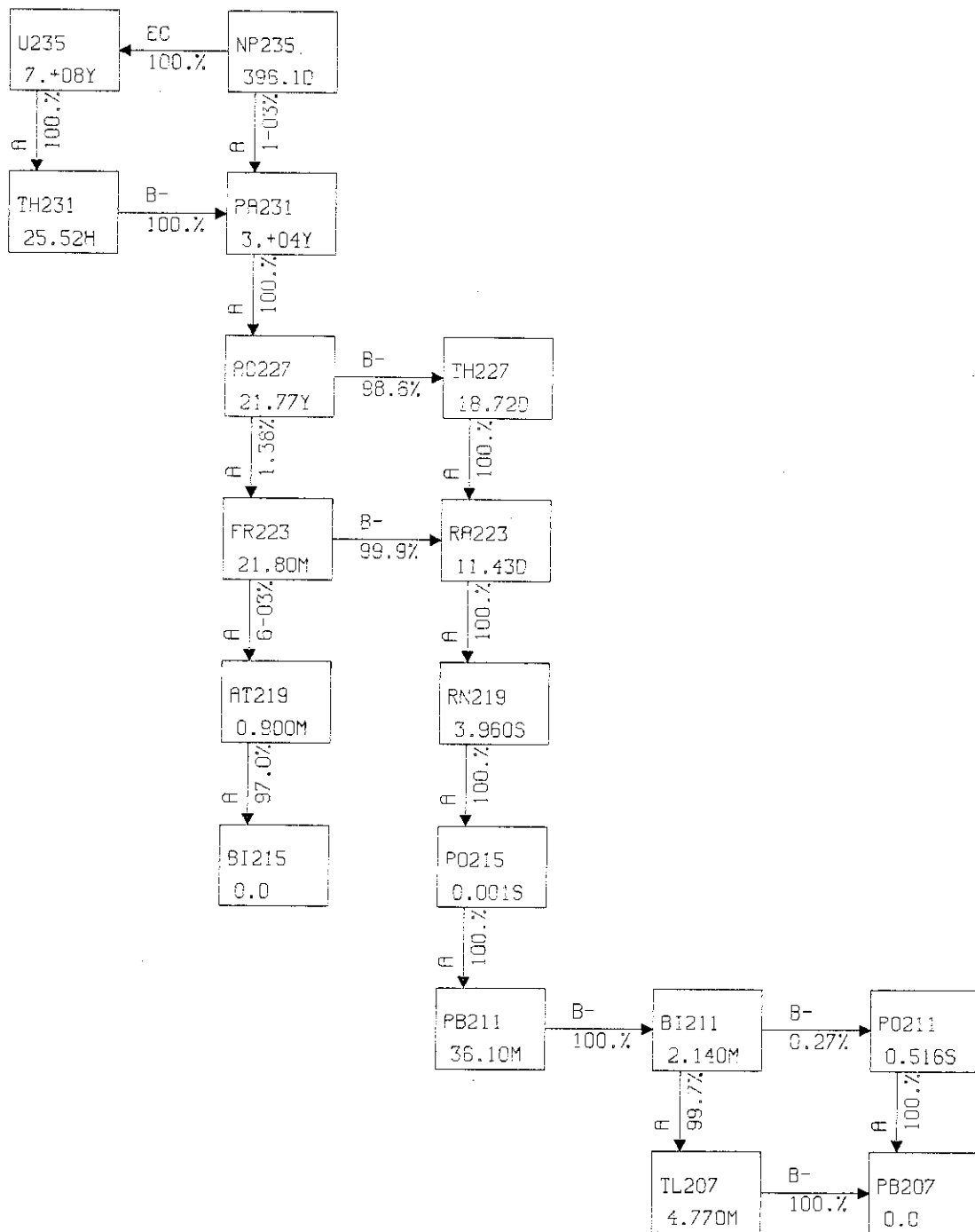
ORAL	INHALATION
	CLASS W
f1=1.E-03	f1=1.E-03
GONADS	GONADS
8.5E-10 A	3.5E-10 (63, 13, 24)
R MARROW	BREAST
1.9E-10 B	1.3E-10 B (28, 13, 59)
SI WALL	R MARROW
1.0E-09	2.2E-10 B (36, 24, 40)
ULI WALL	LUNGS
1.8E-09	1.2E-09 A (1, 2, 97)
LLI WALL	SI WALL
3.2E-09	4.1E-10 (63, 12, 25)
REMAINDER	ULI WALL
3.9E-10 B WT=.06	7.0E-10 (64, 11, 25)
	LLI WALL
	1.2E-09 (66, 11, 23)
	LIVER
	2.6E-10 (26, 25, 49)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-234

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 2.1E-10 A	GONADS 8.6E-11
R MARROW 2.3E-11 B	BREAST 1.9E-11 B
SI WALL 6.0E-11	R MARROW 2.7E-11 B
ULI WALL 1.1E-10	LUNGS 1.5E-10 A
LLI WALL 1.9E-10	SI WALL 2.4E-11
REMAINDER 2.4E-11 B	ULI WALL 4.2E-11
	LLI WALL 7.3E-11
	LIVER 1.6E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-234

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
8.E+07	1.E+08	5.E+04



JAERI--M 87-099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-235

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E-03	5.3E-10	2.4E-07	3.0E-07	6.8E-07	2.8E-09	7.1E-09	7.1E-09
R MARROW	5.9E-08	2.6E-08	6.0E-08	4.6E-08	1.1E-07	1.9E-08	5.3E-07	3.7E-06
LUNGS	3.5E-10	1.3E-05	1.4E-09	1.7E-09	4.9E-10	4.8E-08	9.6E-09	9.6E-09
BONE SURF	1.6E-08	2.2E-08	1.6E-08	1.3E-08	3.0E-08	1.5E-08	2.0E-05	2.0E-05
ULI WALL	5.2E-07	1.4E-09	2.6E-06	2.3E-05	1.7E-07	2.3E-08	7.0E-09	7.0E-09
LLI WALL	6.8E-07	3.2E-10	3.7E-07	6.1E-08	3.6E-05	1.5E-09	1.4E-08	1.4E-08
LIVER	3.5E-09	4.0E-08	1.7E-08	2.3E-08	1.5E-09	8.2E-06	6.2E-09	6.2E-09

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-235

ORGAN	ORAL	INHALATION
	f1=1.E-03	CLASS W f1=1.E-03
GONADS	5.4E+00	6.2E+02
LUNGS		9.1E+05
SI CONTENT	1.4E+04	7.2E+03
ULI CONTENT	4.7E+04	2.3E+04
LLI CONTENT	8.6E+04	4.3E+04
LIVER	7.0E+03	8.0E+05
CORT BONE	1.8E+04	2.1E+06
TRAB BONE	1.8E+04	2.1E+06

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-235

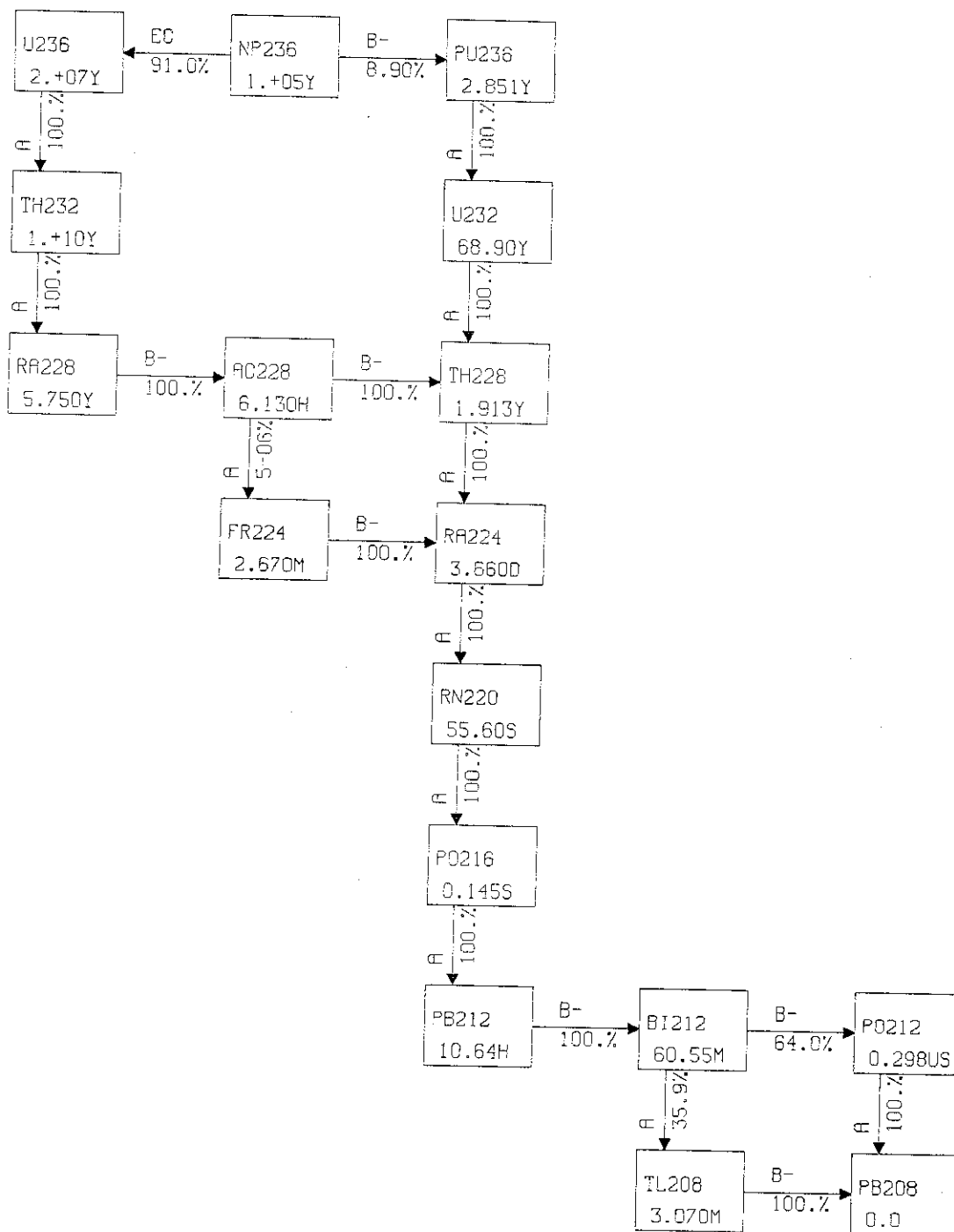
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 1.3E-11	R MARROW 1.4E-09 B (27, 35, 38)
BONE SURF 1.2E-10 B	LUNGS 1.9E-09 (0, 0, 100)
ULI WALL 1.8E-10	BONE SURF 1.3E-08 AB (27, 35, 38)
LLI WALL 5.0E-10 A	LIVER 1.1E-09 (26, 35, 39)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-235

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 3.3E-12	R MARROW 1.7E-10 B
BONE SURF 3.5E-12 B	LUNGS 2.3E-10
ULI WALL 1.1E-11	BONE SURF 4.0E-10 AB
LLI WALL 3.0E-11 A	LIVER 6.3E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-235

<u>ORAL</u>	<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>	
	<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
1.E+09 (1.E+09) LLI WALL	4.E+07 (6.E+07) BONE SURF	4.E+07 (6.E+07) BONE SURF	2.E+04	2.E+04



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -232

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.7E-07 3.5E-02
BONE SURF 2.2E-01 2.2E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-228

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 8.8E-08 6.0E-06
BONE SURF 3.7E-05 3.7E-05

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AC-228

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.0E-05 1.7E-04
BONE SURF 2.6E-04 3.0E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.5E-07 3.6E-02
BONE SURF 2.3E-01 2.3E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-236

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 3.9E-06 7.6E-05
BONE SURF 4.5E-04 4.5E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -236

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.3E-07 3.0E-02
BONE SURF 1.9E-01 1.9E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-236

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.8E-07 3.8E-02
BONE SURF 2.4E-01 2.4E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-232

SOURCES

TARGETS
CORT BONE TRAB BONE
R MARROW 1.1E-07 2.7E-02
BONE SURF 1.7E-01 1.7E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-212

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	2.2E-06	6.1E-05
BONE SURF	3.3E-04	3.3E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-212

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	1.2E-06	1.5E-02
BONE SURF	9.1E-02	9.1E-02

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-208

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	2.9E-05	2.3E-04
BONE SURF	1.2E-04	1.7E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-212

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	0.0	5.9E-02
BONE SURF	3.7E-01	3.7E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FR-224

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	7.2E-06	3.0E-04
BONE SURF	1.3E-04	2.1E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	1.2E-07	3.8E-02
BONE SURF	2.4E-01	2.4E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	4.1E-09	4.2E-02
BONE SURF	2.6E-01	2.6E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-216

SOURCES

TARGETS	CORT BONE	TRAB BONE
R MARROW	0.0	4.5E-02
BONE SURF	2.8E-01	2.8E-01

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-236

ORGAN	ORAL		INHALATION	
	CLASS W	f1	CLASS W	f1
NP-236	4.3E+05	f1=1.E-03	5.1E+07	f1=1.E-03
U-236	2.5E-01	f1=1.E-03	3.1E+01	f1=1.E-03
PU-236	3.4E+04	f1=1.E-03	4.1E+06	f1=1.E-03
TH-232	2.0E-10	f1=1.E-03	2.4E-08	f1=1.E-03
U-232	6.1E+03	f1=1.E-03	7.4E+05	f1=1.E-03
RA-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
AC-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
TH-228	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
FR-224	0.0	f1=1.E-03	0.0	f1=1.E-03
RA-224	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
RN-220	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PO-216	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PB-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
BI-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
TL-208	1.9E+03	f1=1.E-03	2.3E+05	f1=1.E-03
PO-212	3.5E+03	f1=1.E-03	4.2E+05	f1=1.E-03

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-236

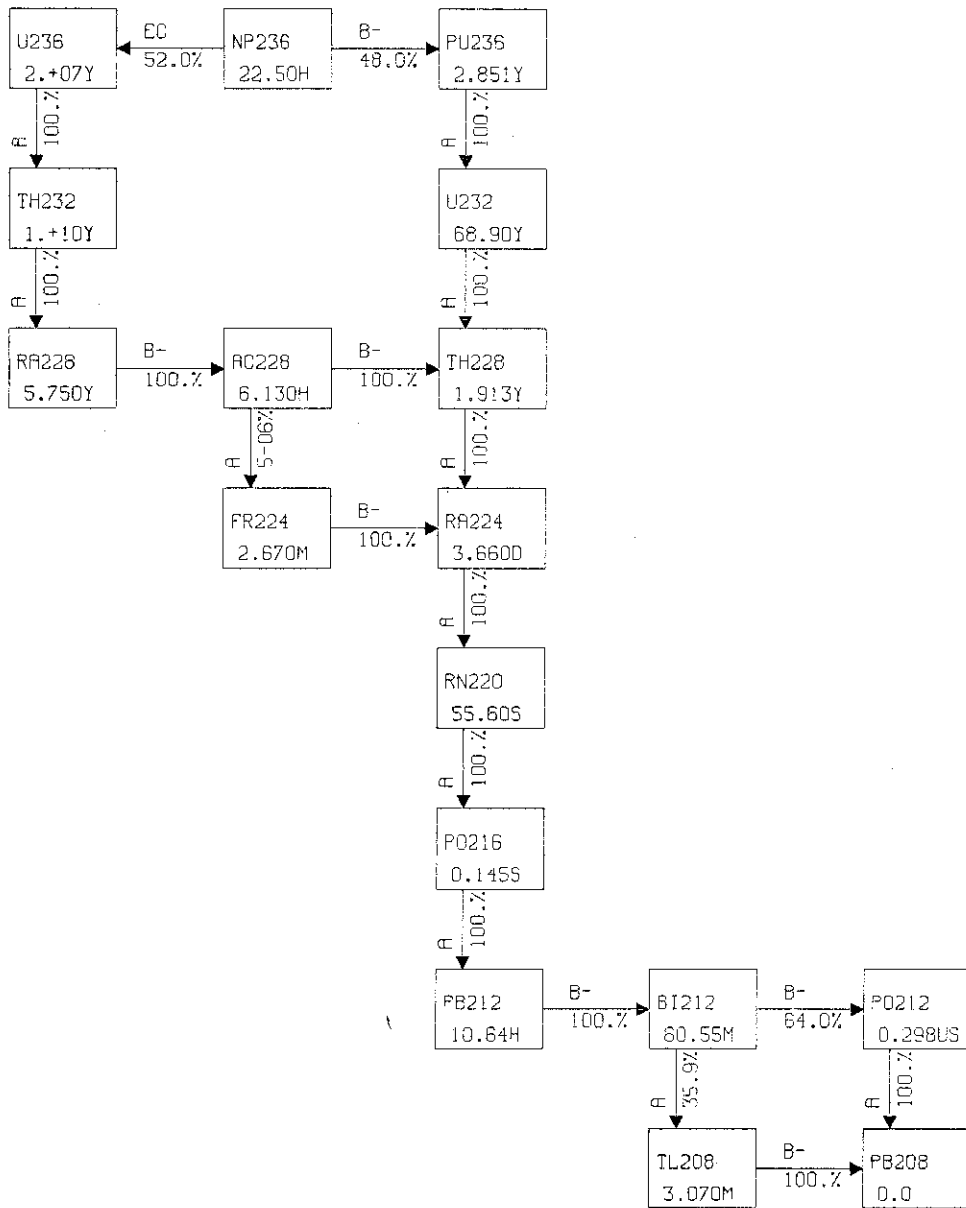
ORGAN	ORAL		INHALATION	
	CLASS W	f1	CLASS W	f1
NP-236	4.3E+05	f1=1.E-03	5.1E+07	f1=1.E-03
U-236	2.5E-01	f1=1.E-03	3.1E+01	f1=1.E-03
PU-236	3.4E+04	f1=1.E-03	4.1E+06	f1=1.E-03
TH-232	2.0E-10	f1=1.E-03	2.4E-08	f1=1.E-03
U-232	6.1E+03	f1=1.E-03	7.4E+05	f1=1.E-03
RA-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
AC-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
TH-228	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
FR-224	0.0	f1=1.E-03	0.0	f1=1.E-03
RA-224	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
RN-220	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PO-216	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PB-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
BI-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
TL-208	1.9E+03	f1=1.E-03	2.3E+05	f1=1.E-03
PO-212	3.5E+03	f1=1.E-03	4.2E+05	f1=1.E-03

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-236

ORGAN	ORAL		INHALATION	
	CLASS W	f1	CLASS W	f1
NP-236	4.3E+05	f1=1.E-03	5.1E+07	f1=1.E-03
U-236	2.5E-01	f1=1.E-03	3.1E+01	f1=1.E-03
PU-236	3.4E+04	f1=1.E-03	4.1E+06	f1=1.E-03
TH-232	2.0E-10	f1=1.E-03	2.4E-08	f1=1.E-03
U-232	6.1E+03	f1=1.E-03	7.4E+05	f1=1.E-03
RA-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
AC-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
TH-228	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
FR-224	0.0	f1=1.E-03	0.0	f1=1.E-03
RA-224	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
RN-220	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PO-216	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PB-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
BI-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
TL-208	1.9E+03	f1=1.E-03	2.3E+05	f1=1.E-03
PO-212	3.5E+03	f1=1.E-03	4.2E+05	f1=1.E-03

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-236

ORGAN	ALI (Bq)		DAC (Bq/m ³)	
	CLASS W	f1	CLASS W	f1
NP-236	4.3E+05	f1=1.E-03	5.1E+07	f1=1.E-03
U-236	2.5E-01	f1=1.E-03	3.1E+01	f1=1.E-03
PU-236	3.4E+04	f1=1.E-03	4.1E+06	f1=1.E-03
TH-232	2.0E-10	f1=1.E-03	2.4E-08	f1=1.E-03
U-232	6.1E+03	f1=1.E-03	7.4E+05	f1=1.E-03
RA-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
AC-228	1.2E-10	f1=1.E-03	1.5E-08	f1=1.E-03
TH-228	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
FR-224	0.0	f1=1.E-03	0.0	f1=1.E-03
RA-224	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
RN-220	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PO-216	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
PB-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
BI-212	5.4E+03	f1=1.E-03	6.5E+05	f1=1.E-03
TL-208	1.9E+03	f1=1.E-03	2.3E+05	f1=1.E-03
PO-212	3.5E+03	f1=1.E-03	4.2E+05	f1=1.E-03



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-236

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.2E-03	2.0E-06	2.2E-06	3.3E-06	1.4E-07	1.4E-07
R MARROW	1.1E-06	8.2E-07	7.1E-07	1.0E-06	1.1E-06	3.0E-05
BONE SURF	2.9E-07	2.4E-07	2.2E-07	3.2E-07	1.8E-04	1.8E-04
SI WALL	2.3E-06	1.2E-04	3.2E-06	1.8E-06	1.3E-07	1.3E-07
ULI WALL	2.2E-06	5.8E-06	2.1E-04	8.3E-07	1.2E-07	1.2E-07
LLI WALL	3.0E-06	1.5E-06	6.0E-07	3.3E-04	1.8E-07	1.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-236

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.3E+00	4.2E-08	5.5E-08	1.3E-07	5.6E-10	5.6E-10
R MARROW	4.7E-09	7.3E-09	4.6E-09	1.6E-08	1.3E-07	3.0E-02
BONE SURF	1.2E-09	1.8E-09	1.2E-09	4.1E-09	1.9E-01	1.9E-01
SI WALL	4.7E-08	1.1E-03	9.8E-08	5.2E-08	6.2E-10	6.2E-10
ULI WALL	1.1E-07	6.6E-07	2.0E-03	3.6E-08	7.4E-10	7.4E-10
LLI WALL	1.4E-07	8.1E-08	9.1E-09	3.4E-03	2.0E-09	2.0E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-236

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	6.1E-08	8.0E-08	2.0E-07	9.0E-10	9.0E-10
R MARROW	6.7E-09	1.0E-08	6.8E-09	2.6E-08	1.8E-07	3.8E-02
BONE SURF	1.6E-09	2.5E-09	1.7E-09	6.4E-09	2.4E-01	2.4E-01
SI WALL	7.3E-08	1.5E-03	1.5E-07	8.0E-08	8.1E-10	8.1E-10
ULI WALL	1.6E-07	8.7E-07	2.6E-03	5.1E-08	1.0E-09	1.0E-09
LLI WALL	2.1E-07	1.1E-07	1.4E-08	4.3E-03	2.8E-09	2.8E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-232

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	7.4E+00	3.5E-08	4.4E-08	9.4E-08	6.8E-10	6.8E-10
R MARROW	7.1E-09	8.0E-09	5.5E-09	1.4E-08	1.1E-07	2.7E-02
BONE SURF	1.8E-09	2.1E-09	1.5E-09	3.7E-09	1.7E-01	1.7E-01
SI WALL	3.7E-08	1.0E-03	7.3E-08	3.9E-08	8.1E-10	8.1E-10
ULI WALL	8.1E-08	5.2E-07	1.8E-03	2.8E-08	8.4E-10	8.4E-10
LLI WALL	1.0E-07	6.3E-08	7.5E-09	3.0E-03	1.9E-09	1.9E-09

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-232

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	9.8E+00	6.0E-08	7.6E-08	1.7E-07	1.2E-09	1.2E-09
R MARROW	1.0E-08	1.2E-08	8.6E-09	2.5E-08	1.7E-07	3.5E-02
BONE SURF	2.7E-09	3.2E-09	2.3E-09	6.4E-09	2.2E-01	2.2E-01
SI WALL	6.7E-08	1.3E-03	1.3E-07	7.2E-08	1.2E-09	1.2E-09
ULI WALL	1.4E-07	8.3E-07	2.4E-03	4.7E-08	1.3E-09	1.3E-09
LLI WALL	1.8E-07	1.1E-07	1.3E-08	4.0E-03	3.1E-09	3.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-228

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.7E-03	1.8E-08	2.6E-08	5.4E-08	2.8E-11	2.8E-11
R MARROW	1.5E-10	2.3E-09	9.1E-10	3.9E-09	8.8E-08	6.0E-06
BONE SURF	3.6E-11	5.5E-10	2.2E-10	9.4E-10	3.7E-05	3.7E-05
SI WALL	1.6E-08	2.3E-05	3.6E-08	2.0E-08	2.0E-10	2.0E-10
ULI WALL	4.9E-08	4.4E-07	4.1E-05	1.8E-08	2.8E-10	2.8E-10
LLI WALL	5.9E-08	4.3E-08	3.2E-09	6.7E-05	8.5E-10	8.5E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AC-228

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.7E-02	3.0E-05	2.7E-05	5.3E-05	3.0E-06	3.0E-06
R MARROW	9.5E-06	7.8E-06	6.6E-06	9.7E-06	1.0E-05	1.7E-04
BONE SURF	2.9E-06	2.5E-06	2.2E-06	3.3E-06	2.6E-04	3.0E-04
SI WALL	3.5E-05	7.0E-04	4.9E-05	2.8E-05	2.6E-06	2.6E-06
ULI WALL	3.4E-05	7.3E-05	1.2E-03	1.3E-05	2.4E-06	2.4E-06
LLI WALL	4.3E-05	2.2E-05	9.9E-06	2.0E-03	3.3E-06	3.3E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.0E+01	1.2E-07	1.3E-07	2.4E-07	5.6E-09	5.6E-09
R MARROW	4.9E-08	4.0E-08	3.3E-08	5.5E-08	1.5E-07	3.6E-02
BONE SURF	1.3E-08	1.1E-08	9.8E-09	1.6E-08	2.3E-01	2.3E-01
SI WALL	1.3E-07	1.4E-03	2.0E-07	1.1E-07	5.9E-09	5.9E-09
ULI WALL	1.7E-07	7.6E-07	2.5E-03	6.1E-08	5.6E-09	5.6E-09
LLI WALL	2.2E-07	1.2E-07	3.0E-08	4.1E-03	9.1E-09	9.1E-09

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FR-224

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.0E-02	2.1E-05	2.0E-05	3.9E-05	2.0E-06	2.0E-06
R MARROW	7.5E-06	6.1E-06	5.2E-06	7.4E-06	7.2E-06	3.0E-04
BONE SURF	2.3E-06	1.9E-06	1.7E-06	2.5E-06	1.3E-04	2.1E-04
SI WALL	2.6E-05	1.1E-03	3.6E-05	2.0E-05	1.8E-06	1.8E-06
ULI WALL	2.4E-05	5.1E-05	2.1E-03	9.5E-06	1.7E-06	1.7E-06
LLI WALL	3.1E-05	1.5E-05	6.9E-06	3.3E-03	2.3E-06	2.3E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	3.6E-07	4.1E-07	6.8E-07	2.6E-08	2.6E-08
R MARROW	1.4E-07	1.1E-07	9.8E-08	1.4E-07	1.2E-07	3.8E-02
BONE SURF	4.1E-08	3.5E-08	3.1E-08	4.5E-08	2.4E-01	2.4E-01
SI WALL	4.2E-07	1.4E-03	5.8E-07	3.3E-07	2.7E-08	2.7E-08
ULI WALL	4.0E-07	8.3E-07	2.5E-03	1.5E-07	2.6E-08	2.6E-08
LLI WALL	5.1E-07	2.5E-07	1.1E-07	4.2E-03	3.7E-08	3.7E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	1.2E-08	1.6E-08	2.1E-08	1.4E-09	1.4E-09
R MARROW	4.1E-09	3.3E-09	2.8E-09	4.1E-09	4.1E-09	4.2E-02
BONE SURF	1.2E-09	1.0E-09	9.5E-10	1.4E-09	2.6E-01	2.6E-01
SI WALL	1.6E-08	1.6E-03	2.1E-08	1.2E-08	1.1E-09	1.1E-09
ULI WALL	1.5E-08	3.0E-08	2.8E-03	5.5E-09	9.4E-10	9.4E-10
LLI WALL	1.9E-08	8.9E-09	4.0E-09	4.7E-03	1.3E-09	1.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-216

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E+01	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	4.5E-02
BONE SURF	0.0	0.0	0.0	0.0	2.8E-01	2.8E-01
SI WALL	0.0	1.7E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	3.0E-03	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	5.0E-03	0.0	0.0

JAERI-M 87-099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF Pb-212

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.6E-02	5.7E-06	6.2E-06	1.0E-05	3.9E-07	3.9E-07
R MARROW	2.5E-06	2.0E-06	1.7E-06	2.5E-06	2.2E-06	6.1E-05
BONE SURF	7.2E-07	5.9E-07	5.3E-07	7.8E-07	3.3E-04	3.3E-04
SI WALL	6.5E-06	2.4E-04	9.1E-06	5.0E-06	4.0E-07	4.0E-07
ULI WALL	6.1E-06	1.3E-05	4.2E-04	2.3E-06	3.8E-07	3.8E-07
LLI WALL	7.9E-06	3.9E-06	1.6E-06	6.8E-04	5.5E-07	5.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF Bi-212

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.1E+00	3.1E-06	3.2E-06	5.7E-06	3.4E-07	3.4E-07
R MARROW	1.0E-06	8.4E-07	7.2E-07	1.1E-06	1.2E-06	1.5E-02
BONE SURF	3.1E-07	2.7E-07	2.4E-07	3.6E-07	9.1E-02	9.1E-02
SI WALL	3.9E-06	1.2E-03	5.4E-06	3.0E-06	2.8E-07	2.8E-07
ULI WALL	3.7E-06	8.1E-06	2.1E-03	1.4E-06	2.6E-07	2.6E-07
LLI WALL	4.7E-06	2.4E-06	1.1E-06	3.5E-03	3.5E-07	3.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF Tl-208

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.1E-02	8.5E-05	1.1E-04	1.5E-04	9.5E-06	9.5E-06
R MARROW	2.8E-05	2.3E-05	2.0E-05	2.9E-05	2.9E-05	2.3E-04
BONE SURF	8.9E-06	7.7E-06	7.0E-06	1.0E-05	1.2E-04	1.7E-04
SI WALL	1.1E-04	1.0E-03	1.4E-04	8.4E-05	8.0E-06	8.0E-06
ULI WALL	1.0E-04	2.1E-04	1.7E-03	3.8E-05	7.5E-06	7.5E-06
LLI WALL	1.3E-04	6.8E-05	2.8E-05	2.7E-03	9.5E-06	9.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF Po-212

TARGETS	SOURCES					
	GONADS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.6E+01	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	5.9E-02
BONE SURF	0.0	0.0	0.0	0.0	3.7E-01	3.7E-01
SI WALL	0.0	2.2E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	3.9E-03	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	6.5E-03	0.0	0.0

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-236

ORGAN	ISOTOPE	ORAL		INHALATION		ULI CONTENT	NP-236	2.9E+04	7.6E+03
		CLASS W	f1	CLASS W	f1				
GONADS	NP-236	f1=1.E-03	1.2E-02	f1=1.E-03	9.8E-01	ULI CONTENT	NP-236	2.9E+04	7.6E+03
	U-236	f1=1.E-03	9.9E-09	f1=1.E-03	1.2E-06	ULI CONTENT	U-236	1.0E-06	9.3E-07
	PU-236	6.2E-03	6.2E-03	7.3E-01	7.3E-01	ULI CONTENT	PU-236	7.7E+00	6.9E+00
	TH-232	1.2E-17	1.2E-17	1.5E-15	1.5E-15	ULI CONTENT	TH-232	8.3E-20	2.7E-18
	U-232	2.3E-03	2.3E-03	2.7E-01	2.7E-01	ULI CONTENT	U-232	1.3E-04	4.0E-03
	RA-228	8.8E-18	8.8E-18	1.1E-15	1.1E-15	ULI CONTENT	RA-228	1.5E-23	6.0E-20
	AC-228	2.2E-03	2.2E-03	1.1E-15	1.1E-15	ULI CONTENT	AC-228	9.2E-24	6.0E-20
	TH-228	0.0	0.0	2.6E-01	2.6E-01	ULI CONTENT	TH-228	7.1E-08	2.5E-04
	FR-224	2.2E-03	2.2E-03	0.0	0.0	ULI CONTENT	FR-224	0.0	0.0
	RA-224	2.2E-03	2.2E-03	2.6E-01	2.6E-01	ULI CONTENT	RA-224	6.7E-09	2.4E-04
	RN-220	2.2E-03	2.2E-03	2.6E-01	2.6E-01	ULI CONTENT	RN-220	6.7E-09	2.4E-04
	PO-216	2.2E-03	2.2E-03	2.6E-01	2.6E-01	ULI CONTENT	PO-216	6.7E-09	2.4E-04
	PB-212	2.2E-03	2.2E-03	2.6E-01	2.6E-01	ULI CONTENT	PB-212	3.1E-09	2.3E-04
	BI-212	2.2E-03	2.2E-03	2.6E-01	2.6E-01	ULI CONTENT	BI-212	2.8E-09	2.3E-04
	TL-208	7.8E-04	7.8E-04	9.4E-02	9.4E-02	ULI CONTENT	TL-208	9.9E-10	8.4E-05
	PO-212	1.4E-03	1.4E-03	1.7E-01	1.7E-01	ULI CONTENT	PO-212	1.8E-09	1.5E-04
SI CONTENT	NP-236	1.2E-02	1.2E-02	9.8E-01	9.8E-01	LLI CONTENT	NP-236	3.1E+04	8.1E+03
	U-236	9.9E-09	9.9E-09	1.2E-06	1.2E-06	LLI CONTENT	U-236	3.2E-06	2.0E-06
	PU-236	6.2E-03	6.2E-03	7.3E-01	7.3E-01	LLI CONTENT	PU-236	2.4E+01	1.5E+01
	TH-232	1.2E-17	1.2E-17	1.5E-15	1.5E-15	LLI CONTENT	TH-232	5.8E-19	5.3E-18
	U-232	2.3E-03	2.3E-03	2.7E-01	2.7E-01	LLI CONTENT	U-232	9.0E-04	7.8E-03
	RA-228	8.8E-18	8.8E-18	1.1E-15	1.1E-15	LLI CONTENT	RA-228	2.2E-22	1.1E-19
	AC-228	2.2E-03	2.2E-03	1.1E-15	1.1E-15	LLI CONTENT	AC-228	1.7E-22	1.1E-19
	TH-228	0.0	0.0	2.6E-01	2.6E-01	LLI CONTENT	TH-228	1.0E-06	4.8E-04
	FR-224	2.2E-03	2.2E-03	0.0	0.0	LLI CONTENT	FR-224	0.0	0.0
	RA-224	2.2E-03	2.2E-03	2.6E-01	2.6E-01	LLI CONTENT	RA-224	1.7E-07	4.4E-04
	RN-220	2.2E-03	2.2E-03	2.6E-01	2.6E-01	LLI CONTENT	RN-220	1.7E-07	4.4E-04
	PO-216	2.2E-03	2.2E-03	2.6E-01	2.6E-01	LLI CONTENT	PO-216	1.7E-07	4.4E-04
	PB-212	2.2E-03	2.2E-03	2.6E-01	2.6E-01	LLI CONTENT	PB-212	1.1E-07	4.4E-04
	BI-212	2.2E-03	2.2E-03	2.6E-01	2.6E-01	LLI CONTENT	BI-212	1.0E-07	4.4E-04
	TL-208	7.8E-04	7.8E-04	9.4E-02	9.4E-02	LLI CONTENT	TL-208	3.7E-08	1.6E-04
	PO-212	1.4E-03	1.4E-03	1.7E-01	1.7E-01	LLI CONTENT	PO-212	6.5E-08	2.8E-04
CORT BONE	NP-236	1.2E+04	1.2E+04	3.3E+03	3.3E+03	CORT BONE	NP-236	3.1E+01	2.5E+03
	U-236	1.1E-07	1.1E-07	2.3E-07	2.3E-07	CORT BONE	U-236	2.4E-05	2.9E-03
	PU-236	8.5E-01	8.5E-01	1.7E+00	1.7E+00	CORT BONE	PU-236	2.0E+01	2.3E+03
	TH-232	2.6E-21	2.6E-21	8.1E-19	8.1E-19	CORT BONE	TH-232	2.7E-14	3.2E-12
	U-232	4.1E-06	4.1E-06	1.2E-03	1.2E-03	CORT BONE	U-232	5.6E+00	6.7E+02
	RA-228	1.5E-25	1.5E-25	1.8E-20	1.8E-20	CORT BONE	RA-228	1.9E-14	2.3E-12
	AC-228	4.6E-26	4.6E-26	1.8E-20	1.8E-20	CORT BONE	AC-228	1.9E-14	2.3E-12
	TH-228	6.9E-10	6.9E-10	7.8E-05	7.8E-05	CORT BONE	TH-228	6.3E+02	6.3E+02
	FR-224	0.0	0.0	0.0	0.0	CORT BONE	FR-224	0.0	0.0
	RA-224	2.1E-11	2.1E-11	7.2E-05	7.2E-05	CORT BONE	RA-224	5.2E+00	6.3E+02
	RN-220	2.1E-11	2.1E-11	7.2E-05	7.2E-05	CORT BONE	RN-220	5.2E+00	6.3E+02
	PO-216	2.1E-11	2.1E-11	7.2E-05	7.2E-05	CORT BONE	PO-216	5.2E+00	6.3E+02
	PB-212	4.3E-12	4.3E-12	7.2E-05	7.2E-05	CORT BONE	PB-212	5.2E+00	6.3E+02
	BI-212	3.2E-12	3.2E-12	7.2E-05	7.2E-05	CORT BONE	BI-212	5.2E+00	6.3E+02
	TL-208	1.1E-12	1.1E-12	2.6E-05	2.6E-05	CORT BONE	TL-208	1.9E+00	2.2E+02
	PO-212	2.0E-12	2.0E-12	4.6E-05	4.6E-05	CORT BONE	PO-212	3.3E+00	4.0E+02

(Continued)

(Continued)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-236

TRAB BONE	NP-236	3.0E+01	2.4E+03
TRAB BONE	U -236	2.4E-05	2.9E-03
TRAB BONE	PU-236	2.0E+01	2.3E+03
TRAB BONE	TH-232	2.7E-14	3.2E-12
TRAB BONE	U -232	5.6E+00	6.7E+02
TRAB BONE	RA-228	1.9E-14	2.3E-12
TRAB BONE	AC-228	1.9E-14	2.3E-12
TRAB BONE	TH-228	5.2E+00	6.3E+02
TRAB BONE	FR-224	0.0	0.0
TRAB BONE	RA-224	5.2E+00	6.3E+02
TRAB BONE	RN-220	5.2E+00	6.3E+02
TRAB BONE	PO-216	5.2E+00	6.3E+02
TRAB BONE	PB-212	5.2E+00	6.3E+02
TRAB BONE	BI-212	5.2E+00	6.3E+02
TRAB BONE	TL-208	1.9E+00	2.2E+02
TRAB BONE	PO-212	3.3E+00	4.0E+02

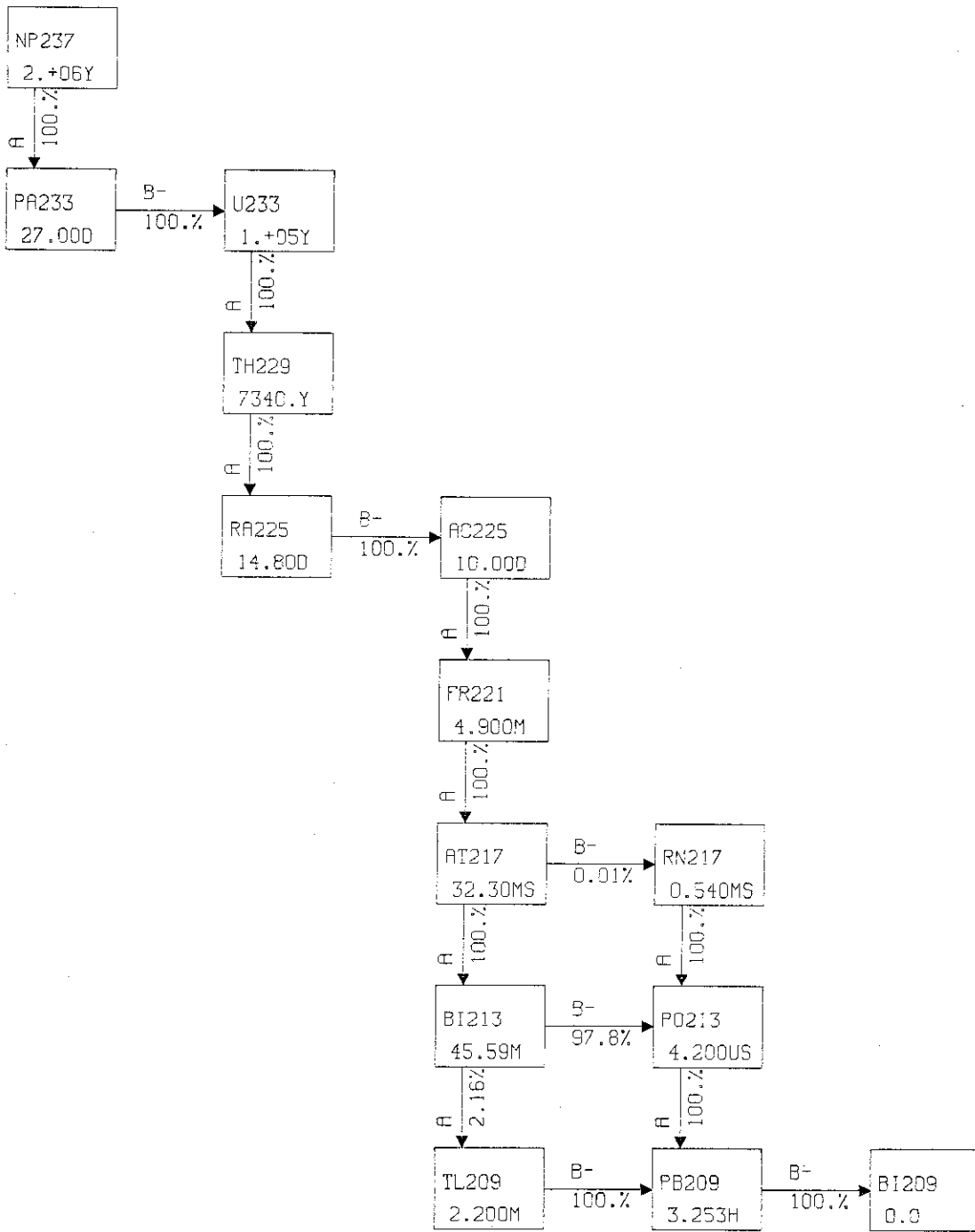
COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-236

	ORAL	INHALATION
f1=1.E-03		CLASS W f1=1.E-03
GONADS		R MARROW
6.5E-11		4.0E-08 B (25, 33, 42)
R MARROW		BONE SURF
3.4E-10 B		4.9E-07 AB (25, 33, 42)
BONE SURF		
4.1E-09 AB		
SI WALL		
2.5E-10		
ULI WALL		
9.7E-10		
LLI WALL		
1.6E-09		

	ORAL	INHALATION
f1=1.E-03		CLASS W f1=1.E-03
GONADS		R MARROW
1.6E-11		4.7E-09 B
R MARROW		BONE SURF
4.1E-11 B		1.5E-08 AB
BONE SURF		
1.2E-10 AB		
SI WALL		
1.5E-11		
ULI WALL		
5.8E-11		
LLI WALL		
9.9E-11		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR NP-236

	ALI (Bq)	DAC (Bq/m ³)
ORAL		INHALATION
	CLASS W	CLASS W
f1=1.E-03	f1=1.E-03	f1=1.E-03
1.E+08	1.E+06	4.E+02
(1.E+08)	(3.E+06)	
BONE SURF	BONE SURF	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-237 SOURCES

TARGETS	CORT BONE	TRAB BONE	ORAL	INHALATION
R MARROW	1.4E-06	3.2E-02	f1=1.E-03	CLASS W f1=1.E-03
BONE SURF	2.0E-01	2.0E-01	R MARROW 2.2E-06 B	R MARROW 2.6E-04 B (25, 33, 42)
			BONE SURF 2.7E-05 AB	BONE SURF 3.3E-03 AB (25, 33, 42)

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PA-233 SOURCES

TARGETS	CORT BONE	TRAB BONE	ORAL	INHALATION
R MARROW	3.0E-06	6.8E-05	f1=1.E-03	CLASS W f1=1.E-03
BONE SURF	3.5E-04	3.5E-04	R MARROW 2.6E-07 B	R MARROW 3.1E-05 B
			BONE SURF 8.1E-07 AB	BONE SURF 9.8E-05 AB

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF NP-237

ORGAN	ISOTOPE	CLASS W	ORAL	INHALATION
	NP-237	f1=1.E-03	f1=1.E-03	f1=1.E-03
	PA-233	f1=1.E-03	f1=1.E-03	f1=1.E-03
CORT BONE	NP-237	4.3E+05	5.1E+07	5.1E+07
CORT BONE	PA-233	4.3E+05	5.1E+07	5.1E+07
TRAB BONE	NP-237	4.3E+05	5.1E+07	5.1E+07
TRAB BONE	PA-233	4.3E+05	5.1E+07	5.1E+07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-237

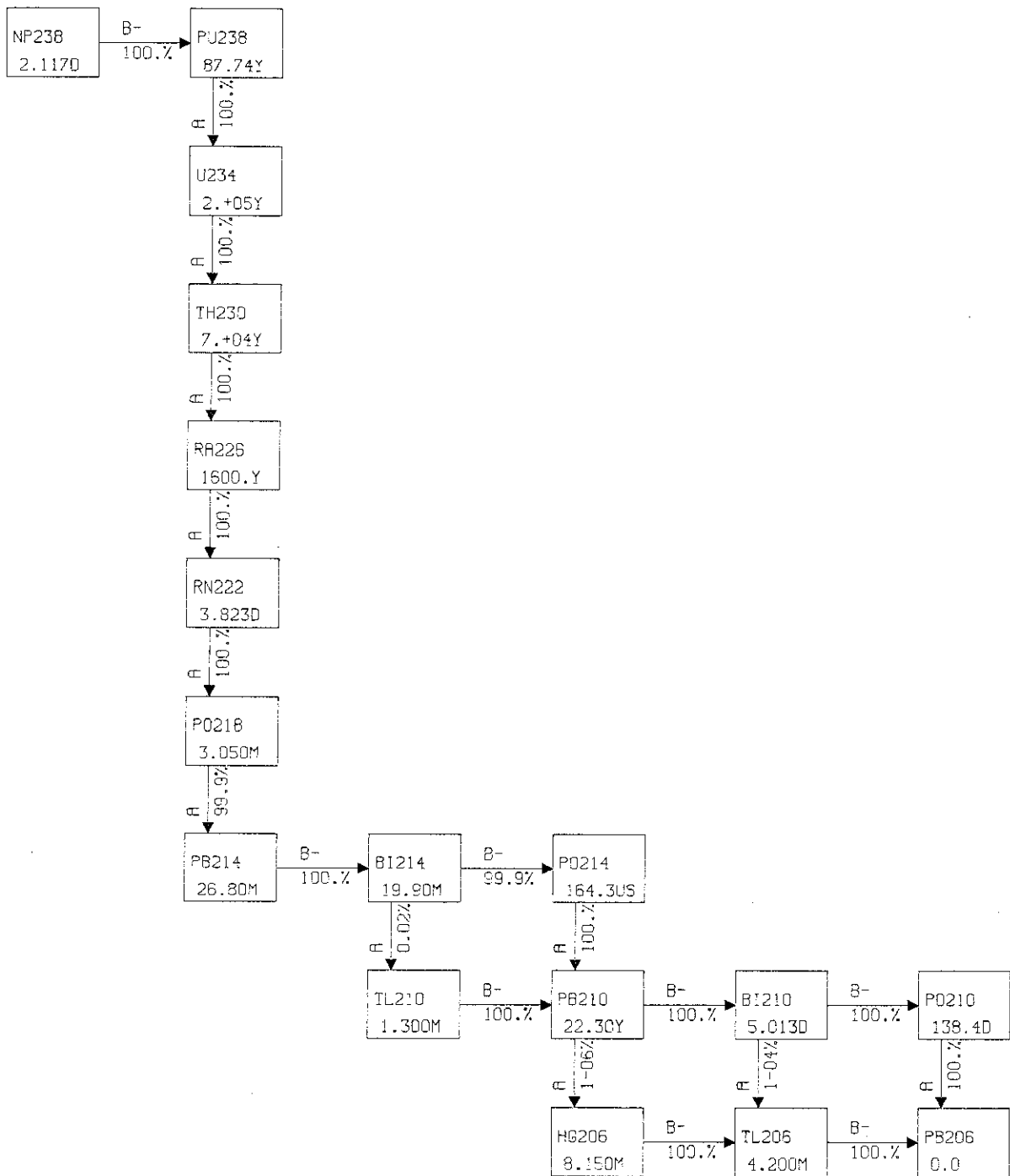
TARGETS	CORT BONE	TRAB BONE	ORAL	INHALATION
R MARROW	1.4E-06	3.2E-02	f1=1.E-03	CLASS W f1=1.E-03
BONE SURF	2.0E-01	2.0E-01	R MARROW 2.2E-06 B	R MARROW 2.6E-04 B (25, 33, 42)
			BONE SURF 2.7E-05 AB	BONE SURF 3.3E-03 AB (25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-237

TARGETS	CORT BONE	TRAB BONE	ORAL	INHALATION
R MARROW	3.0E-06	6.8E-05	f1=1.E-03	CLASS W f1=1.E-03
BONE SURF	3.5E-04	3.5E-04	R MARROW 2.6E-07 B	R MARROW 3.1E-05 B
			BONE SURF 8.1E-07 AB	BONE SURF 9.8E-05 AB

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-237

ALI (Bq)	ORAL	INHALATION	CLASS W	INHALATION
	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
2.E+04 (5.E+04)	2.E+04 (4.E+02)	2.E+04 (4.E+02)	2.E+04 (4.E+02)	2.E+04 (4.E+02)
BONE SURF	BONE SURF	BONE SURF	BONE SURF	BONE SURF



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-238

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-238

TARGETS	SOURCES			ORGAN	ISOTOPE	ORAL		INHALATION	
	GONADS	SI CONTENT	ULI CONTENT			CLASS W	CLASS W		
GONADS	2.0E-02	2.2E-05	1.5E-05	GONADS	NP-238	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	6.0E-06	5.0E-06	4.1E-06	GONADS	NP-238	2.8E-02	9.5E-03	2.2E+00	1.1E+00
BONE SURF	1.9E-06	1.6E-06	1.4E-06	SI CONTENT	NP-238	1.3E+04	6.1E-02	4.4E+03	1.9E-01
SI WALL	2.3E-05	3.1E-04	3.3E-05	SI CONTENT	NP-238	3.7E+04	6.3E-01	1.2E+04	7.7E-01
ULI WALL	2.2E-05	4.8E-05	5.4E-04	ULI CONTENT	NP-238	5.2E+04	2.3E+00	1.7E+04	1.8E+00
LLI WALL	2.8E-05	1.4E-05	6.9E-06	LLI CONTENT	NP-238	8.4E+01	2.4E+01	6.4E+03	2.9E+03
				CORT BONE	NP-238	8.3E+01	2.4E+01	6.3E+03	2.9E+03
				TRAB BONE	NP-238	8.3E+01	2.4E+01	6.3E+03	2.9E+03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

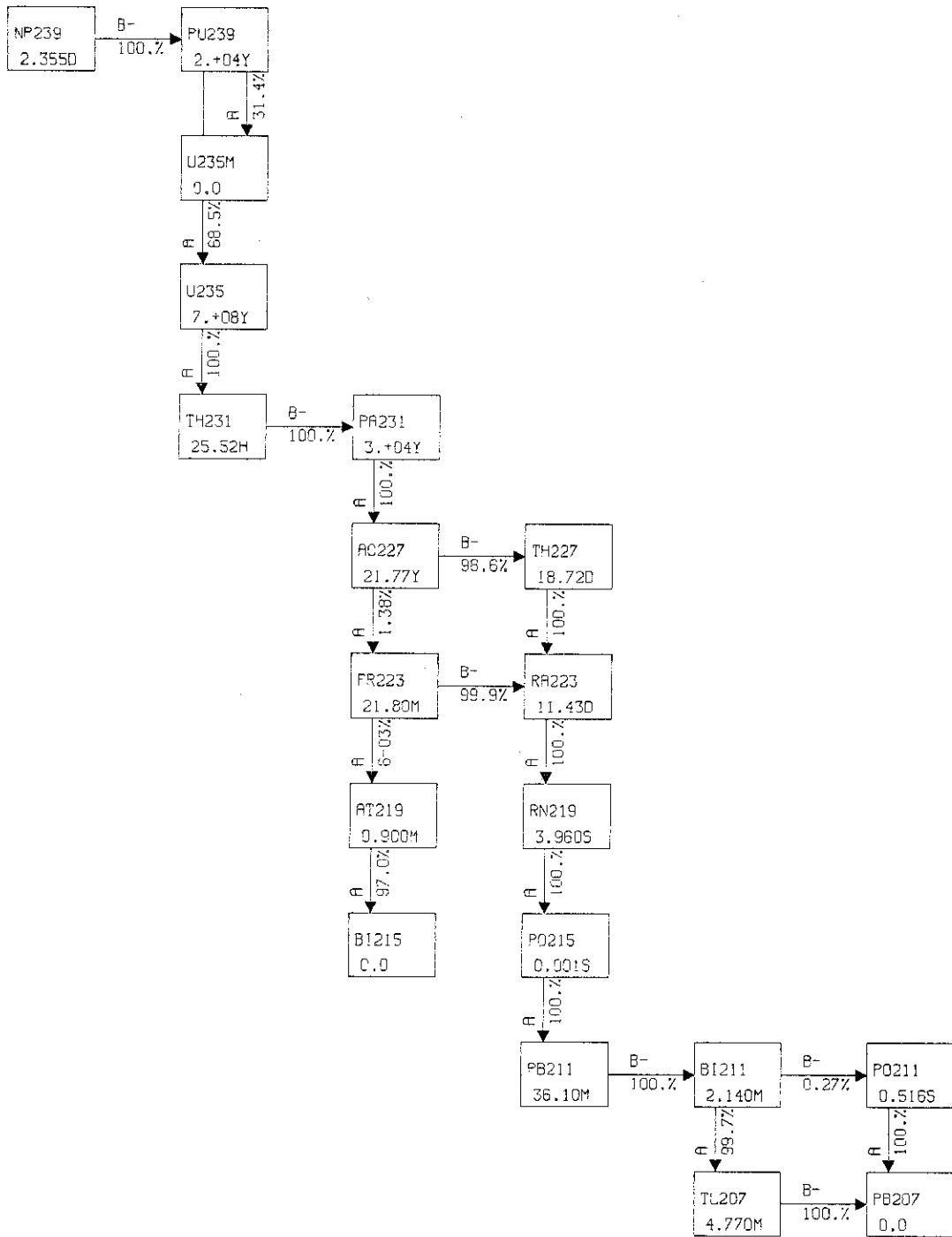
TARGETS	SOURCES			ORGAN	ISOTOPE	ORAL		INHALATION	
	GONADS	SI CONTENT	ULI CONTENT			CLASS W	CLASS W		
GONADS	1.0E+01	5.3E-08	6.9E-08	GONADS	NP-238	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	5.1E-09	8.6E-09	5.5E-09	GONADS	NP-238	2.8E-02	9.5E-03	2.2E+00	1.1E+00
BONE SURF	1.2E-09	2.1E-09	1.3E-09	SI CONTENT	NP-238	1.3E+04	6.1E-02	4.4E+03	1.9E-01
SI WALL	6.3E-08	1.4E-03	1.3E-07	SI CONTENT	NP-238	3.7E+04	6.3E-01	1.2E+04	7.7E-01
ULI WALL	1.4E-07	7.6E-07	2.5E-03	ULI CONTENT	NP-238	5.2E+04	2.3E+00	1.7E+04	1.8E+00
LLI WALL	1.8E-07	1.0E-07	1.2E-08	LLI CONTENT	NP-238	8.4E+01	2.4E+01	6.4E+03	2.9E+03
				CORT BONE	NP-238	8.4E+01	2.4E+01	6.4E+03	2.9E+03
				TRAB BONE	NP-238	8.4E+01	2.4E+01	6.4E+03	2.9E+03

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-238

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 1.1E-10	R MARROW 2.0E-09 B
BONE SURF 5.3E-11 B	BONE SURF 6.3E-09 AB
SI WALL 6.1E-11	
ULI WALL 2.0E-10	
LLI WALL 4.2E-10 A	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-238

ALI (Bq)	INHALATION	DAC (Bq/m ³)
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
6.E+07	2.E+06 (6.E+06) BONE SURF	1.E+03 BONE SURF



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-239

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-239

TARGETS	SOURCES			ORGAN	ISOTOPE	ORAL		INHALATION	
	LUNGS	SI CONTENT	ULI CONTENT			CLASS W	CLASS W		
LUNGS	2.6E-04	1.5E-07	1.7E-07	SI CONTENT	NP-239	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
BONE SURF	8.6E-07	7.3E-07	6.6E-07	ULI CONTENT	PU-239	f1=1.E-03	f1=1.E-03	5.4E+04	2.6E-01
SI WALL	1.2E-07	3.4E-04	1.1E-05	SI CONTENT	NP-239	1.4E+04	1.4E+04	4.6E+03	7.4E-04
ULI WALL	1.5E-07	1.8E-05	6.0E-04	ULI CONTENT	NP-239	3.8E+04	3.8E+04	1.3E+04	3.0E-03
LLI WALL	4.7E-08	4.9E-06	2.0E-06	LLI CONTENT	NP-239	2.3E-03	2.3E-03	1.8E+04	6.9E-03
				CORT BONE	NP-239	9.5E+01	9.5E+01	7.3E+03	1.4E+01
				CORT BONE	PU-239	1.1E-01	1.1E-01	7.1E+03	1.4E+01
				TRAB BONE	NP-239	9.4E+01	9.4E+01	7.1E+03	1.4E+01
				TRAB BONE	PU-239	1.1E-01	1.1E-01	7.1E+03	1.4E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-239

TARGETS	SOURCES		ORGAN	ISOTOPE	ORAL		INHALATION	
	LUNGS	SI CONTENT			CLASS W	CLASS W		
LUNGS	1.0E-01	5.2E-11	SI WALL	NP-239	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
BONE SURF	1.8E-09	1.2E-09	ULI WALL	PU-239	2.3E-09 A	2.3E-09 A	2.3E-09 A	2.3E-09 A
SI WALL	4.3E-11	1.3E-03	ULI WALL	NP-239	(0, 2, 98)	(0, 2, 98)	(0, 2, 98)	(0, 2, 98)
ULI WALL	5.6E-11	3.3E-07	ULI WALL	PU-239	BONE SURF	BONE SURF	BONE SURF	BONE SURF
LLI WALL	1.5E-11	4.4E-08	LLI WALL	NP-239	2.0E-09 B	2.0E-09 B	2.0E-09 B	2.0E-09 B
				PU-239	(34, 45, 21)	(34, 45, 21)	(34, 45, 21)	(34, 45, 21)
				LLI WALL	ULI WALL	ULI WALL	ULI WALL	ULI WALL
				NP-239	1.3E-09	1.3E-09	1.3E-09	1.3E-09
				PU-239	(68, 11, 21)	(68, 11, 21)	(68, 11, 21)	(68, 11, 21)
				LLI WALL	LLI WALL	LLI WALL	LLI WALL	LLI WALL
				NP-239	2.8E-09	2.8E-09	2.8E-09	2.8E-09
				PU-239	(69, 11, 20)	(69, 11, 20)	(69, 11, 20)	(69, 11, 20)

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-239

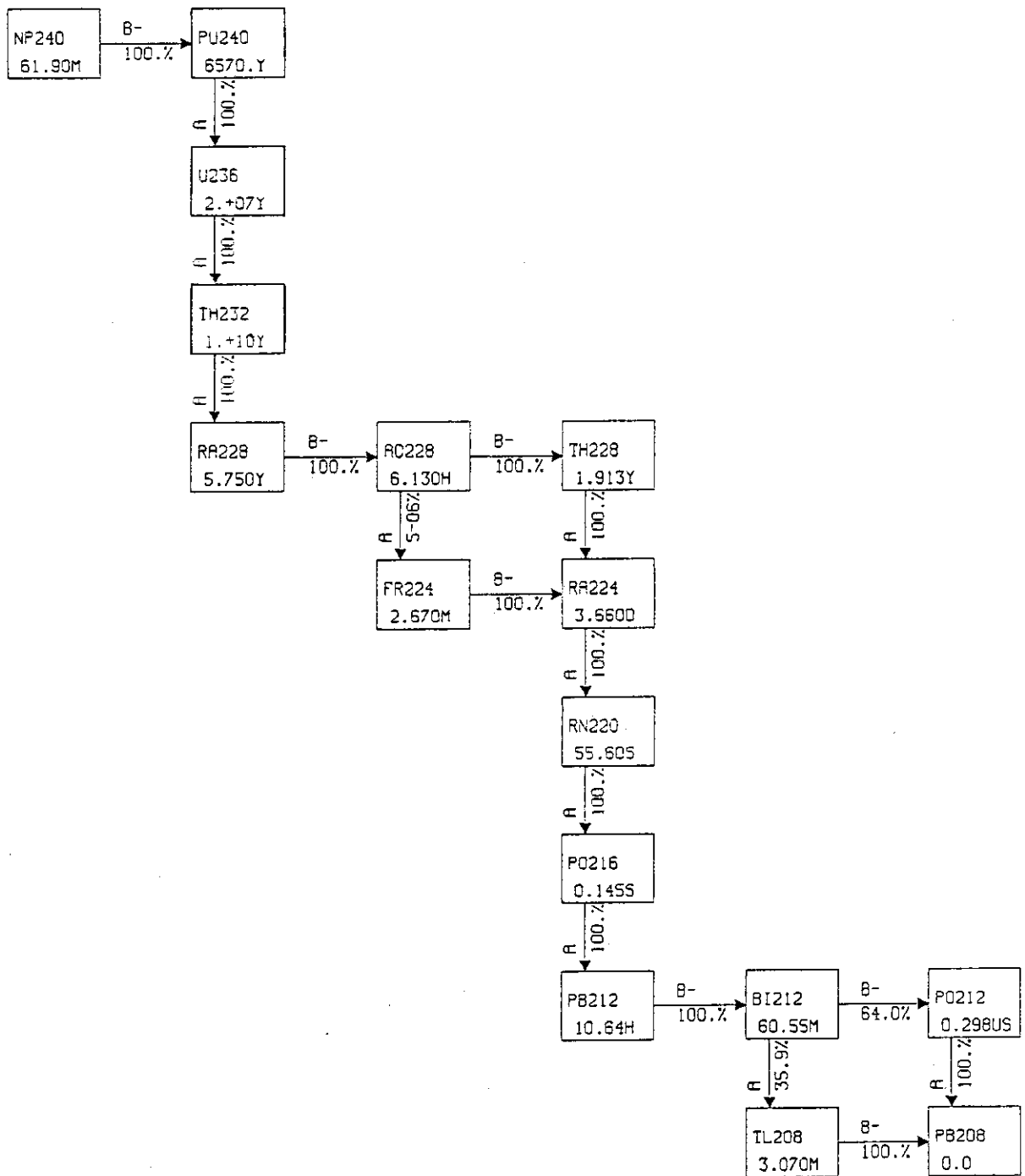
TARGETS	SOURCES			ORGAN	ISOTOPE	ORAL		INHALATION	
	LUNGS	SI CONTENT	ULI CONTENT			CLASS W	CLASS W		
LUNGS	1.0E-01	5.2E-11	6.0E-11	SI CONTENT	NP-239	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
BONE SURF	1.8E-09	1.2E-09	8.2E-10	ULI CONTENT	PU-239	2.3E-09 A	2.3E-09 A	2.3E-09 A	2.3E-09 A
SI WALL	4.3E-11	1.3E-03	6.0E-08	SI CONTENT	NP-239	(0, 2, 98)	(0, 2, 98)	(0, 2, 98)	(0, 2, 98)
ULI WALL	5.6E-11	3.3E-07	2.3E-03	ULI CONTENT	NP-239	BONE SURF	BONE SURF	BONE SURF	BONE SURF
LLI WALL	1.5E-11	4.4E-08	5.8E-09	LLI CONTENT	NP-239	2.0E-09 B	2.0E-09 B	2.0E-09 B	2.0E-09 B
				CORT BONE	NP-239	(34, 45, 21)	(34, 45, 21)	(34, 45, 21)	(34, 45, 21)
				CORT BONE	PU-239	ULI WALL	ULI WALL	ULI WALL	ULI WALL
				TRAB BONE	NP-239	1.3E-09	1.3E-09	1.3E-09	1.3E-09
				TRAB BONE	PU-239	(68, 11, 21)	(68, 11, 21)	(68, 11, 21)	(68, 11, 21)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-239

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
SI WALL 5.1E-11	LUNGS 2.7E-10 A
ULI WALL 2.2E-10	BONE SURF 6.0E-11 B
LLI WALL 5.0E-10 A	ULI WALL 7.5E-11
	LLI WALL 1.7E-10

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR NP-239

<u>ALI (Bq)</u>	<u>DAC (Bq/m³)</u>
<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
6.E+07 (6.E+07)	9.E+07
LLI WALL	4.E+04



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF NP-240

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-240

TARGETS	SOURCES				ORGAN	ISOTOPE	ORAL		INHALATION	
	LUNGS	ST	SI	ULI			NP-240	NP-240	CLASS W	CLASS W
GONADS	6.1E-07	4.0E-06	3.7E-05	3.6E-05	LUNGS	NP-240	f1=1.E-03	f1=1.E-03	f1=1.E-03	
LUNGS	3.8E-04	6.8E-06	1.3E-06	1.4E-06	LUNGS	NP-240	f1=1.E-03	1.6E+03	1.8E-02	
BONE SURF	3.9E-06	2.3E-06	3.1E-06	2.8E-06	ST CONTENT	NP-240	2.2E+03	7.3E+01	3.2E-05	
ST WALL	7.2E-06	8.4E-04	1.3E-05	1.4E-05	ST CONTENT	PU-240	2.6E-05	3.2E-05		
SI WALL	1.1E-06	9.7E-06	5.2E-04	6.0E-05	SI CONTENT	NP-240	2.3E+03	7.9E+01		
ULI WALL	1.5E-06	1.2E-05	8.7E-05	9.0E-04	SI CONTENT	PU-240	2.2E-04	1.3E-04		
LLI WALL	3.4E-07	5.0E-06	2.6E-05	1.2E-05	ULI CONTENT	NP-240	7.8E+02	2.7E+01		
					ULI CONTENT	PU-240	8.2E-04	4.3E-04		
					LLI CONTENT	NP-240	8.4E+01	2.9E+00		
					LLI CONTENT	PU-240	1.5E-03	7.9E-04		
					CORT BONE	NP-240	9.0E-02	3.2E+01		
					CORT BONE	PU-240	7.5E-03	9.1E-01		
					TRAB BONE	NP-240	4.8E-02	1.7E+01		
					TRAB BONE	PU-240	7.5E-03	9.1E-01		

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-240

TARGETS	SOURCES		ORGAN	ISOTOPE	ORAL		INHALATION	
	NP-240	PU-240			NP-240	NP-240	CLASS W	CLASS W
GONADS	2.1E-11	2.1E-11	LUNGS	NP-240	f1=1.E-03	f1=1.E-03	f1=1.E-03	
ST WALL	3.0E-10 A	3.0E-10 A	BONE SURF	NP-240	2.2E+03	7.3E+01	3.2E-05	
SI WALL	2.1E-10	2.1E-10	ST WALL	NP-240	2.6E-05	3.2E-05	3.2E-05	
ULI WALL	1.5E-10	1.5E-10	ULI WALL	NP-240	7.8E+02	2.7E+01	2.7E+01	
LLI WALL	3.2E-11	3.2E-11	LLI WALL	NP-240	8.4E+01	2.9E+00	2.9E+00	

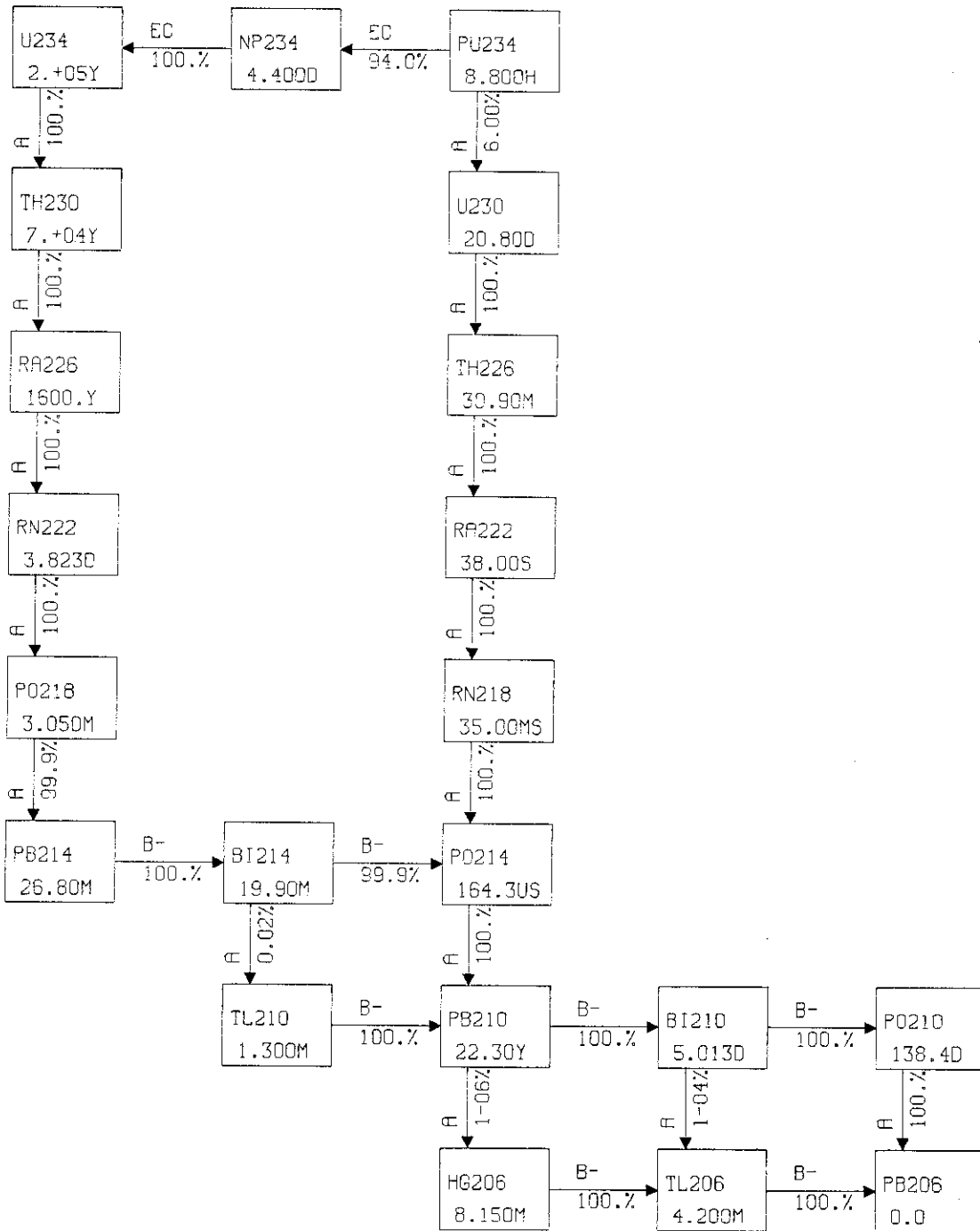
WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF NP-240

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 5.2E-12	LUNGS 1.1E-11 A
ST WALL 1.8E-11 A	BONE SURF 2.0E-12 B
SI WALL 1.2E-11	
ULI WALL 8.9E-12	
LLI WALL 1.9E-12	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR NP-240

<u>ALI (Bq)</u>	<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
1.E+09	4.E+09 2.E+06

Plutonium



JAERI - M 87 - 099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.9E-01	1.9E-08	1.3E-07	2.8E-06	3.1E-06	4.6E-06	1.8E-07	1.8E-07
LUNGS	1.3E-08	7.6E-03	4.4E-07	5.0E-08	6.2E-08	1.8E-08	2.3E-07	2.3E-07
BONE SURF	4.4E-07	4.2E-07	2.5E-07	3.6E-07	3.2E-07	4.7E-07	1.6E-02	1.6E-02
ST WALL	2.0E-07	4.6E-07	1.8E-04	9.3E-07	9.8E-07	4.4E-07	1.3E-07	1.3E-07
SI WALL	3.2E-06	4.4E-08	6.8E-07	1.2E-04	4.5E-06	2.5E-06	1.8E-07	1.8E-07
ULI WALL	3.1E-06	5.2E-08	9.0E-07	8.1E-06	2.0E-04	1.2E-06	1.6E-07	1.6E-07
LLI WALL	4.2E-06	1.2E-08	2.8E-07	2.1E-06	8.6E-07	3.3E-04	2.6E-07	2.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-230

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	3.8E-10	2.1E-09	9.8E-08	1.2E-07	2.4E-07	3.5E-09	3.5E-09
LUNGS	2.2E-10	1.2E-01	9.3E-09	8.5E-10	9.9E-10	2.9E-10	4.9E-09	4.9E-09
BONE SURF	8.0E-09	9.8E-09	4.4E-09	7.5E-09	6.1E-09	1.2E-08	2.4E-01	2.4E-01
ST WALL	3.1E-09	1.1E-08	2.4E-03	2.2E-08	2.6E-08	8.0E-09	2.6E-09	2.6E-09
SI WALL	1.1E-07	7.0E-10	1.2E-08	1.5E-03	1.9E-07	1.0E-07	3.6E-09	3.6E-09
ULI WALL	1.8E-07	8.6E-10	2.0E-08	9.2E-07	2.7E-03	6.2E-08	3.6E-09	3.6E-09
LLI WALL	2.3E-07	2.8E-10	5.2E-09	1.3E-07	2.4E-08	4.4E-03	6.4E-09	6.4E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	5.6E-03	6.2E-07	3.5E-06	2.9E-05	2.6E-05	5.7E-05	3.2E-06	3.2E-06
LUNGS	5.8E-07	8.3E-05	6.2E-06	1.2E-06	1.5E-06	6.0E-07	3.4E-06	3.4E-06
BONE SURF	3.3E-06	3.5E-06	2.1E-06	2.8E-06	2.6E-06	3.7E-06	3.7E-05	3.9E-05
ST WALL	3.4E-06	6.9E-06	2.3E-04	1.2E-05	1.1E-05	5.5E-06	2.1E-06	2.1E-06
SI WALL	3.8E-05	1.1E-06	8.5E-06	1.4E-04	5.3E-05	3.0E-05	2.7E-06	2.7E-06
ULI WALL	3.7E-05	1.5E-06	1.2E-05	7.9E-05	2.2E-04	1.5E-05	2.6E-06	2.6E-06
LLI WALL	4.7E-05	2.5E-07	4.9E-06	2.4E-05	1.0E-05	2.9E-04	3.5E-06	3.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-226

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	2.8E-09	1.5E-08	3.4E-07	3.7E-07	5.9E-07	2.1E-08	2.1E-08
LUNGS	1.8E-09	1.3E-01	5.1E-08	6.5E-09	7.6E-09	2.3E-09	2.8E-08	2.8E-08
BONE SURF	4.5E-08	4.4E-08	2.7E-08	3.8E-08	3.4E-08	5.0E-08	2.6E-01	2.6E-01
ST WALL	2.3E-08	5.5E-08	2.6E-03	1.1E-07	1.1E-07	5.2E-08	1.6E-08	1.6E-08
SI WALL	3.8E-07	5.5E-09	7.9E-08	1.6E-03	5.4E-07	3.0E-07	2.2E-08	2.2E-08
ULI WALL	3.9E-07	6.6E-09	1.1E-07	1.1E-06	2.9E-03	1.4E-07	2.0E-08	2.0E-08
LLI WALL	5.0E-07	2.0E-09	3.5E-08	2.6E-07	9.7E-08	4.8E-03	3.1E-08	3.1E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.8E+00	3.4E-11	2.7E-10	4.7E-08	6.1E-08	1.4E-07	7.5E-10	7.5E-10
LUNGS	1.8E-11	9.7E-02	2.3E-09	7.7E-11	9.8E-11	2.5E-11	1.2E-09	1.2E-09
BONE SURF	1.7E-09	3.2E-09	8.7E-10	2.3E-09	1.5E-09	4.8E-09	2.0E-01	2.0E-01
ST WALL	3.4E-10	3.3E-09	1.9E-03	7.0E-09	1.0E-08	1.3E-09	5.9E-10	5.9E-10
SI WALL	5.3E-08	6.5E-11	2.2E-09	1.2E-03	1.1E-07	5.8E-08	8.1E-10	8.1E-10
ULI WALL	1.2E-07	8.2E-11	5.6E-09	7.0E-07	2.2E-03	3.9E-08	9.2E-10	9.2E-10
LLI WALL	1.5E-07	1.8E-11	6.7E-10	8.8E-08	1.0E-08	3.6E-03	2.3E-09	2.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-222

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	4.4E-09	1.5E-08	3.2E-07	3.9E-07	5.9E-07	2.8E-08	2.8E-08
LUNGS	2.8E-09	1.3E-01	5.7E-08	9.2E-09	9.7E-09	3.0E-09	3.2E-08	3.2E-08
BONE SURF	3.5E-08	3.6E-08	2.2E-08	3.0E-08	2.7E-08	3.8E-08	2.7E-01	2.7E-01
ST WALL	2.6E-08	6.0E-08	2.6E-03	1.2E-07	1.2E-07	5.8E-08	1.9E-08	1.9E-08
SI WALL	3.8E-07	7.5E-09	8.5E-08	1.6E-03	5.3E-07	3.0E-07	2.5E-08	2.5E-08
ULI WALL	3.6E-07	9.6E-09	1.1E-07	7.5E-07	2.9E-03	1.4E-07	2.4E-08	2.4E-08
LLI WALL	4.6E-07	3.2E-09	4.2E-08	2.3E-07	9.7E-08	4.9E-03	3.3E-08	3.3E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-230

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.6E+00	1.1E-10	8.1E-10	4.6E-08	5.5E-08	1.1E-07	1.3E-09	1.3E-09
LUNGS	6.3E-11	9.5E-02	3.6E-09	2.6E-10	3.2E-10	8.4E-11	1.9E-09	1.9E-09
BONE SURF	3.4E-09	4.3E-09	1.8E-09	3.3E-09	2.6E-09	5.5E-09	1.9E-01	1.9E-01
ST WALL	1.1E-09	4.3E-09	1.9E-03	8.7E-09	1.1E-08	2.9E-09	9.9E-10	9.9E-10
SI WALL	4.9E-08	2.2E-10	4.7E-09	1.2E-03	9.1E-08	4.9E-08	1.4E-09	1.4E-09
ULI WALL	9.3E-08	2.7E-10	8.0E-09	5.6E-07	2.1E-03	3.2E-08	1.4E-09	1.4E-09
LLI WALL	1.2E-07	6.9E-11	1.8E-09	7.1E-08	1.0E-08	3.5E-03	2.7E-09	2.7E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-218

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E+01	4.1E-10	1.8E-09	2.3E-08	3.0E-08	4.1E-08	2.7E-09	2.7E-09
LUNGS	3.2E-10	1.5E-01	4.7E-09	8.8E-10	9.2E-10	3.0E-10	2.5E-09	2.5E-09
BONE SURF	2.4E-09	2.6E-09	1.5E-09	2.0E-09	1.8E-09	2.7E-09	3.0E-01	3.0E-01
ST WALL	2.1E-09	4.8E-09	2.9E-03	8.8E-09	9.3E-09	4.5E-09	1.5E-09	1.5E-09
SI WALL	3.0E-08	7.4E-10	6.7E-09	1.8E-03	4.2E-08	2.3E-08	2.1E-09	2.1E-09
ULI WALL	2.8E-08	1.0E-09	8.3E-09	5.8E-08	3.2E-03	1.1E-08	1.9E-09	1.9E-09
LLI WALL	3.6E-08	2.1E-10	3.3E-09	1.7E-08	7.9E-09	5.3E-03	2.5E-09	2.5E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-226

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.8E+00	2.7E-09	1.1E-08	2.6E-07	2.8E-07	4.7E-07	1.7E-08	1.7E-08
LUNGS	1.6E-09	9.7E-02	4.1E-08	5.8E-09	6.5E-09	2.0E-09	2.4E-08	2.4E-08
BONE SURF	3.2E-08	3.1E-08	1.9E-08	2.7E-08	2.4E-08	3.5E-08	2.0E-01	2.0E-01
ST WALL	1.9E-08	4.5E-08	1.9E-03	9.0E-08	9.1E-08	4.3E-08	1.4E-08	1.4E-08
SI WALL	2.9E-07	4.7E-09	6.4E-08	1.2E-03	4.1E-07	2.3E-07	1.8E-08	1.8E-08
ULI WALL	2.8E-07	5.6E-09	8.7E-08	6.1E-07	2.1E-03	1.0E-07	1.8E-08	1.8E-08
LLI WALL	3.6E-07	2.4E-09	3.1E-08	1.8E-07	7.5E-08	3.6E-03	2.6E-08	2.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-222

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.0E+01	2.1E-10	7.1E-10	1.2E-08	1.7E-08	2.2E-08	1.5E-09	1.5E-09
LUNGS	1.6E-10	1.1E-01	2.6E-09	4.6E-10	4.7E-10	1.4E-10	1.4E-09	1.4E-09
BONE SURF	1.3E-09	1.4E-09	8.3E-10	1.1E-09	1.0E-09	1.4E-09	2.3E-01	2.3E-01
ST WALL	1.2E-09	2.5E-09	2.2E-03	4.6E-09	5.0E-09	2.5E-09	8.1E-10	8.1E-10
SI WALL	1.6E-08	3.8E-10	3.6E-09	1.4E-03	2.2E-08	1.2E-08	1.1E-09	1.1E-09
ULI WALL	1.5E-08	5.3E-10	4.5E-09	3.1E-08	2.4E-03	5.8E-09	9.6E-10	9.6E-10
LLI WALL	1.9E-08	1.1E-10	1.7E-09	9.3E-09	4.1E-09	4.1E-03	1.3E-09	1.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PD-218

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	0.0	1.2E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	0.0	2.5E-01	2.5E-01
ST WALL	0.0	0.0	2.4E-03	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	1.5E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	2.7E-03	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	4.4E-03	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	2.7E-02	1.1E-07	4.3E-07	8.6E-06	1.0E-05	1.6E-05	7.4E-07	7.4E-07
LUNGS	7.6E-08	3.0E-04	1.5E-06	2.4E-07	2.6E-07	8.0E-08	8.4E-07	8.4E-07
BONE SURF	9.7E-07	9.9E-07	6.0E-07	8.2E-07	7.4E-07	1.1E-06	6.6E-05	8.8E-05
ST WALL	6.9E-07	1.6E-06	6.2E-04	3.1E-06	3.2E-06	1.5E-06	4.9E-07	4.9E-07
SI WALL	1.0E-05	2.0E-07	2.3E-06	3.8E-04	1.4E-05	8.0E-06	6.7E-07	6.7E-07
ULI WALL	9.7E-06	2.6E-07	3.0E-06	2.1E-05	6.9E-04	3.7E-06	6.2E-07	6.2E-07
LLI WALL	1.2E-05	8.0E-08	1.1E-06	6.1E-06	2.6E-06	1.1E-03	8.7E-07	8.7E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.6E-02	8.7E-07	4.9E-06	4.0E-05	4.3E-05	7.7E-05	4.6E-06	4.6E-06
LUNGS	8.0E-07	7.5E-04	8.4E-06	1.7E-06	2.0E-06	8.7E-07	4.8E-06	4.8E-06
BONE SURF	4.2E-06	4.6E-06	2.8E-06	3.7E-06	3.3E-06	4.8E-06	1.5E-04	2.0E-04
ST WALL	4.5E-06	9.4E-06	1.6E-03	1.6E-05	1.6E-05	7.9E-06	2.8E-06	2.8E-06
SI WALL	5.2E-05	1.6E-06	1.2E-05	9.6E-04	7.2E-05	4.1E-05	3.8E-06	3.8E-06
ULI WALL	4.9E-05	2.1E-06	1.5E-05	1.0E-04	1.7E-03	1.9E-05	3.6E-06	3.6E-06
LLI WALL	6.3E-05	3.9E-07	6.5E-06	3.2E-05	1.4E-05	2.7E-03	4.7E-06	4.7E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.4E+01	4.6E-11	3.1E-10	2.7E-09	2.6E-09	4.6E-09	2.8E-10	2.8E-10
LUNGS	4.0E-11	1.6E-01	5.0E-10	9.7E-11	1.1E-10	3.9E-11	2.8E-10	2.8E-10
BONE SURF	2.5E-10	2.7E-10	1.6E-10	2.2E-10	1.9E-10	2.8E-10	3.2E-01	3.2E-01
ST WALL	2.2E-10	5.3E-10	3.1E-03	9.6E-10	9.9E-10	4.6E-10	1.6E-10	1.6E-10
SI WALL	3.1E-09	8.6E-11	7.1E-10	1.9E-03	4.4E-09	2.4E-09	2.3E-10	2.3E-10
ULI WALL	3.0E-09	1.1E-10	8.6E-10	6.2E-09	3.4E-03	1.1E-09	2.1E-10	2.1E-10
LLI WALL	3.8E-09	2.5E-11	3.7E-10	1.9E-09	8.8E-10	5.7E-03	2.9E-10	2.9E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E-01	1.5E-06	9.2E-06	7.9E-05	8.0E-05	1.4E-04	8.3E-06	8.3E-06
LUNGS	1.4E-06	1.4E-03	1.5E-05	3.1E-06	3.5E-06	1.5E-06	8.7E-06	8.7E-06
BONE SURF	8.0E-06	8.7E-06	5.2E-06	6.9E-06	6.2E-06	9.0E-06	2.9E-04	3.9E-04
ST WALL	7.8E-06	1.7E-05	3.0E-03	3.0E-05	3.0E-05	1.5E-05	5.0E-06	5.0E-06
SI WALL	9.6E-05	2.9E-06	2.2E-05	1.9E-03	1.3E-04	7.6E-05	7.1E-06	7.1E-06
ULI WALL	9.1E-05	3.7E-06	2.8E-05	1.9E-04	3.3E-03	3.5E-05	6.7E-06	6.7E-06
LLI WALL	1.2E-04	7.6E-07	1.2E-05	5.9E-05	2.6E-05	5.3E-03	8.8E-06	8.8E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.5E-03	3.6E-10	3.8E-09	1.7E-07	1.9E-07	3.8E-07	6.4E-09	6.4E-09
LUNGS	1.3E-10	3.8E-05	1.8E-08	7.4E-10	9.8E-10	1.8E-10	8.6E-09	8.6E-09
BONE SURF	2.1E-08	2.3E-08	9.7E-09	1.6E-08	1.4E-08	2.7E-08	7.5E-05	7.5E-05
ST WALL	3.9E-09	1.9E-08	7.4E-05	3.6E-08	4.7E-08	1.4E-08	3.6E-09	3.6E-09
SI WALL	1.8E-07	5.8E-10	2.2E-08	4.7E-05	2.9E-07	1.6E-07	5.9E-09	5.9E-09
ULI WALL	2.5E-07	8.2E-10	3.8E-08	1.6E-06	8.4E-05	9.2E-08	5.2E-09	5.2E-09
LLI WALL	3.2E-07	1.3E-10	8.1E-09	2.0E-07	3.9E-08	1.4E-04	9.9E-09	9.9E-09

