

**AGE-SPECIFIC RADIATION DOSE
COMMITMENT FACTORS FOR
A ONE-YEAR CHRONIC INTAKE**

**Battelle Pacific Northwest Laboratories
for
U. S. Nuclear Regulatory Commission**

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Nuclear Regulatory Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, nor assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, nor represents that its use would not infringe privately owned rights.

Available from
National Technical Information Service
Springfield, Virginia 22161
Price: Printed Copy \$6.50 ; Microfiche \$3.00

The price of this document for requesters outside of the North American Continent can be obtained from the National Technical Information Service.

**AGE-SPECIFIC RADIATION DOSE
COMMITMENT FACTORS FOR
A ONE-YEAR CHRONIC INTAKE**

**G. R. Hoenes
J. K. Soldat**

Date Published: November 1977

**Battelle Pacific Northwest Laboratories
Richland, WA 99352**

**Prepared for the
Office of Standards Development
U. S. Nuclear Regulatory Commission
Under Contract No. B21446**

FOREWORD

This report was prepared by Battelle Pacific Northwest Laboratories under contract with the Office of Standards Development of the Nuclear Regulatory Commission. This effort was undertaken to remove some inconsistencies from the age-dependent dose conversion factors used in NRC Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," as published for comment in March 1976. The revised factors in this report are currently being used in evaluations performed by the staff of NRC's Office of Nuclear Reactor Regulation for the purpose of determining compliance with Appendix I of 10 CFR Part 50.

The dose models employed in the derivation of these factors are based primarily upon a 1959 report of Committee 2 of the International Commission on Radiological Protection (ICRP) as updated by ICRP reports 6 and 10. There are on-going efforts by the NRC staff to further refine these conversion factors and to update them using the new physiological and anatomical data in ICRP Report No. 23* and more realistic methods of considering the radiation doses to other target organs from gamma photon emitting radionuclides located in a specific source organ. These modified dose-conversion factors will be published as they become available.

* International Commission on Radiological Protection, Report of the Task Group on Reference Man, ICRP Report No. 23, Pergamon Press, Oxford, England (1975).

Comments, corrections, and suggestions for improving this compilation

would be appreciated and should be transmitted in writing to:

The Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attn: Docketing and Service Section

R. B. Minogue, Director
Office of Standards Development

AGE-SPECIFIC RADIATION DOSE COMMITMENT FACTORS
FOR A ONE-YEAR CHRONIC INTAKE

INTRODUCTION

During the licensing process for nuclear facilities, radiation doses^(a) and dose commitments must be calculated for people in the environs of a nuclear facility. These radiation doses are determined by examining characteristics of population groups, pathways to people, and radionuclides found in those pathways. The pertinent characteristics, which are important in the sense of contributing a significant portion of the total dose, must then be analyzed in depth. Dose factors are generally available for adults, see Reference 1 for example, however numerous improvements in data on decay schemes and half-lives have been made in recent years. In addition, it is advisable to define parameters for calculation of the radiation dose for ages other than adults since the population surrounding nuclear facilities will be composed of various age groups. Further, since infants, children and teens may have higher rates of intake per unit body mass, it is conceivable that the maximally exposed individual may not be an adult. Thus, it was necessary to develop new radiation dose commitment factors for various age groups. Dose commitment factors presented in this report have been calculated for a 50-year time period for four age groups.

(a) In accordance with common practice, the term "dose", when applied to individuals, is used in this report instead of the more precise term "dose equivalent", as defined by the International Commission on Radiological Units and Measurements (ICRU).

CALCULATIONAL METHOD

One system for calculating radiation dose to an individual or population group involves multiplying a dose factor by the concentration of the radionuclide in the medium of interest (i.e., food) and by an appropriate usage factor. The total dose to the body or to a specific organ is obtained by summing the contribution from all radionuclides irradiating that organ or the body.

A basic equation for calculating the radiation dose to people from various pathways is:

$$D_{aj} = \sum R_{aipj} = \sum C_{ip} U_{ap} D_{aipj} \quad (1)$$

where

- D_{aj} = the total dose commitment to a given organ j of an individual in age group a from all nuclides and all pathways,
- R_{aipj} = the dose commitment to organ j of an individual in age group a from nuclide i , via path p ,
- C_{ip} = the concentration of nuclide i in the medium of path p ,
- U_{ap} = the usage: the usage rate or consumption rate associated with pathway p , for age group a , and
- D_{aipj} = the dose factor: a number specific to a given individual's age group a , nuclide i , pathway p , and organ j , which can be used to calculate radiation dose commitment from usage rate and a given concentration of a radionuclide.

Dose factors have been previously calculated for the most important pathway-person type-organ-nuclide combinations of interest.⁽¹⁾ Dose calculations are divided into three principal segments: 1) radiation doses from liquid effluents, 2) radiation dose from gaseous effluents, and 3) radiation doses from contaminated surfaces or volumes (external or direct radiation). In the following discussion, only the dose factors which are used in the calculation of internal exposure to radiation will be considered.

Since radiation doses may vary for people of differing ages, four sets of dose factors have been calculated and presented. The age groups considered are "infant" (0 to 1 year old), "child" (1 to 11 years old), "teen" (11 to 17 years old) and "adult" (17 years and older). The "child" is represented by a typical 4-year old, the "teen" by a 14-year old and the adult by the definition for Standard Man as described in the International Commission on Radiological Protection (ICRP) Publication 2.⁽²⁾

The dose factors in this report were calculated for a 50-year dose commitment resulting from a chronic 1-year intake. The initial intake may occur at any point during the life of an individual, but, by choosing the appropriate age-specific dose factor, a radiation dose may be calculated.

DISCUSSION

Equations for calculating internal dose commitment factors were derived from those given by the ICRP⁽²⁾ for body burden and maximum permissible concentration (MPC). Effective absorbed energies for the radionuclides were calculated from the ICRP model. When necessary, these energies were corrected for the ingrowth of daughter radionuclides following ingestion or inhalation of the parent. All radionuclides treated in this manner are followed by a "+D" in the lists of dose factors and input data. Quality factors, as listed in ICRP Publication 2,⁽²⁾ were applied to the effective energies, including the value of 1.7 for beta particles and electrons with energies equal to or less than 30 keV. Age-dependent parameters were applied when available, but, where data were lacking, metabolic parameters for the Standard Man⁽²⁾ were used for other age groups.

Effective absorbed energies used to compute dose factors are controlled by the size of the organ. Thus, as an individual grows and the sizes of his body organs increase, the total amount of radiation absorbed in an organ will also increase but the amount of energy absorbed per unit mass will generally decrease. If an intake of radioactive material occurs before an individual matures, later increases in organ size and mass may affect the dose commitment. In calculating the dose commitment factors listed in Tables 1 through 8, this

change of organ size and mass was considered. To reduce the complexity of the equations, it was necessary to assume that an abrupt change in organ size and mass would occur at the division points between age groups. This assumption significantly simplifies the calculations without underestimating the dose commitment.

The mass of the contents of the gastrointestinal tract (GI tract) was taken to be proportional to total-body mass. The travel time to the lower large intestine (t') and the travel time through the lower large intestine (τ') were also assumed to be proportional to the mass of the total body. Radioactive decay of the radionuclide ingested was accounted for in calculating dose commitment factors for the GI tract.

In certain instances, the energy of a daughter nuclide makes a significant contribution to the effective energy per disintegration of the parent nuclide at the entrance to the lower large intestine (LLI). This occurs when the ratio of daughter decays to parent decays is relatively large. Such a situation arises when the following conditions exist. The parent decays to a daughter nuclide which: 1) is less efficiently absorbed from the small intestine than the parent, 2) has a long enough half-life to persist through the upper large intestine, and 3) has a short enough half-life, compared to the parent, to present a relatively high disintegration rate in the lower large intestine. In these cases, the energy of the radiation absorbed in the lower large intestine per disintegration of the parent was calculated using Equation (A-26) as given in Appendix A. Some radionuclides have daughter products which will be absorbed into the blood stream before reaching the lower large intestine. In these cases, the energy of the daughters was not included in the dose commitment factors for the GI tract even though it was included for other body organs.

Since specific biological half-lives are available as a function of age for hydrogen, iodine and cesium, that information was used when computing the dose commitment factors for the radionuclides of these elements. For other radionuclides contained in this report, the biological half-lives for Standard Man were used for all age groups. Dose commitment factors calculated without using age specific biological half-lives will generally overestimate the

radiation dose for age groups other than adults. This overestimate occurs because biological half-lives for adults tend to be greater than those for younger individuals. Other biological parameters which were assumed to remain constant for all age groups are: fraction reaching organ of reference by ingestion (f_w) and by inhalation (f_a), fraction from GI tract to blood ⁽²⁻⁴⁾ (f_1), and fraction from blood to organ of reference (f_2').

The equations used to calculate the dose commitment factors can be found in Appendix A while the parameters needed in these equations are listed in Appendix B. The dose commitment factors calculated using these equations and input parameters are listed in Tables 1 through 8. These dose commitment factors have units of millirem/50 years per picocurie taken in during 1 year. Suggested dietary intake rates for the four age groups may be found in Regulatory Guide 1.109.

APPLICATION

Dose commitment factors have been calculated for most radionuclides released in the nuclear fuel cycle. Factors for any nuclides not found in this report may be calculated using the equations in Appendix A.

The dose commitment factors for adults (Tables 4 and 8) may be applied to an acute intake with an error of 5% or less. For other age groups, the dose commitment factors due to an acute intake may differ significantly from those listed in Tables 1 to 3 and 5 to 7. These differences are largely due to the time relation between the exposure period and the organ mass changes as the individual matures. The acute vs. chronic exposure conditions are especially significant for the infant age group, who in the scheme employed here becomes a child after one year. The portion of the infant dose commitment arising after the year of chronic exposure is derived from the larger organ masses (hence lower organ concentrations) of the older age groups. Thus the dose commitment associated with a unit radionuclide deposition in an organ near the end of the infant chronic exposure period may be significantly different from that assigned to an earlier organ deposition. These considerations are, of course, sensitive to the effective halflife of material in the organ. Thus if the factors in this report are used to calculate dose commitments due to an acute intake for infants, children or teenagers, the results may underestimate the actual dose commitment.

The radiation dose due to absorption through skin has been included in inhalation dose commitment factors for tritium. The authors have increased the dose factors by 50% to account for the radiation dose for this pathway. (5)

REFERENCES

1. J. K. Soldat, N. M. Robinson and D. A. Baker, Models and Computer Codes for Evaluating Environmental Radiation Doses, BNWL-1754, Battelle, Pacific Northwest Laboratory, Richland, WA, February 1974.
2. International Commission on Radiological Protection, Report of ICRP Committee II on Permissible Dose for Internal Radiation, ICRP Publication 2, Pergamon Press, New York, 1959.
3. International Commission on Radiological Protection, ICRP Publication 6, Pergamon Press, New York, NY, 1964.
4. International Commission on Radiological Protection, Report of Committee IV on Evaluation of Radiation Doses to Body Tissues from Internal Contamination Due to Occupational Exposure, ICRP Publication 10, Pergamon Press, New York, NY, 1968.
5. R. V. Osborne, "Absorption of Tritiated Water Vapor by People," Health Physics, vol. 12, pp. 1527-1537, November 1966.

TABLE 1

Page 1 of 4

INFANT INGESTION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3	0.	3.08E-07	3.08E-07	3.08E-07	3.08E-07	3.08E-07	3.08E-07
BE10	1.71E-05	2.49E-06	5.16E-07	0.	1.64E-06	0.	2.78E-05
C14	2.37E-05	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06
N13	5.85E-08	5.85E-08	5.85E-08	5.85E-08	5.85E-08	5.85E-08	5.85E-08
F18	5.19E-06	0.	4.43E-07	0.	0.	0.	1.22E-06
NA22	9.83E-05	9.83E-05	9.83E-05	9.83E-05	9.83E-05	9.83E-05	9.83E-05
NA24	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05
P32	1.70E-03	1.00E-04	6.59E-05	0.	0.	0.	2.30E-05
AR39	0.	0.	0.	0.	0.	0.	0.
AR41	0.	0.	0.	0.	0.	0.	0.
CA41	3.74E-04	0.	4.08E-05	0.	0.	0.	1.91E-07
SC46	3.75E-08	5.41E-08	1.69E-08	0.	3.56E-08	0.	3.53E-05
CR51	0.	0.	1.41E-08	9.20E-09	2.01E-09	1.79E-08	4.11E-07
MN54	0.	1.99E-05	4.51E-06	0.	4.41E-06	0.	7.31E-06
MN56	0.	8.18E-07	1.41E-07	0.	7.03E-07	0.	7.43E-05
FE55	1.39E-05	8.98E-06	2.40E-06	0.	0.	4.39E-06	1.14E-06
FE59	3.08E-05	5.38E-05	2.12E-05	0.	0.	1.59E-05	2.57E-05
CO57	0.	1.15E-06	1.87E-06	0.	0.	0.	3.92E-06
CO58	0.	3.60E-06	8.98E-06	0.	0.	0.	8.97E-06
CO60	0.	1.08E-05	2.55E-05	0.	0.	0.	2.57E-05
NI59	4.73E-05	1.45E-05	8.17E-06	0.	0.	0.	7.16E-07
NI63	6.34E-04	3.92E-05	2.20E-05	0.	0.	0.	1.95E-06
NI65	4.70E-06	5.32E-07	2.42E-07	0.	0.	0.	4.05E-05
CU64	0.	6.09E-07	2.82E-07	0.	1.03E-06	0.	1.25E-05
ZN65	1.84E-05	6.31E-05	2.91E-05	0.	3.06E-05	0.	5.33E-05
ZN69M+D	1.50E-06	3.06E-06	2.79E-07	0.	1.24E-06	0.	4.24E-05
ZN69	9.33E-08	1.68E-07	1.25E-08	0.	6.98E-08	0.	1.37E-05
SE79	0.	2.10E-05	3.90E-06	0.	2.43E-05	0.	5.58E-07
BR82	0.	0.	1.27E-05	0.	0.	0.	0.
BR83+D	0.	0.	3.63E-07	0.	0.	0.	0.
BR84	0.	0.	3.82E-07	0.	0.	0.	0.
BR85	0.	0.	1.94E-08	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	0.	0.
KR85M	0.	0.	0.	0.	0.	0.	0.
KR85	0.	0.	0.	0.	0.	0.	0.
KR87	0.	0.	0.	0.	0.	0.	0.
KR88+D	0.	0.	0.	0.	0.	0.	0.
KR89	0.	0.	0.	0.	0.	0.	0.
RB86	0.	1.70E-04	8.40E-05	0.	0.	0.	4.35E-06
RB87	0.	8.88E-05	3.52E-05	0.	0.	0.	5.98E-07
RB88	0.	4.98E-07	2.73E-07	0.	0.	0.	4.85E-07
RB89+D	0.	2.86E-07	1.97E-07	0.	0.	0.	9.74E-08
SR89+D	2.51E-03	0.	7.20E-05	0.	0.	0.	5.16E-05
SR90+D	1.85E-02	0.	4.71E-03	0.	0.	0.	2.31E-04
SR91+D	5.00E-05	0.	1.81E-06	0.	0.	0.	5.92E-05
SR92+D	1.92E-05	0.	7.13E-07	0.	0.	0.	2.07E-04

TABLE 1 (contd)

Page 2 of 4

INFANT INGESTION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	8.69E-08	0.	2.33E-09	0.	0.	0.	1.20E-04
Y91M+D	8.10E-10	0.	2.76E-11	0.	0.	0.	2.70E-06
Y91	1.13E-06	0.	3.01E-08	0.	0.	0.	8.10E-05
Y92	7.65E-09	0.	2.15E-10	0.	0.	0.	1.46E-04
Y93	2.43E-08	0.	6.62E-10	0.	0.	0.	1.92E-04
ZR93+D	1.93E-07	9.18E-08	5.54E-08	0.	2.71E-07	0.	2.39E-05
ZR95+D	2.06E-07	5.02E-08	3.56E-08	0.	5.41E-08	0.	2.50E-05
ZR97+D	1.48E-08	2.54E-09	1.16E-09	0.	2.56E-09	0.	1.62E-04
NB93M	1.23E-07	3.33E-08	1.04E-08	0.	3.25E-08	0.	3.98E-06
NB95	4.20E-08	1.73E-08	1.00E-08	0.	1.24E-08	0.	1.46E-05
NB97	4.59E-10	9.79E-11	3.53E-11	0.	7.65E-11	0.	3.09E-05
MO93	0.	5.65E-05	1.82E-06	0.	1.13E-05	0.	1.21E-06
MO99+D	0.	3.40E-05	6.63E-06	0.	5.08E-05	0.	1.12E-05
TC99M	1.92E-09	3.96E-09	5.10E-08	0.	4.26E-08	2.07E-09	1.15E-06
TC99	1.08E-06	1.46E-06	4.55E-07	0.	1.23E-05	1.42E-07	6.31E-06
TC101	2.27E-09	2.86E-09	2.83E-08	0.	3.40E-08	1.56E-09	4.86E-07
RU103+D	1.48E-06	0.	4.95E-07	0.	3.08E-06	0.	1.80E-05
RU105+D	1.36E-07	0.	4.58E-08	0.	1.00E-06	0.	5.41E-05
RU106+D	2.41E-05	0.	3.01E-06	0.	2.85E-05	0.	1.83E-04
RH105	1.09E-06	7.13E-07	4.79E-07	0.	1.98E-06	0.	1.77E-05
PD107	0.	1.19E-06	8.45E-08	0.	6.79E-06	0.	9.46E-07
PD109	0.	1.50E-06	3.62E-07	0.	5.51E-06	0.	3.68E-05
AG110M+D	9.96E-07	7.27E-07	4.81E-07	0.	1.04E-06	0.	3.77E-05
AG111	5.20E-07	2.02E-07	1.07E-07	0.	4.22E-07	0.	4.82E-05
CD113M	0.	1.77E-05	6.52E-07	0.	1.34E-05	0.	2.66E-05
CD115M	0.	1.42E-05	4.93E-07	0.	7.41E-06	0.	8.09E-05
SN123	2.49E-04	3.89E-06	6.50E-06	3.91E-06	0.	0.	6.58E-05
SN125+D	7.41E-05	1.38E-06	3.29E-06	1.36E-06	0.	0.	1.11E-04
SN126+D	5.53E-04	7.26E-06	1.80E-05	1.91E-06	0.	0.	2.52E-05
SB124	2.14E-05	3.15E-07	6.63E-06	5.68E-08	0.	1.34E-05	6.60E-05
SB125+D	1.23E-05	1.19E-07	2.53E-06	1.54E-08	0.	7.72E-06	1.64E-05
SB126	8.06E-06	1.58E-07	2.91E-06	6.19E-08	0.	5.07E-06	8.35E-05
SB127	2.23E-06	3.98E-08	6.90E-07	2.84E-08	0.	1.15E-06	5.91E-05
TE125M	2.33E-05	7.79E-06	3.15E-06	7.84E-06	0.	0.	1.11E-05
TE127M+D	5.85E-05	1.94E-05	7.08E-06	1.69E-05	1.44E-04	0.	2.36E-05
TE127	1.00E-06	3.35E-07	2.15E-07	8.14E-07	2.44E-06	0.	2.10E-05
TE129M+D	1.00E-04	3.43E-05	1.54E-05	3.84E-05	2.50E-04	0.	5.97E-05
TE129	2.84E-07	9.79E-08	6.63E-08	2.38E-07	7.07E-07	0.	2.27E-05
TE131M+D	1.52E-05	6.12E-06	5.05E-06	1.24E-05	4.21E-05	0.	1.03E-04
TE131+D	1.76E-07	6.50E-08	4.94E-08	1.57E-07	4.50E-07	0.	7.11E-06
TE132+D	2.08E-05	1.03E-05	9.61E-06	1.52E-05	6.44E-05	0.	3.81E-05
TE133M+D	3.91E-07	1.79E-07	1.71E-07	3.45E-07	1.22E-06	0.	1.93E-05
TE134+D	2.67E-07	1.34E-07	1.38E-07	2.39E-07	9.03E-07	0.	3.06E-06
I129	2.86E-05	2.12E-05	1.55E-05	1.36E-02	2.51E-05	0.	4.24E-07
I130	6.00E-06	1.32E-05	5.30E-06	1.48E-03	1.45E-05	0.	2.83E-06
I131+D	3.59E-05	4.23E-05	1.86E-05	1.39E-02	4.94E-05	0.	1.51E-06

TABLE 1 (contd)