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF HG-206

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.9E-02	4.9E-08	1.9E-07	3.7E-06	4.4E-06	6.9E-06	3.2E-07	3.2E-07
LUNGS	3.3E-08	4.3E-04	6.6E-07	1.0E-07	1.1E-07	3.5E-08	3.7E-07	3.7E-07
BONE SURF	4.3E-07	4.3E-07	2.6E-07	3.6E-07	3.2E-07	4.7E-07	5.7E-05	9.2E-05
ST WALL	3.0E-07	6.9E-07	8.7E-04	1.3E-06	1.4E-06	6.7E-07	2.1E-07	2.1E-07
SI WALL	4.5E-06	8.5E-08	9.8E-07	5.5E-04	6.2E-06	3.5E-06	2.9E-07	2.9E-07
ULI WALL	4.2E-06	1.1E-07	1.3E-06	8.8E-06	9.9E-04	1.6E-06	2.7E-07	2.7E-07
LLI WALL	5.4E-06	3.5E-08	4.8E-07	2.6E-06	1.1E-06	1.6E-03	3.8E-07	3.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.5E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	0.0	3.9E-04	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	0.0	4.9E-05	8.1E-05
ST WALL	0.0	0.0	7.8E-04	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	4.9E-04	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	8.8E-04	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	1.4E-03	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-206

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.8E-02	4.2E-11	3.0E-10	4.6E-09	4.5E-09	7.5E-09	3.3E-10	3.3E-10
LUNGS	3.1E-11	5.3E-04	7.6E-10	9.2E-11	1.1E-10	3.4E-11	3.9E-10	3.9E-10
BONE SURF	6.6E-10	6.8E-10	3.7E-10	5.2E-10	4.6E-10	7.3E-10	6.7E-05	1.1E-04
ST WALL	2.9E-10	7.8E-10	1.1E-03	1.5E-09	1.6E-09	6.9E-10	2.0E-10	2.0E-10
SI WALL	5.2E-09	8.0E-11	1.1E-09	6.7E-04	7.4E-09	4.0E-09	3.0E-10	3.0E-10
ULI WALL	4.8E-09	1.0E-10	1.4E-09	1.1E-08	1.2E-03	1.8E-09	2.7E-10	2.7E-10
LLI WALL	6.4E-09	2.2E-11	4.8E-10	3.2E-09	1.3E-09	2.0E-03	4.0E-10	4.0E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PD-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	9.8E+00	5.4E-12	3.6E-11	3.1E-10	3.0E-10	5.3E-10	3.3E-11	3.3E-11
LUNGS	4.7E-12	1.1E-01	5.8E-11	1.1E-11	1.3E-11	4.6E-12	3.2E-11	3.2E-11
BONE SURF	2.9E-11	3.2E-11	1.9E-11	2.5E-11	2.3E-11	3.3E-11	2.2E-01	2.2E-01
ST WALL	2.6E-11	6.2E-11	2.1E-03	1.1E-10	1.2E-10	5.3E-11	1.8E-11	1.8E-11
SI WALL	3.7E-10	1.0E-11	8.3E-11	1.3E-03	5.1E-10	2.9E-10	2.7E-11	2.7E-11
ULI WALL	3.4E-10	1.3E-11	1.0E-10	7.3E-10	2.4E-03	1.3E-10	2.5E-11	2.5E-11
LLI WALL	4.4E-10	2.9E-12	4.3E-11	2.2E-10	1.0E-10	3.9E-03	3.4E-11	3.4E-11

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-234

ORGAN	ISOTOPE	ORAL			INHALATION		
		CLASS W	CLASS W	CLASS Y	CLASS W	CLASS W	CLASS Y
	PU-234	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	U -230	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	NP-234	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TH-226	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	U -234	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RA-222	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TH-230	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RN-218	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RA-226	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RN-222	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PO-218	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PB-214	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	BI-214	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PO-214	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TL-210	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PB-210	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	HG-206	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	BI-210	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TL-206	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PO-210	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
GONADS	PU-234	4.2E-03	4.2E-04	4.2E-05	4.0E-01	4.0E-01	2.2E-02
GONADS	U -230	3.0E-04	3.0E-05	3.0E-06	2.5E-02	2.5E-02	1.3E-03
GONADS	NP-234	4.8E-03	4.8E-04	4.8E-05	3.5E-01	3.5E-01	1.9E-02
GONADS	TH-226	3.0E-04	3.0E-05	3.0E-06	2.5E-02	2.5E-02	1.3E-03
GONADS	U -234	6.7E-07	6.7E-08	6.7E-09	8.0E-05	8.0E-05	3.0E-05
GONADS	RA-222	3.0E-04	3.0E-05	3.0E-06	2.5E-02	2.5E-02	1.3E-03
GONADS	TH-230	1.6E-10	1.7E-11	1.7E-12	1.9E-08	1.8E-08	7.6E-09
GONADS	RN-218	3.0E-04	3.0E-05	3.0E-06	2.5E-02	2.5E-02	1.3E-03
GONADS	RA-226	1.2E-12	1.4E-13	1.4E-14	1.3E-10	1.3E-10	5.5E-11
GONADS	RN-222	1.2E-12	1.4E-13	1.4E-14	1.3E-10	1.3E-10	5.5E-11
GONADS	PO-218	1.2E-12	1.4E-13	1.4E-14	1.3E-10	1.3E-10	5.5E-11
GONADS	PB-214	1.2E-12	1.4E-13	1.4E-14	1.3E-10	1.3E-10	5.5E-11
GONADS	BI-214	1.2E-12	1.4E-13	1.4E-14	1.3E-10	1.3E-10	5.5E-11
GONADS	PO-214	3.0E-04	3.0E-05	3.0E-06	2.5E-02	2.5E-02	1.3E-03
GONADS	TL-210	2.4E-16	2.9E-17	2.8E-18	2.7E-14	2.6E-14	1.1E-14
GONADS	PB-210	2.4E-04	2.3E-05	2.3E-06	2.9E-02	2.8E-02	1.0E-02
GONADS	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
GONADS	BI-210	2.4E-04	2.3E-05	2.3E-06	2.9E-02	2.8E-02	1.0E-02
GONADS	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
GONADS	PO-210	2.3E-04	2.3E-05	2.3E-06	2.8E-02	2.8E-02	1.0E-02
LUNGS	PU-234				1.1E+04	1.1E+04	1.2E+04
LUNGS	U -230				3.1E+02	3.1E+02	4.1E+02
LUNGS	NP-234				6.7E+03	6.7E+03	7.2E+03
LUNGS	TH-226				3.1E+02	3.1E+02	4.1E+02
LUNGS	U -234				3.6E-03	3.6E-03	7.4E-02
LUNGS	RA-222				3.1E+02	3.1E+02	4.1E+02
LUNGS	TH-230				7.0E-09	7.0E-09	6.7E-06
LUNGS	RN-218				3.1E+02	3.1E+02	4.1E+02
LUNGS	RA-226				6.4E-13	6.4E-13	4.0E-08
LUNGS	RN-222				6.0E-13	6.0E-13	4.0E-08
LUNGS	PO-218				6.0E-13	6.0E-13	4.0E-08
LUNGS	PB-214				6.0E-13	6.0E-13	4.0E-08
LUNGS	BI-214				6.0E-13	6.0E-13	4.0E-08
LUNGS	PO-214				3.1E+02	3.1E+02	4.1E+02
LUNGS	TL-210				1.2E-16	1.2E-16	8.0E-12
LUNGS	PB-210				2.0E+00	2.0E+00	4.0E+01
LUNGS	HG-206				0.0	0.0	0.0
LUNGS	BI-210				1.8E+00	1.8E+00	4.0E+01
LUNGS	TL-206				0.0	0.0	0.0
LUNGS	PO-210				5.0E-01	5.0E-01	3.5E+01

(Continued)

ST CONTENT	PU-234	3.3E+03	3.3E+03	3.3E+03	5.8E+02	5.8E+02	7.0E+02
ST CONTENT	U -230	2.8E-01	2.8E-01	2.8E-01	1.0E+00	1.0E+00	1.1E+00
ST CONTENT	NP-234	2.0E+01	2.0E+01	2.0E+01	6.4E+01	6.4E+01	7.0E+01
ST CONTENT	TH-226	1.6E-01	1.6E-01	1.6E-01	1.0E+00	1.0E+00	1.0E+00
ST CONTENT	U -234	6.6E-09	6.6E-09	6.6E-09	1.7E-06	1.7E-06	1.8E-06
ST CONTENT	RA-222	1.6E-01	1.6E-01	1.6E-01	1.0E+00	1.0E+00	1.0E+00
ST CONTENT	TH-230	6.9E-18	6.9E-18	6.9E-18	2.3E-12	2.3E-12	2.5E-11
ST CONTENT	RN-218	1.6E-01	1.6E-01	1.6E-01	1.0E+00	1.0E+00	1.0E+00
ST CONTENT	RA-226	3.4E-25	3.4E-25	3.4E-25	2.0E-16	2.0E-16	2.1E-14
ST CONTENT	RN-222	2.6E-27	2.6E-27	2.6E-27	1.8E-16	1.8E-16	2.1E-14
ST CONTENT	PO-218	2.4E-27	2.4E-27	2.4E-27	1.8E-16	1.8E-16	2.1E-14
ST CONTENT	PB-214	1.5E-27	1.5E-27	1.5E-27	1.8E-16	1.8E-16	2.1E-14
ST CONTENT	BI-214	9.8E-28	9.8E-28	9.8E-28	1.8E-16	1.8E-16	2.1E-14
ST CONTENT	PO-214	1.6E-01	1.6E-01	1.6E-01	1.0E+00	1.0E+00	1.0E+00
ST CONTENT	TL-210	1.9E-31	1.9E-31	1.9E-31	3.7E-20	3.7E-20	4.2E-18
ST CONTENT	PB-210	5.6E-07	5.6E-07	5.6E-07	7.5E-04	7.5E-04	9.5E-04
ST CONTENT	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
ST CONTENT	BI-210	3.2E-09	3.2E-09	3.2E-09	6.3E-04	6.3E-04	8.8E-04
ST CONTENT	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
ST CONTENT	PO-210	6.6E-13	6.6E-13	6.6E-13	1.6E-04	1.6E-04	6.8E-04
SI CONTENT	PU-234	1.0E+04	1.0E+04	1.0E+04	1.8E+03	1.8E+03	2.1E+03
SI CONTENT	U -230	4.5E+00	4.5E+00	4.5E+00	4.7E+00	4.7E+00	4.9E+00
SI CONTENT	NP-234	3.2E+02	3.2E+02	3.2E+02	2.9E+02	2.9E+02	3.3E+02
SI CONTENT	TH-226	3.9E+00	3.9E+00	3.9E+00	4.6E+00	4.6E+00	4.8E+00
SI CONTENT	U -234	4.4E-07	4.4E-07	4.4E-07	7.1E-06	7.1E-06	7.7E-06
SI CONTENT	RA-222	3.8E+00	3.9E+00	3.9E+00	4.6E+00	4.6E+00	4.8E+00
SI CONTENT	TH-230	1.9E-15	1.9E-15	1.9E-15	9.3E-12	9.3E-12	1.0E-10
SI CONTENT	RN-218	3.8E+00	3.9E+00	3.9E+00	4.6E+00	4.6E+00	4.8E+00
SI CONTENT	RA-226	3.7E-22	3.8E-22	3.8E-22	7.9E-16	7.9E-16	8.5E-14
SI CONTENT	RN-222	1.1E-23	1.1E-23	1.1E-23	7.3E-16	7.4E-16	8.5E-14
SI CONTENT	PO-218	1.1E-23	1.1E-23	1.1E-23	7.3E-16	7.4E-16	8.5E-14
SI CONTENT	PB-214	9.3E-24	9.3E-24	9.3E-24	7.3E-16	7.4E-16	8.5E-14
SI CONTENT	BI-214	8.3E-24	8.3E-24	8.3E-24	7.3E-16	7.3E-16	8.5E-14
SI CONTENT	PO-214	3.8E+00	3.9E+00	3.9E+00	4.6E+00	4.6E+00	4.8E+00
SI CONTENT	TL-210	1.6E-27	1.7E-27	1.7E-27	1.5E-19	1.5E-19	1.7E-17
SI CONTENT	PB-210	5.7E-05	5.7E-05	5.7E-05	3.1E-03	3.1E-03	3.9E-03
SI CONTENT	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
SI CONTENT	BI-210	1.3E-06	1.3E-06	1.3E-06	2.5E-03	2.5E-03	3.5E-03
SI CONTENT	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
SI CONTENT	PO-210	1.1E-09	1.1E-09	1.1E-09	6.6E-04	6.6E-04	2.7E-03
ULI CONTENT	PU-234	1.6E+04	1.6E+04	1.6E+04	2.8E+03	2.8E+03	3.4E+03
ULI CONTENT	U -230	3.2E+01	3.2E+01	3.2E+01	1.8E+01	1.8E+01	1.9E+01
ULI CONTENT	NP-234	2.2E+03	2.2E+03	2.2E+03	1.1E+03	1.1E+03	1.2E+03
ULI CONTENT	TH-226	3.1E+01	3.1E+01	3.1E+01	1.8E+01	1.8E+01	1.9E+01
ULI CONTENT	U -234	1.1E-05	1.1E-05	1.1E-05	2.8E-05	2.8E-05	3.0E-05
ULI CONTENT	RA-222	3.1E+01	3.1E+01	3.1E+01	1.8E+01	1.8E+01	1.9E+01
ULI CONTENT	TH-230	1.5E-13	1.5E-13	1.5E-13	3.1E-11	3.1E-11	3.3E-10
ULI CONTENT	RN-218	3.1E+01	3.1E+01	3.1E+01	1.8E+01	1.8E+01	1.9E+01
ULI CONTENT	RA-226	9.8E-20	9.8E-20	9.8E-20	2.6E-15	2.6E-15	2.8E-13
ULI CONTENT	RN-222	8.8E-21	8.8E-21	8.8E-21	2.4E-15	2.4E-15	2.8E-13
ULI CONTENT	PO-218	8.7E-21	8.7E-21	8.7E-21	2.4E-15	2.4E-15	2.8E-13
ULI CONTENT	PB-214	8.3E-21	8.3E-21	8.3E-21	2.4E-15	2.4E-15	2.8E-13
ULI CONTENT	BI-214	8.0E-21	8.0E-21	8.0E-21	2.4E-15	2.4E-15	2.8E-13
ULI CONTENT	PO-214	3.1E+01	3.1E+01	3.1E+01	1.8E+01	1.8E+01	1.9E+01
ULI CONTENT	TL-210	1.6E-24	1.6E-24	1.6E-24	4.8E-19	4.8E-19	5.5E-17
ULI CONTENT	PB-210	1.6E-03	1.6E-03	1.6E-03	1.1E-02	1.1E-02	1.3E-02
ULI CONTENT	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
ULI CONTENT	BI-210	1.1E-04	1.1E-04	1.1E-04	8.4E-03	8.4E-03	1.2E-02
ULI CONTENT	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
ULI CONTENT	PO-210	3.1E-07	3.1E-07	3.1E-07	2.2E-03	2.2E-03	8.9E-03

(Continued)

LLI CONTENT	PU-234	1.0E+04	1.0E+04	1.0E+04	1.8E+03	1.8E+03	2.2E+03
LLI CONTENT	U -230	7.7E+01	7.7E+01	7.7E+01	3.6E+01	3.6E+01	3.9E+01
LLI CONTENT	NP-234	4.8E+03	4.8E+03	4.8E+03	2.0E+03	2.0E+03	2.2E+03
LLI CONTENT	TH-226	7.6E+01	7.6E+01	7.6E+01	3.6E+01	3.6E+01	3.9E+01
LLI CONTENT	U -234	5.7E-05	5.7E-05	5.7E-05	6.6E-05	6.6E-05	7.3E-05
LLI CONTENT	RA-222	7.6E+01	7.6E+01	7.6E+01	3.6E+01	3.6E+01	3.9E+01
LLI CONTENT	TH-230	1.7E-12	1.7E-12	1.7E-12	5.8E-11	5.8E-11	6.0E-10
LLI CONTENT	RN-218	7.6E+01	7.6E+01	7.6E+01	3.6E+01	3.6E+01	3.9E+01
LLI CONTENT	RA-226	2.2E-18	2.2E-18	2.2E-18	4.9E-15	4.9E-15	5.1E-13
LLI CONTENT	RN-222	3.5E-19	3.5E-19	3.5E-19	4.5E-15	4.5E-15	5.1E-13
LLI CONTENT	PO-218	3.5E-19	3.5E-19	3.5E-19	4.5E-15	4.5E-15	5.1E-13
LLI CONTENT	PB-214	3.4E-19	3.4E-19	3.4E-19	4.5E-15	4.5E-15	5.1E-13
LLI CONTENT	BI-214	3.4E-19	3.4E-19	3.4E-19	4.5E-15	4.5E-15	5.1E-13
LLI CONTENT	PO-214	7.6E+01	7.6E+01	7.6E+01	3.6E+01	3.6E+01	3.9E+01
LLI CONTENT	TL-210	6.7E-23	6.7E-23	6.7E-23	9.0E-19	9.0E-19	1.0E-16
LLI CONTENT	PB-210	9.4E-03	9.4E-03	9.4E-03	2.3E-02	2.3E-02	2.8E-02
LLI CONTENT	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
LLI CONTENT	BI-210	1.3E-03	1.3E-03	1.3E-03	1.6E-02	1.6E-02	2.2E-02
LLI CONTENT	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
LLI CONTENT	PO-210	7.2E-06	7.2E-06	7.2E-06	4.0E-03	4.0E-03	1.6E-02
CORT BONE	PU-234	5.1E+00	5.1E-01	5.1E-02	4.9E+02	4.9E+02	2.7E+01
CORT BONE	U -230	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.1E+01	2.7E+00
CORT BONE	NP-234	9.4E+00	9.4E-01	9.4E-02	7.0E+02	7.0E+02	3.7E+01
CORT BONE	TH-226	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.1E+01	2.7E+00
CORT BONE	U -234	9.8E-04	9.6E-05	9.7E-06	1.2E-01	1.2E-01	4.6E-02
CORT BONE	RA-222	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.1E+01	2.7E+00
CORT BONE	TH-230	2.0E-07	2.0E-08	2.0E-09	2.4E-05	2.4E-05	1.0E-05
CORT BONE	RN-218	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.1E+01	2.7E+00
CORT BONE	RA-226	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
CORT BONE	RN-222	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
CORT BONE	PO-218	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
CORT BONE	PB-214	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
CORT BONE	BI-214	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
CORT BONE	PO-214	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.1E+01	2.7E+00
CORT BONE	TL-210	2.8E-13	3.1E-14	3.0E-15	3.3E-11	3.2E-11	1.4E-11
CORT BONE	PB-210	3.8E-01	3.7E-02	3.7E-03	4.6E+01	4.6E+01	1.6E+01
CORT BONE	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
CORT BONE	BI-210	3.8E-01	3.7E-02	3.7E-03	4.6E+01	4.6E+01	1.6E+01
CORT BONE	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
CORT BONE	PO-210	3.7E-01	3.7E-02	3.7E-03	4.5E+01	4.5E+01	1.7E+01
TRAB BONE	PU-234	4.3E+00	4.3E-01	4.3E-02	4.2E+02	4.2E+02	2.3E+01
TRAB BONE	U -230	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.0E+01	2.7E+00
TRAB BONE	NP-234	9.3E+00	9.3E-01	9.3E-02	7.0E+02	6.9E+02	3.7E+01
TRAB BONE	TH-226	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.0E+01	2.7E+00
TRAB BONE	U -234	9.8E-04	9.6E-05	9.7E-06	1.2E-01	1.2E-01	4.6E-02
TRAB BONE	RA-222	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.0E+01	2.7E+00
TRAB BONE	TH-230	2.0E-07	2.0E-08	2.0E-09	2.4E-05	2.4E-05	1.0E-05
TRAB BONE	RN-218	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.0E+01	2.7E+00
TRAB BONE	RA-226	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
TRAB BONE	RN-222	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
TRAB BONE	PO-218	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
TRAB BONE	PB-214	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
TRAB BONE	BI-214	1.4E-09	1.5E-10	1.5E-11	1.6E-07	1.6E-07	7.2E-08
TRAB BONE	PO-214	6.1E-01	6.1E-02	6.1E-03	5.1E+01	5.0E+01	2.7E+00
TRAB BONE	TL-210	2.8E-13	3.1E-14	3.0E-15	3.3E-11	3.2E-11	1.4E-11
TRAB BONE	PB-210	3.8E-01	3.7E-02	3.7E-03	4.6E+01	4.6E+01	1.6E+01
TRAB BONE	HG-206	0.0	0.0	0.0	0.0	0.0	0.0
TRAB BONE	BI-210	3.8E-01	3.7E-02	3.7E-03	4.6E+01	4.6E+01	1.6E+01
TRAB BONE	TL-206	0.0	0.0	0.0	0.0	0.0	0.0
TRAB BONE	PO-210	3.7E-01	3.7E-02	3.7E-03	4.5E+01	4.5E+01	1.7E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-234

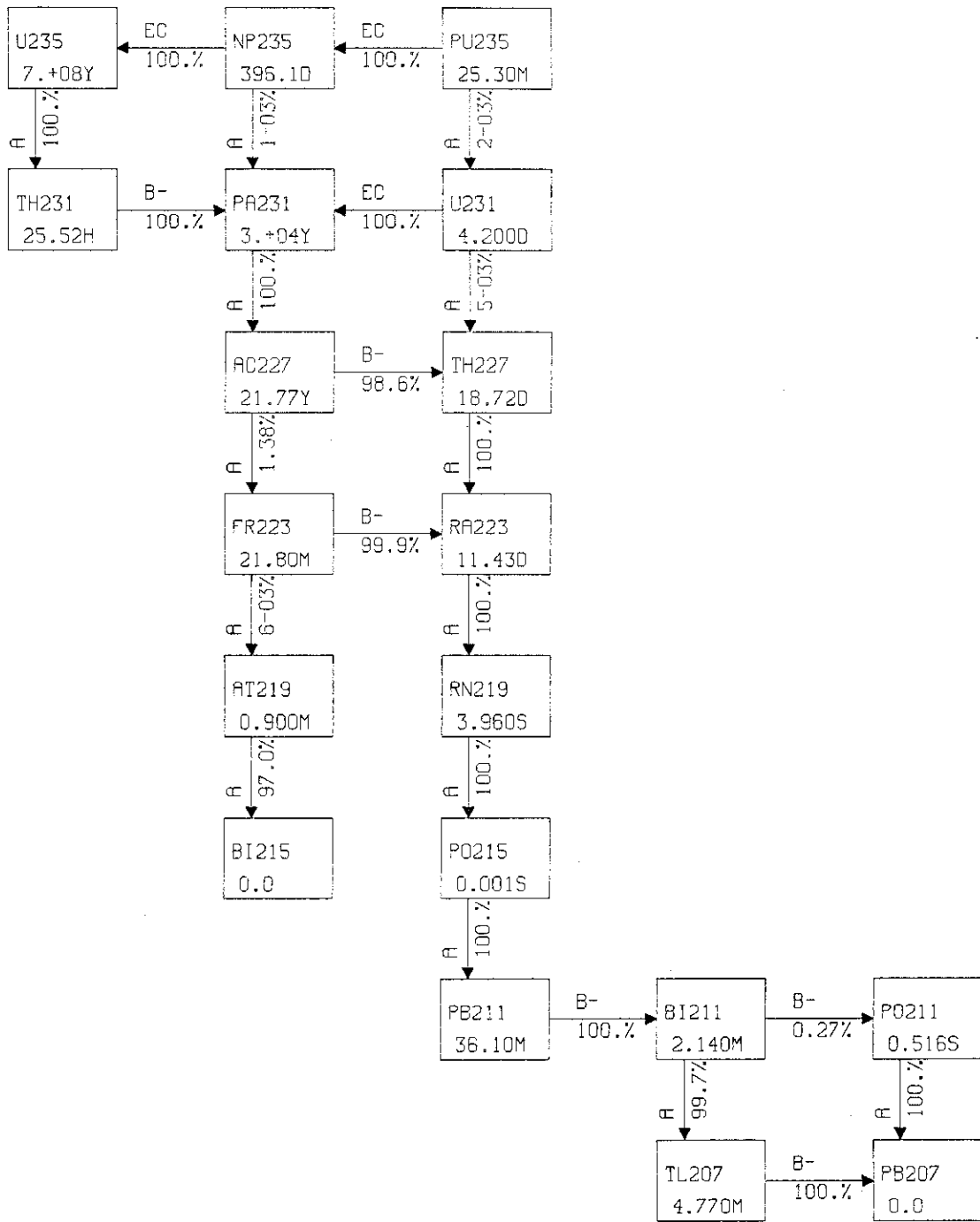
ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 7.9E-11	GONADS 7.5E-11	GONADS 7.5E-11	LUNGS 4.7E-08 A (0, 2, 98)	LUNGS 4.7E-08 A (0, 2, 98)	LUNGS 6.0E-08 A (0, 3, 97)
BONE SURF 3.3E-10 B	ST WALL 1.1E-10	ST WALL 1.1E-10	BONE SURF 2.8E-08 B (36, 47, 17)	BONE SURF 2.8E-08 B (36, 47, 17)	
ST WALL 1.1E-10	SI WALL 2.6E-10	SI WALL 2.6E-10			
SI WALL 2.6E-10	ULI WALL 7.1E-10	ULI WALL 7.1E-10			
ULI WALL 7.1E-10	LLI WALL 1.1E-09 A	LLI WALL 1.1E-09 A			
LLI WALL 1.1E-09 A					

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-234

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 2.0E-11	GONADS 1.9E-11	GONADS 1.9E-11	LUNGS 5.7E-09 A	LUNGS 5.7E-09 A	LUNGS 7.2E-09 A
BONE SURF 9.9E-12 B	ST WALL 6.8E-12	ST WALL 6.8E-12	BONE SURF 8.5E-10 B	BONE SURF 8.4E-10 B	
ST WALL 6.8E-12	SI WALL 1.6E-11	SI WALL 1.6E-11			
SI WALL 1.6E-11	ULI WALL 4.2E-11	ULI WALL 4.2E-11			
ULI WALL 4.2E-11	LLI WALL 6.5E-11 A	LLI WALL 6.5E-11 A			
LLI WALL 6.5E-11 A					

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-234

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+08	3.E+08	3.E+08	8.E+06	8.E+06	7.E+06	3.E+03	3.E+03	3.E+03



JAERI - M 87 - 099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-235

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT
GONADS	2.8E-08	2.0E-07	3.8E-06	4.1E-06
LUNGS	3.2E-05	6.0E-07	7.0E-08	8.7E-08
ST WALL	6.3E-07	6.3E-05	1.2E-06	1.3E-06
SI WALL	6.3E-08	9.1E-07	4.0E-05	6.2E-06
ULI WALL	7.5E-08	1.2E-06	1.1E-05	6.6E-05
PANCREAS	8.7E-07	6.3E-06	6.8E-07	7.4E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -231

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT
GONADS	2.0E-08	1.4E-07	3.4E-06	3.7E-06
LUNGS	7.5E-05	5.0E-07	5.0E-08	6.3E-08
ST WALL	5.2E-07	1.4E-04	1.0E-06	1.1E-06
SI WALL	4.4E-08	7.4E-07	9.0E-05	5.8E-06
ULI WALL	5.3E-08	1.0E-06	1.3E-05	1.5E-04
PANCREAS	7.1E-07	5.6E-06	5.3E-07	5.9E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-235

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT
GONADS	5.3E-10	3.7E-09	2.4E-07	3.0E-07
LUNGS	1.3E-05	1.9E-08	1.4E-09	1.7E-09
ST WALL	2.3E-08	2.1E-05	4.9E-08	6.3E-08
SI WALL	1.2E-09	2.3E-08	1.4E-05	5.4E-07
ULI WALL	1.4E-09	4.2E-08	2.6E-06	2.3E-05
PANCREAS	2.0E-08	3.2E-07	1.4E-08	1.6E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-235

ORGAN	ISOTOPE	ORAL			INHALATION		
		CLASS W	CLASS W	CLASS W	CLASS W	CLASS Y	
LUNGS	PU-235	6.6E+02	6.6E+02	7.1E+02	6.6E+02	7.1E+02	
LUNGS	U -231	0.0	0.0	0.0	0.0	0.0	
LUNGS	NP-235	4.0E+01	4.0E+01	2.1E+02	4.0E+01	2.1E+02	
ST CONTENT	PU-235	1.4E+03	1.4E+03	1.4E+03	2.0E+01	2.6E+01	
ST CONTENT	U -231	0.0	0.0	0.0	0.0	0.0	
ST CONTENT	NP-235	9.9E-02	9.9E-02	9.9E-02	7.9E-02	8.2E-02	
SI CONTENT	PU-235	7.2E+02	7.2E+02	7.2E+02	1.1E+01	1.4E+01	
SI CONTENT	U -231	0.0	0.0	0.0	0.0	0.0	
SI CONTENT	NP-235	6.1E-01	6.1E-01	6.1E-01	3.2E-01	3.3E-01	
ULI CONTENT	PU-235	1.0E+02	1.0E+02	1.5E+00	1.5E+00	2.0E+00	
ULI CONTENT	U -231	0.0	0.0	0.0	0.0	0.0	
ULI CONTENT	NP-235	2.1E+00	2.1E+00	2.1E+00	1.0E+00	1.1E+00	

JAERI - M 87 - 099

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-235

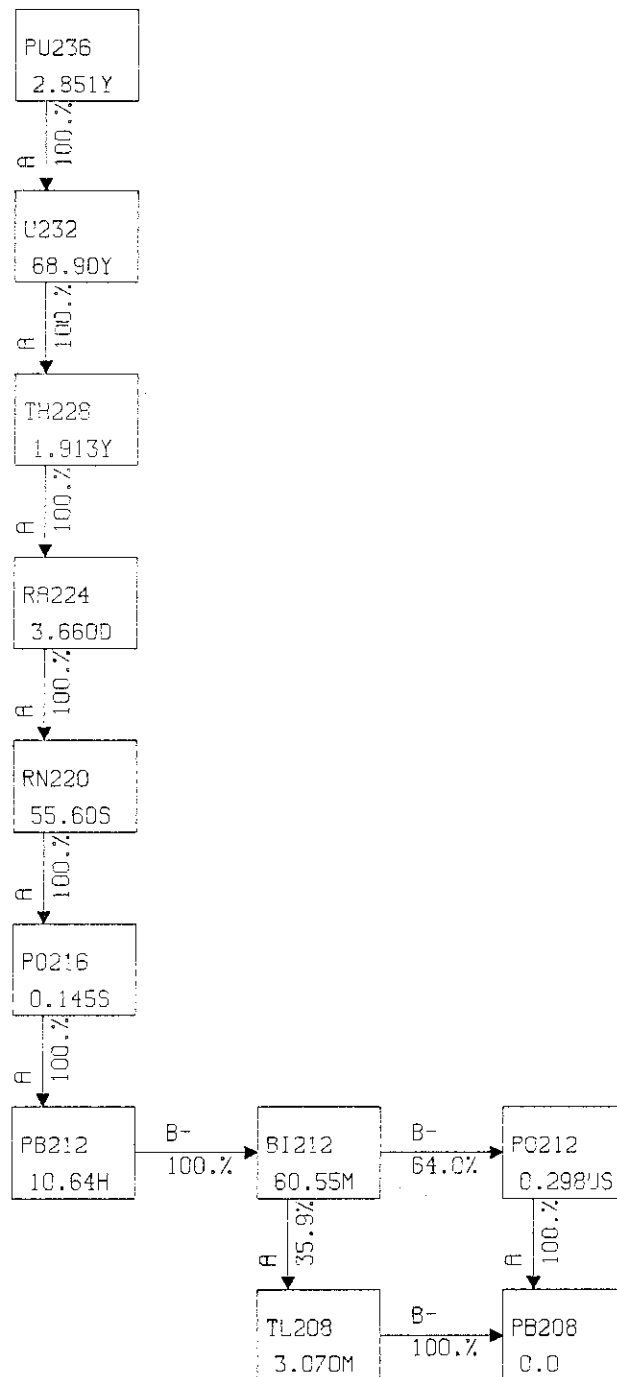
<u>ORAL</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 5.5E-13	GONADS 5.5E-13	GONADS 5.5E-13	LUNGS 3.5E-12 A (0, 17, 83)	LUNGS 3.5E-12 A (0, 17, 83)	LUNGS 4.1E-12 A (0, 20, 80)
ST WALL 1.4E-11 A	ST WALL 1.4E-11 A	ST WALL 1.4E-11 A			
SI WALL 4.9E-12	SI WALL 4.9E-12	SI WALL 4.9E-12			
ULI WALL 2.7E-12	ULI WALL 2.7E-12	ULI WALL 2.7E-12			
REMAINDER 1.5E-12 B WT=.06	REMAINDER 1.5E-12 B WT=.06	REMAINDER 1.5E-12 B WT=.06			

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-235

<u>ORAL</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 1.4E-13	GONADS 1.4E-13	GONADS 1.4E-13	LUNGS 4.2E-13 A	LUNGS 4.2E-13 A	LUNGS 4.9E-13 A
ST WALL 8.4E-13 A	ST WALL 8.4E-13 A	ST WALL 8.4E-13 A			
SI WALL 3.0E-13	SI WALL 3.0E-13	SI WALL 3.0E-13			
ULI WALL 1.6E-13	ULI WALL 1.6E-13	ULI WALL 1.6E-13			
REMAINDER 8.8E-14 B	REMAINDER 8.8E-14 B	REMAINDER 8.8E-14 B			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-235

<u>ORAL</u>			<u>INHALATION</u>			<u>DAC (Bq/m³)</u>		
<u>ALI (Bq)</u>			<u>INHALATION</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+10	3.E+10	3.E+10	1.E+11	1.E+11	1.E+11	5.E+07	5.E+07	4.E+07



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-236

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.3E-11	8.0E-08	2.0E-07	7.3E-11	9.0E-10	9.0E-10
R MARROW	6.7E-09	4.5E-09	6.8E-09	2.6E-08	2.5E-09	1.8E-07	3.8E-02
LUNGS	6.8E-12	1.2E-01	3.7E-11	8.8E-12	1.1E-08	1.3E-09	1.3E-09
BONE SURF	1.6E-09	4.0E-09	1.7E-09	6.4E-09	2.5E-09	2.4E-01	2.4E-01
ULI WALL	1.6E-07	3.2E-11	2.6E-03	5.1E-08	2.2E-09	1.0E-09	1.0E-09
LLI WALL	2.1E-07	6.4E-12	1.4E-08	4.3E-03	2.6E-11	2.8E-09	2.8E-09
LIVER	7.8E-11	8.6E-09	2.3E-09	3.1E-11	6.5E-02	7.2E-10	7.2E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-232

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.8E+00	7.2E-11	7.6E-08	1.7E-07	3.8E-10	1.2E-09	1.2E-09
R MARROW	1.0E-08	5.2E-09	8.6E-09	2.5E-08	3.4E-09	1.7E-07	3.5E-02
LUNGS	4.0E-11	1.1E-01	2.0E-10	5.3E-11	1.1E-08	1.8E-09	1.8E-09
BONE SURF	2.7E-09	4.5E-09	2.3E-09	6.4E-09	3.0E-09	2.2E-01	2.2E-01
ULI WALL	1.4E-07	1.7E-10	2.4E-03	4.7E-08	3.7E-09	1.3E-09	1.3E-09
LLI WALL	1.8E-07	4.2E-11	1.3E-08	4.0E-03	1.6E-10	3.1E-09	3.1E-09
LIVER	4.2E-10	8.6E-09	3.7E-09	1.8E-10	6.0E-02	1.1E-09	1.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	6.9E-10	1.3E-07	2.4E-07	3.3E-09	5.6E-09	5.6E-09
R MARROW	4.9E-08	1.7E-08	3.3E-08	5.5E-08	1.4E-08	1.5E-07	3.6E-02
LUNGS	4.1E-10	1.1E-01	1.8E-09	5.4E-10	2.5E-08	7.8E-09	7.8E-09
BONE SURF	1.3E-08	1.4E-08	9.8E-09	1.6E-08	1.0E-08	2.3E-01	2.3E-01
ULI WALL	1.7E-07	1.6E-09	2.5E-03	6.1E-08	2.0E-08	5.6E-09	5.6E-09
LLI WALL	2.2E-07	5.0E-10	3.0E-08	4.1E-03	1.6E-09	9.1E-09	9.1E-09
LIVER	3.8E-09	2.3E-08	2.0E-08	1.7E-09	6.1E-02	5.2E-09	5.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	4.4E-09	4.1E-07	6.8E-07	1.6E-08	2.6E-08	2.6E-08
R MARROW	1.4E-07	5.2E-08	9.8E-08	1.4E-07	4.6E-08	1.2E-07	3.8E-02
LUNGS	2.7E-09	1.2E-01	9.9E-09	3.1E-09	8.7E-08	3.4E-08	3.4E-08
BONE SURF	4.1E-08	4.1E-08	3.1E-08	4.5E-08	3.1E-08	2.4E-01	2.4E-01
ULI WALL	4.0E-07	9.0E-09	2.5E-03	1.5E-07	8.7E-08	2.6E-08	2.6E-08
LLI WALL	5.1E-07	3.7E-09	1.1E-07	4.2E-03	8.7E-09	3.7E-08	3.7E-08
LIVER	2.1E-08	8.7E-08	9.1E-08	1.0E-08	6.4E-02	2.4E-08	2.4E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E+01	2.1E-10	1.6E-08	2.1E-08	3.2E-10	1.4E-09	1.4E-09
R MARROW	4.1E-09	1.7E-09	2.8E-09	4.1E-09	1.4E-09	4.1E-09	4.2E-02
LUNGS	1.6E-10	1.3E-01	4.6E-10	1.4E-10	3.2E-09	1.3E-09	1.3E-09
BONE SURF	1.2E-09	1.3E-09	9.5E-10	1.4E-09	9.7E-10	2.6E-01	2.6E-01
ULI WALL	1.5E-08	5.1E-10	2.8E-03	5.5E-09	3.4E-09	9.4E-10	9.4E-10
LLI WALL	1.9E-08	1.1E-10	4.0E-09	4.7E-03	4.2E-10	1.3E-09	1.3E-09
LIVER	8.2E-10	3.1E-09	3.2E-09	4.6E-10	7.1E-02	9.4E-10	9.4E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PD-216

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.3E+01	0.0	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	0.0	4.5E-02
LUNGS	0.0	1.4E-01	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	2.8E-01	2.8E-01
ULI WALL	0.0	0.0	3.0E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	5.0E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	7.7E-02	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-212

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.6E-02	6.0E-08	6.2E-06	1.0E-05	2.3E-07	3.9E-07	3.9E-07
R MARROW	2.5E-06	9.0E-07	1.7E-06	2.5E-06	7.5E-07	2.2E-06	6.1E-05
LUNGS	3.6E-08	1.8E-04	1.4E-07	4.3E-08	1.3E-06	5.1E-07	5.1E-07
BONE SURF	7.2E-07	7.1E-07	5.3E-07	7.8E-07	5.3E-07	3.3E-04	3.3E-04
ULI WALL	6.1E-06	1.3E-07	4.2E-04	2.3E-06	1.3E-06	3.8E-07	3.8E-07
LLI WALL	7.9E-06	4.8E-08	1.6E-06	6.8E-04	1.2E-07	5.5E-07	5.5E-07
LIVER	2.9E-07	1.3E-06	1.4E-06	1.4E-07	1.1E-04	3.5E-07	3.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-212

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.1E+00	5.9E-08	3.2E-06	5.7E-06	2.2E-07	3.4E-07	3.4E-07
R MARROW	1.0E-06	4.3E-07	7.2E-07	1.1E-06	3.6E-07	1.2E-06	1.5E-02
LUNGS	5.2E-08	4.5E-02	1.4E-07	5.3E-08	8.4E-07	3.4E-07	3.4E-07
BONE SURF	3.1E-07	3.4E-07	2.4E-07	3.6E-07	2.5E-07	9.1E-02	9.1E-02
ULI WALL	3.7E-06	1.4E-07	2.1E-03	1.4E-06	8.2E-07	2.6E-07	2.6E-07
LLI WALL	4.7E-06	2.9E-08	1.1E-06	3.5E-03	1.1E-07	3.5E-07	3.5E-07
LIVER	2.3E-07	8.1E-07	8.5E-07	1.4E-07	2.5E-02	2.5E-07	2.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-208

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	6.1E-02	1.9E-06	1.1E-04	1.5E-04	6.4E-06	9.5E-06	9.5E-06
R MARROW	2.8E-05	1.2E-05	2.0E-05	2.9E-05	1.1E-05	2.9E-05	2.3E-04
LUNGS	1.9E-06	7.3E-04	4.2E-06	2.2E-06	2.3E-05	1.0E-05	1.0E-05
BONE SURF	8.9E-06	9.8E-06	7.0E-06	1.0E-05	7.4E-06	1.2E-04	1.7E-04
ULI WALL	1.0E-04	4.9E-06	1.7E-03	3.8E-05	2.3E-05	7.5E-06	7.5E-06
LLI WALL	1.3E-04	8.6E-07	2.8E-05	2.7E-03	3.7E-06	9.5E-06	9.5E-06
LIVER	7.2E-06	2.3E-05	2.5E-05	4.1E-06	5.6E-04	8.0E-06	8.0E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-212

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.6E+01	0.0	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	0.0	5.9E-02
LUNGS	0.0	1.8E-01	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	3.7E-01	3.7E-01
ULI WALL	0.0	0.0	3.9E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	6.5E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	9.9E-02	0.0	0.0

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-236

ORGAN	ISOTOPE	ORAL			INHALATION		
		CLASS W	CLASS W	CLASS Y	CLASS W	CLASS W	CLASS Y
	PU-236	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	U -232	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TH-228	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RA-224	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	RN-220	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PO-216	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PB-212	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	BI-212	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	TL-208	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PO-212	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
GONADS	PU-236	1.4E+01	1.4E+00	1.4E-01	1.7E+03	1.7E+03	3.4E+02
GONADS	U -232	5.3E+00	5.3E-01	5.3E-02	6.3E+02	6.3E+02	2.5E+02
GONADS	TH-228	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	RA-224	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	RN-220	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	PO-216	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	PB-212	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	BI-212	5.0E+00	5.0E-01	5.0E-02	6.0E+02	6.0E+02	2.4E+02
GONADS	TL-208	1.8E+00	1.8E-01	1.8E-02	2.2E+02	2.2E+02	8.7E+01
GONADS	PO-212	3.2E+00	3.2E-01	3.2E-02	3.9E+02	3.9E+02	1.5E+02
LUNGS	PU-236				9.8E+05	9.8E+05	8.1E+06
LUNGS	U -232				2.1E+03	2.1E+03	4.1E+05
LUNGS	TH-228				1.5E+02	1.5E+02	2.9E+05
LUNGS	RA-224				1.4E+02	1.4E+02	2.9E+05
LUNGS	RN-220				1.4E+02	1.4E+02	2.9E+05
LUNGS	PO-216				1.4E+02	1.4E+02	2.9E+05
LUNGS	PB-212				1.4E+02	1.4E+02	2.9E+05
LUNGS	BI-212				1.4E+02	1.4E+02	2.9E+05
LUNGS	TL-208				4.9E+01	4.9E+01	1.1E+05
LUNGS	PO-212				8.7E+01	8.7E+01	1.9E+05
ULI CONTENT	PU-236	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.5E+04
ULI CONTENT	U -232	9.7E-01	9.7E-01	9.7E-01	9.8E+00	9.8E+00	6.3E+01
ULI CONTENT	TH-228	5.6E-04	5.7E-04	5.7E-04	6.0E-01	6.0E-01	2.6E+01
ULI CONTENT	RA-224	5.4E-05	5.4E-05	5.4E-05	5.6E-01	5.6E-01	2.6E+01
ULI CONTENT	RN-220	5.4E-05	5.4E-05	5.4E-05	5.6E-01	5.6E-01	2.6E+01
ULI CONTENT	PO-216	5.4E-05	5.4E-05	5.4E-05	5.6E-01	5.6E-01	2.6E+01
ULI CONTENT	PB-212	2.5E-05	2.5E-05	2.5E-05	5.5E-01	5.5E-01	2.6E+01
ULI CONTENT	BI-212	2.2E-05	2.2E-05	2.2E-05	5.5E-01	5.5E-01	2.6E+01
ULI CONTENT	TL-208	8.0E-06	8.0E-06	8.0E-06	2.0E-01	2.0E-01	9.2E+00
ULI CONTENT	PO-212	1.4E-05	1.4E-05	1.4E-05	3.5E-01	3.5E-01	1.6E+01
LLI CONTENT	PU-236	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	4.7E+04
LLI CONTENT	U -232	4.2E+00	4.2E+00	4.2E+00	1.9E+01	1.9E+01	1.2E+02
LLI CONTENT	TH-228	5.2E-03	5.2E-03	5.2E-03	1.1E+00	1.1E+00	4.8E+01
LLI CONTENT	RA-224	9.1E-04	9.1E-04	9.1E-04	1.0E+00	1.0E+00	4.7E+01
LLI CONTENT	RN-220	9.0E-04	9.1E-04	9.1E-04	1.0E+00	1.0E+00	4.7E+01
LLI CONTENT	PO-216	9.0E-04	9.1E-04	9.1E-04	1.0E+00	1.0E+00	4.7E+01
LLI CONTENT	PB-212	5.7E-04	5.7E-04	5.7E-04	1.0E+00	1.0E+00	4.7E+01
LLI CONTENT	BI-212	5.4E-04	5.4E-04	5.4E-04	1.0E+00	1.0E+00	4.7E+01
LLI CONTENT	TL-208	1.9E-04	1.9E-04	1.9E-04	3.7E-01	3.7E-01	1.7E+01
LLI CONTENT	PO-212	3.5E-04	3.5E-04	3.5E-04	6.6E-01	6.6E-01	3.0E+01

(Continued)

LIVER	PU-236	5.1E+04	5.1E+03	5.1E+02	6.0E+06	6.0E+06	1.2E+06
LIVER	U -232	1.0E+04	1.0E+03	1.0E+02	1.2E+06	1.2E+06	5.2E+05
LIVER	TH-228	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.9E+05
LIVER	RA-224	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.9E+05
LIVER	RN-220	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.9E+05
LIVER	PO-216	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.9E+05
LIVER	PB-212	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.8E+05
LIVER	BI-212	9.0E+03	9.0E+02	9.0E+01	1.1E+06	1.1E+06	4.8E+05
LIVER	TL-208	3.2E+03	3.2E+02	3.2E+01	3.9E+05	3.9E+05	1.7E+05
LIVER	PO-212	5.8E+03	5.8E+02	5.8E+01	7.0E+05	6.9E+05	3.1E+05
CORT BONE	PU-236	2.8E+04	2.8E+03	2.8E+02	3.2E+06	3.2E+06	6.6E+05
CORT BONE	U -232	7.7E+03	7.7E+02	7.7E+01	9.3E+05	9.3E+05	3.8E+05
CORT BONE	TH-228	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	RA-224	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	RN-220	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	PO-216	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	PB-212	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	BI-212	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
CORT BONE	TL-208	2.6E+03	2.6E+02	2.6E+01	3.1E+05	3.1E+05	1.3E+05
CORT BONE	PO-212	4.6E+03	4.6E+02	4.6E+01	5.6E+05	5.5E+05	2.3E+05
TRAB BONE	PU-236	2.8E+04	2.8E+03	2.8E+02	3.2E+06	3.2E+06	6.6E+05
TRAB BONE	U -232	7.7E+03	7.7E+02	7.7E+01	9.3E+05	9.3E+05	3.8E+05
TRAB BONE	TH-228	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	RA-224	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	RN-220	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	PO-216	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	PB-212	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	BI-212	7.2E+03	7.2E+02	7.2E+01	8.7E+05	8.7E+05	3.6E+05
TRAB BONE	TL-208	2.6E+03	2.6E+02	2.6E+01	3.1E+05	3.1E+05	1.3E+05
TRAB BONE	PO-212	4.6E+03	4.6E+02	4.6E+01	5.6E+05	5.5E+05	2.3E+05

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COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-236

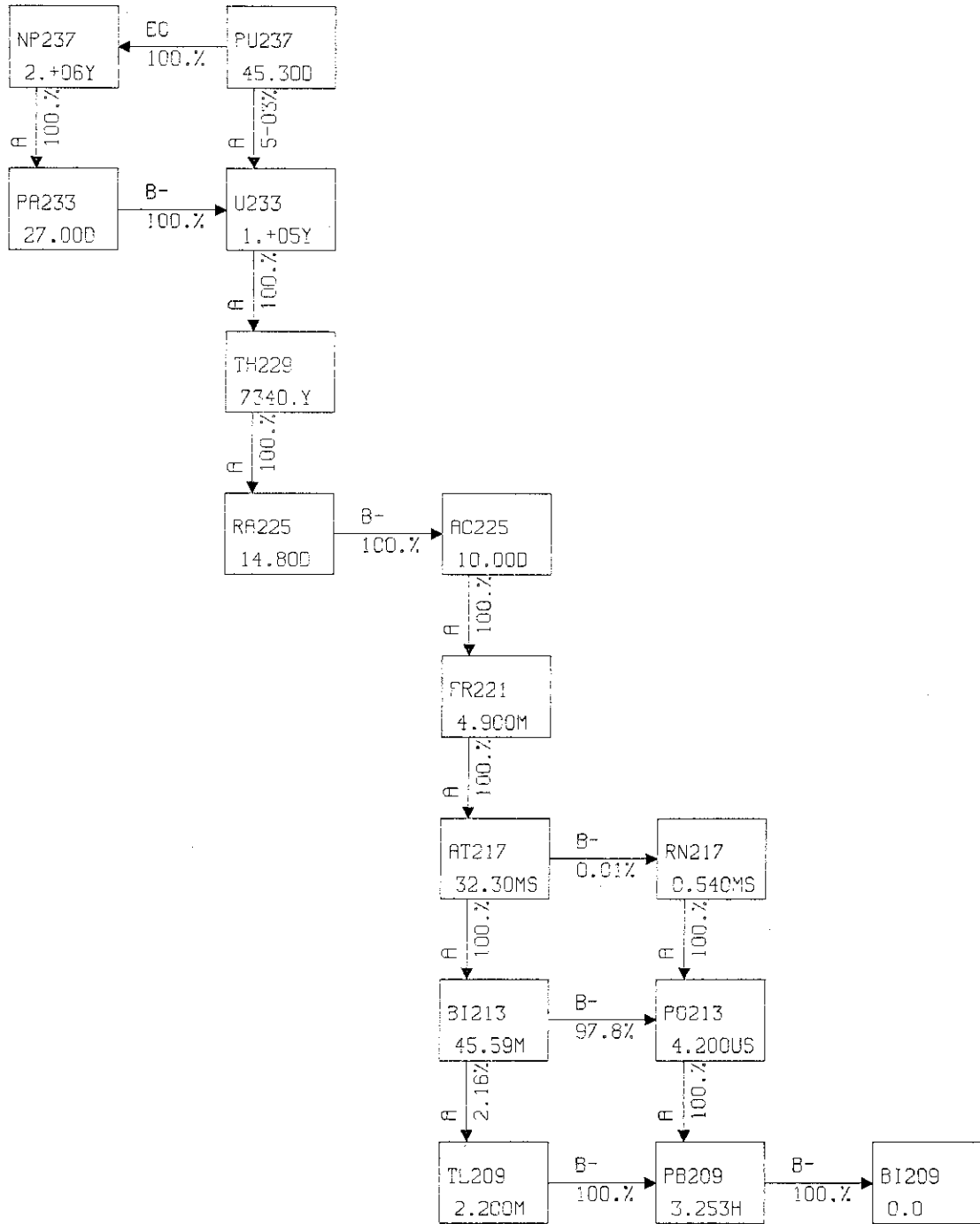
ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 8.0E-08	GONADS 8.0E-09	R MARROW 4.6E-09 B	GONADS 9.6E-06 (25, 33, 42)	GONADS 9.5E-06 (25, 34, 41)	LUNGS 1.9E-04 A (0, 0, 100)
R MARROW 4.6E-07 B	R MARROW 4.6E-08 B	BONE SURF 5.7E-08 B	R MARROW 5.5E-05 B (25, 33, 42)	R MARROW 5.5E-05 B (25, 34, 41)	BONE SURF 2.3E-04 B (7, 2, 91)
BONE SURF 5.7E-06 AB	BONE SURF 5.7E-07 AB	ULI WALL 1.9E-08	LUNGS 1.8E-05 (0, 0, 100)	LUNGS 1.8E-05 (0, 0, 100)	LIVER 4.6E-05 (8, 2, 90)
LIVER 1.1E-06	LLI WALL 5.9E-08	LLI WALL 5.9E-08 A	BONE SURF 6.9E-04 AB (25, 33, 42)	BONE SURF 6.8E-04 AB (25, 34, 41)	
	LIVER 1.1E-07	LIVER 1.1E-08	LIVER 1.4E-04 (25, 34, 41)	LIVER 1.4E-04 (25, 34, 41)	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-236

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 2.0E-08	GONADS 2.0E-09	R MARROW 5.5E-10 B	GONADS 2.4E-06	GONADS 2.4E-06	LUNGS 2.3E-05 A
R MARROW 5.5E-08 B	R MARROW 5.5E-09 B	BONE SURF 1.7E-09 B	R MARROW 6.6E-06 B	R MARROW 6.6E-06 B	BONE SURF 7.0E-06 B
BONE SURF 1.7E-07 AB	BONE SURF 1.7E-08 AB	ULI WALL 1.2E-09	LUNGS 2.2E-06	LUNGS 2.2E-06	LIVER 2.7E-06
LIVER 6.9E-08	LLI WALL 3.6E-09	LLI WALL 3.6E-09 A	BONE SURF 2.1E-05 AB	BONE SURF 2.0E-05 AB	
	LIVER 6.9E-09	LIVER 6.9E-10	LIVER 8.2E-06	LIVER 8.2E-06	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-236

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
9.E+04 (2.E+05) BONE SURF	9.E+05 (2.E+06) BONE SURF	6.E+06	7.E+02 (1.E+03) BONE SURF	7.E+02 (1.E+03) BONE SURF	2.E+03	3.E-01	3.E-01	6.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-237

SOURCES

TARGETS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.4E-08	2.2E-06	2.4E-06	3.7E-06	7.5E-08	1.3E-07	1.3E-07
R MARROW	4.1E-07	9.3E-07	8.0E-07	1.2E-06	3.4E-07	1.4E-06	7.6E-06
LUNGS	2.5E-05	3.6E-08	4.5E-08	1.3E-08	5.1E-07	1.7E-07	1.7E-07
BONE SURF	3.2E-07	2.7E-07	2.4E-07	3.7E-07	2.4E-07	4.0E-05	4.0E-05
SI WALL	3.2E-08	2.6E-05	3.6E-06	2.0E-06	2.9E-07	1.3E-07	1.3E-07
ULI WALL	3.8E-08	7.3E-06	4.3E-05	9.4E-07	4.7E-07	1.2E-07	1.2E-07
LLI WALL	8.4E-09	1.7E-06	6.3E-07	6.5E-05	3.9E-08	1.9E-07	1.9E-07
LIVER	4.8E-07	3.4E-07	4.7E-07	4.0E-08	1.8E-05	1.2E-07	1.2E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-237

SOURCES

TARGETS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	6.7E-09	1.5E-06	1.6E-06	3.0E-06	3.6E-08	7.9E-08	7.9E-08
R MARROW	2.6E-07	5.6E-07	4.8E-07	8.6E-07	1.9E-07	1.4E-06	3.2E-02
LUNGS	9.7E-02	1.7E-08	2.1E-08	5.7E-09	3.3E-07	9.8E-08	9.8E-08
BONE SURF	2.1E-07	1.6E-07	1.4E-07	2.5E-07	1.4E-07	2.0E-01	2.0E-01
SI WALL	1.4E-08	1.3E-03	2.7E-06	1.5E-06	1.5E-07	7.1E-08	7.1E-08
ULI WALL	1.7E-08	6.7E-06	2.3E-03	6.9E-07	2.6E-07	6.5E-08	6.5E-08
LLI WALL	4.1E-09	1.4E-06	4.1E-07	3.8E-03	1.7E-08	1.1E-07	1.1E-07
LIVER	3.0E-07	1.8E-07	2.6E-07	1.8E-08	5.4E-02	6.3E-08	6.3E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-237

ORGAN	ISOTOPE	ORAL			INHALATION		
		f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
	PU-237						
	NP-237						
LUNGS	PU-237				4.8E+05	4.8E+05	8.1E+05
LUNGS	NP-237				3.2E-02	3.2E-02	1.1E+00
SI CONTENT	PU-237	1.4E+04	1.4E+04	1.4E+04	6.5E+03	6.5E+03	6.9E+03
SI CONTENT	NP-237	2.6E-06	2.7E-06	2.7E-06	4.9E-05	4.9E-05	8.2E-05
ULI CONTENT	PU-237	4.6E+04	4.6E+04	4.6E+04	2.1E+04	2.1E+04	2.2E+04
ULI CONTENT	NP-237	3.1E-05	3.1E-05	3.1E-05	1.7E-04	1.7E-04	2.8E-04
LLI CONTENT	PU-237	8.4E+04	8.4E+04	8.4E+04	3.8E+04	3.8E+04	4.0E+04
LLI CONTENT	NP-237	1.3E-04	1.3E-04	1.3E-04	3.5E-04	3.5E-04	5.5E-04
LIVER	PU-237	2.5E+03	2.5E+02	2.5E+01	2.3E+05	2.3E+05	1.2E+04
LIVER	NP-237	1.9E-02	1.9E-03	1.9E-04	2.3E+00	2.3E+00	9.3E-01
CORT BONE	PU-237	1.3E+03	1.3E+02	1.3E+01	1.1E+05	1.1E+05	6.3E+03
CORT BONE	NP-237	1.5E-02	1.5E-03	1.4E-04	1.8E+00	1.8E+00	6.9E-01
TRAB BONE	PU-237	1.3E+03	1.3E+02	1.3E+01	1.1E+05	1.1E+05	6.3E+03
TRAB BONE	NP-237	1.5E-02	1.5E-03	1.4E-04	1.8E+00	1.8E+00	6.9E-01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-237

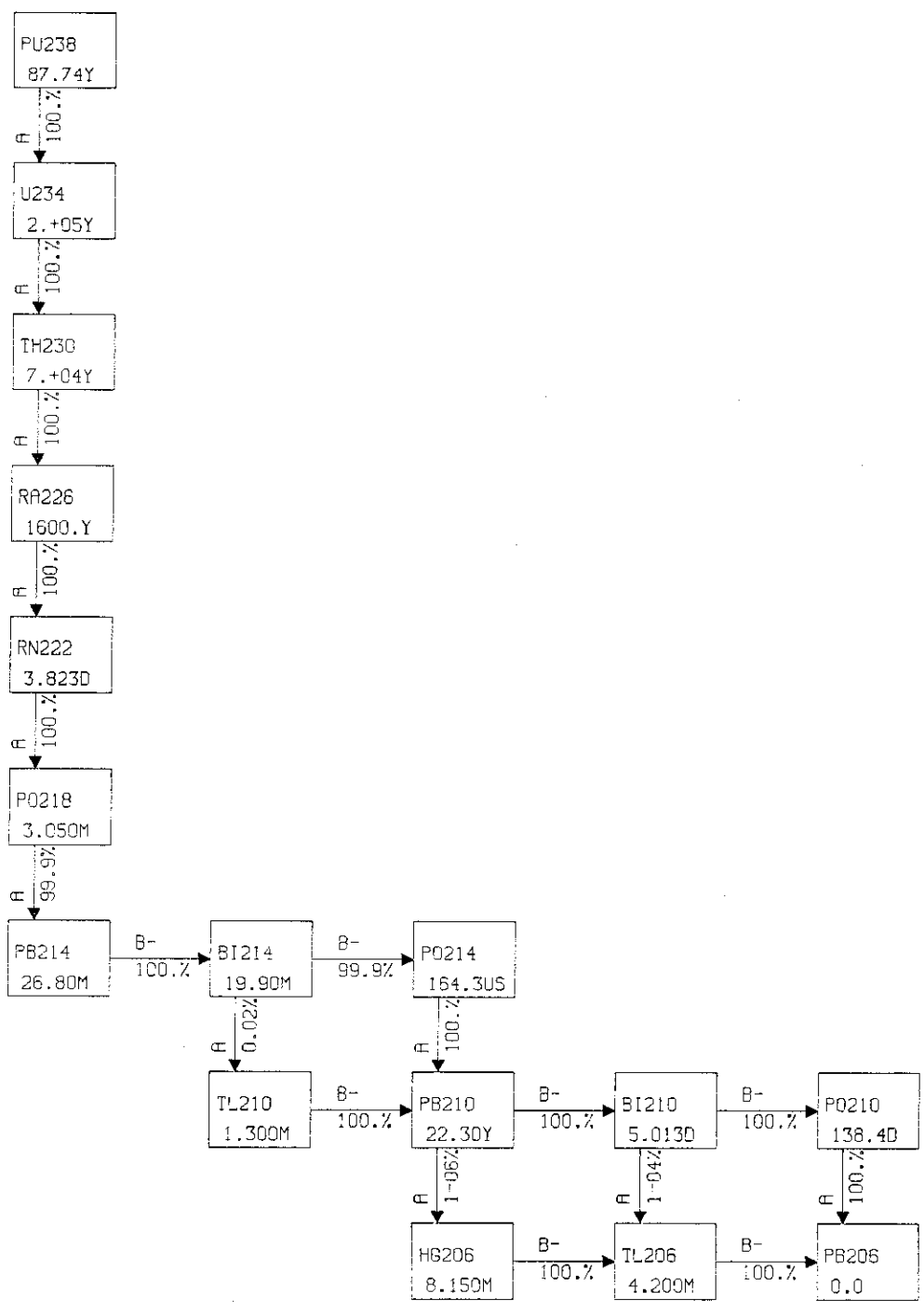
f1=1.E-03	ORAL			INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	
GONADS 7.3E-11	GONADS 7.3E-11	GONADS 7.3E-11	R MARROW 2.3E-10 B (30, 35, 35)	R MARROW 2.3E-10 B (30, 35, 35)	LUNGS 3.3E-09 A (0, 0, 100)	
SI WALL 1.1E-10	SI WALL 1.1E-10	SI WALL 1.1E-10	LUNGS 2.0E-09 A (0, 1, 99)	LUNGS 2.0E-09 A (0, 1, 99)		
ULI WALL 3.5E-10	ULI WALL 3.5E-10	ULI WALL 3.5E-10	BONE SURF 1.6E-09 B (32, 43, 25)	BONE SURF 1.6E-09 B (32, 43, 25)		
LLI WALL 8.9E-10 A	LLI WALL 8.9E-10 A	LLI WALL 8.9E-10 A	LLI WALL 4.1E-10 (58, 10, 32)	LLI WALL 4.1E-10 (58, 10, 32)		
			LIVER 7.3E-10 (31, 42, 27)	LIVER 7.3E-10 (31, 42, 27)		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Sq) OF PU-237

<u>ORAL</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 1.8E-11	GONADS 1.8E-11	GONADS 1.8E-11	R MARROW 2.8E-11 B	R MARROW 2.8E-11 B	LUNGS 4.0E-10 A
SI WALL 6.9E-12	SI WALL 6.9E-12	SI WALL 6.9E-12	LUNGS 2.4E-10 A	LUNGS 2.4E-10 A	
ULI WALL 2.1E-11	ULI WALL 2.1E-11	ULI WALL 2.1E-11	BONE SURF 4.9E-11 B	BONE SURF 4.9E-11 B	
LLI WALL 5.3E-11 A	LLI WALL 5.3E-11 A	LLI WALL 5.3E-11 A	LLI WALL 2.5E-11	LLI WALL 2.5E-11	
			LIVER 4.4E-11	LIVER 4.4E-11	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 HF/WA) FOR PU-237

<u>ALI (D=)</u>						<u>DAC (Bq/m³)</u>		
<u>ORAL</u>			<u>INHALATION</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
5.E+08	5.E+08	5.E+08	1.E+08	1.E+08	1.E+08	5.E+04	5.E+04	5.E+04



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.2E+00	3.1E-13	1.7E-11	3.6E-10	2.5E-12	7.0E-11	7.0E-11
R MARROW	8.4E-11	3.7E-09	5.5E-09	2.2E-08	2.0E-09	1.5E-07	3.7E-02
LUNGS	2.0E-13	1.1E-01	1.8E-11	4.3E-12	9.7E-09	1.1E-09	1.1E-09
BONE SURF	1.2E-10	3.3E-09	1.3E-09	5.4E-09	2.1E-09	2.3E-01	2.3E-01
ULI WALL	1.9E-11	1.5E-11	2.5E-03	4.4E-08	1.8E-09	8.3E-10	8.3E-10
LLI WALL	8.6E-10	3.0E-12	1.2E-08	4.1E-03	1.3E-11	2.4E-09	2.4E-09
LIVER	1.4E-12	7.3E-09	1.8E-09	1.5E-11	6.2E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-238

ORGAN	ORAL			INHALATION		
	f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS	4.6E+02	4.6E+01	4.6E+00	5.5E+04	5.5E+04	2.0E+04
LUNGS				1.0E+06	1.0E+06	1.8E+07
ULI CONTENT	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.7E+04
LLI CONTENT	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	5.0E+04
LIVER	2.9E+05	2.9E+04	2.9E+03	3.5E+07	3.5E+07	1.4E+07
CORT BONE	2.2E+05	2.2E+04	2.2E+03	2.6E+07	2.6E+07	9.9E+06
TRAB BONE	2.2E+05	2.2E+04	2.2E+03	2.6E+07	2.6E+07	9.9E+06

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-238

f1=1.E-03	ORAL			INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	
GONADS 2.3E-07	GONADS 2.3E-08	GONADS 2.3E-09	GONADS 2.8E-05 (25, 33, 42)	GONADS 2.8E-05 (25, 33, 42)	R MARROW 5.8E-05 B (7, 2, 91)	
R MARROW 1.3E-06 B	R MARROW 1.3E-07 B	R MARROW 1.3E-08 B	R MARROW 1.5E-04 B (25, 33, 42)	R MARROW 1.5E-04 B (25, 33, 42)	LUNGS 3.2E-04 A (0, 0, 100)	
BONE SURF 1.6E-05 AB	BONE SURF 1.6E-06 AB	BONE SURF 1.6E-07 AB	BONE SURF 1.9E-03 AB (25, 33, 42)	BONE SURF 1.9E-03 AB (25, 33, 42)	BONE SURF 7.2E-04 B (7, 2, 91)	
LIVER 2.9E-06	LIVER 2.9E-07	ULI WALL 1.8E-08	LIVER 3.5E-04 (25, 33, 42)	LIVER 3.5E-04 (25, 33, 42)	LIVER 1.4E-04 (6, 2, 92)	
		LLI WALL 5.7E-08				
		LIVER 2.9E-08				

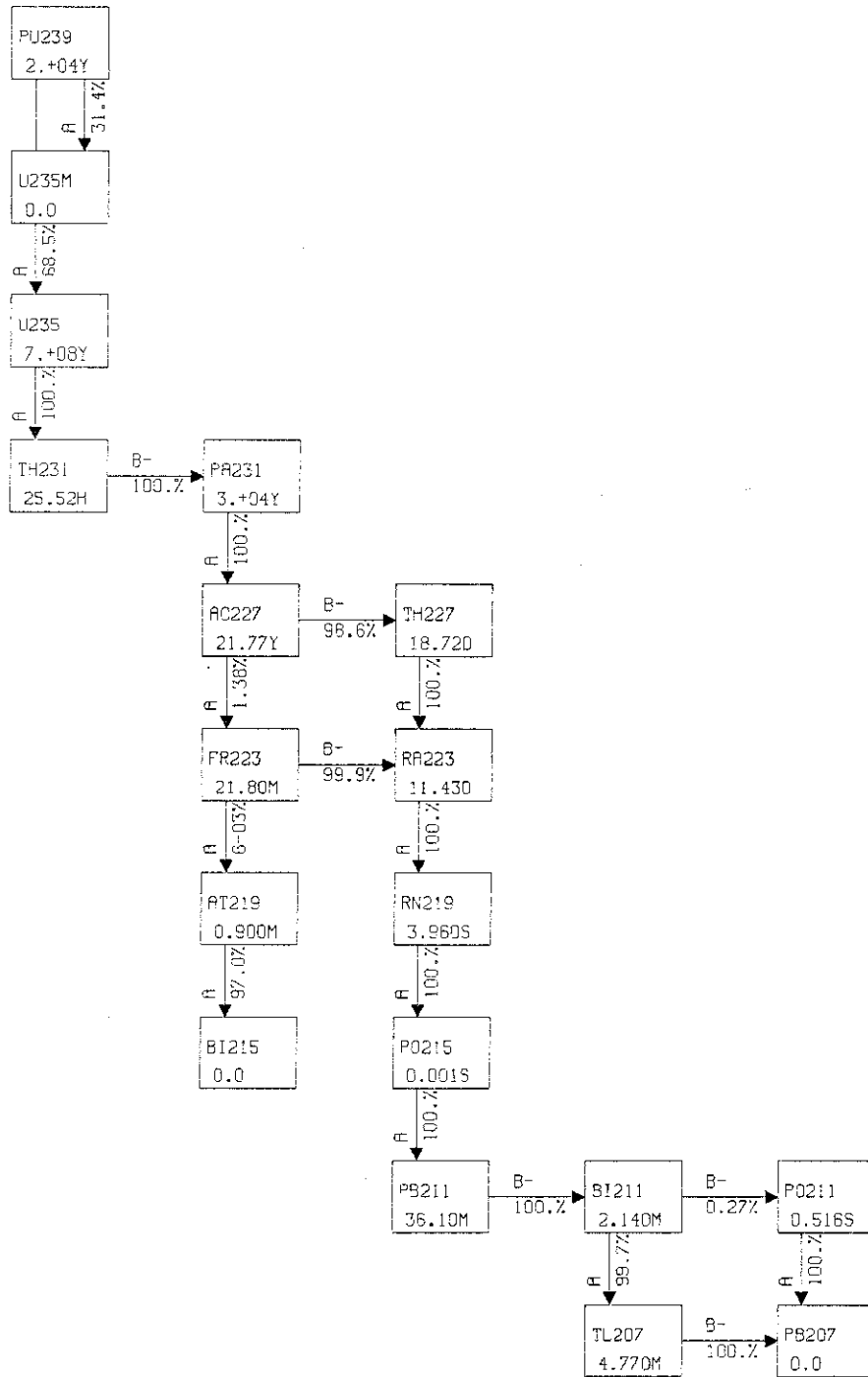
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WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-238

<u>ORAL</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 5.8E-08	GONADS 5.8E-09	GONADS 5.8E-10	GONADS 7.0E-06	GONADS 7.0E-06	R MARROW 7.0E-06 B
R MARROW 1.5E-07 B	R MARROW 1.5E-08 B	R MARROW 1.5E-09 B	R MARROW 1.8E-05 B	R MARROW 1.8E-05 B	LUNGS 3.8E-05 A
BONE SURF 4.7E-07 AB	BONE SURF 4.8E-08 AB	BONE SURF 4.7E-09 AB	BONE SURF 5.7E-05 AB	BONE SURF 5.7E-05 AB	BONE SURF 2.2E-05 B
LIVER 1.8E-07	LIVER 1.8E-08	ULI WALL 1.1E-09	LIVER 2.1E-05	LIVER 2.1E-05	LIVER 8.2E-06
		LLI WALL 3.4E-09			
		LIVER 1.8E-09			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-238

<u>ALI (Bq)</u>			<u>INHALATION</u>			<u>DAC (Bq/m³)</u>		
<u>ORAL</u>			<u>INHALATION</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+04 (4.E+04) BONE SURF	3.E+05 (4.E+05) BONE SURF	3.E+06 (4.E+06) BONE SURF	3.E+02 (5.E+02) BONE SURF	3.E+02 (5.E+02) BONE SURF	7.E+02	1.E-01	1.E-01	3.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-239

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	2.4E-11	3.2E-08	7.9E-08	9.1E-11	4.8E-10	4.8E-10
R MARROW	3.5E-09	2.0E-09	3.2E-09	1.1E-08	1.2E-09	6.7E-08	3.4E-02
LUNGS	1.5E-11	1.0E-01	6.0E-11	1.7E-11	4.7E-09	6.6E-10	6.6E-10
BONE SURF	8.7E-10	1.8E-09	8.2E-10	2.7E-09	1.1E-09	2.1E-01	2.1E-01
ULI WALL	6.2E-08	5.6E-11	2.3E-03	2.0E-08	1.3E-09	5.0E-10	5.0E-10
LLI WALL	8.0E-08	1.5E-11	5.8E-09	3.8E-03	5.0E-11	1.2E-09	1.2E-09
LIVER	1.2E-10	3.7E-09	1.3E-09	5.6E-11	5.8E-02	3.8E-10	3.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-239

ORGAN	ORAL			INHALATION		
	f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS	1.7E+02	1.7E+01	1.7E+00	2.1E+04	2.1E+04	7.9E+03
LUNGS				1.0E+06	1.0E+06	1.9E+07
ULI CONTENT	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.7E+04
LLI CONTENT	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	5.0E+04
LIVER	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
CORT BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-239

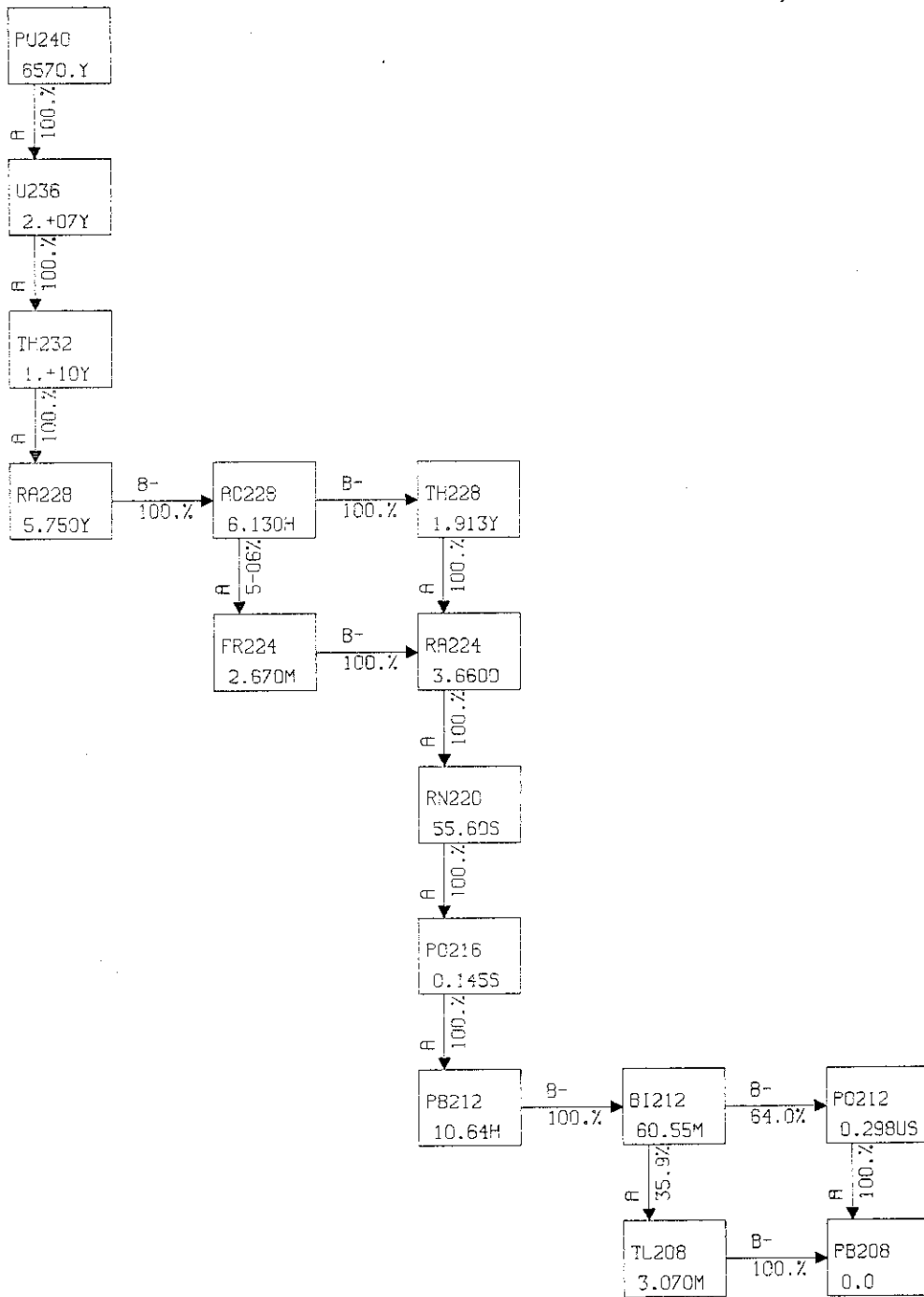
f1=1.E-03	ORAL			INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	
GONADS 2.6E-07	GONADS 2.6E-08	GONADS 2.6E-09	GONADS 3.2E-05 (25, 33, 42)	GONADS 3.2E-05 (25, 33, 42)	R MARROW 6.6E-05 B (6, 2, 92)	
R MARROW 1.4E-06 B	R MARROW 1.4E-07 B	R MARROW 1.4E-08 B	R MARROW 1.7E-04 B (25, 33, 42)	R MARROW 1.7E-04 B (25, 33, 42)	LUNGS 3.2E-04 A (0, 0, 100)	
BONE SURF 1.8E-05 AB	BONE SURF 1.8E-06 AB	BONE SURF 1.8E-07 AB	BONE SURF 2.1E-03 AB (25, 33, 42)	BONE SURF 2.1E-03 AB (25, 33, 42)	BONE SURF 8.2E-04 B (6, 2, 92)	
LIVER 3.1E-06	LIVER 3.1E-07	ULI WALL 1.7E-08	LIVER 3.8E-04 (25, 33, 42)	LIVER 3.8E-04 (25, 33, 42)	LIVER 1.5E-04 (6, 2, 92)	
		LLI WALL 5.3E-08				
		LIVER 3.1E-08				

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-239

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 6.6E-08	GONADS 6.6E-09	GONADS 6.6E-10	GONADS 7.9E-06	GONADS 7.9E-06	R MARROW 7.9E-06 B
R MARROW 1.7E-07 B	R MARROW 1.7E-08 B	R MARROW 1.7E-09 B	R MARROW 2.0E-05 B	R MARROW 2.0E-05 B	LUNGS 3.9E-05 A
BONE SURF 5.3E-07 AB	BONE SURF 5.3E-08 AB	BONE SURF 5.3E-09 AB	BONE SURF 6.3E-05 AB	BONE SURF 6.3E-05 AB	BONE SURF 2.5E-05 B
LIVER 1.9E-07	LIVER 1.9E-08	ULI WALL 1.0E-09	LIVER 2.3E-05	LIVER 2.3E-05	LIVER 9.1E-06
		LLI WALL 3.2E-09			
		LIVER 1.9E-09			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 H²/Wk) FOR PU-239

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+04 (5.E+04) BONE SURF	3.E+05 (5.E+05) BONE SURF	3.E+06 (4.E+06) BONE SURF	2.E+02 (4.E+02) BONE SURF	2.E+02 (4.E+02) BONE SURF	6.E+02 (6.E+02) BONE SURF	1.E-01	1.E-01	3.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.0E+00	5.3E-13	5.3E-11	4.8E-10	3.6E-12	9.5E-11	9.5E-11
R MARROW	1.1E-10	3.6E-09	5.4E-09	2.2E-08	2.0E-09	1.5E-07	3.4E-02
LUNGS	4.0E-13	1.0E-01	2.3E-11	6.6E-12	9.3E-09	1.1E-09	1.1E-09
BONE SURF	1.5E-10	3.2E-09	1.3E-09	5.2E-09	2.0E-09	2.2E-01	2.2E-01
ULI WALL	2.9E-11	2.1E-11	2.3E-03	4.2E-08	1.8E-09	8.1E-10	8.1E-10
LLI WALL	1.0E-09	4.8E-12	1.1E-08	3.9E-03	1.8E-11	2.3E-09	2.3E-09
LIVER	2.6E-12	7.1E-09	1.8E-09	2.1E-11	5.8E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-240

ORGAN	ORAL			INHALATION		
	f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS	5.5E+02	5.5E+01	5.5E+00	6.6E+04	6.6E+04	2.5E+04
LUNGS				1.0E+06	1.0E+06	1.9E+07
ULI CONTENT	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.7E+04
LLI CONTENT	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	5.0E+04
LIVER	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
CORT BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-240

f1=1.E-03	ORAL			INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	
GONADS 2.6E-07	GONADS 2.6E-08	GONADS 2.6E-09	GONADS 3.2E-05 (25, 33, 42)	GONADS 3.2E-05 (25, 33, 42)	R MARROW 6.6E-05 B (6, 2, 92)	
R MARROW 1.4E-06 B	R MARROW 1.4E-07 B	R MARROW 1.4E-08 B	R MARROW 1.7E-04 B (25, 33, 42)	R MARROW 1.7E-04 B (25, 33, 42)	LUNGS 3.2E-04 A (0, 0, 100)	
BONE SURF 1.8E-05 AB	BONE SURF 1.8E-06 AB	BONE SURF 1.8E-07 AB	BONE SURF 2.1E-03 AB (25, 33, 42)	BONE SURF 2.1E-03 AB (25, 33, 42)	BONE SURF 8.2E-04 B (6, 2, 92)	
LIVER 3.1E-06	LIVER 3.1E-07	ULI WALL 1.7E-08	LIVER 3.8E-04 (25, 33, 42)	LIVER 3.8E-04 (25, 33, 42)	LIVER 1.5E-04 (6, 2, 92)	
		LLI WALL 5.3E-08				
		LIVER 3.1E-08				

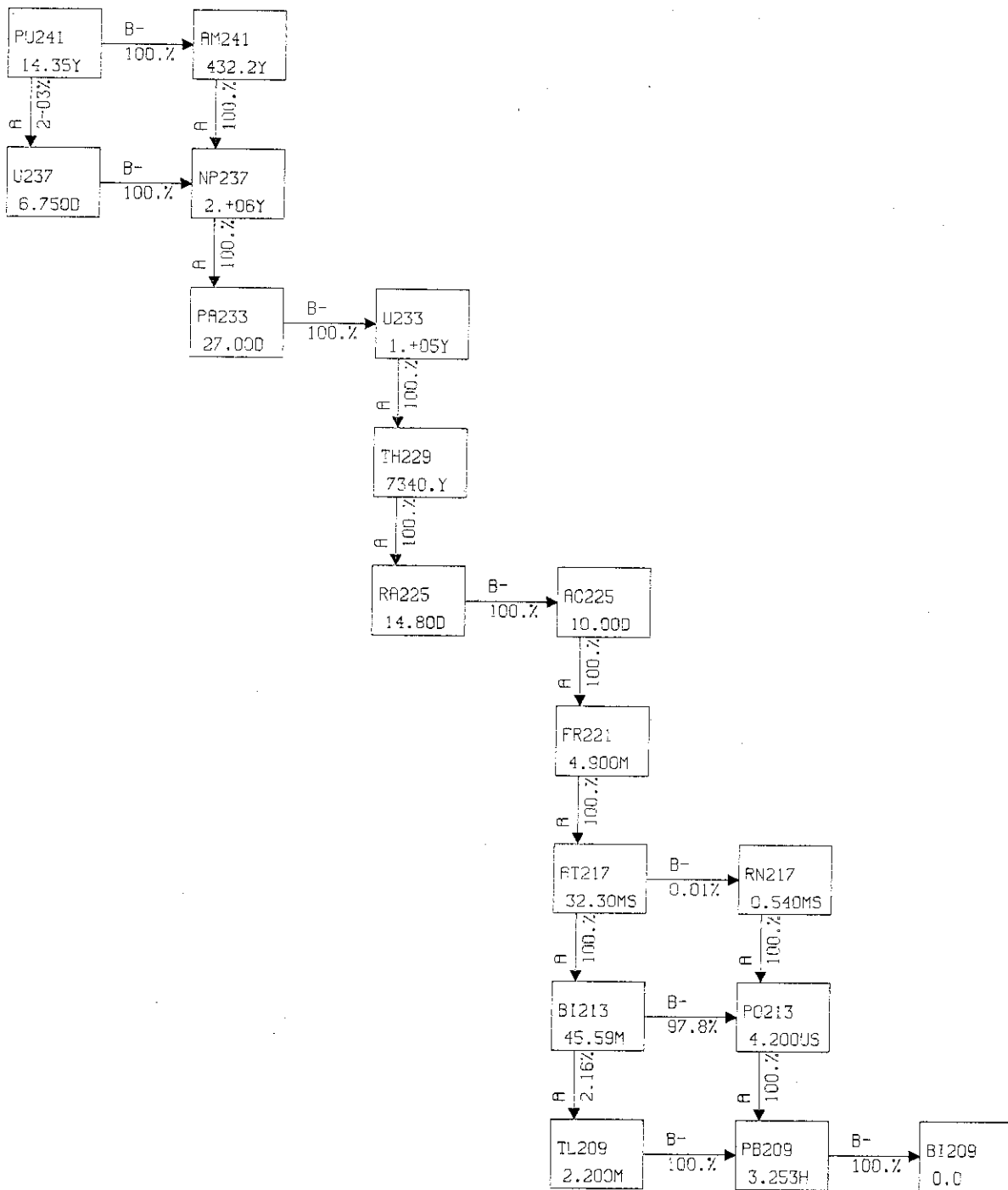
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WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-240

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 6.6E-08	GONADS 6.6E-09	GONADS 6.6E-10	GONADS 7.9E-06	GONADS 7.9E-06	R MARROW 7.9E-06 B
R MARROW 1.7E-07 B	R MARROW 1.7E-08 B	R MARROW 1.7E-09 B	R MARROW 2.0E-05 B	R MARROW 2.0E-05 B	LUNGS 3.9E-05 A
BONE SURF 5.3E-07 AB	BONE SURF 5.3E-08 AB	BONE SURF 5.3E-09 AB	BONE SURF 6.3E-05 AB	BONE SURF 6.3E-05 AB	BONE SURF 2.5E-05 B
LIVER 1.9E-07	LIVER 1.9E-08	ULI WALL 1.0E-09	LIVER 2.3E-05	LIVER 2.3E-05	LIVER 9.1E-06
		LLI WALL 3.2E-09			
		LIVER 1.9E-09			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-240

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+04 (5.E+04) BONE SURF	3.E+05 (5.E+05) BONE SURF	3.E+06 (4.E+06) BONE SURF	2.E+02 (4.E+02) BONE SURF	2.E+02 (4.E+02) BONE SURF	6.E+02 (6.E+02) BONE SURF	1.E-01	1.E-01	3.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-241