Page 3 of 4

INFANT INGESTION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	1.66E-06	3.37E-06	1.20E-06	1.58E-04	3.76E-06	0.	2.73E-06
I133+D	1.25E-05	1.82E-05	5.33E-06	3.31E-03	2.14E-05	0.	3.08E-06
I134	8.69E-07	1.78E-06	6.33E-07	4.15E-05	1.99E-06	0.	1.84E-06
I135+D	3.64E-06	7.24E-06	2.64E-06	6.49E-04	8.07E-06	0.	2.62E-06
XE131M	0.	0.	0.	0.	0.	0.	0.
XE133M	0.	0.	0.	0.	0.	0.	0.
XE133	0.	0.	0.	0.	0.	0.	0.
XE135M	0.	0.	0.	0.	0.	0.	0.
XE135	0.	0.	0.	0.	0.	0.	0.
XE137	0.	0.	0.	0.	0.	0.	0.
XE138+D	0.	0.	0.	0.	0.	0.	0.
CS134M+D	1.76E-07	2.93E-07	1.48E-07	0.	1.13E-07	2.60E-08	2.32E-07
CS134	3.77E-04	7.03E-04	7.10E-05	0.	1.81E-04	7.42E-05	1.91E-06
CS135	1.33E-04	1.21E-04	6.30E-06	0.	3.44E-05	1.31E-05	4.37E-07
CS136	4.59E-05	1.35E-04	5.04E-05	0.	5.38E-05	1.10E-05	2.05E-06
CS137+D	5.22E-04	6.11E-04	4.33E-05	0.	1.64E-04	6.64E-05	1.91E-06
CS138	4.81E-07	7.82E-07	3.79E-07	0.	3.90E-07	6.09E-08	1.25E-06
CS139+D	3.10E-07	4.24E-07	1.62E-07	0.	2.19E-07	3.30E-08	2.66E-08
BA139	8.81E-07	5.84E-10	2.55E-08	0.	3.51E-10	3.54E-10	5.58E-05
BA140+D	1.71E-04	1.71E-07	8.81E-06	0.	4.06E-08	1.05E-07	4.20E-05
BA141+D	4.25E-07	2.91E-10	1.34E-08	0.	1.75E-10	1.77E-10	5.19E-06
BA142+D	1.84E-07	1.53E-10	9.06E-09	0.	8.81E-11	9.26E-11	7.59E-07
LA140	2.11E-08	8.32E-09	2.14E-09	0.	0.	0.	9.77E-05
LA141	2.89E-09	8.38E-10	1.46E-10	0.	0.	0.	9.61E-05
LA142	1.10E-09	4.04E-10	9.67E-11	0.	0.	0.	6.86E-05
CE141	7.87E-08	4.80E-08	5.65E-09	0.	1.48E-08	0.	2.48E-05
CE143+D	1.48E-08	9.82E-06	1.12E-09	0.	2.86E-09	0.	5.73E-05
CE144+D	2.98E-06	1.22E-06	1.67E-07	0.	4.93E-07	0.	1.71E-04
PR143	8.13E-08	3.04E-08	4.03E-09	0.	1.13E-08	0.	4.29E-05
PR144	2.74E-10	1.06E-10	1.38E-11	0.	3.84E-11	0.	4.93E-06
ND147+D	5.53E-08	5.68E-08	3.48E-09	0.	2.19E-08	0.	3.60E-05
PM147	3.88E-07	3.27E-08	1.59E-08	0.	4.88E-08	0.	9.27E-06
PM148M+D	1.65E-07	4.18E-08	3.28E-08	0.	4.80E-08	0.	5.44E-05
PM148	6.32E-08	9.13E-09	4.60E-09	0.	1.09E-08	0.	9.74E-05
PM149	1.38E-08	1.81E-09	7.90E-10	0.	2.20E-09	0.	4.86E-05
PM151	6.18E-09	9.01E-10	4.56E-10	0.	1.07E-09	0.	4.17E-05
SM151	2.90E-07	6.67E-08	1.44E-08	0.	4.53E-08	0.	5.58E-06
SM153	7.72E-09	5.97E-09	4.58E-10	0.	1.25E-09	0.	3.12E-05
EU152	6.74E-07	1.79E-07	1.51E-07	0.	5.02E-07	0.	1.59E-05
EU154	2.64E-06	3.67E-07	2.20E-07	0.	9.95E-07	0.	4.58E-05
EU155	5.42E-07	6.25E-08	3.23E-08	0.	1.40E-07	0.	8.37E-05
EU156	1.14E-07	7.06E-08	1.12E-08	0.	3.26E-08	0.	6.67E-05
TB160	2.59E-07	0.	3.24E-08	0.	7.37E-08	0.	3.45E-05
H0166M	1.25E-06	2.69E-07	2.13E-07	0.	3.57E-07	0.	0.
W181	8.85E-08	2.72E-08	3.04E-09	0.	0.	0.	3.82E-07
W185	3.62E-06	1.13E-06	1.29E-07	0.	0.	0.	1.62E-05
W187	9.03E-07	6.28E-07	2.17E-07	0.	0.	0.	3.69E-05

TABLE 1 (contd)

Page 4 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
P8210+D	5.28E-02	1.42E-02	2.38E-03	0.	4.33E-02	0.	5.62E-05
BI210+D	4.16E-06	2.68E-05	3.58E-07	0.	2.08E-04	0.	5.27E-05
PO210	3.10E-03	5.93E-03	7.41E-04	0.	1.26E-02	0.	6.61E-05
RN222+D	0.	0.	0.	0.	0.	0.	0.
RA223+D	4.41E-02	6.42E-05	8.82E-03	0.	1.17E-03	0.	3.43E-04
RA224+D	1.46E-02	3.29E-05	2.91E-03	0.	6.00E-04	0.	3.86E-04
RA225+D	5.78E-02	6.52E-05	1.15E-02	0.	1.19E-03	0.	3.24E-04
RA226+D	6.20E-01	4.76E-05	5.14E-01	0.	8.71E-04	0.	3.44E-04
RA228+D	4.32E-01	2.58E-05	4.86E-01	0.	4.73E-04	0.	5.86E-05
AC225	3.92E-05	5.03E-05	2.63E-06	0.	3.69E-06	0.	4.36E-04
AC227+D	4.49E-03	7.67E-04	2.79E-04	0.	1.56E-04	0.	8.50E-05
TH227+D	1.20E-04	2.01E-06	3.45E-06	0.	7.41E-06	0.	5.70E-04
TH228+D	2.47E-03	3.38E-05	8.36E-05	0.	1.58E-04	0.	5.84E-04
TH229	1.48E-02	1.94E-04	7.29E-04	0.	9.29E-04	0.	5.31E-04
TH230	3.80E-03	1.90E-04	1.06E-04	0.	9.12E-04	0.	6.24E-05
TH232+D	4.24E-03	1.63E-04	1.65E-04	0.	7.79E-04	0.	5.31E-05
TH234	6.92E-07	3.77E-08	2.00E-08	0.	1.39E-07	0.	1.19E-04
PA231+D	7.57E-03	2.50E-04	3.02E-04	0.	1.34E-03	0.	7.44E-05
PA233	3.11E-08	6.09E-09	5.43E-09	0.	1.67E-08	0.	1.46E-05
U232+D	2.42E-02	0.	2.16E-03	0.	2.37E-03	0.	7.04E-05
U233+D	5.08E-03	0.	3.87E-04	0.	1.08E-03	0.	6.51E-05
U234	4.88E-03	0.	3.80E-04	0.	1.06E-03	0.	6.37E-05
U235+D	4.67E-03	0.	3.56E-04	0.	9.93E-04	0.	8.10E-05
U236	4.67E-03	0.	3.64E-04	0.	1.01E-03	0.	5.98E-05
U237	4.95E-07	0.	1.32E-07	0.	1.23E-06	0.	2.11E-05
U238+D	4.47E-03	0.	3.33E-04	0.	9.28E-04	0.	5.71E-05
NP237+D	2.53E-03	1.93E-04	1.05E-04	0.	6.34E-04	0.	8.23E-05
NP238	1.24E-07	3.12E-09	1.92E-09	0.	6.81E-09	0.	4.17E-05
NP239	1.11E-08	9.93E-10	5.61E-10	0.	1.98E-09	0.	2.87E-05
PU238	1.34E-03	1.69E-04	3.40E-05	0.	1.21E-04	0.	7.57E-05
PU239	1.45E-03	1.77E-04	3.54E-05	0.	1.28E-04	0.	6.91E-05
PU240	1.45E-03	1.77E-04	3.54E-05	0.	1.28E-04	0.	7.04E-05
PU241+D	4.38E-05	1.90E-06	8.82E-07	0.	3.17E-06	0.	1.45E-06
PU242	1.35E-03	1.70E-04	3.41E-05	0.	1.23E-04	0.	6.77E-05
PU244	1.57E-03	1.95E-04	3.91E-05	0.	1.41E-04	0.	1.01E-04
AM241	1.53E-03	7.18E-04	1.09E-04	0.	6.55E-04	0.	7.70E-05
AM242M	1.58E-03	7.02E-04	1.13E-04	0.	6.64E-04	0.	9.69E-05
AM243	1.51E-03	6.88E-04	1.06E-04	0.	6.36E-04	0.	9.03E-05
CM242	1.37E-04	1.24E-04	9.10E-06	0.	2.62E-05	0.	8.23E-05
CM243	1.45E-03	6.88E-04	8.98E-05	0.	3.27E-04	0.	8.10E-05
CM244	1.22E-03	6.16E-04	7.59E-05	0.	2.71E-04	0.	7.84E-05
CM245	1.88E-03	7.49E-04	1.13E-04	0.	4.32E-04	0.	7.30E-05
CM246	1.87E-03	7.49E-04	1.13E-04	0.	4.31E-04	0.	7.17E-05
CM247+D	1.82E-03	7.36E-04	1.11E-04	0.	4.24E-04	0.	9.43E-05
CM248	1.51E-02	6.07E-03	9.16E-04	0.	3.50E-03	0.	1.52E-03
CF252	1.24E-03	0.	2.95E-05	0.	0.	0.	2.99E-04

TABLE 2

Page 1 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3	0.	2.03E-07	2.03E-07	2.03E-07	2.03E-07	2.03E-07	2.03E-07
BE10	1.35E-05	1.57E-06	3.39E-07	0.	1.11E-06	0.	2.75E-05
C14	1.21E-05	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06
N13	3.10E-08	3.10E-08	3.10E-08	3.10E-08	3.10E-08	3.10E-08	3.10E-08
F18	2.49E-06	0.	2.47E-07	0.	0.	0.	6.74E-07
NA22	5.88E-05	5.88E-05	5.88E-05	5.88E-05	5.88E-05	5.88E-05	5.88E-05
NA24	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06
P32	8.25E-04	3.86E-05	3.18E-05	0.	0.	0.	2.28E-05
AR39	0.	0.	0.	0.	0.	0.	0.
AR41	0.	0.	0.	0.	0.	0.	0.
CA41	3.47E-04	0.	3.79E-05	0.	0.	0.	1.90E-07
SC46	1.97E-08	2.70E-08	1.04E-08	0.	2.39E-08	0.	3.95E-05
CR51	0.	0.	8.90E-09	4.94E-09	1.35E-09	9.02E-09	4.72E-07
MN54	0.	1.07E-05	2.85E-06	0.	3.00E-06	0.	8.98E-06
MN56	0.	3.34E-07	7.54E-08	0.	4.04E-07	0.	4.84E-05
FE55	1.15E-05	6.10E-06	1.89E-06	0.	0.	3.45E-06	1.13E-06
FE59	1.65E-05	2.67E-05	1.33E-05	0.	0.	7.74E-06	2.78E-05
CO57	0.	4.93E-07	9.98E-07	0.	0.	0.	4.04E-06
CO58	0.	1.80E-06	5.51E-06	0.	0.	0.	1.05E-05
CO60	0.	5.29E-06	1.56E-05	0.	0.	0.	2.93E-05
NI59	4.02E-05	1.07E-05	6.82E-06	0.	0.	0.	7.10E-07
NI63	5.38E-04	2.88E-05	1.83E-05	0.	0.	0.	1.94E-06
NI65	2.22E-06	2.09E-07	1.22E-07	0.	0.	0.	2.56E-05
CU64	0.	2.45E-07	1.48E-07	0.	5.92E-07	0.	1.15E-05
ZN65	1.37E-05	3.65E-05	2.27E-05	0.	2.30E-05	0.	6.41E-06
ZN69M+D	7.10E-07	1.21E-06	1.43E-07	0.	7.03E-07	0.	3.94E-05
ZN69	4.38E-08	6.33E-08	5.85E-09	0.	3.84E-08	0.	3.99E-06
SE79	0.	8.43E-06	1.87E-06	0.	1.37E-05	0.	5.53E-07
BR82	0.	0.	7.55E-06	0.	0.	0.	0.
BR83+D	0.	0.	1.71E-07	0.	0.	0.	0.
BR84	0.	0.	1.98E-07	0.	0.	0.	0.
BR85	0.	0.	9.12E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	0.	0.
KR85M	0.	0.	0.	0.	0.	0.	0.
KR85	0.	0.	0.	0.	0.	0.	0.
KR87	0.	0.	0.	0.	0.	0.	0.
KR88+D	0.	0.	0.	0.	0.	0.	0.
KR89	0.	0.	0.	0.	0.	0.	0.
RB86	0.	6.70E-05	4.12E-05	0.	0.	0.	4.31E-06
RB87	0.	3.95E-05	1.83E-05	0.	0.	0.	5.92E-07
RB88	0.	1.90E-07	1.32E-07	0.	0.	0.	9.32E-09
RB89+D	0.	1.17E-07	1.04E-07	0.	0.	0.	1.02E-09
SR89+D	1.32E-03	0.	3.77E-05	0.	0.	0.	5.11E-05
SR90+D	1.70E-02	0.	4.31E-03	0.	0.	0.	2.29E-04
SR91+D	2.40E-05	0.	9.06E-07	0.	0.	0.	5.30E-05
SR92+D	9.03E-06	0.	3.62E-07	0.	0.	0.	1.71E-04

TABLE 2 (contd)

Page 2 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	4.11E-08	0.	1.10E-09	0.	0.	0.	1.17E-04
Y91M+D	3.82E-10	0.	1.39E-11	0.	0.	0.	7.48E-07
Y91	6.02E-07	0.	1.61E-08	0.	0.	0.	8.02E-05
Y92	3.60E-09	0.	1.03E-10	0.	0.	0.	1.04E-04
Y93	1.14E-08	0.	3.13E-10	0.	0.	0.	1.70E-04
ZR93+D	1.67E-07	6.25E-08	4.45E-08	0.	2.42E-07	0.	2.37E-05
ZR95+D	1.16E-07	2.55E-08	2.27E-08	0.	3.65E-08	0.	2.66E-05
ZR97+D	6.99E-09	1.01E-09	5.96E-10	0.	1.45E-09	0.	1.53E-04
NB93M	1.05E-07	2.62E-08	8.61E-09	0.	2.83E-08	0.	3.95E-06
NB95	2.25E-08	8.76E-09	6.26E-09	0.	8.23E-09	0.	1.62E-05
NB97	2.17E-10	3.92E-11	1.83E-11	0.	4.35E-11	0.	1.21E-05
M093	0.	2.41E-05	8.65E-07	0.	6.35E-06	0.	1.22E-06
M099+D	0.	1.33E-05	3.29E-06	0.	2.84E-05	0.	1.10E-05
TC99M	9.23E-10	1.81E-09	3.00E-08	0.	2.63E-08	9.19E-10	1.03E-06
TC99	5.35E-07	5.96E-07	2.14E-07	0.	7.02E-06	5.27E-08	6.25E-06
TC101	1.07E-09	1.12E-09	1.42E-08	0.	1.91E-08	5.92E-10	3.56E-09
RU103+D	7.31E-07	0.	2.81E-07	0.	1.84E-06	0.	1.89E-05
RU105+D	6.45E-08	0.	2.34E-08	0.	5.67E-07	0.	4.21E-05
RU106+D	1.17E-05	0.	1.46E-06	0.	1.58E-05	0.	1.82E-04
RH105	5.14E-07	2.76E-07	2.36E-07	0.	1.10E-06	0.	1.71E-05
PD107	0.	4.72E-07	4.01E-08	0.	3.95E-06	0.	9.37E-07
PD109	0.	5.67E-07	1.70E-07	0.	3.04E-06	0.	3.35E-05
AG110M+D	5.39E-07	3.64E-07	2.91E-07	0.	6.78E-07	0.	4.33E-05
AG111	2.48E-07	7.76E-08	5.12E-08	0.	2.34E-07	0.	4.75E-05
CD113M	0.	1.02E-05	4.34E-07	0.	1.05E-05	0.	2.63E-05
CD115M	0.	5.89E-06	2.51E-07	0.	4.38E-06	0.	8.01E-05
SN123	1.33E-04	1.65E-06	3.24E-06	1.75E-06	0.	0.	6.52E-05
SN125+D	3.55E-05	5.35E-07	1.59E-06	5.55E-07	0.	0.	1.10E-04
SN126+D	3.33E-04	4.15E-06	9.46E-06	1.14E-06	0.	0.	2.50E-05
SB124	1.11E-05	1.44E-07	3.89E-06	2.45E-08	0.	6.16E-06	6.94E-05
SB125+D	7.16E-06	5.52E-08	1.50E-06	6.63E-09	0.	3.99E-06	1.71E-05
SB126	4.40E-06	6.73E-08	1.58E-06	2.58E-08	0.	2.10E-06	8.87E-05
SB127	1.06E-06	1.64E-08	3.68E-07	1.18E-08	0.	4.60E-07	5.97E-05
TE125M	1.14E-05	3.09E-06	1.52E-06	3.20E-06	0.	0.	1.10E-05
TE127M+D	2.89E-05	7.78E-06	3.43E-06	6.91E-06	8.24E-05	0.	2.34E-05
TE127	4.71E-07	1.27E-07	1.01E-07	3.26E-07	1.34E-06	0.	1.84E-05
TE129M+D	4.87E-05	1.36E-05	7.56E-06	1.57E-05	1.43E-04	0.	5.94E-05
TE129	1.34E-07	3.74E-08	3.18E-08	9.56E-08	3.92E-07	0.	8.34E-06
TE131M+D	7.20E-06	2.49E-06	2.65E-06	5.12E-06	2.41E-05	0.	1.01E-04
TE131+D	8.30E-08	2.53E-08	2.47E-08	6.35E-08	2.51E-07	0.	4.36E-07
TE132+D	1.01E-05	4.47E-06	5.40E-06	6.51E-06	4.15E-05	0.	4.50E-05
TE133M+D	1.87E-07	7.56E-08	9.37E-08	1.45E-07	7.18E-07	0.	5.77E-06
TE134+D	1.29E-07	5.80E-08	7.74E-08	1.02E-07	5.37E-07	0.	5.89E-07
I129	1.39E-05	8.53E-06	7.62E-06	5.58E-03	1.44E-05	0.	4.29E-07
I130	2.92E-06	5.90E-06	3.04E-06	6.50E-04	8.82E-06	0.	2.76E-06
I131+D	1.72E-05	1.73E-05	9.83E-06	5.72E-03	2.84E-05	0.	1.54E-06

TABLE 2 (contd)

Page 3 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	8.00E-07	1.47E-06	6.76E-07	6.82E-05	2.25E-06	0.	1.73E-06
I133+D	5.92E-06	7.32E-06	2.77E-06	1.36E-03	1.22E-05	0.	2.95E-06
I134	4.19E-07	7.78E-07	3.58E-07	1.79E-05	1.19E-06	0.	5.16E-07
I135+D	1.75E-06	3.15E-06	1.49E-06	2.79E-04	4.83E-06	0.	2.40E-06
XE131M	0.	0.	0.	0.	0.	0.	0.
XE133M	0.	0.	0.	0.	0.	0.	0.
XE133	0.	0.	0.	0.	0.	0.	0.
XE135M	0.	0.	0.	0.	0.	0.	0.
XE135	0.	0.	0.	0.	0.	0.	0.
XE137	0.	0.	0.	0.	0.	0.	0.
XE138+D	0.	0.	0.	0.	0.	0.	0.
CS134M+D	8.44E-08	1.25E-07	8.16E-08	0.	6.59E-08	1.09E-08	1.58E-07
CS134	2.34E-04	3.84E-04	8.10E-05	0.	1.19E-04	4.27E-05	2.07E-06
CS135	8.30E-05	5.78E-05	5.93E-06	0.	2.04E-05	6.81E-06	4.33E-07
CS136	2.35E-05	6.46E-05	4.18E-05	0.	3.44E-05	5.13E-06	2.27E-06
CS137+D	3.27E-04	3.13E-04	4.62E-05	0.	1.02E-04	3.67E-05	1.96E-06
CS138	2.28E-07	3.17E-07	2.01E-07	0.	2.23E-07	2.40E-08	1.46E-07
CS139+D	1.45E-07	1.61E-07	7.74E-08	0.	1.21E-07	1.22E-08	1.45E-11
BA139	4.14E-07	2.21E-10	1.20E-08	0.	1.93E-10	1.30E-10	2.39E-05
BA140+D	8.31E-05	7.28E-08	4.85E-06	0.	2.37E-08	4.34E-08	4.21E-05
BA141+D	2.00E-07	1.12E-10	6.51E-09	0.	9.69E-11	6.58E-10	1.14E-07
BA142+D	8.74E-08	6.29E-11	4.88E-09	0.	5.09E-11	3.70E-11	1.14E-09
LA140	1.01E-08	3.53E-09	1.19E-09	0.	0.	0.	9.84E-05
LA141	1.36E-09	3.17E-10	6.88E-11	0.	0.	0.	7.05E-05
LA142	5.24E-10	1.67E-10	5.23E-11	0.	0.	0.	3.31E-05
CE141	3.97E-08	1.98E-08	2.94E-09	0.	8.68E-09	0.	2.47E-05
CE143+D	6.99E-09	3.79E-06	5.49E-10	0.	1.59E-09	0.	5.55E-05
CE144+D	2.08E-06	6.52E-07	1.11E-07	0.	3.61E-07	0.	1.70E-04
PR143	3.93E-08	1.18E-08	1.95E-09	0.	6.39E-09	0.	4.24E-05
PR144	1.29E-10	3.99E-11	6.49E-12	0.	2.11E-11	0.	8.59E-08
ND147+D	2.79E-08	2.26E-08	1.75E-09	0.	1.24E-08	0.	3.58E-05
PM147	3.18E-07	2.27E-08	1.22E-08	0.	4.01E-08	0.	9.19E-06
PM148M+D	1.03E-07	2.05E-08	2.05E-08	0.	3.04E-08	0.	5.78E-05
PM148	3.02E-08	3.63E-09	2.35E-09	0.	6.17E-09	0.	9.70E-05
PM149	6.49E-09	6.90E-10	3.74E-10	0.	1.22E-09	0.	4.71E-05
PM151	2.92E-09	3.55E-10	2.31E-10	0.	6.02E-10	0.	4.03E-05
SM151	2.56E-07	3.81E-08	1.20E-08	0.	3.94E-08	0.	5.53E-06
SM153	3.65E-09	2.27E-09	2.19E-10	0.	6.91E-10	0.	3.02E-05
EU152	6.15E-07	1.12E-07	1.33E-07	0.	4.73E-07	0.	1.84E-05
EU154	2.30E-06	2.07E-07	1.89E-07	0.	9.09E-07	0.	4.81E-05
EU155	4.82E-07	3.47E-08	2.72E-08	0.	1.30E-07	0.	8.69E-05
EU156	5.62E-08	3.01E-08	6.23E-09	0.	1.94E-08	0.	6.83E-05
TB160	1.66E-07	0.	2.06E-08	0.	4.94E-08	0.	3.68E-05
H0166M	1.08E-06	2.26E-07	1.91E-07	0.	3.22E-07	0.	0.
W181	4.23E-08	1.04E-08	1.43E-09	0.	0.	0.	3.79E-07
W185	1.73E-06	4.32E-07	6.05E-08	0.	0.	0.	1.61E-05
W187	4.29E-07	2.54E-07	1.14E-07	0.	0.	0.	3.57E-05

TABLE 2 (contd)

Page 4 of 4

CHILD ISOTOPE	INGESTION DOSE	COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)					
	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	4.75E-02	1.22E-02	2.09E-03	0.	3.67E-02	0.	5.57E-05
BI210+D	1.97E-06	1.02E-05	1.69E-07	0.	1.15E-04	0.	5.17E-05
PO210	1.52E-03	2.43E-03	3.67E-04	0.	7.56E-03	0.	6.55E-05
RN222+D	0.	0.	0.	0.	0.	0.	0.
RA223+D	2.12E-02	2.45E-05	4.24E-03	0.	6.50E-04	0.	3.38E-04
RA224+D	6.89E-03	1.25E-05	1.38E-03	0.	3.31E-04	0.	3.78E-04
RA225+D	2.80E-02	2.50E-05	5.59E-03	0.	6.62E-04	0.	3.21E-04
RA226+D	5.75E-01	1.84E-05	4.72E-01	0.	4.88E-04	0.	3.41E-04
RA228+D	3.85E-01	9.99E-06	4.32E-01	0.	2.65E-04	0.	5.81E-05
AC225	1.88E-05	1.94E-05	1.26E-06	0.	2.07E-06	0.	4.31E-04
AC227+D	4.12E-03	6.63E-04	2.55E-04	0.	1.46E-04	0.	8.43E-05
TH227+D	5.85E-05	7.96E-07	1.69E-06	0.	4.22E-06	0.	5.63E-04
TH228+D	2.07E-03	2.65E-05	7.00E-05	0.	1.38E-04	0.	5.79E-04
TH229	1.38E-02	1.81E-04	6.80E-04	0.	8.84E-04	0.	5.27E-04
TH230	3.55E-03	1.78E-04	9.91E-05	0.	8.67E-04	0.	6.19E-05
TH232+D	3.96E-03	1.52E-04	3.01E-04	0.	7.41E-04	0.	5.27E-05
TH234	3.42E-07	1.51E-08	9.88E-09	0.	8.01E-08	0.	1.18E-04
PA231+D	7.07E-03	2.34E-04	2.81E-04	0.	1.28E-03	0.	7.37E-05
PA233	1.81E-08	2.82E-09	3.16E-09	0.	1.04E-08	0.	1.44E-05
U232+D	1.76E-02	0.	1.26E-03	0.	1.34E-03	0.	6.98E-05
U233+D	3.72E-03	0.	2.25E-04	0.	6.10E-04	0.	6.45E-05
U234	3.57E-03	0.	2.21E-04	0.	5.98E-04	0.	6.32E-05
U235+D	3.42E-03	0.	2.07E-04	0.	5.61E-04	0.	8.03E-05
U236	3.42E-03	0.	2.12E-04	0.	5.73E-04	0.	5.92E-05
U237	2.36E-07	0.	6.27E-08	0.	6.81E-07	0.	2.08E-05
U238+D	3.27E-03	0.	1.94E-04	0.	5.24E-04	0.	5.66E-05
NP237+D	2.36E-03	1.81E-04	9.79E-05	0.	6.05E-04	0.	8.16E-05
NP238	5.83E-08	1.18E-09	9.08E-10	0.	3.76E-09	0.	4.04E-05
NP239	5.25E-09	3.77E-10	2.65E-10	0.	1.09E-09	0.	2.79E-05
PU238	1.25E-03	1.56E-04	3.16E-05	0.	1.15E-04	0.	7.50E-05
PU239	1.36E-03	1.65E-04	3.31E-05	0.	1.22E-04	0.	6.85E-05
PU240	1.36E-03	1.65E-04	3.31E-05	0.	1.22E-04	0.	6.98E-05
PU241+D	4.00E-05	1.72E-06	8.04E-07	0.	2.96E-06	0.	1.44E-06
PU242	1.26E-03	1.59E-04	3.19E-05	0.	1.17E-04	0.	6.71E-05
PU244	1.47E-03	1.82E-04	3.65E-05	0.	1.35E-04	0.	1.00E-04
AM241	1.43E-03	6.40E-04	1.02E-04	0.	6.23E-04	0.	7.64E-05
AM242M	1.47E-03	6.25E-04	1.04E-04	0.	6.30E-04	0.	9.61E-05
AM243	1.41E-03	6.14E-04	9.83E-05	0.	6.06E-04	0.	8.95E-05
CM242	8.80E-05	6.73E-05	5.84E-06	0.	1.87E-05	0.	8.16E-05
CM243	1.33E-03	6.03E-04	8.24E-05	0.	3.08E-04	0.	8.03E-05
CM244	1.11E-03	5.36E-04	6.93E-05	0.	2.54E-04	0.	7.77E-05
CM245	1.76E-03	6.64E-04	1.05E-04	0.	4.11E-04	0.	7.24E-05
CM246	1.74E-03	6.64E-04	1.05E-04	0.	4.10E-04	0.	7.11E-05
CM247+D	1.70E-03	6.53E-04	1.03E-04	0.	4.04E-04	0.	9.35E-05
CM248	1.41E-02	5.38E-03	8.52E-04	0.	3.33E-03	0.	1.51E-03
CF252	1.07E-03	0.	2.54E-05	0.	0.	0.	2.96E-04

TABLE 3

Page 1 of 4

TEEN INGESTION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3	0.	1.06E-07	1.06E-07	1.06E-07	1.06E-07	1.06E-07	1.06E-07
BE10	4.48E-06	6.94E-07	1.13E-07	0.	5.30E-07	0.	2.84E-05
C14	4.06E-06	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07
N13	1.15E-08	1.15E-08	1.15E-08	1.15E-08	1.15E-08	1.15E-08	1.15E-08
F18	8.64E-07	0.	9.47E-08	0.	0.	0.	7.78E-08
NA22	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05
NA24	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06
P32	2.76E-04	1.71E-05	1.07E-05	0.	0.	0.	2.32E-05
AR39	0.	0.	0.	0.	0.	0.	0.
AR41	0.	0.	0.	0.	0.	0.	0.
CA41	1.97E-04	0.	2.13E-05	0.	0.	0.	1.95E-07
SC46	7.24E-09	1.41E-08	4.18E-09	0.	1.35E-08	0.	4.80E-05
CR51	0.	0.	3.60E-09	2.00E-09	7.89E-10	5.14E-09	6.05E-07
MN54	0.	5.90E-06	1.17E-06	0.	1.76E-06	0.	1.21E-05
MN56	0.	1.58E-07	2.81E-08	0.	2.00E-07	0.	1.04E-05
FE55	3.78E-06	2.68E-06	6.25E-07	0.	0.	1.70E-06	1.16E-06
FE59	5.87E-06	1.37E-05	5.29E-06	0.	0.	4.32E-06	3.24E-05
CO57	0.	2.38E-07	3.99E-07	0.	0.	0.	4.44E-06
CO58	0.	9.72E-07	2.24E-06	0.	0.	0.	1.34E-05
CO60	0.	2.81E-06	6.33E-06	0.	0.	0.	3.66E-05
NI59	1.32E-05	4.66E-06	2.24E-06	0.	0.	0.	7.31E-07
NI63	1.77E-04	1.25E-05	6.00E-06	0.	0.	0.	1.99E-06
NI65	7.49E-07	9.57E-08	4.36E-08	0.	0.	0.	5.19E-06
CU64	0.	1.15E-07	5.41E-08	0.	2.91E-07	0.	8.92E-06
ZN65	5.76E-06	2.00E-05	9.33E-06	0.	1.28E-05	0.	8.47E-06
ZN69M+D	2.40E-07	5.66E-07	5.19E-08	0.	3.44E-07	0.	3.11E-05
ZN69	1.47E-08	2.80E-08	1.96E-09	0.	1.83E-08	0.	5.16E-08
SE79	0.	3.73E-06	6.27E-07	0.	6.50E-06	0.	5.70E-07
BR82	0.	0.	3.04E-06	0.	0.	0.	0.
BR83+D	0.	0.	5.74E-08	0.	0.	0.	0.
BR84	0.	0.	7.22E-08	0.	0.	0.	0.
BR85	0.	0.	3.05E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	0.	0.
KR85M	0.	0.	0.	0.	0.	0.	0.
KR85	0.	0.	0.	0.	0.	0.	0.
KR87	0.	0.	0.	0.	0.	0.	0.
KR88+D	0.	0.	0.	0.	0.	0.	0.
KR89	0.	0.	0.	0.	0.	0.	0.
RB86	0.	2.98E-05	1.40E-05	0.	0.	0.	4.41E-06
RB87	0.	1.75E-05	6.11E-06	0.	0.	0.	6.11E-07
RB88	0.	8.52E-08	4.54E-08	0.	0.	0.	7.30E-15
RB89+D	0.	5.50E-08	3.89E-08	0.	0.	0.	8.43E-17
SR89+D	4.40E-04	0.	1.26E-05	0.	0.	0.	5.24E-05
SR90+D	8.30E-03	0.	2.05E-03	0.	0.	0.	2.33E-04
SR91+D	8.07E-06	0.	3.21E-07	0.	0.	0.	3.66E-05
SR92+D	3.05E-06	0.	1.30E-07	0.	0.	0.	7.77E-05

TABLE 3 (contd)

Page 2 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	1.37E-08	0.	3.69E-10	0.	0.	0.	1.13E-04
Y91M+D	1.29E-10	0.	4.93E-12	0.	0.	0.	6.09E-09
Y91	2.01E-07	0.	5.39E-09	0.	0.	0.	8.24E-05
Y92	1.21E-09	0.	3.50E-11	0.	0.	0.	3.32E-05
Y93	3.83E-09	0.	1.05E-10	0.	0.	0.	1.17E-04
ZR93+D	5.53E-08	2.73E-08	1.49E-08	0.	9.65E-08	0.	2.58E-05
ZR95+D	4.12E-08	1.30E-08	8.94E-09	0.	1.91E-08	0.	3.00E-05
ZR97+D	2.37E-09	4.69E-10	2.16E-10	0.	7.11E-10	0.	1.27E-04
NB93M	3.44E-08	1.13E-08	2.83E-09	0.	1.32E-08	0.	4.07E-06
NB95	8.22E-09	4.56E-09	2.51E-09	0.	4.42E-09	0.	1.95E-05
NB97	7.37E-11	1.83E-11	6.68E-12	0.	2.14E-11	0.	4.37E-07
MO93	0.	1.06E-05	2.90E-07	0.	3.04E-06	0.	1.29E-06
MO99+D	0.	6.03E-06	1.15E-06	0.	1.38E-05	0.	1.08E-05
TC99M	3.32E-10	9.26E-10	1.20E-08	0.	1.38E-08	5.14E-10	6.08E-07
TC99	1.79E-07	2.63E-07	7.17E-08	0.	3.34E-06	2.72E-08	6.44E-06
TC101	3.60E-10	5.12E-10	5.03E-09	0.	9.26E-09	3.12E-10	8.75E-17
RU103+D	2.55E-07	0.	1.09E-07	0.	8.99E-07	0.	2.13E-05
RU105+D	2.18E-08	0.	8.46E-09	0.	2.75E-07	0.	1.76E-05
RU106+D	3.92E-06	0.	4.94E-07	0.	7.56E-06	0.	1.88E-04
RH105	1.73E-07	1.25E-07	8.20E-08	0.	5.31E-07	0.	1.59E-05
PD107	0.	2.08E-07	1.34E-08	0.	1.88E-06	0.	9.66E-07
PD109	0.	2.51E-07	5.70E-08	0.	1.45E-06	0.	2.53E-05
AG110M+D	2.05E-07	1.94E-07	1.18E-07	0.	3.70E-07	0.	5.45E-05
AG111	8.29E-08	3.44E-08	1.73E-08	0.	1.12E-07	0.	4.80E-05
CD113M	0.	4.51E-06	1.45E-07	0.	4.99E-06	0.	2.71E-05
CD115M	0.	2.60E-06	8.39E-08	0.	2.08E-06	0.	8.23E-05
SN123	4.44E-05	7.29E-07	1.08E-06	5.84E-07	0.	0.	6.71E-05
SN125+D	1.19E-05	2.37E-07	5.37E-07	1.86E-07	0.	0.	1.12E-04
SN126+D	1.16E-04	2.16E-06	3.30E-06	5.69E-07	0.	0.	2.58E-05
SB124	3.87E-06	7.13E-08	1.51E-06	8.78E-09	0.	3.38E-06	7.80E-05
SB125+D	2.48E-06	2.71E-08	5.80E-07	2.37E-09	0.	2.18E-06	1.93E-05
SB126	1.59E-06	3.25E-08	5.71E-07	8.99E-09	0.	1.14E-06	9.41E-05
SB127	3.63E-07	7.76E-09	1.37E-07	4.08E-09	0.	2.47E-07	6.16E-05
TE125M	3.83E-06	1.38E-06	5.12E-07	1.07E-06	0.	0.	1.13E-05
TE127M+D	9.67E-06	3.43E-06	1.15E-06	2.30E-06	3.92E-05	0.	2.41E-05
TE127	1.58E-07	5.60E-08	3.40E-08	1.09E-07	6.40E-07	0.	1.22E-05
TE129M+D	1.63E-05	6.05E-06	2.58E-06	5.26E-06	6.82E-05	0.	6.12E-05
TE129	4.48E-08	1.67E-08	1.09E-08	3.20E-08	1.88E-07	0.	2.45E-07
TE131M+D	2.44E-06	1.17E-06	9.76E-07	1.76E-06	1.22E-05	0.	9.39E-05
TE131+D	2.79E-08	1.15E-08	8.72E-09	2.15E-08	1.22E-07	0.	2.29E-09
TE132+D	3.49E-06	2.21E-06	2.08E-06	2.33E-06	2.12E-05	0.	7.00E-05
TE133M+D	6.44E-08	3.66E-08	3.56E-08	5.11E-08	3.62E-07	0.	1.48E-07
TE134+D	4.47E-08	2.87E-08	3.00E-08	3.67E-08	2.74E-07	0.	1.66E-09
I129	4.66E-06	3.92E-06	6.54E-06	4.77E-03	7.01E-06	0.	4.57E-07
I130	1.03E-06	2.98E-06	1.19E-06	2.43E-04	4.59E-06	0.	2.29E-06
I131+D	5.85E-06	8.19E-06	4.40E-06	2.39E-03	1.41E-05	0.	1.62E-06

TABLE 3 (contd)

Page 3 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	2.79E-07	7.30E-07	2.62E-07	2.46E-05	1.15E-06	0.	3.18E-07
I133+D	2.01E-06	3.41E-06	1.04E-06	4.76E-04	5.98E-06	0.	2.58E-06
I134	1.46E-07	3.87E-07	1.39E-07	6.45E-06	6.10E-07	0.	5.10E-09
I135+D	6.10E-07	1.57E-06	5.82E-07	1.01E-04	2.48E-06	0.	1.74E-06
XE131M	0.	0.	0.	0.	0.	0.	0.
XE133M	0.	0.	0.	0.	0.	0.	0.
XE133	0.	0.	0.	0.	0.	0.	0.
XE135M	0.	0.	0.	0.	0.	0.	0.
XE135	0.	0.	0.	0.	0.	0.	0.
XE137	0.	0.	0.	0.	0.	0.	0.
XE138+D	0.	0.	0.	0.	0.	0.	0.
CS134M+D	2.94E-08	6.09E-08	3.13E-08	0.	3.39E-08	5.95E-09	4.05E-08
CS134	8.37E-05	1.97E-04	9.14E-05	0.	6.26E-05	2.39E-05	2.45E-06
CS135	2.78E-05	2.55E-05	5.96E-06	0.	9.73E-06	3.52E-06	4.46E-07
CS136	8.59E-06	3.38E-05	2.27E-05	0.	1.84E-05	2.90E-06	2.72E-06
CS137+D	1.12E-04	1.49E-04	5.19E-05	0.	5.07E-05	1.97E-05	2.12E-06
CS138	7.76E-08	1.49E-07	7.45E-08	0.	1.10E-07	1.28E-08	6.76E-11
CS139+D	4.87E-08	7.17E-08	2.63E-08	0.	5.79E-08	6.34E-09	3.33E-23
BA139	1.39E-07	9.78E-11	4.05E-09	0.	9.22E-11	6.74E-11	1.24E-06
BA140+D	2.84E-05	3.48E-08	1.83E-06	0.	1.18E-08	2.34E-08	4.38E-05
BA141+D	6.71E-08	5.01E-11	2.24E-09	0.	4.65E-11	3.43E-11	1.43E-13
BA142+D	2.99E-08	2.99E-11	1.84E-09	0.	2.53E-11	1.99E-11	9.18E-20
LA140	3.48E-09	1.71E-09	4.55E-10	0.	0.	0.	9.82E-05
LA141	4.55E-10	1.40E-10	2.31E-11	0.	0.	0.	2.48E-05
LA142	1.79E-10	7.95E-11	1.98E-11	0.	0.	0.	2.42E-06
CE141	1.33E-08	8.88E-09	1.02E-09	0.	4.18E-09	0.	2.54E-05
CE143+D	2.35E-09	1.71E-06	1.91E-10	0.	7.67E-10	0.	5.14E-05
CE144+D	6.96E-07	2.88E-07	3.74E-08	0.	1.72E-07	0.	1.75E-04
PR143	1.31E-08	5.23E-09	6.52E-10	0.	3.04E-09	0.	4.31E-05
PR144	4.30E-11	1.76E-11	2.18E-12	0.	1.01E-11	0.	4.74E-14
ND147+D	9.38E-09	1.02E-08	6.11E-10	0.	5.99E-09	0.	3.68E-05
PM147	1.05E-07	9.96E-09	4.06E-09	0.	1.90E-08	0.	9.47E-06
PM148M+D	4.14E-08	1.05E-08	8.21E-09	0.	1.59E-08	0.	6.61E-05
PM148	1.02E-08	1.66E-09	8.36E-10	0.	3.00E-09	0.	9.90E-05
PM149	2.17E-09	3.05E-10	1.25E-10	0.	5.81E-10	0.	4.49E-05
PM151	9.87E-10	1.63E-10	8.25E-11	0.	2.93E-10	0.	3.66E-05
SM151	8.73E-08	1.68E-08	3.94E-09	0.	1.84E-08	0.	5.70E-06
SM153	1.22E-09	1.01E-09	7.43E-11	0.	3.30E-10	0.	2.85E-05
EU152	2.45E-07	5.90E-08	5.20E-08	0.	2.74E-07	0.	2.17E-05
EU154	7.91E-07	1.02E-07	7.19E-08	0.	4.56E-07	0.	5.39E-05
EU155	1.74E-07	1.68E-08	1.04E-08	0.	6.57E-08	0.	9.63E-05
EU156	1.92E-08	1.44E-08	2.35E-09	0.	9.69E-09	0.	7.36E-05
TB160	6.47E-08	0.	8.07E-09	0.	2.56E-08	0.	4.19E-05
H0166M	3.57E-07	1.10E-07	7.96E-08	0.	1.61E-07	0.	0.
W181	1.42E-08	4.58E-09	4.79E-10	0.	0.	0.	3.90E-07
W185	5.79E-07	1.91E-07	2.02E-08	0.	0.	0.	1.65E-05
W187	1.46E-07	1.19E-07	4.17E-08	0.	0.	0.	3.22E-05

TABLE 3 (contd)

Page 4 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	1.81E-02	5.44E-03	7.01E-04	0.	1.72E-02	0.	5.74E-05
BI210+D	6.59E-07	4.51E-06	5.66E-08	0.	5.48E-05	0.	5.15E-05
PO210	5.09E-04	1.07E-03	1.23E-04	0.	3.60E-03	0.	6.75E-05
RN222+D	0.	0.	0.	0.	0.	0.	0.
RA223+D	7.11E-03	1.08E-05	1.42E-03	0.	3.10E-04	0.	3.43E-04
RA224+D	2.31E-03	5.52E-06	4.61E-04	0.	1.58E-04	0.	3.71E-04
RA225+D	9.37E-03	1.10E-05	1.87E-03	0.	3.15E-04	0.	3.27E-04
RA226+D	3.22E-01	8.13E-06	2.39E-01	0.	2.32E-04	0.	3.51E-04
RA228+D	1.37E-01	4.41E-06	1.51E-01	0.	1.26E-04	0.	5.98E-05
AC225	6.29E-06	8.59E-06	4.22E-07	0.	9.85E-07	0.	4.36E-04
AC227+D	2.05E-03	3.03E-04	1.22E-04	0.	8.81E-05	0.	6.68E-05
TH227+D	1.96E-05	3.52E-07	5.65E-07	0.	2.01E-06	0.	5.75E-04
TH228+D	5.80E-04	1.14E-05	2.30E-05	0.	6.41E-05	0.	5.97E-04
TH229	8.39E-03	1.26E-04	4.11E-04	0.	6.10E-04	0.	5.43E-04
TH230	2.16E-03	1.23E-04	6.00E-05	0.	5.99E-04	0.	6.38E-05
TH232+D	2.42E-03	1.05E-04	1.63E-04	0.	5.11E-04	0.	5.43E-05
TH234	1.14E-07	6.68E-09	3.31E-09	0.	3.81E-08	0.	1.21E-04
PA231+D	4.31E-03	1.62E-04	1.68E-04	0.	9.10E-04	0.	7.60E-05
PA233	7.33E-09	1.41E-09	1.26E-09	0.	5.32E-09	0.	1.61E-05
U232+D	5.89E-03	0.	4.21E-04	0.	6.38E-04	0.	7.19E-05
U233+D	1.24E-03	0.	7.54E-05	0.	2.90E-04	0.	6.65E-05
U234	1.19E-03	0.	7.39E-05	0.	2.85E-04	0.	6.51E-05
U235+D	1.14E-03	0.	6.94E-05	0.	2.67E-04	0.	8.28E-05
U236	1.14E-03	0.	7.09E-05	0.	2.73E-04	0.	6.11E-05
U237	7.89E-08	0.	2.10E-08	0.	3.24E-07	0.	2.09E-05
U238+D	1.09E-03	0.	6.49E-05	0.	2.50E-04	0.	5.83E-05
NP237+D	1.44E-03	1.25E-04	5.85E-05	0.	4.33E-04	0.	8.41E-05
NP238	1.95E-09	5.22E-10	3.04E-10	0.	1.79E-09	0.	3.83E-05
NP239	1.76E-09	1.66E-10	9.22E-11	0.	5.21E-10	0.	2.67E-05
PU238	7.21E-04	1.02E-04	1.82E-05	0.	7.80E-05	0.	7.73E-05
PU239	8.27E-04	1.12E-04	2.01E-05	0.	8.57E-05	0.	7.06E-05
PU240	8.26E-04	1.12E-04	2.01E-05	0.	8.56E-05	0.	7.19E-05
PU241+D	1.84E-05	9.42E-07	3.69E-07	0.	1.71E-06	0.	1.48E-06
PU242	7.66E-04	1.08E-04	1.94E-05	0.	8.25E-05	0.	6.92E-05
PU244	8.95E-04	1.23E-04	2.22E-05	0.	9.45E-05	0.	1.03E-04
AM241	8.62E-04	3.29E-04	5.75E-05	0.	4.31E-04	0.	7.87E-05
AM242M	8.70E-04	3.19E-04	5.80E-05	0.	4.30E-04	0.	9.90E-05
AM243	8.60E-04	3.17E-04	5.62E-05	0.	4.22E-04	0.	9.23E-05
CM242	2.94E-05	2.97E-05	1.95E-06	0.	8.89E-06	0.	8.40E-05
CM243	6.91E-04	2.86E-04	4.09E-05	0.	1.91E-04	0.	8.28E-05
CM244	5.32E-04	2.49E-04	3.19E-05	0.	1.49E-04	0.	8.00E-05
CM245	1.07E-03	3.33E-04	6.10E-05	0.	2.85E-04	0.	7.46E-05
CM246	1.06E-03	3.32E-04	6.09E-05	0.	2.84E-04	0.	7.33E-05
CM247+D	1.03E-03	3.27E-04	6.00E-05	0.	2.80E-04	0.	9.63E-05
CM248	8.60E-03	2.69E-03	4.95E-04	0.	2.31E-03	0.	1.55E-03
CF252	3.51E-04	0.	8.37E-06	0.	0.	0.	3.05E-04