TARGETS	SOURCES					
	GONADS	LUNGS	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	7.0E-04	4.9E-13	1.2E-10	2.5E-12	4.4E-12	4.4E-12
R MARROW	3.8E-11	1.3E-11	3.7E-11	1.1E-11	4.3E-11	2.5E-06
LUNGS	3.2E-13	7.7E-06	4.4E-13	1.6E-11	5.7E-12	5.7E-12
BONE SURF	1.1E-11	1.0E-11	1.2E-11	7.7E-12	1.6E-05	1.6E-05
LLI WALL	1.1E-10	3.1E-13	1.9E-05	1.3E-12	6.3E-12	6.3E-12
LIVER	3.1E-12	1.6E-11	1.4E-12	4.3E-06	3.9E-12	3.9E-12

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-237

TARGETS	SOURCES					
	GONADS	LUNGS	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.7E-02	4.7E-08	1.0E-05	2.2E-07	3.7E-07	3.7E-07
R MARROW	3.1E-06	1.1E-06	3.0E-06	8.5E-07	3.0E-06	6.3E-05
LUNGS	2.8E-08	1.9E-04	3.6E-08	1.4E-06	4.9E-07	4.9E-07
BONE SURF	8.4E-07	8.4E-07	9.3E-07	6.1E-07	3.6E-04	3.6E-04
LLI WALL	8.6E-06	3.4E-08	7.0E-04	1.1E-07	5.3E-07	5.3E-07
LIVER	2.6E-07	1.3E-06	1.2E-07	1.2E-04	3.3E-07	3.3E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

TARGETS	SOURCES					
	GONADS	LUNGS	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	5.3E-09	3.2E-06	3.3E-08	7.4E-08	7.4E-08
R MARROW	9.3E-07	3.2E-07	1.1E-06	2.1E-07	1.6E-06	3.7E-02
LUNGS	2.3E-09	1.1E-01	3.2E-09	3.6E-07	1.0E-07	1.0E-07
BONE SURF	2.4E-07	2.6E-07	3.0E-07	1.7E-07	2.3E-01	2.3E-01
LLI WALL	2.9E-06	2.2E-09	4.2E-03	9.5E-09	1.0E-07	1.0E-07
LIVER	3.2E-08	3.1E-07	1.2E-08	6.2E-02	5.6E-08	5.6E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-241

ORGAN	ISOTOPE	ORAL			INHALATION		
		CLASS W	CLASS X	CLASS Y	CLASS W	CLASS X	CLASS Y
	PU-241	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	U-237	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	AM-241	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
GONADS	PU-241	6.5E+01	6.5E+00	6.5E-01	7.8E+03	7.8E+03	2.6E+03
GONADS	U-237	0.0	0.0	0.0	0.0	0.0	0.0
GONADS	AM-241	3.5E+00	3.5E-01	3.5E-02	4.2E+02	4.2E+02	1.7E+02
LUNGS	PU-241				1.0E+06	1.0E+06	1.4E+07
LUNGS	U-237				0.0	0.0	0.0
LUNGS	AM-241				3.4E+02	3.4E+02	1.8E+05
LLI CONTENT	PU-241	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	4.9E+04
LLI CONTENT	U-237	0.0	0.0	0.0	0.0	0.0	0.0
LLI CONTENT	AM-241	6.6E-01	6.6E-01	6.6E-01	3.2E+00	3.2E+00	2.5E+01
LIVER	PU-241	1.7E+05	1.7E+04	1.7E+03	2.0E+07	2.0E+07	6.9E+06
LIVER	U-237	0.0	0.0	0.0	0.0	0.0	0.0
LIVER	AM-241	5.5E+03	5.5E+02	5.5E+01	6.6E+05	6.6E+05	3.0E+05
CORT BONE	PU-241	1.1E+05	1.1E+04	1.1E+03	1.3E+07	1.3E+07	4.4E+06
CORT BONE	U-237	0.0	0.0	0.0	0.0	0.0	0.0
CORT BONE	AM-241	4.7E+03	4.7E+02	4.7E+01	5.7E+05	5.7E+05	2.4E+05
TRAB BONE	PU-241	1.1E+05	1.1E+04	1.1E+03	1.3E+07	1.3E+07	4.4E+06
TRAB BONE	U-237	0.0	0.0	0.0	0.0	0.0	0.0
TRAB BONE	AM-241	4.7E+03	4.7E+02	4.7E+01	5.7E+05	5.7E+05	2.4E+05

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-241

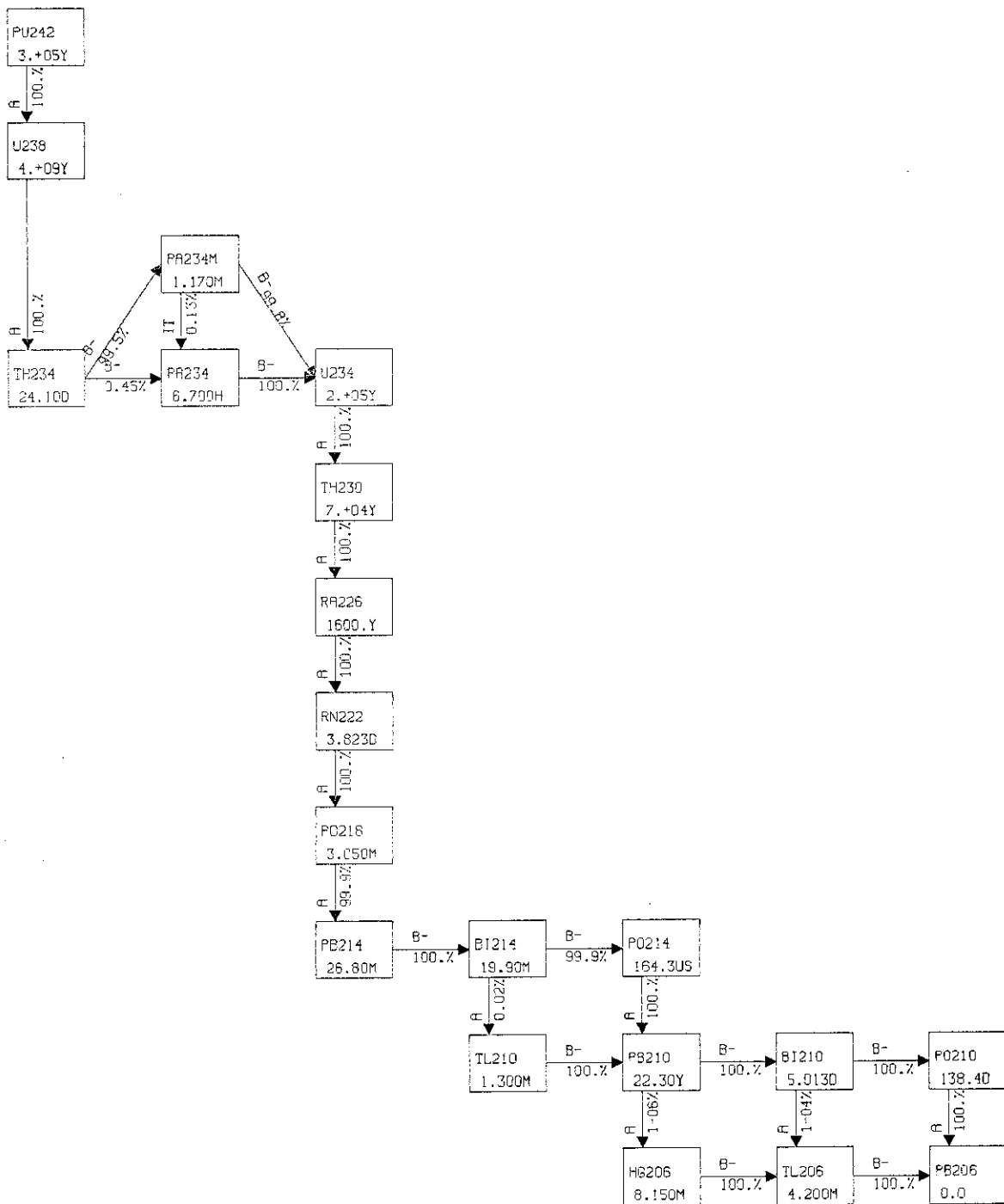
ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 5.6E-09	GONADS 5.6E-10	GONADS 5.6E-11	GONADS 6.8E-07 (25, 33, 42)	GONADS 6.8E-07 (25, 33, 42)	GONADS 2.8E-07 (6, 2, 92)
R MARROW 2.8E-08 B	R MARROW 2.8E-09 B	R MARROW 2.8E-10 B	R MARROW 3.4E-06 B (25, 33, 42)	R MARROW 3.3E-06 B (25, 33, 42)	R MARROW 1.4E-06 B (6, 2, 92)
BONE SURF 3.5E-07 AB	BONE SURF 3.5E-08 AB	BONE SURF 3.5E-09 AB	BONE SURF 4.2E-05 AB (25, 33, 42)	BONE SURF 4.2E-05 AB (25, 33, 42)	LUNGS 3.2E-06 (0, 0, 100)
LIVER 5.4E-08	LIVER 5.4E-09	LLI WALL 2.7E-10	LIVER 6.6E-06 (25, 33, 42)	LIVER 6.5E-06 (25, 33, 42)	BONE SURF 1.8E-05 AB (6, 2, 92)
		LIVER 5.4E-10			LIVER 3.0E-06 (5, 1, 94)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-241

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 1.4E-09	GONADS 1.4E-10	GONADS 1.4E-11	GONADS 1.7E-07	GONADS 1.7E-07	GONADS 6.9E-08
R MARROW 3.3E-09 B	R MARROW 3.3E-10 B	R MARROW 3.3E-11 B	R MARROW 4.0E-07 B	R MARROW 4.0E-07 B	R MARROW 1.7E-07 B
BONE SURF 1.0E-08 AB	BONE SURF 1.0E-09 AB	BONE SURF 1.0E-10 AB	BONE SURF 1.3E-06 AB	BONE SURF 1.3E-06 AB	LUNGS 3.8E-07
LIVER 3.3E-09	LIVER 3.3E-10	LLI WALL 1.6E-11	LIVER 3.9E-07	LIVER 3.9E-07	BONE SURF 5.3E-07 AB
		LIVER 3.3E-11			LIVER 1.8E-07

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR PU-241

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
1.E+06 (3.E+06)	1.E+07 (3.E+07)	1.E+08 (2.E+08)	1.E+04 (2.E+04)	1.E+04 (2.E+04)	3.E+04 (4.E+04)	5.E+00	5.E+00	1.E+01
BONE SURF	BONE SURF	BONE SURF	BONE SURF	BONE SURF	BONE SURF			



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-242

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.8E+00	3.1E-11	4.1E-09	1.2E-08	1.7E-10	2.7E-09	2.7E-09
R MARROW	1.6E-09	5.7E-09	8.7E-09	2.5E-08	3.9E-09	1.3E-07	3.3E-02
LUNGS	2.9E-11	9.9E-02	5.1E-10	2.7E-10	9.8E-09	2.9E-09	2.9E-09
BONE SURF	2.7E-09	4.7E-09	3.8E-09	5.7E-09	3.1E-09	2.0E-01	2.0E-01
ULI WALL	1.0E-09	5.7E-10	2.2E-03	4.5E-08	6.8E-09	1.5E-09	1.5E-09
LLI WALL	1.3E-08	2.0E-10	1.7E-08	3.7E-03	5.9E-10	3.6E-09	3.6E-09
LIVER	1.5E-10	7.9E-09	5.9E-09	6.9E-10	5.5E-02	1.9E-09	1.9E-09

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-242

ORGAN	ORAL			INHALATION		
	f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS	5.5E+02	5.5E+01	5.5E+00	6.6E+04	6.6E+04	2.5E+04
LUNGS				1.0E+06	1.0E+06	1.9E+07
ULI CONTENT	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.7E+04
LLI CONTENT	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	5.0E+04
LIVER	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
CORT BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-242

f1=1.E-03	ORAL		INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 2.5E-07	GONADS 2.5E-08	GONADS 2.5E-09	GONADS 3.0E-05 (25, 33, 42)	GONADS 3.0E-05 (25, 33, 42)	R MARROW 6.2E-05 B (6, 2, 92)
R MARROW 1.3E-06 B	R MARROW 1.3E-07 B	R MARROW 1.3E-08 B	R MARROW 1.6E-04 B (25, 33, 42)	R MARROW 1.6E-04 B (25, 33, 42)	LUNGS 3.1E-04 A (0, 0, 100)
BONE SURF 1.7E-05 AB	BONE SURF 1.7E-06 AB	BONE SURF 1.7E-07 AB	BONE SURF 2.0E-03 AB (25, 33, 42)	BONE SURF 2.0E-03 AB (25, 33, 42)	BONE SURF 7.8E-04 B (6, 2, 92)
LIVER 3.0E-06	LIVER 3.0E-07	ULI WALL 1.6E-08	LIVER 3.6E-04 (25, 33, 42)	LIVER 3.6E-04 (25, 33, 42)	LIVER 1.4E-04 (6, 2, 92)
		LLI WALL 5.1E-08			
		LIVER 3.0E-08			

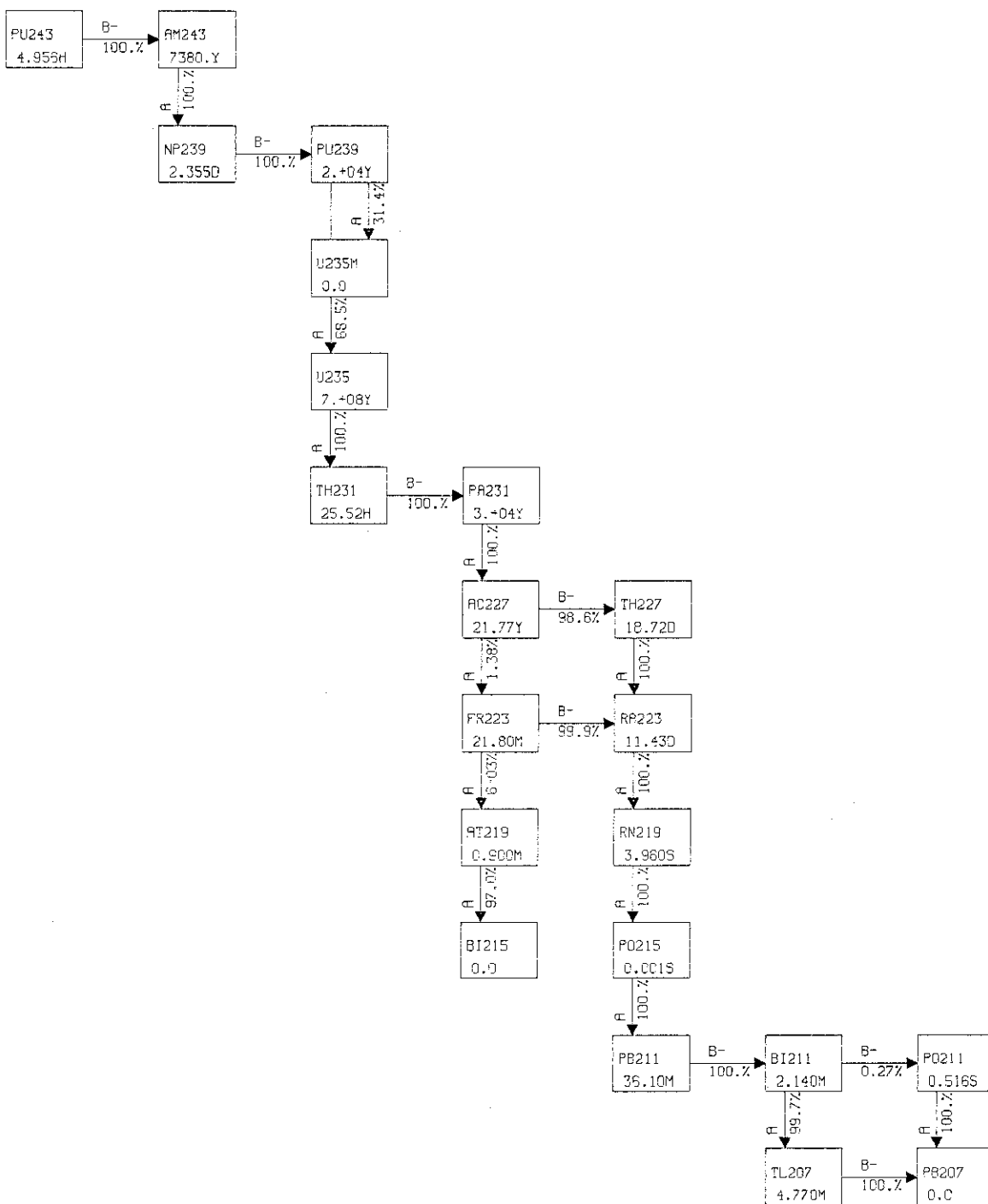
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WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-242

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 6.3E-08	GONADS 6.3E-09	GONADS 6.3E-10	GONADS 7.6E-06	GONADS 7.5E-06	R MARROW 7.5E-06 B
R MARROW 1.6E-07 B	R MARROW 1.6E-08 B	R MARROW 1.6E-09 B	R MARROW 1.9E-05 B	R MARROW 1.9E-05 B	LUNGS 3.7E-05 A
BONE SURF 5.0E-07 AB	BONE SURF 5.0E-08 AB	BONE SURF 5.0E-09 AB	BONE SURF 6.0E-05 AB	BONE SURF 6.0E-05 AB	BONE SURF 2.3E-05 B
LIVER 1.8E-07	LIVER 1.8E-08	ULI WALL 9.9E-10	LIVER 2.2E-05	LIVER 2.1E-05	LIVER 8.6E-06
		LLI WALL 3.0E-09			
		LIVER 1.8E-09			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 H²/WK) FOR PU-242

ALI (Bq)			INHALATION			DAC (Bq/m ³)		
ORAL	ORAL	ORAL	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+04 (6.E+04) BONE SURF	3.E+05 (6.E+05) BONE SURF	3.E+06 (6.E+06) BONE SURF	2.E+02 (5.E+02) BONE SURF	2.E+02 (5.E+02) BONE SURF	6.E+02 (7.E+02) BONE SURF	1.E-01	1.E-01	3.E-01



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-243

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	1.8E-04	1.8E-07	1.7E-08	2.1E-08	5.7E-09	9.1E-08	9.1E-08
BONE SURF	1.9E-07	9.9E-08	1.4E-07	1.3E-07	2.1E-07	3.6E-04	3.6E-04
ST WALL	1.9E-07	3.6E-04	3.6E-07	4.0E-07	1.7E-07	4.7E-08	4.7E-08
SI WALL	1.5E-08	2.6E-07	2.2E-04	2.0E-06	1.1E-06	6.8E-08	6.8E-08
ULI WALL	1.8E-08	3.6E-07	3.4E-06	4.0E-04	4.8E-07	6.1E-08	6.1E-08
LLI WALL	3.9E-09	1.1E-07	8.9E-07	3.3E-07	6.5E-04	9.5E-08	9.5E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-243

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	1.1E-01	4.0E-07	3.0E-08	3.8E-08	9.4E-09	2.0E-07	2.0E-07
BONE SURF	4.6E-07	2.3E-07	3.4E-07	3.0E-07	5.0E-07	2.2E-01	2.2E-01
ST WALL	4.1E-07	2.2E-03	7.9E-07	8.8E-07	3.6E-07	9.2E-08	9.2E-08
SI WALL	2.5E-08	5.5E-07	1.4E-03	4.3E-06	2.3E-06	1.4E-07	1.4E-07
ULI WALL	3.2E-08	8.0E-07	6.9E-06	2.4E-03	1.0E-06	1.2E-07	1.2E-07
LLI WALL	6.2E-09	2.2E-07	1.9E-06	7.0E-07	4.0E-03	2.0E-07	2.0E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-239

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	2.6E-04	1.1E-06	1.5E-07	1.7E-07	5.0E-08	5.9E-07	5.9E-07
BONE SURF	8.6E-07	5.2E-07	7.3E-07	6.6E-07	9.6E-07	4.5E-04	4.5E-04
ST WALL	1.1E-06	5.4E-04	2.3E-06	2.4E-06	1.1E-06	3.5E-07	3.5E-07
SI WALL	1.2E-07	1.6E-06	3.4E-04	1.1E-05	6.0E-06	4.6E-07	4.6E-07
ULI WALL	1.5E-07	2.2E-06	1.8E-05	6.0E-04	2.8E-06	4.3E-07	4.3E-07
LLI WALL	4.7E-08	7.5E-07	4.9E-06	2.0E-06	9.7E-04	6.4E-07	6.4E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-243

ORGAN	ISOTOPE	ORAL			INHALATION		
		f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W	CLASS W	CLASS Y
	PU-243	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	AM-243	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	NP-239	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
LUNGS	PU-243				6.8E+03	6.8E+03	7.2E+03
LUNGS	AM-243				7.8E-02	7.8E-02	1.5E+00
LUNGS	NP-239				7.5E-02	7.5E-02	1.5E+00
ST CONTENT	PU-243	3.2E+03	3.2E+03	3.2E+03	3.8E+02	3.8E+02	4.7E+02
ST CONTENT	AM-243	3.4E-05	3.4E-05	3.4E-05	1.1E-04	1.1E-04	1.2E-04
ST CONTENT	NP-239	4.1E-07	4.1E-07	4.1E-07	4.3E-05	4.3E-05	4.5E-05
SI CONTENT	PU-243	8.1E+03	8.1E+03	8.1E+03	9.8E+02	9.8E+02	1.2E+03
SI CONTENT	AM-243	4.8E-04	4.8E-04	4.8E-04	4.9E-04	4.9E-04	5.4E-04
SI CONTENT	NP-239	2.4E-05	2.4E-05	2.4E-05	1.9E-04	1.9E-04	2.0E-04
ULI CONTENT	PU-243	9.3E+03	9.3E+03	9.3E+03	1.1E+03	1.1E+03	1.4E+03
ULI CONTENT	AM-243	2.9E-03	2.9E-03	2.9E-03	1.7E-03	1.7E-03	2.0E-03
ULI CONTENT	NP-239	4.6E-04	4.6E-04	4.6E-04	7.6E-04	7.6E-04	8.2E-04
LLI CONTENT	PU-243	4.0E+03	4.0E+03	4.0E+03	4.8E+02	4.8E+02	5.9E+02
LLI CONTENT	AM-243	6.3E-03	6.3E-03	6.3E-03	3.3E-03	3.3E-03	3.8E-03
LLI CONTENT	NP-239	2.1E-03	2.1E-03	2.1E-03	1.8E-03	1.8E-03	2.0E-03
CORT BONE	PU-243	1.9E+00	1.9E-01	1.9E-02	2.3E+02	2.3E+02	1.2E+01
CORT BONE	AM-243	1.9E-02	1.9E-03	1.9E-04	2.3E+00	2.3E+00	9.1E-01
CORT BONE	NP-239	1.9E-02	1.9E-03	1.9E-04	2.3E+00	2.3E+00	9.1E-01
TRAB BONE	PU-243	1.5E+00	1.5E-01	1.5E-02	1.8E+02	1.8E+02	9.5E+00
TRAB BONE	AM-243	1.9E-02	1.9E-03	1.9E-04	2.3E+00	2.3E+00	9.1E-01
TRAB BONE	NP-239	1.9E-02	1.9E-03	1.9E-04	2.3E+00	2.3E+00	9.1E-01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-243

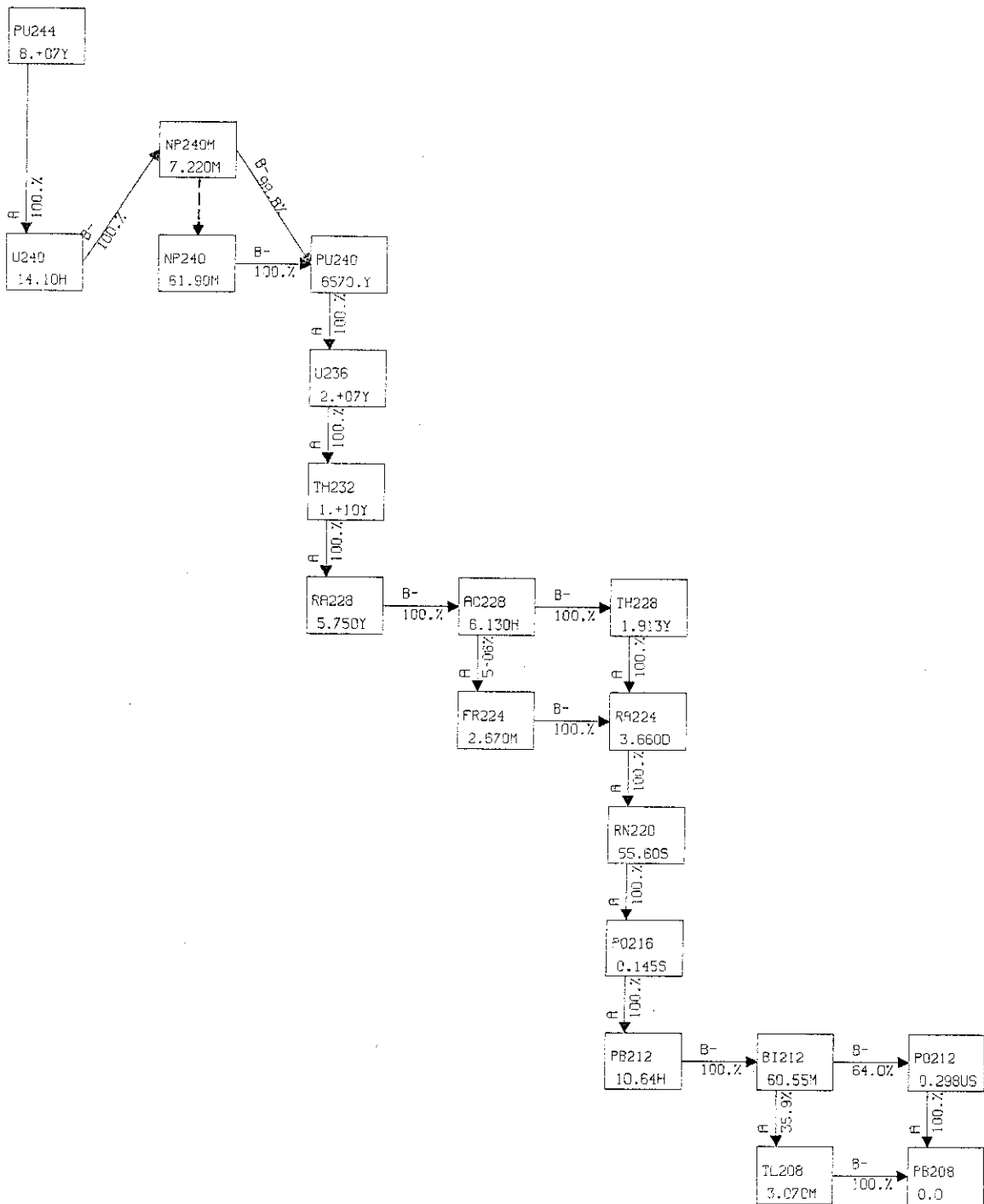
f1=1.E-03	ORAL		INHALATION		
	f1=1.E-04	f1=1.E-05	CLASS W	CLASS W	CLASS Y
ST WALL	ST WALL	ST WALL	LUNGS	LUNGS	LUNGS
1.8E-10	1.8E-10	1.8E-10	1.9E-10 A (0, 8, 92)	1.9E-10 A (0, 8, 92)	2.3E-10 A (0, 12, 88)
SI WALL	SI WALL	SI WALL	BONE SURF	BONE SURF	ULI WALL
2.9E-10	2.9E-10	2.9E-10	1.9E-10 B (27, 37, 37)	1.9E-10 B (27, 37, 37)	9.1E-11 (67, 27, 6)
ULI WALL	ULI WALL	ULI WALL	ULI WALL	ULI WALL	LLI WALL
6.1E-10 A	6.1E-10 A	6.1E-10 A	7.3E-11 (76, 17, 7)	7.3E-11 (76, 17, 7)	6.2E-11 (67, 27, 6)
LLI WALL	LLI WALL	LLI WALL	LLI WALL	LLI WALL	
4.1E-10	4.1E-10	4.1E-10	5.0E-11 (76, 17, 7)	5.0E-11 (76, 17, 7)	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-243

<u>ORAL</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
ST WALL 1.1E-11	ST WALL 1.1E-11	ST WALL 1.1E-11	LUNGS 2.3E-11 A	LUNGS 2.3E-11 A	LUNGS 2.8E-11 A
SI WALL 1.7E-11	SI WALL 1.8E-11	SI WALL 1.8E-11	BONE SURF 5.7E-12 B	BONE SURF 5.7E-12 B	ULI WALL 5.5E-12
ULI WALL 3.6E-11 A	ULI WALL 3.6E-11 A	ULI WALL 3.6E-11 A	ULI WALL 4.4E-12	ULI WALL 4.4E-12	LLI WALL 3.7E-12
LLI WALL 2.5E-11	LLI WALL 2.5E-11	LLI WALL 2.5E-11	LLI WALL 3.0E-12	LLI WALL 3.0E-12	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 H/YR) FOR PU-243

<u>ALI (Bq)</u>						<u>DAC (Pa/m³)</u>		
<u>ORAL</u>			<u>INHALATION</u>			<u>INHALATION</u>		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
6.E+08	6.E+08	6.E+08	1.E+09	1.E+09	1.E+09	6.E+05	6.E+05	6.E+05



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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-244

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	8.9E+00	5.2E-08	3.6E-06	1.1E-05	3.1E-07	2.6E-07	2.6E-07
R MARROW	1.7E-06	6.7E-07	1.0E-06	1.9E-06	5.5E-07	1.2E-06	3.2E-02
LUNGS	5.1E-08	9.8E-02	1.2E-07	6.6E-08	5.2E-07	5.1E-07	5.1E-07
BONE SURF	2.6E-07	5.1E-07	6.6E-07	3.5E-07	3.5E-07	2.0E-01	2.0E-01
ULI WALL	6.5E-06	1.4E-07	2.2E-03	2.4E-06	1.3E-06	2.2E-07	2.2E-07
LLI WALL	9.0E-06	4.9E-08	1.8E-06	3.6E-03	1.4E-07	4.3E-07	4.3E-07
LIVER	3.1E-07	5.1E-07	1.1E-06	1.7E-07	5.4E-02	3.5E-07	3.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-240

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.4E-02	1.4E-09	3.9E-07	8.0E-07	7.0E-09	1.5E-08	1.5E-08
R MARROW	1.3E-07	4.8E-08	8.7E-08	1.7E-07	3.6E-08	4.9E-07	5.3E-05
LUNGS	8.7E-10	1.6E-04	4.1E-09	1.2E-09	7.3E-08	1.9E-08	1.9E-08
BONE SURF	3.4E-08	3.9E-08	2.5E-08	4.8E-08	2.7E-08	3.3E-04	3.3E-04
ULI WALL	5.8E-07	3.5E-09	3.6E-04	1.9E-07	4.9E-08	1.3E-08	1.3E-08
LLI WALL	7.6E-07	9.1E-10	9.0E-08	5.8E-04	3.5E-09	2.4E-08	2.4E-08
LIVER	8.4E-09	6.4E-08	4.9E-08	3.7E-09	8.9E-05	1.2E-08	1.2E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-240

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.2E-02	6.1E-07	3.6E-05	6.3E-05	2.0E-06	3.7E-06	3.7E-06
R MARROW	1.2E-05	4.9E-06	8.3E-06	1.2E-05	4.1E-06	1.2E-05	1.2E-04
LUNGS	5.2E-07	3.8E-04	1.4E-06	5.2E-07	9.2E-06	3.8E-06	3.8E-06
BONE SURF	3.6E-06	3.9E-06	2.8E-06	4.0E-06	2.8E-06	1.8E-04	2.1E-04
ULI WALL	4.1E-05	1.5E-06	9.0E-04	1.5E-05	9.3E-06	2.9E-06	2.9E-06
LLI WALL	5.2E-05	3.4E-07	1.2E-05	1.4E-03	1.1E-06	3.9E-06	3.9E-06
LIVER	2.4E-06	9.0E-06	9.4E-06	1.4E-06	2.8E-04	2.7E-06	2.7E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-240M

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	6.0E-02	1.7E-07	1.1E-05	1.8E-05	4.9E-07	1.1E-06	1.1E-06
R MARROW	3.2E-06	1.3E-06	2.3E-06	3.3E-06	1.1E-06	3.7E-06	2.2E-04
LUNGS	1.4E-07	6.6E-04	4.0E-07	1.4E-07	2.6E-06	1.1E-06	1.1E-06
BONE SURF	9.7E-07	1.1E-06	7.6E-07	1.1E-06	7.8E-07	1.5E-04	2.0E-04
ULI WALL	1.2E-05	4.3E-07	1.5E-03	4.5E-06	2.6E-06	7.8E-07	7.8E-07
LLI WALL	1.5E-05	8.7E-08	3.3E-06	2.5E-03	3.4E-07	1.1E-06	1.1E-06
LIVER	6.7E-07	2.5E-06	2.6E-06	4.0E-07	3.9E-04	7.6E-07	7.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	8.1E-12	6.6E-08	1.7E-07	5.0E-11	7.2E-10	7.2E-10
R MARROW	5.2E-09	3.6E-09	5.4E-09	2.2E-08	2.0E-09	1.5E-07	3.4E-02
LUNGS	4.9E-12	1.0E-01	2.3E-11	6.6E-12	9.3E-09	1.1E-09	1.1E-09
BONE SURF	1.2E-09	3.2E-09	1.3E-09	5.2E-09	2.0E-09	2.2E-01	2.2E-01
ULI WALL	1.3E-07	2.1E-11	2.3E-03	4.2E-08	1.8E-09	8.1E-10	8.1E-10
LLI WALL	1.7E-07	4.8E-12	1.1E-08	3.9E-03	1.8E-11	2.3E-09	2.3E-09
LIVER	5.2E-11	7.1E-09	1.8E-09	2.1E-11	5.8E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-244

ORGAN	ISOTOPE	DRAL			INHALATION		
		f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W	CLASS W	CLASS Y
	PU-244	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	U -240	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	NP-240	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	NP-240M	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PU-240	f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
GONADS	PU-244	1.7E+02	1.7E+01	1.7E+00	2.1E+04	2.1E+04	7.9E+03
GONADS	U -240	1.7E+02	1.7E+01	1.7E+00	2.1E+04	2.1E+04	7.9E+03
GONADS	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
GONADS	NP-240M	1.7E+02	1.7E+01	1.7E+00	2.1E+04	2.1E+04	7.9E+03
GONADS	PU-240	4.6E-01	4.6E-02	4.6E-03	5.5E+01	5.5E+01	2.2E+01
LUNGS	PU-244				1.0E+06	1.0E+06	1.9E+07
LUNGS	U -240				1.0E+06	1.0E+06	1.9E+07
LUNGS	NP-240				0.0	0.0	0.0
LUNGS	NP-240M				1.0E+06	1.0E+06	1.9E+07
LUNGS	PU-240				2.3E+01	2.3E+01	2.0E+04
ULI CONTENT	PU-244	4.7E+04	4.7E+04	4.7E+04	2.4E+04	2.4E+04	2.7E+04
ULI CONTENT	U -240	2.4E+04	2.4E+04	2.4E+04	1.9E+04	1.9E+04	2.1E+04
ULI CONTENT	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
ULI CONTENT	NP-240M	2.4E+04	2.4E+04	2.4E+04	1.9E+04	1.9E+04	2.1E+04
ULI CONTENT	PU-240	4.2E-03	4.2E-03	4.2E-03	1.0E-01	1.0E-01	9.8E-01
LLI CONTENT	PU-244	8.6E+04	8.6E+04	8.6E+04	4.4E+04	4.4E+04	5.0E+04
LLI CONTENT	U -240	6.7E+04	6.7E+04	6.7E+04	4.0E+04	4.0E+04	4.5E+04
LLI CONTENT	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
LLI CONTENT	NP-240M	6.7E+04	6.7E+04	6.7E+04	4.0E+04	4.0E+04	4.5E+04
LLI CONTENT	PU-240	2.7E-02	2.7E-02	2.7E-02	2.0E-01	2.0E-01	1.8E+00
LIVER	PU-244	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
LIVER	U -240	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
LIVER	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
LIVER	NP-240M	3.4E+05	3.4E+04	3.4E+03	4.1E+07	4.0E+07	1.6E+07
LIVER	PU-240	6.4E+02	6.4E+01	6.4E+00	7.8E+04	7.7E+04	3.6E+04
CORT BONE	PU-244	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
CORT BONE	U -240	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
CORT BONE	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
CORT BONE	NP-240M	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
CORT BONE	PU-240	6.0E+02	6.0E+01	6.0E+00	7.2E+04	7.2E+04	3.1E+04
TRAB BONE	PU-244	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	U -240	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	NP-240	0.0	0.0	0.0	0.0	0.0	0.0
TRAB BONE	NP-240M	2.6E+05	2.6E+04	2.6E+03	3.1E+07	3.1E+07	1.2E+07
TRAB BONE	PU-240	6.0E+02	6.0E+01	6.0E+00	7.2E+04	7.2E+04	3.1E+04

JAERI - M 87 - 099

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-244

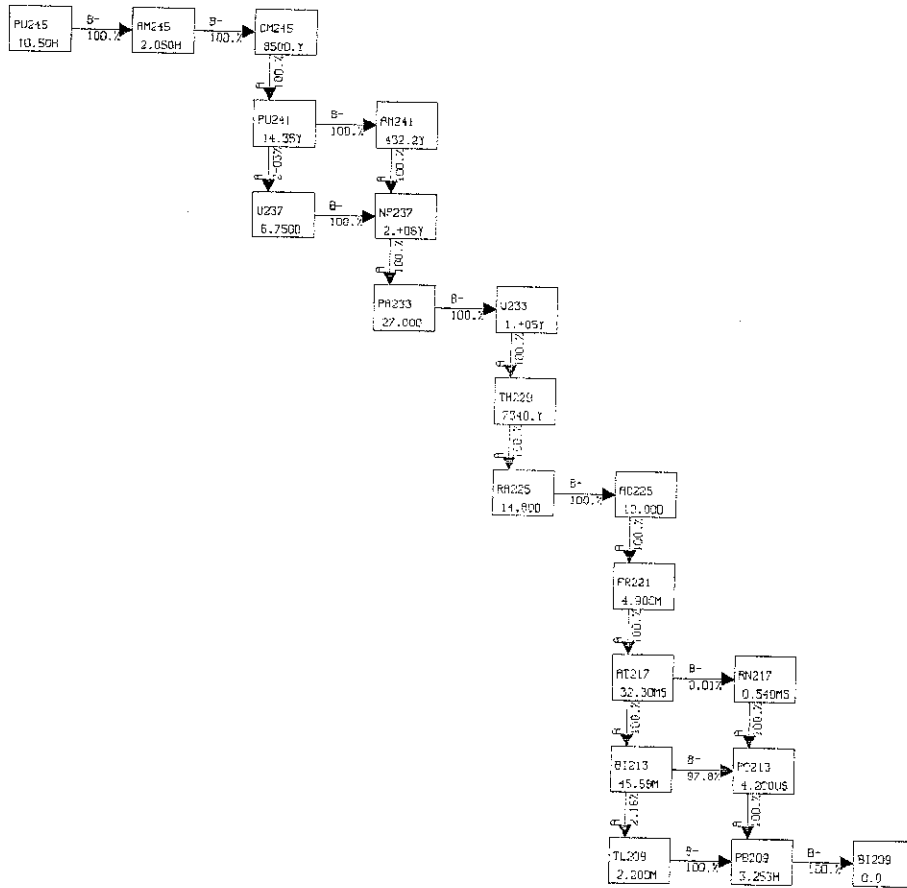
ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 2.5E-07	GONADS 2.5E-08	GONADS 2.9E-09	GONADS 3.0E-05 (25, 33, 42)	GONADS 3.0E-05 (25, 33, 42)	R MARROW 6.2E-05 B (6, 2, 92)
R MARROW 1.3E-06 B	R MARROW 1.3E-07 B	R MARROW 1.3E-08 B	R MARROW 1.6E-04 B (25, 33, 42)	R MARROW 1.6E-04 B (25, 33, 42)	LUNGS 3.0E-04 A (0, 0, 100)
BONE SURF 1.6E-05 AB	BONE SURF 1.6E-06 AB	BONE SURF 1.6E-07 B	BONE SURF 2.0E-03 AB (25, 33, 42)	BONE SURF 2.0E-03 AB (25, 33, 42)	BONE SURF 7.7E-04 B (6, 2, 92)
LIVER 3.0E-06	LLI WALL 8.3E-08	ULI WALL 2.4E-08	LIVER 3.6E-04 (25, 33, 42)	LIVER 3.5E-04 (25, 33, 42)	LIVER 1.4E-04 (6, 2, 92)
	LIVER 3.0E-07	LLI WALL 8.3E-08 A			
		LIVER 3.0E-08			

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-244

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
GONADS 6.2E-08	GONADS 6.3E-09	GONADS 7.3E-10	GONADS 7.5E-06	GONADS 7.5E-06	R MARROW 7.4E-06 B
R MARROW 1.6E-07 B	R MARROW 1.6E-08 B	R MARROW 1.6E-09 B	R MARROW 1.9E-05 B	R MARROW 1.9E-05 B	LUNGS 3.6E-05 A
BONE SURF 4.9E-07 AB	BONE SURF 4.9E-08 AB	BONE SURF 4.9E-09 B	BONE SURF 5.9E-05 AB	BONE SURF 5.9E-05 AB	BONE SURF 2.3E-05 B
LIVER 1.8E-07	LLI WALL 5.0E-09	ULI WALL 1.4E-09	LIVER 2.1E-05	LIVER 2.1E-05	LIVER 8.5E-06
	LIVER 1.8E-08	LLI WALL 5.0E-09 A			
		LIVER 1.8E-09			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (<40 Hr/wk) FOR PU-244

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
3.E+04 (6.E+04) BONE SURF	3.E+05 (5.E+05) BONE SURF	3.E+06 (3.E+06) BONE SURF	3.E+02 (5.E+02) BONE SURF	3.E+02 (5.E+02) BONE SURF	6.E+02 (7.E+02) BONE SURF	1.E-01	1.E-01	3.E-01



JAERI-M 87-099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-245

TARGETS	SOURCES			
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	3.6E-04	4.3E-07	4.8E-07	1.6E-07
SI WALL	3.8E-07	4.6E-04	2.2E-05	1.2E-05
ULI WALL	4.9E-07	3.2E-05	8.2E-04	5.7E-06
LLI WALL	1.2E-07	9.5E-06	4.3E-06	1.3E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-245

TARGETS	SOURCES			
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	2.9E-04	2.7E-08	3.1E-08	9.4E-09
SI WALL	2.3E-08	3.7E-04	2.0E-06	1.1E-06
ULI WALL	2.7E-08	3.4E-06	6.7E-04	5.3E-07
LLI WALL	9.3E-09	9.2E-07	3.7E-07	1.1E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

TARGETS	SOURCES			
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	1.1E-01	7.8E-08	9.6E-08	2.8E-08
SI WALL	6.8E-08	1.5E-03	7.0E-06	3.9E-06
ULI WALL	8.1E-08	1.3E-05	2.6E-03	1.8E-06
LLI WALL	2.1E-08	3.3E-06	1.3E-06	4.3E-03

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF PU-245

ORGAN	ISOTOPE	ORAL			INHALATION		
		CLASS W	CLASS W	CLASS Y	CLASS W	CLASS W	CLASS Y
		f1=1.E-03	f1=1.E-04	f1=1.E-05	f1=1.E-03	f1=1.E-04	f1=1.E-05
	PU-245	1.3E+04	1.3E+04	1.3E+04	1.3E+04	1.3E+04	1.4E+04
	AM-245	1.3E+04	1.3E+04	1.3E+04	1.3E+04	1.3E+04	1.3E+04
	CM-245	1.4E-01	1.4E-01	1.4E-01	1.4E-01	1.4E-01	2.7E+00
LUNGS	PU-245	1.1E+04	1.1E+04	1.1E+04	2.0E+03	2.0E+03	2.5E+03
LUNGS	AM-245	7.6E+03	7.6E+03	7.6E+03	2.2E+03	2.2E+03	2.6E+03
LUNGS	CM-245	3.1E-04	3.1E-04	3.1E-04	6.9E-04	6.9E-04	7.5E-04
SI CONTENT	PU-245	1.9E+04	1.9E+04	1.9E+04	3.5E+03	3.6E+03	4.3E+03
SI CONTENT	AM-245	2.0E+04	2.0E+04	2.0E+04	4.2E+03	4.2E+03	5.1E+03
SI CONTENT	CM-245	3.4E-03	3.4E-03	3.4E-03	2.7E-03	2.7E-03	3.1E-03
ULI CONTENT	PU-245	1.3E+04	1.3E+04	1.3E+04	2.5E+03	2.5E+03	3.1E+03
ULI CONTENT	AM-245	1.6E+04	1.6E+04	1.6E+04	3.1E+03	3.1E+03	3.8E+03
ULI CONTENT	CM-245	9.8E-03	9.9E-03	9.9E-03	5.8E-03	5.8E-03	6.5E-03

JAERI-M 87-099

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-245

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
SI WALL 1.3E-09	SI WALL 1.3E-09	SI WALL 1.3E-09	LUNGS 1.3E-09 A (0, 5, 95)	LUNGS 1.3E-09 A (0, 5, 95)	LUNGS 1.5E-09 A (0, 8, 92)
ULI WALL 4.6E-09	ULI WALL 4.6E-09	ULI WALL 4.6E-09	SI WALL 3.0E-10 (74, 14, 12)	SI WALL 3.0E-10 (74, 14, 12)	SI WALL 3.6E-10 (67, 23, 10)
LLI WALL 5.6E-09 A	LLI WALL 5.6E-09 A	LLI WALL 5.6E-09 A	ULI WALL 9.3E-10 (74, 14, 12)	ULI WALL 9.3E-10 (74, 14, 12)	ULI WALL 1.1E-09 (68, 23, 9)
			LLI WALL 1.1E-09 (75, 14, 11)	LLI WALL 1.1E-09 (75, 14, 11)	LLI WALL 1.3E-09 (67, 24, 9)

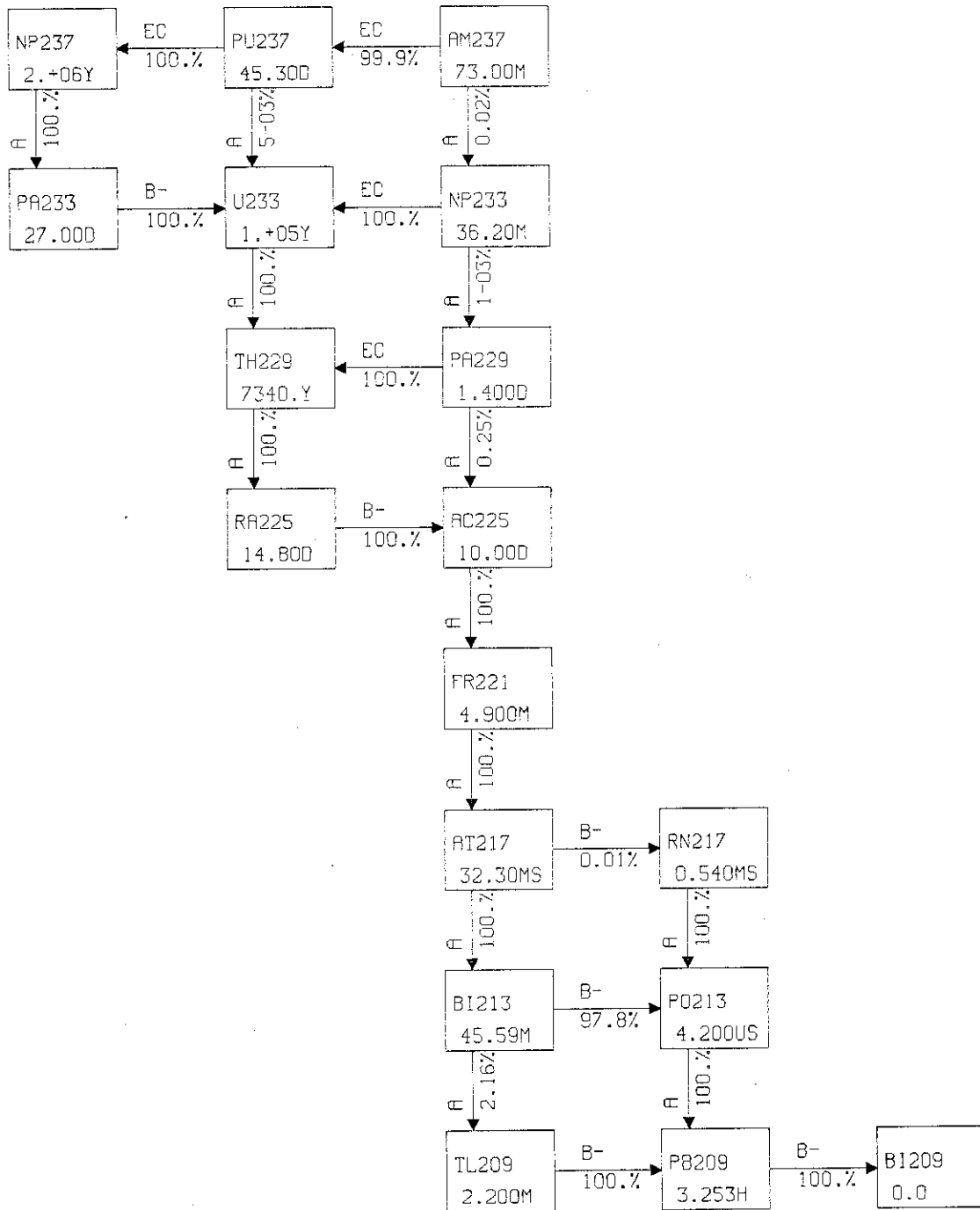
WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OF TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF PU-245

ORAL			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
SI WALL 8.0E-11	SI WALL 8.0E-11	SI WALL 8.0E-11	LUNGS 1.6E-10 A	LUNGS 1.6E-10 A	LUNGS 1.7E-10 A
ULI WALL 2.8E-10	ULI WALL 2.8E-10	ULI WALL 2.8E-10	SI WALL 1.8E-11	SI WALL 1.8E-11	SI WALL 2.2E-11
LLI WALL 3.3E-10 A	LLI WALL 3.4E-10 A	LLI WALL 3.4E-10 A	ULI WALL 5.6E-11	ULI WALL 5.6E-11	ULI WALL 6.8E-11
			LLI WALL 6.5E-11	LLI WALL 6.5E-11	LLI WALL 7.8E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 H₂/WK) FOR PU-245

ALI (Bq)						DAC (Bq/m ³)		
ORAL			INHALATION			INHALATION		
f1=1.E-03	f1=1.E-04	f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05	CLASS W f1=1.E-03	CLASS W f1=1.E-04	CLASS Y f1=1.E-05
7.E+07	7.E+07	7.E+07	2.E+08	2.E+08	1.E+08	7.E+04	7.E+04	6.E+04

Americium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-237

TARGETS	SOURCES				
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT
GONADS	1.6E-07	7.3E-07	1.3E-05	1.5E-05	2.4E-05
LUNGS	1.3E-04	2.3E-06	3.5E-07	3.9E-07	1.2E-07
ST WALL	2.6E-06	2.3E-04	4.7E-06	4.8E-06	2.3E-06
SI WALL	2.9E-07	3.4E-06	1.4E-04	2.2E-05	1.2E-05
ULI WALL	3.7E-07	4.5E-06	3.4E-05	2.3E-04	5.7E-06
LLI WALL	1.1E-07	1.6E-06	9.6E-06	4.1E-06	3.6E-04
PANCREAS	3.4E-06	2.3E-05	2.7E-06	2.8E-06	9.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-237

TARGETS	SOURCES				
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT
GONADS	1.4E-08	9.8E-08	2.2E-06	2.4E-06	3.7E-06
LUNGS	2.5E-05	3.3E-07	3.6E-08	4.5E-08	1.3E-08
ST WALL	3.5E-07	4.1E-05	7.0E-07	7.5E-07	3.3E-07
SI WALL	3.2E-08	5.1E-07	2.6E-05	3.6E-06	2.0E-06
ULI WALL	3.8E-08	6.8E-07	7.3E-06	4.3E-05	9.4E-07
LLI WALL	8.4E-09	2.1E-07	1.7E-06	6.5E-07	6.5E-05
PANCREAS	4.9E-07	3.6E-06	3.7E-07	4.1E-07	1.4E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/89g) OF AM-237

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS M	CLASS W	CLASS M
LUNGS	AM-237	1.1E-03	1.1E-03	1.1E-03	1.1E-03
	NP-233	1.1E-03	1.1E-03	1.1E-03	1.1E-03
	PU-237	1.1E-03	1.1E-03	1.1E-03	1.1E-03
ST CONTENT	AM-237	1.8E+03	1.8E+03	1.8E+03	1.8E+03
	NP-233	5.3E-01	5.3E-01	5.3E-01	5.3E-01
	PU-237	5.5E+02	5.5E+02	5.5E+02	5.5E+02
SI CONTENT	AM-237	2.3E+03	2.3E+03	2.3E+03	2.3E+03
	NP-233	3.7E-01	3.7E-01	3.7E-01	3.7E-01
	PU-237	1.5E+00	1.5E+00	1.5E+00	1.5E+00
ULI CONTENT	AM-237	2.8E+03	2.8E+03	2.8E+03	2.8E+03
	NP-233	9.5E-01	9.5E-01	9.5E-01	9.5E-01
	PU-237	1.3E+01	1.3E+01	1.3E+01	1.3E+01
LLI CONTENT	AM-237	1.1E+03	1.1E+03	1.1E+03	1.1E+03
	NP-233	5.0E-01	5.0E-01	5.0E-01	5.0E-01
	PU-237	5.1E+01	5.1E+01	5.1E+01	5.1E+01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-233

TARGETS	SOURCES				
	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT
GONADS	2.7E-08	1.8E-07	3.7E-06	4.1E-06	6.0E-06
LUNGS	2.2E-05	5.9E-07	6.9E-08	8.4E-08	2.4E-08
ST WALL	6.2E-07	4.8E-05	1.2E-06	1.3E-06	5.9E-07
SI WALL	6.0E-08	9.1E-07	3.1E-05	6.0E-06	3.3E-06
ULI WALL	7.2E-08	1.2E-06	1.0E-05	4.9E-05	1.5E-06
LLI WALL	1.7E-08	3.8E-07	2.7E-06	1.1E-06	7.2E-05
PANCREAS	8.8E-07	6.2E-06	6.8E-07	7.4E-07	2.5E-07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-237

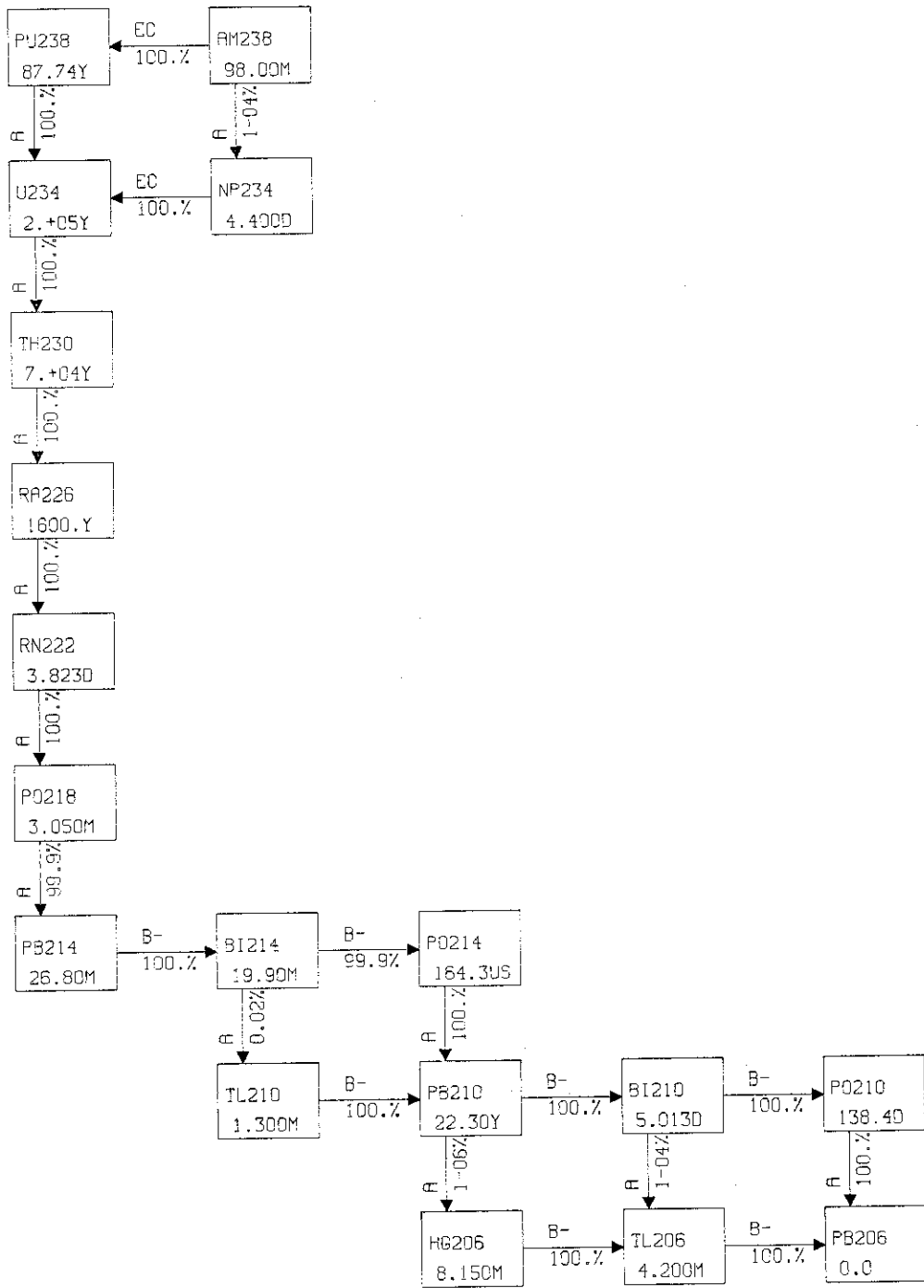
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 9.5E-12	LUNGS 4.0E-11 A (0, 13, 87)
ST WALL 8.6E-11 A	
SI WALL 6.8E-11	
ULI WALL 5.8E-11	
LLI WALL 1.4E-11	
REMAINDER 1.0E-11 B WT=.06	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-237

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 2.4E-12	LUNGS 4.8E-12 A
ST WALL 5.1E-12 A	
SI WALL 4.1E-12	
ULI WALL 3.5E-12	
LLI WALL 8.6E-13	
REMAINDER 6.1E-13 B	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-237

ALI (Bq)		DAC (Bq/m ³)	
ORAL	INHALATION	INHALATION	INHALATION
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
3.E+09	1.E+10	1.E+10	4.E+06



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-238

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	6.4E-03	3.4E-06	2.9E-05	2.6E-05	5.0E-05	1.9E-06	2.8E-06	2.8E-06
BREAST	5.9E-06	4.2E-06	4.6E-06	4.4E-06	5.0E-06	3.3E-06	3.3E-06	3.3E-06
R MARROW	9.7E-06	3.2E-06	7.9E-06	6.7E-06	9.8E-06	3.3E-06	1.0E-05	2.4E-05
BONE SURF	2.9E-06	1.9E-06	2.5E-06	2.2E-06	3.3E-06	2.3E-06	7.3E-05	7.4E-05
ST WALL	2.4E-06	2.4E-04	1.0E-05	1.1E-05	4.8E-06	5.7E-06	1.7E-06	1.7E-06
SI WALL	3.4E-05	7.5E-06	1.4E-04	4.7E-05	2.6E-05	4.7E-06	2.4E-06	2.4E-06
ULI WALL	3.2E-05	9.4E-06	7.0E-05	2.2E-04	1.2E-05	7.1E-06	2.3E-06	2.3E-06
LLI WALL	4.1E-05	4.0E-06	2.1E-05	9.5E-06	3.1E-04	8.7E-07	3.1E-06	3.1E-06
LIVER	1.9E-06	5.9E-06	5.5E-06	7.4E-06	1.1E-06	1.0E-04	2.2E-06	2.2E-06
PANCREAS	2.3E-06	4.9E-05	5.9E-06	6.1E-06	2.2E-06	1.3E-05	2.9E-06	2.9E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-234

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	5.6E-03	3.5E-06	2.9E-05	2.6E-05	5.7E-05	3.3E-06	3.2E-06	3.2E-06
BREAST	6.8E-06	4.9E-06	5.3E-06	5.1E-06	5.8E-06	3.9E-06	3.9E-06	3.9E-06
R MARROW	1.1E-05	3.5E-06	8.7E-06	7.5E-06	1.1E-05	3.8E-06	1.1E-05	2.1E-05
BONE SURF	3.3E-06	2.1E-06	2.8E-06	2.6E-06	3.7E-06	2.7E-06	3.7E-05	3.9E-05
ST WALL	3.4E-06	2.3E-04	1.2E-05	1.1E-05	5.5E-06	6.8E-06	2.1E-06	2.1E-06
SI WALL	3.8E-05	8.5E-06	1.4E-04	5.3E-05	3.0E-05	5.7E-06	2.7E-06	2.7E-06
ULI WALL	3.7E-05	1.2E-05	7.9E-05	2.2E-04	1.5E-05	7.7E-06	2.6E-06	2.6E-06
LLI WALL	4.7E-05	4.9E-06	2.4E-05	1.0E-05	2.9E-04	1.3E-06	3.5E-06	3.5E-06
LIVER	2.4E-06	7.0E-06	6.4E-06	8.6E-06	1.5E-06	1.0E-04	2.6E-06	2.6E-06
PANCREAS	2.1E-06	5.7E-05	6.1E-06	7.2E-06	2.4E-06	1.4E-05	3.9E-06	3.9E-06

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	5.2E-11	5.3E-08	6.9E-08	1.7E-07	3.6E-11	7.3E-10	7.3E-10
BREAST	1.8E-08	3.9E-09	5.2E-09	3.2E-09	4.2E-09	4.4E-09	2.1E-09	2.1E-09
R MARROW	5.1E-09	7.1E-10	8.6E-09	5.5E-09	2.2E-08	2.0E-09	1.5E-07	3.7E-02
BONE SURF	1.2E-09	6.1E-10	2.1E-09	1.3E-09	5.4E-09	2.1E-09	2.3E-01	2.3E-01
ST WALL	6.6E-11	2.2E-03	7.6E-09	1.1E-08	8.0E-10	1.3E-09	4.7E-10	4.7E-10
SI WALL	6.3E-08	1.4E-09	1.4E-03	1.3E-07	6.9E-08	9.3E-10	6.5E-10	6.5E-10
ULI WALL	1.4E-07	5.5E-09	7.6E-07	2.5E-03	4.4E-08	1.8E-09	8.3E-10	8.3E-10
LLI WALL	1.8E-07	3.1E-10	1.0E-07	1.2E-08	4.1E-03	1.3E-11	2.4E-09	2.4E-09
LIVER	3.8E-11	8.4E-10	1.4E-09	1.8E-09	1.5E-11	6.2E-02	5.8E-10	5.8E-10
PANCREAS	3.0E-11	6.2E-08	2.3E-10	2.5E-10	5.6E-11	4.9E-09	1.2E-09	1.2E-09

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-238

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
	AM-238	f1=1.E-03	f1=1.E-03
	NP-234	f1=1.E-03	f1=1.E-03
	PU-238	f1=1.E-03	f1=1.E-03
GONADS	AM-238	3.2E-04	7.6E-02
GONADS	NP-234	0.0	0.0
GONADS	PU-238	3.0E-04	3.7E-02
ST CONTENT	AM-238	2.5E+03	1.3E+02
ST CONTENT	NP-234	0.0	0.0
ST CONTENT	PU-238	2.3E-03	3.6E-03
SI CONTENT	AM-238	3.7E+03	1.9E+02
SI CONTENT	NP-234	0.0	0.0
SI CONTENT	PU-238	2.3E-02	1.5E-02
ULI CONTENT	AM-238	1.9E+03	9.5E+01
ULI CONTENT	NP-234	0.0	0.0
ULI CONTENT	PU-238	9.5E-02	5.0E-02
LLI CONTENT	AM-238	3.1E+02	1.6E+01
LLI CONTENT	NP-234	0.0	0.0
LLI CONTENT	PU-238	1.8E-01	9.3E-02
LIVER	AM-238	2.6E-01	6.0E+01
LIVER	NP-234	0.0	0.0
LIVER	PU-238	6.2E-01	7.5E+01
CORT BONE	AM-238	2.1E-01	4.8E+01
CORT BONE	NP-234	0.0	0.0
CORT BONE	PU-238	4.6E-01	5.5E+01
TRAB BONE	AM-238	1.1E-01	2.5E+01
TRAB BONE	NP-234	0.0	0.0
TRAB BONE	PU-238	4.6E-01	5.5E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-238

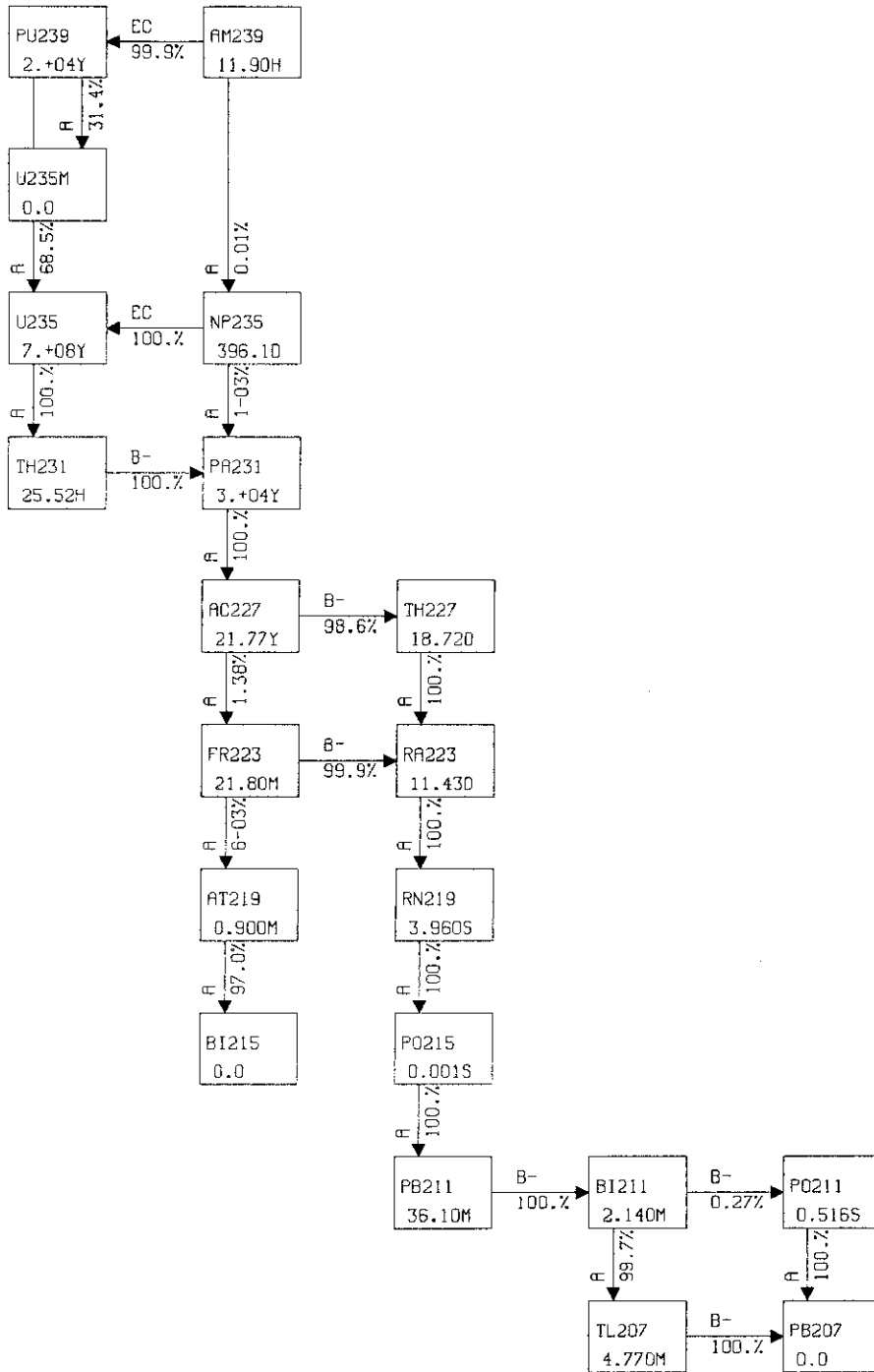
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 3.0E-11 A	GONADS 6.1E-11 (26, 33, 41)
BREAST 6.0E-12 B	R MARROW 3.2E-10 B (25, 33, 42)
R MARROW 1.1E-11 B	BONE SURF 6.0E-09 AB (25, 33, 42)
BONE SURF 3.7E-11 B	LIVER 7.5E-10 (25, 33, 42)
ST WALL 1.1E-10	
SI WALL 1.1E-10	
ULI WALL 1.1E-10	
LLI WALL 3.2E-11	
REMAINDER 2.5E-11 B WT=.06	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-238

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 7.4E-12 A	GONADS 1.5E-11
BREAST 9.0E-13 B	R MARROW 3.9E-11 B
R MARROW 1.3E-12 B	BONE SURF 1.2E-10 AB
BONE SURF 1.1E-12 B	LIVER 4.5E-11
ST WALL 6.3E-12	
SI WALL 6.3E-12	
ULI WALL 6.8E-12	
LLI WALL 1.9E-12	
REMAINDER 1.5E-12 B	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-238

ALI (Bq)	INHALATION	DAC (Bq/m ³)
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
1.E+09	1.E+08 (2.E+08) BONE SURF	5.E+04



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-239

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.7E-02	8.1E-08	4.2E-07	9.3E-06	1.0E-05	1.6E-05	6.2E-07	6.2E-07
LUNGS	5.2E-08	1.9E-04	1.5E-06	1.9E-07	2.2E-07	6.7E-08	8.0E-07	8.0E-07
BONE SURF	1.3E-06	1.2E-06	7.5E-07	1.1E-06	9.5E-07	1.4E-06	3.0E-04	3.0E-04
ST WALL	6.8E-07	1.6E-06	3.8E-04	3.1E-06	3.3E-06	1.5E-06	4.7E-07	4.7E-07
SI WALL	1.1E-05	1.6E-07	2.3E-06	2.4E-04	1.5E-05	8.4E-06	6.2E-07	6.2E-07
ULI WALL	1.0E-05	1.9E-07	3.0E-06	2.6E-05	4.1E-04	3.9E-06	5.8E-07	5.8E-07
LLI WALL	1.4E-05	5.9E-08	1.0E-06	6.9E-06	2.8E-06	6.5E-04	8.8E-07	8.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-235

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E-03	5.3E-10	3.7E-09	2.4E-07	3.0E-07	6.8E-07	7.1E-09	7.1E-09
LUNGS	3.5E-10	1.3E-05	1.9E-08	1.4E-09	1.7E-09	4.9E-10	9.6E-09	9.6E-09
BONE SURF	1.6E-08	2.2E-08	8.7E-09	1.6E-08	1.3E-08	3.0E-08	2.0E-05	2.0E-05
ST WALL	5.6E-09	2.3E-08	2.1E-05	4.9E-08	6.3E-08	1.4E-08	5.1E-09	5.1E-09
SI WALL	2.9E-07	1.2E-09	2.3E-08	1.4E-05	5.4E-07	2.9E-07	6.9E-09	6.9E-09
ULI WALL	5.2E-07	1.4E-09	4.2E-08	2.6E-06	2.3E-05	1.7E-07	7.0E-09	7.0E-09
LLI WALL	6.8E-07	3.2E-10	8.5E-09	3.7E-07	6.1E-08	3.6E-05	1.4E-08	1.4E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-239

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	9.5E+00	2.4E-11	1.3E-10	2.5E-08	3.2E-08	7.9E-08	4.8E-10	4.8E-10
LUNGS	1.5E-11	1.0E-01	1.4E-09	5.2E-11	6.0E-11	1.7E-11	6.6E-10	6.6E-10
BONE SURF	8.7E-10	1.8E-09	4.5E-10	1.2E-09	8.2E-10	2.7E-09	2.1E-01	2.1E-01
ST WALL	1.8E-10	1.9E-09	2.1E-03	4.1E-09	5.7E-09	7.2E-10	3.1E-10	3.1E-10
SI WALL	3.0E-08	4.3E-11	1.2E-09	1.3E-03	6.0E-08	3.2E-08	4.4E-10	4.4E-10
ULI WALL	6.2E-08	5.6E-11	3.1E-09	3.3E-07	2.3E-03	2.0E-08	5.0E-10	5.0E-10
LLI WALL	8.0E-08	1.5E-11	3.8E-10	4.4E-08	5.8E-09	3.8E-03	1.2E-09	1.2E-09

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-239

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-239

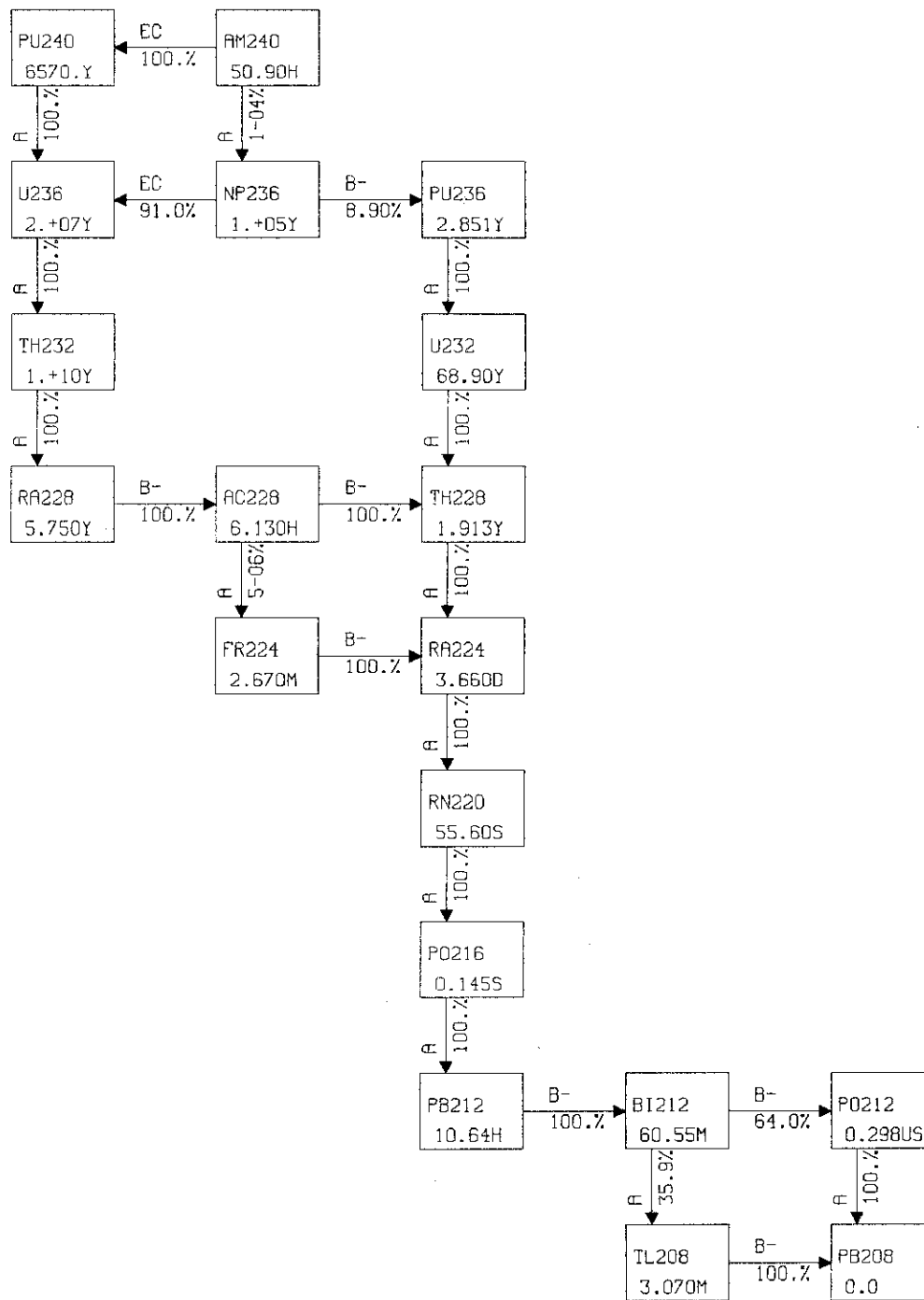
ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	f1	CLASS W	f1
GONADS	AM-239	f1=1.E-03	f1=1.E-03	CLASS W	f1=1.E-03
	NP-235	f1=1.E-03	f1=1.E-03	GONADS	2.2E-11
	PU-239	f1=1.E-03	f1=1.E-03	(67, 19, 14)	
LUNGS	AM-239	6.0E-03	5.4E-01	LUNGS	4.6E-10 A
	NP-235	6.8E-07	7.7E-05	(0, 5, 95)	
	PU-239	9.8E-06	1.2E-03	BONE SURF	1.9E-10 B
ST CONTENT	AM-239	3.4E+03	6.9E+02	(31, 41, 28)	
	NP-235	2.5E-05	1.4E-04	SI WALL	9.9E-11
	PU-239	1.1E-05	6.5E-05	(74, 14, 12)	
SI CONTENT	AM-239	1.1E+04	2.2E+03	ULI WALL	1.4E-09
	NP-235	4.2E-04	6.2E-04	LLI WALL	1.7E-09 A
	PU-239	1.9E-04	2.9E-04	(74, 14, 12)	
ULI CONTENT	AM-239	2.0E+04	4.1E+03	ULI WALL	2.8E-10
	NP-235	3.3E-03	2.4E-03	(74, 14, 12)	
	PU-239	1.5E-03	1.1E-03	LLI WALL	3.4E-10
LLI CONTENT	AM-239	1.6E+04	3.2E+03	(74, 14, 12)	
	NP-235	8.8E-03	5.0E-03		
	PU-239	4.0E-03	2.3E-03		
CORT BONE	AM-239	8.0E+00	7.2E+02		
	NP-235	1.4E-03	1.5E-01		
	PU-239	1.4E-02	1.7E+00		
TRAB BONE	AM-239	7.1E+00	6.4E+02		
	NP-235	1.4E-03	1.5E-01		
	PU-239	1.4E-02	1.7E+00		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-239

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
GONADS 2.3E-11	GONADS 5.5E-12
ST WALL 1.3E-11	LUNGS 5.5E-11 A
SI WALL 2.9E-11	BONE SURF 5.6E-12 B
ULI WALL 8.4E-11	SI WALL 6.0E-12
LLI WALL 1.0E-10 A	ULI WALL 1.7E-11
	LLI WALL 2.0E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR AM-239

<u>ALI (Bq)</u>	<u>INHALATION</u>	<u>DAC (Bq/m3)</u>
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
2.E+08	5.E+08	2.E+05



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-240

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E-02	5.6E-07	3.5E-05	2.7E-05	5.8E-05	2.4E-06	3.2E-06	3.2E-06
R MARROW	1.1E-05	4.5E-06	8.9E-06	7.4E-06	1.1E-05	3.6E-06	1.2E-05	4.2E-05
LUNGS	5.2E-07	1.4E-04	1.2E-06	1.4E-06	5.3E-07	8.3E-06	3.4E-06	3.4E-06
BONE SURF	3.3E-06	3.5E-06	2.8E-06	2.5E-06	3.7E-06	2.6E-06	1.4E-04	1.5E-04
SI WALL	3.8E-05	1.1E-06	2.2E-04	5.4E-05	3.0E-05	5.4E-06	2.9E-06	2.9E-06
ULI WALL	3.6E-05	1.4E-06	8.1E-05	3.6E-04	1.4E-05	8.1E-06	2.7E-06	2.7E-06
LLI WALL	4.6E-05	3.2E-07	2.4E-05	1.1E-05	5.1E-04	9.2E-07	3.7E-06	3.7E-06
LIVER	2.2E-06	8.1E-06	6.3E-06	8.5E-06	1.3E-06	1.4E-04	2.5E-06	2.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-236

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.1E-02	4.3E-08	6.0E-06	6.5E-06	1.1E-05	2.1E-07	3.6E-07	3.6E-07
R MARROW	3.0E-06	1.0E-06	2.4E-06	2.0E-06	3.0E-06	8.7E-07	3.9E-06	7.6E-05
LUNGS	2.8E-08	2.3E-04	1.0E-07	1.3E-07	3.7E-08	1.4E-06	4.8E-07	4.8E-07
BONE SURF	8.3E-07	8.2E-07	6.9E-07	6.1E-07	9.2E-07	6.1E-07	4.5E-04	4.5E-04
SI WALL	6.8E-06	9.0E-08	3.0E-04	9.8E-06	5.5E-06	8.1E-07	3.7E-07	3.7E-07
ULI WALL	7.0E-06	1.1E-07	2.0E-05	5.3E-04	2.6E-06	1.3E-06	3.4E-07	3.4E-07
LLI WALL	9.3E-06	3.0E-08	4.8E-06	1.7E-06	8.4E-04	1.1E-07	5.3E-07	5.3E-07
LIVER	2.6E-07	1.3E-06	9.2E-07	1.3E-06	1.2E-07	1.4E-04	3.3E-07	3.3E-07

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	8.1E-12	5.1E-08	6.6E-08	1.7E-07	5.0E-11	7.2E-10	7.2E-10
R MARROW	5.2E-09	3.6E-09	8.4E-09	5.4E-09	2.2E-08	2.0E-09	1.5E-07	3.4E-02
LUNGS	4.9E-12	1.0E-01	1.9E-11	2.3E-11	6.6E-12	9.3E-09	1.1E-09	1.1E-09
BONE SURF	1.2E-09	3.2E-09	2.0E-09	1.3E-09	5.2E-09	2.0E-09	2.2E-01	2.2E-01
SI WALL	6.0E-08	1.7E-11	1.3E-03	1.3E-07	6.6E-08	9.4E-10	6.4E-10	6.4E-10
ULI WALL	1.3E-07	2.1E-11	7.3E-07	2.3E-03	4.2E-08	1.8E-09	8.1E-10	8.1E-10
LLI WALL	1.7E-07	4.8E-12	9.5E-08	1.1E-08	3.9E-03	1.8E-11	2.3E-09	2.3E-09
LIVER	5.2E-11	7.1E-09	1.4E-09	1.8E-09	2.1E-11	5.8E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-240

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
	AM-240	f1=1.E-03	f1=1.E-03
	NP-236	f1=1.E-03	f1=1.E-03
	PU-240	f1=1.E-03	f1=1.E-03
GONADS	AM-240	2.8E-02	2.2E+00
GONADS	NP-236	0.0	0.0
GONADS	PU-240	1.5E-04	1.8E-02
LUNGS	AM-240		4.9E+04
LUNGS	NP-236		0.0
LUNGS	PU-240		8.7E-01
SI CONTENT	AM-240	1.3E+04	4.4E+03
SI CONTENT	NP-236	0.0	0.0
SI CONTENT	PU-240	8.2E-04	2.6E-03
ULI CONTENT	AM-240	3.7E+04	1.2E+04
ULI CONTENT	NP-236	0.0	0.0
ULI CONTENT	PU-240	8.5E-03	1.0E-02
LLI CONTENT	AM-240	5.2E+04	1.7E+04
LLI CONTENT	NP-236	0.0	0.0
LLI CONTENT	PU-240	3.1E-02	2.4E-02
LIVER	AM-240	1.0E+02	7.7E+03
LIVER	NP-236	0.0	0.0
LIVER	PU-240	3.0E-01	3.6E+01
CORT BONE	AM-240	5.1E+01	3.9E+03
CORT BONE	NP-236	0.0	0.0
CORT BONE	PU-240	2.3E-01	2.7E+01
TRAB BONE	AM-240	5.0E+01	3.8E+03
TRAB BONE	NP-236	0.0	0.0
TRAB BONE	PU-240	2.3E-01	2.7E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-240

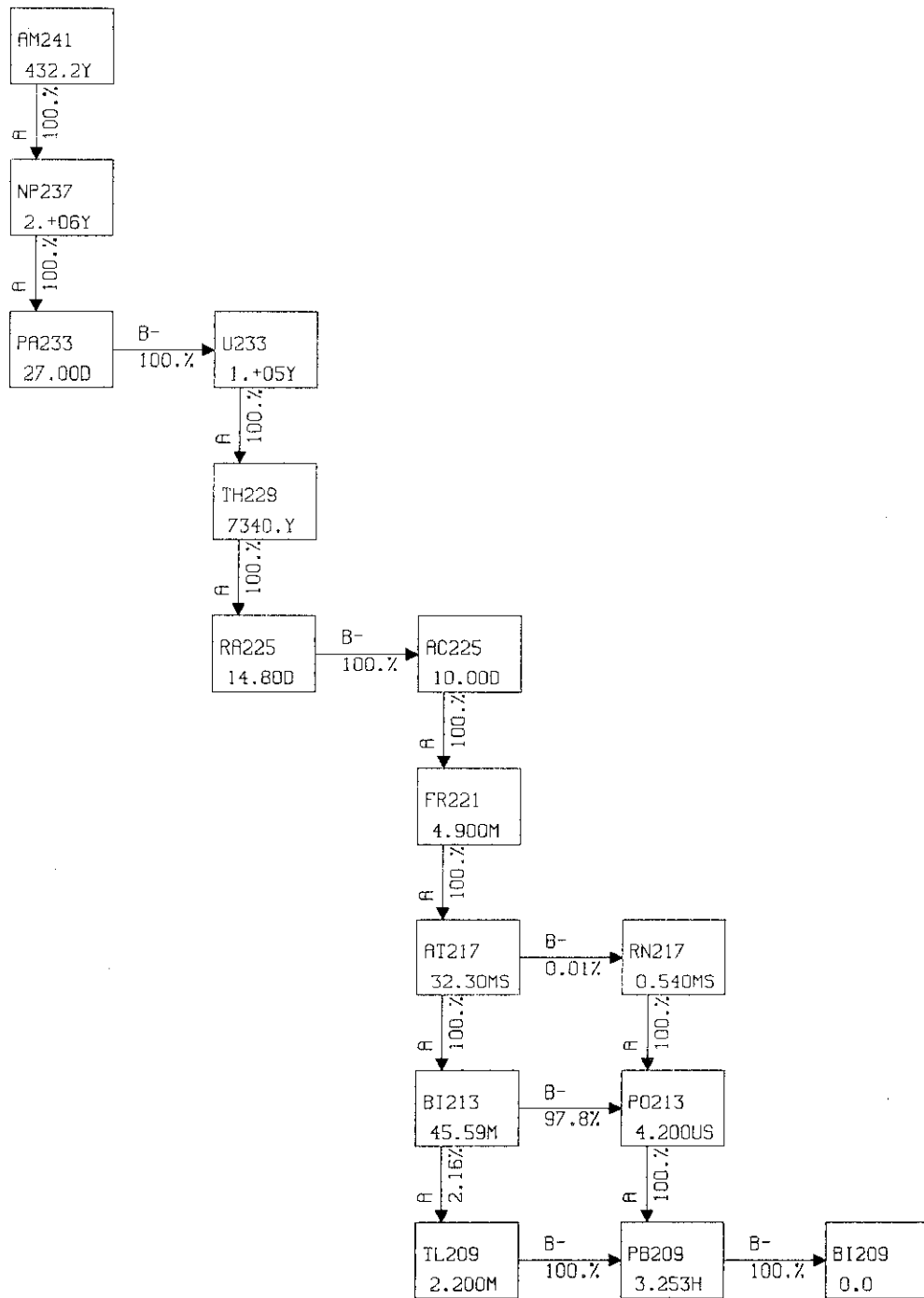
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 7.2E-10	GONADS 2.8E-10 (62, 15, 23)
SI WALL 1.0E-09	R MARROW 2.7E-10 B (32, 28, 40)
ULI WALL 2.4E-09	LUNGS 1.2E-09 A (1, 3, 96)
LLI WALL 4.4E-09 A	BONE SURF 2.1E-09 B (27, 35, 38)
	SI WALL 3.6E-10 (67, 12, 21)
	ULI WALL 8.2E-10 (67, 12, 21)
	LLI WALL 1.4E-09 (69, 11, 20)
	LIVER 6.0E-10 (29, 36, 35)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-240

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 1.8E-10	GONADS 7.0E-11
SI WALL 6.3E-11	R MARROW 3.3E-11 B
ULI WALL 1.4E-10	LUNGS 1.4E-10 A
LLI WALL 2.6E-10 A	BONE SURF 6.3E-11 B
	SI WALL 2.2E-11
	ULI WALL 4.9E-11
	LLI WALL 8.7E-11
	LIVER 3.6E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR AM-240

ALI (Bq)	DAC (Bq/m3)
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
8.E+07	1.E+08
	4.E+04



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-241

ORAL		INHALATION	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	3.5E-05	GONADS	(25, 33, 42)
R MARROW	1.7E-04 B	R MARROW	(25, 33, 42)
BONE SURF	1.8E-05 AB	BONE SURF	(25, 33, 42)
LIVER	3.2E-06	LIVER	(25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-241

ORAL		INHALATION	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	6.8E-08	GONADS	8.1E-06
R MARROW	1.7E-07 B	R MARROW	2.1E-05 B
BONE SURF	5.4E-07 AB	BONE SURF	6.5E-05 AB
LIVER	1.9E-07	LIVER	2.3E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-241

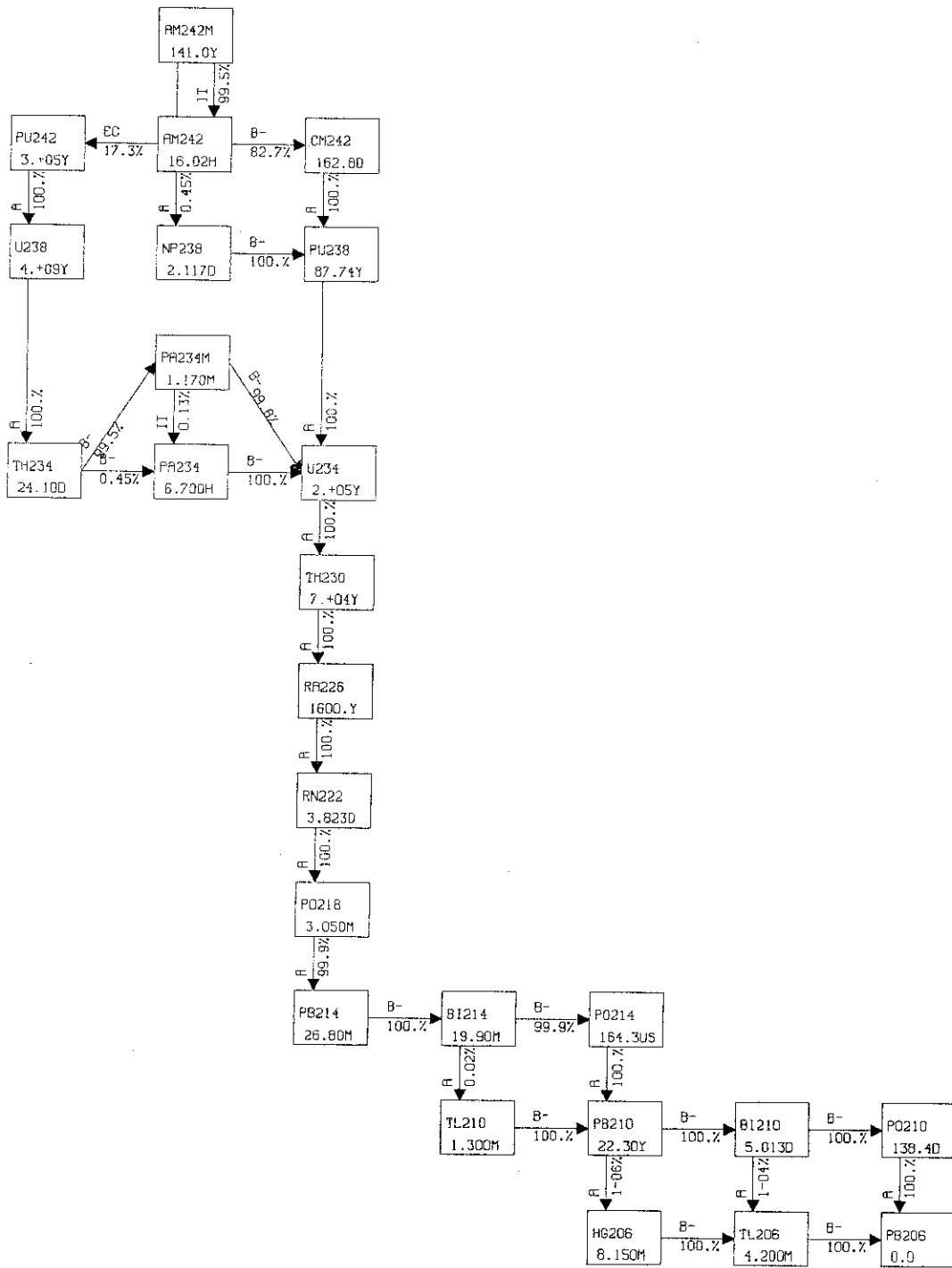
ALI (Bq)		DAC (Bq/m3)	
CLASS W	f1=1.E-03	CLASS W	f1=1.E-03
BONE SURF	3.E+04	BONE SURF	2.E+02
	(5.E+04)		(4.E+02)

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

TARGETS	SOURCES		
	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	3.3E-08	7.4E-08
R MARROW	9.3E-07	2.1E-07	1.6E-06
BONE SURF	2.4E-07	1.7E-07	2.3E-01
LIVER	3.2E-08	6.2E-02	5.6E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-241

ORGAN	INHALATION	
	ORAL	CLASS W
GONADS	1.7E+02	2.0E+04
LIVER	3.3E+05	3.9E+07
CORT BONE	2.5E+05	3.0E+07
TRAB BONE	2.5E+05	3.0E+07



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-242

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		1.1E+01	5.2E-11	9.9E-10
R MARROW		7.0E-09	2.5E-09	1.6E-07
BONE SURF		1.7E-09	2.5E-09	2.5E-01
LIVER		5.7E-11	6.8E-02	7.0E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-242M

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		4.4E-02	5.8E-10	1.1E-09
R MARROW		1.1E-08	2.8E-09	1.4E-08
BONE SURF		2.9E-09	2.1E-09	1.0E-03
LIVER		6.5E-10	2.7E-04	9.1E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-242

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		9.0E+00	1.3E-09	1.6E-09
R MARROW		1.1E-08	3.9E-09	1.3E-07
BONE SURF		2.1E-09	3.1E-09	2.0E-01
LIVER		1.3E-09	5.5E-02	1.9E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-238

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		2.0E-02	1.6E-06	2.0E-06
R MARROW		6.0E-06	2.1E-06	6.9E-06
BONE SURF		1.9E-06	1.5E-06	1.8E-04
LIVER		1.4E-06	1.6E-04	1.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		1.0E+01	3.6E-11	7.3E-10
R MARROW		5.1E-09	2.0E-09	1.5E-07
BONE SURF		1.2E-09	2.1E-09	2.3E-01
LIVER		3.8E-11	6.2E-02	5.8E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-242

TARGETS		SOURCES		
		GONADS	LIVER	CORT BONE TRAB BONE
GONADS		1.6E-02	2.1E-08	4.0E-08
R MARROW		3.4E-07	9.9E-08	6.7E-07
BONE SURF		9.4E-08	7.1E-08	3.7E-04
LIVER		2.6E-08	1.0E-04	3.5E-08

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-242M

		ORAL	INHALATION
	CLASS W	f1=1.E-03	f1=1.E-03
GONADS	GONADS	2.6E-07	3.2E-05 (25, 33, 42)
R MARROW	R MARROW	1.4E-06 B	1.7E-04 B (25, 33, 42)
BONE SURF	BONE SURF	1.7E-05 AB	2.1E-03 AB (25, 33, 42)
LIVER	LIVER	3.0E-06	3.7E-04 (25, 33, 42)

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-242M

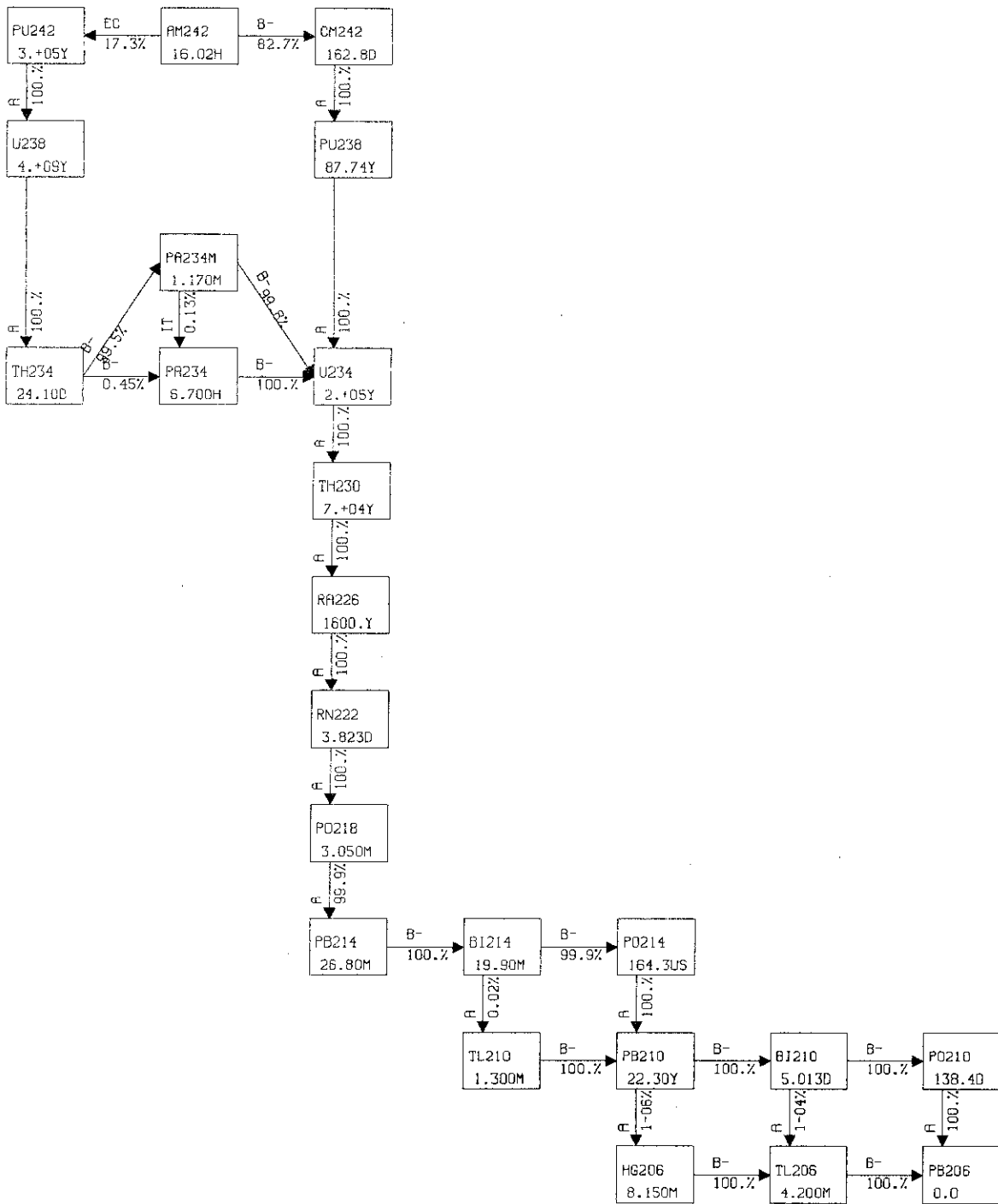
ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	f1=1.E-03
GONADS	AM-242M	1.5E+02	1.9E+04
GONADS	NP-238	7.1E-01	8.5E+01
GONADS	AM-242	1.5E+02	1.8E+04
GONADS	CN-242	1.3E+03	1.5E+04
GONADS	PU-238	2.2E+01	2.7E+03
LIVER	AM-242M	3.1E+05	3.7E+07
LIVER	NP-238	1.4E+03	1.7E+05
LIVER	AM-242	3.1E+05	3.7E+07
LIVER	CN-242	2.5E+05	3.0E+07
LIVER	PU-242	1.8E+00	2.2E+02
LIVER	PU-238	3.2E+04	3.9E+06
CORT BONE	AM-242M	2.3E+05	2.8E+07
CORT BONE	NP-238	1.1E+03	1.3E+05
CORT BONE	AM-242	2.3E+05	2.8E+07
CORT BONE	CN-242	1.9E+05	2.2E+07
CORT BONE	PU-242	1.7E+00	2.0E+02
CORT BONE	PU-238	3.0E+04	3.6E+06
TRAB BONE	AM-242M	2.3E+05	2.8E+07
TRAB BONE	NP-238	1.1E+03	1.3E+05
TRAB BONE	AM-242	2.3E+05	2.8E+07
TRAB BONE	CN-242	1.9E+05	2.2E+07
TRAB BONE	PU-242	1.7E+00	2.0E+02
TRAB BONE	PU-238	3.0E+04	3.6E+06

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-242M

		ORAL	INHALATION
	CLASS W	f1=1.E-03	f1=1.E-03
GONADS	GONADS	6.5E-08	7.9E-06
R MARROW	R MARROW	1.7E-07 B	2.0E-05 B
BONE SURF	BONE SURF	5.2E-07 AB	6.3E-05 AB
LIVER	LIVER	1.8E-07	2.2E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-242M

		ALI (Bq)	DAC (Bq/m ³)
	CLASS W	f1=1.E-03	f1=1.E-03
BONE SURF	BONE SURF	3.E+04 (5.E+04)	2.E+02 (4.E+02)
BONE SURF	BONE SURF	1.E-01	1.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-242

SOURCES

TARGETS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	1.2E-07	2.8E-07	2.3E-07	3.8E-07	9.9E-08	6.7E-07	6.0E-05
LUNGS	1.8E-04	1.0E-08	1.3E-08	3.8E-09	1.7E-07	5.1E-08	5.1E-08
BONE SURF	9.8E-08	7.9E-08	7.0E-08	1.1E-07	7.1E-08	3.7E-04	3.7E-04
SI WALL	9.2E-09	2.3E-04	1.3E-06	7.2E-07	8.5E-08	3.9E-08	3.9E-08
ULI WALL	1.1E-08	3.4E-06	4.1E-04	3.6E-07	1.4E-07	3.6E-08	3.6E-08
LLI WALL	2.5E-09	6.9E-07	2.1E-07	6.7E-04	1.1E-08	6.0E-08	6.0E-08
LIVER	1.5E-07	9.9E-08	1.4E-07	1.2E-08	1.0E-04	3.5E-08	3.5E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-242

SOURCES

TARGETS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	5.7E-09	1.2E-08	8.7E-09	2.5E-08	3.9E-09	1.3E-07	3.3E-02
LUNGS	9.9E-02	5.6E-10	5.1E-10	2.7E-10	9.8E-09	2.9E-09	2.9E-09
BONE SURF	4.7E-09	2.7E-09	3.8E-09	5.7E-09	3.1E-09	2.0E-01	2.0E-01
SI WALL	5.5E-10	1.2E-03	1.5E-07	7.5E-08	4.6E-09	1.6E-09	1.6E-09
ULI WALL	5.7E-10	6.5E-07	2.2E-03	4.5E-08	6.8E-09	1.5E-09	1.5E-09
LLI WALL	2.0E-10	9.6E-08	1.7E-08	3.7E-03	5.9E-10	3.6E-09	3.6E-09
LIVER	7.9E-09	5.1E-09	5.9E-09	6.9E-10	5.5E-02	1.9E-09	1.9E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-242

SOURCES

TARGETS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	4.6E-09	1.0E-08	6.8E-09	2.7E-08	2.5E-09	1.6E-07	4.0E-02
LUNGS	1.2E-01	2.2E-11	2.4E-11	7.3E-12	1.1E-08	1.3E-09	1.3E-09
BONE SURF	4.1E-09	2.4E-09	1.7E-09	6.5E-09	2.5E-09	2.5E-01	2.5E-01
SI WALL	1.9E-11	1.5E-03	1.5E-07	7.9E-08	1.1E-09	7.6E-10	7.6E-10
ULI WALL	2.3E-11	7.6E-07	2.7E-03	4.8E-08	2.3E-09	9.3E-10	9.3E-10
LLI WALL	5.8E-12	1.1E-07	1.4E-08	4.5E-03	1.9E-11	2.6E-09	2.6E-09
LIVER	8.7E-09	1.8E-09	2.3E-09	2.3E-11	6.8E-02	7.0E-10	7.0E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-242

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -238

TARGETS	SOURCES				
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	TRAB BONE
R MARROW	2.8E-09	7.0E-09	4.4E-09	1.6E-08	1.3E-07
LUNGS	8.5E-02	6.6E-11	6.8E-11	2.8E-11	9.6E-10
BONE SURF	2.5E-09	1.7E-09	1.2E-09	3.8E-09	1.7E-01
SI WALL	6.2E-11	1.1E-03	9.5E-08	5.0E-08	6.1E-10
ULI WALL	7.0E-11	6.3E-07	1.9E-03	3.4E-08	7.2E-10
LLI WALL	2.1E-11	7.8E-08	8.9E-09	3.1E-03	1.9E-09
LIVER	5.2E-09	1.4E-09	1.7E-09	7.8E-11	5.7E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS	SOURCES				
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	TRAB BONE
R MARROW	3.7E-09	8.6E-09	5.5E-09	2.2E-08	1.5E-07
LUNGS	1.1E-01	1.4E-11	1.8E-11	4.3E-12	1.1E-09
BONE SURF	3.5E-09	2.1E-09	1.3E-09	5.4E-09	2.3E-01
SI WALL	1.2E-11	1.4E-03	1.3E-07	6.9E-08	6.5E-10
ULI WALL	1.5E-11	7.6E-07	2.5E-03	4.4E-08	8.3E-10
LLI WALL	3.0E-12	1.0E-07	1.2E-08	4.1E-03	2.4E-09
LIVER	7.3E-09	1.4E-09	1.8E-09	1.5E-11	5.8E-10

ORGAN	ISOTOPE	ORAL		CLASS W
		ULI	LLI	
LUNGS	AM-242	f1=1.E-03	f1=1.E-03	1.9E+04
	PU-242	f1=1.E-03	f1=1.E-03	8.6E-04
	CM-242	f1=1.E-03	f1=1.E-03	2.6E+03
	U -238	f1=1.E-03	f1=1.E-03	2.8E-14
SI CONTENT	AM-242	f1=1.E-03	f1=1.E-03	4.3E+00
	PU-242	f1=1.E-03	f1=1.E-03	1.9E+04
	CM-242	f1=1.E-03	f1=1.E-03	2.7E+03
	U -238	f1=1.E-03	f1=1.E-03	3.9E-06
ULI CONTENT	AM-242	f1=1.E-03	f1=1.E-03	1.4E+01
	PU-242	f1=1.E-03	f1=1.E-03	3.8E-17
	CM-242	f1=1.E-03	f1=1.E-03	6.0E-03
	U -238	f1=1.E-03	f1=1.E-03	5.7E+03
LLI CONTENT	AM-242	f1=1.E-03	f1=1.E-03	1.5E-05
	PU-242	f1=1.E-03	f1=1.E-03	7.5E+01
	CM-242	f1=1.E-03	f1=1.E-03	1.3E-16
	U -238	f1=1.E-03	f1=1.E-03	2.0E-02
LIVER	AM-242	f1=1.E-03	f1=1.E-03	5.1E+03
	PU-242	f1=1.E-03	f1=1.E-03	3.3E-05
	CM-242	f1=1.E-03	f1=1.E-03	1.2E+02
	U -238	f1=1.E-03	f1=1.E-03	2.5E-16
CORT BONE	AM-242	f1=1.E-03	f1=1.E-03	4.0E-02
	PU-242	f1=1.E-03	f1=1.E-03	1.9E+03
	CM-242	f1=1.E-03	f1=1.E-03	3.4E-02
	U -238	f1=1.E-03	f1=1.E-03	3.0E+03
TRAB BONE	AM-242	f1=1.E-03	f1=1.E-03	9.7E-11
	PU-242	f1=1.E-03	f1=1.E-03	6.0E+02
	CM-242	f1=1.E-03	f1=1.E-03	1.0E+03
	U -238	f1=1.E-03	f1=1.E-03	2.6E-02
CORR BONE	AM-242	f1=1.E-03	f1=1.E-03	1.6E+03
	PU-242	f1=1.E-03	f1=1.E-03	9.0E-11
	CM-242	f1=1.E-03	f1=1.E-03	4.4E+02
	U -238	f1=1.E-03	f1=1.E-03	9.5E+02
TRAB BONE	AM-242	f1=1.E-03	f1=1.E-03	2.6E-02
	PU-242	f1=1.E-03	f1=1.E-03	1.6E+03
	CM-242	f1=1.E-03	f1=1.E-03	1.6E+03
	U -238	f1=1.E-03	f1=1.E-03	9.0E-11
CORR BONE	AM-242	f1=1.E-03	f1=1.E-03	4.4E+02
	PU-242	f1=1.E-03	f1=1.E-03	9.5E+02
	CM-242	f1=1.E-03	f1=1.E-03	2.6E-02
	U -238	f1=1.E-03	f1=1.E-03	1.6E+03

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-242

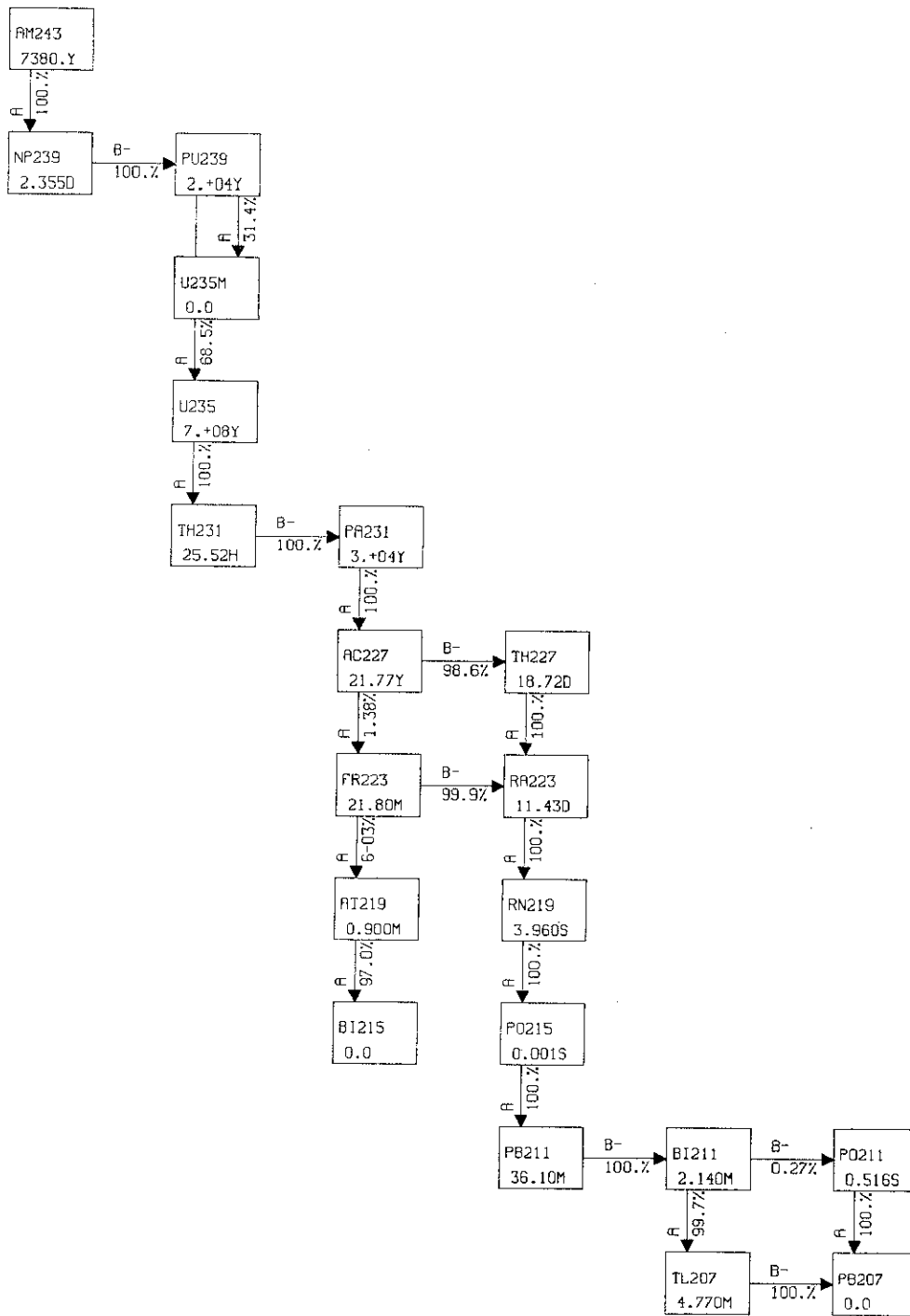
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
BONE SURF 4.5E-11 B	R MARROW 1.6E-09 B
SI WALL 2.6E-11	LUNGS 6.2E-09 A
ULI WALL 9.9E-11	BONE SURF 4.9E-09 B
LLI WALL 1.5E-10 A	LIVER 2.5E-09
LIVER 2.3E-11	

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-242

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
BONE SURF 1.5E-09 B	R MARROW 1.3E-08 B (28, 36, 36)
SI WALL 4.4E-10	LUNGS 5.1E-08 A (0, 0, 100)
ULI WALL 1.7E-09	BONE SURF 1.6E-07 B (28, 36, 36)
LLI WALL 2.5E-09 A	LIVER 4.1E-08 (28, 37, 35)
LIVER 3.8E-10	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR AM-242

ALI (Bq)	INHALATION	DAC (Bq/m ³)
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
1.E+08	3.E+06 (3.E+06) BONE SURF	1.E+03



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-243

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	2.7E-07	GONADS	3.3E-05 (25, 33, 42)
R MARROW	1.4E-06 B	R MARROW	1.7E-04 B (25, 33, 42)
BONE SURF	1.8E-05 AB	BONE SURF	2.2E-05 AB (25, 33, 42)
LIVER	3.2E-06	LIVER	3.9E-04 (25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-243

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	6.8E-08	GONADS	8.1E-06
R MARROW	1.7E-07 B	R MARROW	2.1E-05 B
BONE SURF	5.4E-07 AB	BONE SURF	6.5E-05 AB
LIVER	1.9E-07	LIVER	2.3E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-243

ALI (Bq)		DAC (Bq/m3)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	f1=1.E-03	CLASS W	CLASS W
3.E+04	2.E+02	f1=1.E-03	f1=1.E-03
(5.E+04)	(4.E+02)		
BONE SURF	BONE SURF		1.E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-243

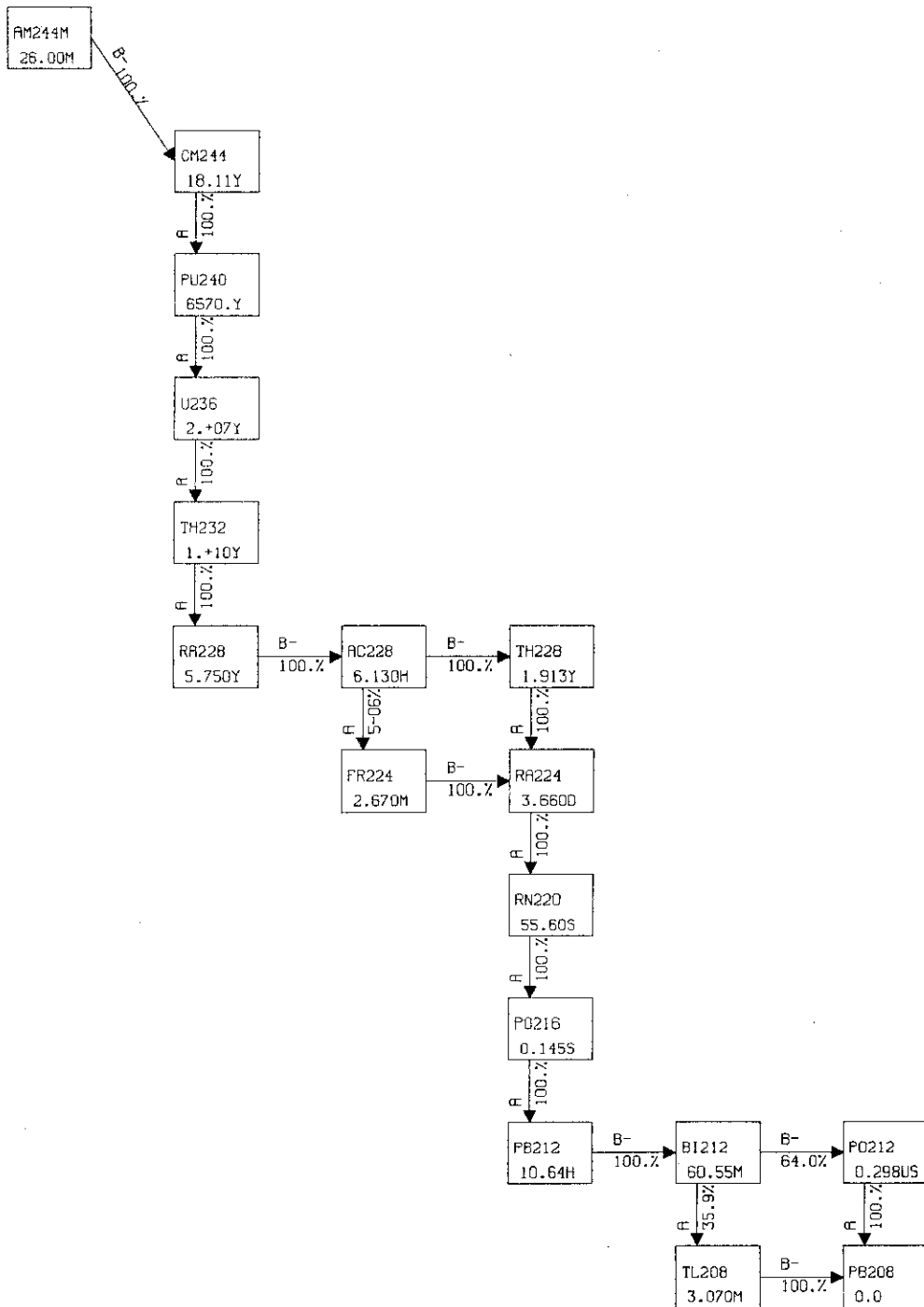
SOURCES			
TARGETS	LIVER	CORT BONE	TRAB BONE
GONADS	7.4E-08	1.5E-07	1.5E-07
R MARROW	4.0E-07	1.6E-06	3.5E-02
BONE SURF	3.1E-07	2.2E-01	2.2E-01
LIVER	7.9E-08	1.2E-07	1.2E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-239

SOURCES			
TARGETS	LIVER	CORT BONE	TRAB BONE
GONADS	2.4E-02	4.6E-07	4.6E-07
R MARROW	3.1E-06	3.0E-06	8.7E-05
BONE SURF	8.8E-07	4.5E-04	4.5E-04
LIVER	3.4E-07	4.1E-07	4.1E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-243

ORGAN	ISOTOPE	ORAL		INHALATION	
		f1=1.E-03	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	AM-243	1.7E+02	2.1E+04	2.1E+04	2.1E+04
LIVER	AM-243	3.4E+05	4.1E+07	4.1E+07	4.1E+07
CORT BONE	AM-243	2.6E+05	3.1E+07	3.1E+07	3.1E+07
TRAB BONE	AM-243	2.6E+05	3.1E+07	3.1E+07	3.1E+07



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-244M

SOURCES

TARGETS	SOURCES						
	GONADS	LUNGS	ST CONTENT	SI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.6E-02	1.5E-12	3.9E-11	5.7E-08	2.3E-11	1.2E-09	1.2E-09
R MARROW	8.4E-09	5.1E-09	9.9E-10	1.0E-08	2.6E-09	1.3E-07	1.7E-04
LUNGS	5.3E-13	5.1E-04	3.2E-09	8.1E-12	1.2E-08	1.4E-09	1.4E-09
BONE SURF	2.0E-09	4.5E-09	8.9E-10	2.5E-09	2.7E-09	7.6E-05	1.2E-04
ST WALL	6.2E-11	4.3E-09	1.0E-03	9.5E-09	1.4E-09	4.8E-10	4.8E-10
SI WALL	7.3E-08	6.1E-12	1.9E-09	6.4E-04	1.1E-09	7.4E-10	7.4E-10
LIVER	2.9E-11	9.0E-09	9.6E-10	1.8E-09	2.8E-04	6.9E-10	6.9E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-244

SOURCES

TARGETS	SOURCES						
	GONADS	LUNGS	ST CONTENT	SI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	6.7E-11	6.0E-10	5.7E-08	4.2E-10	1.1E-09	1.1E-09
R MARROW	7.9E-09	4.7E-09	1.4E-09	1.0E-08	2.7E-09	1.3E-07	3.9E-02
LUNGS	6.5E-11	1.2E-01	3.9E-09	1.8E-10	1.0E-08	1.7E-09	1.7E-09
BONE SURF	1.7E-09	4.1E-09	9.4E-10	2.4E-09	2.6E-09	2.4E-01	2.4E-01
ST WALL	6.3E-10	5.2E-09	2.3E-03	1.0E-08	2.6E-09	7.5E-10	7.5E-10
SI WALL	6.9E-08	1.8E-10	3.6E-09	1.5E-03	2.1E-09	9.4E-10	9.4E-10
LIVER	4.3E-10	7.9E-09	2.1E-09	2.7E-09	6.5E-02	1.0E-09	1.0E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

SOURCES

TARGETS	SOURCES						
	GONADS	LUNGS	ST CONTENT	SI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	8.1E-12	7.4E-11	5.1E-08	5.0E-11	7.2E-10	7.2E-10
R MARROW	5.2E-09	3.6E-09	7.3E-10	8.4E-09	2.0E-09	1.5E-07	3.4E-02
LUNGS	4.9E-12	1.0E-01	2.2E-09	1.9E-11	9.3E-09	1.1E-09	1.1E-09
BONE SURF	1.2E-09	3.2E-09	6.1E-10	2.0E-09	2.0E-09	2.2E-01	2.2E-01
ST WALL	8.7E-11	3.3E-09	2.1E-03	7.4E-09	1.3E-09	4.7E-10	4.7E-10
SI WALL	6.0E-08	1.7E-11	1.5E-09	1.3E-03	9.4E-10	6.4E-10	6.4E-10
LIVER	5.2E-11	7.1E-09	8.7E-10	1.4E-09	5.8E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-244M

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-244M

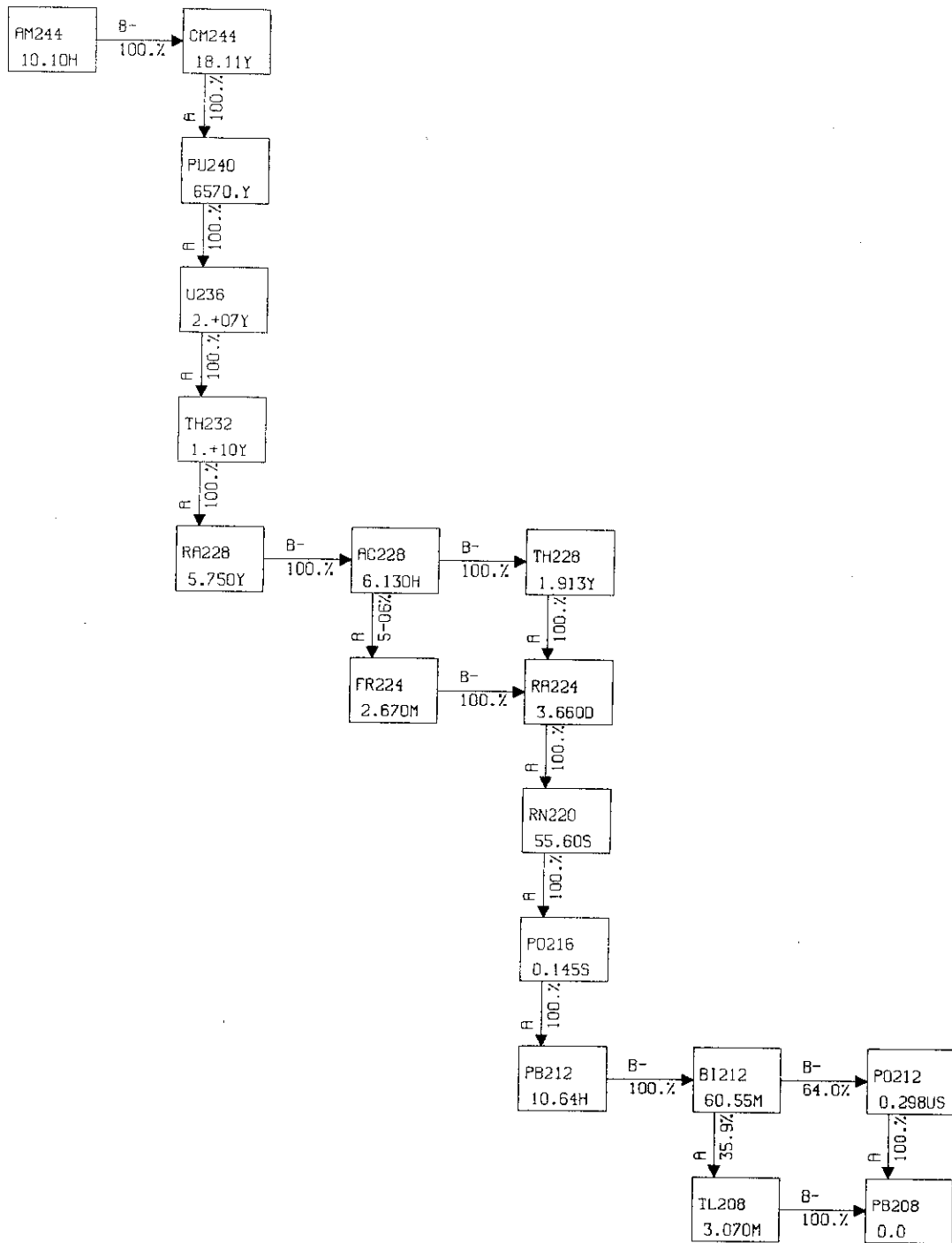
ORGAN	ISOTOPE	ORAL		INHALATION	
		f1	CLASS W	f1	CLASS W
GONADS	AM-244M	1.8E-05	1.8E-02	f1=1.E-03	f1=1.E-03
	CM-244	2.1E-04	2.5E-02	ST WALL	GONADS
	PU-240	7.2E-07	8.7E-05	2.3E-10 A	4.4E-11 (25, 33, 42)
LUNGS	AM-244M	1.4E+03	6.8E+02	SI WALL	R MARROW
	CM-244	6.0E-03	2.8E+00	7.6E-11	2.6E-10 B (25, 33, 42)
	PU-240	7.3E-11	6.2E-05		LUNGS
ST CONTENT	AM-244M	1.4E+03	2.1E+01		(0, 9, 91)
	CM-244	6.0E-03	4.9E-03		BONE SURF
	PU-240	7.3E-11	2.1E-08		3.2E-09 AB (25, 33, 42)
SI CONTENT	AM-244M	7.5E+02	1.1E+01		LIVER
	CM-244	3.7E-02	2.0E-02		6.5E-10
	PU-240	2.1E-09	8.6E-08		(25, 33, 42)
LIVER	AM-244M	6.4E-03	5.5E+00		
	CM-244	5.2E-01	6.2E+01		
	PU-240	1.1E-03	1.3E-01		
CORT BONE	AM-244M	8.0E-03	6.9E+00		
	CM-244	3.4E-01	4.1E+01		
	PU-240	9.7E-04	1.2E-01		
TRAB BONE	AM-244M	1.8E-03	1.5E+00		
	CM-244	3.4E-01	4.1E+01		
	PU-240	9.7E-04	1.2E-01		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-244M

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
ST WALL 1.4E-11 A	GONADS 1.1E-11
SI WALL 4.6E-12	R MARROW 3.1E-11 B
	LUNGS 1.3E-11
	BONE SURF 9.6E-11 AB
	LIVER 3.9E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR AM-244M

<u>ALI (Bq)</u>	<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
2.E+09 (3.E+09) ST WALL	2.E+08 (3.E+08) BONE SURF
	7.E+04



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-244

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.3E-02	4.3E-07	2.8E-06	2.6E-05	2.6E-05	4.6E-05	1.4E-06	2.7E-06	2.7E-06
R MARROW	8.3E-06	3.5E-06	2.8E-06	6.8E-06	5.8E-06	8.7E-06	2.8E-06	9.9E-06	1.2E-04
LUNGS	3.7E-07	3.8E-04	4.8E-06	9.0E-07	1.0E-06	3.6E-07	6.5E-06	2.6E-06	2.6E-06
BONE SURF	2.5E-06	2.7E-06	1.6E-06	2.2E-06	1.9E-06	2.9E-06	2.0E-06	6.4E-04	6.4E-04
ST WALL	2.1E-06	5.1E-06	8.3E-04	9.3E-06	9.7E-06	4.4E-06	5.1E-06	1.5E-06	1.5E-06
SI WALL	3.1E-05	8.0E-07	6.8E-06	5.1E-04	4.4E-05	2.4E-05	4.2E-06	2.2E-06	2.2E-06
ULI WALL	3.0E-05	1.0E-06	8.3E-06	6.7E-05	8.9E-04	1.1E-05	6.5E-06	2.0E-06	2.0E-06
LLI WALL	3.8E-05	2.3E-07	3.5E-06	1.9E-05	8.6E-06	1.4E-03	7.7E-07	2.8E-06	2.8E-06
LIVER	1.7E-06	6.4E-06	5.3E-06	4.9E-06	6.6E-06	9.7E-07	2.6E-04	1.9E-06	1.9E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-244

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	6.7E-11	6.0E-10	5.7E-08	6.8E-08	1.8E-07	4.2E-10	1.1E-09	1.1E-09
R MARROW	7.9E-09	4.7E-09	1.4E-09	1.0E-08	7.0E-09	2.5E-08	2.7E-09	1.3E-07	3.9E-02
LUNGS	6.5E-11	1.2E-01	3.9E-09	1.8E-10	1.6E-10	8.4E-11	1.0E-08	1.7E-09	1.7E-09
BONE SURF	1.7E-09	4.1E-09	9.4E-10	2.4E-09	2.3E-09	5.9E-09	2.6E-09	2.4E-01	2.4E-01
ST WALL	6.3E-10	5.2E-09	2.3E-03	1.0E-08	1.4E-08	2.0E-09	2.6E-09	7.5E-10	7.5E-10
SI WALL	6.9E-08	1.8E-10	3.6E-09	1.5E-03	1.4E-07	7.3E-08	2.1E-09	9.4E-10	9.4E-10
ULI WALL	1.4E-07	1.8E-10	8.1E-09	6.7E-07	2.6E-03	4.3E-08	3.6E-09	1.0E-09	1.0E-09
LLI WALL	1.8E-07	6.5E-11	7.1E-10	9.5E-08	1.4E-08	4.3E-03	1.9E-10	2.7E-09	2.7E-09
LIVER	4.3E-10	7.9E-09	2.1E-09	2.7E-09	3.3E-09	2.2E-10	6.5E-02	1.0E-09	1.0E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	8.1E-12	7.4E-11	5.1E-08	6.6E-08	1.7E-07	5.0E-11	7.2E-10	7.2E-10
R MARROW	5.2E-09	3.6E-09	7.3E-10	8.4E-09	5.4E-09	2.2E-08	2.0E-09	1.5E-07	3.4E-02
LUNGS	4.9E-12	1.0E-01	2.2E-09	1.9E-11	2.3E-11	6.6E-12	9.3E-09	1.1E-09	1.1E-09
BONE SURF	1.2E-09	3.2E-09	6.1E-10	2.0E-09	1.3E-09	5.2E-09	2.0E-09	2.2E-01	2.2E-01
ST WALL	8.7E-11	3.3E-09	2.1E-03	7.4E-09	1.1E-08	8.3E-10	1.3E-09	4.7E-10	4.7E-10
SI WALL	6.0E-08	1.7E-11	1.5E-09	1.3E-03	1.3E-07	6.6E-08	9.4E-10	6.4E-10	6.4E-10
ULI WALL	1.3E-07	2.1E-11	5.4E-09	7.3E-07	2.3E-03	4.2E-08	1.8E-09	8.1E-10	8.1E-10
LLI WALL	1.7E-07	4.8E-12	3.2E-10	9.5E-08	1.1E-08	3.9E-03	1.8E-11	2.3E-09	2.3E-09
LIVER	5.2E-11	7.1E-09	8.7E-10	1.4E-09	1.8E-09	2.1E-11	5.8E-02	5.8E-10	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-244

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
	AM-244	f1=1.E-03	f1=1.E-03
	CM-244	f1=1.E-03	f1=1.E-03
	PU-240	f1=1.E-03	f1=1.E-03
GONADS	AM-244	4.9E-03	4.6E-01
GONADS	CM-244	4.9E-03	5.9E-01
GONADS	PU-240	1.7E-05	2.0E-03
LUNGS	AM-244		1.3E+04
LUNGS	CM-244		6.4E+01
LUNGS	PU-240		1.4E-03
ST CONTENT	AM-244	3.4E+03	6.3E+02
ST CONTENT	CM-244	1.5E-02	7.7E-02
ST CONTENT	PU-240	1.8E-10	4.9E-07
SI CONTENT	AM-244	1.1E+04	2.0E+03
SI CONTENT	CM-244	2.4E-01	3.4E-01
SI CONTENT	PU-240	1.2E-08	2.0E-06
ULI CONTENT	AM-244	1.8E+04	3.4E+03
ULI CONTENT	CM-244	1.8E+00	1.3E+00
ULI CONTENT	PU-240	3.2E-07	6.6E-06
LLI CONTENT	AM-244	1.3E+04	2.4E+03
LLI CONTENT	CM-244	4.7E+00	2.6E+00
LLI CONTENT	PU-240	2.0E-06	1.3E-05
LIVER	AM-244	1.1E+01	1.1E+03
LIVER	CM-244	1.2E+01	1.4E+03
LIVER	PU-240	2.6E-02	3.1E+00
CORT BONE	AM-244	6.3E+00	5.9E+02
CORT BONE	CM-244	8.0E+00	9.6E+02
CORT BONE	PU-240	2.3E-02	2.7E+00
TRAB BONE	AM-244	5.4E+00	5.1E+02
TRAB BONE	CM-244	8.0E+00	9.6E+02
TRAB BONE	PU-240	2.3E-02	2.7E+00

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-244

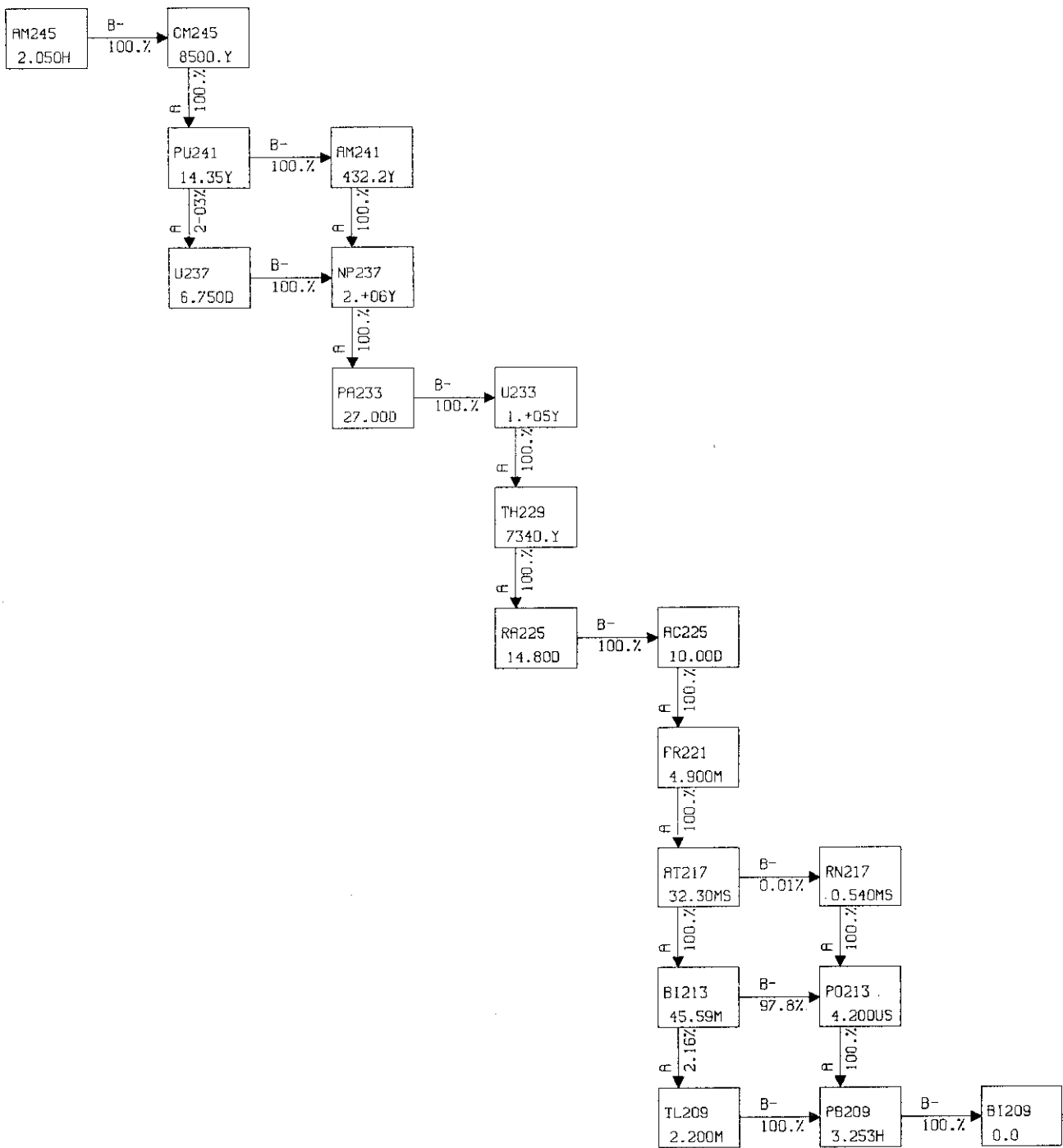
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 5.6E-11	GONADS 2.6E-10
BONE SURF 1.9E-11 B	R MARROW 7.2E-10 B
ST WALL 3.0E-11	LUNGS 2.4E-10
SI WALL 6.3E-11	BONE SURF 2.2E-09 AB
ULI WALL 1.6E-10	LIVER 9.2E-10
LLI WALL 1.7E-10 A	

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-244

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 2.2E-10	GONADS 1.1E-09 (27, 33, 40)
BONE SURF 6.4E-10 B	R MARROW 6.0E-09 B (25, 33, 42)
ST WALL 5.0E-10	LUNGS 2.0E-09 (0, 2, 98)
SI WALL 1.0E-09	BONE SURF 7.5E-08 AB (25, 33, 42)
ULI WALL 2.7E-09	LIVER 1.5E-08 (25, 33, 42)
LLI WALL 2.9E-09 A	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-244

ALI (Bq)		DAC (Bq/m ³)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03
1.E+08	7.E+06 (1.E+07) BONE SURF	1.E+08	3.E+03



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-243

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	2.9E-04	2.0E-07	2.7E-08	3.1E-08	9.4E-09	1.1E-07	1.1E-07
BONE SURF	1.6E-07	9.6E-08	1.3E-07	1.2E-07	1.8E-07	1.6E-04	1.8E-04
ST WALL	2.1E-07	5.9E-04	4.2E-07	4.4E-07	2.0E-07	6.4E-08	6.4E-08
SI WALL	2.3E-08	3.0E-07	3.7E-04	2.0E-06	1.1E-06	8.6E-08	8.6E-08
ULI WALL	2.7E-08	4.1E-07	3.4E-06	6.7E-04	5.3E-07	8.1E-08	8.1E-08
LLI WALL	9.3E-09	1.4E-07	9.2E-07	3.7E-07	1.1E-03	1.2E-07	1.2E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	1.1E-01	6.6E-07	7.2E-08	9.6E-08	2.8E-03	3.5E-07	3.5E-07
BONE SURF	6.1E-07	3.6E-07	5.2E-07	4.6E-07	6.8E-07	2.2E-01	2.2E-01
ST WALL	7.0E-07	2.3E-03	1.4E-06	1.5E-06	6.6E-07	2.1E-07	2.1E-07
SI WALL	6.8E-08	1.0E-06	1.5E-03	7.0E-06	3.9E-06	2.7E-07	2.7E-07
ULI WALL	8.1E-08	1.4E-06	1.3E-05	2.6E-03	1.8E-06	2.5E-07	2.5E-07
LLI WALL	2.1E-08	4.3E-07	3.3E-06	1.3E-06	4.3E-03	3.9E-07	3.9E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-241

SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	7.7E-06	1.1E-11	1.2E-12	1.5E-12	4.4E-13	5.7E-12	5.7E-12
BONE SURF	1.0E-11	6.1E-12	8.6E-12	7.7E-12	1.2E-11	1.6E-05	1.6E-05
ST WALL	1.1E-11	1.1E-05	2.3E-11	2.4E-11	1.1E-11	3.3E-12	3.3E-12
SI WALL	1.1E-12	1.7E-11	6.6E-06	1.2E-10	6.4E-11	4.4E-12	4.4E-12
ULI WALL	1.3E-12	2.2E-11	2.2E-10	1.2E-05	3.0E-11	4.1E-12	4.1E-12
LLI WALL	3.1E-13	6.9E-12	5.5E-11	2.1E-11	1.9E-05	6.3E-12	6.3E-12

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-245

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -237

SOURCES

TARGETS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	1.9E-04	1.1E-07	1.2E-07	3.6E-08	4.9E-07	4.9E-07
BONE SURF	8.4E-07	6.8E-07	6.1E-07	9.3E-07	3.6E-04	3.6E-04
ST WALL	9.7E-07	1.9E-04	2.0E-06	9.0E-07	2.7E-07	2.7E-07
SI WALL	8.9E-08	1.4E-06	9.6E-06	5.3E-06	3.7E-07	3.7E-07
ULI WALL	1.1E-07	1.9E-06	4.4E-04	2.4E-06	3.5E-07	3.5E-07
LLI WALL	3.4E-08	6.0E-07	4.3E-06	7.0E-04	5.3E-07	5.3E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

SOURCES

TARGETS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
LUNGS	1.1E-01	2.1E-07	1.5E-08	3.2E-09	1.0E-07	1.0E-07
BONE SURF	2.6E-07	1.2E-07	1.6E-07	3.0E-07	2.3E-01	2.3E-01
ST WALL	2.2E-07	2.3E-03	4.2E-07	1.7E-07	4.2E-03	4.2E-03
SI WALL	9.2E-09	2.7E-07	1.4E-03	1.5E-06	7.0E-08	7.0E-08
ULI WALL	1.2E-08	4.3E-07	7.2E-06	7.2E-07	6.1E-08	6.1E-08
LLI WALL	2.2E-09	1.0E-07	1.5E-06	4.2E-03	1.0E-07	1.0E-07

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS W	CLASS W	CLASS W
LUNGS	AM-245	f1=1.1E-03	f1=1.1E-03	3.0E+03	3.0E+03
LUNGS	CM-245	f1=1.1E-03	f1=1.1E-03	2.8E-02	2.8E-02
LUNGS	PU-241	f1=1.1E-03	f1=1.1E-03	2.8E-04	2.8E-04
LUNGS	U -237	f1=1.1E-03	f1=1.1E-03	0.0	0.0
LUNGS	AM-241	f1=1.1E-03	f1=1.1E-03	9.6E-03	9.6E-03
ST CONTENT	AM-245	2.7E+03	2.7E+03	1.7E+02	1.7E+02
ST CONTENT	CM-245	2.5E-05	2.5E-05	4.6E-05	4.6E-05
ST CONTENT	PU-241	1.4E-10	1.4E-10	9.8E-08	9.8E-08
ST CONTENT	U -237	0.0	0.0	0.0	0.0
ST CONTENT	AM-241	2.5E-17	2.5E-17	3.0E-11	3.0E-11
SI CONTENT	AM-245	4.6E+03	4.6E+03	2.8E+02	2.8E+02
SI CONTENT	CM-245	2.7E-04	2.7E-04	1.9E-04	1.9E-04
SI CONTENT	PU-241	6.5E-09	6.5E-09	4.0E-07	4.0E-07
SI CONTENT	U -237	0.0	0.0	0.0	0.0
SI CONTENT	AM-241	4.8E-15	4.8E-15	1.2E-10	1.2E-10
ULI CONTENT	AM-245	2.8E+03	2.8E+03	1.7E+02	1.7E+02
ULI CONTENT	CM-245	1.2E-03	1.2E-03	6.5E-04	6.5E-04
ULI CONTENT	PU-241	1.1E-07	1.1E-07	1.3E-06	1.3E-06
ULI CONTENT	U -237	0.0	0.0	0.0	0.0
ULI CONTENT	AM-241	2.7E-13	2.7E-13	3.9E-10	3.9E-10
LLI CONTENT	AM-245	5.6E+02	5.6E+02	3.5E+01	3.5E+01
LLI CONTENT	CM-245	2.4E-03	2.4E-03	1.2E-03	1.2E-03
LLI CONTENT	PU-241	5.1E-07	5.1E-07	2.6E-06	2.6E-06
LLI CONTENT	U -237	0.0	0.0	0.0	0.0
LLI CONTENT	AM-241	2.7E-12	2.7E-12	7.3E-10	7.3E-10
CORT BONE	AM-245	3.4E-01	3.4E-01	6.7E+01	6.7E+01
CORT BONE	CM-245	6.9E-03	6.9E-03	8.3E-01	8.3E-01
CORT BONE	PU-241	3.9E-03	3.9E-03	4.8E-01	4.8E-01
CORT BONE	U -237	0.0	0.0	0.0	0.0
CORT BONE	AM-241	1.2E-04	1.2E-04	1.5E-02	1.5E-02
TRAB BONE	AM-245	1.9E-01	1.9E-01	3.8E+01	3.8E+01
TRAB BONE	CM-245	6.9E-03	6.9E-03	8.3E-01	8.3E-01
TRAB BONE	PU-241	3.9E-03	3.9E-03	4.8E-01	4.8E-01
TRAB BONE	U -237	0.0	0.0	0.0	0.0
TRAB BONE	AM-241	1.2E-04	1.2E-04	1.5E-02	1.5E-02

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Dq) OF AM-245

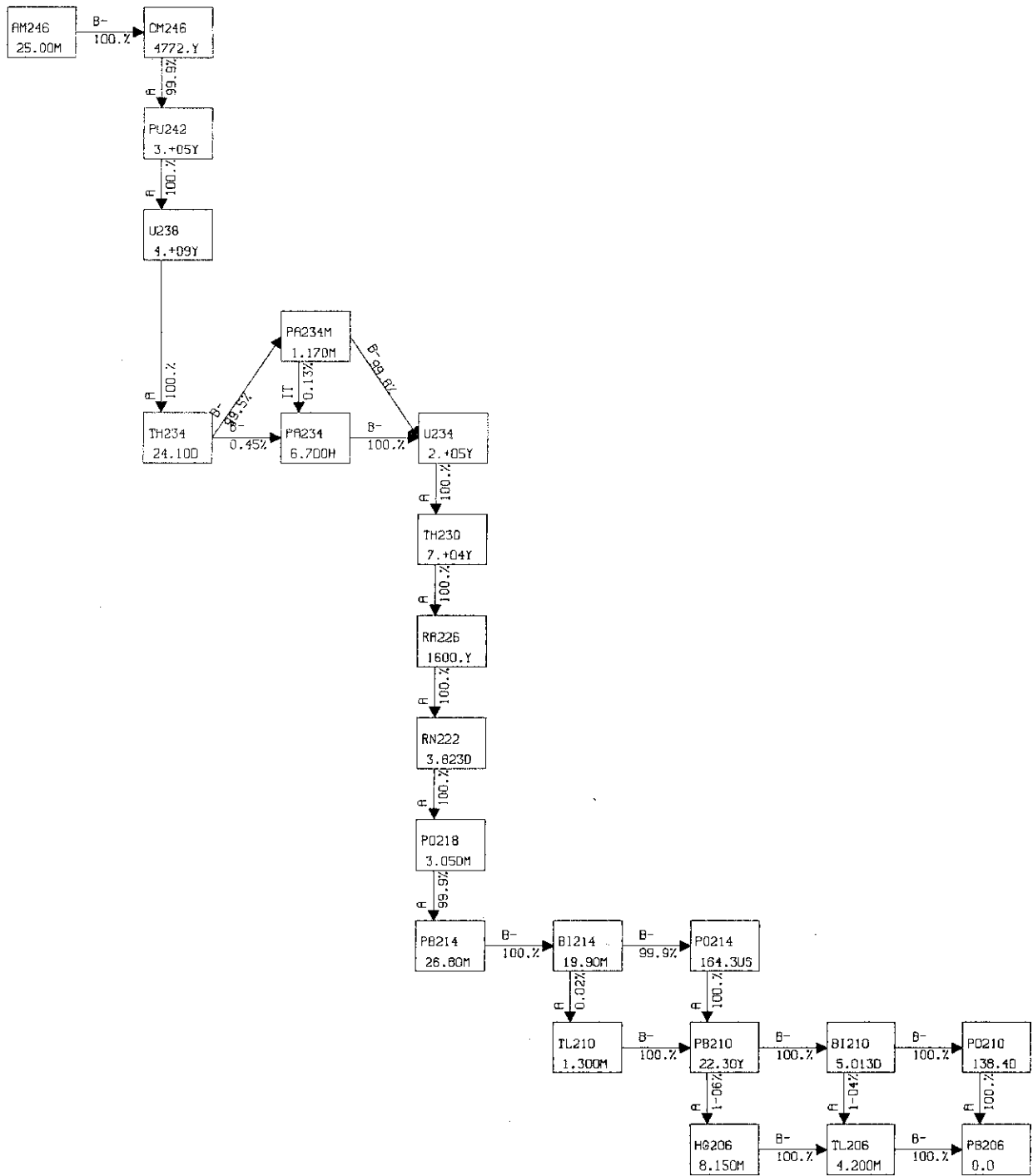
ORAL	INHALATION
	CLASS W
f1=1.5E-03	f1=1.5E-03
ST WALL	LUNGS
2.5E-10	1.4E-10 A
	(0, 11, 89)
SI WALL	BONE SURF
2.7E-10	6.3E-11 B
	(26, 34, 40)
ULI WALL	
3.0E-10 A	
LLI WALL	
9.3E-11	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Dq) OF AM-245

ORAL	INHALATION
	CLASS W
f1=1.5E-03	f1=1.5E-03
ST WALL	LUNGS
1.5E-11	1.7E-11 A
SI WALL	BONE SURF
1.4E-11	1.9E-12 B
ULI WALL	
1.8E-11 A	
LLI WALL	
5.9E-12	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-245

ALI (Bq)	DAC (Bq/m ³)
	CLASS W
f1=1.5E-03	f1=1.5E-03
9.5E+08	3.5E+09
	1.5E+06



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF AM-246

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-246
SOURCES

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	CORT BONE	TRAB BONE	ORGAN	ISOTOPE	CLASS W
LUNGS	5.1E-04	5.6E-06	1.1E-06	1.3E-06	3.2E-06	3.2E-06	AM-246	f1=1.E-03	f1=1.E-03
BONE SURF	3.1E-06	1.9E-06	2.5E-06	2.2E-06	1.2E-04	1.6E-04	CM-246	f1=1.E-03	f1=1.E-03
ST WALL	6.1E-06	1.1E-03	1.1E-05	1.1E-05	1.8E-06	1.8E-06	AM-246		6.5E+02
SI WALL	1.0E-06	7.9E-06	6.7E-04	4.9E-05	2.6E-06	2.6E-06	CM-246		1.0E-02
ULI WALL	1.3E-06	9.8E-06	7.2E-05	1.2E-03	2.5E-06	2.5E-06	AM-246		2.0E+01
							CM-246		1.8E-05
							AM-246		1.0E+01
							CM-246		7.5E-05
							AM-246		1.5E+00
							CM-246		2.4E-04
							CORT BONE		6.5E+00
							CORT BONE		3.0E-01
							TRAB BONE		1.4E+00
							TRAB BONE		3.0E-01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-246

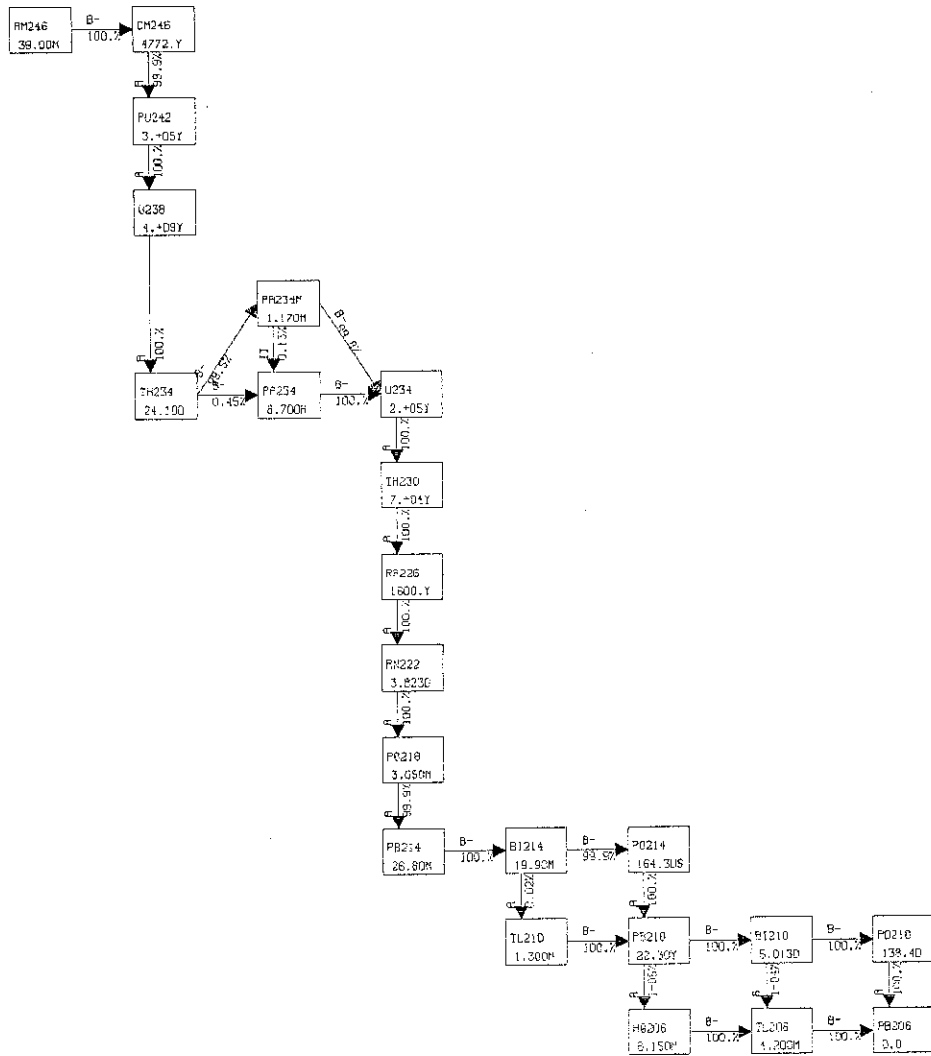
TARGETS	LUNGS	ST WALL	SI WALL	ULI WALL	CORT BONE	TRAB BONE	CLASS W
	1.1E-01	3.4E-07	3.6E-08	3.2E-08	1.4E-07	1.4E-07	f1=1.E-03
	1.4E-07	6.4E-08	6.8E-08	1.9E-07	2.3E-01	2.3E-01	LUNGS
	3.8E-07	2.2E-03	5.0E-07	5.6E-07	6.8E-08	6.8E-08	5.3E-11 A
	3.6E-08	4.5E-07	1.4E-03	3.3E-06	6.8E-08	6.8E-08	(0, 17, 83)
	3.7E-08	5.2E-07	3.6E-06	2.4E-03	5.7E-08	5.7E-08	BONE SURF
							2.2E-11 B
							(25, 33, 42)
							ULI WALL
							2.9E-11

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-246

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
ST WALL 1.4E-11 A	LUNGS 6.4E-12 A
SI WALL 4.7E-12	BONE SURF 6.6E-13 B
ULI WALL 1.8E-12	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-246

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>	
<u>ORAL</u>	<u>INHALATION</u>	<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
2.E+09 (2.E+09) ST WALL	7.E+09	3.E+06	



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-246

SOURCES		ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
ST WALL	4.3E-10 A		LUNGS 1.2E-10 A (0, 16, 84)
SI WALL	2.1E-10		
ULI WALL	9.4E-11		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF AM-246

SOURCES		ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
ST WALL	2.6E-11 A		LUNGS 1.4E-11 A
SI WALL	1.2E-11		
ULI WALL	5.6E-12		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/Wk) FOR AM-246

ALI (Bq)		DAC (Bq/m3)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03		CLASS W f1=1.E-03
1.E+09	4.E+09		1.E+06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-246

TARGETS	ST CONTENT	SI CONTENT	ULI CONTENT
LUNGS	7.4E-04	4.2E-06	7.5E-07
ST WALL	4.4E-06	1.5E-03	8.2E-06
SI WALL	6.4E-07	6.1E-06	9.5E-04
ULI WALL	8.4E-07	7.6E-06	6.3E-05

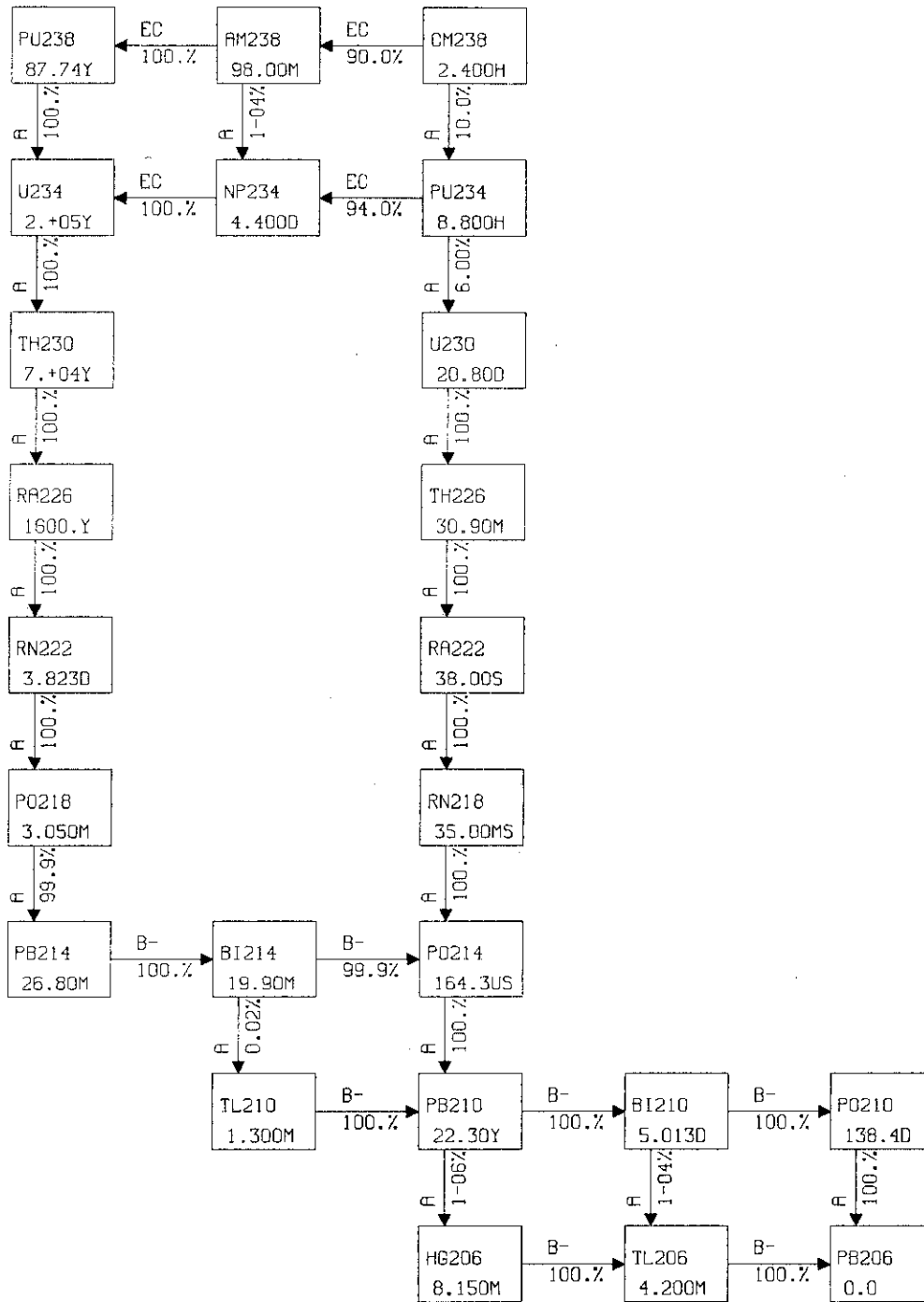
SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	ST CONTENT	SI CONTENT	ULI CONTENT
LUNGS	1.1E-01	3.4E-07	3.6E-08
ST WALL	3.8E-07	2.2E-03	5.0E-07
SI WALL	3.6E-08	4.5E-07	1.4E-03
ULI WALL	3.7E-08	5.2E-07	3.6E-06

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF AM-246

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03	CLASS W f1=1.E-03
LUNGS	AM-246			1.0E+03	
LUNGS	CM-246			1.6E-02	
ST CONTENT	AM-246	1.7E+03	2.8E-05	3.9E+01	2.8E-05
SI CONTENT	AM-246	2.9E+03	2.0E-04	2.9E+01	1.1E-04
ULI CONTENT	AM-246	2.9E+02	7.2E-04	6.4E+00	3.7E-04

Curium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-238

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+00	2.2E-08	1.5E-07	3.2E-06	3.4E-06	5.2E-06	2.0E-07	2.0E-07
LUNGS	1.5E-08	1.3E-02	4.9E-07	5.7E-08	7.0E-08	2.1E-08	2.6E-07	2.6E-07
BONE SURF	4.8E-07	4.6E-07	2.8E-07	3.9E-07	3.5E-07	5.2E-07	2.7E-02	2.7E-02
ST WALL	2.3E-07	5.2E-07	3.0E-04	1.0E-06	1.1E-06	4.9E-07	1.5E-07	1.5E-07
SI WALL	3.6E-06	5.0E-08	7.6E-07	1.9E-04	5.1E-06	2.8E-06	2.0E-07	2.0E-07
ULI WALL	3.5E-06	5.9E-08	1.0E-06	8.9E-06	3.3E-04	1.3E-06	1.9E-07	1.9E-07
LLI WALL	4.7E-06	1.4E-08	3.2E-07	2.4E-06	9.6E-07	5.4E-04	2.9E-07	2.9E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.9E-01	1.9E-08	1.3E-07	2.8E-06	3.1E-06	4.6E-06	1.8E-07	1.8E-07
LUNGS	1.3E-08	7.6E-03	4.4E-07	5.0E-08	6.2E-08	1.8E-08	2.3E-07	2.3E-07
BONE SURF	4.4E-07	4.2E-07	2.5E-07	3.6E-07	3.2E-07	4.7E-07	1.6E-02	1.6E-02
ST WALL	2.0E-07	4.6E-07	1.8E-04	9.3E-07	9.8E-07	4.4E-07	1.3E-07	1.3E-07
SI WALL	3.2E-06	4.4E-08	6.8E-07	1.2E-04	4.5E-06	2.5E-06	1.8E-07	1.8E-07
ULI WALL	3.1E-06	5.2E-08	9.0E-07	8.1E-06	2.0E-04	1.2E-06	1.6E-07	1.6E-07
LLI WALL	4.2E-06	1.2E-08	2.8E-07	2.1E-06	8.6E-07	3.3E-04	2.6E-07	2.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-238

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.4E-03	4.8E-07	3.4E-06	2.9E-05	2.6E-05	5.0E-05	2.8E-06	2.8E-06
LUNGS	4.3E-07	8.8E-05	5.3E-06	1.0E-06	1.2E-06	4.4E-07	2.9E-06	2.9E-06
BONE SURF	2.9E-06	3.1E-06	1.9E-06	2.5E-06	2.2E-06	3.3E-06	7.3E-05	7.4E-05
ST WALL	2.4E-06	5.7E-06	2.4E-04	1.0E-05	1.1E-05	4.8E-06	1.7E-06	1.7E-06
SI WALL	3.4E-05	9.1E-07	7.5E-06	1.4E-04	4.7E-05	2.6E-05	2.4E-06	2.4E-06
ULI WALL	3.2E-05	1.2E-06	9.4E-06	7.0E-05	2.2E-04	1.2E-05	2.3E-06	2.3E-06
LLI WALL	4.1E-05	2.5E-07	4.0E-06	2.1E-05	9.5E-06	3.1E-04	3.1E-06	3.1E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-230

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	3.8E-10	2.1E-09	9.8E-08	1.2E-07	2.4E-07	3.5E-09	3.5E-09
LUNGS	2.2E-10	1.2E-01	9.3E-09	8.5E-10	9.9E-10	2.9E-10	4.9E-09	4.9E-09
BONE SURF	8.0E-09	9.8E-09	4.4E-09	7.5E-09	6.1E-09	1.2E-08	2.4E-01	2.4E-01
ST WALL	3.1E-09	1.1E-08	2.4E-03	2.2E-08	2.6E-08	8.0E-09	2.6E-09	2.6E-09
SI WALL	1.1E-07	7.0E-10	1.2E-08	1.5E-03	1.9E-07	1.0E-07	3.6E-09	3.6E-09
ULI WALL	1.8E-07	8.6E-10	2.0E-08	9.2E-07	2.7E-03	6.2E-08	3.6E-09	3.6E-09
LLI WALL	2.3E-07	2.8E-10	5.2E-09	1.3E-07	2.4E-08	4.4E-03	6.4E-09	6.4E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF NP-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	5.6E-03	6.2E-07	3.5E-06	2.9E-05	2.6E-05	5.7E-05	3.2E-06	3.2E-06
LUNGS	5.8E-07	8.3E-05	6.2E-06	1.2E-06	1.5E-06	6.0E-07	3.4E-06	3.4E-06
BONE SURF	3.3E-06	3.5E-06	2.1E-06	2.8E-06	2.6E-06	3.7E-06	3.7E-05	3.9E-05
ST WALL	3.4E-06	6.9E-06	2.3E-04	1.2E-05	1.1E-05	5.5E-06	2.1E-06	2.1E-06
SI WALL	3.8E-05	1.1E-06	8.5E-06	1.4E-04	5.3E-05	3.0E-05	2.7E-06	2.7E-06
ULI WALL	3.7E-05	1.5E-06	1.2E-05	7.9E-05	2.2E-04	1.5E-05	2.6E-06	2.6E-06
LLI WALL	4.7E-05	2.5E-07	4.9E-06	2.4E-05	1.0E-05	2.9E-04	3.5E-06	3.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.0E+01	5.8E-12	5.2E-11	5.3E-08	6.9E-08	1.7E-07	7.3E-10	7.3E-10
LUNGS	3.2E-12	1.1E-01	2.2E-09	1.4E-11	1.8E-11	4.3E-12	1.1E-09	1.1E-09
BONE SURF	1.2E-09	3.3E-09	6.1E-10	2.1E-09	1.3E-09	5.4E-09	2.3E-01	2.3E-01
ST WALL	6.6E-11	3.4E-09	2.2E-03	7.6E-09	1.1E-08	8.0E-10	4.7E-10	4.7E-10
SI WALL	6.3E-08	1.2E-11	1.4E-09	1.4E-03	1.3E-07	6.9E-08	6.5E-10	6.5E-10
ULI WALL	1.4E-07	1.5E-11	5.5E-09	7.6E-07	2.5E-03	4.4E-08	8.3E-10	8.3E-10
LLI WALL	1.8E-07	3.0E-12	3.1E-10	1.0E-07	1.2E-08	4.1E-03	2.4E-09	2.4E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-226

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	2.8E-09	1.5E-08	3.4E-07	3.7E-07	5.9E-07	2.1E-08	2.1E-08
LUNGS	1.8E-09	1.3E-01	5.1E-08	6.5E-09	7.6E-09	2.3E-09	2.8E-08	2.8E-08
BONE SURF	4.5E-08	4.4E-08	2.7E-08	3.8E-08	3.4E-08	5.0E-08	2.6E-01	2.6E-01
ST WALL	2.3E-08	5.5E-08	2.6E-03	1.1E-07	1.1E-07	5.2E-08	1.6E-08	1.6E-08
SI WALL	3.8E-07	5.5E-09	7.9E-08	1.6E-03	5.4E-07	3.0E-07	2.2E-08	2.2E-08
ULI WALL	3.9E-07	6.6E-09	1.1E-07	1.1E-06	2.9E-03	1.4E-07	2.0E-08	2.0E-08
LLI WALL	5.0E-07	2.0E-09	3.5E-08	2.6E-07	9.7E-08	4.8E-03	3.1E-08	3.1E-08

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-234

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.8E+00	3.4E-11	2.7E-10	4.7E-08	6.1E-08	1.4E-07	7.5E-10	7.5E-10
LUNGS	1.8E-11	9.7E-02	2.3E-09	7.7E-11	9.8E-11	2.5E-11	1.2E-09	1.2E-09
BONE SURF	1.7E-09	3.2E-09	8.7E-10	2.3E-09	1.5E-09	4.8E-09	2.0E-01	2.0E-01
ST WALL	3.4E-10	3.3E-09	1.9E-03	7.0E-09	1.0E-08	1.3E-09	5.9E-10	5.9E-10
SI WALL	5.3E-08	6.5E-11	2.2E-09	1.2E-03	1.1E-07	5.8E-08	8.1E-10	8.1E-10
ULI WALL	1.2E-07	8.2E-11	5.6E-09	7.0E-07	2.2E-03	3.9E-08	9.2E-10	9.2E-10
LLI WALL	1.5E-07	1.8E-11	6.7E-10	8.8E-08	1.0E-08	3.6E-03	2.3E-09	2.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-222

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.2E+01	4.4E-09	1.5E-08	3.2E-07	3.9E-07	5.9E-07	2.8E-08	2.8E-08
LUNGS	2.8E-09	1.3E-01	5.7E-08	9.2E-09	9.7E-09	3.0E-09	3.2E-08	3.2E-08
BONE SURF	3.5E-08	3.6E-08	2.2E-08	3.0E-08	2.7E-08	3.8E-08	2.7E-01	2.7E-01
ST WALL	2.6E-08	6.0E-08	2.6E-03	1.2E-07	1.2E-07	5.8E-08	1.9E-08	1.9E-08
SI WALL	3.8E-07	7.5E-09	8.5E-08	1.6E-03	5.3E-07	3.0E-07	2.5E-08	2.5E-08
ULI WALL	3.6E-07	9.6E-09	1.1E-07	7.5E-07	2.9E-03	1.4E-07	2.4E-08	2.4E-08
LLI WALL	4.6E-07	3.2E-09	4.2E-08	2.3E-07	9.7E-08	4.9E-03	3.3E-08	3.3E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-230

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.6E+00	1.1E-10	8.1E-10	4.6E-08	5.5E-08	1.1E-07	1.3E-09	1.3E-09
LUNGS	6.3E-11	9.5E-02	3.6E-09	2.6E-10	3.2E-10	8.4E-11	1.9E-09	1.9E-09
BONE SURF	3.4E-09	4.3E-09	1.8E-09	3.3E-09	2.6E-09	5.5E-09	1.9E-01	1.9E-01
ST WALL	1.1E-09	4.3E-09	1.9E-03	8.7E-09	1.1E-08	2.9E-09	9.9E-10	9.9E-10
SI WALL	4.9E-08	2.2E-10	4.7E-09	1.2E-03	9.1E-08	4.9E-08	1.4E-09	1.4E-09
ULI WALL	9.3E-08	2.7E-10	8.0E-09	5.6E-07	2.1E-03	3.2E-08	1.4E-09	1.4E-09
LLI WALL	1.2E-07	6.9E-11	1.8E-09	7.1E-08	1.0E-08	3.5E-03	2.7E-09	2.7E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-218

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E+01	4.1E-10	1.8E-09	2.3E-08	3.0E-08	4.1E-08	2.7E-09	2.7E-09
LUNGS	3.2E-10	1.5E-01	4.7E-09	8.8E-10	9.2E-10	3.0E-10	2.5E-09	2.5E-09
BONE SURF	2.4E-09	2.6E-09	1.5E-09	2.0E-09	1.8E-09	2.7E-09	3.0E-01	3.0E-01
ST WALL	2.1E-09	4.8E-09	2.9E-03	8.8E-09	9.3E-09	4.5E-09	1.5E-09	1.5E-09
SI WALL	3.0E-08	7.4E-10	6.7E-09	1.8E-03	4.2E-08	2.3E-08	2.1E-09	2.1E-09
ULI WALL	2.8E-08	1.0E-09	8.3E-09	5.8E-08	3.2E-03	1.1E-08	1.9E-09	1.9E-09
LLI WALL	3.6E-08	2.1E-10	3.3E-09	1.7E-08	7.9E-09	5.3E-03	2.5E-09	2.5E-09