TABLE 4

Page 1 of 4

ISOTOPE	COMMITMENT FACTORS (MREM/50Y PER PCI INGESTED IN FIRST YR)						
	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3	0.	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07
BE10	3.18E-06	4.91E-07	7.94E-08	0.	3.71E-07	0.	2.68E-05
C14	2.84E-06	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07
N13	8.36E-09	8.36E-09	8.36E-09	8.36E-09	8.36E-09	8.36E-09	8.36E-09
F18	6.24E-07	0.	6.92E-08	0.	0.	0.	1.85E-08
NA22	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05
NA24	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06
P32	1.93E-04	1.20E-05	7.46E-06	0.	0.	0.	2.17E-05
AR39	0.	0.	0.	0.	0.	0.	0.
AR41	0.	0.	0.	0.	0.	0.	0.
CA41	1.83E-05	0.	2.00E-05	0.	0.	0.	1.84E-07
SC46	5.51E-09	1.07E-08	3.11E-09	0.	9.99E-09	0.	5.21E-05
CR51	0.	0.	2.66E-09	1.59E-09	5.86E-10	3.53E-09	6.69E-07
MN54	0.	4.57E-06	8.72E-07	0.	1.36E-06	0.	1.40E-05
MN56	0.	1.15E-07	2.04E-08	0.	1.46E-07	0.	3.67E-06
FE55	2.75E-06	1.90E-06	4.43E-07	0.	0.	1.06E-06	1.09E-06
FE59	4.34E-06	1.02E-05	3.91E-06	0.	0.	2.85E-06	3.40E-05
CO57	0.	1.75E-07	2.91E-07	0.	0.	0.	4.44E-06
CO58	0.	7.45E-07	1.67E-06	0.	0.	0.	1.51E-05
CO60	0.	2.14E-06	4.72E-06	0.	0.	0.	4.02E-05
NI59	9.76E-05	3.35E-05	1.63E-06	0.	0.	0.	6.90E-07
NI63	1.30E-04	9.01E-06	4.36E-06	0.	0.	0.	1.88E-06
NI65	5.28E-07	6.86E-08	3.13E-08	0.	0.	0.	1.74E-06
CU64	0.	8.33E-08	3.91E-08	0.	2.10E-07	0.	7.10E-06
ZN65	4.84E-06	1.54E-05	6.96E-06	0.	1.03E-05	0.	9.70E-06
ZN69M+D	1.70E-07	4.08E-07	3.73E-08	0.	2.47E-07	0.	2.49E-05
ZN69	1.03E-08	1.97E-08	1.37E-09	0.	1.28E-08	0.	2.96E-09
SE79	0.	2.63E-06	4.39E-07	0.	4.55E-06	0.	5.38E-07
BR82	0.	0.	2.26E-06	0.	0.	0.	2.59E-06
BR83+D	0.	0.	4.02E-08	0.	0.	0.	5.79E-08
BR84	0.	0.	5.21E-08	0.	0.	0.	4.09E-13
BR85	0.	0.	2.14E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	0.	0.
KR85M	0.	0.	0.	0.	0.	0.	0.
KR85	0.	0.	0.	0.	0.	0.	0.
KR87	0.	0.	0.	0.	0.	0.	0.
KR88+D	0.	0.	0.	0.	0.	0.	0.
KR89	0.	0.	0.	0.	0.	0.	0.
RB86	0.	2.11E-05	9.83E-06	0.	0.	0.	4.16E-06
RB87	0.	1.23E-05	4.28E-06	0.	0.	0.	5.76E-07
RB88	0.	6.05E-08	3.21E-08	0.	0.	0.	8.36E-19
RB89+D	0.	4.01E-08	2.82E-08	0.	0.	0.	2.33E-21
SR89+D	3.08E-04	0.	8.84E-06	0.	0.	0.	4.94E-05
SR90+D	7.58E-03	0.	1.86E-03	0.	0.	0.	2.19E-04
SR91+D	5.67E-06	0.	2.29E-07	0.	0.	0.	2.70E-05
SR92+D	2.15E-06	0.	9.30E-08	0.	0.	0.	4.26E-05

TABLE 4 (contd)

Page 2 of 4

ADULT INGESTION DOSE ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	9.62E-09	0.	2.58E-10	0.	0.	0.	1.02E-04
Y91M+D	9.09E-11	0.	3.52E-12	0.	0.	0.	2.67E-10
Y91	1.41E-07	0.	3.77E-09	0.	0.	0.	7.76E-05
Y92	8.45E-10	0.	2.47E-11	0.	0.	0.	1.48E-05
Y93	2.68E-09	0.	7.40E-11	0.	0.	0.	8.50E-05
ZR93+D	4.18E-08	2.34E-09	1.09E-09	0.	8.87E-09	0.	2.43E-06
ZR95+D	3.04E-08	9.75E-09	6.60E-09	0.	1.53E-08	0.	3.09E-05
ZR97+D	1.68E-09	3.39E-10	1.55E-10	0.	5.12E-10	0.	1.05E-04
NB93M	2.55E-08	8.32E-09	2.05E-09	0.	9.57E-09	0.	3.84E-06
NB95	6.22E-09	3.46E-09	1.86E-09	0.	3.42E-09	0.	2.10E-05
NB97	5.22E-11	1.32E-11	4.82E-12	0.	1.54E-11	0.	4.87E-08
MO93	0.	7.51E-06	2.03E-07	0.	2.13E-06	0.	1.22E-06
MO99+D	0.	4.31E-06	8.20E-07	0.	9.76E-06	0.	9.99E-06
TC99M	2.47E-10	6.98E-10	8.89E-09	0.	1.06E-08	3.42E-10	4.13E-07
TC99	1.25E-07	1.86E-07	5.02E-08	0.	2.34E-06	1.58E-08	6.08E-06
TC101	2.54E-10	3.66E-10	3.59E-09	0.	6.59E-09	1.87E-10	1.10E-21
RU103+D	1.85E-07	0.	7.97E-08	0.	7.06E-07	0.	2.16E-05
RU105+D	1.54E-08	0.	6.08E-09	0.	1.99E-07	0.	9.42E-06
RU106+D	2.75E-06	0.	3.48E-07	0.	5.31E-06	0.	1.78E-04
RH105	1.21E-07	8.85E-08	5.83E-08	0.	3.76E-07	0.	1.41E-05
PD107	0.	1.47E-07	9.40E-09	0.	1.32E-06	0.	9.11E-07
PD109	0.	1.77E-07	3.99E-08	0.	1.01E-06	0.	1.96E-05
AG110M+D	1.60E-07	1.48E-07	8.79E-08	0.	2.91E-07	0.	6.04E-05
AG111	5.81E-08	2.43E-08	1.21E-08	0.	7.84E-08	0.	4.46E-05
CD113M	0.	3.18E-06	1.02E-07	0.	3.50E-06	0.	2.56E-05
CD115M	0.	1.84E-06	5.87E-08	0.	1.46E-06	0.	7.74E-05
SN123	3.11E-05	5.15E-07	7.59E-07	4.38E-07	0.	0.	6.33E-05
SN125+D	8.33E-06	1.68E-07	3.78E-07	1.39E-07	0.	0.	1.04E-04
SN126+D	8.45E-05	1.67E-06	2.40E-06	4.92E-07	0.	0.	2.43E-05
SB124	2.80E-06	5.29E-08	1.11E-06	6.79E-09	0.	2.18E-06	7.95E-05
SB125+D	1.79E-06	2.00E-08	4.26E-07	1.82E-09	0.	1.38E-06	1.97E-05
SB126	1.15E-06	2.34E-08	4.15E-07	7.04E-09	0.	7.05E-07	9.40E-05
SB127	2.58E-07	5.65E-09	9.90E-08	3.10E-09	0.	1.53E-07	5.90E-05
TE125M	2.68E-06	9.71E-07	3.59E-07	8.06E-07	1.09E-05	0.	1.07E-05
TE127M+D	6.77E-06	2.42E-06	8.25E-07	1.73E-06	2.75E-05	0.	2.27E-05
TE127	1.10E-07	3.95E-08	2.38E-08	8.15E-08	4.48E-07	0.	8.68E-06
TE129M+D	1.15E-05	4.29E-06	1.82E-06	3.95E-06	4.80E-05	0.	5.79E-05
TE129	3.14E-08	1.18E-08	7.65E-09	2.41E-08	1.32E-07	0.	2.37E-08
TE131M+D	1.73E-06	8.46E-07	7.05E-07	1.34E-06	8.57E-06	0.	8.40E-05
TE131+D	1.97E-08	8.23E-09	6.22E-09	1.62E-08	8.63E-08	0.	2.79E-09
TE132+D	2.52E-06	1.63E-06	1.53E-06	1.80E-06	1.57E-05	0.	7.71E-05
TE133M+D	4.62E-08	2.70E-08	2.60E-08	3.91E-08	2.67E-07	0.	6.64E-08
TE134+D	3.24E-08	2.12E-08	1.30E-08	2.83E-08	2.05E-07	0.	3.59E-11
I129	3.27E-06	2.81E-06	9.21E-06	7.23E-03	6.04E-06	0.	4.44E-07
I130	7.56E-07	2.23E-06	8.80E-07	1.89E-04	3.48E-06	0.	1.92E-06
I131+D	4.16E-06	5.95E-06	3.41E-06	1.95E-03	1.02E-05	0.	1.57E-06

TABLE 4 (contd)

Page 3 of 4

ADULT INGESTION DOSE ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	2.03E-07	5.43E-07	1.90E-07	1.90E-05	8.65E-07	0.	1.02E-07
I133+D	1.42E-06	2.47E-06	7.53E-07	3.63E-04	4.31E-06	0.	2.22E-06
I134	1.06E-07	2.88E-07	1.03E-07	4.99E-06	4.58E-07	0.	2.51E-10
I135+D	4.43E-07	1.16E-06	4.28E-07	7.65E-05	1.86E-06	0.	1.31E-06
XE131M	0.	0.	0.	0.	0.	0.	0.
XE133M	0.	0.	0.	0.	0.	0.	0.
XE133	0.	0.	0.	0.	0.	0.	0.
XE135M	0.	0.	0.	0.	0.	0.	0.
XE135	0.	0.	0.	0.	0.	0.	0.
XE137	0.	0.	0.	0.	0.	0.	0.
XE138+D	0.	0.	0.	0.	0.	0.	0.
CS134M+D	2.13E-08	4.48E-08	2.29E-08	0.	2.43E-08	3.83E-09	1.58E-08
CS134	6.22E-05	1.48E-04	1.21E-04	0.	4.79E-05	1.59E-05	2.59E-06
CS135	1.95E-05	1.80E-05	7.99E-06	0.	6.81E-06	2.04E-06	4.21E-07
CS136	6.51E-06	2.57E-05	1.85E-05	0.	1.43E-05	1.96E-06	2.92E-06
CS137+D	7.97E-05	1.09E-04	7.14E-05	0.	3.70E-05	1.23E-05	2.11E-06
CS138	5.52E-08	1.09E-07	5.40E-08	0.	8.01E-08	7.91E-09	4.65E-13
CS139+D	3.41E-08	5.08E-08	1.85E-08	0.	4.07E-08	3.70E-09	1.10E-30
BA139	9.70E-08	6.91E-11	2.84E-09	0.	6.46E-11	3.92E-11	1.72E-07
BA140+D	2.03E-05	2.55E-08	1.33E-06	0.	8.67E-09	1.46E-08	4.18E-05
BA141+D	4.71E-08	3.56E-11	1.59E-09	0.	3.31E-11	2.02E-11	2.22E-17
BA142+D	2.13E-08	2.19E-11	1.34E-09	0.	1.85E-11	1.24E-11	3.00E-26
LA140	2.50E-09	1.26E-09	3.33E-10	0.	0.	0.	9.25E-05
LA141	3.19E-10	9.90E-11	1.62E-11	0.	0.	0.	1.18E-05
LA142	1.28E-10	5.82E-11	1.45E-11	0.	0.	0.	4.25E-07
CE141	9.36E-09	6.33E-09	7.18E-10	0.	2.94E-09	0.	2.42E-05
CE143+D	1.65E-09	1.22E-06	1.35E-10	0.	5.37E-10	0.	4.56E-05
CE144+D	4.88E-07	2.04E-07	2.62E-08	0.	1.21E-07	0.	1.65E-04
PR143	9.20E-09	3.69E-09	4.56E-10	0.	2.13E-09	0.	4.03E-05
PR144	3.01E-11	1.25E-11	1.53E-12	0.	7.05E-12	0.	4.33E-18
ND147+D	6.29E-09	7.27E-09	4.35E-10	0.	4.25E-09	0.	3.49E-05
PM147	7.54E-08	7.09E-09	2.87E-09	0.	1.34E-08	0.	8.93E-06
PM148M+D	3.07E-08	7.95E-09	6.08E-09	0.	1.20E-08	0.	6.74E-05
PM148	7.17E-09	1.19E-09	5.99E-10	0.	2.25E-09	0.	9.35E-05
PM149	1.52E-09	2.15E-10	8.78E-11	0.	4.06E-10	0.	4.03E-05
PM151	6.97E-10	1.17E-10	5.91E-11	0.	2.09E-10	0.	3.22E-05
SM151	6.90E-08	1.19E-08	2.85E-09	0.	1.33E-08	0.	5.25E-06
SM153	8.57E-10	7.15E-10	5.22E-11	0.	2.31E-10	0.	2.55E-05
EU152	1.95E-07	4.44E-08	3.90E-08	0.	2.75E-07	0.	2.56E-05
EU154	6.15E-07	7.56E-08	5.38E-08	0.	3.62E-07	0.	5.48E-05
EU155	8.60E-08	1.22E-08	7.87E-09	0.	5.63E-08	0.	9.60E-06
EU156	1.37E-08	1.06E-08	1.71E-09	0.	7.08E-09	0.	7.26E-05
TB160	4.70E-08	0.	5.86E-09	0.	1.94E-08	0.	4.33E-05
HO166M	2.70E-07	8.43E-08	6.40E-08	0.	1.26E-07	0.	0.
W181	9.91E-09	3.23E-09	3.46E-10	0.	0.	0.	3.68E-07
W185	4.05E-07	1.35E-07	1.42E-08	0.	0.	0.	1.56E-05
W187	1.03E-07	8.61E-08	3.01E-08	0.	0.	0.	2.82E-05

TABLE 4 (contd)

Page 4 of 4

ADULT INGESTION DOSE ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	1.53E-02	4.37E-03	5.44E-04	0.	1.23E-02	0.	5.42E-05
BI210+D	4.61E-07	3.18E-06	3.96E-08	0.	3.83E-05	0.	4.75E-05
PO210	3.56E-04	7.56E-04	8.59E-05	0.	2.52E-03	0.	6.36E-05
RN222+D	0.	0.	0.	0.	0.	0.	0.
RA223+D	4.97E-03	7.65E-06	9.94E-04	0.	2.17E-04	0.	3.21E-04
RA224+D	1.61E-03	3.90E-06	3.23E-04	0.	1.10E-04	0.	3.40E-04
RA225+D	6.56E-03	7.78E-06	1.31E-03	0.	2.21E-04	0.	3.06E-04
RA226+D	3.02E-01	5.74E-06	2.20E-01	0.	1.63E-04	0.	3.32E-04
RA228+D	1.12E-01	3.12E-06	1.21E-01	0.	8.83E-05	0.	5.64E-05
AC225	4.40E-06	6.06E-06	2.96E-07	0.	6.90E-07	0.	4.07E-04
AC227+D	1.87E-03	2.48E-04	1.11E-04	0.	8.00E-05	0.	8.19E-05
TH227+D	1.37E-05	2.48E-07	3.95E-07	0.	1.41E-06	0.	5.40E-04
TH228+D	4.96E-04	8.40E-06	1.68E-05	0.	4.67E-05	0.	5.63E-04
TH229	7.98E-03	1.19E-04	3.91E-04	0.	5.75E-04	0.	5.12E-04
TH230	2.06E-03	1.17E-04	5.70E-05	0.	5.65E-04	0.	6.02E-05
TH232+D	2.30E-03	1.00E-04	1.50E-04	0.	4.82E-04	0.	5.12E-05
TH234	8.01E-08	4.71E-09	2.31E-09	0.	2.67E-08	0.	1.13E-04
PA231+D	4.10E-03	1.54E-04	1.59E-04	0.	8.64E-04	0.	7.17E-05
PA233	5.26E-09	1.06E-09	9.12E-10	0.	3.99E-09	0.	1.64E-05
U232+D	4.13E-03	0.	2.95E-04	0.	4.47E-04	0.	6.78E-05
U233+D	8.71E-04	0.	5.28E-05	0.	2.03E-04	0.	6.27E-05
U234	8.36E-04	0.	5.17E-05	0.	1.99E-04	0.	6.14E-05
U235+D	8.01E-04	0.	4.86E-05	0.	1.87E-04	0.	7.81E-05
U236	8.01E-04	0.	4.96E-05	0.	1.91E-04	0.	5.76E-05
U237	5.52E-08	0.	1.47E-08	0.	2.27E-07	0.	1.94E-05
U238+D	7.67E-04	0.	4.54E-05	0.	1.75E-04	0.	5.50E-05
NP237+D	1.37E-03	1.19E-04	5.54E-05	0.	4.12E-04	0.	7.94E-05
NP238	1.37E-08	3.69E-10	2.13E-10	0.	1.25E-09	0.	3.43E-05
NP239	1.19E-09	1.17E-10	6.45E-11	0.	3.65E-10	0.	2.40E-05
PU238	6.80E-04	9.58E-05	1.71E-05	0.	7.32E-05	0.	7.30E-05
PU239	7.87E-04	1.06E-04	1.91E-05	0.	8.11E-05	0.	6.66E-05
PU240	7.85E-04	1.06E-04	1.91E-05	0.	8.10E-05	0.	6.78E-05
PU241+D	1.65E-05	8.44E-07	3.32E-07	0.	1.53E-06	0.	1.40E-06
PU242	7.29E-04	1.02E-04	1.84E-05	0.	7.81E-05	0.	6.53E-05
PU244	8.52E-04	1.17E-04	2.11E-05	0.	8.95E-05	0.	9.73E-05
AM241	8.19E-04	2.88E-04	5.41E-05	0.	4.07E-04	0.	7.42E-05
AM242M	8.24E-04	2.78E-04	5.43E-05	0.	4.05E-04	0.	9.34E-05
AM243	8.18E-04	2.78E-04	5.30E-05	0.	3.99E-04	0.	8.70E-05
CM242	2.06E-05	2.10E-05	1.37E-06	0.	6.22E-06	0.	7.92E-05
CM243	6.39E-04	2.41E-04	3.75E-05	0.	1.75E-04	0.	7.81E-05
CM244	4.83E-04	2.07E-04	2.87E-05	0.	1.34E-04	0.	7.55E-05
CM245	1.02E-03	2.87E-04	5.76E-05	0.	2.69E-04	0.	7.04E-05
CM246	1.01E-03	2.87E-04	5.75E-05	0.	2.68E-04	0.	6.91E-05
CM247+D	9.84E-04	2.83E-04	5.67E-05	0.	2.64E-04	0.	9.09E-05
CM248	8.18E-03	2.33E-03	4.67E-04	0.	2.18E-03	0.	1.47E-03
CF252	2.64E-04	0.	6.29E-06	0.	0.	0.	2.88E-04

TABLE 5

Page 1 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI
H3*	0.	4.62E-07	4.62E-07	4.62E-07	4.62E-07	4.62E-07	4.62E-07
BE10	9.49E-04	1.25E-04	2.65E-05	0.	0.	1.49E-03	1.73E-05
C14	1.89E-05	3.79E-06	3.79E-06	3.79E-06	3.79E-06	3.79E-06	3.79E-06
N13	4.39E-08	4.39E-08	4.39E-08	4.39E-08	4.39E-08	4.39E-08	4.39E-08
F18	3.92E-06	0.	3.33E-07	0.	0.	0.	6.10E-07
NA22	7.37E-05	7.37E-05	7.37E-05	7.37E-05	7.37E-05	7.37E-05	7.37E-05
NA24	7.54E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06	7.54E-06
P32	1.45E-03	8.03E-05	5.53E-05	0.	0.	0.	1.15E-05
AR39	0.	0.	0.	0.	0.	1.00E-08	0.
AR41	0.	0.	0.	0.	0.	3.14E-08	0.
CA41	7.48E-05	0.	8.16E-06	0.	0.	6.94E-02	2.96E-07
SC46	3.75E-04	5.41E-04	1.69E-04	0.	3.56E-04	0.	2.19E-05
CR51	0.	0.	6.39E-08	4.11E-08	9.45E-09	9.17E-06	2.55E-07
MN54	0.	1.81E-05	3.56E-06	0.	3.56E-06	7.14E-04	5.04E-06
MN56	0.	1.10E-09	1.58E-10	0.	7.86E-10	8.95E-06	5.12E-05
FE55	1.41E-05	8.39E-06	2.38E-06	0.	0.	6.21E-05	7.82E-07
FE59	9.69E-06	1.68E-05	6.77E-06	0.	0.	7.25E-04	1.77E-05
CO57	0.	4.65E-07	4.58E-07	0.	0.	2.71E-04	3.47E-06
CO58	0.	8.71E-07	1.30E-06	0.	0.	5.55E-04	7.95E-06
CO60	0.	5.73E-06	8.41E-06	0.	0.	3.22E-03	2.28E-05
NI59	1.81E-05	5.44E-06	3.10E-06	0.	0.	5.48E-05	6.34E-07
NI63	2.42E-04	1.46E-05	8.29E-06	0.	0.	1.49E-04	1.73E-06
NI65	1.71E-09	2.03E-10	8.79E-11	0.	0.	5.80E-06	3.58E-05
CU64	0.	1.34E-09	5.53E-10	0.	2.84E-09	6.64E-06	1.07E-05
ZN65	1.38E-05	4.47E-05	2.22E-05	0.	2.32E-05	4.62E-04	3.67E-05
ZN69M+D	8.98E-09	1.84E-08	1.67E-09	0.	7.45E-09	1.91E-05	2.92E-05
ZN69	3.85E-11	6.91E-11	5.13E-12	0.	2.87E-11	1.05E-06	9.44E-06
SE79	0.	2.25E-06	4.20E-07	0.	2.47E-06	2.99E-04	3.46E-06
BR82	0.	0.	9.49E-06	0.	0.	0.	0.
BR83+D	0.	0.	2.72E-07	0.	0.	0.	0.
BR84	0.	0.	2.86E-07	0.	0.	0.	0.
BR85	0.	0.	1.46E-08	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	2.50E-09	0.
KR85M	0.	0.	0.	0.	0.	1.31E-08	0.
KR85	0.	0.	0.	0.	0.	1.16E-08	0.
KR87	0.	0.	0.	0.	0.	6.59E-08	0.
KR88+D	0.	0.	0.	0.	0.	1.38E-07	0.
KR89	0.	0.	0.	0.	0.	8.67E-08	0.
RB86	0.	1.36E-04	6.30E-05	0.	0.	0.	2.17E-06
RB87	0.	7.11E-05	2.64E-05	0.	0.	0.	2.99E-07
RB88	0.	3.98E-07	2.05E-07	0.	0.	0.	2.42E-07
RB89+D	0.	2.29E-07	1.47E-07	0.	0.	0.	4.87E-08
SR89+D	2.84E-04	0.	8.15E-06	0.	0.	1.45E-03	4.57E-05
SR90+D	2.92E-02	0.	1.85E-03	0.	0.	8.03E-03	9.36E-05
SR91+D	6.83E-08	0.	2.47E-09	0.	0.	3.76E-05	5.24E-05
SR92+D	7.50E-09	0.	2.79E-10	0.	0.	1.70E-05	1.00E-04

* Includes a 50% increase to account for percutaneous transpiration.