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-226

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.8E+00	2.7E-09	1.1E-08	2.6E-07	2.8E-07	4.7E-07	1.7E-08	1.7E-08
LUNGS	1.6E-09	9.7E-02	4.1E-08	5.8E-09	6.5E-09	2.0E-09	2.4E-08	2.4E-08
BONE SURF	3.2E-08	3.1E-08	1.9E-08	2.7E-08	2.4E-08	3.5E-08	2.0E-01	2.0E-01
ST WALL	1.9E-08	4.5E-08	1.9E-03	9.0E-08	9.1E-08	4.3E-08	1.4E-08	1.4E-08
SI WALL	2.9E-07	4.7E-09	6.4E-08	1.2E-03	4.1E-07	2.3E-07	1.8E-08	1.8E-08
ULI WALL	2.8E-07	5.6E-09	8.7E-08	6.1E-07	2.1E-03	1.0E-07	1.8E-08	1.8E-08
LLI WALL	3.6E-07	2.4E-09	3.1E-08	1.8E-07	7.5E-08	3.6E-03	2.6E-08	2.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-222

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.0E+01	2.1E-10	7.1E-10	1.2E-08	1.7E-08	2.2E-08	1.5E-09	1.5E-09
LUNGS	1.6E-10	1.1E-01	2.6E-09	4.6E-10	4.7E-10	1.4E-10	1.4E-09	1.4E-09
BONE SURF	1.3E-09	1.4E-09	8.3E-10	1.1E-09	1.0E-09	1.4E-09	2.3E-01	2.3E-01
ST WALL	1.2E-09	2.5E-09	2.2E-03	4.6E-09	5.0E-09	2.5E-09	8.1E-10	8.1E-10
SI WALL	1.6E-08	3.8E-10	3.6E-09	1.4E-03	2.2E-08	1.2E-08	1.1E-09	1.1E-09
ULI WALL	1.5E-08	5.3E-10	4.5E-09	3.1E-08	2.4E-03	5.8E-09	9.6E-10	9.6E-10
LLI WALL	1.9E-08	1.1E-10	1.7E-09	9.3E-09	4.1E-09	4.1E-03	1.3E-09	1.3E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-218

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.1E+01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	0.0	1.2E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	0.0	2.5E-01	2.5E-01
ST WALL	0.0	0.0	2.4E-03	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	1.5E-03	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	2.7E-03	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	4.4E-03	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	2.7E-02	1.1E-07	4.3E-07	8.6E-06	1.0E-05	1.6E-05	7.4E-07	7.4E-07
LUNGS	7.6E-08	3.0E-04	1.5E-06	2.4E-07	2.6E-07	8.0E-08	8.4E-07	8.4E-07
BONE SURF	9.7E-07	9.9E-07	6.0E-07	8.2E-07	7.4E-07	1.1E-06	6.6E-05	8.8E-05
ST WALL	6.9E-07	1.6E-06	6.2E-04	3.1E-06	3.2E-06	1.5E-06	4.9E-07	4.9E-07
SI WALL	1.0E-05	2.0E-07	2.3E-06	3.8E-04	1.4E-05	8.0E-06	6.7E-07	6.7E-07
ULI WALL	9.7E-06	2.6E-07	3.0E-06	2.1E-05	6.9E-04	3.7E-06	6.2E-07	6.2E-07
LLI WALL	1.2E-05	8.0E-08	1.1E-06	6.1E-06	2.6E-06	1.1E-03	8.7E-07	8.7E-07

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	6.6E-02	8.7E-07	4.9E-06	4.0E-05	4.3E-05	7.7E-05	4.6E-06	4.6E-06
LUNGS	8.0E-07	7.5E-04	8.4E-06	1.7E-06	2.0E-06	8.7E-07	4.8E-06	4.8E-06
BONE SURF	4.2E-06	4.6E-06	2.8E-06	3.7E-06	3.3E-06	4.8E-06	1.5E-04	2.0E-04
ST WALL	4.5E-06	9.4E-06	1.6E-03	1.6E-05	1.6E-05	7.9E-06	2.8E-06	2.8E-06
SI WALL	5.2E-05	1.6E-06	1.2E-05	9.6E-04	7.2E-05	4.1E-05	3.8E-06	3.8E-06
ULI WALL	4.9E-05	2.1E-06	1.5E-05	1.0E-04	1.7E-03	1.9E-05	3.6E-06	3.6E-06
LLI WALL	6.3E-05	3.9E-07	6.5E-06	3.2E-05	1.4E-05	2.7E-03	4.7E-06	4.7E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-214

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.4E+01	4.6E-11	3.1E-10	2.7E-09	2.6E-09	4.6E-09	2.8E-10	2.8E-10
LUNGS	4.0E-11	1.6E-01	5.0E-10	9.7E-11	1.1E-10	3.9E-11	2.8E-10	2.8E-10
BONE SURF	2.5E-10	2.7E-10	1.6E-10	2.2E-10	1.9E-10	2.8E-10	3.2E-01	3.2E-01
ST WALL	2.2E-10	5.3E-10	3.1E-03	9.6E-10	9.9E-10	4.6E-10	1.6E-10	1.6E-10
SI WALL	3.1E-09	8.6E-11	7.1E-10	1.9E-03	4.4E-09	2.4E-09	2.3E-10	2.3E-10
ULI WALL	3.0E-09	1.1E-10	8.6E-10	6.2E-09	3.4E-03	1.1E-09	2.1E-10	2.1E-10
LLI WALL	3.8E-09	2.5E-11	3.7E-10	1.9E-09	8.8E-10	5.7E-03	2.9E-10	2.9E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	1.3E-01	1.5E-06	9.2E-06	7.9E-05	8.0E-05	1.4E-04	8.3E-06	8.3E-06
LUNGS	1.4E-06	1.4E-03	1.5E-05	3.1E-06	3.5E-06	1.5E-06	8.7E-06	8.7E-06
BONE SURF	8.0E-06	8.7E-06	5.2E-06	6.9E-06	6.2E-06	9.0E-06	2.9E-04	3.9E-04
ST WALL	7.8E-06	1.7E-05	3.0E-03	3.0E-05	3.0E-05	1.5E-05	5.0E-06	5.0E-06
SI WALL	9.6E-05	2.9E-06	2.2E-05	1.9E-03	1.3E-04	7.6E-05	7.1E-06	7.1E-06
ULI WALL	9.1E-05	3.7E-06	2.8E-05	1.9E-04	3.3E-03	3.5E-05	6.7E-06	6.7E-06
LLI WALL	1.2E-04	7.6E-07	1.2E-05	5.9E-05	2.6E-05	5.3E-03	8.8E-06	8.8E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.5E-03	3.6E-10	3.8E-09	1.7E-07	1.9E-07	3.8E-07	6.4E-09	6.4E-09
LUNGS	1.3E-10	3.8E-05	1.8E-08	7.4E-10	9.8E-10	1.8E-10	8.6E-09	8.6E-09
BONE SURF	2.1E-08	2.3E-08	9.7E-09	1.6E-08	1.4E-08	2.7E-08	7.5E-05	7.5E-05
ST WALL	3.9E-09	1.9E-08	7.4E-05	3.6E-08	4.7E-08	1.4E-08	3.6E-09	3.6E-09
SI WALL	1.8E-07	5.8E-10	2.2E-08	4.7E-05	2.9E-07	1.6E-07	5.9E-09	5.9E-09
ULI WALL	2.5E-07	8.2E-10	3.8E-08	1.6E-06	8.4E-05	9.2E-08	5.2E-09	5.2E-09
LLI WALL	3.2E-07	1.3E-10	8.1E-09	2.0E-07	3.9E-08	1.4E-04	9.9E-09	9.9E-09

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF HG-206

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.9E-02	4.9E-08	1.9E-07	3.7E-06	4.4E-06	6.9E-06	3.2E-07	3.2E-07
LUNGS	3.3E-08	4.3E-04	6.6E-07	1.0E-07	1.1E-07	3.5E-08	3.7E-07	3.7E-07
BONE SURF	4.3E-07	4.3E-07	2.6E-07	3.6E-07	3.2E-07	4.7E-07	5.7E-05	9.2E-05
ST WALL	3.0E-07	6.9E-07	8.7E-04	1.3E-06	1.4E-06	6.7E-07	2.1E-07	2.1E-07
SI WALL	4.5E-06	8.5E-08	9.8E-07	5.5E-04	6.2E-06	3.5E-06	2.9E-07	2.9E-07
ULI WALL	4.2E-06	1.1E-07	1.3E-06	8.8E-06	9.9E-04	1.6E-06	2.7E-07	2.7E-07
LLI WALL	5.4E-06	3.5E-08	4.8E-07	2.6E-06	1.1E-06	1.6E-03	3.8E-07	3.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.5E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUNGS	0.0	3.9E-04	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	0.0	4.9E-05	8.1E-05
ST WALL	0.0	0.0	7.8E-04	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	4.9E-04	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	8.8E-04	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	1.4E-03	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-206

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.8E-02	4.2E-11	3.0E-10	4.6E-09	4.5E-09	7.5E-09	3.3E-10	3.3E-10
LUNGS	3.1E-11	5.3E-04	7.6E-10	9.2E-11	1.1E-10	3.4E-11	3.9E-10	3.9E-10
BONE SURF	6.6E-10	6.8E-10	3.7E-10	5.2E-10	4.6E-10	7.3E-10	6.7E-05	1.1E-04
ST WALL	2.9E-10	7.8E-10	1.1E-03	1.5E-09	1.6E-09	6.9E-10	2.0E-10	2.0E-10
SI WALL	5.2E-09	8.0E-11	1.1E-09	6.7E-04	7.4E-09	4.0E-09	3.0E-10	3.0E-10
ULI WALL	4.8E-09	1.0E-10	1.4E-09	1.1E-08	1.2E-03	1.8E-09	2.7E-10	2.7E-10
LLI WALL	6.4E-09	2.2E-11	4.8E-10	3.2E-09	1.3E-09	2.0E-03	4.0E-10	4.0E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-210

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	9.8E+00	5.4E-12	3.6E-11	3.1E-10	3.0E-10	5.3E-10	3.3E-11	3.3E-11
LUNGS	4.7E-12	1.1E-01	5.8E-11	1.1E-11	1.3E-11	4.6E-12	3.2E-11	3.2E-11
BONE SURF	2.9E-11	3.2E-11	1.9E-11	2.5E-11	2.3E-11	3.3E-11	2.2E-01	2.2E-01
ST WALL	2.6E-11	6.2E-11	2.1E-03	1.1E-10	1.2E-10	5.3E-11	1.8E-11	1.8E-11
SI WALL	3.7E-10	1.0E-11	8.3E-11	1.3E-03	5.1E-10	2.9E-10	2.7E-11	2.7E-11
ULI WALL	3.4E-10	1.3E-11	1.0E-10	7.3E-10	2.4E-03	1.3E-10	2.5E-11	2.5E-11
LLI WALL	4.4E-10	2.9E-12	4.3E-11	2.2E-10	1.0E-10	3.9E-03	3.4E-11	3.4E-11

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-238

ORGAN	ISOTOPE	ORAL		INHALATION		LUNGS			
		CLASS W	f1	f2	f3				
GONADS	CM-238	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	CM-238	2.8E+03	2.0E+02
GONADS	PU-234	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	PU-234	1.4E+01	1.4E+01
GONADS	AM-238	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	AM-238	7.5E+02	1.9E+02
GONADS	U-230	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	U-230	1.7E-03	2.4E-02
GONADS	NP-234	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	NP-234	1.5E-01	1.5E+00
GONADS	PU-238	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	PU-238	6.7E-04	4.2E-03
GONADS	TH-226	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	TH-226	9.7E-04	2.3E-02
GONADS	U-234	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	U-234	4.1E-11	4.5E-08
GONADS	RA-222	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	RA-222	9.6E-04	2.3E-02
GONADS	TH-230	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	TH-230	4.3E-20	6.4E-14
GONADS	RN-218	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	RN-218	9.6E-04	2.3E-02
GONADS	RA-226	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	RA-226	2.1E-27	5.5E-18
GONADS	RN-222	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	RN-222	1.6E-29	5.1E-18
GONADS	PO-218	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	PO-218	8.9E-30	5.1E-18
GONADS	PB-214	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	PB-214	6.0E-30	5.1E-18
GONADS	BI-210	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	BI-210	9.6E-04	2.3E-02
GONADS	TL-206	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	TL-206	1.2E-33	1.0E-21
GONADS	PO-210	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	LUNGS	PO-210	3.4E-09	2.0E-05
GONADS	CM-238	1.1E-01	1.1E-01	1.1E-01	1.1E-01	ST CONTENT	CM-238	0.0	0.0
GONADS	PU-234	1.1E-02	1.1E-02	1.1E-02	1.1E-02	ST CONTENT	PU-234	1.7E-11	1.7E-05
GONADS	AM-238	1.1E-01	1.1E-01	1.1E-01	1.1E-01	ST CONTENT	AM-238	0.0	0.0
GONADS	U-230	6.8E-04	6.8E-04	6.8E-04	6.8E-04	ST CONTENT	U-230	0.0	0.0
GONADS	NP-234	9.6E-03	9.6E-03	9.6E-03	9.6E-03	ST CONTENT	NP-234	4.1E-15	4.1E-15
GONADS	PU-238	4.8E-02	4.8E-02	4.8E-02	4.8E-02	ST CONTENT	PU-238	1.9E-11	1.9E-11
GONADS	TH-226	6.8E-04	6.8E-04	6.8E-04	6.8E-04	ST CONTENT	TH-226	0.0	0.0
GONADS	U-234	5.9E-06	5.9E-06	5.9E-06	5.9E-06	ST CONTENT	U-234	0.0	0.0
GONADS	RA-222	6.8E-04	6.8E-04	6.8E-04	6.8E-04	ST CONTENT	RA-222	0.0	0.0
GONADS	TH-230	1.1E-09	1.1E-09	1.1E-09	1.1E-09	ST CONTENT	TH-230	0.0	0.0
GONADS	RN-218	6.8E-04	6.8E-04	6.8E-04	6.8E-04	ST CONTENT	RN-218	0.0	0.0
GONADS	RA-226	6.8E-12	6.8E-12	6.8E-12	6.8E-12	ST CONTENT	RA-226	0.0	0.0
GONADS	RN-222	6.6E-14	6.6E-14	6.6E-14	6.6E-14	ST CONTENT	RN-222	0.0	0.0
GONADS	PO-218	6.6E-14	6.6E-14	6.6E-14	6.6E-14	ST CONTENT	PO-218	0.0	0.0
GONADS	PB-214	6.6E-14	6.6E-14	6.6E-14	6.6E-14	ST CONTENT	PB-214	0.0	0.0
GONADS	BI-210	6.8E-12	6.8E-12	6.8E-12	6.8E-12	ST CONTENT	BI-210	0.0	0.0
GONADS	PO-210	6.8E-12	6.8E-12	6.8E-12	6.8E-12	ST CONTENT	PO-210	0.0	0.0
GONADS	TL-206	1.4E-15	1.4E-15	1.4E-15	1.4E-15	ST CONTENT	TL-206	0.0	0.0
GONADS	PB-210	7.8E-04	7.8E-04	7.8E-04	7.8E-04	ST CONTENT	PB-210	0.0	0.0
GONADS	HG-206	0.0	0.0	0.0	0.0	ST CONTENT	HG-206	0.0	0.0
GONADS	BI-210	6.4E-06	6.4E-06	6.4E-06	6.4E-06	ST CONTENT	BI-210	0.0	0.0
GONADS	TL-206	0.0	0.0	0.0	0.0	ST CONTENT	TL-206	0.0	0.0
GONADS	PO-210	6.4E-06	6.4E-06	6.4E-06	6.4E-06	ST CONTENT	PO-210	0.0	0.0

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SI	CONTENT	CM-238	5.2E+03	3.6E+02	LLI	CONTENT	CM-238	8.2E+02	5.8E+01
SI	CONTENT	PU-234	1.9E+02	5.2E+01	LLI	CONTENT	PU-234	3.6E+02	6.5E+01
SI	CONTENT	AM-238	4.0E+03	4.9E+02	LLI	CONTENT	AM-238	1.5E+03	1.2E+02
SI	CONTENT	U-230	6.8E-02	1.1E-01	LLI	CONTENT	U-230	2.0E+00	9.6E-01
SI	CONTENT	NP-234	5.0E+00	7.0E+00	LLI	CONTENT	NP-234	1.3E+02	5.3E+01
SI	CONTENT	PU-238	1.7E-02	1.9E-02	LLI	CONTENT	PU-238	2.4E-01	1.2E-01
SI	CONTENT	TH-226	5.8E-02	1.1E-01	LLI	CONTENT	TH-226	2.0E+00	9.5E-01
SI	CONTENT	U-234	6.6E-09	1.9E-07	LLI	CONTENT	U-234	1.4E-06	1.8E-06
SI	CONTENT	RA-222	5.8E-02	1.1E-01	LLI	CONTENT	RA-222	2.0E+00	9.5E-01
SI	CONTENT	TH-230	2.8E-17	2.6E-13	LLI	CONTENT	TH-230	4.1E-14	1.6E-12
SI	CONTENT	RN-218	5.8E-02	1.1E-01	LLI	CONTENT	RN-218	2.0E+00	9.5E-01
SI	CONTENT	RA-226	5.5E-24	2.2E-17	LLI	CONTENT	RA-226	5.3E-20	1.3E-16
SI	CONTENT	RN-222	1.6E-25	2.0E-17	LLI	CONTENT	RN-222	8.4E-21	1.2E-16
SI	CONTENT	PO-218	1.6E-25	2.0E-17	LLI	CONTENT	PO-218	8.4E-21	1.2E-16
SI	CONTENT	PB-214	1.4E-25	2.0E-17	LLI	CONTENT	PB-214	8.2E-21	1.2E-16
SI	CONTENT	BI-214	1.2E-25	2.0E-17	LLI	CONTENT	BI-214	8.0E-21	1.2E-16
SI	CONTENT	PO-214	5.8E-02	1.1E-01	LLI	CONTENT	PO-214	2.0E+00	9.5E-01
SI	CONTENT	TL-210	2.4E-29	4.1E-21	LLI	CONTENT	TL-210	1.6E-24	2.5E-20
SI	CONTENT	PB-210	8.4E-07	8.2E-05	LLI	CONTENT	PB-210	2.3E-04	6.1E-04
SI	CONTENT	HG-206	0.0	0.0	LLI	CONTENT	HG-206	0.0	0.0
SI	CONTENT	BI-210	1.9E-08	6.8E-05	LLI	CONTENT	BI-210	3.2E-05	4.4E-04
SI	CONTENT	TL-206	0.0	0.0	LLI	CONTENT	TL-206	0.0	0.0
SI	CONTENT	PO-210	1.6E-11	1.8E-05	LLI	CONTENT	PO-210	1.7E-07	1.1E-04
ULI	CONTENT	CM-238	3.5E+03	2.5E+02	CORT	BONE	CM-238	4.7E-01	8.4E+01
ULI	CONTENT	PU-234	4.8E+02	9.6E+01	CORT	BONE	PU-234	1.7E-01	1.5E+01
ULI	CONTENT	AM-238	4.7E+03	4.3E+02	CORT	BONE	AM-238	7.5E-01	9.9E+01
ULI	CONTENT	U-230	7.3E-01	4.7E-01	CORT	BONE	U-230	1.7E-02	1.4E+00
ULI	CONTENT	NP-234	5.0E+01	2.8E+01	CORT	BONE	NP-234	2.6E-01	1.9E+01
ULI	CONTENT	PU-238	1.1E-01	6.5E-02	CORT	BONE	PU-238	6.0E-01	7.3E+01
ULI	CONTENT	TH-226	7.0E-01	4.6E-01	CORT	BONE	TH-226	1.7E-02	1.4E+00
ULI	CONTENT	U-234	2.3E-07	7.3E-07	CORT	BONE	U-234	6.7E-05	8.1E-03
ULI	CONTENT	RA-222	7.0E-01	4.6E-01	CORT	BONE	RA-222	1.7E-02	1.4E+00
ULI	CONTENT	TH-230	3.3E-15	8.5E-13	CORT	BONE	TH-230	1.2E-08	1.4E-06
ULI	CONTENT	RN-218	7.0E-01	4.6E-01	CORT	BONE	RN-218	1.7E-02	1.4E+00
ULI	CONTENT	RA-226	2.1E-21	7.2E-17	CORT	BONE	RA-226	7.4E-11	8.2E-09
ULI	CONTENT	RN-222	1.9E-22	6.7E-17	CORT	BONE	RN-222	7.4E-11	8.2E-09
ULI	CONTENT	PO-218	1.9E-22	6.7E-17	CORT	BONE	PO-218	7.4E-11	8.2E-09
ULI	CONTENT	PB-214	1.8E-22	6.7E-17	CORT	BONE	PB-214	7.4E-11	8.2E-09
ULI	CONTENT	BI-214	1.7E-22	6.6E-17	CORT	BONE	BI-214	7.4E-11	8.2E-09
ULI	CONTENT	PO-214	7.0E-01	4.6E-01	CORT	BONE	PO-214	1.7E-02	1.4E+00
ULI	CONTENT	TL-210	3.5E-26	1.3E-20	CORT	BONE	TL-210	1.5E-14	1.6E-12
ULI	CONTENT	PB-210	3.5E-05	2.9E-04	CORT	BONE	PB-210	1.0E-02	1.2E+00
ULI	CONTENT	HG-206	0.0	0.0	CORT	BONE	HG-206	0.0	0.0
ULI	CONTENT	BI-210	2.5E-06	2.3E-04	CORT	BONE	BI-210	1.0E-02	1.2E+00
ULI	CONTENT	TL-206	0.0	0.0	CORT	BONE	TL-206	0.0	0.0
ULI	CONTENT	PO-210	6.8E-09	5.9E-05	CORT	BONE	PO-210	1.0E-02	1.2E+00

(Continued)

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WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-238

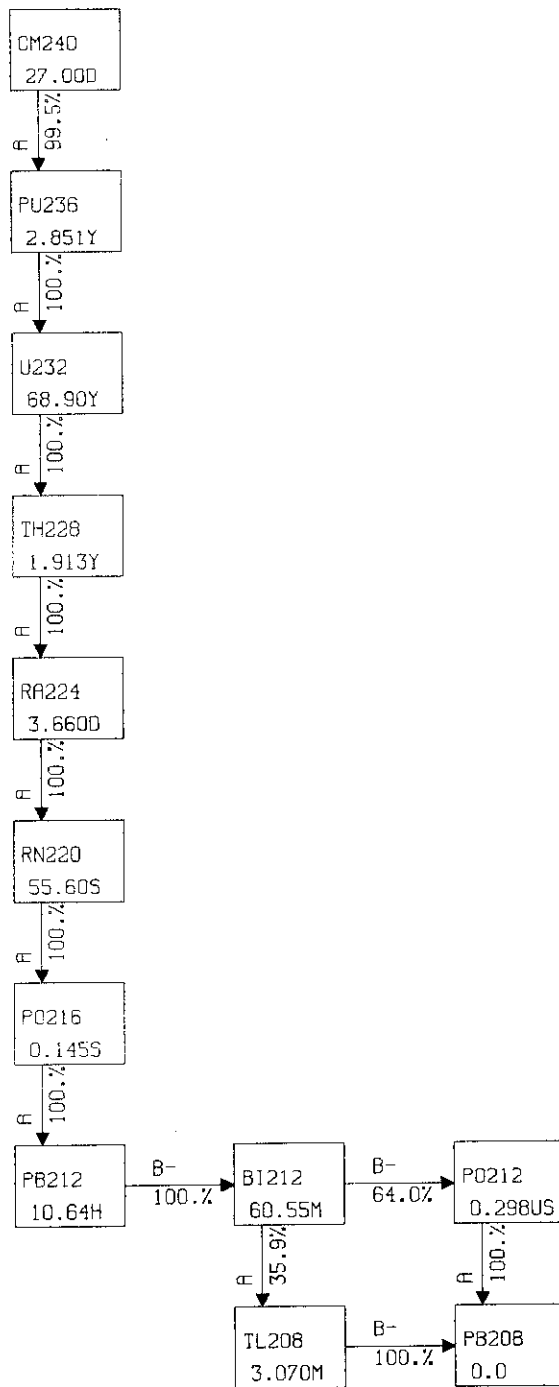
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS	LUNGS
1.5E-11	1.0E-09 A
ST WALL	BONE SURF
1.1E-11	2.0E-10 B
SI WALL	
1.8E-11	
ULI WALL	
2.6E-11 A	
LLI WALL	
1.2E-11	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-238

ALI (Bq)	INHALATION	INHALATION
ORAL	INHALATION	CLASS W
f1=1.E-03	f1=1.E-03	f1=1.E-03
6.E+08	4.E+07	2.E+04

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-238

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS	LUNGS
5.9E-11	8.7E-09 A (0, 9, 91)
ST WALL	BONE SURF
1.8E-10	6.7E-09 B (28, 37, 35)
SI WALL	
3.0E-10	
ULI WALL	
4.3E-10 A	
LLI WALL	
2.0E-10	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-240

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E+01	1.5E-12	1.1E-10	3.3E-10	9.6E-12	7.7E-12	7.7E-12
R MARROW	5.2E-11	2.1E-11	3.2E-11	5.8E-11	1.7E-11	3.6E-11	4.2E-02
LUNGS	1.5E-12	1.3E-01	3.6E-12	2.0E-12	1.5E-11	1.6E-11	1.6E-11
BONE SURF	7.6E-12	1.6E-11	2.1E-11	1.0E-11	1.1E-11	2.6E-01	2.6E-01
ULI WALL	2.0E-10	4.1E-12	2.8E-03	7.4E-11	4.1E-11	6.4E-12	6.4E-12
LLI WALL	2.8E-10	1.5E-12	5.6E-11	4.6E-03	4.3E-12	1.3E-11	1.3E-11
LIVER	9.6E-12	1.5E-11	3.3E-11	5.1E-12	7.1E-02	1.1E-11	1.1E-11

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-236

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.3E-11	8.0E-08	2.0E-07	7.3E-11	9.0E-10	9.0E-10
R MARROW	6.7E-09	4.5E-09	6.8E-09	2.6E-08	2.5E-09	1.8E-07	3.8E-02
LUNGS	6.8E-12	1.2E-01	3.7E-11	8.8E-12	1.1E-08	1.3E-09	1.3E-09
BONE SURF	1.6E-09	4.0E-09	1.7E-09	6.4E-09	2.5E-09	2.4E-01	2.4E-01
ULI WALL	1.6E-07	3.2E-11	2.6E-03	5.1E-08	2.2E-09	1.0E-09	1.0E-09
LLI WALL	2.1E-07	6.4E-12	1.4E-08	4.3E-03	2.6E-11	2.8E-09	2.8E-09
LIVER	7.8E-11	8.6E-09	2.3E-09	3.1E-11	6.5E-02	7.2E-10	7.2E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U-232

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.8E+00	7.2E-11	7.6E-08	1.7E-07	3.8E-10	1.2E-09	1.2E-09
R MARROW	1.0E-08	5.2E-09	8.6E-09	2.5E-08	3.4E-09	1.7E-07	3.5E-02
LUNGS	4.0E-11	1.1E-01	2.0E-10	5.3E-11	1.1E-08	1.8E-09	1.8E-09
BONE SURF	2.7E-09	4.5E-09	2.3E-09	6.4E-09	3.0E-09	2.2E-01	2.2E-01
ULI WALL	1.4E-07	1.7E-10	2.4E-03	4.7E-08	3.7E-09	1.3E-09	1.3E-09
LLI WALL	1.8E-07	4.2E-11	1.3E-08	4.0E-03	1.6E-10	3.1E-09	3.1E-09
LIVER	4.2E-10	8.6E-09	3.7E-09	1.8E-10	6.0E-02	1.1E-09	1.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	6.9E-10	1.3E-07	2.4E-07	3.3E-09	5.6E-09	5.6E-09
R MARROW	4.9E-08	1.7E-08	3.3E-08	5.5E-08	1.4E-08	1.5E-07	3.6E-02
LUNGS	4.1E-10	1.1E-01	1.8E-09	5.4E-10	2.5E-08	7.8E-09	7.8E-09
BONE SURF	1.3E-08	1.4E-08	9.8E-09	1.6E-08	1.0E-08	2.3E-01	2.3E-01
ULI WALL	1.7E-07	1.6E-09	2.5E-03	6.1E-08	2.0E-08	5.6E-09	5.6E-09
LLI WALL	2.2E-07	5.0E-10	3.0E-08	4.1E-03	1.6E-09	9.1E-09	9.1E-09
LIVER	3.8E-09	2.3E-08	2.0E-08	1.7E-09	6.1E-02	5.2E-09	5.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	4.4E-09	4.1E-07	6.8E-07	1.6E-08	2.6E-08	2.6E-08
R MARROW	1.4E-07	5.2E-08	9.8E-08	1.4E-07	4.6E-08	1.2E-07	3.8E-02
LUNGS	2.7E-09	1.2E-01	9.9E-09	3.1E-09	8.7E-08	3.4E-08	3.4E-08
BONE SURF	4.1E-08	4.1E-08	3.1E-08	4.5E-08	3.1E-08	2.4E-01	2.4E-01
ULI WALL	4.0E-07	9.0E-09	2.5E-03	1.5E-07	8.7E-08	2.6E-08	2.6E-08
LLI WALL	5.1E-07	3.7E-09	1.1E-07	4.2E-03	8.7E-09	3.7E-08	3.7E-08
LIVER	2.1E-08	8.7E-08	9.1E-08	1.0E-08	6.4E-02	2.4E-08	2.4E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E+01	2.1E-10	1.6E-08	2.1E-08	3.2E-10	1.4E-09	1.4E-09
R MARROW	4.1E-09	1.7E-09	2.8E-09	4.1E-09	1.4E-09	4.1E-09	4.2E-02
LUNGS	1.6E-10	1.3E-01	4.6E-10	1.4E-10	3.2E-09	1.3E-09	1.3E-09
BONE SURF	1.2E-09	1.3E-09	9.5E-10	1.4E-09	9.7E-10	2.6E-01	2.6E-01
ULI WALL	1.5E-08	5.1E-10	2.8E-03	5.5E-09	3.4E-09	9.4E-10	9.4E-10
LLI WALL	1.9E-08	1.1E-10	4.0E-09	4.7E-03	4.2E-10	1.3E-09	1.3E-09
LIVER	8.2E-10	3.1E-09	3.2E-09	4.6E-10	7.1E-02	9.4E-10	9.4E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-216

TARGETS	SOURCES						
	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.3E+01	0.0	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	0.0	4.5E-02
LUNGS	0.0	1.4E-01	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	2.8E-01	2.8E-01
ULI WALL	0.0	0.0	3.0E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	5.0E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	7.7E-02	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-212

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.6E-02	6.0E-08	6.2E-06	1.0E-05	2.3E-07	3.9E-07	3.9E-07
R MARROW	2.5E-06	9.0E-07	1.7E-06	2.5E-06	7.5E-07	2.2E-06	6.1E-05
LUNGS	3.6E-08	1.8E-04	1.4E-07	4.3E-08	1.3E-06	5.1E-07	5.1E-07
BONE SURF	7.2E-07	7.1E-07	5.3E-07	7.8E-07	5.3E-07	3.3E-04	3.3E-04
ULI WALL	6.1E-06	1.3E-07	4.2E-04	2.3E-06	1.3E-06	3.8E-07	3.8E-07
LLI WALL	7.9E-06	4.8E-08	1.6E-06	6.8E-04	1.2E-07	5.5E-07	5.5E-07
LIVER	2.9E-07	1.3E-06	1.4E-06	1.4E-07	1.1E-04	3.5E-07	3.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-212

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.1E+00	5.9E-08	3.2E-06	5.7E-06	2.2E-07	3.4E-07	3.4E-07
R MARROW	1.0E-06	4.3E-07	7.2E-07	1.1E-06	3.6E-07	1.2E-06	1.5E-02
LUNGS	5.2E-08	4.5E-02	1.4E-07	5.3E-08	8.4E-07	3.4E-07	3.4E-07
BONE SURF	3.1E-07	3.4E-07	2.4E-07	3.6E-07	2.5E-07	9.1E-02	9.1E-02
ULI WALL	3.7E-06	1.4E-07	2.1E-03	1.4E-06	8.2E-07	2.6E-07	2.6E-07
LLI WALL	4.7E-06	2.9E-08	1.1E-06	3.5E-03	1.1E-07	3.5E-07	3.5E-07
LIVER	2.3E-07	8.1E-07	8.5E-07	1.4E-07	2.5E-02	2.5E-07	2.5E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-208

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	6.1E-02	1.9E-06	1.1E-04	1.5E-04	6.4E-06	9.5E-06	9.5E-06
R MARROW	2.8E-05	1.2E-05	2.0E-05	2.9E-05	1.1E-05	2.9E-05	2.3E-04
LUNGS	1.9E-06	7.3E-04	4.2E-06	2.2E-06	2.3E-05	1.0E-05	1.0E-05
BONE SURF	8.9E-06	9.8E-06	7.0E-06	1.0E-05	7.4E-06	1.2E-04	1.7E-04
ULI WALL	1.0E-04	4.9E-06	1.7E-03	3.8E-05	2.3E-05	7.5E-06	7.5E-06
LLI WALL	1.3E-04	8.6E-07	2.8E-05	2.7E-03	3.7E-06	9.5E-06	9.5E-06
LIVER	7.2E-06	2.3E-05	2.5E-05	4.1E-06	5.6E-04	8.0E-06	8.0E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-212

SOURCES

TARGETS	GONADS	LUNGS	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.6E+01	0.0	0.0	0.0	0.0	0.0	0.0
R MARROW	0.0	0.0	0.0	0.0	0.0	0.0	5.9E-02
LUNGS	0.0	1.8E-01	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	3.7E-01	3.7E-01
ULI WALL	0.0	0.0	3.9E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	6.5E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	9.9E-02	0.0	0.0

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-240

ORGAN	ISOTOPE	ORAL		INHALATION		CLASS W	CONT. NO.	CONT. TYPE	ACTIVITY (Bq)
		f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03				
GONADS	CM-240	f1=1.E-01	3.7E-01	3.2E+01	LIVER	1.5E+03	CM-240	LLI CONTENT	8.3E+04
	PU-236	3.7E-01	3.7E-01	4.4E+01	LIVER	1.3E+03	PU-236	LLI CONTENT	9.7E+01
	U-232	1.4E-01	1.4E-01	1.6E+01	LIVER	2.6E+02	U-232	LLI CONTENT	3.4E-03
	TH-228	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	TH-228	LLI CONTENT	3.7E-06
	RA-224	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	RA-224	LLI CONTENT	6.2E-07
	RN-220	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	RN-220	LLI CONTENT	6.2E-07
	PO-216	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	PO-216	LLI CONTENT	6.2E-07
	PB-212	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	PB-212	LLI CONTENT	3.8E-07
	BI-212	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	BI-212	LLI CONTENT	3.6E-07
	TL-208	4.6E-02	4.6E-02	5.6E+00	LIVER	2.3E+02	TL-208	LLI CONTENT	1.3E-07
	PO-212	8.3E-02	8.3E-02	1.0E+01	LIVER	1.5E+02	PO-212	LLI CONTENT	2.3E-07
	CM-240	3.7E-01	3.7E-01	3.2E+01	LIVER	1.5E+03	CM-240	LIVER	1.3E+05
	PU-236	3.7E-01	3.7E-01	4.4E+01	LIVER	1.3E+03	PU-236	LIVER	1.6E+05
	U-232	1.4E-01	1.4E-01	1.6E+01	LIVER	2.6E+02	U-232	LIVER	3.1E+04
TH-228	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	TH-228	LIVER	2.8E+04	
RA-224	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	RA-224	LIVER	2.8E+04	
RN-220	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	RN-220	LIVER	2.8E+04	
PO-216	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	PO-216	LIVER	2.8E+04	
PB-212	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	PB-212	LIVER	2.8E+04	
BI-212	1.3E-01	1.3E-01	1.6E+01	LIVER	2.3E+02	BI-212	LIVER	2.8E+04	
TL-208	4.6E-02	4.6E-02	5.6E+00	LIVER	2.3E+02	TL-208	LIVER	2.8E+04	
PO-212	8.3E-02	8.3E-02	1.0E+01	LIVER	1.5E+02	PO-212	LIVER	1.0E+04	
CM-240	3.7E-01	3.7E-01	3.2E+01	CORT BONE	7.5E+02	CM-240	CORT BONE	6.4E+04	
PU-236	3.7E-01	3.7E-01	4.4E+01	CORT BONE	7.1E+02	PU-236	CORT BONE	8.4E+04	
U-232	1.4E-01	1.4E-01	1.6E+01	CORT BONE	2.0E+02	U-232	CORT BONE	2.4E+04	
TH-228	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	TH-228	CORT BONE	2.2E+04	
RA-224	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	RA-224	CORT BONE	2.2E+04	
RN-220	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	RN-220	CORT BONE	2.2E+04	
PO-216	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	PO-216	CORT BONE	2.2E+04	
PB-212	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	PB-212	CORT BONE	2.2E+04	
BI-212	1.3E-01	1.3E-01	1.6E+01	CORT BONE	1.9E+02	BI-212	CORT BONE	2.2E+04	
TL-208	4.6E-01	4.6E-01	8.4E-01	CORT BONE	6.7E+01	TL-208	CORT BONE	8.0E+03	
PO-212	1.5E+00	1.5E+00	1.5E+00	CORT BONE	1.2E+02	PO-212	CORT BONE	1.4E+04	
CM-240	3.7E-01	3.7E-01	3.2E+01	TRAB BONE	7.5E+02	CM-240	TRAB BONE	6.4E+04	
PU-236	3.7E-01	3.7E-01	4.4E+01	TRAB BONE	7.1E+02	PU-236	TRAB BONE	8.4E+04	
U-232	1.4E-01	1.4E-01	1.6E+01	TRAB BONE	2.0E+02	U-232	TRAB BONE	2.4E+04	
TH-228	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	TH-228	TRAB BONE	2.2E+04	
RA-224	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	RA-224	TRAB BONE	2.2E+04	
RN-220	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	RN-220	TRAB BONE	2.2E+04	
PO-216	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	PO-216	TRAB BONE	2.2E+04	
PB-212	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	PB-212	TRAB BONE	2.2E+04	
BI-212	1.3E-01	1.3E-01	1.6E+01	TRAB BONE	1.9E+02	BI-212	TRAB BONE	2.2E+04	
TL-208	2.8E-09	2.8E-09	3.3E-03	TRAB BONE	6.7E+01	TL-208	TRAB BONE	8.0E+03	
PO-212	5.1E-09	5.1E-09	5.9E-03	TRAB BONE	1.2E+02	PO-212	TRAB BONE	1.4E+04	

(Continued)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-240

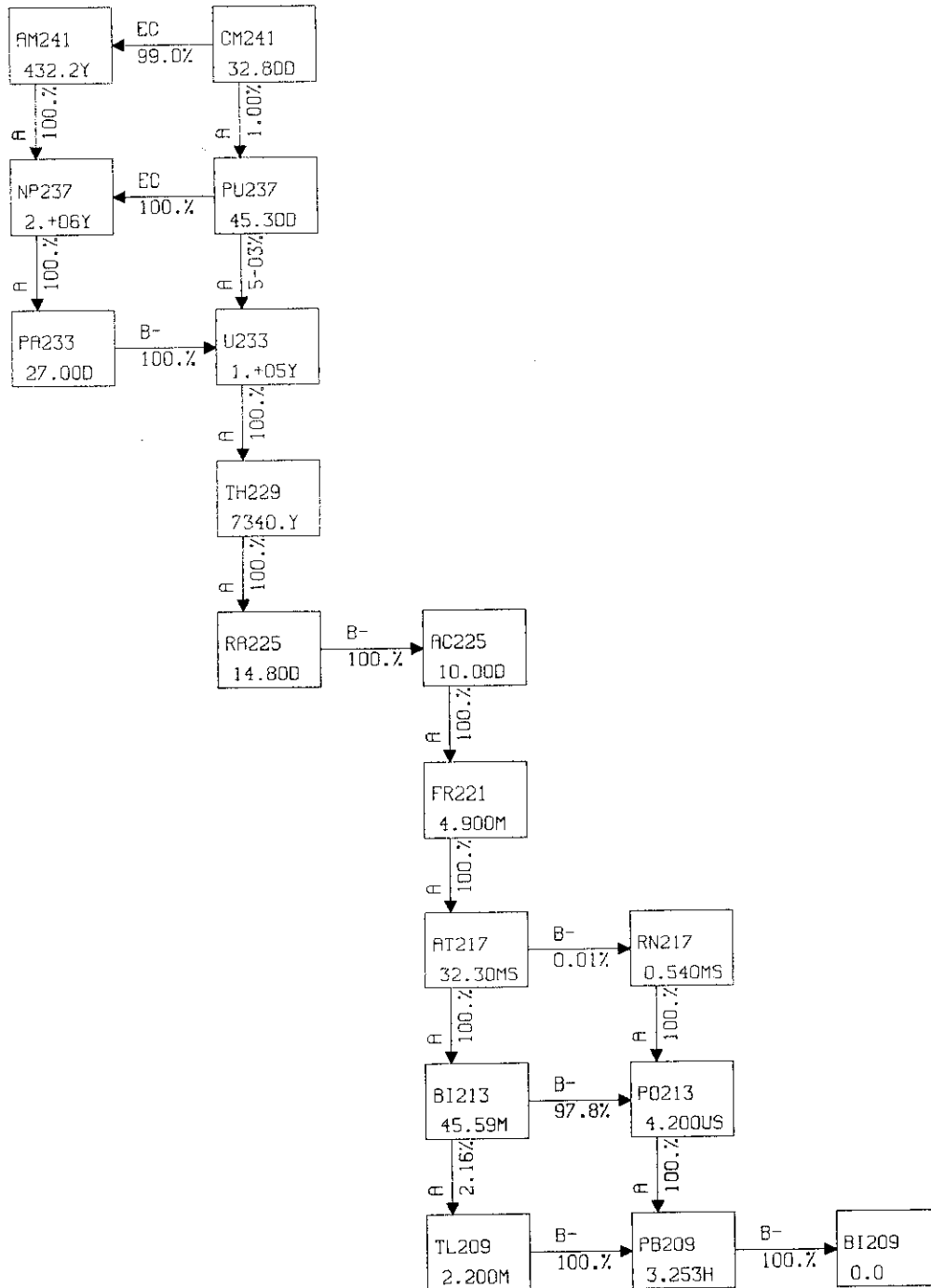
ORAL		INHALATION	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	6.9E-10	R MARROW	2.2E-07 B
R MARROW	2.0E-09 B	LUNGS	9.0E-07 A
BONE SURF	6.3E-09 AB	BONE SURF	6.9E-07 B
ULI WALL	1.2E-09	LIVER	3.0E-07
LLI WALL	3.7E-09		
LIVER	2.8E-09		

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-240

ORAL		INHALATION	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	2.7E-09	R MARROW	1.8E-06 B (28, 36, 36)
R MARROW	1.7E-08 B	LUNGS	7.5E-06 A (0, 0, 100)
BONE SURF	2.1E-07 AB	BONE SURF	2.3E-05 B (28, 36, 36)
ULI WALL	2.0E-08	LIVER	5.0E-06 (28, 38, 34)
LLI WALL	6.1E-08		
LIVER	4.6E-08		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR CM-240

ALI (Bq)		DAC (Bq/m ³)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03		CLASS W	f1=1.E-03
2.E+06 (3.E+06)	2.E+04 (2.E+04)	BONE SURF	9.E+00
BONE SURF	BONE SURF		



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-241

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E-01	2.3E-07	1.7E-05	2.2E-05	3.0E-05	4.8E-07	1.7E-06	1.7E-06
R MARROW	6.8E-06	2.6E-06	5.4E-06	4.7E-06	6.8E-06	2.2E-06	7.3E-06	4.5E-04
LUNGS	1.7E-07	1.4E-03	5.2E-07	5.5E-07	1.6E-07	4.3E-06	1.7E-06	1.7E-06
BONE SURF	2.0E-06	2.0E-06	1.7E-06	1.5E-06	2.2E-06	1.3E-06	2.6E-03	2.6E-03
SI WALL	2.1E-05	4.3E-07	2.4E-04	3.0E-05	1.7E-05	2.8E-06	1.4E-06	1.4E-06
ULI WALL	2.1E-05	5.8E-07	4.7E-05	4.1E-04	7.8E-06	4.5E-06	1.2E-06	1.2E-06
LLI WALL	2.7E-05	1.3E-07	1.3E-05	5.5E-06	6.3E-04	5.1E-07	1.7E-06	1.7E-06
LIVER	1.0E-06	4.3E-06	3.2E-06	4.4E-06	5.5E-07	7.9E-04	1.2E-06	1.2E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-237

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.2E-03	1.4E-08	2.2E-06	2.4E-06	3.7E-06	7.5E-08	1.3E-07	1.3E-07
R MARROW	1.2E-06	4.1E-07	9.3E-07	8.0E-07	1.2E-06	3.4E-07	1.4E-06	7.6E-06
LUNGS	9.3E-09	2.5E-05	3.6E-08	4.5E-08	1.3E-08	5.1E-07	1.7E-07	1.7E-07
BONE SURF	3.3E-07	3.2E-07	2.7E-07	2.4E-07	3.7E-07	2.4E-07	4.0E-05	4.0E-05
SI WALL	2.5E-06	3.2E-08	2.6E-05	3.6E-06	2.0E-06	2.9E-07	1.3E-07	1.3E-07
ULI WALL	2.6E-06	3.8E-08	7.3E-06	4.3E-05	9.4E-07	4.7E-07	1.2E-07	1.2E-07
LLI WALL	3.4E-06	8.4E-09	1.7E-06	6.5E-07	6.5E-05	3.9E-08	1.9E-07	1.9E-07
LIVER	9.1E-08	4.8E-07	3.4E-07	4.7E-07	4.0E-08	1.8E-05	1.2E-07	1.2E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	5.3E-09	1.6E-06	1.6E-06	3.2E-06	3.3E-08	7.4E-08	7.4E-08
R MARROW	9.3E-07	3.2E-07	6.7E-07	5.7E-07	1.1E-06	2.1E-07	1.6E-06	3.7E-02
LUNGS	2.3E-09	1.1E-01	1.1E-08	1.5E-08	3.2E-09	3.6E-07	1.0E-07	1.0E-07
BONE SURF	2.4E-07	2.6E-07	1.8E-07	1.6E-07	3.0E-07	1.7E-07	2.3E-01	2.3E-01
SI WALL	1.9E-06	9.2E-09	1.4E-03	2.9E-06	1.5E-06	1.4E-07	7.0E-08	7.0E-08
ULI WALL	2.1E-06	1.2E-08	7.2E-06	2.5E-03	7.2E-07	2.6E-07	6.1E-08	6.1E-08
LLI WALL	2.9E-06	2.2E-09	1.5E-06	4.0E-07	4.2E-03	9.5E-09	1.0E-07	1.0E-07
LIVER	3.2E-08	3.1E-07	1.7E-07	2.6E-07	1.2E-08	6.2E-02	5.6E-08	5.6E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-241

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
	CM-241	f1=1.E-03	f1=1.E-03
	PU-237	f1=1.E-03	f1=1.E-03
	AM-241	f1=1.E-03	f1=1.E-03
GONADS	CM-241	4.5E-01	3.9E+01
GONADS	PU-237	4.5E-03	4.6E-01
GONADS	AM-241	3.4E-02	4.1E+00
LUNGS	CM-241		4.0E+05
LUNGS	PU-237		2.1E+03
LUNGS	AM-241		1.3E+02
SI CONTENT	CM-241	1.4E+04	6.3E+03
SI CONTENT	PU-237	4.6E-01	3.9E+00
SI CONTENT	AM-241	1.3E-02	2.1E-01
ULI CONTENT	CM-241	4.6E+04	2.0E+04
ULI CONTENT	PU-237	5.3E+00	1.4E+01
ULI CONTENT	AM-241	1.5E-01	7.2E-01
LLI CONTENT	CM-241	8.3E+04	3.7E+04
LLI CONTENT	PU-237	2.2E+01	3.2E+01
LLI CONTENT	AM-241	6.4E-01	1.5E+00
LIVER	CM-241	1.8E+03	1.6E+05
LIVER	PU-237	1.8E+01	1.8E+03
LIVER	AM-241	6.7E+01	8.1E+03
CORT BONE	CM-241	9.1E+02	8.0E+04
CORT BONE	PU-237	9.2E+00	9.3E+02
CORT BONE	AM-241	5.1E+01	6.1E+03
TRAB BONE	CM-241	9.1E+02	7.9E+04
TRAB BONE	PU-237	9.2E+00	9.3E+02
TRAB BONE	AM-241	5.1E+01	6.1E+03

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-241

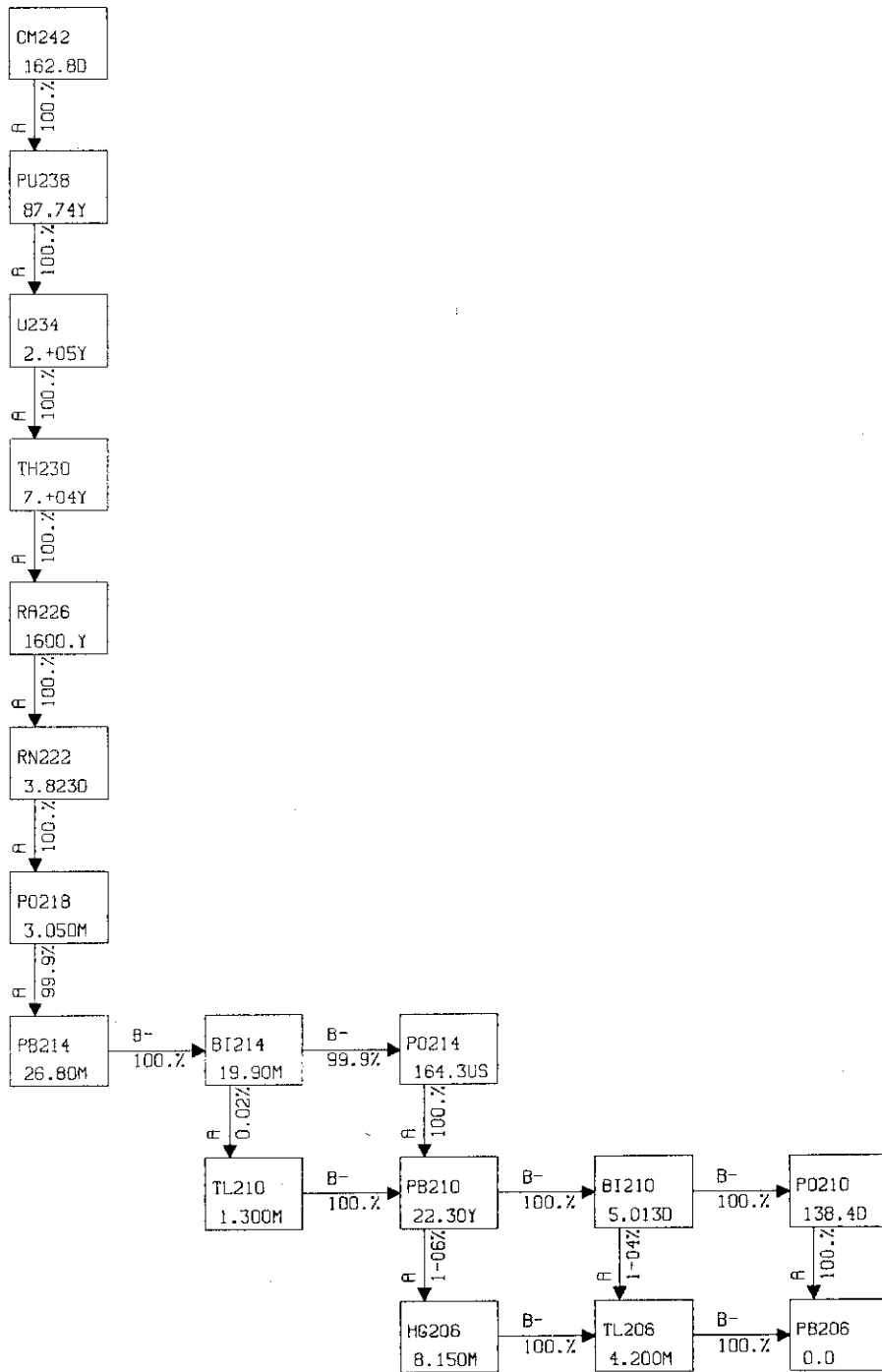
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 1.7E-10	GONADS 1.9E-09
R MARROW 6.0E-11 B	R MARROW 5.0E-09 B
BONE SURF 1.4E-10 B	LUNGS 1.1E-08
SI WALL 6.0E-11	BONE SURF 1.5E-08 AB
ULI WALL 1.9E-10	LIVER 6.0E-09
LLI WALL 5.1E-10 A	
LIVER 5.6E-11	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR CM-241

ALI (Bq)	DAC (Bq/m3)
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
4.E+07	1.E+06 (1.E+06) BONE SURF
	4.E+02

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-241

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 6.7E-10	GONADS 7.8E-09 (27, 34, 39)
R MARROW 5.0E-10 B	R MARROW 4.2E-08 B (26, 35, 39)
BONE SURF 4.5E-09 B	LUNGS 9.0E-08 (0, 0, 100)
SI WALL 9.9E-10	BONE SURF 5.1E-07 AB (26, 35, 39)
ULI WALL 3.2E-09	LIVER 1.0E-07 (27, 36, 37)
LLI WALL 8.5E-09 A	
LIVER 9.4E-10	



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-242

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-242

SOURCES		ORAL		INHALATION	
TARGETS	LLI CONTENT	ISOTOPE	CLASS W	ORGAN	CLASS W
R MARROW	4.6E-09	CM-242	f1=1.E-03	LIVER	f1=1.E-03
LUNGS	1.2E-01	PU-238	f1=1.E-03	LIVER	f1=1.E-03
BONE SURF	4.1E-09	CM-242		LUNGS	7.8E+05
LLI WALL	5.8E-12	PU-238		LUNGS	1.3E+03
LIVER	8.7E-09	CM-242	8.6E+04	LLI CONTENT	4.2E+04
		PU-238	3.2E+00	LLI CONTENT	1.3E+01
		CM-242	8.9E+03	LIVER	9.5E+05
		PU-238	1.5E+03	LIVER	1.8E+05
		CM-242	4.5E+03	CORT BONE	4.8E+05
		PU-238	1.1E+03	CORT BONE	1.3E+05
		CM-242	4.5E+03	TRAB BONE	4.8E+05
		PU-238	1.1E+03	TRAB BONE	1.3E+05

SOURCES

TARGETS	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	2.7E-08	2.5E-09	1.6E-07	4.0E-02
LUNGS	7.3E-12	1.1E-08	1.3E-09	1.3E-09
BONE SURF	6.5E-09	2.5E-09	2.5E-01	2.5E-01
LLI WALL	4.5E-03	1.9E-11	2.6E-09	2.6E-09
LIVER	2.3E-11	6.8E-02	7.0E-10	7.0E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

SOURCES		ORAL		INHALATION	
TARGETS	LLI CONTENT	ISOTOPE	CLASS W	ORGAN	CLASS W
R MARROW	3.7E-09	CM-242	f1=1.E-03	LIVER	f1=1.E-03
LUNGS	1.1E-01	PU-238	f1=1.E-03	LIVER	f1=1.E-03
BONE SURF	3.3E-09	CM-242		LUNGS	7.8E+05
LLI WALL	3.0E-12	PU-238		LUNGS	1.3E+03
LIVER	7.3E-09	CM-242	8.6E+04	LLI CONTENT	4.2E+04
		PU-238	3.2E+00	LLI CONTENT	1.3E+01
		CM-242	8.9E+03	LIVER	9.5E+05
		PU-238	1.5E+03	LIVER	1.8E+05
		CM-242	4.5E+03	CORT BONE	4.8E+05
		PU-238	1.1E+03	CORT BONE	1.3E+05
		CM-242	4.5E+03	TRAB BONE	4.8E+05
		PU-238	1.1E+03	TRAB BONE	1.3E+05

SOURCES

TARGETS	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	2.2E-08	2.0E-09	1.5E-07	3.7E-02
LUNGS	4.3E-12	9.7E-09	1.1E-09	1.1E-09
BONE SURF	5.4E-09	2.1E-09	2.3E-01	2.3E-01
LLI WALL	4.1E-03	1.3E-11	2.4E-09	2.4E-09
LIVER	1.5E-11	6.2E-02	5.8E-10	5.8E-10

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-242

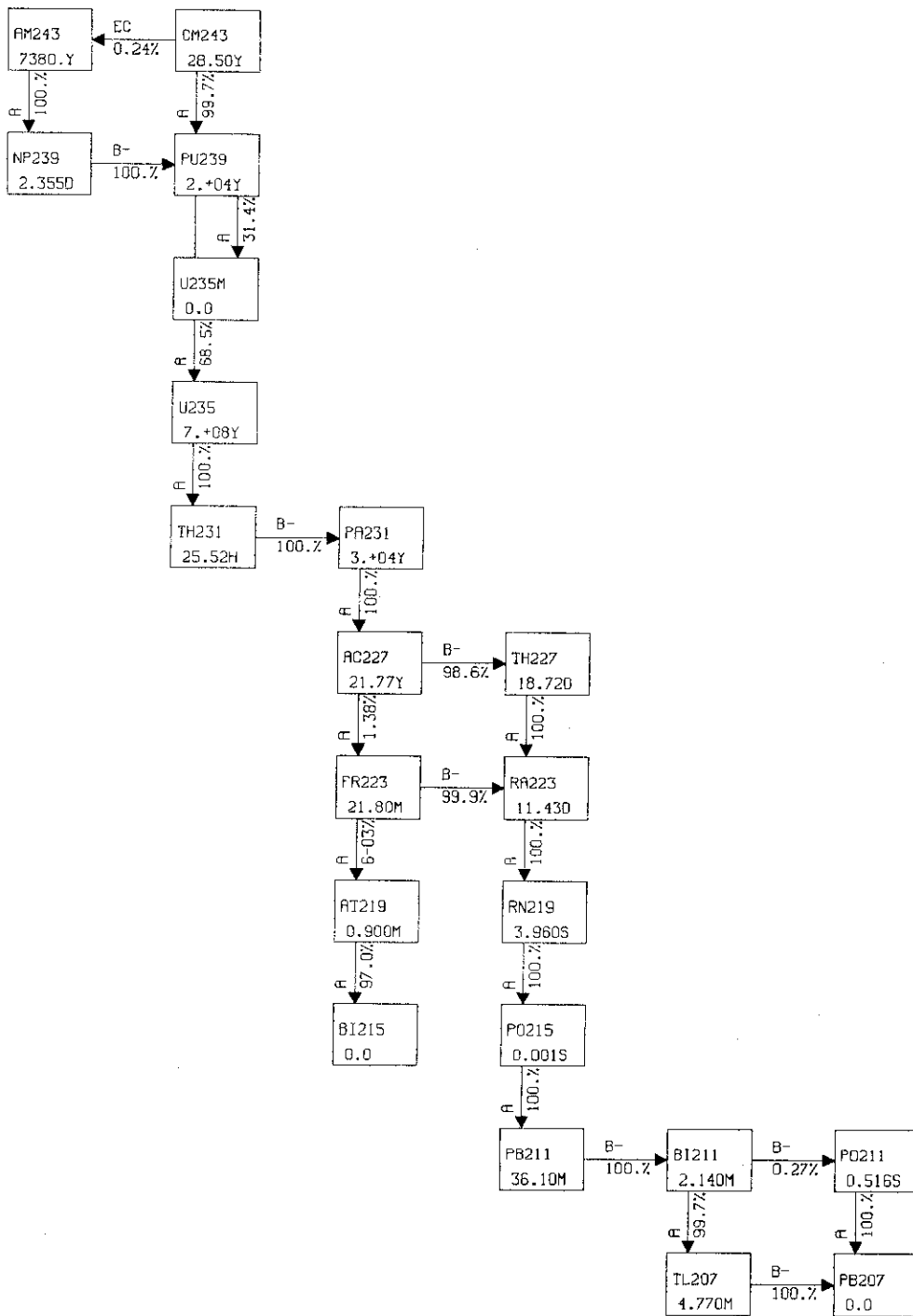
SOURCES		ORAL		INHALATION	
TARGETS	LLI CONTENT	ISOTOPE	CLASS W	ORGAN	CLASS W
R MARROW	2.7E-08	CM-242	f1=1.E-03	LIVER	f1=1.E-03
LUNGS	7.3E-12	PU-238	f1=1.E-03	LIVER	f1=1.E-03
BONE SURF	6.5E-09	CM-242		LUNGS	7.8E+05
LLI WALL	4.5E-03	PU-238		LUNGS	1.3E+03
LIVER	2.3E-11	CM-242	8.6E+04	LLI CONTENT	4.2E+04
		PU-238	3.2E+00	LLI CONTENT	1.3E+01
		CM-242	8.9E+03	LIVER	9.5E+05
		PU-238	1.5E+03	LIVER	1.8E+05
		CM-242	4.5E+03	CORT BONE	4.8E+05
		PU-238	1.1E+03	CORT BONE	1.3E+05
		CM-242	4.5E+03	TRAB BONE	4.8E+05
		PU-238	1.1E+03	TRAB BONE	1.3E+05

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-242

<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
R MARROW 4.3E-09 B	R MARROW 4.6E-07 B
BONE SURF 1.3E-08 AB	LUNGS 1.8E-06 A
LLI WALL 3.7E-09	BONE SURF 1.4E-06 B
LIVER 6.7E-09	LIVER 7.3E-07

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-242

<u>ALI (Bq)</u>	<u>DAC (Bq/m³)</u>
<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03	CLASS W f1=1.E-03
1.E+06 (2.E+06)	1.E+04 (1.E+04)
BONE SURF	BONE SURF 4.E+00



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-243

SOURCES

TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.9E-07	3.2E-07	3.2E-07
R MARROW	2.1E-06	6.3E-07	2.2E-06	3.9E-02
BONE SURF	5.9E-07	4.4E-07	2.4E-01	2.4E-01
LIVER	2.4E-07	6.6E-02	2.8E-07	2.8E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-243

ORGAN	ORAL		INHALATION	
	f1=1.E-03	CLASS W f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03
GONADS	1.0E+02	1.2E+04	1.2E+04	1.2E+04
LIVER	2.3E+05	2.7E+07	2.7E+07	2.7E+07
CORT BONE	1.6E+05	1.9E+07	1.9E+07	1.9E+07
TRAB BONE	1.6E+05	1.9E+07	1.9E+07	1.9E+07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-243

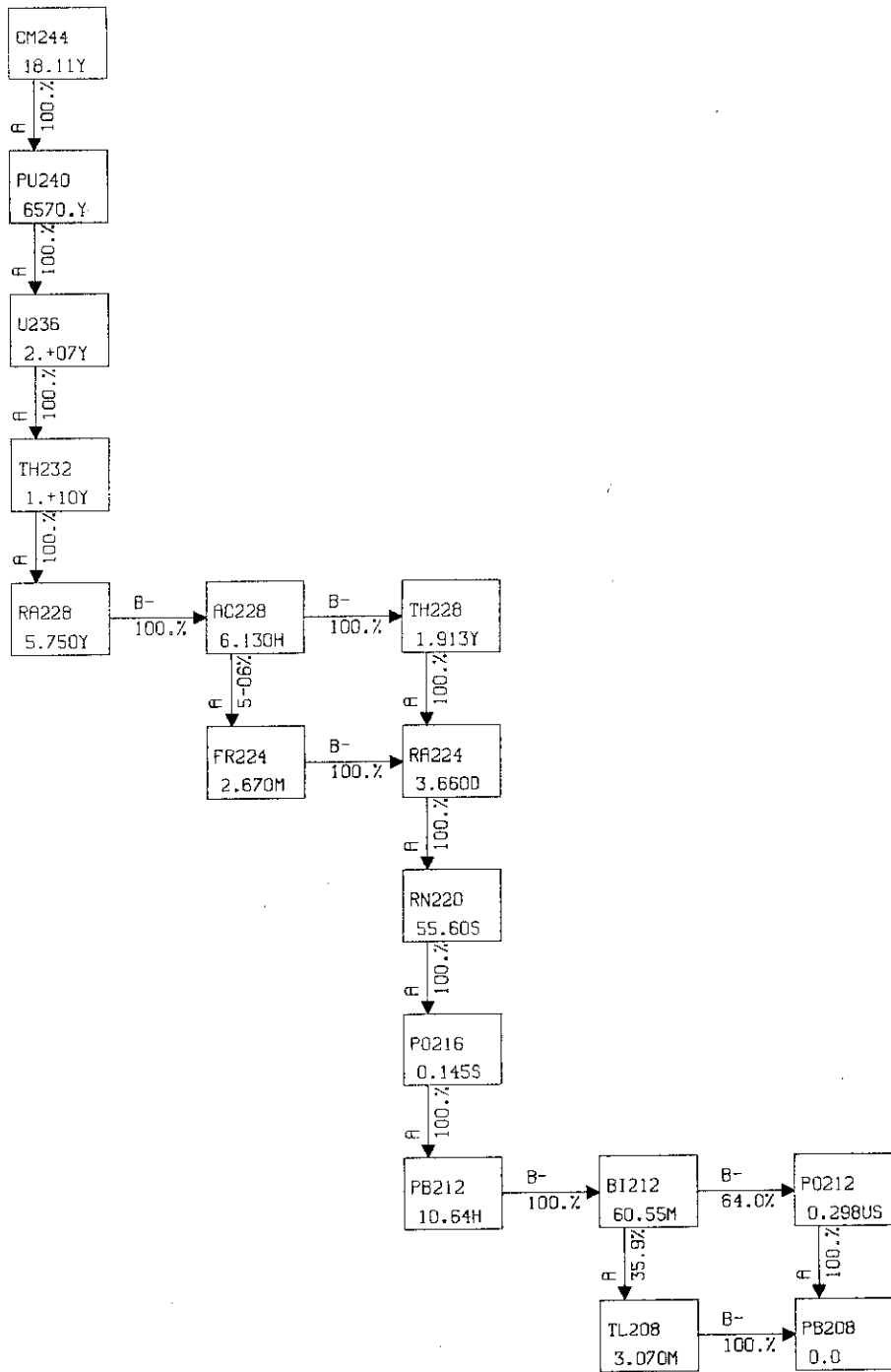
	ORAL		INHALATION	
	f1=1.E-03	CLASS W f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03
GONADS	1.7E-07	GONADS 2.1E-05 (25, 33, 42)	GONADS 2.1E-05 (25, 33, 42)	GONADS 2.1E-05 (25, 33, 42)
R MARROW	9.8E-07 B	R MARROW 1.2E-06 B (25, 33, 42)	R MARROW 1.2E-06 B (25, 33, 42)	R MARROW 1.2E-06 B (25, 33, 42)
BONE SURF	1.2E-05 AB	BONE SURF 1.5E-03 AB (25, 33, 42)	BONE SURF 1.5E-03 AB (25, 33, 42)	BONE SURF 1.5E-03 AB (25, 33, 42)
LIVER	2.4E-06	LIVER 2.9E-04 (25, 33, 42)	LIVER 2.9E-04 (25, 33, 42)	LIVER 2.9E-04 (25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-243

	ORAL		INHALATION	
	f1=1.E-03	CLASS W f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03
GONADS	4.3E-08	GONADS 5.2E-06	GONADS 5.2E-06	GONADS 5.2E-06
R MARROW	1.2E-07 B	R MARROW 1.4E-05 B	R MARROW 1.4E-05 B	R MARROW 1.4E-05 B
BONE SURF	3.7E-07 AB	BONE SURF 4.4E-05 AB	BONE SURF 4.4E-05 AB	BONE SURF 4.4E-05 AB
LIVER	1.4E-07	LIVER 1.7E-05	LIVER 1.7E-05	LIVER 1.7E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-243

	ALI (Bq)		DAC (Bq/m3)	
	ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03	f1=1.E-03	CLASS W f1=1.E-03
4.E+04 (7.E+04)	3.E+02 (6.E+02)	BONE SURF BONE SURF	3.E+02 (6.E+02)	BONE SURF BONE SURF
				1.E-01



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-244

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	1.3E-07	GONADS	1.6E-05
			(25, 33, 42)
R MARROW	7.8E-07 B	R MARROW	9.4E-05 B
			(25, 33, 42)
BONE SURF	9.8E-06 AB	BONE SURF	1.2E-03 AB
			(25, 33, 42)
LIVER	2.0E-06	LIVER	2.4E-04
			(25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-244

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	3.3E-08	GONADS	4.0E-06
R MARROW	9.4E-08 B	R MARROW	1.1E-05 B
BONE SURF	2.9E-07 AB	BONE SURF	3.5E-05 AB
LIVER	1.2E-07	LIVER	1.4E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/Hk) FOR CM-244

ALI (Bq)		DAC (Bq/m3)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	f1=1.E-03	CLASS W	f1=1.E-03
5.E+04	4.E+02		2.E-01
(9.E+04)	(B.E+02)		
BONE SURF	BONE SURF		

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-244

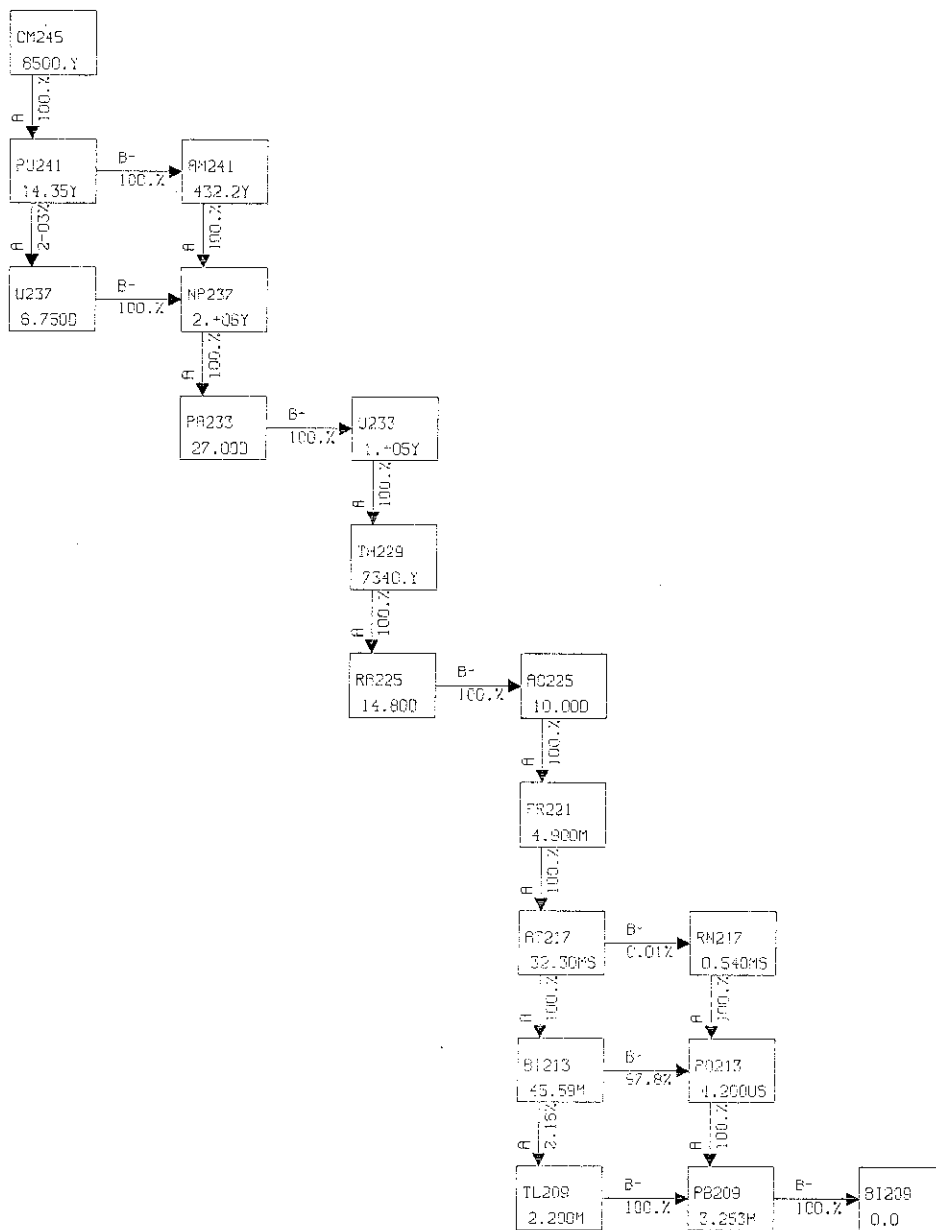
SOURCES		SOURCES	
TARGETS	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	4.2E-10	1.1E-09
R MARROW	7.9E-09	2.7E-09	1.3E-07
BONE SURF	1.7E-09	2.6E-09	2.4E-01
LIVER	4.3E-10	6.5E-02	1.0E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

SOURCES		SOURCES	
TARGETS	LIVER	CORT BONE	TRAB BONE
GONADS	9.5E+00	5.0E-11	7.2E-10
R MARROW	5.2E-09	2.0E-09	1.5E-07
BONE SURF	1.2E-09	2.0E-09	2.2E-01
LIVER	5.2E-11	5.8E-02	5.8E-10

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CM-244

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	CM-244	7.7E+01	9.3E+03		
	PU-240	2.6E-01	3.2E+01		
LIVER	CM-244	1.9E+05	2.3E+07		
	PU-240	4.1E+02	4.9E+04		
CORT BONE	CM-244	1.3E+05	1.5E+07		
	PU-240	3.6E+02	4.3E+04		
TRAB BONE	CM-244	1.3E+05	1.5E+07		
	PU-240	3.6E+02	4.3E+04		



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

TARGETS	SOURCES			
	LIVER	CORT BONE	TRAB BONE	
GONADS	1.0E+01	3.3E-08	7.4E-08	7.4E-08
R MARROW	9.3E-07	2.1E-07	1.6E-06	3.7E-02
BONE SURF	2.4E-07	1.7E-07	2.3E-01	2.3E-01
LIVER	3.2E-08	6.2E-02	5.6E-08	5.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

TARGETS	SOURCES			
	LIVER	CORT BONE	TRAB BONE	
GONADS	9.9E+00	1.6E-07	2.7E-07	2.7E-07
R MARROW	2.3E-06	6.5E-07	2.4E-06	3.6E-02
BONE SURF	6.3E-07	4.6E-07	2.2E-01	2.2E-01
LIVER	1.9E-07	6.1E-02	2.5E-07	2.5E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-245

ORGAN	ISOTOPE	CLASS W	
		ORAL	INHALATION
GONADS	CM-245	f1=1.E-03	f1=1.E-03
	PU-241	f1=1.E-03	f1=1.E-03
	U -237	f1=1.E-03	f1=1.E-03
	AM-241	f1=1.E-03	f1=1.E-03
GONADS	CM-245	1.7E+02	2.1E+04
	PU-241	1.1E+02	1.3E+04
	U -237	0.0	0.0
LIVER	CM-245	3.3E+00	4.0E+02
	PU-241	3.4E+05	4.1E+07
	U -237	1.7E+05	2.0E+07
CORT BONE	CM-245	4.1E+03	5.0E+05
	PU-241	2.6E+05	3.1E+07
	U -237	1.5E+05	1.8E+07
TRAB BONE	CM-245	4.1E+03	5.0E+05
	PU-241	2.6E+05	3.1E+07
	U -237	1.5E+05	1.8E+07
TRAB BONE	CM-245	4.1E+03	5.0E+05
	PU-241	2.6E+05	3.1E+07
	U -237	1.5E+05	1.8E+07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-241

TARGETS	SOURCES			
	LIVER	CORT BONE	TRAB BONE	
GONADS	7.0E-04	2.5E-12	4.4E-12	4.4E-12
R MARROW	3.8E-11	1.1E-11	4.3E-11	2.5E-06
BONE SURF	1.1E-11	7.7E-12	1.6E-05	1.6E-05
LIVER	3.1E-12	4.3E-06	3.9E-12	3.9E-12

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -237

TARGETS	SOURCES			
	LIVER	CORT BONE	TRAB BONE	
GONADS	1.7E-02	2.2E-07	3.7E-07	3.7E-07
R MARROW	3.1E-06	8.5E-07	3.0E-06	6.3E-05
BONE SURF	8.4E-07	6.1E-07	3.6E-04	3.6E-04
LIVER	2.6E-07	1.2E-04	3.3E-07	3.3E-07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-245

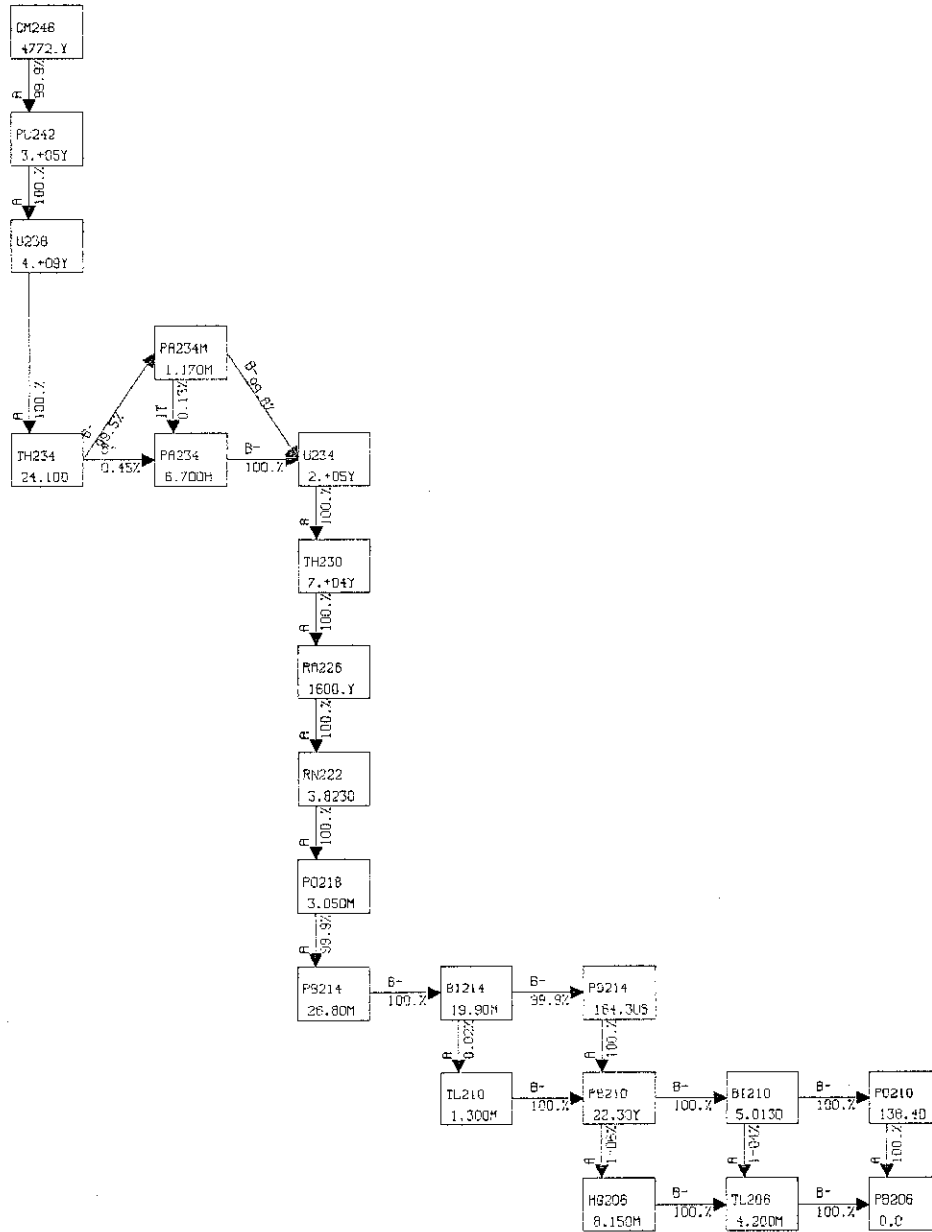
<u>ORAL</u>		<u>INHALATION</u>	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	2.8E-07	GONADS	3.4E-05
			(25, 33, 42)
R MARROW	1.5E-06 B	R MARROW	1.8E-04 B
			(25, 33, 42)
BONE SURF	1.9E-05 AB	BONE SURF	2.2E-03 AB
			(25, 33, 42)
LIVER	3.3E-06	LIVER	4.0E-04
			(25, 33, 42)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-245

<u>ORAL</u>		<u>INHALATION</u>	
f1=1.E-03		CLASS W	f1=1.E-03
GONADS	7.0E-08	GONADS	8.4E-06
R MARROW	1.8E-07 B	R MARROW	2.1E-05 B
BONE SURF	5.6E-07 AB	BONE SURF	6.7E-05 AB
LIVER	2.0E-07	LIVER	2.4E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-245

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>	
<u>ORAL</u>	<u>INHALATION</u>	<u>ORAL</u>	<u>INHALATION</u>
f1=1.E-03		CLASS W	f1=1.E-03
3.E+04	2.E+02		9.E-02
(5.E+04)	(4.E+02)		
BONE SURF	BONE SURF		



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

SOURCES

TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	3.2E+00	1.0E-02	1.8E-07	1.8E-07
R MARROW	1.1E-07	1.5E-07	3.2E-07	3.6E-02
BONE SURF	1.8E-07	9.5E-03	2.3E-01	2.3E-01
LIVER	9.7E-09	6.1E-02	9.5E-03	9.5E-03

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-246

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	2.8E-07	GONADS	3.3E-05 (25, 33, 42)
R MARROW	1.5E-06 B	R MARROW	1.8E-04 B (25, 33, 42)
BONE SURF	1.8E-05 AB	BONE SURF	2.2E-03 AB (25, 33, 42)
LIVER	3.3E-06	LIVER	4.0E-04 (25, 33, 42)

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CM-246.