TABLE 5 (contd)

Page 2 of 4

ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	2.35E-06	0.	6.30E-08	0.	0.	1.92E-04	7.43E-05
Y91M+D	2.91E-10	0.	9.90E-12	0.	0.	1.99E-06	1.68E-06
Y91	4.20E-04	0.	1.12E-05	0.	0.	1.75E-03	5.02E-05
Y92	1.17E-08	0.	3.29E-10	0.	0.	1.75E-05	9.04E-05
Y93	1.07E-07	0.	2.91E-09	0.	0.	5.46E-05	1.19E-04
ZR93+D	2.24E-04	9.51E-05	6.18E-05	0.	3.19E-04	1.37E-03	1.48E-05
ZR95+D	8.24E-05	1.99E-05	1.45E-05	0.	2.22E-05	1.25E-03	1.55E-05
ZR97+D	1.07E-07	1.83E-08	8.36E-09	0.	1.85E-08	7.88E-05	1.00E-04
NB93M	1.38E-04	3.59E-05	1.15E-05	0.	3.68E-05	2.09E-04	2.47E-06
NB95	1.12E-05	4.59E-06	2.70E-06	0.	3.37E-06	3.42E-04	9.05E-06
NB97	2.44E-10	5.21E-11	1.88E-11	0.	4.07E-11	2.37E-06	1.92E-05
M093	0.	6.46E-06	2.22E-07	0.	1.54E-06	3.40E-04	3.76E-06
M099+D	0.	1.18E-07	2.31E-08	0.	1.89E-07	9.63E-05	3.48E-05
TC99M	9.98E-13	2.06E-12	2.66E-11	0.	2.22E-11	5.79E-07	1.45E-06
TC99	2.09E-07	2.68E-07	8.85E-08	0.	2.49E-06	6.77E-04	7.82E-06
TC101	4.65E-14	5.88E-14	5.80E-13	0.	6.99E-13	4.17E-07	6.03E-07
RU103+D	1.44E-06	0.	4.85E-07	0.	3.03E-06	3.94E-04	1.15E-05
RU105+D	8.74E-10	0.	2.93E-10	0.	6.42E-10	1.12E-05	3.46E-05
RU106+D	6.20E-05	0.	7.77E-06	0.	7.61E-05	8.26E-03	1.17E-04
RH105	8.26E-09	5.41E-09	3.63E-09	0.	1.50E-08	2.08E-05	1.37E-05
PD107	0.	4.92E-07	4.11E-08	0.	2.75E-06	6.34E-05	7.33E-07
PD109	0.	3.92E-09	1.05E-09	0.	1.28E-08	1.68E-05	2.85E-05
AG110M+D	7.13E-06	5.16E-06	3.57E-06	0.	7.80E-06	2.62E-03	2.36E-05
AG111	3.75E-07	1.45E-07	7.75E-08	0.	3.05E-07	2.06E-04	3.02E-05
CD113M	0.	6.67E-04	2.64E-05	0.	5.80E-04	1.40E-03	1.65E-05
CD115M	0.	1.73E-04	6.19E-06	0.	9.41E-05	1.47E-03	5.02E-05
SN123	2.09E-04	4.21E-06	7.28E-06	4.27E-06	0.	2.22E-03	4.08E-05
SN125+D	1.01E-05	2.51E-07	6.00E-07	2.47E-07	0.	6.43E-04	7.26E-05
SN126+D	8.30E-04	1.44E-05	3.52E-05	3.84E-06	0.	4.93E-03	1.65E-05
SB124	2.71E-05	3.97E-07	8.56E-06	7.18E-08	0.	1.89E-03	4.22E-05
SB125+D	3.69E-05	3.41E-07	7.78E-06	4.45E-08	0.	1.17E-03	1.05E-05
SB126	3.08E-06	6.01E-08	1.11E-06	2.35E-08	0.	6.88E-04	5.33E-05
SB127	2.82E-07	5.04E-09	8.76E-08	3.60E-09	0.	1.54E-04	3.78E-05
TE125M	3.40E-06	1.42E-06	4.70E-07	1.16E-06	0.	3.19E-04	9.22E-06
TE127M+D	1.19E-05	4.93E-06	1.48E-06	3.48E-06	2.68E-05	9.37E-04	1.95E-05
TE127	1.59E-09	6.81E-10	3.49E-10	1.32E-09	3.47E-09	7.39E-06	1.74E-05
TE129M+D	1.01E-05	4.35E-06	1.59E-06	3.91E-06	2.27E-05	1.20E-03	4.93E-05
TE129	5.63E-11	2.48E-11	1.34E-11	4.82E-11	1.25E-10	2.14E-06	1.88E-05
TE131M+D	7.62E-08	3.93E-08	2.59E-08	6.38E-08	1.89E-07	1.42E-04	8.51E-05
TE131+D	1.24E-11	5.87E-12	3.57E-12	1.13E-11	2.85E-11	1.47E-06	5.87E-06
TE132+D	2.66E-07	1.69E-07	1.26E-07	1.99E-07	7.39E-07	2.43E-04	3.15E-05
TE133M+D	5.13E-11	3.59E-11	2.74E-11	5.52E-11	1.72E-10	3.92E-06	1.59E-05
TE134+D	3.18E-11	2.04E-11	1.68E-11	2.91E-11	9.59E-11	2.93E-06	2.53E-06
I129	2.16E-05	1.59E-05	1.16E-05	1.04E-02	1.88E-05	0.	2.12E-07
I130	4.54E-06	9.91E-06	3.98E-06	1.14E-03	1.09E-05	0.	1.42E-06
I131+D	2.71E-05	3.17E-05	1.40E-05	1.06E-02	3.70E-05	0.	7.56E-07

TABLE 5 (contd)

Page 3 of 4

INFANT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	1.21E-06	2.53E-06	8.99E-07	1.21E-04	2.82E-06	0.	1.36E-06
I133+D	9.46E-06	1.37E-05	4.00E-06	2.54E-03	1.60E-05	0.	1.54E-06
I134	6.58E-07	1.34E-06	4.75E-07	3.18E-05	1.49E-06	0.	9.21E-07
I135+D	2.76E-06	5.43E-06	1.98E-06	4.97E-04	6.05E-06	0.	1.31E-06
XE131M	0.	0.	0.	0.	0.	6.77E-09	0.
XE133M	0.	0.	0.	0.	0.	8.89E-09	0.
XE133	0.	0.	0.	0.	0.	7.41E-09	0.
XE135M	0.	0.	0.	0.	0.	8.05E-09	0.
XE135	0.	0.	0.	0.	0.	1.80E-08	0.
XE137	0.	0.	0.	0.	0.	8.30E-08	0.
XE138+D	0.	0.	0.	0.	0.	9.78E-08	0.
CS134M+D	1.32E-07	2.10E-07	1.11E-07	0.	8.50E-08	2.00E-08	1.16E-07
CS134	2.83E-04	5.02E-04	5.32E-05	0.	1.36E-04	5.69E-05	9.53E-07
CS135	1.00E-04	8.66E-05	4.73E-06	0.	2.58E-05	1.01E-05	2.18E-07
CS136	3.45E-05	9.61E-05	3.78E-05	0.	4.03E-05	8.40E-06	1.02E-06
CS137+D	3.92E-04	4.37E-04	3.25E-05	0.	1.23E-04	5.09E-05	9.53E-07
CS138	3.61E-07	5.58E-07	2.84E-07	0.	2.93E-07	4.67E-08	6.26E-07
CS139+D	2.32E-07	3.03E-07	1.22E-07	0.	1.65E-07	2.53E-08	1.33E-08
BA139	1.06E-09	7.03E-13	3.07E-11	0.	4.23E-13	4.25E-06	3.64E-09
BA140+D	4.00E-05	4.00E-08	2.07E-06	0.	9.59E-09	1.14E-03	2.74E-09
BA141+D	1.12E-10	7.70E-14	3.55E-12	0.	4.64E-14	2.12E-06	3.39E-06
BA142+D	2.84E-11	2.36E-14	1.40E-12	0.	1.36E-14	1.11E-06	4.95E-07
LA140	3.61E-07	1.43E-07	3.68E-08	0.	0.	1.20E-04	6.06E-09
LA141	4.85E-09	1.40E-09	2.45E-10	0.	0.	1.22E-05	5.96E-09
LA142	7.36E-10	2.69E-10	6.46E-11	0.	0.	5.87E-06	4.25E-09
CE141	1.98E-05	1.19E-05	1.42E-06	0.	3.75E-06	3.69E-04	1.54E-09
CE143+D	2.09E-07	1.38E-07	1.58E-08	0.	4.03E-08	8.30E-05	3.55E-09
CE144+D	2.28E-03	8.65E-04	1.26E-04	0.	3.84E-04	7.03E-03	1.06E-04
PR143	1.00E-05	3.74E-06	4.99E-07	0.	1.41E-06	3.09E-04	2.66E-09
PR144	3.42E-11	1.32E-11	1.72E-12	0.	4.80E-12	1.15E-06	3.06E-06
ND147+D	5.67E-06	5.81E-06	3.57E-07	0.	2.25E-06	2.30E-04	2.23E-09
PM147	3.91E-04	3.07E-05	1.56E-05	0.	4.93E-05	4.55E-04	5.75E-06
PM148M+D	5.00E-05	1.24E-05	9.94E-06	0.	1.45E-05	1.22E-03	3.37E-09
PM148	3.34E-06	4.82E-07	2.44E-07	0.	5.76E-07	3.20E-04	6.04E-09
PM149	3.10E-07	4.08E-08	1.78E-08	0.	4.96E-08	6.50E-05	3.01E-09
PM151	7.52E-08	1.10E-08	5.55E-09	0.	1.30E-08	3.25E-05	2.58E-09
SM151	3.38E-04	6.45E-05	1.63E-05	0.	5.24E-05	2.98E-04	3.46E-06
SM153	1.53E-07	1.18E-07	9.06E-09	0.	2.47E-08	3.70E-05	1.93E-09
EU152	7.83E-04	1.77E-04	1.72E-04	0.	5.94E-04	1.48E-03	9.88E-06
EU154	2.96E-03	3.46E-04	2.45E-04	0.	1.14E-03	3.05E-03	2.84E-09
EU155	5.97E-04	5.72E-05	3.46E-05	0.	1.58E-04	5.20E-04	5.19E-09
EU156	1.56E-05	9.59E-06	1.54E-06	0.	4.48E-06	6.12E-04	4.14E-09
TB160	1.12E-04	0.	1.40E-05	0.	3.20E-05	1.11E-03	2.14E-09
H0166M	1.45E-03	3.07E-04	2.51E-04	0.	4.22E-04	2.05E-03	1.65E-09
W181	4.86E-08	1.46E-08	1.67E-09	0.	0.	1.33E-05	2.63E-07
W185	1.57E-06	4.83E-07	5.58E-08	0.	0.	4.48E-04	1.12E-09
W187	9.26E-09	6.44E-09	2.23E-09	0.	0.	2.83E-05	2.54E-09

TABLE 5 (contd)

Page 4 of 4

INFANT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PH210+D	8.62E-02	2.02E-02	3.43E-03	0.	6.85E-02	1.76E-01	3.79E-05
BI210+D	0.	1.33E-05	1.18E-06	0.	1.03E-04	9.96E-03	3.27E-05
PO210	2.98E-03	5.63E-03	7.12E-04	0.	1.30E-02	2.40E-01	4.36E-05
RN222+D	0.	0.	0.	0.	0.	9.88E-06	0.
RA223+D	1.56E-03	2.26E-06	3.12E-04	0.	4.16E-05	2.25E-01	3.04E-04
RA224+D	1.77E-04	4.00E-07	3.54E-05	0.	7.30E-06	7.91E-02	3.42E-04
RA225+D	2.57E-03	2.88E-06	5.13E-04	0.	5.31E-05	2.57E-01	2.87E-04
RA226+D	2.48E-01	1.46E-05	2.05E-01	0.	2.94E-04	7.83E-01	3.05E-04
RA228+D	1.60E-01	7.61E-06	1.80E-01	0.	1.53E-04	1.09E+00	5.19E-05
AC225	3.69E-03	4.72E-03	2.48E-04	0.	3.49E-04	1.96E-01	2.71E-04
AC227+D	5.29E+00	8.76E-01	3.28E-01	0.	1.86E-01	1.62E+00	5.27E-05
TH227+D	1.82E-03	3.03E-05	5.24E-05	0.	1.13E-04	3.27E-01	3.53E-04
TH228+D	8.46E-01	1.10E-02	2.86E-02	0.	5.61E-02	4.65E+00	3.62E-04
TH229	1.34E+01	1.82E-01	6.62E-01	0.	8.99E-01	1.22E+01	3.29E-04
TH230	3.46E+00	1.79E-01	9.65E-02	0.	8.82E-01	2.18E+00	3.87E-05
TH232+D	3.86E+00	1.53E-01	2.29E-01	0.	7.54E-01	2.09E+00	3.29E-05
TH234	1.33E-05	7.17E-07	3.84E-07	0.	2.70E-06	1.62E-03	7.40E-05
PA231+D	9.10E+00	3.00E-01	3.62E-01	0.	1.62E+00	3.85E-01	4.61E-05
PA233	6.84E-06	1.32E-06	1.19E-06	0.	3.68E-06	2.19E-04	9.04E-06
U232+D	2.57E-01	0.	2.13E-02	0.	2.40E-02	1.49E+00	4.36E-05
U233+D	5.44E-02	0.	3.83E-03	0.	1.09E-02	3.56E-01	4.03E-05
U234	5.22E-02	0.	3.75E-03	0.	1.07E-02	3.49E-01	3.95E-05
U235+D	5.01E-02	0.	3.52E-03	0.	1.01E-02	3.28E-01	5.02E-05
U236	5.01E-02	0.	3.60E-03	0.	1.03E-02	3.35E-01	3.71E-05
U237	3.25E-07	0.	8.65E-08	0.	8.08E-07	9.13E-05	1.31E-05
U238+D	4.79E-02	0.	3.29E-03	0.	9.40E-03	3.06E-01	3.54E-05
NP237+D	3.03E+00	2.32E-01	1.26E-01	0.	7.69E-01	3.49E-01	5.10E-05
NP238	2.67E-06	6.73E-08	4.16E-08	0.	1.47E-07	9.19E-05	2.58E-05
NP239	2.65E-07	2.37E-08	1.34E-08	0.	4.73E-08	4.25E-05	1.78E-05
PU238	5.02E+00	6.33E-01	1.27E-01	0.	4.64E-01	9.03E-01	4.69E-05
PU239	5.50E+00	6.72E-01	1.34E-01	0.	4.95E-01	8.47E-01	4.28E-05
PU240	5.49E+00	6.71E-01	1.34E-01	0.	4.94E-01	8.47E-01	4.36E-05
PU241+D	1.55E-01	6.69E-03	3.11E-03	0.	1.15E-02	7.62E-04	8.97E-07
PU242	5.09E+00	6.47E-01	1.29E-01	0.	4.77E-01	8.15E-01	4.20E-05
PU244	5.95E+00	7.40E-01	1.48E-01	0.	5.46E-01	9.33E-01	6.26E-05
AM241	1.84E+00	8.44E-01	1.31E-01	0.	7.94E-01	4.06E-01	4.78E-05
AM242M	1.90E+00	8.24E-01	1.35E-01	0.	8.03E-01	1.64E-01	6.01E-05
AM243	1.82E+00	8.10E-01	1.27E-01	0.	7.72E-01	3.85E-01	5.60E-05
CM242	8.58E-02	7.44E-02	5.70E-03	0.	1.69E-02	2.97E-01	5.10E-05
CM243	1.71E+00	7.94E-01	1.06E-01	0.	3.91E-01	4.24E-01	5.02E-05
CM244	1.43E+00	7.04E-01	8.89E-02	0.	3.21E-01	4.08E-01	4.86E-05
CM245	2.26E+00	8.80E-01	1.36E-01	0.	5.23E-01	3.92E-01	4.53E-05
CM246	2.24E+00	8.79E-01	1.36E-01	0.	5.23E-01	3.99E-01	4.45E-05
CM247+D	2.18E+00	8.64E-01	1.33E-01	0.	5.15E-01	3.92E-01	5.85E-05
CM248	1.82E+01	7.12E+00	1.10E+00	0.	4.24E+00	3.23E+00	9.43E-04
CF252	4.26E+00	0.	1.01E-01	0.	0.	1.37E+00	1.85E-04

TABLE 6

Page 1 of 4

CHILD INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3*	0.	3.04E-07	3.04E-07	3.04E-07	3.04E-07	3.04E-07	3.04E-07
BE10	8.43E-04	9.83E-05	2.12E-05	0.	0.	7.41E-04	1.72E-05
C14	9.70E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06	1.82E-06
N13	2.33E-08	2.33E-08	2.33E-08	2.33E-08	2.33E-08	2.33E-08	2.33E-08
F18	1.88E-06	0.	1.85E-07	0.	0.	0.	3.37E-07
NA22	4.41E-05	4.41E-05	4.41E-05	4.41E-05	4.41E-05	4.41E-05	4.41E-05
NA24	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06
P32	7.04E-04	3.09E-05	2.67E-05	0.	0.	0.	1.14E-05
AR39	0.	0.	0.	0.	0.	4.89E-09	0.
AR41	0.	0.	0.	0.	0.	1.68E-08	0.
CA41	7.06E-05	0.	7.70E-06	0.	0.	7.21E-02	2.94E-07
SC46	1.97E-04	2.70E-04	1.04E-04	0.	2.39E-04	0.	2.45E-05
CR51	0.	0.	4.17E-08	2.31E-08	6.57E-09	4.59E-06	2.93E-07
MN54	0.	1.16E-05	2.57E-06	0.	2.71E-06	4.26E-04	6.19E-06
MN56	0.	4.48E-10	8.43E-11	0.	4.52E-10	3.55E-06	3.33E-05
FE55	1.28E-05	6.80E-06	2.10E-06	0.	0.	3.00E-05	7.75E-07
FE59	5.59E-06	9.04E-06	4.51E-06	0.	0.	3.43E-04	1.91E-05
CO57	0.	2.44E-07	2.88E-07	0.	0.	1.37E-04	3.58E-06
CO58	0.	4.79E-07	8.55E-07	0.	0.	2.99E-04	9.29E-06
CO60	0.	3.55E-06	6.12E-06	0.	0.	1.91E-03	2.60E-05
NI59	1.66E-05	4.67E-06	2.83E-06	0.	0.	2.73E-05	6.29E-07
NI63	2.22E-04	1.25E-05	7.56E-06	0.	0.	7.43E-05	1.71E-06
NI65	8.08E-10	7.99E-11	4.44E-11	0.	0.	2.21E-06	2.27E-05
CU64	0.	5.39E-10	2.90E-10	0.	1.63E-09	2.59E-06	9.92E-06
ZN65	1.15E-05	3.06E-05	1.90E-05	0.	1.93E-05	2.69E-04	4.41E-06
ZN69M+D	4.26E-09	7.28E-09	8.59E-10	0.	4.22E-09	7.36E-06	2.71E-05
ZN69	1.81E-11	2.61E-11	2.41E-12	0.	1.58E-11	3.84E-07	2.75E-06
SE79	0.	1.23E-06	2.60E-07	0.	1.71E-06	1.49E-04	3.43E-06
BR82	0.	0.	5.66E-06	0.	0.	0.	0.
BR83+D	0.	0.	1.28E-07	0.	0.	0.	0.
BR84	0.	0.	1.48E-07	0.	0.	0.	0.
BR85	0.	0.	6.84E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	1.22E-09	0.
KR85M	0.	0.	0.	0.	0.	6.58E-09	0.
KR85	0.	0.	0.	0.	0.	5.66E-09	0.
KR87	0.	0.	0.	0.	0.	3.38E-08	0.
KR88+D	0.	0.	0.	0.	0.	6.99E-08	0.
KR89	0.	0.	0.	0.	0.	4.55E-08	0.
RB86	0.	5.36E-05	3.09E-05	0.	0.	0.	2.16E-06
RB87	0.	3.16E-05	1.37E-05	0.	0.	0.	2.96E-07
RB88	0.	1.52E-07	9.90E-08	0.	0.	0.	4.66E-09
RB89+D	0.	9.33E-08	7.83E-08	0.	0.	0.	5.11E-10
SR89+D	1.62E-04	0.	4.66E-06	0.	0.	5.83E-04	4.52E-05
SR90+D	2.73E-02	0.	1.74E-03	0.	0.	3.99E-03	9.28E-05
SR91+D	3.28E-08	0.	1.24E-09	0.	0.	1.44E-05	4.70E-05
SR92+D	3.54E-09	0.	1.42E-10	0.	0.	6.49E-06	6.55E-05

* Includes a 50% increase to account for percutaneous transpiration.

TABLE 6 (contd)

Page 2 of 4

CHILD INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	1.11E-06	0.	2.99E-08	0.	0.	7.07E-05	7.24E-05
Y91M+D	1.37E-10	0.	4.98E-12	0.	0.	7.60E-07	4.64E-07
Y91	2.47E-04	0.	6.59E-06	0.	0.	7.10E-04	4.97E-05
Y92	5.50E-09	0.	1.57E-10	0.	0.	6.46E-06	6.46E-05
Y93	5.04E-08	0.	1.38E-09	0.	0.	2.01E-05	1.05E-04
ZR93+D	2.07E-04	7.80E-05	5.55E-05	0.	3.00E-04	7.10E-04	1.47E-05
ZR95+D	5.13E-05	1.13E-05	1.00E-05	0.	1.61E-05	6.03E-04	1.65E-05
ZR97+D	5.07E-08	7.34E-09	4.32E-09	0.	1.05E-08	3.06E-05	9.49E-05
NB93M	1.27E-04	3.17E-05	1.04E-05	0.	3.44E-05	1.04E-04	2.45E-06
NB95	6.35E-06	2.48E-06	1.77E-06	0.	2.33E-06	1.66E-04	1.00E-05
NB97	1.16E-10	2.08E-11	9.74E-12	0.	2.31E-11	9.23E-07	7.52E-06
MO93	0.	3.76E-06	1.35E-07	0.	1.06E-06	1.70E-04	3.78E-06
MO99+D	0.	4.66E-08	1.15E-08	0.	1.06E-07	3.66E-05	3.42E-05
TC99M	4.81E-13	9.41E-13	1.56E-11	0.	1.37E-11	2.57E-07	1.30E-06
TC99	1.34E-07	1.49E-07	5.35E-08	0.	1.75E-06	3.37E-04	7.75E-06
TC101	2.19E-14	2.30E-14	2.91E-13	0.	3.92E-13	1.58E-07	4.41E-09
RU103+D	7.55E-07	0.	2.90E-07	0.	1.90E-06	1.79E-04	1.21E-05
RU105+D	4.13E-10	0.	1.50E-10	0.	3.63E-10	4.30E-06	2.69E-05
RU106+D	3.68E-05	0.	4.57E-06	0.	4.97E-05	3.87E-03	1.16E-04
RH105	3.91E-09	2.10E-09	1.79E-09	0.	8.39E-09	7.82E-06	1.33E-05
PD107	0.	2.65E-07	2.51E-08	0.	1.97E-06	3.16E-05	7.26E-07
PD109	0.	1.48E-09	4.95E-10	0.	7.06E-09	6.16E-06	2.59E-05
AG110M+D	4.56E-06	3.08E-06	2.47E-06	0.	5.74E-06	1.48E-03	2.71E-05
AG111	1.81E-07	5.68E-08	3.75E-08	0.	1.71E-07	7.73E-05	2.98E-05
CD113M	0.	4.93E-04	2.12E-05	0.	5.13E-04	6.94E-04	1.63E-05
CD115M	0.	7.88E-05	3.39E-06	0.	5.93E-05	5.86E-04	4.97E-05
SN123	1.29E-04	2.14E-06	4.19E-06	2.27E-06	0.	9.59E-04	4.05E-05
SN125+D	4.95E-06	9.94E-08	2.95E-07	1.03E-07	0.	2.43E-04	7.17E-05
SN126+D	6.23E-04	1.04E-05	2.36E-05	2.84E-06	0.	3.02E-03	1.63E-05
SB124	1.55E-05	2.00E-07	5.41E-06	3.41E-08	0.	8.76E-04	4.43E-05
SB125+D	2.66E-05	2.05E-07	5.59E-06	2.46E-08	0.	6.27E-04	1.09E-05
SB126	1.72E-06	2.62E-08	6.16E-07	1.00E-08	0.	2.86E-04	5.67E-05
SB127	1.36E-07	2.09E-09	4.70E-08	1.51E-09	0.	6.17E-05	3.82E-05
TE125M	1.82E-06	6.29E-07	2.47E-07	5.20E-07	0.	1.29E-04	9.13E-06
TE127M+D	5.72E-06	2.31E-06	8.16E-07	1.64E-06	1.72E-05	4.00E-04	1.93E-05
TE127	7.49E-10	2.57E-10	1.65E-10	5.30E-10	1.91E-09	2.71E-06	1.52E-05
TE129M+D	5.19E-06	1.85E-06	8.22E-07	1.71E-06	1.36E-05	4.76E-04	4.91E-05
TE129	2.64E-11	9.45E-12	6.44E-12	1.93E-11	6.94E-11	7.93E-07	6.89E-06
TE131M+D	3.63E-08	1.60E-08	1.37E-08	2.64E-08	1.08E-07	5.56E-05	8.32E-05
TE131+D	5.87E-12	2.28E-12	1.78E-12	4.59E-12	1.59E-11	5.55E-07	3.60E-07
TE132+D	1.30E-07	7.36E-08	7.12E-08	8.58E-08	4.79E-07	1.02E-04	3.72E-05
TE133M+D	2.93E-11	1.51E-11	1.50E-11	2.32E-11	1.01E-10	1.60E-06	4.77E-06
TE134+D	1.53E-11	8.81E-12	9.40E-12	1.24E-11	5.71E-11	1.23E-06	4.87E-07
I129	1.05E-05	6.40E-06	5.71E-06	4.28E-03	1.08E-05	0.	2.15E-07
I130	2.21E-06	4.43E-06	2.28E-06	4.99E-04	6.61E-06	0.	1.38E-06
I131+D	1.30E-05	1.30E-05	7.37E-06	4.39E-03	2.13E-05	0.	7.68E-07

TABLE 6 (contd)

Page 3 of 4

CHILD INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	5.72E-07	1.10E-06	5.07E-07	5.23E-05	1.69E-06	0.	8.65E-07
I133+D	4.48E-06	5.49E-06	2.08E-06	1.04E-03	9.13E-06	0.	1.48E-06
I134	3.17E-07	5.84E-07	2.69E-07	1.37E-05	8.92E-07	0.	2.58E-07
I135+D	1.33E-06	2.36E-06	1.12E-06	2.14E-04	3.62E-06	0.	1.20E-06
XE131M	0.	0.	0.	0.	0.	3.30E-09	0.
XE133M	0.	0.	0.	0.	0.	4.36E-09	0.
XE133	0.	0.	0.	0.	0.	3.66E-09	0.
XE135M	0.	0.	0.	0.	0.	4.48E-09	0.
XE135	0.	0.	0.	0.	0.	9.09E-09	0.
XE137	0.	0.	0.	0.	0.	4.07E-08	0.
XE138+D	0.	0.	0.	0.	0.	5.17E-08	0.
CS134M+D	6.33E-08	8.92E-08	6.12E-08	0.	4.94E-08	8.35E-09	7.92E-08
CS134	1.76E-04	2.74E-04	6.07E-05	0.	8.93E-05	3.27E-05	1.04E-06
CS135	6.23E-05	4.13E-05	4.45E-06	0.	1.53E-05	5.22E-06	2.17E-07
CS136	1.76E-05	4.62E-05	3.14E-05	0.	2.58E-05	3.93E-06	1.13E-06
CS137+D	2.45E-04	2.23E-04	3.47E-05	0.	7.63E-05	2.81E-05	9.78E-07
CS138	1.71E-07	2.27E-07	1.50E-07	0.	1.68E-07	1.84E-08	7.29E-08
CS139+D	1.09E-07	1.15E-07	5.80E-08	0.	9.08E-08	9.36E-09	7.23E-12
BA139	4.98E-10	2.66E-13	1.45E-11	0.	2.33E-13	1.56E-06	1.56E-05
BA140+D	2.00E-05	1.75E-08	1.17E-06	0.	5.71E-09	4.71E-04	2.75E-05
BA141+D	5.29E-11	2.95E-14	1.72E-12	0.	2.56E-14	7.89E-07	7.44E-08
BA142+D	1.35E-11	9.73E-15	7.54E-13	0.	7.87E-15	4.44E-07	7.41E-10
LA140	1.74E-07	6.08E-08	2.04E-08	0.	0.	4.94E-05	6.10E-05
LA141	2.28E-09	5.31E-10	1.15E-10	0.	0.	4.48E-06	4.37E-05
LA142	3.50E-10	1.11E-10	3.49E-11	0.	0.	2.35E-06	2.05E-05
CE141	1.06E-05	5.28E-06	7.83E-07	0.	2.31E-06	1.47E-04	1.53E-05
CE143+D	9.89E-08	5.37E-08	7.77E-09	0.	2.26E-08	3.12E-05	3.44E-05
CE144+D	1.83E-03	5.72E-04	9.77E-05	0.	3.17E-04	3.23E-03	1.05E-04
PR143	4.99E-06	1.50E-06	2.47E-07	0.	8.11E-07	1.17E-04	2.63E-05
PR144	1.61E-11	4.99E-12	8.10E-13	0.	2.64E-12	4.23E-07	5.32E-08
ND147+D	2.92E-06	2.36E-06	1.84E-07	0.	1.30E-06	8.87E-05	2.22E-05
PM147	3.52E-04	2.52E-05	1.36E-05	0.	4.45E-05	2.20E-04	5.70E-06
PM148M+D	3.31E-05	6.55E-06	6.55E-06	0.	9.74E-06	5.72E-04	3.58E-05
PM148	1.61E-06	1.94E-07	1.25E-07	0.	3.30E-07	1.24E-04	6.01E-05
PM149	1.47E-07	1.56E-08	8.45E-09	0.	2.75E-08	2.40E-05	2.92E-05
PM151	3.57E-08	4.33E-09	2.82E-09	0.	7.35E-09	1.24E-05	2.50E-05
SM151	3.14E-04	4.75E-05	1.49E-05	0.	4.89E-05	1.48E-04	3.43E-06
SM153	7.24E-08	4.51E-08	4.35E-09	0.	1.37E-08	1.37E-05	1.87E-05
EU152	7.42E-04	1.37E-04	1.61E-04	0.	5.73E-04	9.00E-04	1.14E-05
EU154	2.74E-03	2.49E-04	2.27E-04	0.	1.09E-03	1.66E-03	2.98E-05
EU155	5.60E-04	4.05E-05	3.18E-05	0.	1.51E-04	2.79E-04	5.39E-05
EU156	7.89E-06	4.23E-06	8.75E-07	0.	2.72E-06	2.54E-04	4.24E-05
T8160	7.79E-05	0.	9.67E-06	0.	2.32E-05	5.34E-04	2.28E-05
H0166M	1.34E-03	2.81E-04	2.37E-04	0.	4.01E-04	1.13E-03	1.63E-05
W181	2.66E-08	6.52E-09	8.99E-10	0.	0.	5.71E-06	2.61E-07
W185	8.31E-07	2.08E-07	2.91E-08	0.	0.	1.86E-04	1.11E-05
W187	4.41E-09	2.61E-09	1.17E-09	0.	0.	1.11E-05	2.46E-05

TABLE 6 (contd)

Page 4 of 4

CHILD INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	8.03E-02	1.85E-02	3.18E-03	0.	6.31E-02	8.74E-02	3.75E-05
BI210+D	0.	5.11E-06	5.65E-07	0.	5.76E-05	3.70E-03	3.21E-05
PO210	1.70E-03	2.76E-03	4.09E-04	0.	8.85E-03	1.05E-01	4.32E-05
RN222+D	0.	0.	0.	0.	0.	4.82E-06	0.
RA223+D	7.69E-04	8.89E-07	1.54E-04	0.	2.36E-05	8.48E-02	3.00E-04
RA224+D	8.44E-05	1.53E-07	1.69E-05	0.	4.06E-06	2.92E-02	3.34E-04
RA225+D	1.28E-03	1.14E-06	2.56E-04	0.	3.02E-05	9.74E-02	2.84E-04
RA226+D	2.34E-01	7.66E-06	1.92E-01	0.	2.03E-04	3.90E-01	3.02E-04
RA228+D	1.49E-01	3.94E-06	1.68E-01	0.	1.04E-04	5.37E-01	5.14E-05
AC225	1.81E-03	1.87E-03	1.21E-04	0.	1.99E-04	7.37E-02	2.67E-04
AC227+D	4.96E+00	8.05E-01	3.07E-01	0.	1.77E-01	8.04E-01	5.22E-05
TH227+D	9.24E-04	1.26E-05	2.67E-05	0.	6.67E-05	1.26E-01	3.49E-04
TH228+D	8.06E-01	1.04E-02	2.72E-02	0.	5.41E-02	3.34E+00	3.59E-04
TH229	1.28E+01	1.76E-01	6.31E-01	0.	8.68E-01	1.04E+01	3.27E-04
TH230	3.30E+00	1.73E-01	9.20E-02	0.	8.52E-01	1.85E+00	3.84E-05
TH232+D	3.68E+00	1.47E-01	1.28E-01	0.	7.28E-01	1.77E+00	3.27E-05
TH234	6.94E-06	3.07E-07	2.00E-07	0.	1.62E-06	6.31E-04	7.32E-05
PA231+D	8.62E+00	2.86E-01	3.43E-01	0.	1.56E+00	1.92E-01	4.57E-05
PA233	4.14E-06	6.48E-07	7.25E-07	0.	2.38E-06	9.77E-05	8.95E-06
U232+D	2.19E-01	0.	1.56E-02	0.	1.67E-02	7.42E-01	4.33E-05
U233+D	4.64E-02	0.	2.82E-03	0.	7.62E-03	1.77E-01	4.00E-05
U234	4.46E-02	0.	2.76E-03	0.	7.47E-03	1.74E-01	3.92E-05
U235+D	4.27E-02	0.	2.59E-03	0.	7.01E-03	1.63E-01	4.98E-05
U236	4.27E-02	0.	2.65E-03	0.	7.16E-03	1.67E-01	3.67E-05
U237	1.57E-07	0.	4.17E-08	0.	4.53E-07	3.40E-05	1.29E-05
U238+D	4.09E-02	0.	2.42E-03	0.	6.55E-03	1.53E-01	3.51E-05
NP237+D	2.88E+00	2.21E-01	1.19E-01	0.	7.41E-01	1.74E-01	5.06E-05
NP238	1.26E-06	2.56E-08	1.97E-08	0.	8.16E-08	3.39E-05	2.50E-05
NP239	1.26E-07	9.04E-09	6.35E-09	0.	2.63E-08	1.57E-05	1.73E-05
PU238	4.77E+00	6.05E-01	1.21E-01	0.	4.47E-01	6.08E-01	4.65E-05
PU239	5.24E+00	6.44E-01	1.28E-01	0.	4.78E-01	5.72E-01	4.24E-05
PU240	5.23E+00	6.43E-01	1.27E-01	0.	4.77E-01	5.71E-01	4.33E-05
PU241+D	1.46E-01	6.33E-03	2.93E-03	0.	1.10E-02	5.06E-04	8.90E-07
PU242	4.85E+00	6.20E-01	1.23E-01	0.	4.60E-01	5.50E-01	4.16E-05
PU244	5.67E+00	7.10E-01	1.41E-01	0.	5.27E-01	6.30E-01	6.20E-05
AM241	1.74E+00	7.85E-01	1.24E-01	0.	7.63E-01	2.02E-01	4.73E-05
AM242M	1.79E+00	7.65E-01	1.27E-01	0.	7.71E-01	8.14E-02	5.96E-05
AM243	1.72E+00	7.53E-01	1.20E-01	0.	7.42E-01	1.92E-01	5.55E-05
CM242	6.33E-02	4.84E-02	4.20E-03	0.	1.34E-02	1.31E-01	5.06E-05
CM243	1.61E+00	7.33E-01	9.95E-02	0.	3.74E-01	2.10E-01	4.98E-05
CM244	1.33E+00	6.48E-01	8.31E-02	0.	3.06E-01	2.02E-01	4.82E-05
CM245	2.14E+00	8.16E-01	1.28E-01	0.	5.03E-01	1.95E-01	4.49E-05
CM246	2.13E+00	8.15E-01	1.28E-01	0.	5.03E-01	1.99E-01	4.41E-05
CM247+D	2.07E+00	8.02E-01	1.26E-01	0.	4.95E-01	1.95E-01	5.80E-05
CM248	1.72E+01	6.61E+00	1.04E+00	0.	4.08E+00	1.61E+00	9.35E-04
CF252	3.92E+00	0.	9.33E-02	0.	0.	6.62E-01	1.84E-04

TABLE 7

Page 1 of 4

TEEN INHALATION DOSE ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3*	0.	1.59E-07	1.59E-07	1.59E-07	1.59E-07	1.59E-07	1.59E-07
BE10	2.78E-04	4.33E-05	7.09E-06	0.	0.	3.84E-04	1.77E-05
C14	3.25E-06	6.09E-07	6.09E-07	6.09E-07	6.09E-07	6.09E-07	6.09E-07
N13	8.65E-09	8.65E-09	8.65E-09	8.65E-09	8.65E-09	8.65E-09	8.65E-09
F18	6.52E-07	0.	7.10E-08	0.	0.	0.	3.89E-08
NA22	1.76E-05	1.76E-05	1.76E-05	1.76E-05	1.76E-05	1.76E-05	1.76E-05
NA24	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06
P32	2.36E-04	1.37E-05	8.95E-06	0.	0.	0.	1.16E-05
AR39	0.	0.	0.	0.	0.	4.00E-09	0.
AR41	0.	0.	0.	0.	0.	1.44E-08	0.
CA41	4.05E-05	0.	4.38E-06	0.	0.	1.01E-01	3.03E-07
SC46	7.24E-05	1.41E-04	4.18E-05	0.	1.35E-04	0.	2.98E-05
CR51	0.	0.	1.69E-08	9.37E-09	3.84E-09	2.62E-06	3.75E-07
MN54	0.	6.39E-06	1.05E-06	0.	1.59E-06	2.48E-04	8.35E-06
MN56	0.	2.12E-10	3.15E-11	0.	2.24E-10	1.90E-06	7.18E-06
FE55	4.18E-06	2.98E-06	6.93E-07	0.	0.	1.55E-05	7.99E-07
FE59	1.99E-06	4.62E-06	1.79E-06	0.	0.	1.91E-04	2.23E-05
CO57	0.	1.18E-07	1.15E-07	0.	0.	7.33E-05	3.93E-06
CO58	0.	2.59E-07	3.47E-07	0.	0.	1.68E-04	1.19E-05
CO60	0.	1.89E-06	2.48E-06	0.	0.	1.09E-03	3.24E-05
NI59	5.44E-06	2.02E-06	9.24E-07	0.	0.	1.41E-05	6.48E-07
NI63	7.25E-05	5.43E-06	2.47E-06	0.	0.	3.84E-05	1.77E-06
NI65	2.73E-10	3.66E-11	1.59E-11	0.	0.	1.17E-06	4.59E-06
CU64	0.	2.54E-10	1.06E-10	0.	8.01E-10	1.39E-06	7.68E-06
ZN65	4.82E-06	1.67E-05	7.80E-06	0.	1.08E-05	1.55E-04	5.83E-06
ZN69M+D	1.44E-09	3.39E-09	3.11E-10	0.	2.06E-09	3.92E-06	2.14E-05
ZN69	6.04E-12	1.15E-11	8.07E-13	0.	7.53E-12	1.98E-07	3.56E-08
SE79	0.	5.43E-07	8.71E-08	0.	8.13E-07	7.71E-05	3.53E-06
BR82	0.	0.	2.28E-06	0.	0.	0.	0.
BR83+D	0.	0.	4.30E-08	0.	0.	0.	0.
BR84	0.	0.	5.41E-08	0.	0.	0.	0.
BR85	0.	0.	2.29E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	9.97E-10	0.
KR85M	0.	0.	0.	0.	0.	5.46E-09	0.
KR85	0.	0.	0.	0.	0.	4.63E-09	0.
KR87	0.	0.	0.	0.	0.	2.82E-08	0.
KR88+D	0.	0.	0.	0.	0.	5.81E-08	0.
KR89	0.	0.	0.	0.	0.	3.85E-08	0.
RB86	0.	2.38E-05	1.05E-05	0.	0.	0.	2.21E-06
RB87	0.	1.40E-05	4.58E-06	0.	0.	0.	3.05E-07
RB88	0.	6.82E-08	3.40E-08	0.	0.	0.	3.65E-15
RB89+D	0.	4.40E-08	2.91E-08	0.	0.	0.	4.22E-17
SR89+D	5.43E-05	0.	1.56E-06	0.	0.	3.02E-04	4.64E-05
SR90+D	1.35E-02	0.	8.35E-04	0.	0.	2.06E-03	9.56E-05
SR91+D	1.10E-08	0.	4.39E-10	0.	0.	7.59E-06	3.24E-05
SR92+D	1.19E-09	0.	5.08E-11	0.	0.	3.43E-06	1.49E-05

* Includes a 50% increase to account for percutaneous transpiration.