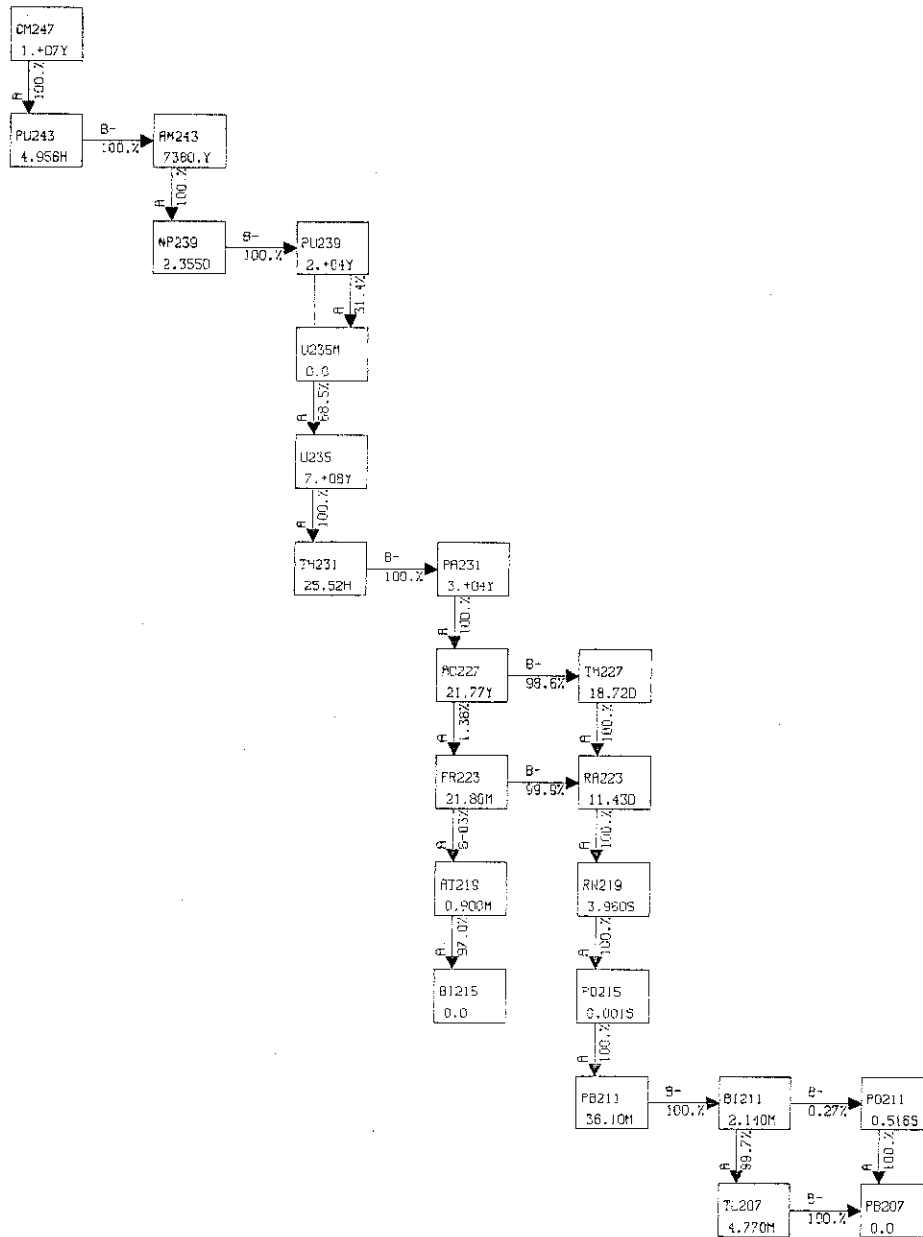
ORGAN	ORAL	INHALATION
GONADS	5.5E+02	6.6E+04
LIVER	3.4E+05	4.1E+07
CORT BONE	2.6E+05	3.1E+07
TRAB BONE	2.6E+05	3.1E+07

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-246

ORAL		INHALATION	
	f1=1.E-03	CLASS W	f1=1.E-03
GONADS	6.9E-08	GONADS	8.5E-06
R MARROW	1.8E-07 B	R MARROW	2.1E-05 B
BONE SURF	5.5E-07 AB	BONE SURF	6.7E-05 AB
LIVER	2.0E-07	LIVER	2.4E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 H_r/WK) FOR CM-246

ALI (Bq)	DAC (Bq/m ³)
ORAL	INHALATION
CLASS W	CLASS W
f1=1.E-03	f1=1.E-03
3.E+04	2.E+02
(5.E+04)	(4.E+02)
BONE SURF	BONE SURF
	9.E-02



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-247

ORGAN	ISOTOPE	ORAL		INHALATION	
		f1	f2	f1	f2
GONADS	CM-247	1.7E+02	2.1E+04	2.1E+04	2.1E+04
	PU-243	1.7E+02	2.1E+04	2.1E+04	2.1E+04
	AM-243	4.1E-01	4.9E+01	4.9E+01	4.9E+01
LIVER	CM-247	3.4E+05	4.1E+07	4.1E+07	4.1E+07
	PU-243	3.4E+05	4.1E+07	4.1E+07	4.1E+07
	AM-243	5.7E+02	6.9E+04	6.9E+04	6.9E+04
CORT BONE	CM-247	2.6E+05	3.1E+07	3.1E+07	3.1E+07
	PU-243	2.6E+05	3.1E+07	3.1E+07	3.1E+07
	AM-243	5.3E+02	6.4E+04	6.4E+04	6.4E+04
TRAB BONE	CM-247	2.6E+05	3.1E+07	3.1E+07	3.1E+07
	PU-243	2.6E+05	3.1E+07	3.1E+07	3.1E+07
	AM-243	5.3E+02	6.4E+04	6.4E+04	6.4E+04

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-247

ORGAN	ORAL		INHALATION	
	f1	f2	f1	f2
GONADS	1.1E-03	1.1E-03	1.1E-03	1.1E-03
	2.6E-07	2.6E-07	3.1E-05	3.1E-05
R MARROW	1.4E-06 B	1.4E-06 B	1.6E-04 B	1.6E-04 B
	1.4E-06 B	1.4E-06 B	1.6E-04 B	1.6E-04 B
BONE SURF	1.7E-05 AB	1.7E-05 AB	2.0E-03 AB	2.0E-03 AB
	1.7E-05 AB	1.7E-05 AB	2.0E-03 AB	2.0E-03 AB
LIVER	3.0E-06	3.0E-06	3.6E-04	3.6E-04
	3.0E-06	3.0E-06	3.6E-04	3.6E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-247
IN SOURCE ORGANS OR TISSUES PER INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-247

TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	9.1E+00	3.3E-07	1.0E-06	1.0E-06
R MARROW	3.8E-06	1.3E-06	3.5E-06	3.3E-02
BONE SURF	1.1E-06	8.7E-07	2.1E-01	2.1E-01
LIVER	6.6E-07	5.6E-02	7.6E-07	7.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-243

TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	1.6E-02	3.5E-08	7.1E-08	7.1E-08
R MARROW	6.9E-07	1.8E-07	7.2E-07	5.9E-05
BONE SURF	1.8E-07	1.3E-07	3.6E-04	3.6E-04
LIVER	4.2E-08	1.0E-04	5.9E-08	5.9E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-243

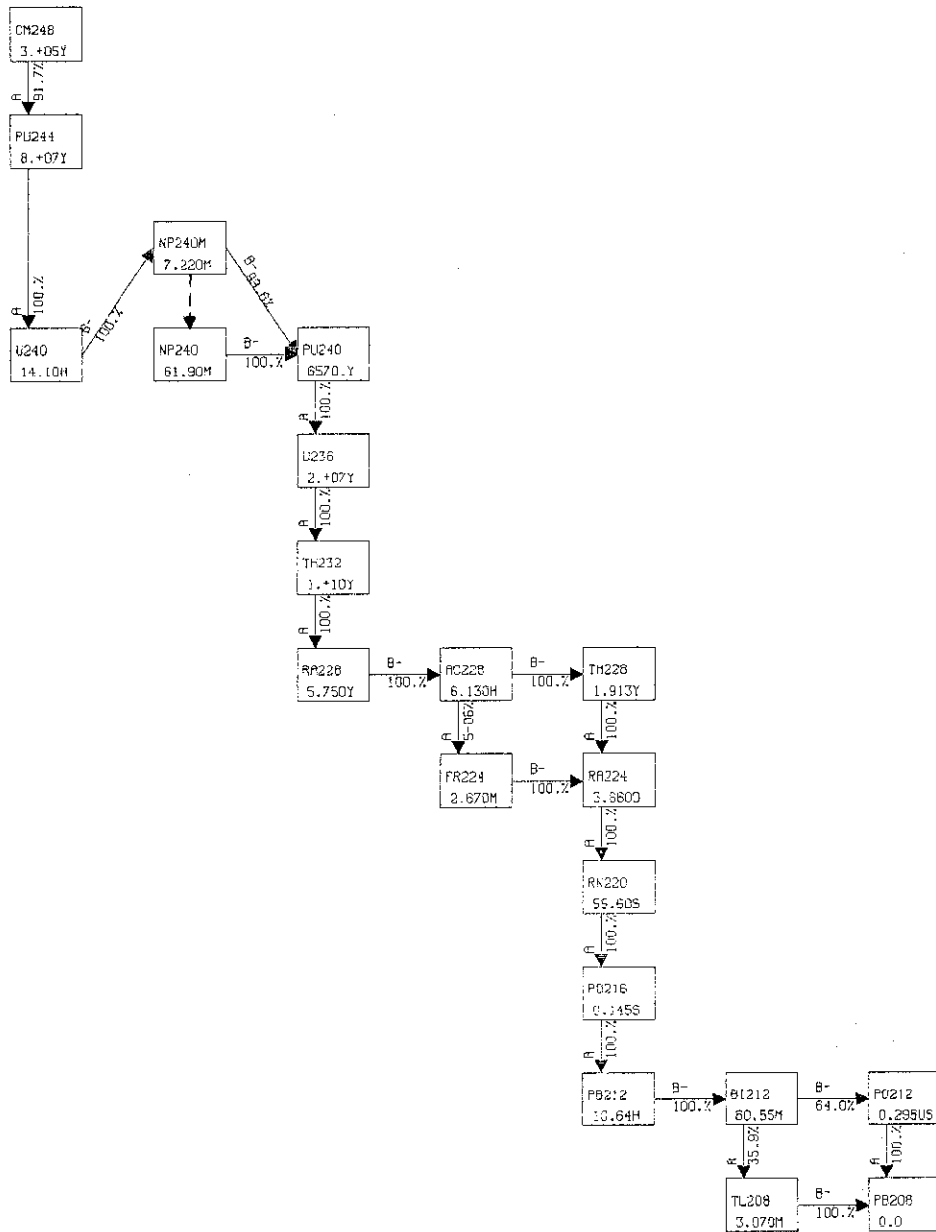
TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	9.7E+00	7.4E-08	1.5E-07	1.5E-07
R MARROW	1.7E-06	4.0E-07	1.6E-06	3.5E-02
BONE SURF	4.5E-07	3.1E-07	2.2E-01	2.2E-01
LIVER	7.9E-08	6.0E-02	1.2E-07	1.2E-07

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-247

ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
GONADS 6.4E-08	GONADS 7.7E-06
R MARROW 1.6E-07 B	R MARROW 2.0E-05 B
BONE SURF 5.1E-07 AB	BONE SURF 6.1E-05 AB
LIVER 1.8E-07	LIVER 2.2E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR CM-247

ALI (Bq)	DAC (Bq/m3)
ORAL	INHALATION
f1=1.E-03	CLASS W f1=1.E-03
3.E+04 (5.E+04)	2.E+02 (5.E+02)
BONE SURF	BONE SURF
	1.E-01



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-248

SOURCES

TARGETS	GONADS	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	3.5E-06	6.1E-05	6.1E-05
R MARROW	3.6E-05	5.1E-05	1.1E-04	1.3E-01
BONE SURF	6.1E-05	3.2E-05	8.2E-01	8.2E-01
LIVER	3.3E-06	2.2E-01	3.2E-05	3.2E-05

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-248

ORAL		INHALATION	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
GONADS	1.0E-06	GONADS	1.2E-04
R MARROW	5.4E-06 B	R MARROW	6.5E-04 B
BONE SURF	6.7E-05 AB	BONE SURF	8.1E-03 AB
LIVER	1.2E-05	LIVER	1.4E-03

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CM-248

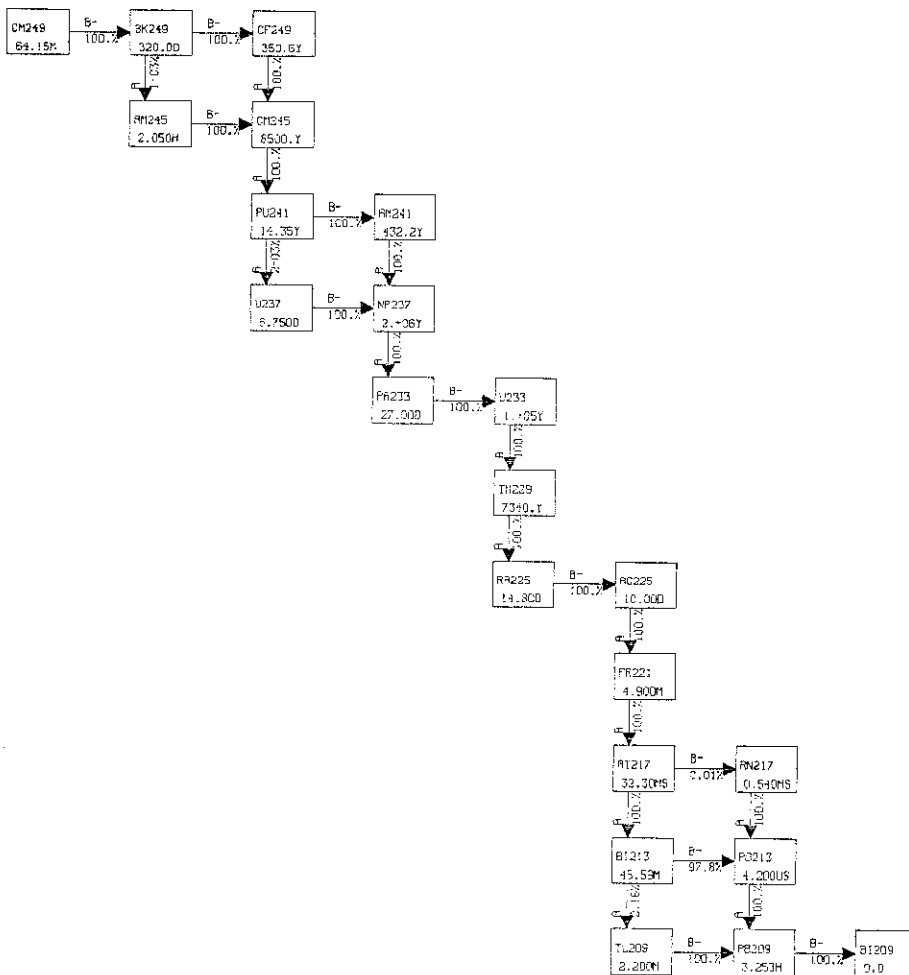
ORGAN	ORAL	INHALATION
GONADS	5.5E+02	6.6E+04
LIVER	3.4E+05	4.1E+07
CORT BONE	2.6E+05	3.1E+07
TRAB BONE	2.6E+05	3.1E+07

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-248

ORAL		INHALATION	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
GONADS	2.5E-07	GONADS	3.0E-05
R MARROW	6.5E-07 B	R MARROW	7.8E-05 B
BONE SURF	2.0E-06 AB	BONE SURF	2.4E-04 AB
LIVER	7.2E-07	LIVER	8.7E-05

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-248

ALI (Bq)		DAC (Bq/m ³)	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
7.E+03 (1.E+04)	6.E+01 (1.E+02)	7.E+03 (1.E+04)	6.E+01 (1.E+02)
BONE SURF	BONE SURF	BONE SURF	BONE SURF



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-249

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.5E-02	1.0E-08	4.5E-08	6.0E-07	7.6E-07	2.0E-08	6.8E-08	6.8E-08
R MARROW	2.1E-07	8.4E-08	6.9E-08	1.7E-07	1.4E-07	7.1E-08	2.1E-07	9.3E-05
LUNGS	7.8E-09	2.8E-04	1.2E-07	2.2E-08	2.3E-08	1.6E-07	6.4E-08	6.4E-08
BONE SURF	6.2E-08	6.6E-08	4.0E-08	5.3E-08	4.8E-08	4.9E-08	5.4E-05	7.7E-05
ST WALL	5.3E-08	1.2E-07	5.6E-04	2.2E-07	2.3E-07	1.2E-07	3.8E-08	3.8E-08
SI WALL	7.6E-07	1.8E-08	1.7E-07	3.5E-04	1.1E-06	1.0E-07	5.3E-08	5.3E-08
ULI WALL	7.1E-07	2.5E-08	2.1E-07	1.5E-06	6.4E-04	1.6E-07	4.7E-08	4.7E-08
LIVER	4.0E-08	1.5E-07	1.3E-07	1.2E-07	1.6E-07	1.6E-04	4.6E-08	4.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.1E-03	6.7E-14	4.1E-13	6.6E-12	5.7E-12	3.0E-13	3.9E-13	3.9E-13
R MARROW	2.3E-12	8.7E-13	7.0E-13	1.8E-12	1.5E-12	7.3E-13	1.8E-12	1.2E-05
LUNGS	5.4E-14	3.5E-05	1.3E-12	1.6E-13	1.6E-13	1.0E-12	6.0E-13	6.0E-13
BONE SURF	5.1E-13	6.7E-13	3.6E-13	4.5E-13	6.9E-13	4.8E-13	7.2E-05	7.2E-05
ST WALL	5.2E-13	1.4E-12	6.6E-05	2.2E-12	2.4E-12	1.2E-12	3.2E-13	3.2E-13
SI WALL	7.2E-12	1.5E-13	1.8E-12	4.1E-05	1.2E-11	1.1E-12	3.8E-13	3.8E-13
ULI WALL	7.4E-12	1.6E-13	2.2E-12	1.5E-11	7.5E-05	1.6E-12	3.4E-13	3.4E-13
LIVER	3.6E-13	1.0E-12	1.2E-12	1.1E-12	1.4E-12	1.9E-05	4.1E-13	4.1E-13

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-245

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.7E-02	1.2E-08	5.5E-08	1.3E-06	1.4E-06	5.0E-08	8.5E-08	8.5E-08
R MARROW	5.7E-07	2.0E-07	1.7E-07	4.5E-07	3.9E-07	1.7E-07	5.8E-07	9.7E-05
LUNGS	7.6E-09	2.9E-04	2.0E-07	2.7E-08	3.1E-08	3.0E-07	1.1E-07	1.1E-07
BONE SURF	1.6E-07	1.6E-07	9.6E-08	1.3E-07	1.2E-07	1.2E-07	1.6E-04	1.8E-04
ST WALL	9.2E-08	2.1E-07	5.9E-04	4.2E-07	4.4E-07	2.2E-07	6.4E-08	6.4E-08
SI WALL	1.4E-06	2.3E-08	3.0E-07	3.7E-04	2.0E-06	1.9E-07	8.6E-08	8.6E-08
ULI WALL	1.4E-06	2.7E-08	4.1E-07	3.4E-06	6.7E-04	2.9E-07	8.1E-08	8.1E-08
LIVER	6.3E-08	2.9E-07	2.3E-07	2.1E-07	2.9E-07	1.7E-04	7.6E-08	7.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.6E-07	5.3E-07	1.1E-05	1.4E-05	3.7E-07	1.0E-06	1.0E-06
R MARROW	4.0E-06	1.6E-06	1.3E-06	3.3E-06	2.8E-06	1.4E-06	3.9E-06	3.9E-02
LUNGS	1.1E-07	1.2E-01	2.0E-06	3.4E-07	3.5E-07	2.8E-06	1.1E-06	1.1E-06
BONE SURF	1.2E-06	1.2E-06	7.5E-07	1.0E-06	9.2E-07	9.3E-07	2.4E-01	2.4E-01
ST WALL	9.3E-07	2.1E-06	2.5E-03	4.0E-06	4.2E-06	2.2E-06	6.6E-07	6.6E-07
SI WALL	1.4E-05	2.8E-07	3.0E-06	1.5E-03	1.9E-05	1.8E-06	8.9E-07	8.9E-07
ULI WALL	1.3E-05	3.6E-07	3.9E-06	2.8E-05	2.7E-03	2.9E-06	8.1E-07	8.1E-07
LIVER	6.8E-07	2.8E-06	2.3E-06	2.1E-06	2.9E-06	6.6E-02	7.8E-07	7.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

TARGETS	SOURCES							
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	9.9E+00	3.2E-08	1.9E-07	4.3E-06	4.7E-06	1.6E-07	2.7E-07	2.7E-07
R MARROW	2.3E-06	7.7E-07	6.4E-07	1.8E-06	1.5E-06	6.5E-07	2.4E-06	3.6E-02
LUNGS	2.1E-08	1.1E-01	6.6E-07	7.8E-08	9.6E-08	1.0E-06	3.5E-07	3.5E-07
BONE SURF	6.3E-07	6.1E-07	3.6E-07	5.2E-07	4.6E-07	4.6E-07	2.2E-01	2.2E-01
ST WALL	3.0E-07	7.0E-07	2.3E-03	1.4E-06	1.5E-06	6.9E-07	2.1E-07	2.1E-07
SI WALL	4.9E-06	6.8E-08	1.0E-06	1.5E-03	7.0E-06	6.1E-07	2.7E-07	2.7E-07
ULI WALL	4.8E-06	8.1E-08	1.4E-06	1.3E-05	2.6E-03	9.6E-07	2.5E-07	2.5E-07
LIVER	1.9E-07	9.5E-07	7.6E-07	6.9E-07	9.7E-07	6.1E-02	2.5E-07	2.5E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CM-249

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=1.E-03	CLASS W f1=1.E-03
	CM-249	f1=1.E-03	f1=1.E-03
	BK-249	f1=1.E-03	f1=1.E-03
	AM-245	f1=1.E-03	f1=1.E-03
	CF-249	f1=1.E-03	f1=1.E-03
	CM-245	f1=1.E-03	f1=1.E-03
GONADS	CM-249	1.4E-04	4.8E-02
GONADS	BK-249	6.1E-04	6.9E-02
GONADS	AM-245	0.0	0.0
GONADS	CF-249	5.6E-05	6.8E-03
GONADS	CM-245	1.2E-07	1.4E-05
LUNGS	CM-249		1.6E+03
LUNGS	BK-249		1.2E+02
LUNGS	AM-245		0.0
LUNGS	CF-249		5.1E-02
LUNGS	CM-245		8.8E-07
ST CONTENT	CM-249	2.2E+03	7.7E+01
ST CONTENT	BK-249	2.0E-01	2.4E-01
ST CONTENT	AM-245	0.0	0.0
ST CONTENT	CF-249	4.4E-08	1.8E-05
ST CONTENT	CM-245	4.1E-16	2.7E-10
SI CONTENT	CM-249	2.4E+03	8.5E+01
SI CONTENT	BK-249	1.7E+00	9.8E-01
SI CONTENT	AM-245	0.0	0.0
SI CONTENT	CF-249	1.7E-06	7.2E-05
SI CONTENT	CM-245	6.4E-14	1.1E-09
ULI CONTENT	CM-249	8.4E+02	2.9E+01
ULI CONTENT	BK-249	6.4E+00	3.2E+00
ULI CONTENT	AM-245	0.0	0.0
ULI CONTENT	CF-249	2.4E-05	2.4E-04
ULI CONTENT	CM-245	3.1E-12	3.6E-09
LIVER	CM-249	8.4E-02	2.9E+01
LIVER	BK-249	2.4E+00	2.7E+02
LIVER	AM-245	0.0	0.0
LIVER	CF-249	1.0E-01	1.3E+01
LIVER	CM-245	1.5E-04	1.9E-02
CORT BONE	CM-249	7.7E-02	2.6E+01
CORT BONE	BK-249	1.2E+00	1.4E+02
CORT BONE	AM-245	0.0	0.0
CORT BONE	CF-249	8.1E-02	9.9E+00
CORT BONE	CM-245	1.5E-04	1.8E-02
TRAB BONE	CM-249	3.2E-02	1.1E+01
TRAB BONE	BK-249	1.2E+00	1.4E+02
TRAB BONE	AM-245	0.0	0.0
TRAB BONE	CF-249	8.1E-02	9.9E+00
TRAB BONE	CM-245	1.5E-04	1.8E-02

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-249

ORAL		INHALATION	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
ST WALL	1.2E-11 A	GONADS	3.0E-12
SI WALL	8.2E-12	R MARROW	7.5E-12 B
ULI WALL	5.2E-12	LUNGS	8.8E-12
		BONE SURF	2.3E-11 AB
		LIVER	8.3E-12

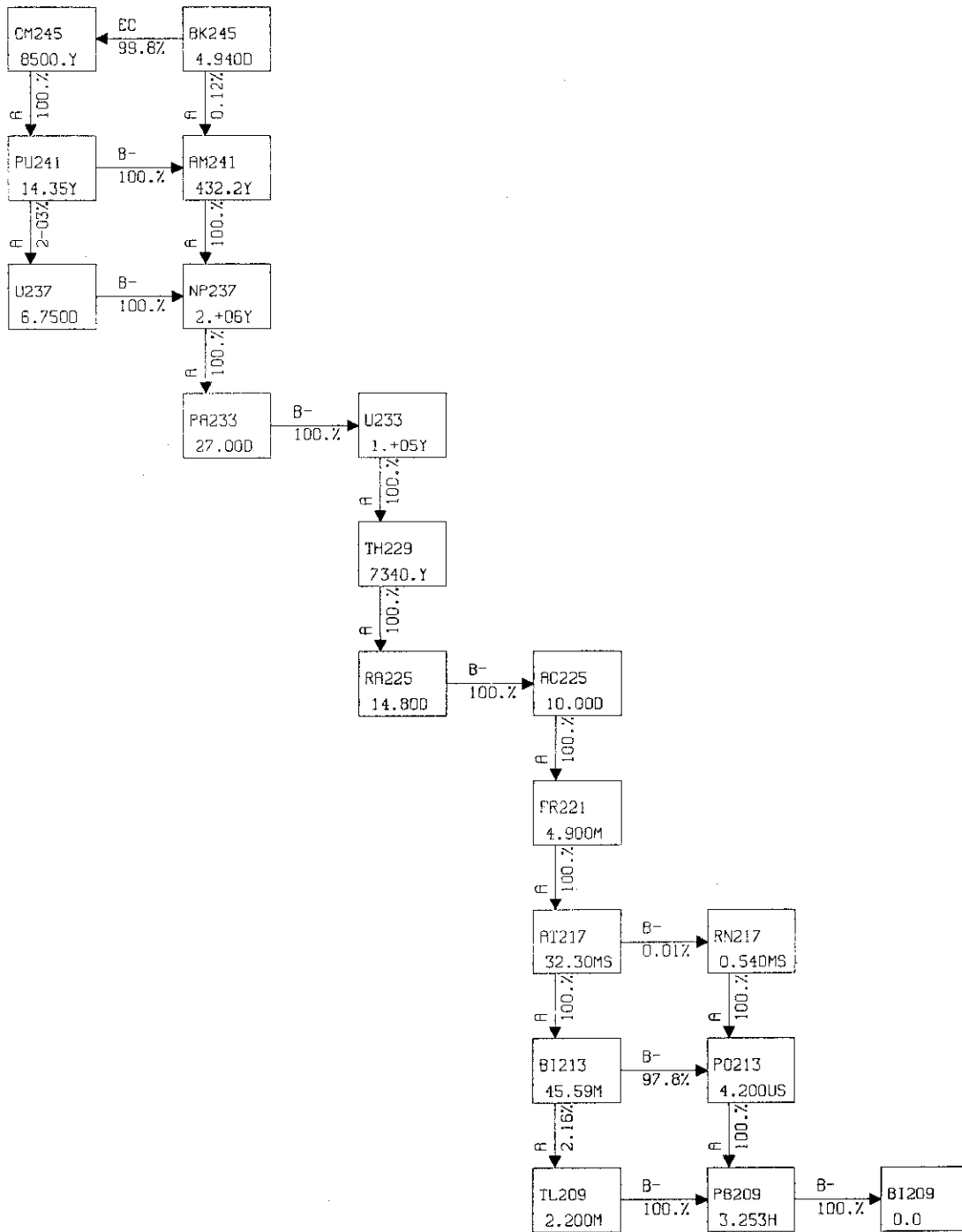
COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CM-249

ORAL		INHALATION	
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
ST WALL	2.0E-10 A	GONADS	1.2E-11 (25, 34, 41)
SI WALL	1.4E-10	R MARROW	6.2E-11 B (25, 33, 42)
ULI WALL	8.6E-11	LUNGS	7.4E-11 (0, 14, 86)
		BONE SURF	7.8E-10 AB (25, 33, 42)
		LIVER	1.4E-10 (25, 33, 42)

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CM-249

ALI (Bq)		DAC (Bq/m3)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	CLASS W	f1=1.E-03	CLASS W
2.E+09	6.E+08 (1.E+09)	6.E+08	3.E+05
	BONE SURF		BONE SURF

Berkelium



JAERI-M 87-099

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-245

TARGETS	SOURCES					
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	8.3E-08	9.2E-06	1.0E-05	1.6E-05	6.2E-07	6.2E-07
R MARROW	1.5E-06	3.5E-06	3.0E-06	4.3E-06	4.3E-06	9.8E-05
LUNGS	3.0E-04	1.9E-07	2.2E-07	6.7E-08	8.0E-07	8.0E-07
BONE SURF	1.2E-06	1.0E-06	9.3E-07	1.4E-06	5.2E-04	5.2E-04
SI WALL	1.6E-07	2.0E-04	1.5E-05	8.3E-06	6.2E-07	6.2E-07
ULI WALL	2.0E-07	2.4E-05	3.4E-04	3.8E-06	5.8E-07	5.8E-07
LLI WALL	6.0E-08	6.7E-06	2.7E-06	5.4E-04	8.7E-07	8.7E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

TARGETS	SOURCES					
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	3.2E-08	4.3E-06	4.7E-06	7.3E-06	2.7E-07	2.7E-07
R MARROW	7.7E-07	1.8E-06	1.5E-06	2.2E-06	2.4E-06	3.6E-02
LUNGS	1.1E-01	7.8E-08	9.6E-08	2.8E-08	3.5E-07	3.5E-07
BONE SURF	6.1E-07	5.2E-07	4.6E-07	6.8E-07	2.2E-01	2.2E-01
SI WALL	6.9E-08	1.5E-03	7.0E-06	3.9E-06	2.7E-07	2.7E-07
ULI WALL	8.1E-08	1.3E-05	2.6E-03	1.3E-06	2.5E-07	2.5E-07
LLI WALL	2.1E-08	3.3E-06	1.3E-06	4.3E-03	3.9E-07	3.9E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-241

TARGETS	SOURCES					
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	4.9E-13	7.1E-11	7.7E-11	1.2E-10	4.4E-12	4.4E-12
R MARROW	1.3E-11	3.0E-11	2.6E-11	3.7E-11	4.3E-11	2.5E-06
LUNGS	7.7E-06	1.2E-12	1.5E-12	4.4E-13	5.7E-12	5.7E-12
BONE SURF	1.0E-11	8.6E-12	7.7E-12	1.2E-11	1.6E-05	1.6E-05
SI WALL	1.1E-12	6.6E-06	1.2E-10	6.4E-11	4.4E-12	4.4E-12
ULI WALL	1.3E-12	2.2E-10	1.2E-05	3.0E-11	4.1E-12	4.1E-12
LLI WALL	3.1E-13	5.5E-11	2.1E-11	1.9E-05	6.3E-12	6.3E-12

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-241

TARGETS	SOURCES					
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE
GONADS	5.3E-09	1.6E-06	1.6E-06	3.2E-06	7.4E-08	7.4E-08
R MARROW	3.2E-07	6.7E-07	5.7E-07	1.1E-06	1.6E-06	3.7E-02
LUNGS	1.1E-01	1.1E-08	1.5E-08	3.2E-09	1.0E-07	1.0E-07
BONE SURF	2.6E-07	1.8E-07	1.6E-07	3.0E-07	2.3E-01	2.3E-01
SI WALL	9.2E-09	1.4E-03	2.9E-06	1.5E-06	7.0E-08	7.0E-08
ULI WALL	1.2E-08	7.2E-06	2.5E-03	7.2E-07	6.1E-08	6.1E-08
LLI WALL	2.2E-09	1.5E-06	4.0E-07	4.2E-03	1.0E-07	1.0E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF BK-245

ORGAN	ISOTOPE	INHALATION	
		ORAL	CLASS W
LUNGS	BK-245	f1=5.E-04	f1=5.E-04
	CM-245	f1=5.E-04	f1=5.E-04
	PU-241	f1=5.E-04	f1=5.E-04
	AM-241	f1=5.E-04	f1=5.E-04
LUNGS	BK-245		9.8E+04
	CM-245		1.5E+00
	PU-241		1.5E-02
	AM-241		3.5E-02
SI CONTENT	BK-245	1.4E+04	5.3E+03
	CM-245	6.5E-04	3.3E-03
	PU-241	1.5E-08	2.0E-05
	AM-241	1.5E-05	7.8E-05
ULI CONTENT	BK-245	4.2E+04	1.6E+04
	CM-245	7.2E-03	1.3E-02
	PU-241	5.7E-07	6.6E-05
	AM-241	1.7E-04	3.0E-04
LLI CONTENT	BK-245	6.8E+04	2.6E+04
	CM-245	2.9E-02	2.9E-02
	PU-241	4.8E-06	1.3E-04
	AM-241	6.8E-04	6.9E-04
CORT BONE	BK-245	9.3E+01	1.4E+04
	CM-245	2.9E-01	7.0E+01
	PU-241	1.6E-01	4.1E+01
	AM-241	1.2E-02	2.7E+00
TRAB BONE	BK-245	9.3E+01	1.4E+04
	CM-245	2.9E+01	7.0E+01
	PU-241	1.6E+01	4.1E+01
	AM-241	1.2E+00	2.7E+00

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-245

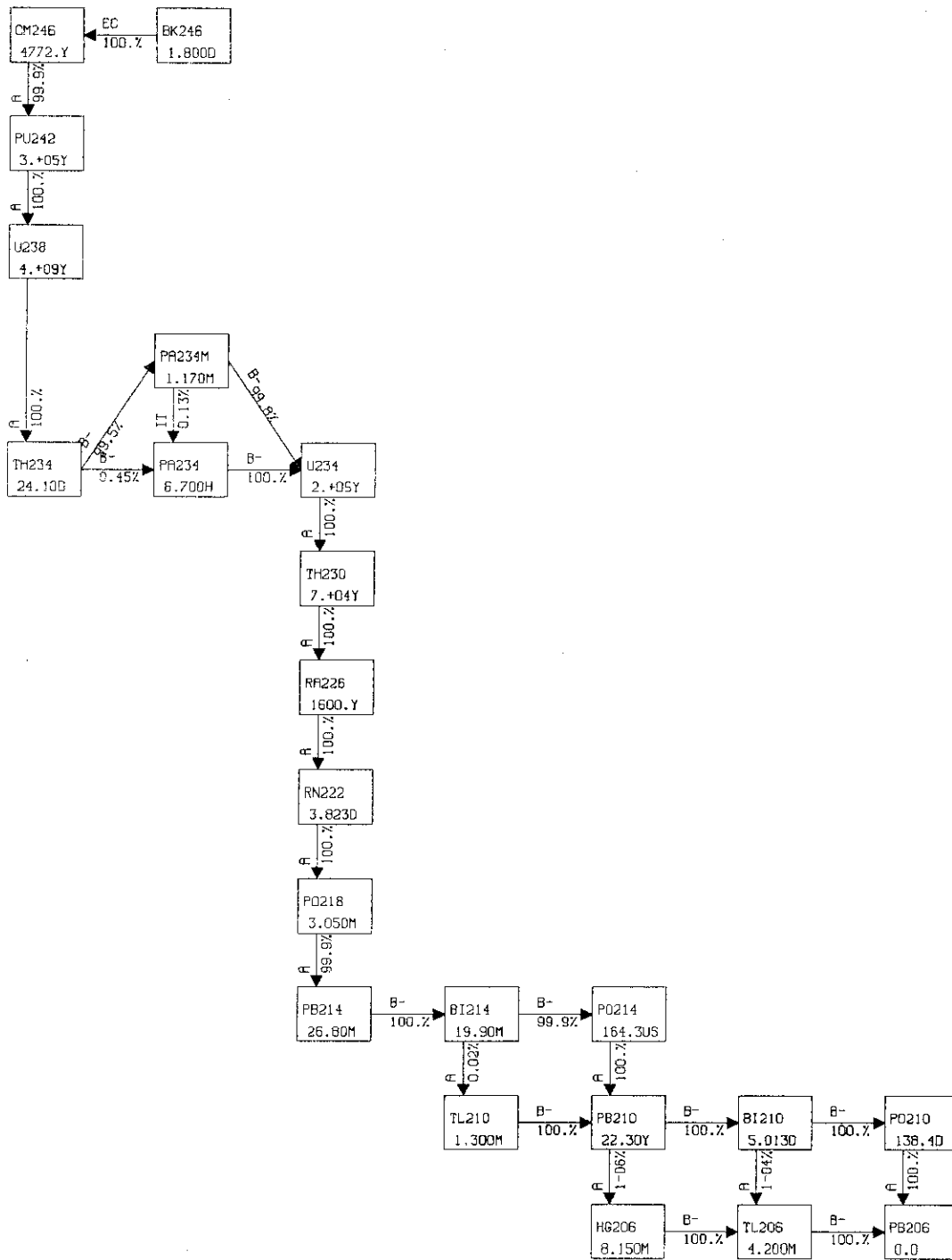
ORAL		INHALATION	
	f1=5.E-04	CLASS W	f1=5.E-04
GONADS	2.6E-10	R MARROW	7.0E-10 B (31, 38, 31)
SI WALL	6.3E-10	LUNGS	4.8E-09 A (0, 1, 99)
ULI WALL	2.4E-09	BONE SURF	7.6E-09 B (30, 40, 30)
LLI WALL	6.0E-09 A	LLI WALL	2.3E-09 (66, 10, 24)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-245

ORAL		INHALATION	
	f1=5.E-04	CLASS W	f1=5.E-04
GONADS	6.6E-11	R MARROW	8.4E-11 B
SI WALL	3.8E-11	LUNGS	5.7E-10 A
ULI WALL	1.5E-10	BONE SURF	2.5E-10 B
LLI WALL	3.6E-10 A	LLI WALL	1.4E-10

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Vhr) FOR BK-245

ORAL		INHALATION		INHALATION	
ALI (Bq)		DAC (Bq/m3)			
f1=5.E-04	8.E+07	f1=5.E-04	5.E+07	CLASS W	2.E+04
				f1=5.E-04	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-246

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	7.3E-03	4.5E-07	2.8E-05	2.6E-05	4.8E-05	1.7E-06	2.7E-06	2.7E-06
R MARROW	9.2E-06	3.8E-06	7.5E-06	6.3E-06	9.5E-06	3.1E-06	1.0E-05	2.7E-05
LUNGS	4.0E-07	9.9E-05	9.5E-07	1.1E-06	4.0E-07	6.9E-06	2.8E-06	2.8E-06
BONE SURF	2.8E-06	3.0E-06	2.4E-06	2.1E-06	3.1E-06	2.2E-06	1.1E-04	1.1E-04
SI WALL	3.3E-05	8.5E-07	1.6E-04	4.6E-05	2.6E-05	4.5E-06	2.3E-06	2.3E-06
ULI WALL	3.1E-05	1.1E-06	6.9E-05	2.5E-04	1.2E-05	6.9E-06	2.1E-06	2.1E-06
LLI WALL	4.0E-05	2.5E-07	2.0E-05	9.2E-06	3.5E-04	8.1E-07	3.0E-06	3.0E-06
LIVER	1.8E-06	6.8E-06	5.2E-06	7.0E-06	1.0E-06	1.1E-04	2.0E-06	2.0E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	1.4E-08	1.6E-06	9.7E-07	2.9E-06	8.5E-08	6.8E-08	6.8E-08
R MARROW	4.6E-07	1.8E-07	3.7E-07	2.9E-07	5.1E-07	1.5E-07	3.2E-07	3.6E-02
LUNGS	1.3E-08	1.1E-01	3.6E-08	3.2E-08	1.8E-08	1.3E-07	1.4E-07	1.4E-07
BONE SURF	6.8E-08	1.4E-07	6.8E-08	1.9E-07	9.2E-08	9.5E-08	2.3E-01	2.3E-01
SI WALL	1.6E-06	3.6E-08	1.4E-03	3.3E-06	1.4E-06	2.7E-07	6.8E-08	6.8E-08
ULI WALL	1.8E-06	3.7E-08	3.6E-06	2.4E-03	6.5E-07	3.7E-07	5.7E-08	5.7E-08
LLI WALL	2.5E-06	1.3E-08	1.2E-06	5.0E-07	4.0E-03	3.8E-08	1.2E-07	1.2E-07
LIVER	8.5E-08	1.3E-07	2.7E-07	2.9E-07	4.5E-08	6.1E-02	9.5E-08	9.5E-08

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-246

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF BK-246

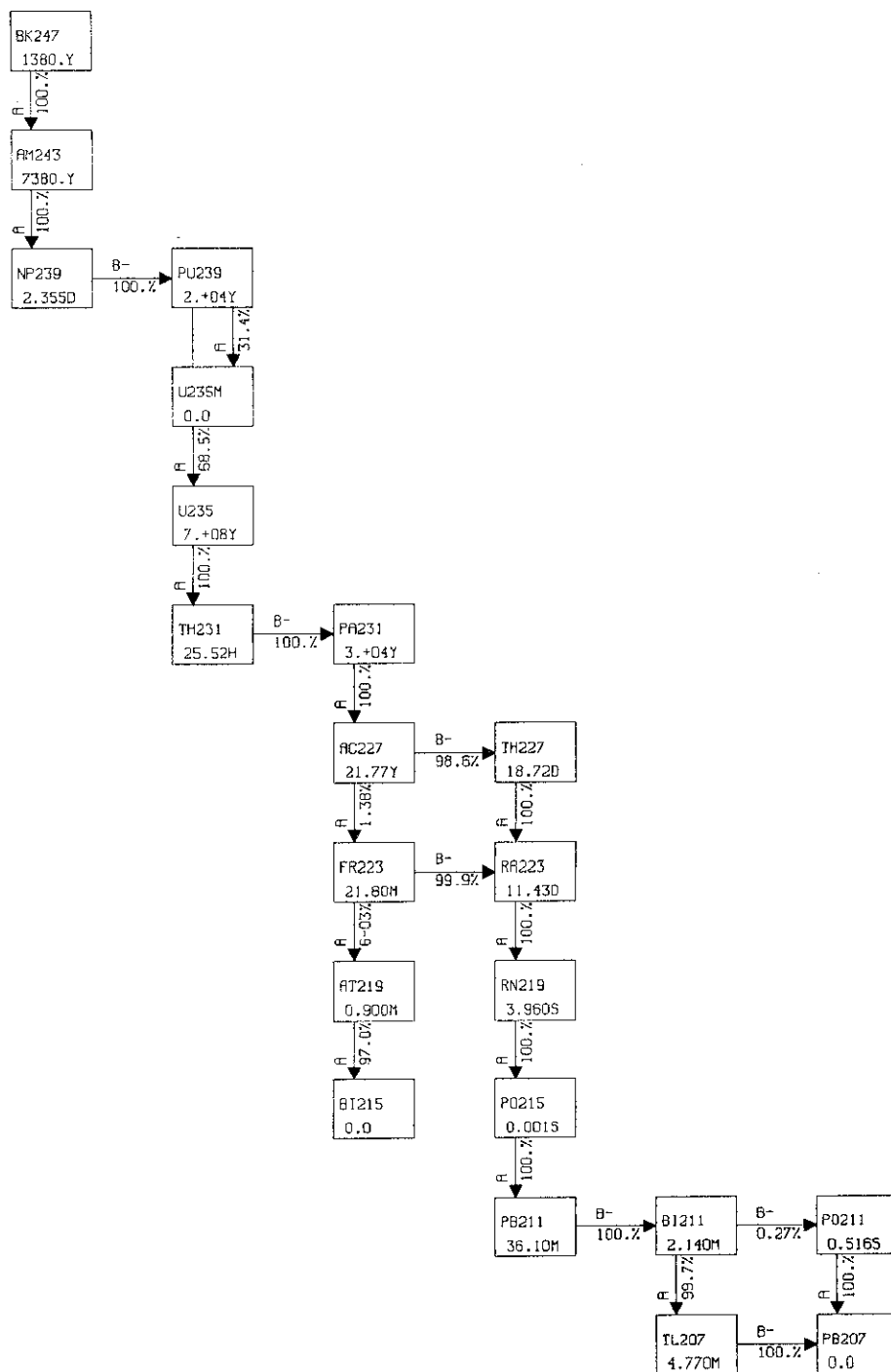
ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	f1=5.E-04	CLASS W	f1=5.E-04
GONADS	BK-246	1.8E+00	1.2E-02	1.8E+00	2.3E-10
	CM-246	8.9E-05	8.9E-05	2.1E-02	(61, 16, 23)
LUNGS	BK-246	4.3E+04		4.3E+04	R MARROW
	CM-246	1.0E+00		1.0E+00	3.6E-10 B
SI CONTENT	BK-246	1.3E+04	1.3E+04	1.7E-09	(30, 30, 40)
	CM-246	1.1E-03	1.1E-03	1.7E-09	LUNGS
ULI CONTENT	BK-246	3.6E+04	3.6E+04	1.7E-09	(1, 3, 96)
	CM-246	1.1E-02	1.1E-02	1.7E-09	BONE SURF
LLI CONTENT	BK-246	4.8E+04	4.8E+04	2.7E-09 A	3.5E-09 AB
	CM-246	4.0E-02	4.0E-02	2.7E-09 A	(26, 34, 40)
LIVER	BK-246	2.3E+01	2.3E+01	SI WALL	SI WALL
	CM-246	9.4E-02	9.4E-02	2.3E+01	2.6E-10
CORT BONE	BK-246	3.0E+01	3.0E+01	4.7E+03	(67, 12, 21)
	CM-246	1.9E-01	1.9E-01	4.6E+01	ULI WALL
TRAB BONE	BK-246	3.0E+01	3.0E+01	4.6E+03	5.4E-10
	CM-246	1.9E-01	1.9E-01	4.6E+01	(68, 12, 20)
LIVER	BK-246	3.6E+03	3.6E+03	LLI WALL	LLI WALL
	CM-246	1.9E-01	1.9E-01	8.7E-10	8.7E-10
LIVER	BK-246	3.6E+03	3.6E+03	LLI WALL	(69, 12, 19)
	CM-246	1.9E-01	1.9E-01	3.6E-10	LIVER
LIVER	BK-246	3.6E+03	3.6E+03	3.6E-10	3.6E-10
	CM-246	1.9E-01	1.9E-01	3.6E-10	(27, 32, 41)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-246

ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
GONADS 1.4E-10	GONADS 5.7E-11
SI WALL 4.7E-11	R MARROW 4.3E-11 B
ULI WALL 9.9E-11	LUNGS 8.5E-11
LLI WALL 1.6E-10 A	BONE SURF 1.0E-10 AB
	SI WALL 1.6E-11
	ULI WALL 3.2E-11
	LLI WALL 5.2E-11
	LIVER 2.1E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR BK-246

ALI (Bq)	DAC (Bq/m3)
ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
1.E+08	1.E+08 5.E+04



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-247
SOURCES

TARGETS	LIVER	CORT BONE	TRAB BONE
R MARROW	7.9E-07	2.3E-06	3.7E-02
BONE SURF	5.6E-07	2.3E-01	2.3E-01
LIVER	6.3E-02	3.4E-07	3.4E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-243
SOURCES

TARGETS	LIVER	CORT BONE	TRAB BONE
R MARROW	4.0E-07	1.6E-06	3.5E-02
BONE SURF	3.1E-07	2.2E-01	2.2E-01
LIVER	6.0E-02	1.2E-07	1.2E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF BK-247

ORGAN	ISOTOPE	ORAL		INHALATION	
		f1	f2	f1	f2
LIVER	BK-247	9.3E+04	1.6E+02	2.2E+07	3.8E+04
	AM-243	1.8E+05	3.8E+02	4.4E+07	9.2E+04
CORT BONE	BK-247	1.8E+05	3.8E+02	4.4E+07	9.2E+04
	AM-243	1.8E+05	3.8E+02	4.4E+07	9.2E+04
TRAB BONE	BK-247	1.8E+05	3.8E+02	4.4E+07	9.2E+04
	AM-243	1.8E+05	3.8E+02	4.4E+07	9.2E+04

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-247

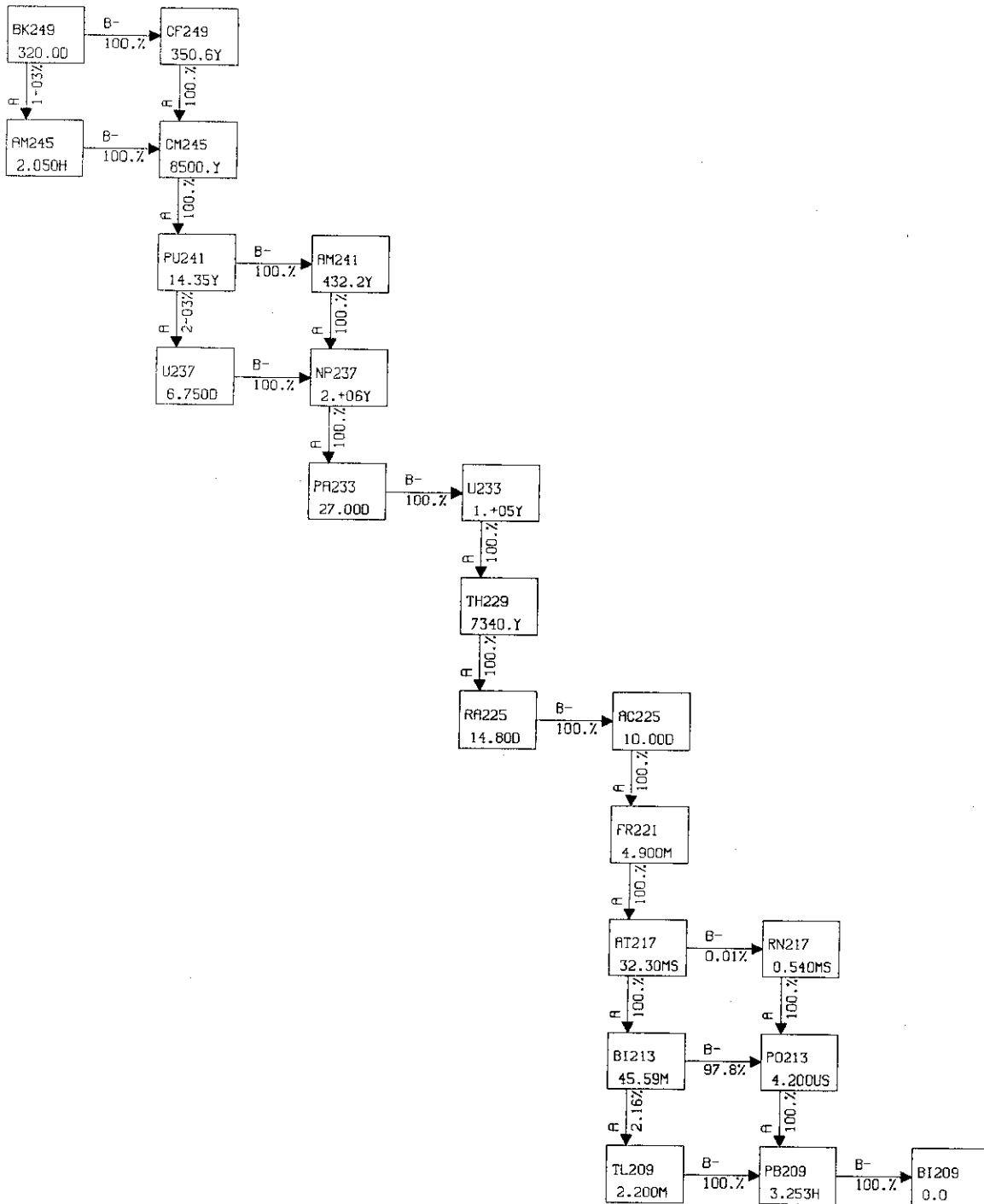
ORAL		INHALATION		
f1	5.E-04	CLASS W	f1	5.E-04
R MARROW	1.1E-06 B	R MARROW	2.6E-04 B	
	(25, 33, 42)		(25, 33, 42)	
BONE SURF	1.4E-05 AB	BONE SURF	3.3E-03 AB	
			(25, 33, 42)	
LIVER	9.4E-07	LIVER	2.2E-04	
			(25, 33, 42)	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-247

ORAL		INHALATION		
f1	5.E-04	CLASS W	f1	5.E-04
R MARROW	1.3E-07 B	R MARROW	3.1E-05 B	
BONE SURF	4.1E-07 AB	BONE SURF	9.8E-05 AB	
LIVER	5.6E-08	LIVER	1.3E-05	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR BK-247

ORAL		INHALATION		
f1	5.E-04	CLASS W	f1	5.E-04
BONE SURF	4.E+04	BONE SURF	2.E+02	
	(8.E+04)		(3.E+02)	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-245

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	2.2E-06	6.5E-07	2.4E-06	3.6E-02
BONE SURF	6.8E-07	4.6E-07	2.2E-01	2.2E-01
LLI WALL	4.3E-03	8.4E-08	3.9E-07	3.9E-07
LIVER	8.8E-08	6.1E-02	2.5E-07	2.5E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF BK-249

ORGAN	ISOTOPE	INHALATION	
		ORAL	CLASS M
LLI CONTENT	BK-249	f1=5.E-04	f1=5.E-04
	AM-245	f1=5.E-04	f1=5.E-04
	CF-249	f1=5.E-04	f1=5.E-04
	CM-245	f1=5.E-04	f1=5.E-04
LIVER	BK-249	8.6E+04	4.3E+04
	AM-245	0.0	0.0
	CF-249	8.2E-01	3.5E+00
	CM-245	2.3E-07	4.8E-05
CORT BONE	BK-249	4.8E+03	1.1E+06
	AM-245	0.0	0.0
	CF-249	2.1E+02	5.2E+04
	CM-245	3.1E-01	7.6E+01
TRAB BONE	BK-249	6.4E+03	1.4E+06
	AM-245	0.0	0.0
	CF-249	4.3E+02	1.0E+05
	CM-245	7.6E-01	1.8E+02

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	2.3E-12	7.3E-13	1.8E-12	1.2E-05
BONE SURF	5.9E-13	4.8E-13	7.2E-05	7.2E-05
LLI WALL	1.2E-04	1.6E-13	5.6E-13	5.6E-13
LIVER	1.9E-13	1.9E-05	4.1E-13	4.1E-13

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-245

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	5.5E-07	1.7E-07	5.8E-07	9.7E-05
BONE SURF	1.8E-07	1.2E-07	1.6E-04	1.8E-04
LLI WALL	1.1E-03	2.7E-08	1.2E-07	1.2E-07
LIVER	3.0E-08	1.7E-04	7.6E-08	7.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	4.0E-06	1.4E-06	3.9E-06	3.9E-02
BONE SURF	1.3E-06	9.3E-07	2.4E-01	2.4E-01
LLI WALL	4.5E-03	3.3E-07	1.1E-06	1.1E-06
LIVER	3.6E-07	6.6E-02	7.8E-07	7.8E-07

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-249

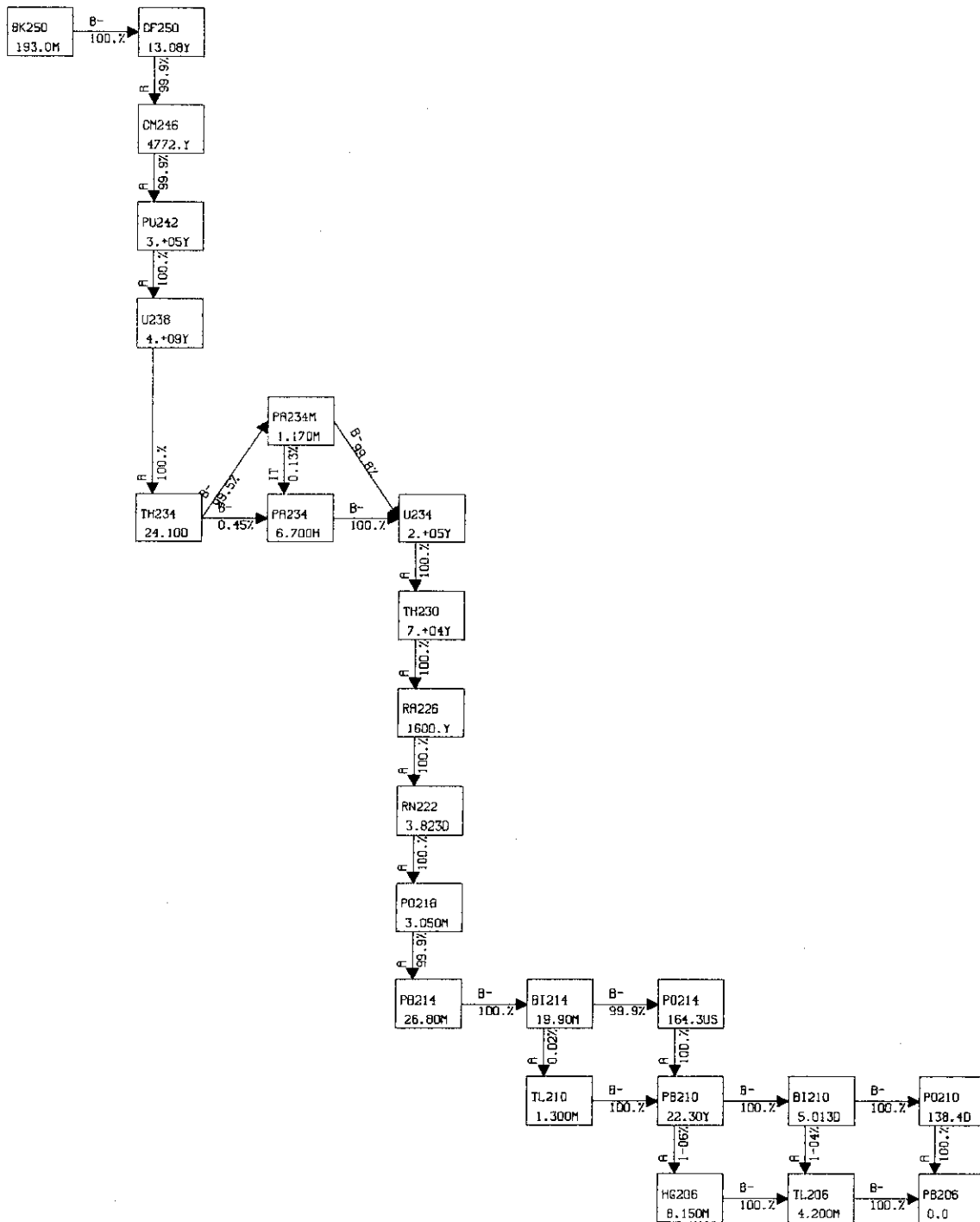
<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
R MARROW	R MARROW
2.7E-09 B	6.4E-07 B (25, 33, 42)
BONE SURF	BONE SURF
3.3E-08 AB	8.1E-06 AB (25, 33, 42)
LLI WALL	LIVER
1.7E-09	5.5E-07 (25, 33, 42)
LIVER	
2.3E-09	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-249

<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
R MARROW	R MARROW
3.2E-10 B	7.7E-08 B
BONE SURF	BONE SURF
1.0E-09 AB	2.4E-07 AB
LLI WALL	LIVER
1.0E-10	3.3E-08
LIVER	
1.4E-10	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR BK-249

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
	CLASS W	CLASS W
f1=5.E-04	f1=5.E-04	f1=5.E-04
1.E+07 (3.E+07)	6.E+04 (1.E+05)	3.E+01
BONE SURF	BONE SURF	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-250

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.9E-02	4.4E-06	3.0E-05	2.1E-05	5.0E-05	2.2E-06	2.8E-06	2.8E-06
R MARROW	8.4E-06	2.8E-06	7.0E-06	5.8E-06	8.7E-06	2.9E-06	9.3E-06	1.1E-04
BONE SURF	2.6E-06	1.7E-06	2.3E-06	2.0E-06	2.9E-06	2.1E-06	8.3E-05	1.1E-04
ST WALL	2.2E-06	7.4E-04	1.0E-05	1.0E-05	4.5E-06	5.7E-06	1.6E-06	1.6E-06
SI WALL	3.2E-05	7.3E-06	4.5E-04	4.6E-05	2.6E-05	4.6E-06	2.5E-06	2.5E-06
ULI WALL	3.0E-05	8.7E-06	6.6E-05	7.9E-04	1.1E-05	6.9E-06	2.3E-06	2.3E-06
LLI WALL	3.9E-05	4.0E-06	2.0E-05	9.6E-06	1.2E-03	8.1E-07	3.2E-06	3.2E-06
LIVER	1.9E-06	5.7E-06	5.5E-06	7.3E-06	1.2E-06	2.4E-04	2.2E-06	2.2E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	4.2E-07	5.7E-06	3.5E-06	1.1E-05	3.0E-07	2.4E-07	2.4E-07
R MARROW	1.6E-06	4.9E-07	1.3E-06	1.0E-06	1.8E-06	5.4E-07	1.2E-06	4.1E-02
BONE SURF	2.4E-07	2.3E-07	2.4E-07	6.7E-07	3.3E-07	3.4E-07	2.6E-01	2.6E-01
ST WALL	4.3E-07	2.5E-03	1.8E-06	2.0E-06	8.8E-07	1.0E-06	2.4E-07	2.4E-07
SI WALL	5.8E-06	1.6E-06	1.6E-03	1.2E-05	5.0E-06	9.4E-07	2.4E-07	2.4E-07
ULI WALL	6.5E-06	1.9E-06	1.3E-05	2.8E-03	2.3E-06	1.3E-06	2.0E-07	2.0E-07
LLI WALL	9.0E-06	2.9E-07	4.4E-06	1.8E-06	4.6E-03	1.4E-07	4.1E-07	4.1E-07
LIVER	3.0E-07	1.0E-06	9.5E-07	1.0E-06	1.6E-07	7.0E-02	3.3E-07	3.3E-07

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SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	1.2E-07	1.6E-06	9.7E-07	2.9E-06	8.5E-03	6.8E-08	6.8E-08
R MARROW	4.6E-07	1.4E-07	3.7E-07	2.9E-07	5.1E-07	1.5E-07	3.2E-07	3.6E-02
BONE SURF	6.8E-08	6.4E-08	6.8E-08	1.9E-07	9.2E-08	9.5E-08	2.3E-01	2.3E-01
ST WALL	1.2E-07	2.2E-03	5.0E-07	5.6E-07	2.5E-07	2.9E-07	6.8E-08	6.8E-08
SI WALL	1.6E-06	4.5E-07	1.4E-03	3.3E-06	1.4E-06	2.7E-07	6.8E-08	6.8E-08
ULI WALL	1.8E-06	5.2E-07	3.6E-06	2.4E-03	6.5E-07	3.7E-07	5.7E-08	5.7E-08
LLI WALL	2.5E-06	8.5E-08	1.2E-06	5.0E-07	4.0E-03	3.8E-08	1.2E-07	1.2E-07
LIVER	8.5E-08	2.8E-07	2.7E-07	2.9E-07	4.5E-08	6.1E-02	9.5E-08	9.5E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF BK-250

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=5.E-04	f1=5.E-04
	BK-250	f1=5.E-04	f1=5.E-04
	CF-250	f1=5.E-04	f1=5.E-04
	CM-246	f1=5.E-04	f1=5.E-04
GONADS	BK-250	5.2E-04	1.5E-01
GONADS	CF-250	8.5E-04	2.0E-01
GONADS	CM-246	4.3E-06	1.0E-03
ST CONTENT	BK-250	3.0E+03	2.6E+02
ST CONTENT	CF-250	1.8E-02	4.4E-02
ST CONTENT	CM-246	3.0E-10	3.0E-07
SI CONTENT	BK-250	6.4E+03	5.6E+02
SI CONTENT	CF-250	2.3E-01	1.9E-01
SI CONTENT	CM-246	1.6E-08	1.2E-06
ULI CONTENT	BK-250	5.4E+03	4.8E+02
ULI CONTENT	CF-250	1.2E+00	6.5E-01
ULI CONTENT	CM-246	3.0E-07	4.1E-06
LLI CONTENT	BK-250	1.6E+03	1.4E+02
LLI CONTENT	CF-250	2.4E+00	1.2E+00
LLI CONTENT	CM-246	1.5E-06	8.0E-06
LIVER	BK-250	3.8E-01	1.1E+02
LIVER	CF-250	1.2E+00	3.0E+02
LIVER	CM-246	3.8E-03	9.1E-01
CORT BONE	BK-250	5.6E-01	1.6E+02
CORT BONE	CF-250	2.1E+00	5.0E+02
CORT BONE	CM-246	8.5E-03	2.0E+00
TRAB BONE	BK-250	4.2E-01	1.2E+02
TRAB BONE	CF-250	2.1E+00	5.0E+02
TRAB BONE	CM-246	8.5E-03	2.0E+00

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-250

ORAL INHALATION

f1=5.E-04	CLASS W f1=5.E-04
GONADS	R MARROW
1.6E-11	3.9E-10 B
BONE SURF	BONE SURF
5.3E-12 B	1.2E-09 AB
ST WALL	LIVER
2.2E-11	2.0E-10
SI WALL	
3.1E-11	
ULI WALL	
4.6E-11 A	
LLI WALL	
2.1E-11	

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF BK-250

ORAL INHALATION

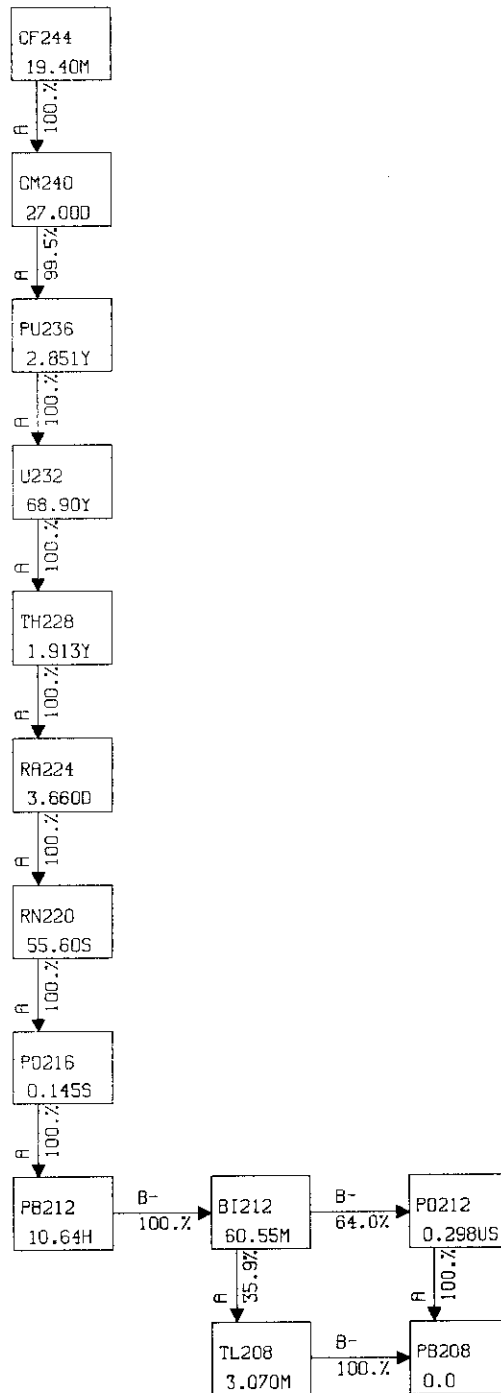
f1=5.E-04	CLASS W f1=5.E-04
GONADS	R MARROW
6.5E-11	3.3E-09 B (25, 33, 42)
BONE SURF	BONE SURF
1.8E-10 B	4.1E-08 AB (25, 33, 42)
ST WALL	LIVER
3.7E-10	3.3E-09 (25, 33, 42)
SI WALL	
5.1E-10	
ULI WALL	
7.6E-10 A	
LLI WALL	
3.5E-10	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR BK-250

ALI (Bq) DAC (Bq/m3)

ORAL	INHALATION	INHALATION
f1=5.E-04	CLASS W	CLASS W
	f1=5.E-04	f1=5.E-04
4.E+08	1.E+07 (3.E+07)	5.E+03
	BONE SURF	

Californium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF U -232

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.1E-01	3.4E-09	1.6E-10	1.8E-09
BONE SURF	4.5E-09	1.4E-09	3.2E-09	2.2E-01
ST WALL	4.6E-09	2.2E-03	9.7E-09	8.9E-10
SI WALL	1.4E-10	3.6E-09	1.3E-03	1.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-244

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.5E-01	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	3.0E-01
ST WALL	0.0	2.9E-03	0.0	0.0
SI WALL	0.0	0.0	1.8E-03	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TH-228

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.1E-01	1.5E-08	1.6E-09	7.8E-09
BONE SURF	1.4E-08	7.5E-09	1.1E-08	2.3E-01
ST WALL	1.6E-08	2.2E-03	3.2E-08	4.3E-09
SI WALL	1.3E-09	2.1E-08	1.4E-03	5.9E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-240

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.3E-01	3.8E-11	4.1E-12	1.6E-11
BONE SURF	1.6E-11	7.2E-12	7.7E-12	2.6E-01
ST WALL	4.3E-11	2.5E-03	5.7E-11	7.7E-12
SI WALL	4.0E-12	5.1E-11	1.6E-03	7.7E-12

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RA-224

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.2E-01	6.0E-08	9.2E-09	3.4E-08
BONE SURF	4.1E-08	2.5E-08	3.5E-08	2.4E-01
ST WALL	6.5E-08	2.3E-03	1.3E-07	2.0E-08
SI WALL	7.3E-09	9.2E-08	1.4E-03	2.7E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-236

TARGETS	SOURCES			
	LUNGS	ST CONTENT	SI CONTENT	CORT BONE TRAB BONE
LUNGS	1.2E-01	2.7E-09	2.9E-11	1.3E-09
BONE SURF	4.0E-09	8.0E-10	2.5E-09	2.4E-01
ST WALL	4.0E-09	2.3E-03	9.1E-09	5.8E-10
SI WALL	2.4E-11	1.9E-09	1.5E-03	8.1E-10

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BI-212

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	4.5E-02	6.2E-07	1.2E-07
BONE SURF	3.4E-07	2.1E-07	9.1E-02
ST WALL	6.7E-07	1.9E-03	2.0E-07
SI WALL	1.1E-07	8.7E-07	1.2E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF TL-208

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	7.3E-04	1.7E-05	3.9E-06
BONE SURF	9.8E-06	6.0E-06	7.7E-06
ST WALL	1.9E-05	1.7E-03	3.3E-05
SI WALL	3.7E-06	2.6E-05	1.0E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF RN-220

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	1.3E-01	2.4E-09	4.5E-10
BONE SURF	1.3E-09	8.0E-10	1.0E-09
ST WALL	2.4E-09	2.5E-03	4.5E-09
SI WALL	3.7E-10	3.5E-09	1.6E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-210

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	1.4E-01	0.0	0.0
BONE SURF	0.0	0.0	2.8E-01
ST WALL	0.0	2.7E-03	0.0
SI WALL	0.0	0.0	1.7E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PO-212

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	1.8E-01	0.0	0.0
BONE SURF	0.0	0.0	0.0
ST WALL	0.0	3.5E-03	0.0
SI WALL	0.0	0.0	2.2E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PB-212

TARGETS	SOURCES		
	LUNGS	ST CONTENT	SI CONTENT
LUNGS	1.8E-04	9.2E-07	1.3E-07
BONE SURF	7.1E-07	4.2E-07	5.9E-07
ST WALL	9.9E-07	3.8E-04	1.9E-06
SI WALL	1.0E-07	1.4E-06	2.4E-04

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CF-244

ORGAN	ISOTOPE	ORAL		INHALATION		SI CONTENT	CF-244	4.8E+02	5.5E+00	7.1E+00	
		CLASS W	CLASS Y	CLASS W	CLASS Y						
LUNGS	CF-244	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	CM-240	6.9E+00	3.1E+00	3.4E+00	
	CM-240	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	CM-240	6.9E+00	3.1E+00	3.4E+00	
	PU-236	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	PU-236	9.0E-04	1.3E-02	1.4E-02	
	U-232	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	U-232	4.3E-09	2.3E-05	2.3E-04	
	TH-228	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	TH-228	7.1E-13	1.5E-06	9.7E-05	
	RA-224	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	RA-224	1.4E-06	1.4E-06	9.6E-05	
	RN-220	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	RN-220	2.2E-14	1.4E-06	9.6E-05	
	PO-216	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	PO-216	2.2E-14	1.4E-06	9.6E-05	
	PB-212	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	PB-212	4.5E-15	1.4E-06	9.6E-05	
	BI-212	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	BI-212	3.3E-15	1.4E-06	9.6E-05	
	TL-208	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	TL-208	1.2E-15	5.1E-07	3.4E-05	
	PO-212	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	SI CONTENT	PO-212	2.1E-15	9.0E-07	6.1E-05	
	LUNGS	CF-244	5.1E+02	5.4E+02	4.0E-03	4.8E+00	CORT BONE	CF-244	4.0E-03	4.8E+00	2.6E-01
		CM-240	1.8E+02	2.5E+02	5.6E-01	4.6E+01	CORT BONE	CM-240	5.6E-01	4.6E+01	2.7E+00
		PU-236	8.3E+00	1.0E+02	5.1E-01	6.1E+01	CORT BONE	PU-236	5.1E-01	6.1E+01	1.3E+01
		U-232	1.8E-02	5.2E+00	1.4E-01	1.7E+01	CORT BONE	U-232	1.4E-01	1.7E+01	7.1E+00
TH-228		1.3E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	TH-228	1.3E-01	1.6E+01	6.8E+00	
RA-224		1.2E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	RA-224	1.3E-01	1.6E+01	6.8E+00	
RN-220		1.2E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	RN-220	1.3E-01	1.6E+01	6.8E+00	
PO-216		1.2E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	PO-216	1.3E-01	1.6E+01	6.8E+00	
PB-212		1.2E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	PB-212	1.3E-01	1.6E+01	6.8E+00	
BI-212		1.2E-03	3.7E+00	1.3E-01	1.6E+01	CORT BONE	BI-212	1.3E-01	1.6E+01	6.8E+00	
TL-208		4.2E-04	1.3E+00	4.7E-02	5.8E+00	CORT BONE	TL-208	4.7E-02	5.8E+00	2.4E+00	
PO-212		7.5E-04	2.4E+00	8.3E-02	1.0E+01	CORT BONE	PO-212	8.3E-02	1.0E+01	4.4E+00	
ST CONTENT		CF-244	1.3E+01	1.7E+01	9.3E-04	1.1E+00	TRAB BONE	CF-244	9.3E-04	1.1E+00	6.1E-02
		CM-240	7.8E-01	8.4E-01	5.4E-01	4.6E+01	TRAB BONE	CM-240	5.4E-01	4.6E+01	2.7E+00
		PU-236	3.4E-05	3.3E-03	5.1E-01	6.1E+01	TRAB BONE	PU-236	5.1E-01	6.1E+01	1.3E+01
		U-232	3.9E-11	5.7E-06	1.4E-01	1.7E+01	TRAB BONE	U-232	1.4E-01	1.7E+01	7.1E+00
	TH-228	1.6E-15	3.8E-07	1.3E-01	1.6E+01	TRAB BONE	TH-228	1.3E-01	1.6E+01	6.8E+00	
	RA-224	1.3E-17	3.6E-07	1.3E-01	1.6E+01	TRAB BONE	RA-224	1.3E-01	1.6E+01	6.8E+00	
	RN-220	1.2E-17	3.6E-07	1.3E-01	1.6E+01	TRAB BONE	RN-220	1.3E-01	1.6E+01	6.8E+00	
	PO-216	1.2E-17	3.6E-07	1.3E-01	1.6E+01	TRAB BONE	PO-216	1.3E-01	1.6E+01	6.8E+00	
	PB-212	7.5E-19	3.5E-07	1.3E-01	1.6E+01	TRAB BONE	PB-212	1.3E-01	1.6E+01	6.8E+00	
	BI-212	3.1E-19	3.5E-07	1.3E-01	1.6E+01	TRAB BONE	BI-212	1.3E-01	1.6E+01	6.8E+00	
	TL-208	1.0E-19	1.3E-07	4.7E-02	5.8E+00	TRAB BONE	TL-208	4.7E-02	5.8E+00	2.4E+00	
	PO-212	2.0E-19	2.3E-07	8.6E-06	1.5E-05	TRAB BONE	PO-212	8.6E-06	1.5E-05	4.4E+00	

(Continued)

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-244

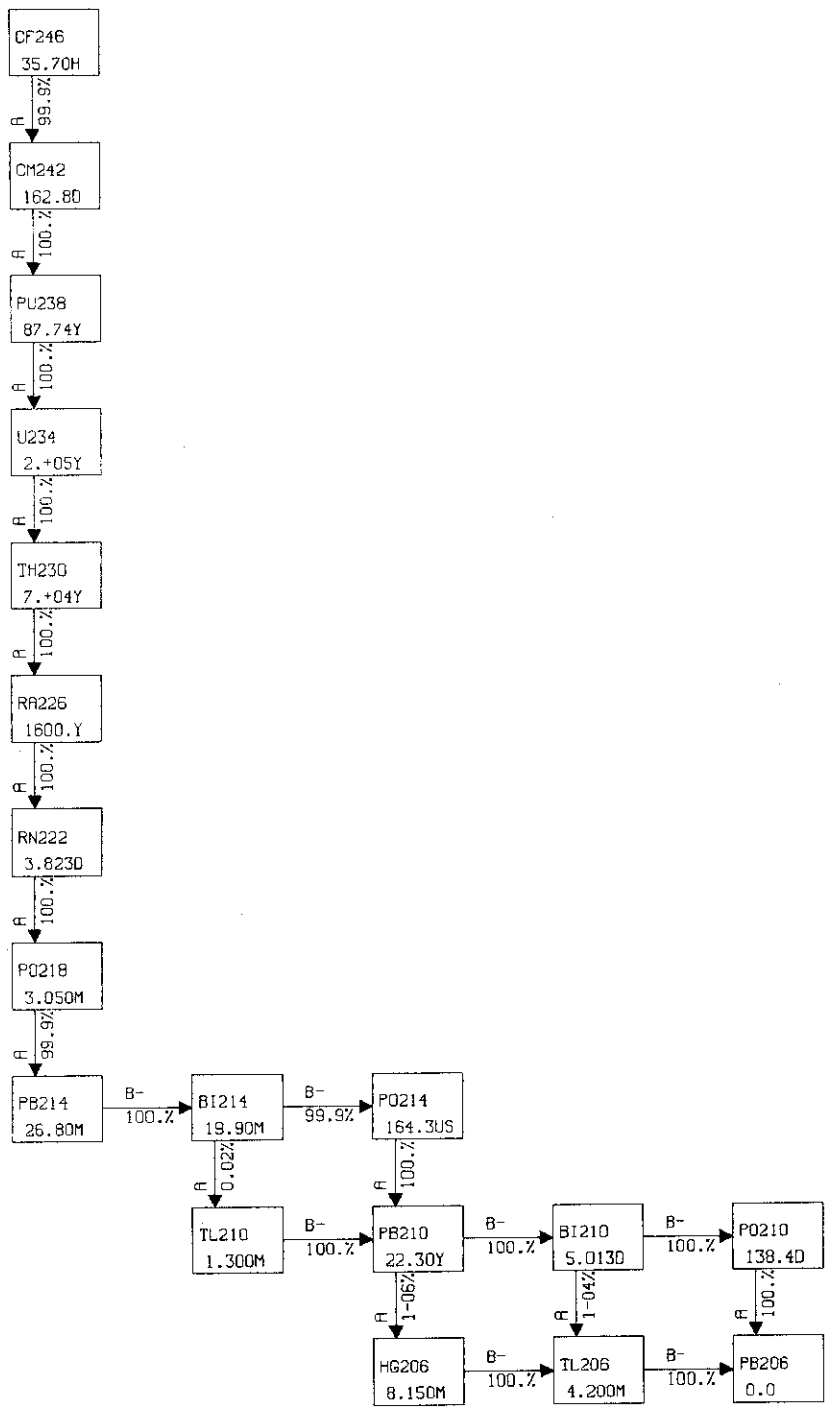
ORAL	INHALATION	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
BONE SURF 1.5E-10 B	LUNGS 1.6E-08 A (0, 14, 86)	LUNGS 2.0E-08 A (0, 15, 85)
ST WALL 5.3E-10 A	BONE SURF 1.7E-08 B (28, 37, 35)	
SI WALL 1.4E-10		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-244

ORAL	INHALATION	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
BONE SURF 4.5E-12 B	LUNGS 1.9E-09 A	LUNGS 2.4E-09 A
ST WALL 3.2E-11 A	BONE SURF 5.1E-10 B	
SI WALL 8.4E-12		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CF-244

ORAL	ALI (Bq)		DAC (Bq/m3)	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
9.E+08 (1.E+09) ST WALL	2.E+07	2.E+07	9.E+03	9.E+03



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CF-246

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-246

TARGETS		SOURCES			ORAL			INHALATION		
	SI CONTENT	ULI CONTENT	LLI CONTENT	ISOTOPE	CLASS W	CLASS Y	ORGAN	ISOTOPE	CLASS W	CLASS Y
LUNGS	1.4E-01	2.7E-10	1.3E-10	CF-246	f1=1.E-03	f1=1.E-03	LUNGS	CF-246	f1=1.E-03	f1=1.E-03
BONE SURF	4.9E-09	2.7E-09	6.7E-09	CM-242	f1=1.E-03	f1=1.E-03	LUNGS	CM-242	f1=1.E-03	f1=1.E-03
SI WALL	2.7E-10	1.5E-07	7.6E-08	PU-238	f1=1.E-03	f1=1.E-03	LUNGS	PU-238	f1=1.E-03	f1=1.E-03
ULI WALL	2.8E-10	5.6E-07	4.1E-08	CF-246	3.7E+04	3.8E+04	LUNGS	CF-246	3.7E+04	3.8E+04
LLI WALL	1.0E-10	9.0E-08	5.0E-03	CM-242	6.8E+03	2.2E+04	LUNGS	CM-242	6.8E+03	2.2E+04
				PU-238	1.1E+01	7.2E+02	LUNGS	PU-238	1.1E+01	7.2E+02
				CF-246	4.0E+03	4.7E+03	SI CONTENT	CF-246	4.0E+03	4.7E+03
				CM-242	1.3E+04	2.3E+01	SI CONTENT	CM-242	1.3E+04	2.3E+01
				PU-238	4.5E-05	5.0E-02	SI CONTENT	PU-238	4.5E-05	5.0E-02
				CF-246	3.6E+04	1.2E+04	ULI CONTENT	CF-246	3.6E+04	1.2E+04
				CM-242	1.2E+02	1.0E+02	ULI CONTENT	CM-242	1.2E+02	1.0E+02
				PU-238	1.5E-03	1.6E-01	ULI CONTENT	PU-238	1.5E-03	1.6E-01
				CF-246	4.3E+04	1.5E+04	LLI CONTENT	CF-246	4.3E+04	1.5E+04
				CM-242	4.0E+02	2.5E+02	LLI CONTENT	CM-242	4.0E+02	2.5E+02
				PU-238	1.1E-02	3.1E-01	LLI CONTENT	PU-238	1.0E-01	3.1E-01
				CF-246	4.8E+01	2.2E+02	CORT BONE	CF-246	3.8E+03	2.2E+02
				CM-242	6.0E+01	5.1E+02	CORT BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	CORT BONE	PU-238	1.7E+03	6.7E+02
				CF-246	4.7E+01	2.1E+02	TRAB BONE	CF-246	3.7E+03	2.1E+02
				CM-242	6.0E+01	5.1E+02	TRAB BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	TRAB BONE	PU-238	1.7E+03	6.7E+02

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-242

TARGETS		SOURCES			ORAL			INHALATION		
	SI CONTENT	ULI CONTENT	LLI CONTENT	ISOTOPE	CLASS W	CLASS Y	ORGAN	ISOTOPE	CLASS W	CLASS Y
LUNGS	1.2E-01	2.4E-11	7.3E-12	CM-242	f1=1.E-03	f1=1.E-03	LUNGS	CM-242	f1=1.E-03	f1=1.E-03
BONE SURF	4.1E-09	1.7E-09	6.5E-09	PU-238	f1=1.E-03	f1=1.E-03	LUNGS	PU-238	f1=1.E-03	f1=1.E-03
SI WALL	1.9E-11	1.5E-03	7.9E-08	CF-246	3.7E+04	3.8E+04	LUNGS	CF-246	3.7E+04	3.8E+04
ULI WALL	2.3E-11	7.6E-07	4.8E-08	CM-242	6.8E+03	2.2E+04	LUNGS	CM-242	6.8E+03	2.2E+04
LLI WALL	5.8E-12	1.4E-07	4.5E-03	PU-238	1.1E+01	7.2E+02	LUNGS	PU-238	1.1E+01	7.2E+02
				CF-246	4.0E+03	4.7E+03	SI CONTENT	CF-246	4.0E+03	4.7E+03
				CM-242	1.3E+04	2.3E+01	SI CONTENT	CM-242	1.3E+04	2.3E+01
				PU-238	4.5E-05	5.0E-02	SI CONTENT	PU-238	4.5E-05	5.0E-02
				CF-246	3.6E+04	1.2E+04	ULI CONTENT	CF-246	3.6E+04	1.2E+04
				CM-242	1.2E+02	1.0E+02	ULI CONTENT	CM-242	1.2E+02	1.0E+02
				PU-238	1.5E-03	1.6E-01	ULI CONTENT	PU-238	1.5E-03	1.6E-01
				CF-246	4.3E+04	1.5E+04	LLI CONTENT	CF-246	4.3E+04	1.5E+04
				CM-242	4.0E+02	2.5E+02	LLI CONTENT	CM-242	4.0E+02	2.5E+02
				PU-238	1.1E-02	3.1E-01	LLI CONTENT	PU-238	1.0E-01	3.1E-01
				CF-246	4.8E+01	2.2E+02	CORT BONE	CF-246	3.8E+03	2.2E+02
				CM-242	6.0E+01	5.1E+02	CORT BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	CORT BONE	PU-238	1.7E+03	6.7E+02
				CF-246	4.7E+01	2.1E+02	TRAB BONE	CF-246	3.7E+03	2.1E+02
				CM-242	6.0E+01	5.1E+02	TRAB BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	TRAB BONE	PU-238	1.7E+03	6.7E+02

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-238

TARGETS		SOURCES			ORAL			INHALATION		
	SI CONTENT	ULI CONTENT	LLI CONTENT	ISOTOPE	CLASS W	CLASS Y	ORGAN	ISOTOPE	CLASS W	CLASS Y
LUNGS	1.1E-01	1.8E-11	4.3E-12	PU-238	f1=1.E-03	f1=1.E-03	LUNGS	PU-238	f1=1.E-03	f1=1.E-03
BONE SURF	3.3E-09	2.1E-09	5.4E-09	CF-246	3.7E+04	3.8E+04	LUNGS	CF-246	3.7E+04	3.8E+04
SI WALL	1.2E-11	1.4E-03	6.9E-08	CM-242	6.8E+03	2.2E+04	LUNGS	CM-242	6.8E+03	2.2E+04
ULI WALL	1.5E-11	7.6E-07	4.4E-08	PU-238	1.1E+01	7.2E+02	LUNGS	PU-238	1.1E+01	7.2E+02
LLI WALL	3.0E-12	1.0E-07	4.1E-03	CF-246	3.7E+04	3.8E+04	LUNGS	CF-246	3.7E+04	3.8E+04
				CM-242	6.8E+03	2.2E+04	LUNGS	CM-242	6.8E+03	2.2E+04
				PU-238	1.1E+01	7.2E+02	LUNGS	PU-238	1.1E+01	7.2E+02
				CF-246	4.0E+03	4.7E+03	SI CONTENT	CF-246	4.0E+03	4.7E+03
				CM-242	1.3E+04	2.3E+01	SI CONTENT	CM-242	1.3E+04	2.3E+01
				PU-238	4.5E-05	5.0E-02	SI CONTENT	PU-238	4.5E-05	5.0E-02
				CF-246	3.6E+04	1.2E+04	ULI CONTENT	CF-246	3.6E+04	1.2E+04
				CM-242	1.2E+02	1.0E+02	ULI CONTENT	CM-242	1.2E+02	1.0E+02
				PU-238	1.5E-03	1.6E-01	ULI CONTENT	PU-238	1.5E-03	1.6E-01
				CF-246	4.3E+04	1.5E+04	LLI CONTENT	CF-246	4.3E+04	1.5E+04
				CM-242	4.0E+02	2.5E+02	LLI CONTENT	CM-242	4.0E+02	2.5E+02
				PU-238	1.1E-02	3.1E-01	LLI CONTENT	PU-238	1.0E-01	3.1E-01
				CF-246	4.8E+01	2.2E+02	CORT BONE	CF-246	3.8E+03	2.2E+02
				CM-242	6.0E+01	5.1E+02	CORT BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	CORT BONE	PU-238	1.7E+03	6.7E+02
				CF-246	4.7E+01	2.1E+02	TRAB BONE	CF-246	3.7E+03	2.1E+02
				CM-242	6.0E+01	5.1E+02	TRAB BONE	CM-242	6.4E+03	5.1E+02
				PU-238	1.4E+01	6.7E+02	TRAB BONE	PU-238	1.7E+03	6.7E+02

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-246

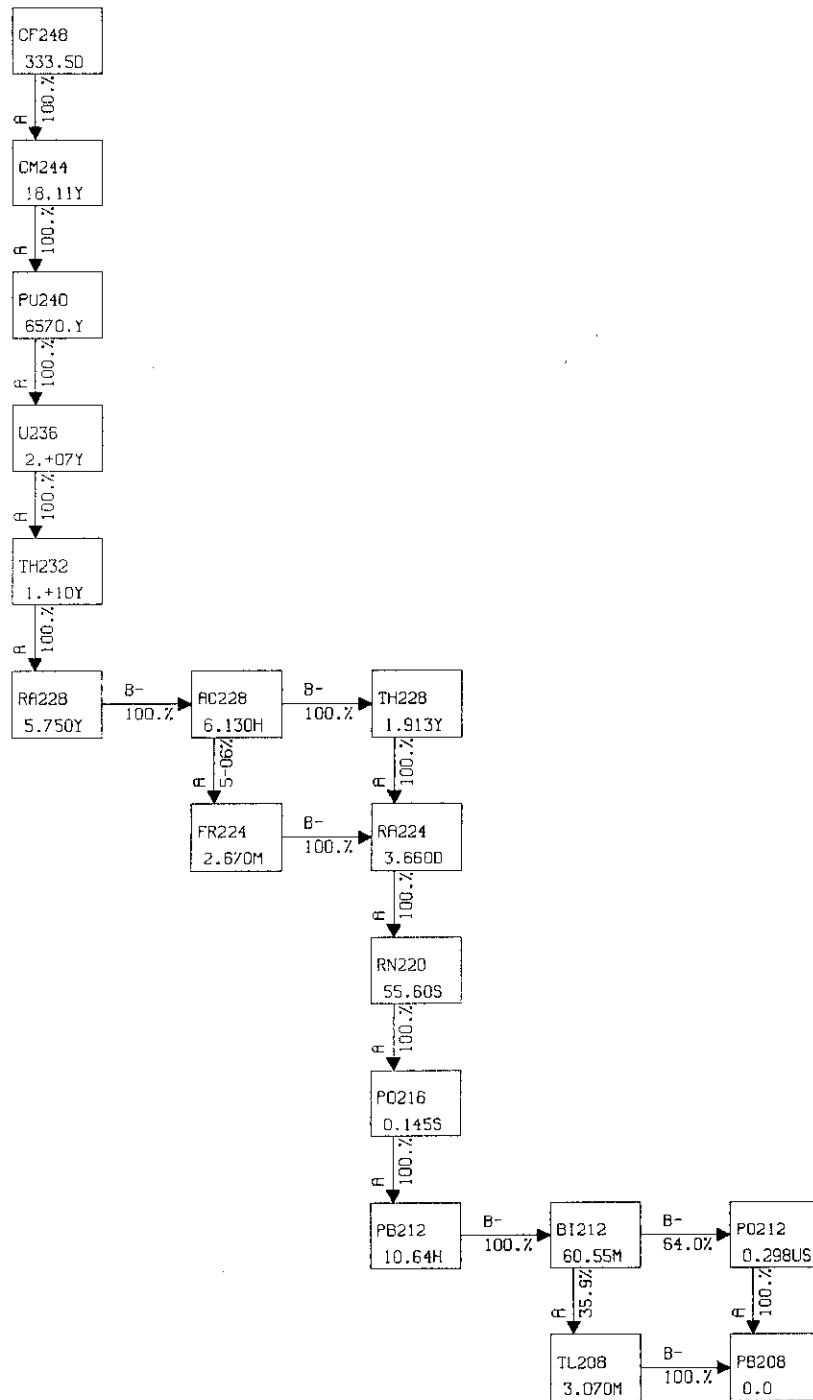
<u>ORAL</u>	<u>INHALATION</u>	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
BONE SURF 1.0E-08 B	LUNGS 9.4E-07 A (0, 2, 98)	LUNGS 1.3E-06 A (0, 3, 97)
SI WALL 3.6E-09	BONE SURF 9.7E-07 B (33, 43, 24)	
ULI WALL 1.6E-08		
LLI WALL 3.5E-08 A		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-246