TABLE 7 (contd)

Page 2 of 4

TEEN INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	3.73E-07	0.	1.00E-08	0.	0.	3.66E-05	6.99E-05
Y91M+D	4.63E-11	0.	1.77E-12	0.	0.	4.00E-07	3.77E-09
Y91	8.26E-05	0.	2.21E-06	0.	0.	3.67E-04	5.11E-05
Y92	1.84E-09	0.	5.36E-11	0.	0.	3.35E-06	2.06E-05
Y93	1.69E-08	0.	4.65E-10	0.	0.	1.04E-05	7.24E-05
ZR93+D	6.83E-05	3.38E-05	1.84E-05	0.	1.16E-04	3.67E-04	1.60E-05
ZR95+D	1.82E-05	5.73E-06	3.94E-06	0.	8.42E-06	3.36E-04	1.86E-05
ZR97+D	1.72E-08	3.40E-09	1.57E-09	0.	5.15E-09	1.62E-05	7.88E-05
NB93M	4.14E-05	1.36E-05	3.41E-06	0.	1.59E-05	5.36E-05	2.52E-06
NB95	2.32E-06	1.29E-06	7.08E-07	0.	1.25E-06	9.39E-05	1.21E-05
NB97	3.92E-11	9.72E-12	3.55E-12	0.	1.14E-11	4.91E-07	2.71E-07
M093	0.	1.66E-06	4.52E-08	0.	5.06E-07	8.81E-05	3.99E-06
M099+D	0.	2.11E-08	4.03E-09	0.	5.14E-08	1.92E-05	3.36E-05
TC99M	1.73E-13	4.83E-13	6.24E-12	0.	7.20E-12	1.44E-07	7.66E-07
TC99	4.48E-08	6.58E-08	1.79E-08	0.	8.35E-07	1.74E-04	7.99E-06
TC101	7.40E-15	1.05E-14	1.03E-13	0.	1.90E-13	8.34E-08	1.09E-16
RU103+D	2.63E-07	0.	1.12E-07	0.	9.29E-07	9.79E-05	1.36E-05
RU105+D	1.40E-10	0.	5.42E-11	0.	1.76E-10	2.27E-06	1.13E-05
RU106+D	1.23E-05	0.	1.55E-06	0.	2.38E-05	2.01E-03	1.20E-04
RH105	1.32E-09	9.48E-10	6.24E-10	0.	4.04E-09	4.09E-06	1.23E-05
PD107	0.	1.17E-07	8.39E-09	0.	9.39E-07	1.63E-05	7.49E-07
PD109	0.	6.56E-10	1.66E-10	0.	3.36E-09	3.19E-06	1.96E-05
AG110M+D	1.73E-06	1.64E-06	9.99E-07	0.	3.13E-06	8.44E-04	3.41E-05
AG111	6.07E-08	2.52E-08	1.26E-08	0.	8.17E-08	4.00E-05	3.00E-05
CD113M	0.	2.17E-04	7.10E-06	0.	2.43E-04	3.59E-04	1.68E-05
CD115M	0.	3.48E-05	1.14E-06	0.	2.82E-05	3.03E-04	5.10E-05
SN123	4.31E-05	9.44E-07	1.40E-06	7.55E-07	0.	4.96E-04	4.16E-05
SN125+D	1.66E-06	4.42E-08	9.99E-08	3.45E-08	0.	1.26E-04	7.29E-05
SN126+D	2.18E-04	5.39E-06	8.24E-06	1.42E-06	0.	1.72E-03	1.68E-05
SB124	5.38E-06	9.92E-08	2.10E-06	1.22E-08	0.	4.81E-04	4.98E-05
SB125+D	9.23E-06	1.01E-07	2.15E-06	8.80E-09	0.	3.42E-04	1.24E-05
SB126	6.19E-07	1.27E-08	2.23E-07	3.50E-09	0.	1.55E-04	6.01E-05
SB127	4.64E-08	9.92E-10	1.75E-08	5.21E-10	0.	3.31E-05	3.94E-05
TE125M	6.10E-07	2.80E-07	8.34E-08	1.75E-07	0.	6.70E-05	9.38E-06
TE127M+D	2.25E-06	1.02E-06	2.73E-07	5.48E-07	8.17E-06	2.07E-04	1.99E-05
TE127	2.51E-10	1.14E-10	5.52E-11	1.77E-10	9.10E-10	1.40E-06	1.01E-05
TE129M+D	1.74E-06	8.23E-07	2.81E-07	5.72E-07	6.49E-06	2.47E-04	5.06E-05
TE129	8.87E-12	4.22E-12	2.20E-12	6.48E-12	3.32E-11	4.12E-07	2.02E-07
TE131M+D	1.23E-08	7.51E-09	5.03E-09	9.06E-09	5.49E-08	2.97E-05	7.76E-05
TE131+D	1.97E-12	1.04E-12	6.30E-13	1.55E-12	7.72E-12	2.92E-07	1.89E-09
TE132+D	4.50E-08	3.63E-08	2.74E-08	3.07E-08	2.44E-07	5.61E-05	5.79E-05
TE133M+D	1.01E-11	7.33E-12	5.71E-12	8.18E-12	5.07E-11	8.71E-07	1.23E-07
TE134+D	5.31E-12	4.35E-12	3.64E-12	4.46E-12	2.91E-11	6.75E-07	1.37E-09
I129	3.53E-06	2.94E-06	4.90E-06	3.66E-03	5.26E-06	0.	2.29E-07
I130	7.80E-07	2.24E-06	8.96E-07	1.86E-04	3.44E-06	0.	1.14E-06
I131+D	4.43E-06	6.14E-06	3.30E-06	1.83E-03	1.05E-05	0.	8.11E-07

TABLE 7 (contd)

Page 3 of 4

TEEN INHALATION DOSE ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	1.99E-07	5.47E-07	1.97E-07	1.89E-05	8.65E-07	0.	1.59E-07
I133+D	1.52E-06	2.56E-06	7.78E-07	3.65E-04	4.49E-06	0.	1.29E-06
I134	1.11E-07	2.90E-07	1.05E-07	4.94E-06	4.58E-07	0.	2.55E-09
I135+D	4.62E-07	1.18E-06	4.36E-07	7.76E-05	1.86E-06	0.	8.69E-07
XE131M	0.	0.	0.	0.	0.	2.70E-09	0.
XE133M	0.	0.	0.	0.	0.	3.59E-09	0.
XE133	0.	0.	0.	0.	0.	2.99E-09	0.
XE135M	0.	0.	0.	0.	0.	3.88E-09	0.
XE135	0.	0.	0.	0.	0.	7.55E-09	0.
XE137	0.	0.	0.	0.	0.	3.33E-08	0.
XE138+D	0.	0.	0.	0.	0.	4.38E-08	0.
CS134M+D	2.20E-08	4.35E-08	2.35E-08	0.	2.54E-08	4.56E-09	2.02E-08
CS134	6.28E-05	1.41E-04	6.86E-05	0.	4.69E-05	1.83E-05	1.22E-06
CS135	2.08E-05	1.82E-05	4.47E-06	0.	7.30E-06	2.70E-06	2.23E-07
CS136	6.44E-06	2.42E-05	1.71E-05	0.	1.38E-05	2.22E-06	1.36E-06
CS137+D	8.38E-05	1.06E-04	3.89E-05	0.	3.80E-05	1.51E-05	1.06E-06
CS138	5.82E-08	1.07E-07	5.58E-08	0.	8.28E-08	9.84E-09	3.38E-11
CS139+D	3.65E-08	5.12E-08	1.97E-08	0.	4.34E-08	4.86E-09	1.66E-23
BA139	1.67E-10	1.18E-13	4.87E-12	0.	1.11E-13	8.08E-07	8.06E-07
BA140+D	6.84E-06	8.38E-09	4.40E-07	0.	2.85E-09	2.54E-04	2.86E-05
BA141+D	1.78E-11	1.32E-14	5.93E-13	0.	1.23E-14	4.11E-07	9.33E-14
BA142+D	4.62E-12	4.63E-15	2.84E-13	0.	3.92E-15	2.39E-07	5.99E-20
LA140	5.99E-08	2.95E-08	7.82E-09	0.	0.	2.68E-05	6.09E-05
LA141	7.63E-10	2.35E-10	3.87E-11	0.	0.	2.31E-06	1.54E-05
LA142	1.20E-10	5.31E-11	1.32E-11	0.	0.	1.27E-06	1.50E-06
CE141	3.55E-06	2.37E-06	2.71E-07	0.	1.11E-06	7.67E-05	1.58E-05
CE143+D	3.32E-08	2.42E-08	2.70E-09	0.	1.08E-08	1.63E-05	3.19E-05
CE144+D	6.11E-04	2.53E-04	3.28E-05	0.	1.51E-04	1.67E-03	1.08E-04
PR143	1.67E-06	6.64E-07	8.28E-08	0.	3.86E-07	6.04E-05	2.67E-05
PR144	5.37E-12	2.20E-12	2.72E-13	0.	1.26E-12	2.19E-07	2.94E-14
ND147+D	9.83E-07	1.07E-06	6.41E-08	0.	6.28E-07	4.65E-05	2.28E-05
PM147	1.15E-04	1.10E-05	4.50E-06	0.	2.10E-05	1.14E-04	5.87E-06
PM148M+D	1.32E-05	3.35E-06	2.62E-06	0.	5.07E-06	3.20E-04	4.10E-05
PM148	5.44E-07	8.88E-08	4.48E-08	0.	1.60E-07	6.52E-05	6.14E-05
PM149	4.91E-08	6.89E-09	2.84E-09	0.	1.31E-08	1.24E-05	2.79E-05
PM151	1.20E-08	1.99E-09	1.01E-09	0.	3.57E-09	6.56E-06	2.27E-05
SM151	1.07E-04	2.10E-05	4.86E-06	0.	2.27E-05	7.68E-05	3.53E-06
SM153	2.43E-08	2.01E-08	1.47E-09	0.	6.56E-09	7.11E-06	1.77E-05
EU152	2.96E-04	7.19E-05	6.30E-05	0.	3.34E-04	5.01E-04	1.35E-05
EU154	9.43E-04	1.23E-04	8.60E-05	0.	5.44E-04	9.12E-04	3.34E-05
EU155	2.00E-04	1.96E-05	1.21E-05	0.	7.65E-05	1.51E-03	5.97E-05
EU156	2.70E-06	2.03E-06	3.30E-07	0.	1.36E-06	1.37E-04	4.56E-05
TB160	3.04E-05	0.	3.79E-06	0.	1.20E-05	2.97E-04	2.60E-05
H0166M	4.40E-04	1.36E-04	9.87E-05	0.	2.00E-04	6.24E-04	1.68E-05
W181	8.90E-09	2.88E-09	3.01E-10	0.	0.	2.95E-06	2.69E-07
W185	2.78E-07	9.17E-08	9.73E-09	0.	0.	9.60E-05	1.14E-05
W187	1.50E-09	1.22E-09	4.29E-10	0.	0.	5.92E-06	2.21E-05

TABLE 7 (contd)

Page 4 of 4

TEEN INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	3.09E-02	8.28E-03	1.07E-03	0.	2.95E-02	4.52E-02	3.87E-05
BI210+D	0.	2.26E-06	1.89E-07	0.	2.74E-05	1.91E-03	3.19E-05
PO210	5.68E-04	1.22E-03	1.37E-04	0.	4.21E-03	5.41E-02	4.45E-05
RN222+D	0.	0.	0.	0.	0.	3.94E-06	0.
RA223+D	2.57E-04	3.93E-07	5.14E-05	0.	1.12E-05	4.39E-02	3.04E-04
RA224+D	2.83E-05	6.77E-08	5.65E-06	0.	1.93E-06	1.51E-02	3.29E-04
RA225+D	4.28E-04	5.04E-07	8.56E-05	0.	1.44E-05	5.04E-02	2.89E-04
RA226+D	1.33E-01	3.38E-06	9.87E-02	0.	9.67E-05	2.02E-01	3.11E-04
RA228+D	5.34E-02	1.74E-06	5.88E-02	0.	4.97E-05	2.78E-01	5.30E-05
AC225	6.04E-04	8.25E-04	4.06E-05	0.	9.47E-05	3.81E-02	2.70E-04
AC227+D	2.49E+00	3.69E-01	1.48E-01	0.	1.07E-01	4.16E-01	5.38E-05
TH227+D	3.09E-04	5.56E-06	8.93E-06	0.	3.18E-05	6.50E-02	3.57E-04
TH228+D	2.60E-01	4.37E-03	8.78E-03	0.	2.45E-02	1.69E+00	3.70E-04
TH229	9.06E+00	1.36E-01	4.45E-01	0.	6.67E-01	5.05E+00	3.36E-04
TH230	2.34E+00	1.34E-01	6.49E-02	0.	6.55E-01	8.98E-01	3.95E-05
TH232+D	2.61E+00	1.14E-01	9.21E-02	0.	5.60E-01	8.60E-01	3.36E-05
TH234	2.32E-05	1.35E-07	6.71E-08	0.	7.73E-07	3.26E-04	7.49E-05
PA231+D	5.32E+00	2.00E-01	2.07E-01	0.	1.12E+00	9.91E-02	4.71E-05
PA233	1.68E-06	3.24E-07	2.89E-07	0.	1.22E-06	5.39E-05	1.00E-05
U232+D	7.31E-02	0.	5.23E-03	0.	7.94E-03	3.84E-01	4.46E-05
U233+D	1.55E-02	0.	9.42E-04	0.	3.63E-03	9.18E-02	4.12E-05
U234	1.48E-02	0.	9.23E-04	0.	3.55E-03	8.99E-02	4.04E-05
U235+D	1.42E-02	0.	8.67E-04	0.	3.34E-03	8.44E-02	5.13E-05
U236	1.42E-02	0.	8.86E-04	0.	3.41E-03	8.62E-02	3.79E-05
U237	5.25E-08	0.	1.40E-08	0.	2.16E-07	1.76E-05	1.29E-05
U238+D	1.36E-02	0.	8.10E-04	0.	3.12E-03	7.89E-02	3.62E-05
NP237+D	1.77E+00	1.54E-01	7.21E-02	0.	5.35E-01	8.99E-02	5.22E-05
NP238	4.23E-07	1.13E-08	6.59E-09	0.	3.88E-08	1.75E-05	2.38E-05
NP239	4.23E-08	3.99E-09	2.21E-09	0.	1.25E-08	8.11E-06	1.65E-05
PU238	2.86E+00	4.06E-01	7.22E-02	0.	3.10E-01	3.12E-01	4.79E-05
PU239	3.31E+00	4.50E-01	8.05E-02	0.	3.44E-01	2.93E-01	4.37E-05
PU240	3.31E+00	4.49E-01	8.04E-02	0.	3.43E-01	2.93E-01	4.46E-05
PU241+D	6.97E-02	3.57E-03	1.40E-03	0.	6.47E-03	2.60E-04	9.17E-07
PU242	3.07E+00	4.33E-01	7.75E-02	0.	3.31E-01	2.82E-01	4.29E-05
PU244	3.59E+00	4.96E-01	8.88E-02	0.	3.79E-01	3.23E-01	6.39E-05
AM241	1.06E+00	4.07E-01	7.10E-02	0.	5.32E-01	1.05E-01	4.88E-05
AM242M	1.07E+00	3.93E-01	7.15E-02	0.	5.30E-01	4.21E-02	6.14E-05
AM243	1.06E+00	3.92E-01	6.95E-02	0.	5.21E-01	9.91E-02	5.72E-05
CM242	2.12E-02	2.14E-02	1.41E-03	0.	6.40E-03	6.76E-02	5.21E-05
CM243	8.45E-01	3.50E-01	5.00E-02	0.	2.34E-01	1.09E-01	5.13E-05
CM244	6.46E-01	3.03E-01	3.88E-02	0.	1.81E-01	1.05E-01	4.96E-05
CM245	1.32E+00	4.11E-01	7.53E-02	0.	3.52E-01	1.01E-01	4.63E-05
CM246	1.31E+00	4.11E-01	7.52E-02	0.	3.51E-01	1.03E-01	4.54E-05
CM247+D	1.28E+00	4.04E-01	7.41E-02	0.	3.46E-01	1.01E-01	5.97E-05
CM248	1.06E+01	3.33E+00	6.11E-01	0.	2.85E+00	8.32E-01	9.63E-04
CF252	1.29E+00	0.	3.07E-02	0.	0.	3.43E-01	1.89E-04

TABLE 8

Page 1 of 4

ADULT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
H3*	0.	1.58E-07	1.58E-07	1.58E-07	1.58E-07	1.58E-07	1.58E-07
BE10	1.98E-04	3.06E-05	4.96E-06	0.	0.	2.22E-04	1.67E-05
C14	2.27E-06	4.26E-07	4.26E-07	4.26E-07	4.26E-07	4.26E-07	4.26E-07
N13	6.27E-09	6.27E-09	6.27E-09	6.27E-09	6.27E-09	6.27E-09	6.27E-09
F18	4.71E-07	0.	5.19E-08	0.	0.	0.	9.24E-09
NA22	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05
NA24	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06
P32	1.65E-04	9.64E-06	6.26E-06	0.	0.	0.	1.08E-05
AR39	0.	0.	0.	0.	0.	2.08E-09	0.
AR41	0.	0.	0.	0.	0.	8.06E-09	0.
CA41	3.83E-05	0.	4.13E-06	0.	0.	3.83E-06	2.86E-07
SC46	5.51E-05	1.07E-04	3.11E-05	0.	9.99E-05	0.	3.23E-05
CR51	0.	0.	1.25E-08	7.44E-09	2.85E-09	1.80E-06	4.15E-07
MN54	0.	4.95E-06	7.87E-07	0.	1.23E-06	1.75E-04	9.67E-06
MN56	0.	1.55E-10	2.29E-11	0.	1.63E-10	1.18E-06	2.53E-06
FE55	3.07E-06	2.12E-06	4.93E-07	0.	0.	9.01E-06	7.54E-07
FE59	1.47E-06	3.47E-06	1.32E-06	0.	0.	1.27E-04	2.35E-05
CO57	0.	8.65E-08	8.39E-08	0.	0.	4.62E-05	3.93E-06
CO58	0.	1.98E-07	2.59E-07	0.	0.	1.16E-04	1.33E-05
CO60	0.	1.44E-06	1.85E-06	0.	0.	7.46E-04	3.56E-05
NI59	4.06E-06	1.46E-06	6.77E-07	0.	0.	8.20E-06	6.11E-07
NI63	5.40E-05	3.93E-06	1.81E-06	0.	0.	2.23E-05	1.67E-06
NI65	1.92E-10	2.62E-11	1.14E-11	0.	0.	7.00E-07	1.54E-06
CU64	0.	1.83E-10	7.69E-11	0.	5.78E-10	8.48E-07	6.12E-06
ZN65	4.05E-06	1.29E-05	5.82E-06	0.	8.62E-06	1.08E-04	6.68E-06
ZN69M+D	1.02E-09	2.45E-09	2.24E-10	0.	1.48E-09	2.38E-06	1.71E-05
ZN69	4.23E-12	8.14E-12	5.65E-13	0.	5.27E-12	1.15E-07	2.04E-09
SE79	0.	3.83E-07	6.09E-08	0.	5.69E-07	4.47E-05	3.33E-06
BR82	0.	0.	1.69E-06	0.	0.	0.	1.30E-06
BR83+D	0.	0.	3.01E-08	0.	0.	0.	2.90E-08
BR84	0.	0.	3.91E-08	0.	0.	0.	2.05E-13
BR85	0.	0.	1.60E-09	0.	0.	0.	0.
KR83M	0.	0.	0.	0.	0.	5.19E-10	0.
KR85M	0.	0.	0.	0.	0.	2.91E-09	0.
KR85	0.	0.	0.	0.	0.	2.41E-09	0.
KR87	0.	0.	0.	0.	0.	1.53E-08	0.
KR88+D	0.	0.	0.	0.	0.	3.13E-08	0.
KR89	0.	0.	0.	0.	0.	2.13E-08	0.
RB86	0.	1.69E-05	7.37E-06	0.	0.	0.	2.08E-06
RB87	0.	9.86E-06	3.21E-06	0.	0.	0.	2.88E-07
RB88	0.	4.84E-08	2.41E-08	0.	0.	0.	4.18E-19
RB89+D	0.	3.20E-08	2.12E-08	0.	0.	0.	1.16E-21
SR89+D	3.80E-05	0.	1.09E-06	0.	0.	1.75E-04	4.37E-05
SR90+D	1.24E-02	0.	7.62E-04	0.	0.	1.20E-03	9.02E-05
SR91+D	7.74E-09	0.	3.13E-10	0.	0.	4.56E-06	2.39E-05
SR92+D	8.43E-10	0.	3.64E-11	0.	0.	2.06E-06	5.38E-06

* Includes a 50% increase to account for percutaneous transpiration.