<u>ORAL</u>	<u>INHALATION</u>	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
BONE SURF 3.0E-10 B	LUNGS 1.1E-07 A	LUNGS 1.6E-07 A
SI WALL 2.1E-10	BONE SURF 2.9E-08 B	
ULI WALL 9.9E-10		
LLI WALL 2.1E-09 A		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CF-246

<u>ORAL</u>	<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
	4.E+05	3.E+05	1.E+02	1.E+02



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-248

TARGETS	SOURCES			
	LUNGS	LIVER	CORT BONE	TRAB BONE
R MARROW	0.0	0.0	0.0	4.2E-02
LUNGS	1.3E-01	0.0	0.0	0.0
BONE SURF	0.0	0.0	2.6E-01	2.6E-01
LIVER	0.0	7.1E-02	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-244

TARGETS	SOURCES			
	LUNGS	LIVER	CORT BONE	TRAB BONE
R MARROW	4.7E-09	2.7E-09	1.3E-07	3.9E-02
LUNGS	1.2E-01	1.0E-08	1.7E-09	1.7E-09
BONE SURF	4.1E-09	2.6E-09	2.4E-01	2.4E-01
LIVER	7.9E-09	6.5E-02	1.0E-09	1.0E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-240

TARGETS	SOURCES			
	LUNGS	LIVER	CORT BONE	TRAB BONE
R MARROW	3.6E-09	2.0E-09	1.5E-07	3.4E-02
LUNGS	1.0E-01	9.3E-09	1.1E-09	1.1E-09
BONE SURF	3.2E-09	2.0E-09	2.2E-01	2.2E-01
LIVER	7.1E-09	5.8E-02	5.8E-10	5.8E-10

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-248

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CF-248

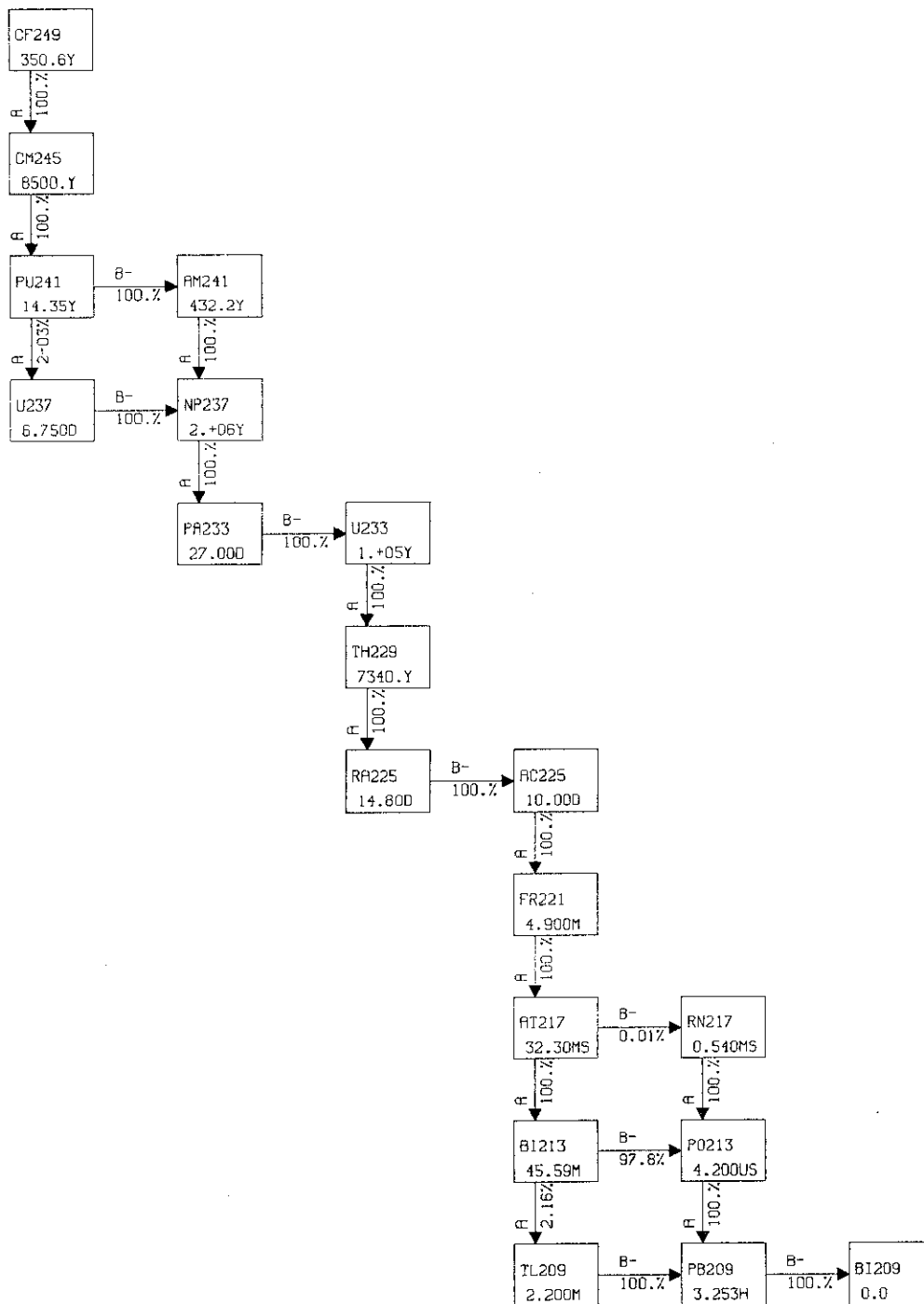
ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS Y	CLASS W	CLASS Y
LUNGS	CF-248	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
	CM-244	f1=1.E-03	f1=1.E-03	R MARROW	LUNGS
	PU-240	f1=1.E-03	f1=1.E-03	1.7E-08 B	1.2E-05 A
LUNGS	CF-248	8.9E+05	4.2E+06	BONE SURF	BONE SURF
	CM-244	7.1E+03	5.5E+05	5.4E-08 AB	2.2E-06
	PU-240	1.6E+01	5.8E+02	LIVER	1.4E-06 B
LIVER	CF-248	9.9E+03	1.3E+05	BONE SURF	BONE SURF
	CM-244	5.1E+03	2.3E+05	9.9E-09	6.3E-06 AB
	PU-240	1.1E+01	6.1E+02	LIVER	1.1E-06
CORT BONE	CF-248	1.3E+04	1.7E+05		
	CM-244	9.0E+03	4.0E+05		
	PU-240	2.5E+01	1.5E+03		
TRAB BONE	CF-248	1.3E+04	1.7E+05		
	CM-244	9.0E+03	4.0E+05		
	PU-240	2.5E+01	1.5E+03		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CF-248

ORGAN	ALI (Bq)		DAC (Bq/m3)	
	ORAL	INHALATION	ORAL	INHALATION
LUNGS	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
	3.E+05 (6.E+05)	2.E+03 (4.E+03)	CLASS W	CLASS Y
	BONE SURF	BONE SURF	f1=1.E-03	f1=1.E-03
LIVER			4.E+03	1.E+00

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-248

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS Y	CLASS W	CLASS Y
LUNGS	CF-248	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
	CM-244	f1=1.E-03	f1=1.E-03	R MARROW	LUNGS
	PU-240	f1=1.E-03	f1=1.E-03	1.7E-05 B (26, 35, 39)	9.7E-05 A (0, 0, 100)
LIVER	CF-248	8.9E+05	4.2E+06	BONE SURF	BONE SURF
	CM-244	7.1E+03	5.5E+05	1.8E-05	4.5E-05 B
	PU-240	1.6E+01	5.8E+02	(0, 0, 100)	(13, 4, 83)
CORT BONE	CF-248	9.9E+03	1.3E+05	BONE SURF	BONE SURF
	CM-244	5.1E+03	2.3E+05	2.1E-04 AB	2.1E-04 AB
	PU-240	1.1E+01	6.1E+02	(26, 35, 39)	(26, 35, 39)
TRAB BONE	CF-248	1.3E+04	1.7E+05	LIVER	LIVER
	CM-244	9.0E+03	4.0E+05	1.9E-05	1.9E-05
	PU-240	2.5E+01	1.5E+03	(26, 35, 39)	(26, 35, 39)



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Da) OF CF-249

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES		CLASS W		CLASS Y	
	LUNGS	LIVER	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	1.6E-04	1.4E-06	R MARROW	R MARROW	R MARROW	R MARROW
LUNGS	1.2E-01	2.8E-06	2.7E-04 B (25, 33, 42)	2.7E-04 B (7, 2, 91)	1.0E-04 B (7, 2, 91)	1.0E-04 B (7, 2, 91)
BONE SURF	1.2E-06	9.3E-07	BONE SURF	BONE SURF	BONE SURF	BONE SURF
LIVER	2.8E-06	6.6E-02	2.8E-05 AB (25, 33, 42)	3.3E-03 AB (0, 0, 100)	3.6E-04 A (0, 0, 100)	3.6E-04 A (0, 0, 100)

TARGETS	SOURCES		CLASS W		CLASS Y	
	LUNGS	LIVER	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	7.7E-07	6.5E-07	LIVER	LIVER	BONE SURF	BONE SURF
LUNGS	1.1E-01	1.0E-06	2.3E-04 (25, 33, 42)	2.3E-04 (7, 2, 91)	1.3E-03 D (7, 2, 91)	1.3E-03 D (7, 2, 91)
BONE SURF	6.1E-07	4.6E-07	LIVER	LIVER	BONE SURF	BONE SURF
LIVER	9.5E-07	6.1E-02	1.9E-06 (7, 2, 91)	9.2E-05 (7, 2, 91)	9.2E-05 (7, 2, 91)	9.2E-05 (7, 2, 91)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Da) OF CF-249

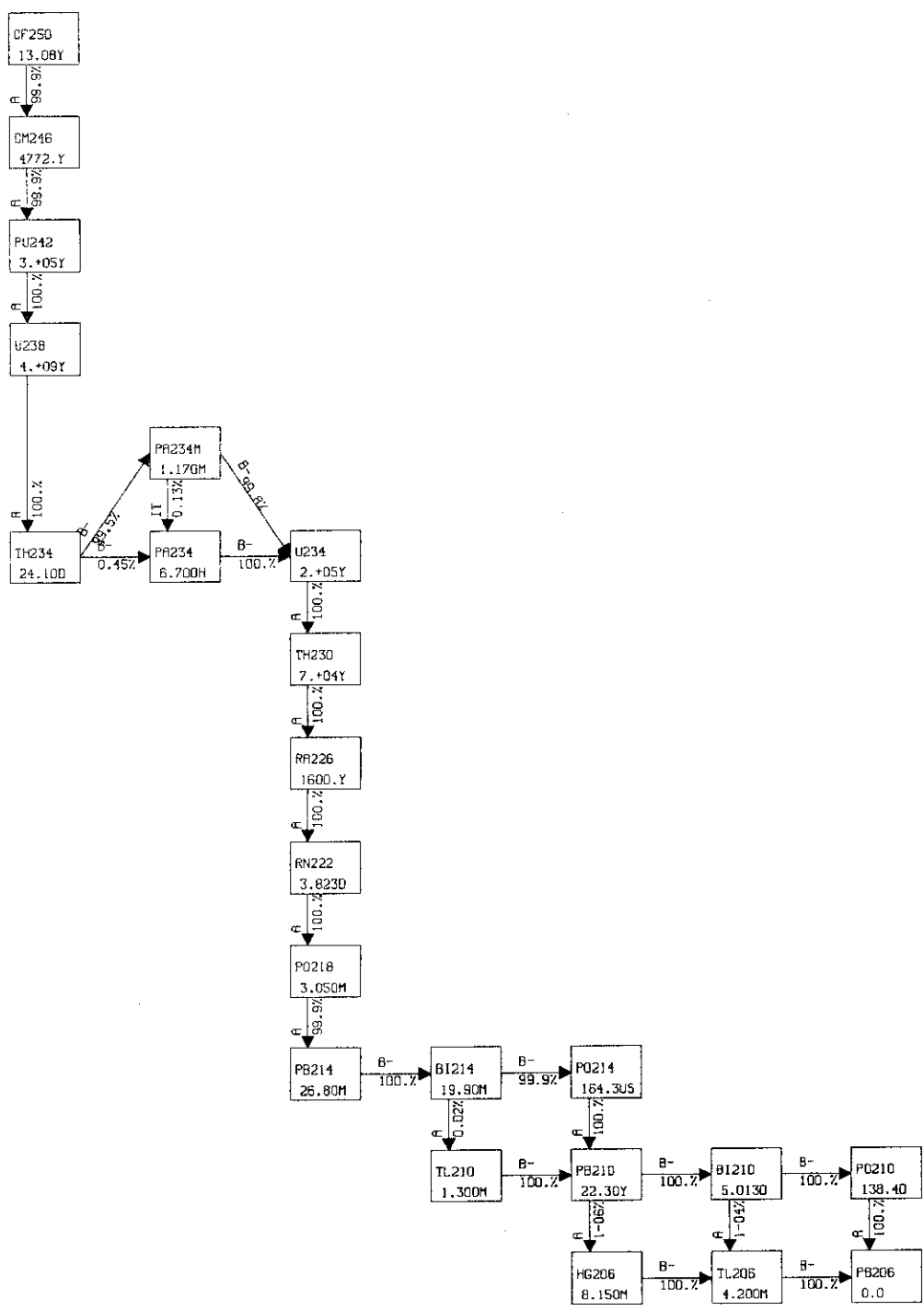
ORGAN	SOURCES		CLASS W		CLASS Y	
	LUNGS	LIVER	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	2.7E-07 B	3.2E-05 B	R MARROW	R MARROW	R MARROW	R MARROW
BONE SURF	8.3E-07 AB	1.0E-04 AB	BONE SURF	BONE SURF	BONE SURF	BONE SURF
LIVER	1.1E-07	1.4E-05	LIVER	LIVER	BONE SURF	BONE SURF

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CF-249

ORGAN	ISOTOPE	SOURCES		CLASS W		CLASS Y	
		f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
LUNGS	CF-249	1.0E+06	1.9E+07	R MARROW	R MARROW	R MARROW	R MARROW
LUNGS	CM-245	1.0E+01	2.5E+04	BONE SURF	BONE SURF	BONE SURF	BONE SURF
LIVER	CF-249	1.8E+05	8.7E+06	LIVER	LIVER	BONE SURF	BONE SURF
LIVER	CM-245	2.7E+02	1.5E+04	LIVER	LIVER	BONE SURF	BONE SURF
CORT BONE	CF-249	3.5E+05	1.7E+07	LIVER	LIVER	BONE SURF	BONE SURF
CORT BONE	CM-245	6.5E+02	3.4E+04	LIVER	LIVER	BONE SURF	BONE SURF
TRAB BONE	CF-249	3.5E+05	1.7E+07	LIVER	LIVER	BONE SURF	BONE SURF
TRAB BONE	CM-245	6.5E+02	3.4E+04	LIVER	LIVER	BONE SURF	BONE SURF

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 HR/WRK) FOR CF-249

ORGAN	SOURCES		CLASS W		CLASS Y	
	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
ALI (Bq)	2.E+04 (4.E+04)	2.E+02 (5.E+02)	2.E+02 (5.E+02)	4.E+02 (5.E+02)	4.E+02 (5.E+02)	4.E+02 (5.E+02)
DAC (Bq/m3)	BONE SURF	BONE SURF	BONE SURF	BONE SURF	BONE SURF	BONE SURF



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-250

SOURCES		ORAL		INHALATION	
LIVER	1.2E-07	CLASS W	CLASS Y	f1=1.E-03	f1=1.E-03
R MARROW	9.8E-07 B	R MARROW	R MARROW	(25, 33, 42)	(8, 2, 90)
BONE SURF	1.2E-05 AB	BONE SURF	BONE SURF	(25, 33, 42)	(0, 0, 100)
LIVER	9.9E-07	LIVER	BONE SURF	1.2E-04	4.9E-04 B
				(25, 33, 42)	(8, 2, 90)

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	LIVER	CORT BONE	TRAB BONE
R MARROW	5.4E-07	1.2E-06	4.1E-02
LUNGS	1.3E-01	4.6E-07	4.9E-07
BONE SURF	4.9E-07	3.4E-07	2.6E-01
LIVER	4.5E-07	7.0E-02	3.3E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	LIVER	CORT BONE	TRAB BONE
R MARROW	1.8E-07	1.5E-07	3.2E-07
LUNGS	1.1E-01	1.3E-07	1.4E-07
BONE SURF	1.4E-07	9.5E-08	2.3E-01
LIVER	1.3E-07	6.1E-02	9.5E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CF-250

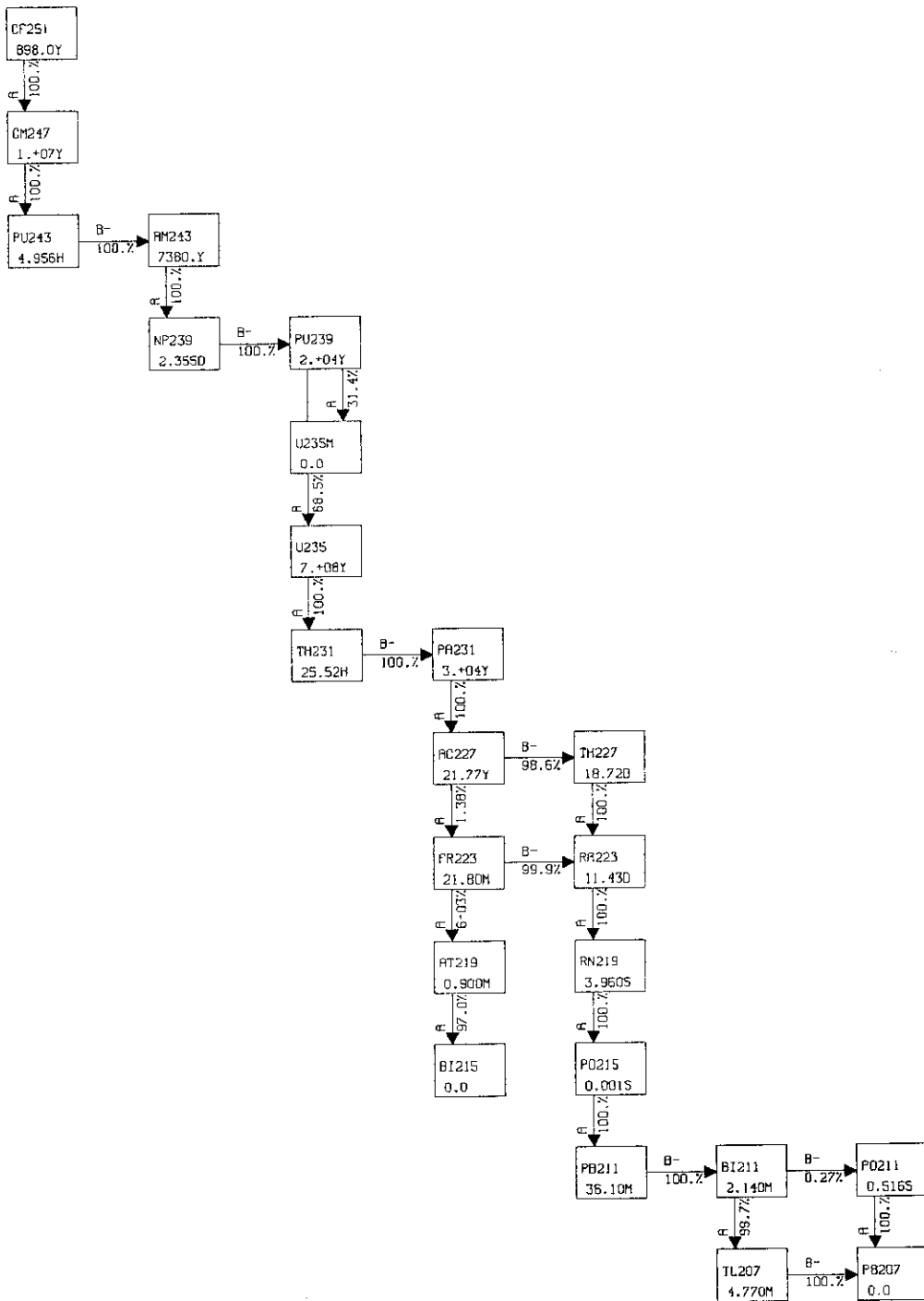
ORGAN	ISOTOPE	CLASS W	CLASS Y
LUNGS	CF-250	1.0E+06	1.3E+07
LIVER	CF-250	1.1E+07	3.6E+06
CORT BONE	CF-250	1.5E+05	6.0E+06
TRAB BONE	CF-250	1.8E+07	6.0E+06
LUNGS	CM-246	3.1E+01	1.6E+04
LIVER	CM-246	2.7E+02	1.5E+04
CORT BONE	CM-246	6.1E+02	3.1E+04
TRAB BONE	CM-246	7.3E+04	3.1E+04

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-250

SOURCES		ORAL		INHALATION	
LIVER	6.0E-08	CLASS W	CLASS Y	f1=1.E-03	f1=1.E-03
R MARROW	1.2E-07 B	R MARROW	R MARROW	(25, 33, 42)	(8, 2, 90)
BONE SURF	3.7E-07 AB	BONE SURF	BONE SURF	(25, 33, 42)	(0, 0, 100)
LIVER	9.9E-07	LIVER	BONE SURF	1.2E-04	4.9E-04 B
				(25, 33, 42)	(8, 2, 90)

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CF-250

ALI (Bq)		DAC (Bq/m ³)	
ORAL	INHALATION	ORAL	INHALATION
f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
4.E+04	3.E+02	1.E+03	1.E-01
(9.E+04)	(8.E+02)		
BONE SURF	BONE SURF		



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-251

TARGETS	SOURCES	
	ORAL	INHALATION
LUNGS	LIVER f1=1.E-03	CORT BONE TRAB BONE f1=1.E-03
R MARROW	LIVER 2.7E-04 B 2.2E-06 B	R MARROW 1.0E-04 B (25, 33, 42) (7, 2, 91)
BONE SURF	BONE SURF 2.8E-05 AB	BONE SURF 3.3E-03 AB (25, 33, 42) (0, 0, 100)
LIVER	LIVER 1.9E-06	BONE SURF 2.3E-04 1.3E-03 B (25, 33, 42) (7, 2, 91)

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-251

TARGETS	LUNGS	LIVER	CORT BONE	TRAB BONE
R MARROW	8.2E-07	6.9E-07	2.8E-06	3.8E-02
LUNGS	1.2E-01	1.2E-06	4.2E-07	4.2E-07
BONE SURF	6.5E-07	4.9E-07	2.4E-01	2.4E-01
LIVER	1.1E-06	6.4E-02	2.9E-07	2.9E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CF-251

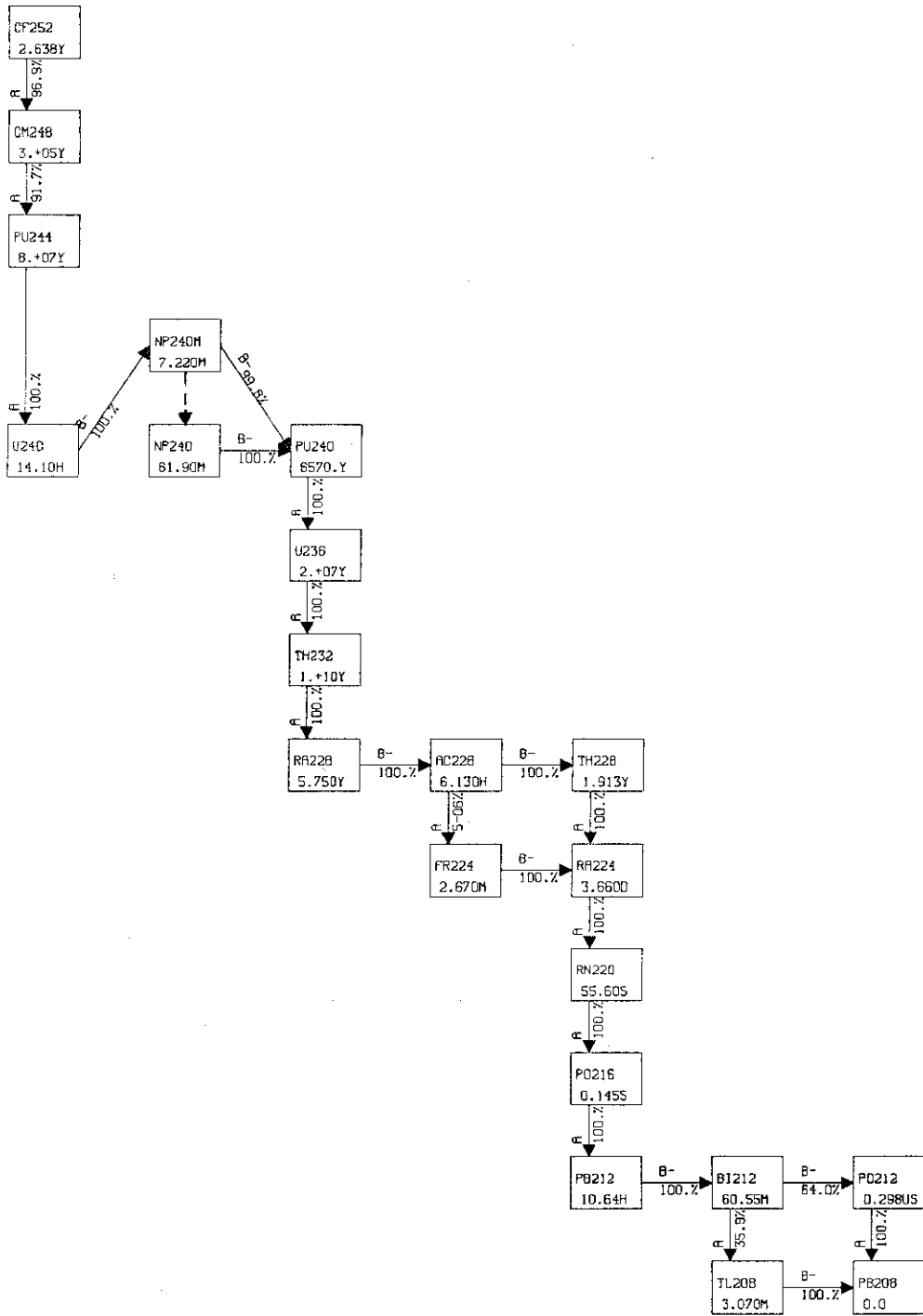
ORGAN	SOURCES	
	ORAL	INHALATION
LUNGS	LIVER f1=1.E-03	CORT BONE TRAB BONE f1=1.E-03
LIVER	LIVER 1.8E+05	R MARROW 9.0E+06
CORT BONE	BONE SURF 3.6E+05	BONE SURF 1.7E+07
TRAB BONE	BONE SURF 3.6E+05	BONE SURF 1.7E+07

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-251

ORGAN	SOURCES	
	ORAL	INHALATION
LUNGS	LIVER f1=1.E-03	CORT BONE TRAB BONE f1=1.E-03
LIVER	LIVER 2.6E-07 B	R MARROW 3.2E-05 B 1.2E-05 B
CORT BONE	BONE SURF 8.3E-07 AB	BONE SURF 9.9E-05 AB 4.2E-05 A
TRAB BONE	BONE SURF 1.1E-07	BONE SURF 1.4E-05 3.9E-05 B LIVER 5.5E-06

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hc/WK) FOR CF-251

ORGAN	SOURCES	
	ORAL	INHALATION
LUNGS	LIVER f1=1.E-03	CORT BONE TRAB BONE f1=1.E-03
LIVER	LIVER 2.E+04 (4.E+04)	R MARROW 4.E+02 (5.E+02)
CORT BONE	BONE SURF (3.E+04)	BONE SURF 6.E-02
TRAB BONE	BONE SURF	BONE SURF



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-252

SOURCES

TARGETS	LUNGS	LIVER	CORT BONE	TRAB BONE
R MARROW	2.8E-05	2.3E-05	4.8E-05	7.9E-02
LUNGS	2.4E-01	2.0E-05	2.1E-05	2.1E-05
BONE SURF	2.1E-05	1.4E-05	4.9E-01	4.9E-01
LIVER	1.9E-05	1.3E-01	1.4E-05	1.4E-05

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-252

	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
R MARROW	f1=1.E-03	f1=1.E-03	R MARROW	LUNGS
BONE SURF	4.7E-07 B	5.5E-05 B	(26, 34, 40)	(0, 0, 100)
LUNGS	3.7E-05	3.7E-05	BONE SURF	BONE SURF
LIVER	5.7E-07	6.9E-04 AB	(0, 0, 100)	(14, 4, 82)
		(26, 34, 40)		
		LIVER		
		6.6E-05		
		(26, 34, 40)		

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF CF-252

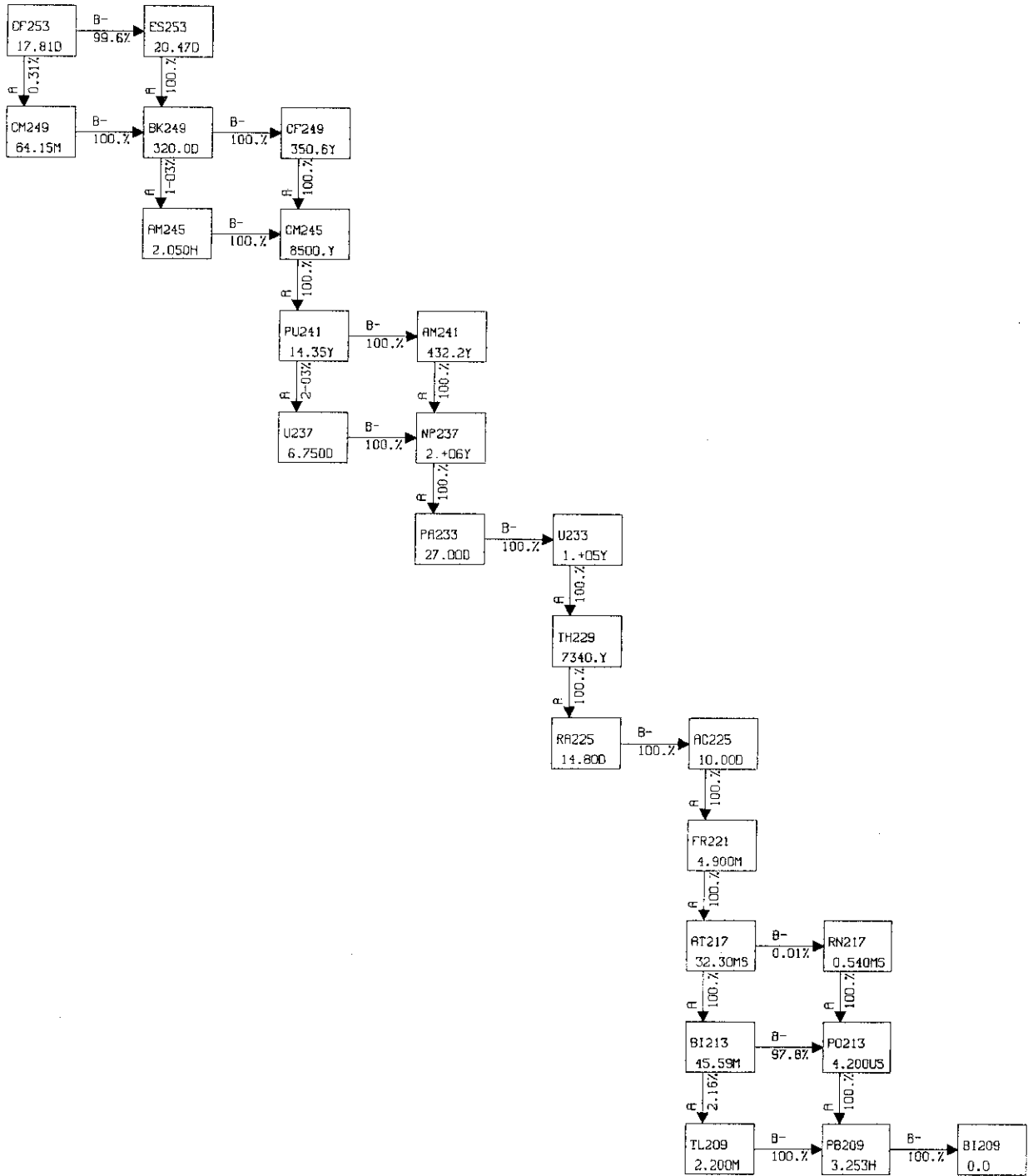
ORGAN	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
LUNGS	f1=1.E-03	f1=1.E-03	9.8E+05	7.8E+06
LIVER	2.7E+04	3.1E+06	3.1E+06	6.2E+05
CORT BONE	3.7E+04	4.4E+06	4.4E+06	8.7E+05
TRAB BONE	3.7E+04	4.4E+06	4.4E+06	8.7E+05

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-252

ORGAN	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
LUNGS	f1=1.E-03	f1=1.E-03	R MARROW	LUNGS
LIVER	5.6E-08 B	6.6E-06 B	BONE SURF	BONE SURF
CORT BONE	1.8E-07 AB	4.5E-06	(1.E+03)	(1.E+03)
TRAB BONE	3.4E-08	2.1E-05 AB	BONE SURF	BONE SURF
		LIVER		
		4.0E-06		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 HR/WK) FOR CF-252

ORGAN	ALI (Bq)		DAC (Bq/m ³)	
	CLASS W	CLASS Y	CLASS W	CLASS Y
BONE SURF	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
	9.E+04	7.E+02	1.E+03	3.E-01
	(2.E+05)	(1.E+03)		
BONE SURF				



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	8.7E-13	2.3E-12	7.3E-13	1.8E-12
LUNGS	3.5E-05	6.6E-14	1.0E-12	6.0E-13
BONE SURF	6.7E-13	5.9E-13	4.8E-13	7.2E-05
LLI WALL	5.7E-14	1.2E-04	1.6E-13	5.6E-13
LIVER	1.0E-12	1.9E-13	1.9E-05	4.1E-13

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-245

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	2.0E-07	5.5E-07	1.7E-07	5.8E-07
LUNGS	2.9E-04	9.4E-09	3.0E-07	1.1E-07
BONE SURF	1.6E-07	1.8E-07	1.2E-07	1.6E-04
LLI WALL	9.3E-09	1.1E-03	2.7E-08	1.2E-07
LIVER	2.9E-07	3.0E-08	1.7E-04	7.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	1.6E-06	4.0E-06	1.4E-06	3.9E-06
LUNGS	1.2E-01	1.1E-07	2.8E-06	1.1E-06
BONE SURF	1.2E-06	1.3E-06	9.3E-07	2.4E-01
LLI WALL	1.0E-07	4.5E-03	3.3E-07	1.1E-06
LIVER	2.8E-06	3.6E-07	6.6E-02	7.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-253

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	2.2E-08	1.1E-07	1.2E-08	3.5E-07
LUNGS	4.7E-04	3.0E-11	4.1E-08	6.1E-09
BONE SURF	2.0E-08	2.8E-08	1.2E-08	9.7E-04
LLI WALL	2.5E-11	3.7E-04	1.0E-10	8.9E-09
LIVER	3.3E-08	1.3E-10	2.6E-04	3.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-249

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	8.4E-08	2.1E-07	7.1E-08	2.1E-07
LUNGS	2.8E-04	7.3E-09	1.6E-07	6.4E-08
BONE SURF	6.6E-08	6.9E-08	4.9E-08	5.4E-05
LLI WALL	5.4E-09	1.0E-03	2.0E-08	6.4E-08
LIVER	1.5E-07	2.3E-08	1.6E-04	4.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-253

TARGETS	SOURCES			
	LUNGS	LLI CONTENT	LIVER	CORT BONE TRAB BONE
R MARROW	4.8E-09	2.1E-08	3.0E-09	7.1E-08
LUNGS	1.3E-01	1.0E-10	9.4E-09	1.9E-09
BONE SURF	4.1E-09	5.5E-09	2.6E-09	2.8E-01
LLI WALL	9.3E-11	4.9E-03	3.1E-10	2.5E-09
LIVER	7.8E-09	3.4E-10	7.5E-02	1.2E-09

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-253

ORGAN	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	5.4E-09 B	R MARROW	5.0E-07 B	LUNGS
		(33, 43, 24)	(0, 0, 100)	
BONE SURF	6.7E-08 AB	LUNGS	4.0E-06 A	
		(0, 0, 100)		
LLI WALL	8.4E-09	BONE SURF	6.2E-06 B	
		(33, 43, 24)		
LIVER	6.9E-09			

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-253

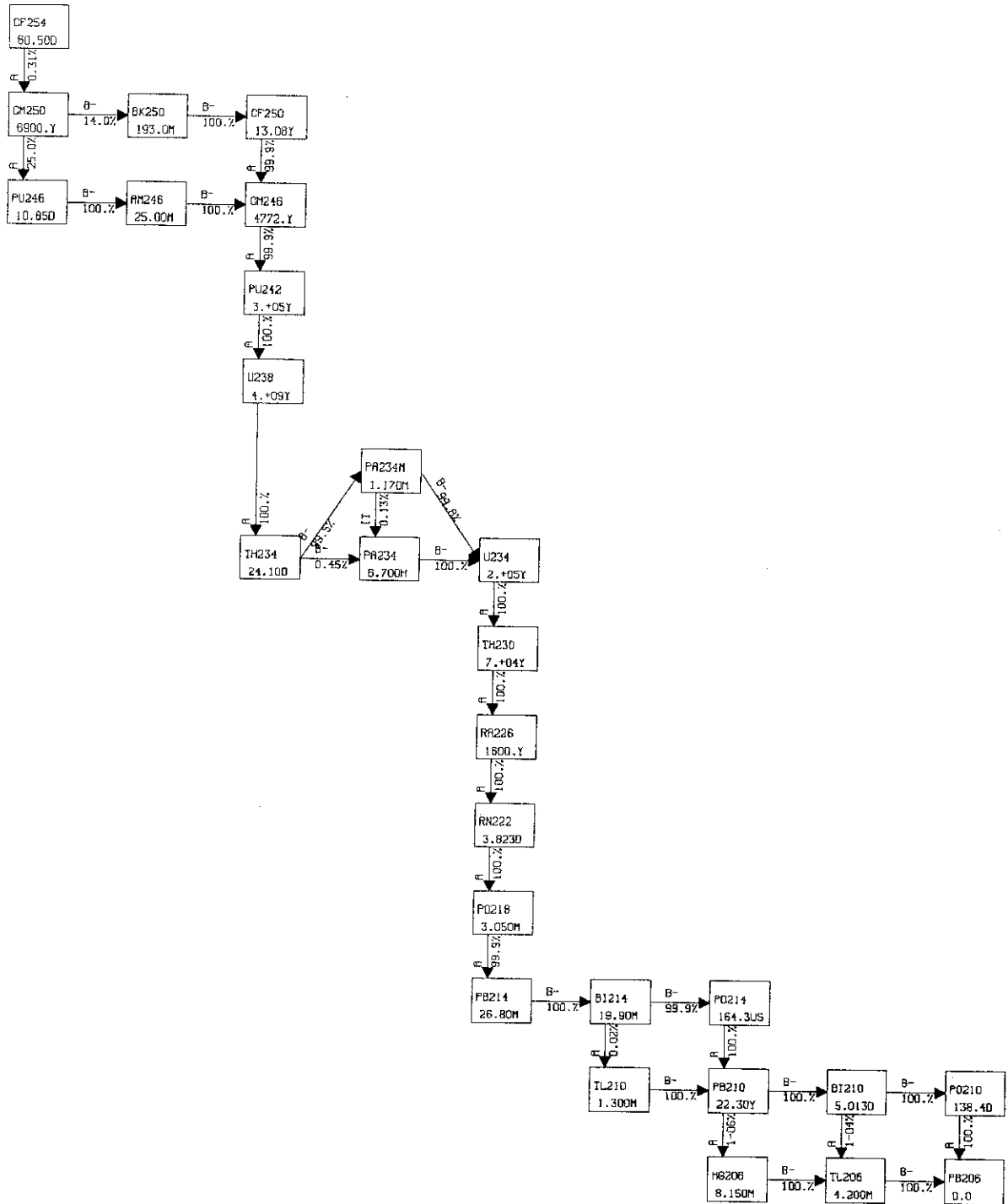
ORGAN	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
R MARROW	6.5E-10 B	R MARROW	6.0E-08 B	LUNGS
				8.2E-07 A
BONE SURF	2.0E-09 AB	LUNGS	4.8E-07 A	
LLI WALL	5.1E-10	BONE SURF	1.9E-07 B	
LIVER	4.1E-10			

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR CONCENTRATIONS, DAC, (40 Hr/M³) FOR CF-253

ALI (Bq)	INHALATION	
CLASS W	CLASS Y	CLASS Y
f1=1.E-03	f1=1.E-03	f1=1.E-03
7.E+06 (1.E+07)	7.E+04	6.E+04
BONE SURF		3.E+01

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CF-253

ORGAN	ORAL		INHALATION	
	CLASS W	CLASS Y	CLASS W	CLASS Y
CF-253	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
CM-249	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
ES-253	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
BK-249	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
AM-245	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
CF-249	f1=1.E-03	f1=1.E-03	f1=1.E-03	f1=1.E-03
LUNGS	2.7E+05	3.4E+05	3.4E+05	3.4E+05
CM-249	8.2E+02	1.1E+03	1.1E+03	1.1E+03
ES-253	1.8E+05	3.1E+05	3.1E+05	3.1E+05
BK-249	2.6E+04	2.2E+05	2.2E+05	2.2E+05
AM-245	0.0	0.0	0.0	0.0
CF-249	1.1E+01	2.0E+03	2.0E+03	2.0E+03
LLI CONTENT	8.1E+04	3.8E+04	3.8E+04	3.8E+04
CM-249	2.5E+02	1.1E+02	1.1E+02	1.1E+02
ES-253	4.7E+03	4.4E+03	4.4E+03	4.4E+03
BK-249	1.4E+01	2.3E+02	2.3E+02	1.9E+02
AM-245	0.0	0.0	0.0	0.0
CF-249	8.3E-05	8.7E-02	8.7E-02	6.8E-01
LIVER	5.4E+02	4.4E+04	4.4E+04	2.6E+03
CM-249	1.7E+00	1.4E+02	1.4E+02	8.0E+00
ES-253	5.5E+02	5.0E+04	5.0E+04	2.9E+03
BK-249	5.3E+02	6.1E+04	6.1E+04	7.1E+03
AM-245	0.0	0.0	0.0	0.0
CF-249	2.4E+01	2.9E+03	2.9E+03	1.2E+03
CORT BONE	7.1E+02	5.8E+04	5.8E+04	3.4E+03
CM-249	2.2E+00	1.8E+02	1.8E+02	1.0E+01
ES-253	7.2E+02	6.5E+04	6.5E+04	3.8E+03
BK-249	7.1E+02	8.2E+04	8.2E+04	9.5E+03
AM-245	0.0	0.0	0.0	0.0
CF-249	4.7E+01	5.7E+03	5.7E+03	2.3E+03
TRAB BONE	7.1E+02	5.8E+04	5.8E+04	3.3E+03
CM-249	2.2E+00	1.8E+02	1.8E+02	1.0E+01
ES-253	7.2E+02	6.5E+04	6.5E+04	3.8E+03
BK-249	7.1E+02	8.2E+04	8.2E+04	9.5E+03
AM-245	0.0	0.0	0.0	0.0
CF-249	4.7E+01	5.7E+03	5.7E+03	2.3E+03



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-254

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.4E+02	7.0E-05	8.4E-03	5.0E-03	1.5E-02	4.4E-04	3.5E-04	3.5E-04
R MARROW	2.4E-03	9.6E-04	1.9E-03	1.5E-03	2.7E-03	7.9E-04	1.6E-03	1.3E+00
LUNGS	7.0E-05	3.8E+00	1.9E-04	1.7E-04	9.1E-05	6.7E-04	7.2E-04	7.2E-04
BONE SURF	3.5E-04	7.2E-04	3.5E-04	9.7E-04	4.8E-04	4.9E-04	7.9E+00	7.9E+00
SI WALL	8.5E-03	1.9E-04	8.5E-02	1.7E-02	7.3E-03	1.4E-03	3.5E-04	3.5E-04
ULI WALL	9.3E-03	1.9E-04	1.9E-02	1.3E-01	3.4E-03	1.9E-03	2.9E-04	2.9E-04
LLI WALL	1.3E-02	7.0E-05	6.3E-03	2.6E-03	2.2E-01	2.0E-04	6.0E-04	6.0E-04
LIVER	4.4E-04	6.7E-04	1.4E-03	1.5E-03	2.4E-04	2.1E+00	4.9E-04	4.9E-04

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF CF-254

ORGAN	ORAL	INHALATION	
	f1=1.E-03	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
GONADS	8.3E-01	7.9E+01	4.9E+00
LUNGS		5.5E+05	1.1E+06
SI CONTENT	1.4E+04	6.6E+03	6.9E+03
ULI CONTENT	4.6E+04	2.1E+04	2.2E+04
LLI CONTENT	8.5E+04	3.9E+04	4.1E+04
LIVER	1.9E+03	1.8E+05	1.1E+04
CORT BONE	2.4E+03	2.3E+05	1.4E+04
TRAB BONE	2.4E+03	2.3E+05	1.4E+04

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-254

ORGAN	ORAL	INHALATION	
	f1=1.E-03	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
GONADS	3.1E-07	R MARROW 4.7E-05 B (32, 42, 26)	LUNGS 6.4E-04 A (0, 0, 100)
R MARROW	5.4E-07 B	LUNGS 3.4E-04 A (0, 0, 100)	
BONE SURF	6.1E-06 AB	BONE SURF 5.8E-04 B (32, 42, 26)	
SI WALL	4.2E-07		
ULI WALL	1.1E-06		
LLI WALL	3.1E-06		
LIVER	6.5E-07		

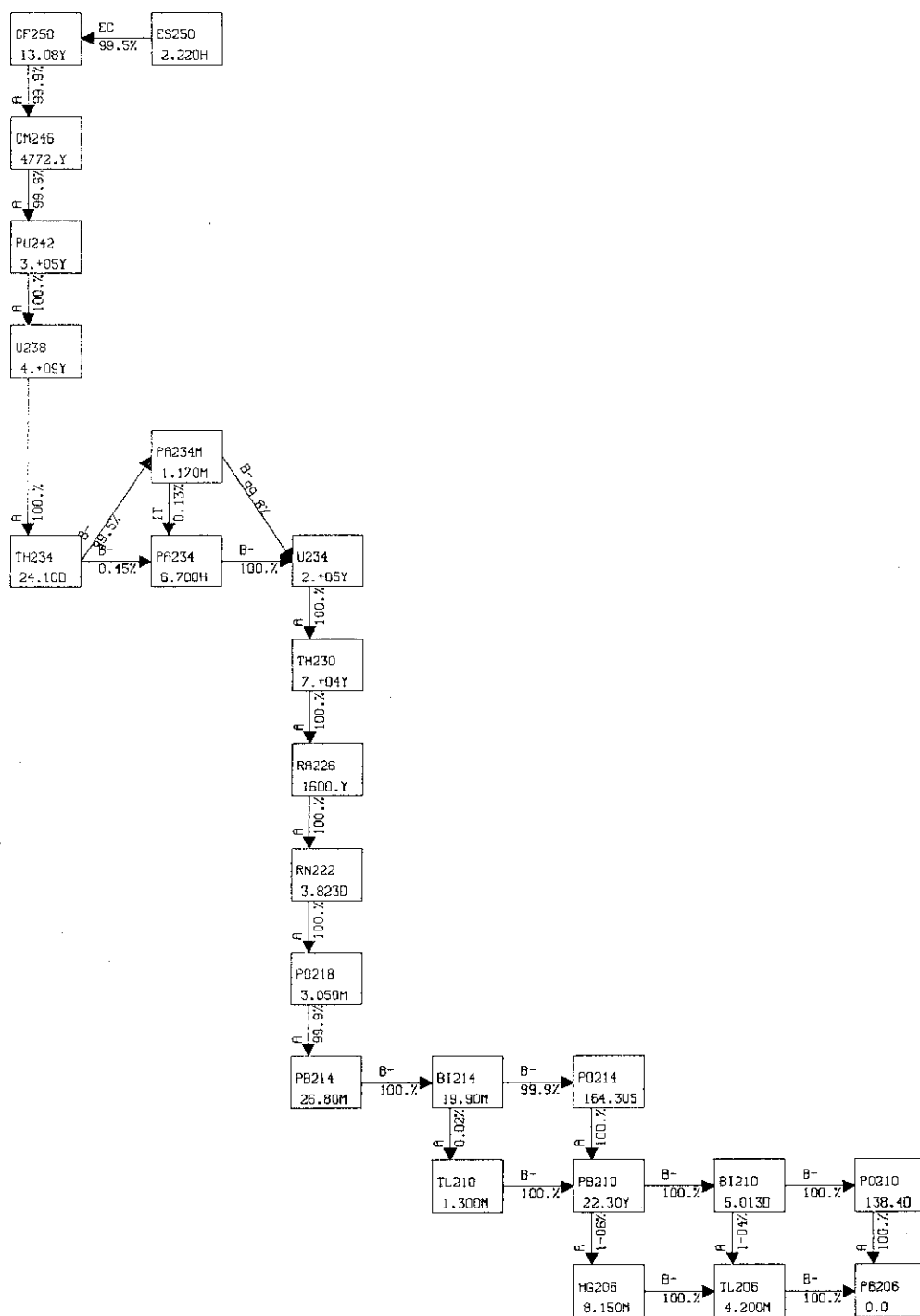
WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF CF-254

ORAL	INHALATION	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
GONADS 7.8E-08	R MARROW 5.6E-06 B	LUNGS 7.7E-05 A
R MARROW 6.5E-08 B	LUNGS 4.0E-05 A	
BONE SURF 1.8E-07 AB	BONE SURF 1.7E-05 B	
SI WALL 2.5E-08		
ULI WALL 6.5E-08		
LLI WALL 1.8E-07		
LIVER 3.9E-08		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR CF-254

ORAL	ALI (Bq)		DAC (Bq/m ³)	
	CLASS W f1=1.E-03	CLASS Y f1=1.E-03	CLASS W f1=1.E-03	CLASS Y f1=1.E-03
	8.E+04	6.E+02	3.E-01	3.E-01

Einsteinium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-250

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	5.3E-03	2.2E-06	1.8E-05	1.5E-05	3.1E-05	1.3E-06	1.7E-06	1.7E-06
R MARROW	6.3E-06	2.0E-06	5.1E-06	4.3E-06	6.4E-06	2.1E-06	6.7E-06	2.0E-05
BONE SURF	1.9E-06	1.2E-06	1.6E-06	1.4E-06	2.1E-06	1.5E-06	5.9E-05	6.0E-05
ST WALL	1.5E-06	1.8E-04	6.4E-06	6.5E-06	2.9E-06	3.5E-06	1.0E-06	1.0E-06
SI WALL	2.1E-05	4.6E-06	1.1E-04	2.9E-05	1.6E-05	2.9E-06	1.5E-06	1.5E-06
ULI WALL	2.0E-05	5.8E-06	4.4E-05	1.7E-04	7.5E-06	4.3E-06	1.4E-06	1.4E-06
LLI WALL	2.5E-05	2.4E-06	1.3E-05	5.9E-06	2.5E-04	5.1E-07	1.9E-06	1.9E-06
LIVER	1.2E-06	3.6E-06	3.4E-06	4.5E-06	6.8E-07	7.1E-05	1.3E-06	1.3E-06
UTERUS	3.1E-05	1.7E-06	1.6E-05	8.8E-06	1.1E-05	7.8E-07	1.5E-06	1.5E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	4.2E-07	5.7E-06	3.5E-06	1.1E-05	3.0E-07	2.4E-07	2.4E-07
R MARROW	1.6E-06	4.9E-07	1.3E-06	1.0E-06	1.8E-06	5.4E-07	1.2E-06	4.1E-02
BONE SURF	2.4E-07	2.3E-07	2.4E-07	6.7E-07	3.3E-07	3.4E-07	2.6E-01	2.6E-01
ST WALL	4.3E-07	2.5E-03	1.8E-06	2.0E-06	8.8E-07	1.0E-06	2.4E-07	2.4E-07
SI WALL	5.8E-06	1.6E-06	1.6E-03	1.2E-05	5.0E-06	9.4E-07	2.4E-07	2.4E-07
ULI WALL	6.5E-06	1.9E-06	1.3E-05	2.8E-03	2.3E-06	1.3E-06	2.0E-07	2.0E-07
LLI WALL	9.0E-06	2.9E-07	4.4E-06	1.8E-06	4.6E-03	1.4E-07	4.1E-07	4.1E-07
LIVER	3.0E-07	1.0E-06	9.5E-07	1.0E-06	1.6E-07	7.0E-02	3.3E-07	3.3E-07
UTERUS	9.9E-06	4.0E-07	4.7E-06	1.9E-06	3.1E-06	2.6E-07	1.9E-07	1.9E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	SOURCES							
	GONADS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.0E+01	1.2E-07	1.6E-06	9.7E-07	2.9E-06	8.5E-08	6.8E-08	6.8E-08
R MARROW	4.6E-07	1.4E-07	3.7E-07	2.9E-07	5.1E-07	1.5E-07	3.2E-07	3.6E-02
BONE SURF	6.8E-08	6.4E-08	6.8E-08	1.9E-07	9.2E-08	9.5E-08	2.3E-01	2.3E-01
ST WALL	1.2E-07	2.2E-03	5.0E-07	5.6E-07	2.5E-07	2.9E-07	6.8E-08	6.8E-08
SI WALL	1.6E-06	4.5E-07	1.4E-03	3.3E-06	1.4E-06	2.7E-07	6.8E-08	6.8E-08
ULI WALL	1.8E-06	5.2E-07	3.6E-06	2.4E-03	6.5E-07	3.7E-07	5.7E-08	5.7E-08
LLI WALL	2.5E-06	8.5E-08	1.2E-06	5.0E-07	4.0E-03	3.8E-08	1.2E-07	1.2E-07
LIVER	8.5E-08	2.8E-07	2.7E-07	2.9E-07	4.5E-08	6.1E-02	9.5E-08	9.5E-08
UTERUS	2.8E-06	1.1E-07	1.3E-06	5.4E-07	8.8E-07	7.5E-08	5.4E-08	5.4E-08

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF ES-250

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=5.E-04	CLASS W f1=5.E-04
	ES-250	f1=5.E-04	f1=5.E-04
	CF-250	f1=5.E-04	f1=5.E-04
	CM-246	f1=5.E-04	f1=5.E-04
GONADS	ES-250	2.8E-04	1.1E-01
GONADS	CF-250	5.9E-04	1.4E-01
GONADS	CM-246	3.0E-06	7.1E-04
ST CONTENT	ES-250	2.7E+03	1.8E+02
ST CONTENT	CF-250	1.7E-02	3.2E-02
ST CONTENT	CM-246	2.7E-10	2.1E-07
SI CONTENT	ES-250	4.9E+03	3.2E+02
SI CONTENT	CF-250	1.8E-01	1.3E-01
SI CONTENT	CM-246	1.3E-08	8.3E-07
ULI CONTENT	ES-250	3.1E+03	2.1E+02
ULI CONTENT	CF-250	8.4E-01	4.5E-01
ULI CONTENT	CM-246	2.2E-07	2.8E-06
LLI CONTENT	ES-250	6.8E+02	4.5E+01
LLI CONTENT	CF-250	1.7E+00	8.5E-01
LLI CONTENT	CM-246	1.1E-06	5.5E-06
LIVER	ES-250	1.7E-01	6.3E+01
LIVER	CF-250	8.6E-01	2.0E+02
LIVER	CM-246	2.6E-03	6.3E-01
CORT BONE	ES-250	2.5E-01	9.4E+01
CORT BONE	CF-250	1.4E+00	3.4E+02
CORT BONE	CM-246	5.8E-03	1.4E+00
TRAB BONE	ES-250	1.7E-01	6.4E+01
TRAB BONE	CF-250	1.4E+00	3.4E+02
TRAB BONE	CM-246	5.8E-03	1.4E+00

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-250

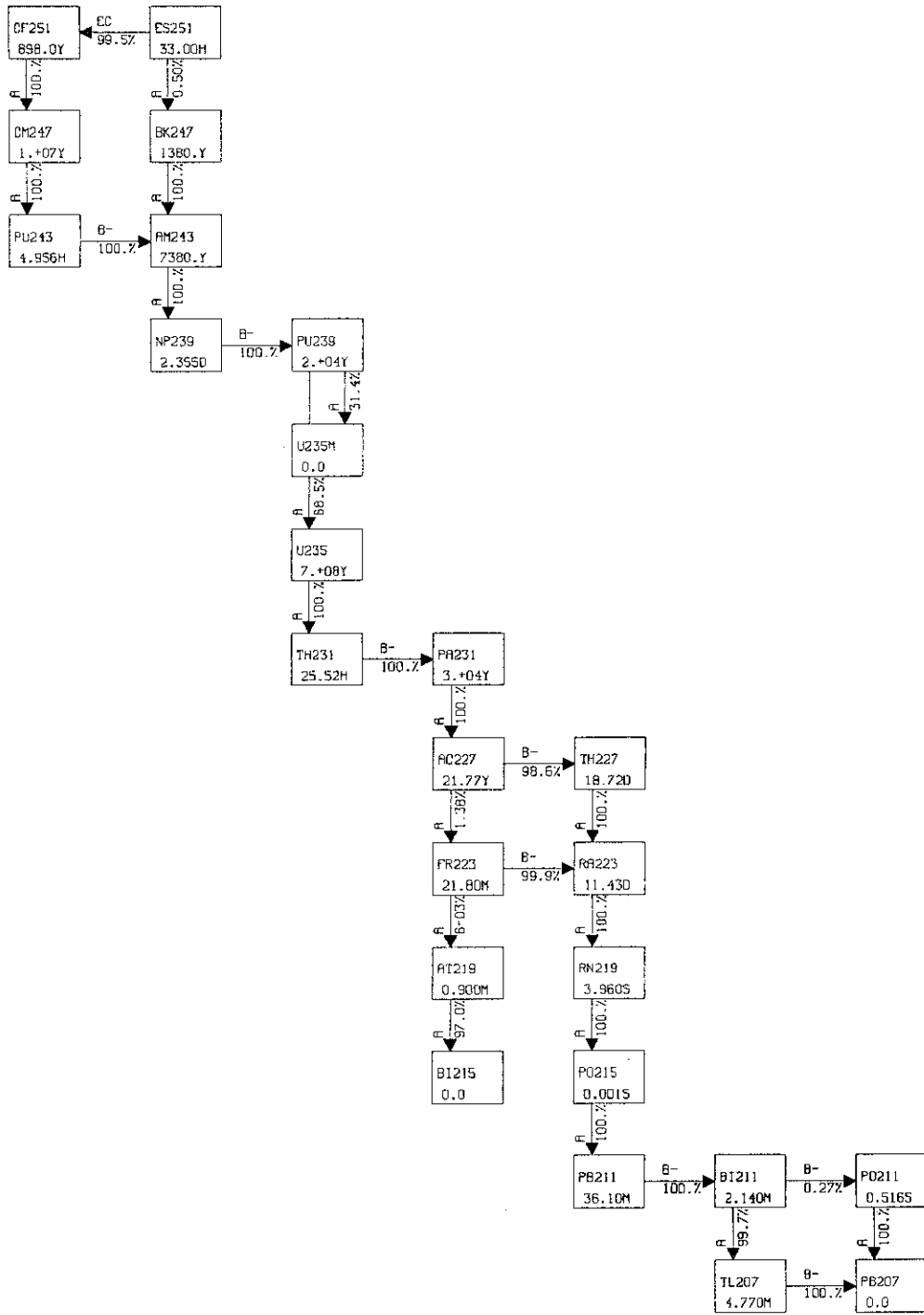
ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
GONADS 6.9E-12	R MARROW 2.7E-10 B
R MARROW 2.1E-12 B	BONE SURF 8.4E-10 AB
BONE SURF 3.6E-12 B	LIVER 1.4E-10
ST WALL 5.2E-12	
SI WALL 6.2E-12	
ULI WALL 7.5E-12 A	
LLI WALL 2.5E-12	
REMAINDER 1.1E-12 B	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR ES-250

ALI (Bq)	DAC (Bq/m3)
ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
1.E+09	2.E+07 (4.E+07) BONE SURF
	7.E+03

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-250

ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
GONADS 2.7E-11	R MARROW 2.3E-09 B (25, 33, 42)
R MARROW 1.7E-11 B	BONE SURF 2.8E-08 AB (25, 33, 42)
BONE SURF 1.2E-10 B	LIVER 2.3E-09 (25, 33, 42)
ST WALL 8.7E-11	
SI WALL 1.0E-10	
ULI WALL 1.3E-10 A	
LLI WALL 4.2E-11	
REMAINDER 1.6E-11 B WT=.06	



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-251

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.0E-08	4.1E-06	4.5E-06	7.1E-06	1.5E-07	2.5E-07	2.5E-07
R MARROW	7.3E-07	1.6E-06	1.4E-06	2.1E-06	6.1E-07	2.2E-06	2.3E-04
LUNGS	7.0E-04	7.3E-08	8.9E-08	2.6E-08	9.5E-07	3.3E-07	3.3E-07
BONE SURF	5.7E-07	4.8E-07	4.3E-07	6.5E-07	4.3E-07	1.4E-03	1.4E-03
SI WALL	6.4E-08	6.5E-05	6.7E-06	3.7E-06	5.7E-07	2.6E-07	2.6E-07
ULI WALL	7.5E-08	1.2E-05	1.1E-04	1.7E-06	9.0E-07	2.4E-07	2.4E-07
LLI WALL	2.0E-08	3.1E-06	1.2E-06	1.7E-04	7.8E-08	3.7E-07	3.7E-07
LIVER	9.0E-07	6.5E-07	9.0E-07	8.3E-08	4.0E-04	2.3E-07	2.3E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-247

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	5.4E-08	5.6E-06	6.2E-06	9.8E-06	2.2E-07	3.9E-07	3.9E-07
R MARROW	9.5E-07	2.1E-06	1.8E-06	2.6E-06	7.9E-07	2.3E-06	3.7E-02
LUNGS	1.1E-01	1.2E-07	1.4E-07	4.1E-08	1.3E-06	5.0E-07	5.0E-07
BONE SURF	7.6E-07	6.2E-07	5.6E-07	8.3E-07	5.6E-07	2.3E-01	2.3E-01
SI WALL	9.9E-08	1.5E-03	9.1E-06	5.0E-06	8.4E-07	3.9E-07	3.9E-07
ULI WALL	1.2E-07	1.3E-05	2.7E-03	2.3E-06	1.3E-06	3.6E-07	3.6E-07
LLI WALL	4.0E-08	3.9E-06	1.6E-06	4.4E-03	1.2E-07	5.3E-07	5.3E-07
LIVER	1.3E-06	9.4E-07	1.3E-06	1.3E-07	6.3E-02	3.4E-07	3.4E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-251

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.2E-08	5.0E-06	5.5E-06	9.2E-06	1.9E-07	3.1E-07	3.1E-07
R MARROW	8.2E-07	1.8E-06	1.6E-06	2.3E-06	6.9E-07	2.8E-06	3.8E-02
LUNGS	1.2E-01	9.6E-08	1.1E-07	3.4E-08	1.2E-06	4.2E-07	4.2E-07
BONE SURF	6.5E-07	5.4E-07	4.9E-07	7.3E-07	4.9E-07	2.4E-01	2.4E-01
SI WALL	8.1E-08	1.7E-03	8.3E-06	4.6E-06	7.1E-07	3.2E-07	3.2E-07
ULI WALL	9.7E-08	1.5E-05	3.0E-03	2.2E-06	1.1E-06	3.0E-07	3.0E-07
LLI WALL	3.2E-08	3.9E-06	1.5E-06	5.0E-03	9.9E-08	4.6E-07	4.6E-07
LIVER	1.1E-06	8.0E-07	1.1E-06	1.1E-07	6.4E-02	2.9E-07	2.9E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF ES-251

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=5.E-04	CLASS W f1=5.E-04
	ES-251	f1=5.E-04	f1=5.E-04
	BK-247	f1=5.E-04	f1=5.E-04
	CF-251	f1=5.E-04	f1=5.E-04
LUNGS	ES-251		3.5E+04
LUNGS	BK-247		1.4E-02
LUNGS	CF-251		4.2E+00
SI CONTENT	ES-251	1.3E+04	3.9E+03
SI CONTENT	BK-247	1.9E-05	4.7E-05
SI CONTENT	CF-251	5.8E-03	1.5E-02
ULI CONTENT	ES-251	3.3E+04	9.9E+03
ULI CONTENT	BK-247	1.9E-04	1.9E-04
ULI CONTENT	CF-251	5.7E-02	5.8E-02
LLI CONTENT	ES-251	4.1E+04	1.2E+04
LLI CONTENT	BK-247	6.2E-04	4.4E-04
LLI CONTENT	CF-251	1.9E-01	1.3E-01
LIVER	ES-251	1.7E+01	2.6E+03
LIVER	BK-247	1.3E-03	3.0E-01
LIVER	CF-251	3.9E-01	9.3E+01
CORT BONE	ES-251	2.2E+01	3.4E+03
CORT BONE	BK-247	2.5E-03	6.0E-01
CORT BONE	CF-251	7.6E-01	1.8E+02
TRAB BONE	ES-251	2.1E+01	3.3E+03
TRAB BONE	BK-247	2.5E-03	6.0E-01
TRAB BONE	CF-251	7.6E-01	1.8E+02

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-251

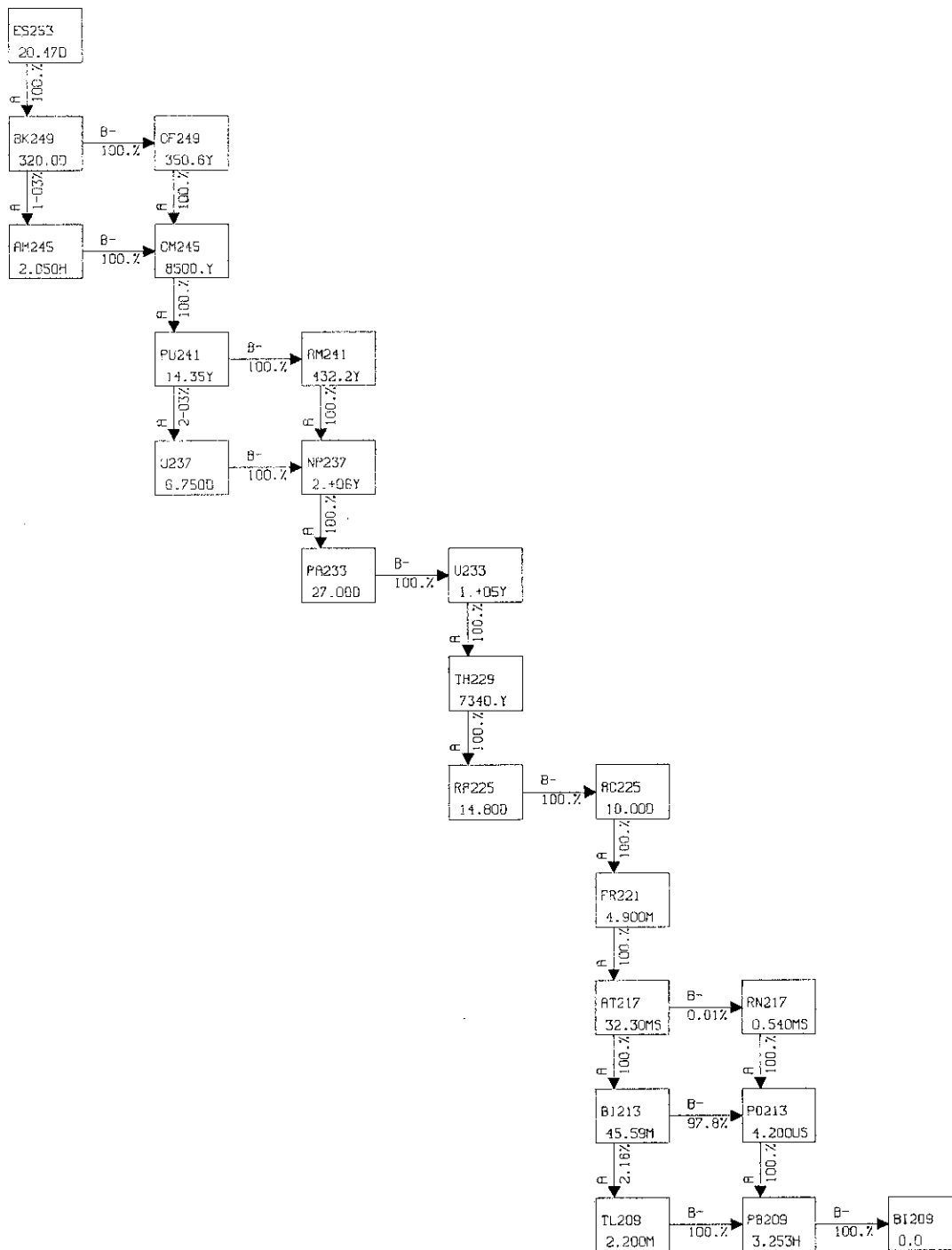
<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
GONADS 7.9E-11	R MARROW 1.2E-09 B (27, 35, 38)
SI WALL 1.9E-10	LUNGS 3.9E-09 A (0, 3, 97)
ULI WALL 6.2E-10	BONE SURF 1.5E-08 B (27, 36, 37)
LLI WALL 1.1E-09 A	LIVER 1.1E-09 (28, 36, 36)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-251

<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
GONADS 2.0E-11	R MARROW 1.5E-10 B
SI WALL 1.2E-11	LUNGS 4.7E-10 A
ULI WALL 3.7E-11	BONE SURF 4.6E-10 B
LLI WALL 6.8E-11 A	LIVER 6.8E-11

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/wk) FOR ES-251

<u>ALI (Bq)</u>		<u>DAC (Bq/m³)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04	CLASS W f1=5.E-04
4.E+08	3.E+07 (4.E+07) BONE SURF	1.E+04



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-253

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	1.3E-01	3.5E-10	1.0E-10
BONE SURF	4.1E-09	2.1E-09	5.5E-09
ULI WALL	3.5E-10	3.0E-03	2.8E-08
LLI WALL	9.3E-11	1.1E-08	4.9E-03

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	1.2E-01	3.5E-07	1.1E-07
BONE SURF	1.2E-06	9.2E-07	1.3E-06
ULI WALL	3.6E-07	2.7E-03	4.9E-06
LLI WALL	1.0E-07	3.4E-06	4.5E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	3.5E-05	1.6E-13	6.6E-14
BONE SURF	6.7E-13	6.9E-13	5.9E-13
ULI WALL	1.6E-13	7.5E-05	2.7E-12
LLI WALL	5.7E-14	2.0E-12	1.2E-04

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	1.2E-01	3.5E-07	1.1E-07
BONE SURF	1.2E-06	9.2E-07	1.3E-06
ULI WALL	3.6E-07	2.7E-03	4.9E-06
LLI WALL	1.0E-07	3.4E-06	4.5E-03

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF ES-253

ORGAN	ORAL		INHALATION	
	ISOTOPE	CLASS W	ISOTOPE	CLASS W
LUNGS	ES-253	f1=5.E-04	ES-253	f1=5.E-04
	BK-249	f1=5.E-04	BK-249	f1=5.E-04
	AM-245	f1=5.E-04	AM-245	f1=5.E-04
	CF-249	f1=5.E-04	CF-249	f1=5.E-04
LUNGS	ES-253		ES-253	2.9E+05
	BK-249		BK-249	4.0E+04
	AM-245		AM-245	0.0
LUNGS	ES-253		ES-253	1.7E+01
	BK-249		BK-249	0.0
	AM-245		AM-245	0.0
ULI CONTENT	ES-253	4.6E+04	ES-253	2.0E+04
	BK-249	7.4E+01	BK-249	2.5E+02
	AM-245	0.0	AM-245	0.0
ULI CONTENT	ES-253	2.4E-04	ES-253	7.3E-02
	BK-249		BK-249	3.5E+04
	AM-245		AM-245	5.3E+02
LLI CONTENT	ES-253	8.1E+04	ES-253	1.4E-01
	BK-249	3.1E+02	BK-249	0.0
	AM-245	0.0	AM-245	0.0
CORT BONE	ES-253	4.1E+02	ES-253	6.7E+04
	BK-249	4.1E+02	BK-249	9.3E+04
	AM-245	0.0	AM-245	0.0
CORT BONE	ES-253	2.7E+01	ES-253	6.6E+03
	BK-249		BK-249	6.7E+04
	AM-245		AM-245	9.3E+04
TRAB BONE	ES-253	6.1E+02	ES-253	6.7E+04
	BK-249	4.1E+02	BK-249	9.3E+04
	AM-245	0.0	AM-245	0.0
TRAB BONE	ES-253	2.7E+01	ES-253	6.6E+03
	BK-249		BK-249	6.7E+04
	AM-245		AM-245	9.3E+04

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY (TRANSFORMATIONS/Bq) OF BK-249

ORGAN	ORAL		INHALATION	
	ISOTOPE	CLASS W	ISOTOPE	CLASS W
LUNGS	ES-253	f1=5.E-04	ES-253	f1=5.E-04
	BK-249	f1=5.E-04	BK-249	f1=5.E-04
	AM-245	f1=5.E-04	AM-245	f1=5.E-04
	CF-249	f1=5.E-04	CF-249	f1=5.E-04
LUNGS	ES-253		ES-253	2.9E+05
	BK-249		BK-249	4.0E+04
	AM-245		AM-245	0.0
LUNGS	ES-253		ES-253	1.7E+01
	BK-249		BK-249	0.0
	AM-245		AM-245	0.0
ULI CONTENT	ES-253	4.6E+04	ES-253	2.0E+04
	BK-249	7.4E+01	BK-249	2.5E+02
	AM-245	0.0	AM-245	0.0
ULI CONTENT	ES-253	2.4E-04	ES-253	7.3E-02
	BK-249		BK-249	3.5E+04
	AM-245		AM-245	5.3E+02
LLI CONTENT	ES-253	8.1E+04	ES-253	1.4E-01
	BK-249	3.1E+02	BK-249	0.0
	AM-245	0.0	AM-245	0.0
CORT BONE	ES-253	4.1E+02	ES-253	6.7E+04
	BK-249	4.1E+02	BK-249	9.3E+04
	AM-245	0.0	AM-245	0.0
CORT BONE	ES-253	2.7E+01	ES-253	6.6E+03
	BK-249		BK-249	6.7E+04
	AM-245		AM-245	9.3E+04
TRAB BONE	ES-253	6.1E+02	ES-253	6.7E+04
	BK-249	4.1E+02	BK-249	9.3E+04
	AM-245	0.0	AM-245	0.0
TRAB BONE	ES-253	2.7E+01	ES-253	6.6E+03
	BK-249		BK-249	6.7E+04
	AM-245		AM-245	9.3E+04

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-253

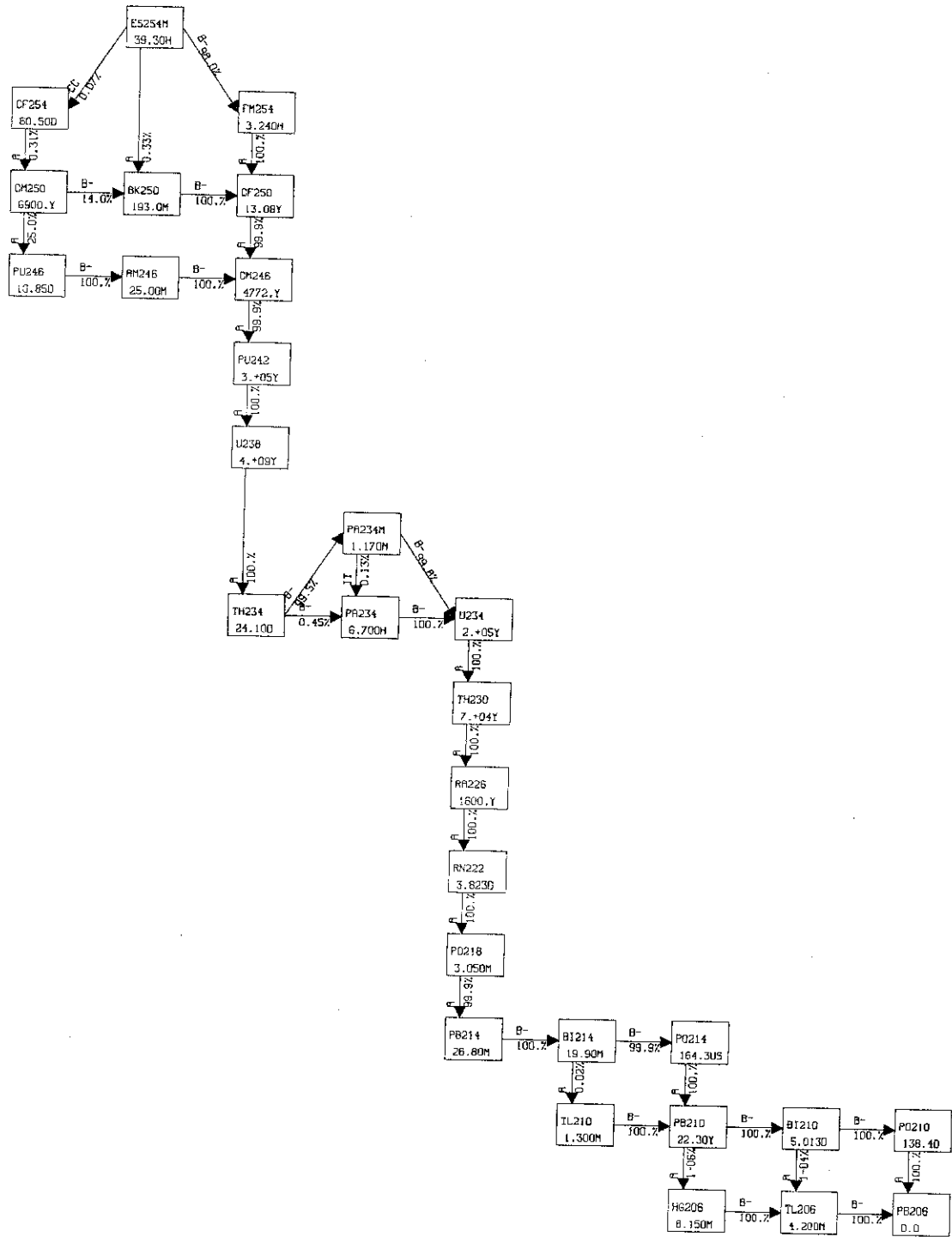
<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
BONE SURF	LUNGS
3.8E-08 B	6.3E-06 A (0, 0, 100)
ULI WALL	BONE SURF
2.2E-08	6.5E-06 B (36, 47, 17)
LLI WALL	
6.4E-08 A	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-253

<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
BONE SURF	LUNGS
1.1E-09 B	7.6E-07 A
ULI WALL	BONE SURF
1.3E-09	1.9E-07 B
LLI WALL	
3.8E-09 A	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR ES-253

	<u>ALI (Bq)</u>	<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
	CLASS W	CLASS W
f1=5.E-04	f1=5.E-04	f1=5.E-04
8.E+06 (8.E+06)	5.E+04	2.E+01
LLI WALL		



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-254

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	1.5E-01	9.8E-08	5.4E-08
BONE SURF	4.4E-07	6.0E-07	3.0E-07
ULI WALL	1.1E-07	3.3E-03	2.1E-06
LLI WALL	4.2E-08	1.6E-06	5.5E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-254M

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	6.8E-04	5.7E-07	1.9E-07
BONE SURF	1.6E-06	1.1E-06	1.6E-06
ULI WALL	6.2E-07	6.0E-04	6.6E-06
LLI WALL	1.3E-07	4.9E-06	9.5E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-250

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	3.3E-04	1.2E-06	4.9E-07
BONE SURF	2.9E-06	2.0E-06	2.9E-06
ULI WALL	1.2E-06	7.9E-04	1.1E-05
LLI WALL	2.8E-07	9.6E-06	1.2E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-254

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	3.8E+00	1.7E-04	9.1E-05
BONE SURF	7.2E-04	9.7E-04	4.8E-04
ULI WALL	1.9E-04	1.3E-01	3.4E-03
LLI WALL	7.0E-05	2.6E-03	2.2E-01

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	1.3E-01	1.1E-07	6.1E-08
BONE SURF	4.9E-07	6.7E-07	3.3E-07
ULI WALL	1.3E-07	2.8E-03	2.3E-06
LLI WALL	4.8E-08	1.8E-06	4.6E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-250

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
LUNGS	2.2E+00	8.7E-05	4.7E-05
BONE SURF	3.7E-04	4.9E-04	2.5E-04
ULI WALL	9.8E-05	7.9E-02	1.7E-03
LLI WALL	3.6E-05	1.3E-03	1.3E-01

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF ES-254M

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF PU-246
SOURCES

TARGETS	LUNGS	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE	ORGAN	ISOTOPE	ORAL	INHALATION
LUNGS	1.5E-04	1.3E-07	3.8E-08	4.8E-07	4.8E-07	LUNGS	ES-254M	f1=5.E-04	CLASS W
BONE SURF	7.7E-07	5.6E-07	8.6E-07	2.9E-04	2.9E-04	LUNGS	CF-254	f1=5.E-04	f1=5.E-04
ULI WALL	1.1E-07	3.5E-04	2.4E-06	3.5E-07	3.5E-07	LUNGS	CM-250	f1=5.E-04	f1=5.E-04
LLI WALL	3.8E-08	1.7E-06	5.6E-04	5.3E-07	5.3E-07	LUNGS	FK-250	f1=5.E-04	f1=5.E-04
						LUNGS	CF-250	f1=5.E-04	f1=5.E-04
						LUNGS	PU-246	f1=5.E-04	f1=5.E-04
						LUNGS	AM-246	f1=5.E-04	f1=5.E-04
						LUNGS	CM-246	f1=5.E-04	f1=5.E-04

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-246

TARGETS	LUNGS	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE	ORGAN	ISOTOPE	ORAL	INHALATION
LUNGS	5.1E-04	1.3E-06	5.1E-07	3.2E-06	3.2E-06	LUNGS	ES-254M	3.5E+04	4.0E+04
BONE SURF	3.1E-06	2.2E-06	3.2E-06	1.2E-04	1.6E-04	LUNGS	CF-254	2.5E-01	1.1E+04
ULI WALL	1.3E-06	1.2E-03	1.3E-05	2.5E-06	2.5E-06	LUNGS	CM-250	1.3E-10	2.3E-01
LLI WALL	2.9E-07	1.0E-05	1.9E-03	3.4E-06	3.4E-06	LUNGS	FM-254	3.1E+04	3.5E-09
						LUNGS	BK-250	1.1E+02	1.1E+04
						LUNGS	CF-250	3.1E+00	3.7E+01
						LUNGS	PU-246	1.1E-12	4.1E+00
						LUNGS	AM-246	1.1E-12	6.9E-10
						LUNGS	CM-246	7.1E-07	6.9E-10
						LUNGS	CM-246	7.1E-07	4.5E-05

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	LUNGS	ULI CONTENT	LLI CONTENT	CORT BONE	TRAB BONE	ORGAN	ISOTOPE	ORAL	INHALATION
LUNGS	1.1E-01	3.2E-08	1.8E-08	1.4E-07	1.4E-07	LUNGS	ES-254M	4.5E+04	1.4E+04
BONE SURF	1.4E-07	1.9E-07	9.2E-08	2.3E-01	2.3E-01	LUNGS	CF-254	8.8E-01	5.5E-01
ULI WALL	3.7E-08	2.4E-03	6.5E-07	5.7E-08	5.7E-08	LUNGS	CM-250	9.9E-10	7.0E-09
LLI WALL	1.3E-08	5.0E-07	4.0E-03	1.2E-07	1.2E-07	LUNGS	FM-254	4.7E+04	1.3E+04
						LUNGS	BK-250	1.6E+02	5.0E+01
						LUNGS	CF-250	1.3E+01	5.6E+00
						LUNGS	PU-246	1.7E-11	1.3E-09
						LUNGS	AM-246	1.6E-11	1.3E-09
						LUNGS	CM-246	6.3E-04	8.7E-05
						CORT BONE	ES-254M	2.7E+01	4.2E+03
						CORT BONE	CF-254	2.6E-02	5.0E+00
						CORT BONE	CM-250	3.0E-07	7.1E-05
						CORT BONE	FM-254	2.8E+01	4.3E+03
						CORT BONE	BK-250	9.5E-02	1.4E+01
						CORT BONE	CF-250	2.5E+01	6.0E+03
						CORT BONE	PU-246	7.4E-08	1.8E-05
						CORT BONE	AM-246	7.4E-08	1.8E-05
						CORT BONE	CM-246	1.0E-01	2.5E+01

(Continued)

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TRAB BONE	ES-254M	2.6E+01	4.1E+03
TRAB BONE	CF-254	2.6E-02	5.0E+00
TRAB BONE	CM-250	3.0E-07	7.1E-05
TRAB BONE	FM-254	2.8E+01	4.2E+03
TRAB BONE	BK-250	9.3E-02	1.4E+01
TRAB BONE	CF-250	2.5E+01	6.0E+03
TRAB BONE	PU-246	7.4E-08	1.8E-05
TRAB BONE	AM-246	7.4E-08	1.8E-05
TRAB BONE	CM-246	1.0E-01	2.5E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-254M

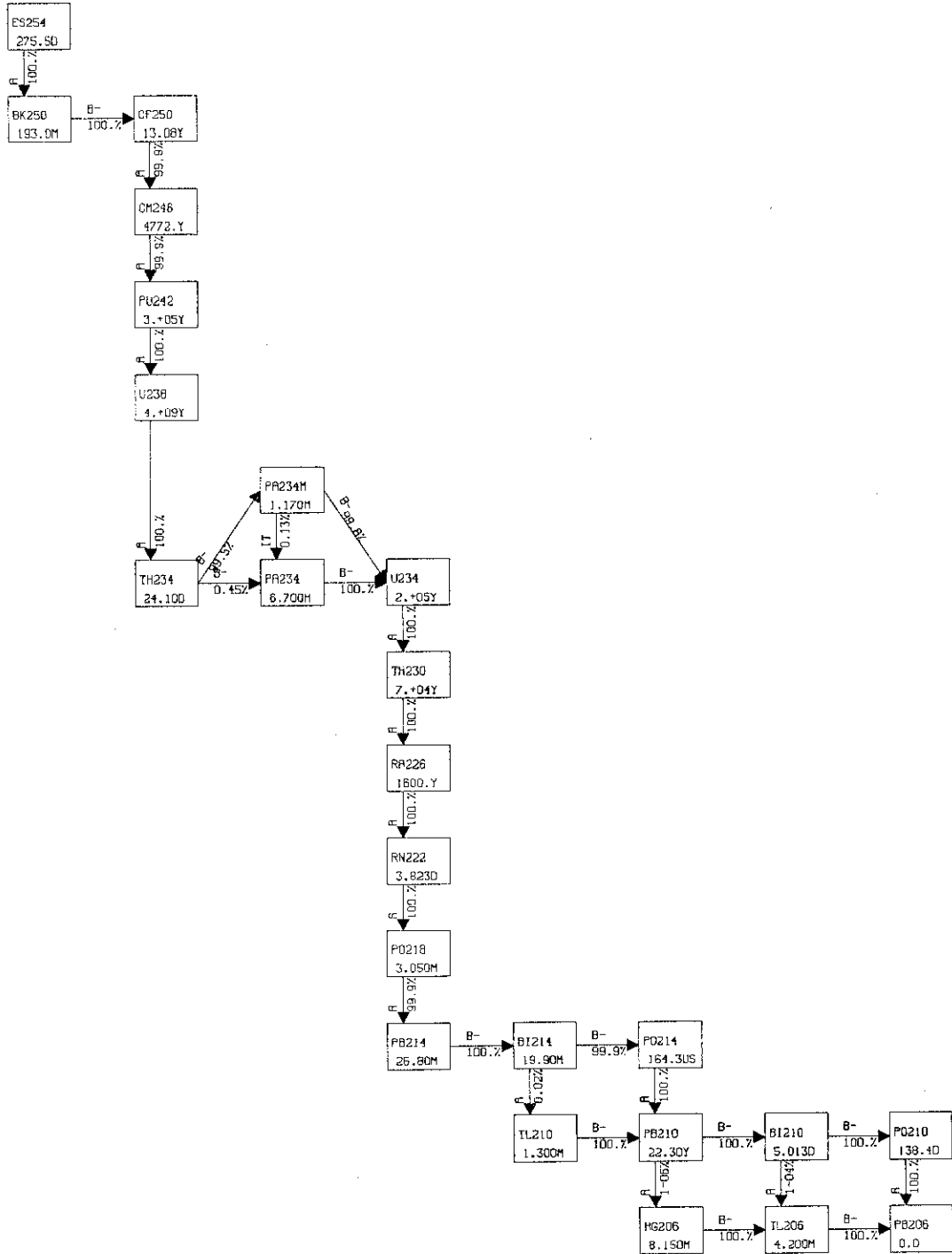
<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
ULI WALL	LUNGS
2.0E-08	9.1E-07 A (0, 1, 99)
LLI WALL	BONE SURF
4.8E-08 A	9.2E-07 B (33, 44, 23)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-254M

<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
ULI WALL	LUNGS
1.2E-09	1.1E-07 A
LLI WALL	BONE SURF
2.9E-09 A	2.8E-08 B

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR ES-254M

<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
	CLASS W	CLASS W
f1=5.E-04	f1=5.E-04	f1=5.E-04
1.E+07 (1.E+07) LLI WALL	4.E+05	2.E+02



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	1.8E-07	1.5E-07	3.2E-07	3.6E-02
LUNGS	1.1E-01	1.3E-07	1.4E-07	1.4E-07
BONE SURF	1.4E-07	9.5E-08	2.3E-01	2.3E-01
LLI WALL	1.3E-08	3.8E-08	1.2E-07	1.2E-07
LIVER	1.3E-07	4.5E-08	6.1E-02	9.5E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-254

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	8.7E-08	5.0E-08	1.4E-06	4.3E-02
LUNGS	1.3E-01	1.6E-07	2.8E-03	2.8E-08
BONE SURF	7.5E-08	4.7E-08	2.7E-01	2.7E-01
LLI WALL	6.8E-10	2.2E-09	3.9E-08	3.9E-08
LIVER	1.3E-07	2.6E-09	1.5E-08	1.5E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-250

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	3.6E-06	2.9E-06	9.3E-06	1.1E-04
LUNGS	3.3E-04	4.9E-07	2.9E-06	2.9E-06
BONE SURF	2.9E-06	2.1E-06	8.3E-05	1.1E-04
LLI WALL	2.8E-07	8.1E-07	3.2E-06	3.2E-06
LIVER	6.9E-06	1.2E-06	2.2E-06	2.2E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	SOURCES			
	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
R MARROW	6.6E-07	5.4E-07	1.2E-06	4.1E-02
LUNGS	1.3E-01	4.6E-07	4.9E-07	4.9E-07
BONE SURF	4.9E-07	3.4E-07	2.6E-01	2.6E-01
LLI WALL	4.8E-08	1.4E-07	4.1E-07	4.1E-07
LIVER	4.5E-07	1.6E-07	3.3E-07	3.3E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF ES-254

ORGAN	ORAL		INHALATION	
	ISOTOPE	CLASS W	ISOTOPE	CLASS W
LUNGS	ES-254	f1=5.E-04	ES-254	B-7E+05
	BK-250	f1=5.E-04	BK-250	B-6E+05
	CF-250	f1=5.E-04	CF-250	9.5E+03
	CM-246	f1=5.E-04	CM-246	2.9E-01
LIVER	ES-254	f1=5.E-04	ES-254	8.6E+04
	BK-250	f1=5.E-04	BK-250	8.4E+04
	CF-250	f1=5.E-04	CF-250	1.9E+01
	CM-246	f1=5.E-04	CM-246	9.4E-06
CORT BONE	ES-254	f1=5.E-04	ES-254	4.1E+03
	BK-250	f1=5.E-04	BK-250	4.1E+03
	CF-250	f1=5.E-04	CF-250	2.5E+03
	CM-246	f1=5.E-04	CM-246	7.4E+00
TRAB BONE	ES-254	f1=5.E-04	ES-254	5.5E+03
	BK-250	f1=5.E-04	BK-250	5.5E+03
	CF-250	f1=5.E-04	CF-250	4.2E+03
	CM-246	f1=5.E-04	CM-246	1.7E+01

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-254

<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
R MARROW 6.5E-03 B	R MARROW 1.5E-05 B (26, 35, 39)
BONE SURF 8.1E-07 AB	LUNGS 1.8E-05 (0, 0,100)
LLI WALL 8.6E-08	BONE SURF 1.9E-04 AB (26, 35, 39)
LIVER 7.5E-08	LIVER 1.7E-05 (26, 35, 39)

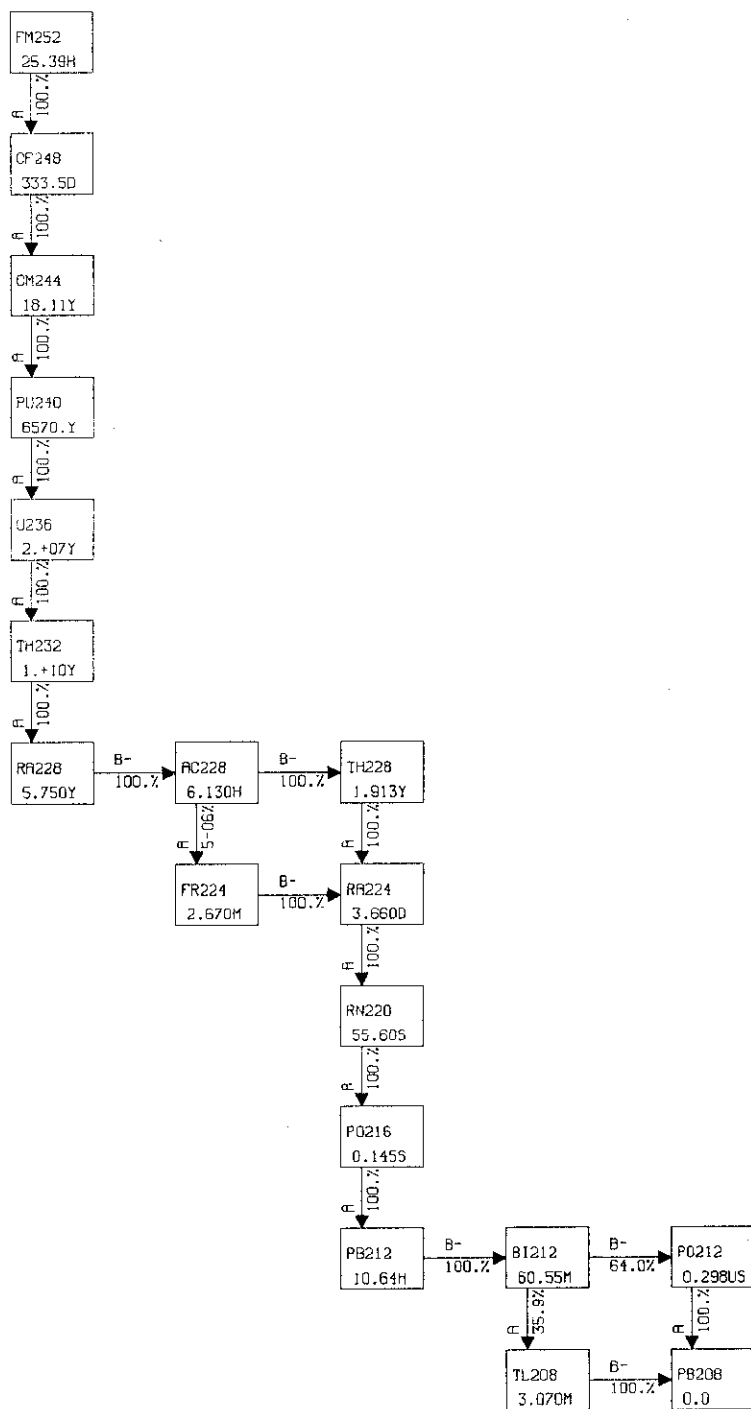
WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGRT ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF ES-254

<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
R MARROW 7.8E-09 B	R MARROW 1.8E-06 B
BONE SURF 2.4E-08 AB	LUNGS 2.2E-06
LLI WALL 5.1E-09	BONE SURF 5.6E-06 AB
LIVER 4.5E-09	LIVER 1.0E-06

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR ES-254

<u>ALI (Bq)</u>	<u>DAC (Bq/m³)</u>	
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04	CLASS W f1=5.E-04
6.E+05 (1.E+06) BONE SURF	3.E+03 (5.E+03) BONE SURF	1.E+00

Fermium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-252

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
LUNGS	1.4E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	2.9E-01	2.9E-01
SI WALL	0.0	1.8E-03	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	3.1E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	5.2E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	7.9E-02	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-248

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
LUNGS	1.3E-01	0.0	0.0	0.0	0.0	0.0	0.0
BONE SURF	0.0	0.0	0.0	0.0	0.0	2.6E-01	2.6E-01
SI WALL	0.0	1.6E-03	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	2.8E-03	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	4.6E-03	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	7.1E-02	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-244

TARGETS	SOURCES						
	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
LUNGS	1.2E-01	1.8E-10	1.6E-10	8.4E-11	1.0E-08	1.7E-09	1.7E-09
BONE SURF	4.1E-09	2.4E-09	2.3E-09	5.9E-09	2.6E-09	2.4E-01	2.4E-01
SI WALL	1.8E-10	1.5E-03	1.4E-07	7.3E-08	2.1E-09	9.4E-10	9.4E-10
ULI WALL	1.8E-10	6.7E-07	2.6E-03	4.3E-08	3.6E-09	1.0E-09	1.0E-09
LLI WALL	6.5E-11	9.5E-08	1.4E-08	4.3E-03	1.9E-10	2.7E-09	2.7E-09
LIVER	7.9E-09	2.7E-09	3.3E-09	2.2E-10	6.5E-02	1.0E-09	1.0E-09

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF FM-252

ORGAN	ISOTOPE	INHALATION	
		ORAL	CLASS W
LUNGS	FM-252	f1=5.E-04	f1=5.E-04
	CF-248	f1=5.E-04	f1=5.E-04
	CM-244	f1=5.E-04	f1=5.E-04
SI CONTENT	FM-252	2.8E+04	2.7E+03
	CF-248	2.7E+03	2.2E+01
	CM-244	2.2E+01	3.5E+03
ULI CONTENT	FM-252	1.3E+04	1.2E+01
	CF-248	5.6E+00	1.0E-04
	CM-244	1.0E-04	3.0E-02
LLI CONTENT	FM-252	3.0E+04	8.3E+03
	CF-248	5.2E+01	4.7E+01
	CM-244	3.3E-03	1.0E-01
LIVER	FM-252	3.4E+04	9.3E+03
	CF-248	1.7E+02	1.1E+02
	CM-244	2.4E-02	2.0E-01
CORT BONE	FM-252	2.1E+01	3.4E+03
	CF-248	2.8E+01	6.4E+03
	CM-244	1.4E+01	3.5E+03
TRAB BONE	FM-252	1.1E+01	1.8E+03
	CF-248	1.5E+01	3.3E+03
	CM-244	9.8E+00	2.4E+03

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-252

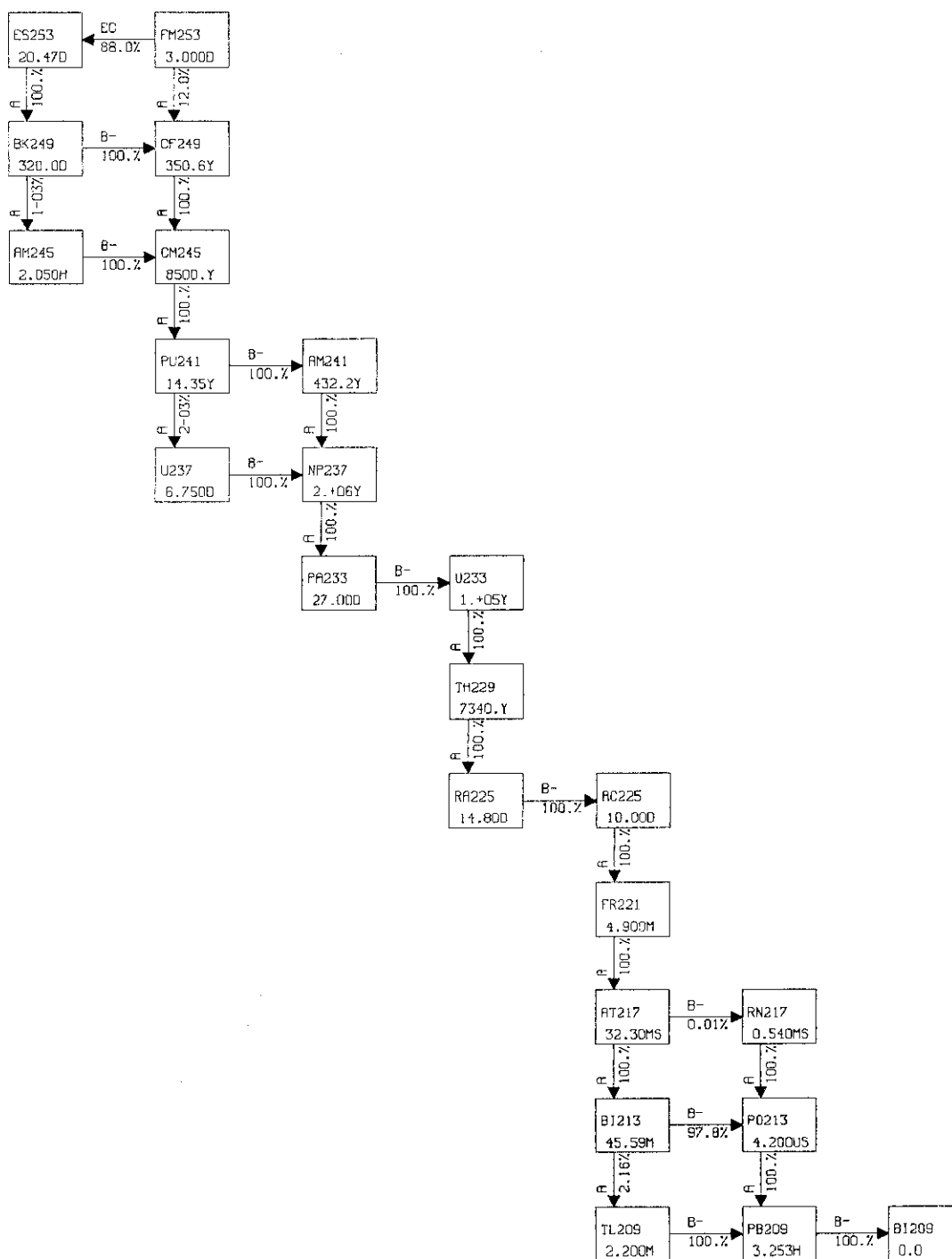
ORGAN	INHALATION	
	ORAL	CLASS W
LUNGS	f1=5.E-04	f1=5.E-04
	SI WALL	LUNGS
	3.6E-09	(0, 3, 97)
ULI WALL	ULI WALL	BONE SURF
	1.5E-08	6.2E-07 B
		(30, 41, 29)
LLI WALL	LLI WALL	LIVER
	2.8E-08 A	1.5E-07
		(31, 41, 28)

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-252

ORGAN	INHALATION	
	ORAL	CLASS W
LUNGS	f1=5.E-04	f1=5.E-04
	SI WALL	LUNGS
	2.1E-10	8.3E-08 A
ULI WALL	ULI WALL	BONE SURF
	9.1E-10	1.9E-08 B
	LLI WALL	LIVER
	1.7E-09 A	9.1E-09

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR FM-252

ALI (Bq)	DAC (Bq/m3)	
	ORAL	INHALATION
f1=5.E-04	CLASS W	CLASS W
	f1=5.E-04	f1=5.E-04
2.E+07	5.E+05	2.E+02
(2.E+07)		
LLI WALL		



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES			
	LUNGS	ULI CONTENT	LLI CONTENT	TRAB BONE
LUNGS	1.2E-01	3.5E-07	1.1E-07	1.1E-06
BONE SURF	1.3E-06	9.2E-07	1.3E-06	2.4E-01
ULI WALL	3.6E-07	2.7E-03	4.9E-06	8.1E-07
LLI WALL	1.0E-07	3.4E-06	4.5E-03	1.1E-06

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF FM-253

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS W	CLASS W	CLASS W
LUNGS	FM-253	f1=5.E-04	f1=5.E-04	6.5E+04	1.4E+04
LUNGS	ES-253	f1=5.E-04	f1=5.E-04	3.5E+04	8.4E+02
LUNGS	BK-249	f1=5.E-04	f1=5.E-04	4.9E+03	2.4E+01
LUNGS	CF-249	f1=5.E-04	f1=5.E-04	4.8E+00	3.7E-02
ULI CONTENT	FM-253	4.0E+04	4.0E+04	1.4E+04	1.4E+04
ULI CONTENT	ES-253	9.0E+02	9.0E+02	8.4E+02	8.4E+02
ULI CONTENT	BK-249	1.2E+00	1.2E+00	2.4E+01	2.4E+01
ULI CONTENT	CF-249	2.0E-02	2.0E-02	3.7E-02	3.7E-02
LLI CONTENT	FM-253	5.9E+04	5.9E+04	2.1E+04	2.1E+04
LLI CONTENT	ES-253	3.3E+03	3.3E+03	2.1E+03	2.1E+03
LLI CONTENT	BK-249	9.3E+00	9.3E+00	5.0E+01	5.0E+01
LLI CONTENT	CF-249	7.6E-02	7.6E-02	8.2E-02	8.2E-02
CORT BONE	FM-253	3.8E+01	3.8E+01	5.7E+03	5.7E+03
CORT BONE	ES-253	3.7E+01	3.7E+01	6.2E+03	6.2E+03
CORT BONE	BK-249	3.6E+01	3.6E+01	8.3E+03	8.3E+03
CORT BONE	CF-249	2.8E+00	2.8E+00	6.7E+02	6.7E+02
TRAB BONE	FM-253	3.7E+01	3.7E+01	5.6E+03	5.6E+03
TRAB BONE	ES-253	3.7E+01	3.7E+01	6.2E+03	6.2E+03
TRAB BONE	BK-249	3.6E+01	3.6E+01	8.3E+03	8.3E+03
TRAB BONE	CF-249	2.8E+00	2.8E+00	6.7E+02	6.7E+02

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-253

TARGETS	SOURCES			
	LUNGS	ULI CONTENT	LLI CONTENT	TRAB BONE
LUNGS	1.7E-02	6.9E-08	2.1E-08	2.6E-07
BONE SURF	4.5E-07	3.3E-07	5.2E-07	3.4E-02
ULI WALL	6.0E-08	5.2E-04	1.5E-06	1.9E-07
LLI WALL	1.7E-08	1.0E-06	8.5E-04	3.0E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-253

TARGETS	SOURCES			
	LUNGS	ULI CONTENT	LLI CONTENT	TRAB BONE
LUNGS	1.3E-01	3.5E-10	1.0E-10	1.9E-09
BONE SURF	4.1E-09	2.1E-09	5.5E-09	2.8E-01
ULI WALL	3.5E-10	3.0E-03	2.8E-08	1.3E-09
LLI WALL	9.3E-11	1.1E-08	4.9E-03	2.5E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES			
	LUNGS	ULI CONTENT	LLI CONTENT	TRAB BONE
LUNGS	3.5E-05	1.6E-13	6.6E-14	6.0E-13
BONE SURF	6.7E-13	6.9E-13	5.9E-13	7.2E-05
ULI WALL	1.6E-13	7.5E-05	2.7E-12	3.4E-13
LLI WALL	5.7E-14	2.0E-12	1.2E-04	5.6E-13

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-253

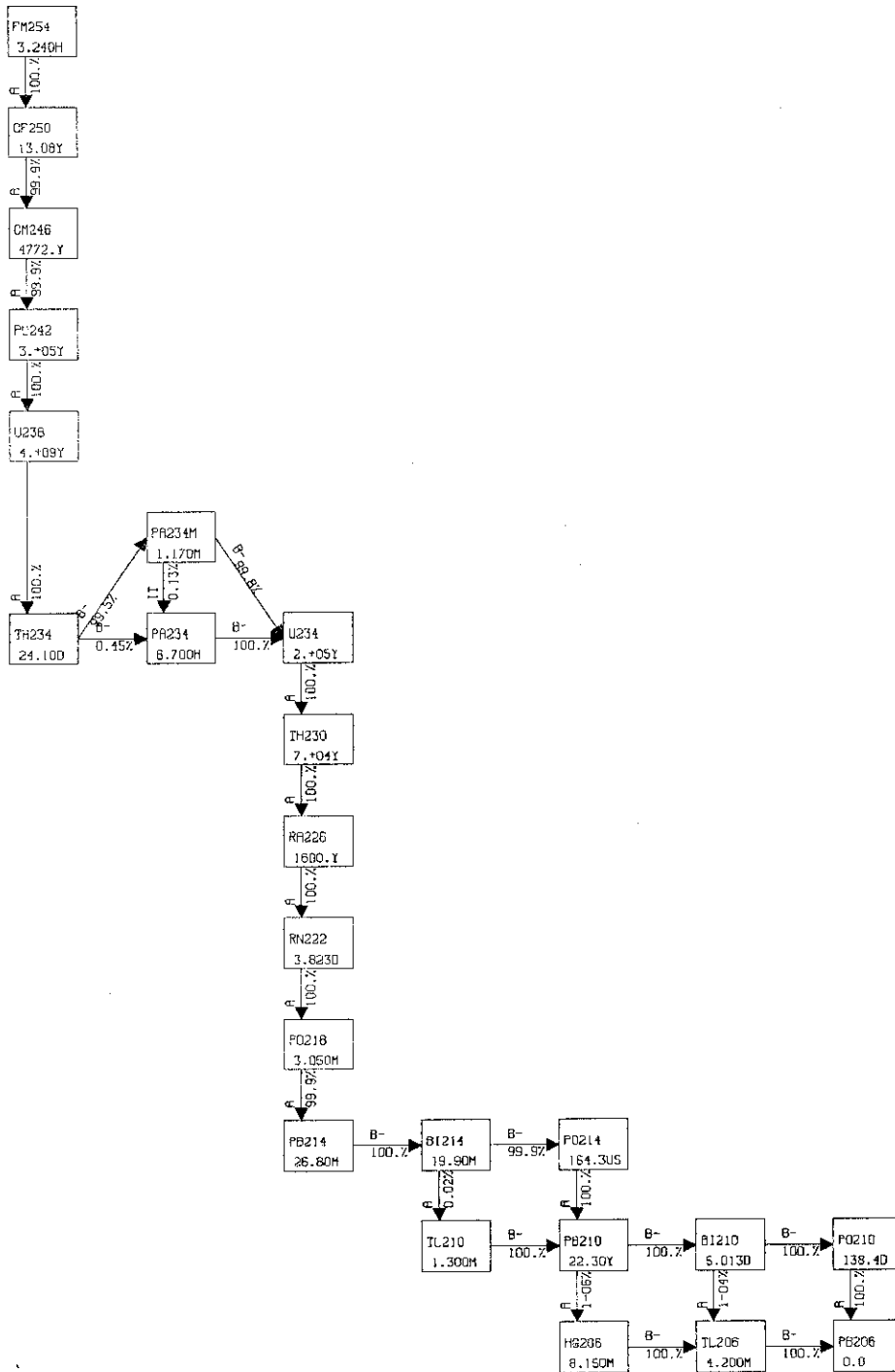
<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
BONE SURF 3.9E-09 B	LUNGS 9.2E-07 A (0, 0,100)
ULI WALL 3.7E-09	BONE SURF 6.6E-07 B (36, 47, 17)
LLI WALL 1.1E-08 A	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-253

<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
BONE SURF 1.2E-10 B	LUNGS 1.1E-07 A
ULI WALL 2.2E-10	BONE SURF 2.0E-08 B
LLI WALL 6.4E-10 A	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR FM-253

<u>ALI (Bq)</u>		<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04	CLASS W f1=5.E-04
5.E+07 (5.E+07)	4.E+05	2.E+02
LLI WALL		



NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF FM-254

ORGAN	ORAL		INHALATION	
	ISOFOPE	CLASS W	ISOFOPE	CLASS W
LUNGS	FM-254	f1=5.E-04	FM-254	f1=5.E-04
	CF-250	f1=5.E-04	CF-250	f1=5.E-04
ST CONTENT	FM-254	3.0E+03	FM-254	4.6E+03
	CF-250	1.8E-02	CF-250	2.9E+01
SI CONTENT	FM-254	6.4E+03	FM-254	5.7E+02
	CF-250	2.3E-01	CF-250	1.9E-01
ULI CONTENT	FM-254	5.5E+03	FM-254	4.9E+02
	CF-250	1.2E+00	CF-250	6.6E-01
LLI CONTENT	FM-254	1.7E+03	FM-254	1.5E+02
	CF-250	2.4E+00	CF-250	1.2E+00

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-254

ORGAN	ORAL		INHALATION	
	CLASS W	CLASS W	CLASS W	CLASS W
ST WALL	f1=5.E-04	f1=5.E-04	f1=5.E-04	f1=5.E-04
	1.4E-09	1.1E-07 A	1.4E-09	1.1E-07 A
SI WALL	1.9E-09	(0, 10, 90)	1.9E-09	(0, 10, 90)
	2.9E-09 A		2.9E-09 A	
LLI WALL	1.5E-09		1.5E-09	

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-254

TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	1.5E-01	1.1E-06	1.1E-07	9.8E-08	5.4E-08
ST WALL	1.2E-06	3.0E-03	1.6E-06	1.8E-06	7.8E-07
SI WALL	1.1E-07	1.4E-06	1.9E-03	1.1E-05	4.5E-06
ULI WALL	1.1E-07	1.6E-06	1.2E-05	3.3E-03	2.1E-06
LLI WALL	4.2E-08	2.6E-07	4.0E-06	1.6E-06	5.5E-03

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

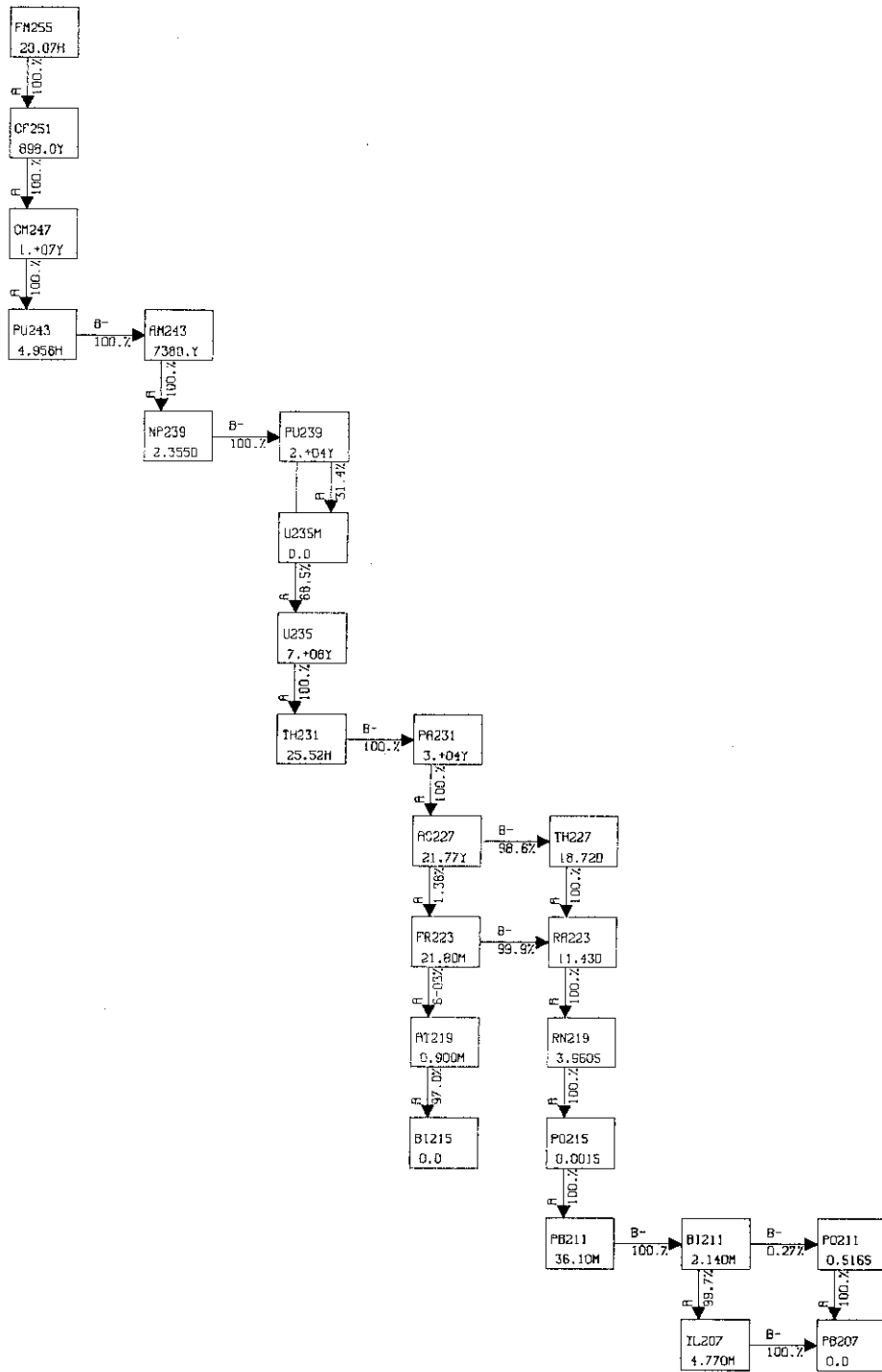
TARGETS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	1.3E-01	1.2E-06	1.3E-07	1.1E-07	6.1E-03
ST WALL	1.3E-06	2.5E-03	1.8E-06	2.0E-06	8.8E-07
SI WALL	1.3E-07	1.6E-06	1.6E-03	1.2E-05	5.0E-06
ULI WALL	1.3E-07	1.9E-06	1.3E-05	2.8E-03	2.3E-06
LLI WALL	4.8E-08	2.9E-07	4.4E-06	1.8E-06	4.6E-03

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-254

<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
ST WALL	LUNGS
8.5E-11	1.3E-08 A
SI WALL	
1.1E-10	
ULI WALL	
1.7E-10 A	
LLI WALL	
8.7E-11	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR FM-254

<u>ALI (Bq)</u>	<u>DAC (Bq/m³)</u>
<u>ORAL</u>	<u>INHALATION</u>
	CLASS W
f1=5.E-04	f1=5.E-04
1.E+08	4.E+06
	2.E+03



COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-255

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-255

SOURCES

TARGETS	SI CONTENT	ULI CONTENT	LLI CONTENT
LUNGS	1.4E-01	1.5E-09	3.8E-10
SI WALL	1.0E-09	1.3E-06	7.0E-07
ULI WALL	1.3E-09	5.2E-06	3.8E-07
LLI WALL	2.8E-10	8.2E-07	5.5E-03

ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
SI WALL 3.7E-09	LUNGS 5.2E-07 A (0, 4, 96)
ULI WALL 1.5E-08	
LLI WALL 2.5E-08 A	

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF FM-255

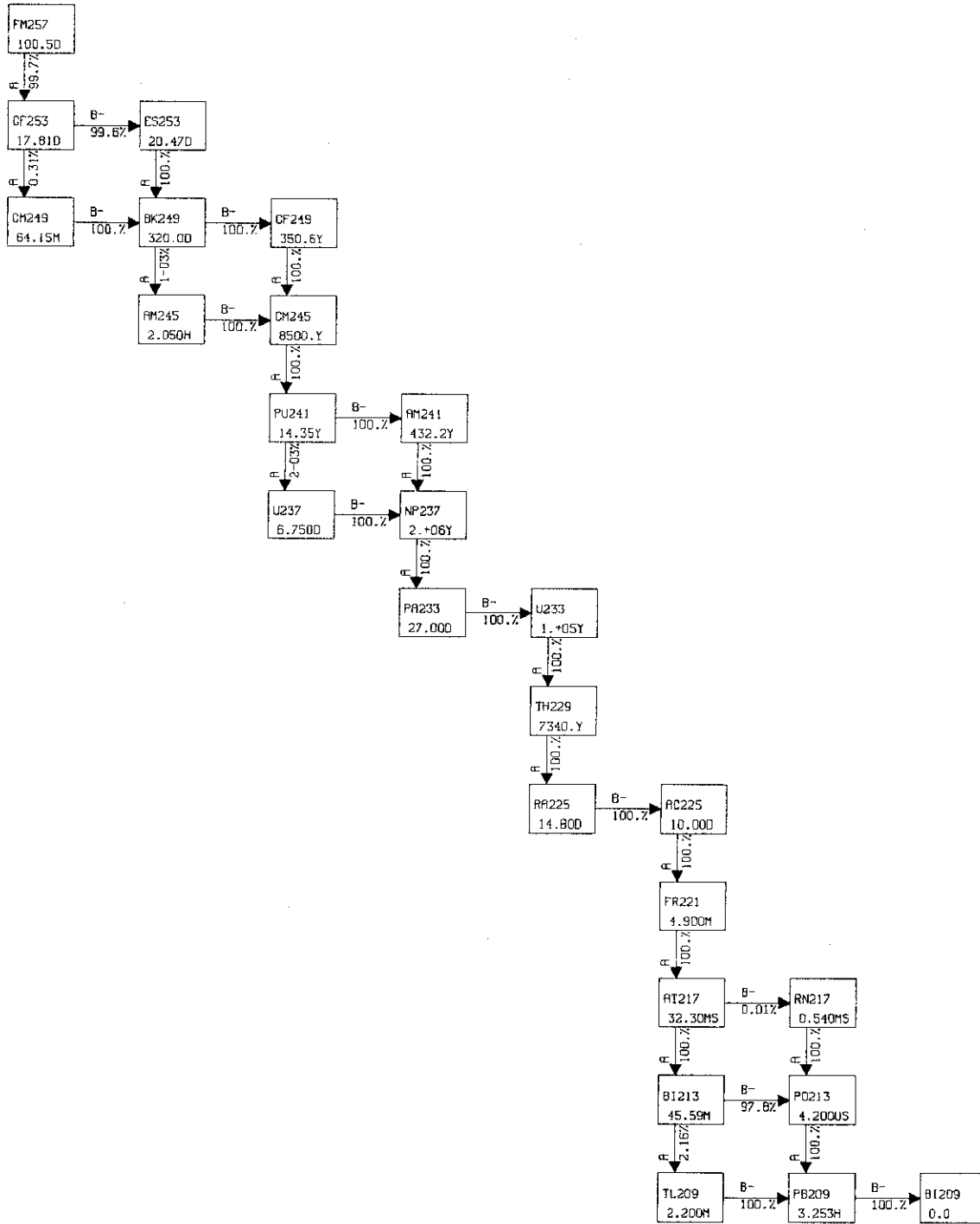
ORGAN	ORAL	INHALATION
LUNGS	f1=5.E-04	CLASS W f1=5.E-04
SI CONTENT	1.2E+04	2.3E+04
ULI CONTENT	2.7E+04	3.1E+03
LLI CONTENT	2.8E+04	6.9E+03
		7.0E+03

ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
SI WALL 2.2E-10	LUNGS 6.3E-08 A
ULI WALL 8.8E-10	
LLI WALL 1.5E-09 A	

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-255

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR FM-255

ALI (Bq)	DAC (Bq/m ³)
ORAL	INHALATION
f1=5.E-04	CLASS W f1=5.E-04
2.E+07	8.E+05
	3.E+02



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-257

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.3E+01	1.9E-07	2.3E-05	1.6E-05	4.2E-05	1.1E-06	1.0E-06	1.0E-06
R MARROW	7.3E-06	2.8E-06	5.8E-06	4.6E-06	7.9E-06	2.3E-06	5.9E-06	4.6E-02
LUNGS	1.7E-07	1.4E-01	4.9E-07	4.6E-07	2.3E-07	2.5E-06	1.9E-06	1.9E-06
BONE SURF	1.3E-06	2.1E-06	1.2E-06	2.6E-06	1.7E-06	1.5E-06	2.9E-01	2.9E-01
ULI WALL	2.6E-05	4.9E-07	5.4E-05	3.5E-03	9.3E-06	5.1E-06	9.0E-07	9.0E-07
LLI WALL	3.5E-05	1.8E-07	1.7E-05	6.9E-06	5.8E-03	5.2E-07	1.7E-06	1.7E-06
LIVER	1.2E-06	2.4E-06	3.7E-06	4.3E-06	6.1E-07	7.8E-02	1.3E-06	1.3E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-253

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.3E-02	5.9E-11	1.9E-07	2.3E-07	6.1E-07	4.8E-10	5.7E-09	5.7E-09
R MARROW	4.8E-08	2.2E-08	4.3E-08	3.5E-08	1.1E-07	1.2E-08	3.5E-07	1.6E-04
LUNGS	2.2E-11	4.7E-04	1.6E-10	2.0E-10	3.0E-11	4.1E-08	6.1E-09	6.1E-09
BONE SURF	1.2E-08	2.0E-08	1.1E-08	8.7E-09	2.8E-08	1.2E-08	9.7E-04	9.7E-04
ULI WALL	4.2E-07	1.8E-10	1.6E-06	2.3E-04	1.3E-07	1.3E-08	3.5E-09	3.5E-09
LLI WALL	5.7E-07	2.5E-11	2.7E-07	4.8E-08	3.7E-04	1.0E-10	8.9E-09	8.9E-09
LIVER	4.9E-10	3.3E-08	8.7E-09	1.3E-08	1.3E-10	2.6E-04	3.1E-09	3.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-249

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.5E-02	1.0E-08	6.0E-07	7.6E-07	1.1E-06	2.0E-08	6.8E-08	6.8E-08
R MARROW	2.1E-07	8.4E-08	1.7E-07	1.4E-07	2.1E-07	7.1E-08	2.1E-07	9.3E-05
LUNGS	7.8E-09	2.8E-04	2.2E-08	2.3E-08	7.3E-09	1.6E-07	6.4E-08	6.4E-08
BONE SURF	6.2E-08	6.6E-08	5.3E-08	4.8E-08	6.9E-08	4.9E-08	5.4E-05	7.7E-05
ULI WALL	7.1E-07	2.5E-08	1.5E-06	6.4E-04	2.7E-07	1.6E-07	4.7E-08	4.7E-08
LLI WALL	9.1E-07	5.4E-09	4.4E-07	2.0E-07	1.0E-03	2.0E-08	6.4E-08	6.4E-08
LIVER	4.0E-08	1.5E-07	1.2E-07	1.6E-07	2.3E-08	1.6E-04	4.6E-08	4.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-253

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E+01	1.5E-10	4.2E-08	5.2E-08	1.2E-07	3.9E-10	1.7E-09	1.7E-09
R MARROW	1.0E-08	4.8E-09	9.7E-09	7.7E-09	2.1E-08	3.0E-09	7.1E-08	4.4E-02
LUNGS	1.0E-10	1.3E-01	3.3E-10	3.5E-10	1.0E-10	9.4E-09	1.9E-09	1.9E-09
BONE SURF	2.7E-09	4.1E-09	2.6E-09	2.1E-09	5.5E-09	2.6E-09	2.8E-01	2.8E-01
ULI WALL	8.9E-08	3.5E-10	3.5E-07	3.0E-03	2.8E-08	4.4E-09	1.3E-09	1.3E-09
LLI WALL	1.2E-07	9.3E-11	5.8E-08	1.1E-08	4.9E-03	3.1E-10	2.5E-09	2.5E-09
LIVER	6.8E-10	7.8E-09	3.2E-09	4.4E-09	3.4E-10	7.5E-02	1.2E-09	1.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.1E-03	6.7E-14	6.6E-12	5.7E-12	1.2E-11	3.0E-13	3.9E-13	3.9E-13
R MARROW	2.3E-12	8.7E-13	1.8E-12	1.5E-12	2.3E-12	7.3E-13	1.8E-12	1.2E-05
LUNGS	5.4E-14	3.5E-05	1.6E-13	1.6E-13	6.6E-14	1.0E-12	6.0E-13	6.0E-13
BONE SURF	5.1E-13	6.7E-13	4.5E-13	6.9E-13	5.9E-13	4.8E-13	7.2E-05	7.2E-05
ULI WALL	7.4E-12	1.6E-13	1.5E-11	7.5E-05	2.7E-12	1.6E-12	3.4E-13	3.4E-13
LLI WALL	1.0E-11	5.7E-14	4.9E-12	2.0E-12	1.2E-04	1.6E-13	5.6E-13	5.6E-13
LIVER	3.6E-13	1.0E-12	1.1E-12	1.4E-12	1.9E-13	1.9E-05	4.1E-13	4.1E-13

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF AM-245

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.7E-02	1.2E-08	1.3E-06	1.4E-06	2.3E-06	5.0E-08	8.5E-08	8.5E-08
R MARROW	5.7E-07	2.0E-07	4.5E-07	3.9E-07	5.5E-07	1.7E-07	5.8E-07	9.7E-05
LUNGS	7.6E-09	2.9E-04	2.7E-08	3.1E-08	9.4E-09	3.0E-07	1.1E-07	1.1E-07
BONE SURF	1.6E-07	1.6E-07	1.3E-07	1.2E-07	1.8E-07	1.2E-07	1.6E-04	1.8E-04
ULI WALL	1.4E-06	2.7E-08	3.4E-06	6.7E-04	5.3E-07	2.9E-07	8.1E-08	8.1E-08
LLI WALL	1.8E-06	9.3E-09	9.2E-07	3.7E-07	1.1E-03	2.7E-08	1.2E-07	1.2E-07
LIVER	6.3E-08	2.9E-07	2.1E-07	2.9E-07	3.0E-08	1.7E-04	7.6E-08	7.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES							
	GONADS	LUNGS	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.6E-07	1.1E-05	1.4E-05	2.0E-05	3.7E-07	1.0E-06	1.0E-06
R MARROW	4.0E-06	1.6E-06	3.3E-06	2.8E-06	4.0E-06	1.4E-06	3.9E-06	3.9E-02
LUNGS	1.1E-07	1.2E-01	3.4E-07	3.5E-07	1.1E-07	2.8E-06	1.1E-06	1.1E-06
BONE SURF	1.2E-06	1.2E-06	1.0E-06	9.2E-07	1.3E-06	9.3E-07	2.4E-01	2.4E-01
ULI WALL	1.3E-05	3.6E-07	2.8E-05	2.7E-03	4.9E-06	2.9E-06	8.1E-07	8.1E-07
LLI WALL	1.7E-05	1.0E-07	8.0E-06	3.4E-06	4.5E-03	3.3E-07	1.1E-06	1.1E-06
LIVER	6.8E-07	2.8E-06	2.1E-06	2.9E-06	3.6E-07	6.6E-02	7.8E-07	7.8E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF FM-257

ORGAN	ISOTOPE	ORAL		INHALATION		COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-257
		FM-257	CLASS W	FM-257	CLASS W	
GONADS	FM-257	f1=5.E-04	1.4E+02	FM-257	1.4E+03	2.8E+05
	CF-253	f1=5.E-04	1.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	f1=5.E-04	4.5E-01	CM-249	4.3E+00	9.1E+02
	ES-253	f1=5.E-04	1.5E+02	ES-253	1.4E+03	3.0E+05
	BK-249	f1=5.E-04	1.6E+02	BK-249	1.4E+03	3.3E+05
	AM-245	f1=5.E-04	0.0	AM-245	0.0	0.0
	CF-249	f1=5.E-04	1.5E+01	CF-249	9.1E+01	2.2E+04
	FM-257	6.9E-01	1.4E+02	FM-257	1.4E+03	2.8E+05
	CF-253	6.9E-01	1.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	2.1E-03	4.5E-01	CM-249	4.3E+00	9.1E+02
LUNGS	FM-257	6.9E-01	1.4E+02	FM-257	1.4E+03	2.8E+05
	CF-253	6.9E-01	1.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	2.1E-03	4.5E-01	CM-249	4.3E+00	9.1E+02
	ES-253	6.9E-01	1.5E+02	ES-253	1.4E+03	3.0E+05
	BK-249	6.9E-01	1.6E+02	BK-249	1.4E+03	3.3E+05
	AM-245	0.0	0.0	AM-245	0.0	0.0
	CF-249	6.2E-02	1.5E+01	CF-249	9.1E+01	2.2E+04
	FM-257	6.9E-01	1.4E+02	FM-257	1.4E+03	2.8E+05
	CF-253	6.9E-01	1.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	2.1E-03	4.5E-01	CM-249	4.3E+00	9.1E+02
SI CONTENT	FM-257	1.4E+04	6.8E+03	FM-257	1.4E+03	2.8E+05
	CF-253	1.2E+02	9.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	2.7E-01	2.9E+00	CM-249	4.3E+00	9.1E+02
	ES-253	6.8E-01	5.1E+02	ES-253	1.4E+03	3.0E+05
	BK-249	3.5E-04	6.8E+01	BK-249	1.4E+03	3.3E+05
	AM-245	0.0	0.0	AM-245	0.0	0.0
	CF-249	3.1E-10	2.7E-02	CF-249	9.1E+01	2.2E+04
	FM-257	1.4E+04	6.8E+03	FM-257	1.4E+03	2.8E+05
	CF-253	1.2E+02	9.4E+02	CF-253	1.4E+03	2.9E+05
	CM-249	2.7E-01	2.9E+00	CM-249	4.3E+00	9.1E+02
ULI CONTENT	FM-257	4.7E+04	2.2E+04	FM-257	1.4E+03	2.8E+05
	CF-253	1.3E+03	3.4E+03	CF-253	1.4E+03	2.9E+05
	CM-249	3.8E+00	1.1E+01	CM-249	4.3E+00	9.1E+02
	ES-253	2.6E+01	1.7E+03	ES-253	1.4E+03	3.0E+05
	BK-249	3.6E-02	2.2E+02	BK-249	1.4E+03	3.3E+05
	AM-245	0.0	0.0	AM-245	0.0	0.0
	CF-249	1.1E-07	8.7E-02	CF-249	9.1E+01	2.2E+04
	FM-257	4.7E+04	2.2E+04	FM-257	1.4E+03	2.8E+05
	CF-253	1.3E+03	3.4E+03	CF-253	1.4E+03	2.9E+05
	CM-249	3.8E+00	1.1E+01	CM-249	4.3E+00	9.1E+02
LLI CONTENT	FM-257	8.5E+04	4.0E+04	FM-257	1.4E+03	2.8E+05
	CF-253	5.5E+03	7.6E+03	CF-253	1.4E+03	2.9E+05
	CM-249	1.7E+01	2.3E+01	CM-249	4.3E+00	9.1E+02
	ES-253	2.3E+02	3.3E+03	ES-253	1.4E+03	3.0E+05
	BK-249	5.9E-01	4.2E+02	BK-249	1.4E+03	3.3E+05
	AM-245	0.0	0.0	AM-245	0.0	0.0
	CF-249	3.4E-06	1.6E-01	CF-249	9.1E+01	2.2E+04
	FM-257	8.5E+04	4.0E+04	FM-257	1.4E+03	2.8E+05
	CF-253	5.5E+03	7.6E+03	CF-253	1.4E+03	2.9E+05
	CM-249	1.7E+01	2.3E+01	CM-249	4.3E+00	9.1E+02

(Continued)

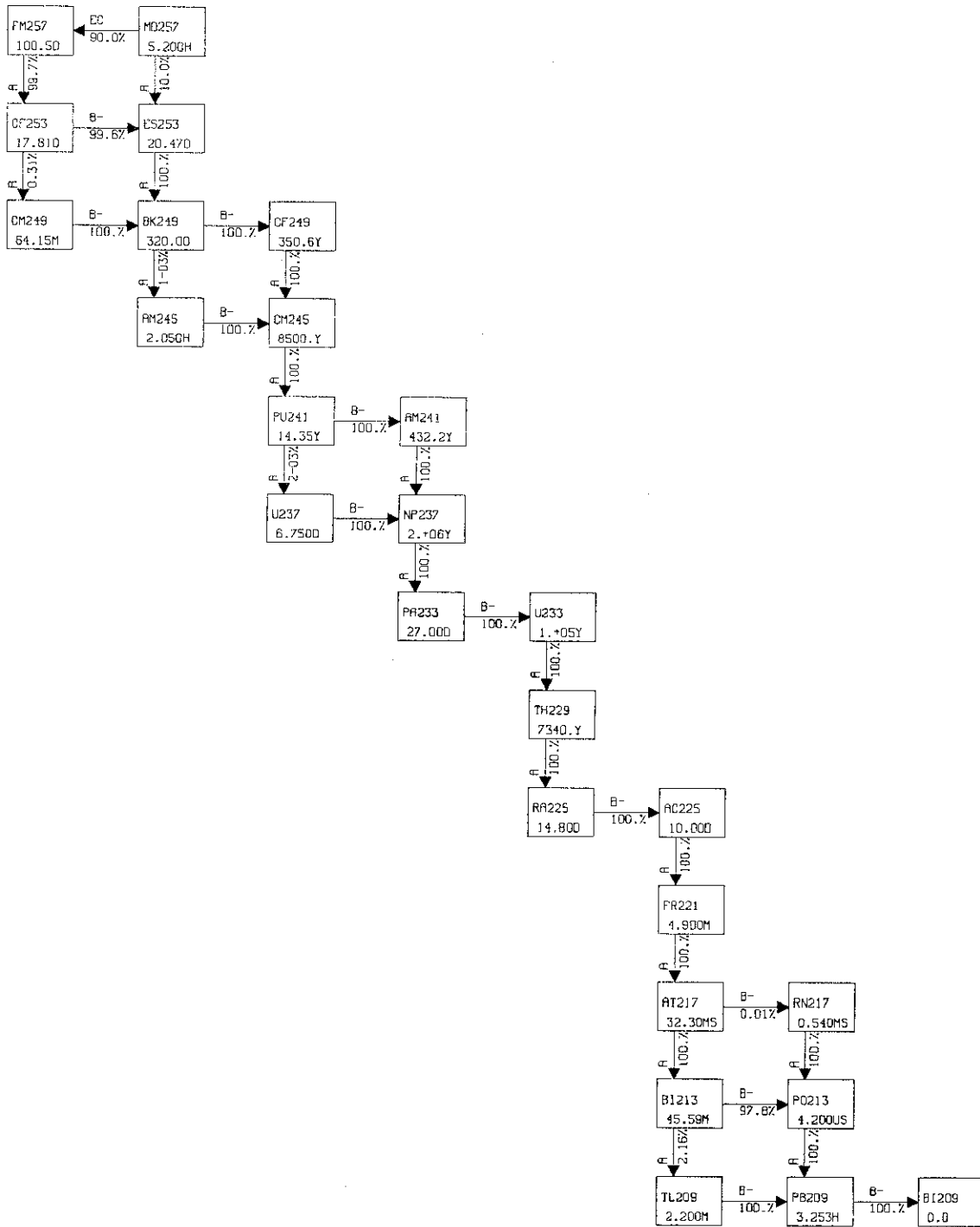
WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF FM-257

<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
GONADS 9.0E-10	R MARROW 5.2E-07 B
R MARROW 2.5E-09 B	LUNGS 2.8E-06 A
BONE SURF 7.8E-09 AB	BONE SURF 1.6E-06 B
ULI WALL 1.6E-09	LIVER 8.7E-07
LLI WALL 4.8E-09	
LIVER 4.1E-09	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR FM-257

<u>ALI (Bq)</u>	<u>DAC (Bq/m3)</u>
<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W f1=5.E-04
2.E+06 (2.E+06) BONE SURF	9.E+03 4.E+00

Mendelevium



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF MD-257

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.3E+00	2.3E-08	1.4E-07	3.1E-06	3.4E-06	5.5E-06	1.2E-07	2.0E-07	2.0E-07
R MARROW	1.6E-06	5.6E-07	4.6E-07	1.3E-06	1.1E-06	1.6E-06	4.7E-07	1.6E-06	4.7E-03
LUNGS	1.5E-08	1.4E-02	4.8E-07	5.7E-08	6.9E-08	2.0E-08	7.3E-07	2.6E-07	2.6E-07
BONE SURF	4.5E-07	4.4E-07	2.6E-07	3.7E-07	3.3E-07	5.0E-07	3.3E-07	2.9E-02	2.9E-02
ST WALL	2.2E-07	5.1E-07	3.2E-04	1.0E-06	1.1E-06	4.8E-07	5.0E-07	1.5E-07	1.5E-07
SI WALL	3.6E-06	4.9E-08	7.4E-07	2.0E-04	5.2E-06	2.9E-06	4.4E-07	2.0E-07	2.0E-07
ULI WALL	3.6E-06	5.8E-08	9.9E-07	8.7E-06	3.6E-04	1.3E-06	6.9E-07	1.8E-07	1.8E-07
LLI WALL	4.7E-06	1.6E-08	3.1E-07	2.4E-06	9.4E-07	5.8E-04	6.0E-08	2.9E-07	2.9E-07
LIVER	1.4E-07	7.0E-07	5.5E-07	5.0E-07	7.0E-07	6.4E-08	8.0E-03	1.8E-07	1.8E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF FM-257

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.3E+01	1.9E-07	1.5E-06	2.3E-05	1.6E-05	4.2E-05	1.1E-06	1.0E-06	1.0E-06
R MARROW	7.3E-06	2.8E-06	2.2E-06	5.8E-06	4.6E-06	7.9E-06	2.3E-06	5.9E-06	4.6E-02
LUNGS	1.7E-07	1.4E-01	4.5E-06	4.9E-07	4.6E-07	2.3E-07	2.5E-06	1.9E-06	1.9E-06
BONE SURF	1.3E-06	2.1E-06	1.1E-06	1.2E-06	2.6E-06	1.7E-06	1.5E-06	2.9E-01	2.9E-01
ST WALL	1.7E-06	5.0E-06	3.2E-03	7.2E-06	7.9E-06	3.5E-06	4.0E-06	9.8E-07	9.8E-07
SI WALL	2.4E-05	4.7E-07	6.1E-06	2.0E-03	4.5E-05	2.0E-05	3.6E-06	1.0E-06	1.0E-06
ULI WALL	2.6E-05	4.9E-07	7.3E-06	5.4E-05	3.5E-03	9.3E-06	5.1E-06	9.0E-07	9.0E-07
LLI WALL	3.5E-05	1.8E-07	1.4E-06	1.7E-05	6.9E-06	5.8E-03	5.2E-07	1.7E-06	1.7E-06
LIVER	1.2E-06	2.4E-06	4.0E-06	3.7E-06	4.3E-06	6.1E-07	7.8E-02	1.3E-06	1.3E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF Cf-253

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	4.3E-02	5.9E-11	7.7E-10	1.9E-07	2.3E-07	6.1E-07	4.8E-10	5.7E-09	5.7E-09
R MARROW	4.8E-08	2.2E-08	6.3E-09	4.3E-08	3.5E-08	1.1E-07	1.2E-08	3.5E-07	1.6E-04
LUNGS	2.2E-11	4.7E-04	1.4E-08	1.6E-10	2.0E-10	3.0E-11	4.1E-08	6.1E-09	6.1E-09
BONE SURF	1.2E-08	2.0E-08	5.0E-09	1.1E-08	8.7E-09	2.8E-08	1.2E-08	9.7E-04	9.7E-04
ST WALL	9.4E-10	1.7E-08	2.0E-04	3.6E-08	5.2E-08	7.5E-09	7.4E-09	2.1E-09	2.1E-09
SI WALL	2.5E-07	1.2E-10	1.1E-08	1.2E-04	4.7E-07	2.5E-07	5.7E-09	3.4E-09	3.4E-09
ULI WALL	4.2E-07	1.8E-10	3.1E-08	1.6E-06	2.3E-04	1.3E-07	1.3E-08	3.5E-09	3.5E-09
LLI WALL	5.7E-07	2.5E-11	3.1E-09	2.7E-07	4.8E-08	3.7E-04	1.0E-10	8.9E-09	8.9E-09
LIVER	4.9E-10	3.3E-08	6.1E-09	8.7E-09	1.3E-08	1.3E-10	2.6E-04	3.1E-09	3.1E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-253

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.2E+01	1.5E-10	5.9E-10	4.2E-08	5.2E-08	1.2E-07	3.9E-10	1.7E-09	1.7E-09
R MARROW	1.0E-08	4.8E-09	2.1E-09	9.7E-09	7.7E-09	2.1E-08	3.0E-09	7.1E-08	4.4E-02
LUNGS	1.0E-10	1.3E-01	4.0E-09	3.3E-10	3.5E-10	1.0E-10	9.4E-09	1.9E-09	1.9E-09
BONE SURF	2.7E-09	4.1E-09	1.4E-09	2.6E-09	2.1E-09	5.5E-09	2.6E-09	2.8E-01	2.8E-01
ST WALL	9.7E-10	4.6E-09	2.7E-03	9.5E-09	1.2E-08	2.9E-09	3.0E-09	9.3E-10	9.3E-10
SI WALL	5.4E-08	2.7E-10	4.2E-09	1.7E-03	9.9E-08	5.3E-08	2.5E-09	1.3E-09	1.3E-09
ULI WALL	8.9E-08	3.5E-10	8.2E-09	3.5E-07	3.0E-03	2.8E-08	4.4E-09	1.3E-09	1.3E-09
LLI WALL	1.2E-07	9.3E-11	1.7E-09	5.8E-08	1.1E-08	4.9E-03	3.1E-10	2.5E-09	2.5E-09
LIVER	6.8E-10	7.8E-09	2.9E-09	3.2E-09	4.4E-09	3.4E-10	7.5E-02	1.2E-09	1.2E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-249

SOURCES

TARGETS	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	2.5E-02	1.0E-08	4.5E-08	6.0E-07	7.6E-07	1.1E-06	2.0E-08	6.8E-08	6.8E-08
R MARROW	2.1E-07	8.4E-08	6.9E-08	1.7E-07	1.4E-07	2.1E-07	7.1E-08	2.1E-07	9.3E-05
LUNGS	7.8E-09	2.8E-04	1.2E-07	2.2E-08	2.3E-08	7.3E-09	1.6E-07	6.4E-08	6.4E-08
BONE SURF	6.2E-08	6.6E-08	4.0E-08	5.3E-08	4.8E-08	6.9E-08	4.9E-08	5.4E-05	7.7E-05
ST WALL	5.3E-08	1.2E-07	5.6E-04	2.2E-07	2.3E-07	1.1E-07	1.2E-07	3.8E-08	3.8E-08
SI WALL	7.6E-07	1.8E-08	1.7E-07	3.5E-04	1.1E-06	5.8E-07	1.0E-07	5.3E-08	5.3E-08
ULI WALL	7.1E-07	2.5E-08	2.1E-07	1.5E-06	6.4E-04	2.7E-07	1.6E-07	4.7E-08	4.7E-08
LLI WALL	9.1E-07	5.4E-09	8.4E-08	4.4E-07	2.0E-07	1.0E-03	2.0E-08	6.4E-08	6.4E-08
LIVER	4.0E-08	1.5E-07	1.3E-07	1.2E-07	1.6E-07	2.3E-08	1.6E-04	4.6E-08	4.6E-08

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-249

SOURCES

TARGETS	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	3.1E-03	6.7E-14	4.1E-13	6.6E-12	5.7E-12	1.2E-11	3.0E-13	3.9E-13	3.9E-13
R MARROW	2.3E-12	8.7E-13	7.0E-13	1.8E-12	1.5E-12	2.3E-12	7.3E-13	1.8E-12	1.2E-05
LUNGS	5.4E-14	3.5E-05	1.3E-12	1.6E-13	1.6E-13	6.6E-14	1.0E-12	6.0E-13	6.0E-13
BONE SURF	5.1E-13	6.7E-13	3.6E-13	4.5E-13	6.9E-13	5.9E-13	4.8E-13	7.2E-05	7.2E-05
ST WALL	5.2E-13	1.4E-12	6.6E-05	2.2E-12	2.4E-12	1.1E-12	1.2E-12	3.2E-13	3.2E-13
SI WALL	7.2E-12	1.5E-13	1.8E-12	4.1E-05	1.2E-11	5.9E-12	1.1E-12	3.8E-13	3.8E-13
ULI WALL	7.4E-12	1.6E-13	2.2E-12	1.5E-11	7.5E-05	2.7E-12	1.6E-12	3.4E-13	3.4E-13
LLI WALL	1.0E-11	5.7E-14	5.6E-13	4.9E-12	2.0E-12	1.2E-04	1.6E-13	5.6E-13	5.6E-13
LIVER	3.6E-13	1.0E-12	1.2E-12	1.1E-12	1.4E-12	1.9E-13	1.9E-05	4.1E-13	4.1E-13

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-249

TARGETS	SOURCES								
	GONADS	LUNGS	ST CONTENT	SI CONTENT	ULI CONTENT	LLI CONTENT	LIVER	CORT BONE	TRAB BONE
GONADS	1.1E+01	1.6E-07	5.3E-07	1.1E-05	1.4E-05	2.0E-05	3.7E-07	1.0E-06	1.0E-06
R MARROW	4.0E-06	1.6E-06	1.3E-06	3.3E-06	2.8E-06	4.0E-06	1.4E-06	3.9E-06	3.9E-02
LUNGS	1.1E-07	1.2E-01	2.0E-06	3.4E-07	3.5E-07	1.1E-07	2.8E-06	1.1E-06	1.1E-06
BONE SURF	1.2E-06	1.2E-06	7.5E-07	1.0E-06	9.2E-07	1.3E-06	9.3E-07	2.4E-01	2.4E-01
ST WALL	9.3E-07	2.1E-06	2.5E-03	4.0E-06	4.2E-06	2.0E-06	2.2E-06	6.6E-07	6.6E-07
SI WALL	1.4E-05	2.8E-07	3.0E-06	1.5E-03	1.9E-05	1.0E-05	1.8E-06	8.9E-07	8.9E-07
ULI WALL	1.3E-05	3.6E-07	3.9E-06	2.8E-05	2.7E-03	4.9E-06	2.9E-06	8.1E-07	8.1E-07
LLI WALL	1.7E-05	1.0E-07	1.4E-06	8.0E-06	3.4E-06	4.5E-03	3.3E-07	1.1E-06	1.1E-06
LIVER	6.8E-07	2.8E-06	2.3E-06	2.1E-06	2.9E-06	3.6E-07	6.6E-02	7.8E-07	7.8E-07

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF MD-257

ORGAN	ISOTOPE	ORAL	INHALATION
		f1=5.E-04	CLASS W f1=5.E-04
	MD-257	f1=5.E-04	f1=5.E-04
	FM-257	f1=5.E-04	f1=5.E-04
	CF-253	f1=5.E-04	f1=5.E-04
	ES-253	f1=5.E-04	f1=5.E-04
	CM-249	f1=5.E-04	f1=5.E-04
	BK-249	f1=5.E-04	f1=5.E-04
	CF-249	f1=5.E-04	f1=5.E-04
GONADS	MD-257	1.1E-03	2.5E-01
GONADS	FM-257	1.3E-03	2.7E-01
GONADS	CF-253	1.3E-03	2.8E-01
GONADS	ES-253	1.5E-03	3.1E-01
GONADS	CM-249	4.1E-06	8.7E-04
GONADS	BK-249	1.5E-03	3.5E-01
GONADS	CF-249	1.3E-04	3.2E-02
LUNGS	MD-257		7.1E+03
LUNGS	FM-257		1.3E+03
LUNGS	CF-253		9.6E+02
LUNGS	ES-253		1.0E+03
LUNGS	CM-249		3.0E+00
LUNGS	BK-249		1.4E+02
LUNGS	CF-249		6.0E-02
ST CONTENT	MD-257	3.2E+03	4.0E+02
ST CONTENT	FM-257	8.2E-01	2.5E+00
ST CONTENT	CF-253	1.3E-03	4.1E-01
ST CONTENT	ES-253	4.5E-01	1.5E+00
ST CONTENT	CM-249	1.6E-06	1.3E-03
ST CONTENT	BK-249	4.0E-05	5.0E-02
ST CONTENT	CF-249	9.1E-12	1.9E-05
SI CONTENT	MD-257	8.3E+03	1.0E+03
SI CONTENT	FM-257	1.2E+01	1.1E+01
SI CONTENT	CF-253	8.1E-02	1.7E+00
SI CONTENT	ES-253	6.4E+00	6.4E+00
SI CONTENT	CM-249	1.8E-04	5.2E-03
SI CONTENT	BK-249	2.5E-03	2.0E-01
SI CONTENT	CF-249	2.3E-09	7.5E-05

(Continued)

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF MD-257

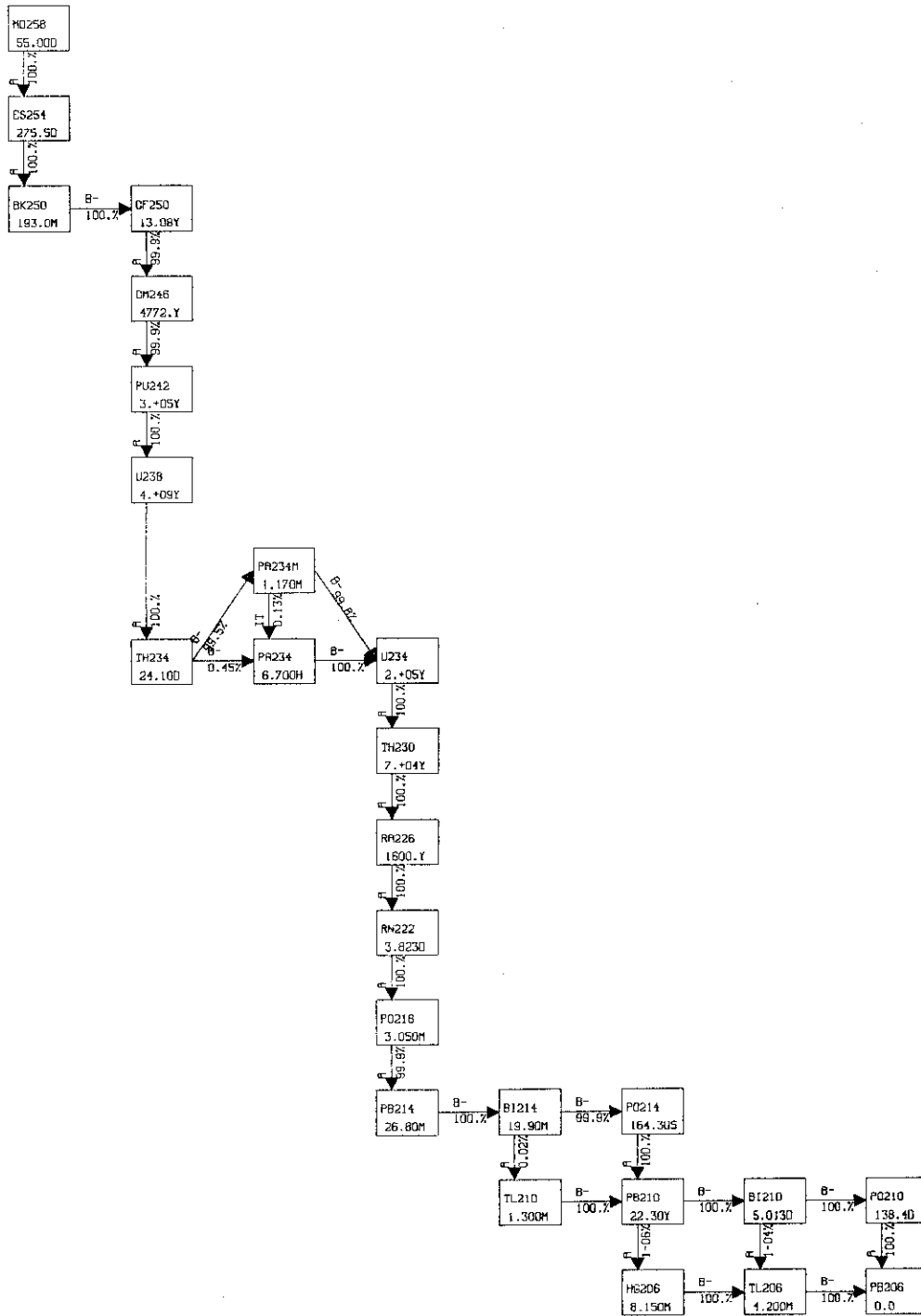
ULI CONTENT	MD-257	9.9E+03	1.2E+03							
ULI CONTENT	FM-257	7.1E+01	4.1E+01							
ULI CONTENT	CF-253	1.7E+00	6.3E+00							
ULI CONTENT	ES-253	3.8E+01	2.3E+01							
ULI CONTENT	CM-249	4.9E-03	1.9E-02							
ULI CONTENT	BK-249	5.3E-02	6.8E-01							
ULI CONTENT	CF-249	1.6E-07	2.5E-04							
LLI CONTENT	MD-257	4.3E+03	5.4E+02							
LLI CONTENT	FM-257	1.6E+02	7.8E+01							
LLI CONTENT	CF-253	9.0E+00	1.4E+01							
LLI CONTENT	ES-253	8.3E+01	4.3E+01							
LLI CONTENT	CM-249	2.7E-02	4.3E-02							
LLI CONTENT	BK-249	2.8E-01	1.4E+00							
LLI CONTENT	CF-249	1.8E-06	4.6E-04							
LIVER	MD-257	1.7E+00	4.0E+02							
LIVER	FM-257	5.4E+00	1.1E+03							
LIVER	CF-253	5.4E+00	1.1E+03							
LIVER	ES-253	5.9E+00	1.3E+03							
LIVER	CM-249	1.7E-02	3.5E+00							
LIVER	BK-249	5.7E+00	1.4E+03							
LIVER	CF-249	2.5E-01	6.2E+01							
CORT BONE	MD-257	1.1E+00	2.4E+02							
CORT BONE	FM-257	2.7E+00	5.5E+02							
CORT BONE	CF-253	2.7E+00	5.7E+02							
CORT BONE	ES-253	3.0E+00	6.4E+02							
CORT BONE	CM-249	8.4E-03	1.8E+00							
CORT BONE	BK-249	3.0E+00	7.0E+02							
CORT BONE	CF-249	1.9E-01	4.8E+01							
TRAB BONE	MD-257	8.1E-01	1.9E+02							
TRAB BONE	FM-257	2.7E+00	5.5E+02							
TRAB BONE	CF-253	2.7E+00	5.7E+02							
TRAB BONE	ES-253	3.0E+00	6.4E+02							
TRAB BONE	CM-249	8.4E-03	1.8E+00							
TRAB BONE	BK-249	3.0E+00	7.0E+02							
TRAB BONE	CF-249	1.9E-01	4.8E+01							
ORAL										
	f1=5.E-04									
INHALATION										
	f1=5.E-04									
GONADS										
	2.1E-11									
R MARROW										
	4.8E-11 B									
BONE SURF										
	5.4E-10 B									
ST WALL										
	1.7E-10									
SI WALL										
	2.8E-10									
ULI WALL										
	6.3E-10 A									
LLI WALL										
	6.2E-10									
LIVER										
	1.5E-10									

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF MD-257

<u>ORAL</u>		<u>INHALATION</u>	
f1=5.E-04	CLASS W	f1=5.E-04	CLASS W
GONADS	5.2E-12	R MARROW	1.1E-09 B
R MARROW	5.8E-12 B	LUNGS	8.1E-09 A
BONE SURF	1.6E-11 B	BONE SURF	3.4E-09 B
ST WALL	1.0E-11	LIVER	1.8E-09
SI WALL	1.7E-11		
ULI WALL	3.8E-11 A		
LLI WALL	3.7E-11		
LIVER	8.7E-12		

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (40 Hr/Wk) FOR MD-257

<u>ALI (Bq)</u>		<u>DAC (Bq/m³)</u>	
<u>ORAL</u>	<u>INHALATION</u>	<u>ORAL</u>	<u>INHALATION</u>
f1=5.E-04	CLASS W	f1=5.E-04	CLASS W
4.E+08	3.E+06	1.E+03	1.E+03



SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF BK-250

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
R MARROW	3.6E-06	5.8E-06	8.7E-06
LUNGS	3.3E-04	1.2E-04	4.9E-07
BONE SURF	2.9E-06	2.0E-04	2.9E-06
ULI WALL	1.2E-06	7.9E-04	1.1E-05
LLI WALL	2.8E-07	9.6E-06	1.2E-03
LIVER	6.9E-06	7.3E-06	1.2E-06

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF MD-258

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
R MARROW	0.0	0.0	0.0
LUNGS	1.4E-01	0.0	0.0
BONE SURF	0.0	0.0	0.0
ULI WALL	0.0	3.0E-03	0.0
LLI WALL	0.0	0.0	5.0E-03
LIVER	0.0	0.0	0.0

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CF-250

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
R MARROW	6.6E-07	1.0E-06	1.8E-06
LUNGS	1.3E-01	1.1E-07	6.1E-08
BONE SURF	4.9E-07	6.7E-07	3.3E-07
ULI WALL	1.3E-07	2.8E-03	2.3E-06
LLI WALL	4.8E-08	1.8E-06	4.6E-03
LIVER	4.5E-07	1.0E-06	1.6E-07

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF ES-254

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
R MARROW	8.7E-08	1.4E-07	4.1E-07
LUNGS	1.3E-01	2.8E-09	7.4E-10
BONE SURF	7.5E-08	3.7E-08	1.0E-07
ULI WALL	2.6E-09	3.0E-03	5.2E-07
LLI WALL	6.8E-10	1.9E-07	5.0E-03
LIVER	1.3E-07	6.2E-08	2.6E-09

SPECIFIC EFFECTIVE ENERGY (MeV PER GRAM PER TRANSFORMATION) OF CM-246

TARGETS	SOURCES		
	LUNGS	ULI CONTENT	LLI CONTENT
R MARROW	1.8E-07	2.9E-07	5.1E-07
LUNGS	1.1E-01	3.2E-08	1.8E-08
BONE SURF	1.4E-07	1.9E-07	9.2E-08
ULI WALL	3.7E-08	2.4E-03	6.5E-07
LLI WALL	1.3E-08	5.0E-07	4.0E-03
LIVER	1.3E-07	2.9E-07	4.5E-08

COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF MD-258

NUMBER OF NUCLEAR TRANSFORMATIONS OVER 50 YEARS
IN SOURCE ORGANS OR TISSUES PER UNIT INTAKE OF ACTIVITY
(TRANSFORMATIONS/Bq) OF MD-258

ORGAN	ISOTOPE	ORAL		INHALATION	
		CLASS W	CLASS V	CLASS W	CLASS V
LUNGS	MD-258	f1=5.E-04	f1=5.E-04	f1=5.E-04	f1=5.E-04
	ES-254	f1=5.E-04	f1=5.E-04	R MARROW	R MARROW
	BK-250	f1=5.E-04	f1=5.E-04	1.4E-08 B	3.1E-06 B
	CF-250	f1=5.E-04	f1=5.E-04		(28, 37, 35)
LUNGS	MD-258	5.3E+05	1.8E-07 AB	BONE SURF	LUNGS
	ES-254	8.4E+04		1.3E-05 A	
	BK-250	8.4E+04		(0, 0,100)	
	CF-250	9.3E+02		BONE SURF	
ULI CONTENT	MD-258	4.6E+04	2.2E-03	ULI WALL	BONE SURF
	ES-254	8.7E+01		2.2E-03	3.9E-05 B
	BK-250	6.8E+01			(28, 37, 35)
	CF-250	5.6E-03		LLI WALL	LIVER
LLI CONTENT	MD-258	8.4E+04	3.9E+04	6.8E-08	9.8E-06
	ES-254	3.7E+02	9.4E+02		(28, 37, 35)
	BK-250	3.3E+02	9.2E+02		
	CF-250	5.9E-02	7.4E+00	LIVER	
LIVER	MD-258	1.5E+03	2.1E-04	4.5E-08	
	ES-254	1.5E+03	2.8E+05		
	BK-250	1.5E+03	3.4E+05		
	CF-250	8.8E+02	2.1E+05		
CORT BONE	MD-258	7.6E+02	6.3E+02		
	ES-254	7.6E+02	1.4E+05		
	BK-250	7.6E+02	1.7E+05		
	CF-250	5.8E+02	5.6E+02		
TRAB BONE	MD-258	7.6E+02	1.4E+05		
	ES-254	7.6E+02	1.7E+05		
	BK-250	7.6E+02	1.7E+05		
	CF-250	5.8E+02	1.4E+05		
CM-246	MD-258	2.3E+00	5.6E+02		
	ES-254	7.6E+02	1.4E+05		
	BK-250	7.6E+02	1.7E+05		
	CF-250	5.8E+02	1.4E+05		
CM-246	MD-258	2.3E+00	5.6E+02		
	ES-254	7.6E+02	1.4E+05		
	BK-250	7.6E+02	1.7E+05		
	CF-250	5.8E+02	1.4E+05		

WEIGHTED COMMITTED DOSE EQUIVALENT IN TARGET ORGANS OR TISSUES
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF MD-253

	<u>ORAL</u>	<u>INHALATION</u>
	11=5.E-04	CLASS W 11=5.E-04
R MARROW	1.7E-09 B	R MARROW 3.8E-07 B
BONE SURF	5.4E-09 AB	LUNGS 1.6E-06 A
ULI WALL	1.3E-09	BONE SURF 1.2E-06 B
LLI WALL	4.1E-09	LIVER 5.9E-07
LIVER	2.7E-09	

ANNUAL LIMITS ON INTAKE, ALI, AND DERIVED AIR
CONCENTRATIONS, DAC, (60 Hr/wk) FOR MD-253

	<u>ALI (Bq)</u>	<u>DAC (Bq/m³)</u>
	11=5.E-04	CLASS W 11=5.E-04
BONE SURF	3.E+06 (3.E+06)	1.E+04 (1.E+04)
BONE SURF		5.E+00

Committed Effective Dose Equivalent

COMMITTED EFFECTIVE DOSE EQUIVALENT
PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF EACH RADIONUCLIDE

NUCLIDE	ORAL			INHALATION		
	f1	EFFECTIVE DOSE	CLASS	f1	EFFECTIVE DOSE	CLASS
NP-232	1.E-03	1.01E-11	W	1.E-03	3.54E-10	W
NP-233	1.E-03	1.95E-12	W	1.E-03	5.59E-13	W
NP-234	1.E-03	6.56E-10	W	1.E-03	4.66E-10	W
NP-235	1.E-03	5.34E-11	W	1.E-03	9.42E-10	W
NP-236	1.E-03	2.38E-07	W	1.E-03	2.88E-05	W
NP-236 #	1.E-03	3.71E-10	W	1.E-03	2.30E-08	W
NP-237	1.E-03	1.20E-06	W	1.E-03	1.47E-04	W
NP-238	1.E-03	9.21E-10	W	1.E-03	9.97E-09	W
NP-239	1.E-03	8.53E-10	W	1.E-03	6.62E-10	W
NP-240	1.E-03	4.96E-11	W	1.E-03	1.69E-11	W
PU-234	1.E-03	1.72E-10	W	1.E-03	7.39E-09	W
PU-235	1.E-04	1.56E-10	W	1.E-04	7.38E-09	W
PU-235	1.E-05	1.55E-10	Y	1.E-05	7.38E-09	Y
PU-235	1.E-03	1.65E-12	W	1.E-03	5.17E-13	W
PU-235	1.E-04	1.65E-12	W	1.E-04	5.17E-13	W
PU-236	1.E-05	1.65E-12	Y	1.E-05	5.17E-13	Y
PU-236	1.E-03	3.21E-07	W	1.E-03	4.03E-05	W
PU-236	1.E-04	3.66E-08	W	1.E-04	4.01E-05	W
PU-237	1.E-05	8.18E-09	Y	1.E-05	3.54E-05	Y
PU-237	1.E-03	1.69E-10	W	1.E-03	4.26E-10	W
PU-237	1.E-04	1.08E-10	W	1.E-04	4.26E-10	W
PU-238	1.E-05	1.08E-10	Y	1.E-05	4.82E-10	Y
PU-238	1.E-03	8.65E-07	W	1.E-03	1.06E-04	W
PU-238	1.E-04	9.08E-08	W	1.E-04	1.06E-04	W
PU-239	1.E-05	1.34E-08	Y	1.E-05	7.77E-05	Y
PU-239	1.E-03	9.53E-07	W	1.E-03	1.17E-04	W
PU-239	1.E-04	9.96E-08	W	1.E-04	1.17E-04	W
PU-240	1.E-05	1.40E-08	Y	1.E-05	8.32E-05	Y
PU-240	1.E-03	9.55E-07	W	1.E-03	1.17E-04	W
PU-240	1.E-04	9.96E-08	W	1.E-04	1.17E-04	W
PU-240	1.E-05	1.40E-08	Y	1.E-05	8.32E-05	Y
PU-241	1.E-03	1.84E-08	W	1.E-03	2.24E-06	W
PU-241	1.E-04	1.86E-09	W	1.E-04	2.23E-06	W
PU-242	1.E-05	2.07E-10	Y	1.E-05	1.33E-06	Y
PU-242	1.E-03	9.07E-07	W	1.E-03	1.11E-04	W
PU-242	1.E-04	9.46E-08	W	1.E-04	1.11E-04	W
PU-243	1.E-05	1.33E-08	Y	1.E-05	7.90E-05	Y
PU-243	1.E-03	9.13E-11	W	1.E-03	4.69E-11	W
PU-243	1.E-04	9.13E-11	W	1.E-04	4.69E-11	W
PU-244	1.E-05	9.13E-11	Y	1.E-05	4.51E-11	Y
PU-244	1.E-03	9.00E-07	W	1.E-03	1.10E-04	W
PU-244	1.E-04	9.61E-08	W	1.E-04	1.10E-04	W
PU-245	1.E-05	1.57E-08	Y	1.E-05	7.82E-05	Y
PU-245	1.E-03	7.67E-10	W	1.E-03	3.49E-10	W
PU-245	1.E-04	7.67E-10	W	1.E-04	3.49E-10	W
PU-245	1.E-05	7.67E-10	Y	1.E-05	3.75E-10	Y

+ Half-life is 25.0 m. In ICRP Publication 30, this nuclide is presented by 'Am-246m'.
Half-life is 39 m.

+ Half-life is 1.15 x 10⁵ y.

Half-life is 22.5 h.

NUCLIDE	COMMITTED EFFECTIVE DOSE EQUIVALENT PER INTAKE OF UNIT ACTIVITY (Sv/Bq) OF EACH RADIONUCLIDE				
	ORAL		INHALATION		
	f1	EFFECTIVE DOSE	CLASS	f1	
CF-244	1.E-03	5.13E-11	W	1.E-03	2.68E-09
			Y	1.E-03	2.64E-09
CF-246	1.E-03	3.85E-09	W	1.E-03	1.61E-07
			Y	1.E-03	1.61E-07
CF-248	1.E-03	9.04E-08	W	1.E-03	1.21E-05
			Y	1.E-03	1.37E-05
CF-249	1.E-03	1.29E-06	W	1.E-03	1.57E-04
			Y	1.E-03	1.03E-04
CF-250	1.E-03	5.76E-07	W	1.E-03	7.14E-05
			Y	1.E-03	5.55E-05
CF-251	1.E-03	1.28E-06	W	1.E-03	1.57E-04
			Y	1.E-03	1.02E-04
CF-252	1.E-03	2.93E-07	W	1.E-03	3.73E-05
			Y	1.E-03	4.24E-05
CF-253	1.E-03	3.88E-09	W	1.E-03	7.73E-07
			Y	1.E-03	8.43E-07
CF-254	1.E-03	6.54E-07	W	1.E-03	6.86E-05
			Y	1.E-03	7.91E-05
ES-250	5.E-04	3.61E-11	W	5.E-04	1.38E-09
ES-251	5.E-04	1.51E-10	W	5.E-04	1.24E-09
ES-253	5.E-04	7.28E-09	W	5.E-04	1.07E-06
ES-254M	5.E-04	4.67E-09	W	5.E-04	1.54E-07
ES-254	5.E-04	4.66E-08	W	5.E-04	1.11E-05
FM-252	5.E-04	3.09E-09	W	5.E-04	1.20E-07
FM-253	5.E-04	1.18E-09	W	5.E-04	1.49E-07
FM-254	5.E-04	4.74E-10	W	5.E-04	1.53E-08
FM-255	5.E-04	2.72E-09	W	5.E-04	7.08E-08
FM-257	5.E-04	2.21E-08	W	5.E-04	5.97E-06
MD-257	5.E-04	1.39E-10	W	5.E-04	1.47E-08
MD-258	5.E-04	1.69E-08	W	5.E-04	3.87E-06