TABLE 8 (contd)

Page 2 of 4

ADULT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y90	2.61E-07	0.	7.01E-09	0.	0.	2.12E-05	6.32E-05
Y91M+D	3.26E-11	0.	1.27E-12	0.	0.	2.40E-07	1.66E-10
Y91	5.78E-05	0.	1.55E-06	0.	0.	2.13E-04	4.81E-05
Y92	1.29E-09	0.	3.77E-11	0.	0.	1.96E-06	9.19E-06
Y93	1.18E-08	0.	3.26E-10	0.	0.	6.06E-06	5.27E-05
ZR93+D	5.22E-05	2.92E-06	1.37E-06	0.	1.11E-05	2.13E-05	1.51E-06
ZR95+D	1.34E-05	4.30E-06	2.91E-06	0.	6.77E-06	2.21E-04	1.88E-05
ZR97+D	1.21E-08	2.45E-09	1.13E-09	0.	3.71E-09	9.84E-06	6.54E-05
NB93M	3.10E-05	1.01E-05	2.49E-06	0.	1.16E-05	3.11E-05	2.38E-06
NB95	1.76E-06	9.77E-07	5.26E-07	0.	9.67E-07	6.31E-05	1.30E-05
NB97	2.78E-11	7.03E-12	2.56E-12	0.	8.18E-12	3.00E-07	3.02E-08
MO93	0.	1.17E-06	3.17E-08	0.	3.55E-07	5.11E-05	3.79E-06
MO99+D	0.	1.51E-08	2.87E-09	0.	3.64E-08	1.14E-05	3.10E-05
TC99M	1.29E-13	3.64E-13	4.63E-12	0.	5.52E-12	9.55E-08	5.20E-07
TC99	3.13E-08	4.64E-08	1.25E-08	0.	5.85E-07	1.01E-04	7.54E-06
TC101	5.22E-15	7.52E-15	7.38E-14	0.	1.35E-13	4.99E-08	1.36E-21
RU103+D	1.91E-07	0.	8.23E-08	0.	7.29E-07	6.31E-05	1.38E-05
RU105+D	9.88E-11	0.	3.89E-11	0.	1.27E-10	1.37E-06	6.02E-06
RU106+D	8.64E-06	0.	1.09E-06	0.	1.67E-05	1.17E-03	1.14E-04
RH105	9.24E-10	6.73E-10	4.43E-10	0.	2.86E-09	2.41E-06	1.09E-05
PD107	0.	8.27E-08	5.87E-09	0.	6.57E-07	9.47E-06	7.06E-07
PD109	0.	4.63E-10	1.16E-10	0.	2.35E-09	1.85E-06	1.52E-05
AG110M+D	1.35E-06	1.25E-06	7.43E-07	0.	2.46E-06	5.79E-04	3.78E-05
AG111	4.25E-08	1.78E-08	8.87E-09	0.	5.74E-08	2.33E-05	2.79E-05
CD113M	0.	1.54E-04	4.97E-06	0.	1.71E-04	2.08E-04	1.59E-05
CD115M	0.	2.46E-05	7.95E-07	0.	1.98E-05	1.76E-04	4.80E-05
SN123	3.02E-05	6.67E-07	9.82E-07	5.67E-07	0.	2.88E-04	3.92E-05
SN125+D	1.16E-06	3.12E-08	7.03E-08	2.59E-08	0.	7.37E-05	6.81E-05
SN126+D	1.58E-04	4.18E-06	6.00E-06	1.23E-06	0.	1.17E-03	1.59E-05
SB124	3.90E-06	7.36E-08	1.55E-06	9.44E-09	0.	3.10E-04	5.08E-05
SB125+D	6.67E-06	7.44E-08	1.58E-06	6.75E-09	0.	2.18E-04	1.26E-05
SB126	4.50E-07	9.13E-09	1.62E-07	2.75E-09	0.	9.57E-05	6.01E-05
SB127	3.30E-08	7.22E-10	1.27E-08	3.97E-10	0.	2.05E-05	3.77E-05
TE125M	4.27E-07	1.98E-07	5.84E-08	1.31E-07	1.55E-06	3.92E-05	8.83E-06
TE127M+D	1.58E-06	7.21E-07	1.96E-07	4.11E-07	5.72E-06	1.20E-04	1.87E-05
TE127	1.75E-10	8.03E-11	3.87E-11	1.32E-10	6.37E-10	8.14E-07	7.17E-06
TE129M+D	1.22E-06	5.84E-07	1.98E-07	4.30E-07	4.57E-06	1.45E-04	4.79E-05
TE129	6.22E-12	2.99E-12	1.55E-12	4.87E-12	2.34E-11	2.42E-07	1.96E-08
TE131M+D	8.74E-09	5.45E-09	3.63E-09	6.88E-09	3.86E-08	1.82E-05	6.95E-05
TE131+D	1.39E-12	7.44E-13	4.49E-13	1.17E-12	5.46E-12	1.74E-07	2.30E-09
TE132+D	3.25E-08	2.69E-08	2.02E-08	2.37E-08	1.82E-07	3.60E-05	6.37E-05
TE133M+D	7.24E-12	5.40E-12	4.17E-12	6.27E-12	3.74E-11	5.51E-07	5.49E-08
TE134+D	3.84E-12	3.22E-12	1.57E-12	3.44E-12	2.18E-11	4.34E-07	2.97E-11
I129	2.48E-06	2.11E-06	6.91E-06	5.54E-03	4.53E-06	0.	2.22E-07
I130	5.72E-07	1.68E-06	6.60E-07	1.42E-04	2.61E-06	0.	9.61E-07
I131+D	3.15E-06	4.47E-06	2.56E-06	1.49E-03	7.66E-06	0.	7.85E-07

TABLE 8 (contd)

Page 3 of 4

ADULT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
I132	1.45E-07	4.07E-07	1.45E-07	1.43E-05	6.48E-07	0.	5.08E-08
I133+D	1.08E-06	1.85E-06	5.65E-07	2.69E-04	3.23E-06	0.	1.11E-06
I134	8.05E-08	2.16E-07	7.69E-08	3.73E-06	3.44E-07	0.	1.26E-10
I135+D	3.35E-07	8.73E-07	3.21E-07	5.60E-05	1.39E-06	0.	6.56E-07
XE131M	0.	0.	0.	0.	0.	1.40E-09	0.
XE133M	0.	0.	0.	0.	0.	1.89E-09	0.
XE133	0.	0.	0.	0.	0.	1.57E-09	0.
XE135M	0.	0.	0.	0.	0.	2.22E-09	0.
XE135	0.	0.	0.	0.	0.	4.05E-09	0.
XE137	0.	0.	0.	0.	0.	1.74E-08	0.
XE138+D	0.	0.	0.	0.	0.	2.44E-08	0.
CS134M+D	1.59E-08	3.20E-08	1.72E-08	0.	1.83E-08	2.93E-09	7.92E-09
CS134	4.66E-05	1.06E-04	9.10E-05	0.	3.59E-05	1.22E-05	1.30E-06
CS135	1.46E-05	1.29E-05	5.99E-06	0.	5.11E-06	1.57E-06	2.11E-07
CS136	4.88E-06	1.83E-05	1.38E-05	0.	1.07E-05	1.50E-06	1.46E-06
CS137+D	5.98E-05	7.76E-05	5.35E-05	0.	2.78E-05	9.40E-06	1.05E-06
CS138	4.14E-08	7.76E-08	4.05E-08	0.	6.00E-08	6.07E-09	2.33E-13
CS139+D	2.56E-08	3.63E-08	1.39E-08	0.	3.05E-08	2.84E-09	5.49E-31
BA139	1.17E-10	8.32E-14	3.42E-12	0.	7.78E-14	4.70E-07	1.12E-07
BA140+D	4.88E-06	6.13E-09	3.21E-07	0.	2.09E-09	1.59E-04	2.73E-05
BA141+D	1.25E-11	9.41E-15	4.20E-13	0.	8.75E-15	2.42E-07	1.45E-17
BA142+D	3.29E-12	3.38E-15	2.07E-13	0.	2.86E-15	1.49E-07	1.96E-26
LA140	4.30E-08	2.17E-08	5.73E-09	0.	0.	1.70E-05	5.73E-05
LA141	5.34E-10	1.66E-10	2.71E-11	0.	0.	1.35E-06	7.31E-06
LA142	8.54E-11	3.88E-11	9.65E-12	0.	0.	7.91E-07	2.64E-07
CE141	2.49E-06	1.69E-06	1.91E-07	0.	7.83E-07	4.52E-05	1.50E-05
CE143+D	2.33E-08	1.72E-08	1.91E-09	0.	7.60E-09	9.97E-06	2.83E-05
CE144+D	4.29E-04	1.79E-04	2.30E-05	0.	1.06E-04	9.72E-04	1.02E-04
PR143	1.17E-06	4.69E-07	5.80E-08	0.	2.70E-07	3.51E-05	2.50E-05
PR144	3.76E-12	1.56E-12	1.91E-13	0.	8.81E-13	1.27E-07	2.69E-18
ND147+D	6.59E-07	7.62E-07	4.56E-08	0.	4.45E-07	2.76E-05	2.16E-05
PM147	8.37E-05	7.87E-06	3.19E-06	0.	1.49E-05	6.60E-05	5.54E-06
PM148M+D	9.82E-06	2.54E-06	1.94E-06	0.	3.85E-06	2.14E-04	4.18E-05
PM148	3.84E-07	6.37E-08	3.20E-08	0.	1.20E-07	3.91E-05	5.80E-05
PM149	3.44E-08	4.87E-09	1.99E-09	0.	9.19E-09	7.21E-06	2.50E-05
PM151	8.50E-09	1.42E-09	7.21E-10	0.	2.55E-09	3.94E-06	2.00E-05
SM151	8.59E-05	1.48E-05	3.55E-06	0.	1.66E-05	4.45E-05	3.25E-06
SM153	1.70E-08	1.42E-08	1.04E-09	0.	4.59E-09	4.14E-06	1.58E-05
EU152	2.38E-04	5.41E-05	4.76E-05	0.	3.35E-04	3.43E-04	1.59E-05
EU154	7.40E-04	9.10E-05	6.48E-05	0.	4.36E-04	5.84E-04	3.40E-05
EU155	1.01E-04	1.43E-05	9.21E-06	0.	6.59E-05	9.46E-05	5.95E-06
EU156	1.93E-06	1.48E-06	2.40E-07	0.	9.95E-07	8.56E-05	4.50E-05
TB160	2.21E-05	0.	2.75E-06	0.	9.10E-06	1.92E-04	2.68E-05
H0166M	3.37E-04	1.05E-04	8.00E-05	0.	1.57E-04	3.94E-04	1.59E-05
W181	6.23E-09	2.03E-09	2.17E-10	0.	0.	1.71E-06	2.53E-07
W185	1.95E-07	6.47E-08	6.81E-09	0.	0.	5.57E-05	1.07E-05
W187	1.06E-09	8.85E-10	3.10E-10	0.	0.	3.63E-06	1.94E-05

TABLE 8 (contd)

Page 4 of 4

ADULT INHALATION DOSE COMMITMENT FACTORS (MREM/50Y PER PCI INHALED IN FIRST YR)							
ISOTOPE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
PB210+D	2.64E-02	6.73E-03	8.37E-04	0.	2.12E-02	2.62E-02	3.65E-05
RI210+D	0.	1.59E-06	1.32E-07	0.	1.92E-05	1.11E-03	2.95E-05
PO210	3.97E-04	8.60E-04	9.58E-05	0.	2.95E-03	3.14E-02	4.19E-05
RN222+D	0.	0.	0.	0.	0.	2.05E-06	0.
RA223+D	1.80E-04	2.77E-07	3.60E-05	0.	7.85E-06	2.55E-02	2.84E-04
RA224+D	1.98E-05	4.78E-08	3.96E-06	0.	1.35E-06	8.77E-03	3.01E-04
RA225+D	3.00E-04	3.56E-07	5.99E-05	0.	1.01E-05	2.92E-02	2.71E-04
RA226+D	1.25E-01	2.39E-06	9.14E-02	0.	6.77E-05	1.17E-01	2.94E-04
RA228+D	4.41E-02	1.23E-06	4.78E-02	0.	3.48E-05	1.61E-01	5.00E-05
AC225	4.23E-04	5.82E-04	2.84E-05	0.	6.63E-05	2.21E-02	2.52E-04
AC227+D	2.30E+00	3.05E-01	1.36E-01	0.	9.82E-02	2.41E-01	5.08E-05
TH227+D	2.17E-04	3.92E-06	6.25E-06	0.	2.22E-05	3.77E-02	3.34E-04
TH228+D	2.00E-01	3.39E-03	6.77E-03	0.	1.89E-02	1.01E+00	3.49E-04
TH229	8.88E+00	1.33E-01	4.36E-01	0.	6.52E-01	3.49E+00	3.17E-04
TH230	2.29E+00	1.31E-01	6.36E-02	0.	6.40E-01	6.21E-01	3.73E-05
TH232+D	2.56E+00	1.12E-01	9.04E-02	0.	5.47E-01	5.96E-01	3.17E-05
TH234	1.63E-06	9.56E-08	4.70E-08	0.	5.41E-07	1.89E-04	7.03E-05
PA231+D	5.08E+00	1.91E-01	1.98E-01	0.	1.07E+00	5.75E-02	4.44E-05
PA233	1.21E-06	2.42E-07	2.09E-07	0.	9.15E-07	3.52E-05	1.02E-05
U232+D	5.14E-02	0.	3.66E-03	0.	5.56E-03	2.22E-01	4.21E-05
U233+D	1.09E-02	0.	6.60E-04	0.	2.54E-03	5.32E-02	3.89E-05
U234	1.04E-02	0.	6.46E-04	0.	2.49E-03	5.22E-02	3.81E-05
U235+D	1.00E-02	0.	6.07E-04	0.	2.34E-03	4.90E-02	4.84E-05
U236	1.00E-02	0.	6.20E-04	0.	2.39E-03	5.00E-02	3.57E-05
U237	3.67E-08	0.	9.77E-09	0.	1.51E-07	1.02E-05	1.20E-05
U238+D	9.58E-03	0.	5.67E-04	0.	2.18E-03	4.58E-02	3.41E-05
NP237+D	1.69E+00	1.47E-01	6.87E-02	0.	5.10E-01	5.22E-02	4.92E-05
NP238	2.96E-07	8.00E-09	4.61E-09	0.	2.72E-08	1.02E-05	2.13E-05
NP239	2.87E-08	2.82E-09	1.55E-09	0.	8.75E-09	4.70E-06	1.49E-05
PU238	2.74E+00	3.87E-01	6.90E-02	0.	2.96E-01	1.82E-01	4.52E-05
PU239	3.19E+00	4.31E-01	7.75E-02	0.	3.30E-01	1.72E-01	4.13E-05
PU240	3.18E+00	4.30E-01	7.73E-02	0.	3.29E-01	1.72E-01	4.21E-05
PU241+D	6.41E-02	3.28E-03	1.29E-03	0.	5.93E-03	1.52E-04	8.65E-07
PU242	2.95E+00	4.15E-01	7.46E-02	0.	3.17E-01	1.65E-01	4.05E-05
PU244	3.45E+00	4.76E-01	8.54E-02	0.	3.64E-01	1.89E-01	6.03E-05
AM241	1.01E+00	3.59E-01	6.71E-02	0.	5.04E-01	6.06E-02	4.60E-05
AM242M	1.02E+00	3.46E-01	6.73E-02	0.	5.01E-01	2.44E-02	5.79E-05
AM243	1.01E+00	3.47E-01	6.57E-02	0.	4.95E-01	5.75E-02	5.40E-05
CM242	1.48E-02	1.51E-02	9.84E-04	0.	4.48E-03	3.92E-02	4.91E-05
CM243	7.86E-01	2.97E-01	4.61E-02	0.	2.15E-01	6.31E-02	4.84E-05
CM244	5.90E-01	2.54E-01	3.51E-02	0.	1.64E-01	6.06E-02	4.68E-05
CM245	1.26E+00	3.59E-01	7.14E-02	0.	3.33E-01	5.85E-02	4.36E-05
CM246	1.25E+00	3.59E-01	7.13E-02	0.	3.33E-01	5.96E-02	4.29E-05
CM247+D	1.22E+00	3.53E-01	7.03E-02	0.	3.28E-01	5.85E-02	5.63E-05
CM248	1.01E+01	2.91E+00	5.79E-01	0.	2.70E+00	4.82E-01	9.09E-04
CF252	9.78E-01	0.	2.33E-02	0.	0.	1.99E-01	1.78E-04



APPENDIX A

EQUATIONS USED TO CALCULATE AGE SPECIFIC RADIATION
DOSE COMMITMENT FACTOR

APPENDIX A

EQUATIONS USED TO CALCULATE AGE SPECIFIC RADIATION DOSE COMMITMENT FACTOR

The system used to calculate dose commitment factors for this report conforms to the following general format:

$$D_{aipj} = K_{ipj} \sum_a P_{aipj} \quad (A-1)$$

where:

D_{aipj} = the dose commitment factor: a number specific to a given individual's age group a, nuclide i, pathway p, and organ j, which can be used to calculate radiation dose commitment from usage rate and a given concentration of a radionuclide.

K_{ipj} = a constant, which is independent of age, determined by the nuclide i, pathway p, and organ j,

P_{aipj} = that portion of the dose commitment factor which is dependent on age group a, nuclide i, pathway p and organ j.

This general format holds for all body organs except the gastrointestinal tract (GI tract) and for all radionuclides except the noble gases. The values of K_{ipj} and P_{aipj} were determined by the equations listed below. These equations have been separated into compartments according to age group and pathway to make them easier to follow. Equations for the special cases of the GI tract and the noble gases have been placed toward the end of the list.

CONSTANTS

For ingestion pathway including dose factors for total body, thyroid, bone, lung, liver and kidney

$$K_{ij} = 18.7 * f_w / (T_1 * \lambda_e^2) \quad (A-2)$$

where:

f_w = fraction of ingested nuclide reaching the organ of interest

T_1 = time of intake (365 days)

λ_e = effective decay constant (1/day) for the organ of interest

$$18.7 = (2.22 \frac{\text{dpm}}{\text{pCi}})(5.26 \times 10^5 \text{ min/y})(1.602 \times 10^{-8} \frac{\text{g-rad}}{\text{MeV}})(10^3 \frac{\text{mrem}}{\text{rem}})$$

For Inhalation Pathway

For soluble nuclides including dose factors for total-body, thyroid, bone, lung, liver and kidney; and for insoluble nuclides for dose factors for lung.

$$K_{i2j} = 18.7 * f_a / (T_1 * \lambda_e)^2 \quad (\text{A-3})$$

where:

f_a = fraction of inhaled nuclide reaching the organ of interest

For insoluble nuclides including dose factors for total-body, thyroid, bone, liver and kidney.

$$K_{i3j} = \frac{0.0064 * \lambda_B^L * f_2'}{T_1 * (\lambda_e^o - \lambda_e^L)} \quad (\text{A-4})$$

where:

f_2' = fraction from blood to organ of interest

λ_B^L = biological decay constant for the lung

λ_e^L = effective decay constant for lung

$$0.0064 = (2.22 \frac{\text{dpm}}{\text{pCi}})(1.44 \times 10^3 \text{ min/d})(1.602 \times 10^{-8} \frac{\text{g-rad}}{\text{MeV}})$$

$$(10^3 \frac{\text{mrem}}{\text{rem}})(1/8)(\text{fraction retained in lung})$$

EQUATIONS FOR INGESTION PATHWAY AND FOR INHALATION OF SOLUBLE NUCLIDES
INCLUDING DOSE FACTORS FOR TOTAL BODY, THYROID, BONE, LUNG, LIVER AND
KIDNEY

Infant Portion

If intake occurs when individual is an infant,

$$P_{1ipj} = (\epsilon/m)_I * [T_I * \lambda_e^{\circ} - 1 + \text{EXP}(-T_I * \lambda_e^{\circ})] \quad (\text{A-5})$$

where:

$(\epsilon/m)_I$ = the ratio of effective absorbed energy (MeV) to mass of the organ (g) of interest for an infant

T_I = time during which individual is an infant (365 days)

If intake occurs when individual is past infancy,

$$P_{1ipj} = 0$$

Child Portion

If intake occurs when individual is an infant,

$$P_{2ipj} = (\epsilon/m)_C * \left[1 - \text{EXP}(-T_I * \lambda_e^{\circ}) - \text{EXP}\left(-(T_C + T_I - T_I) * \lambda_e^{\circ}\right) + \text{EXP}\left(-(T_C + T_I) * \lambda_e^{\circ}\right) \right] \quad (\text{A-6})$$

where:

$(\epsilon/m)_C$ = the ratio of effective absorbed energy to mass of the organ of interest for a child

T_C = time during which individual is a child (3650 days, 10 years)

If intake occurs when individual is a child,

$$P_{2ipj} = (\epsilon/m)_C * \left[T_I \lambda_e^{\circ} - \text{EXP}\left(-(T_C - T_I) * \lambda_e^{\circ}\right) + \text{EXP}(-T_C * \lambda_e^{\circ}) \right] \quad (\text{A-7})$$

In intake occurs when individual is past childhood,

$$P_{2ipj} = 0$$

Teen Portion

If intake occurs when individual is an infant or a child,

$$P_{3ipj} = (\epsilon/m)_T * \left[\text{EXP} \left(-(T_C + T_I - T_1) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_C + T_I) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-(T_T + T_C + T_I) * \lambda_e^\circ \right) \right] \quad (\text{A-8})$$

where:

$(\epsilon/m)_T$ = ratio of effective absorbed energy to mass of the organ of interest for a teen

T_T = time during which individual is a teen (2190 days, 6 years)

If intake occurs when individual is a teen,

$$P_{3ipj} = (\epsilon/m)_T * \left[T_1 * \lambda_e^\circ - \text{EXP} \left(-(T_T - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_T * \lambda_e^\circ \right) \right] \quad (\text{A-9})$$

If intake occurs when individual is an adult,

$$P_{3ipj} = 0$$

Adult Portion

If intake occurs when individual is an infant, a child or a teen,

$$P_{4ipj} = (\epsilon/m)_A * \left[\text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_T + T_C + T_I) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_A - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_A * \lambda_e^\circ \right) \right] \quad (\text{A-10})$$

where:

$(\epsilon/m)_A$ = ratio of effective absorbed energy to mass of the organ of interest for an adult

T_A = total time over which dose commitment is calculated
(18,250 days, 50 years)

If intake occurs when individual is an adult,

$$P_{4ipj} = (\epsilon/m)_A * \left[T_1 * \lambda_e^\circ - \text{EXP} \left(-(T_A - T_1) * \lambda_e^\circ \right) + \text{EXP} (T_A * \lambda_e^\circ) \right] \quad (\text{A-11})$$

EQUATIONS FOR INHALATION PATHWAY FOR INSOLUBLE NUCLIDES INCLUDING DOSE FACTORS FOR TOTAL-BODY, THYROID, BONE, LIVER AND KIDNEY^(a)

Infant Portion

If intake occurs when individual is an infant,

$$P_{1ipj} = (\epsilon/m)_I * \left\{ \left[T_1 * \lambda_e^L - 1 + \text{EXP}(-T_1 * \lambda_e^L) \right] / (\lambda_e^L)^2 - \left[T_1 * \lambda_e^\circ - 1 + \text{EXP}(-T_1 * \lambda_e^\circ) \right] / (\lambda_e^\circ)^2 \right\} \quad (\text{A-12})$$

If intake occurs when individual is past infancy,

$$P_{1ipj} = 0$$

Child Portion

If intake occurs when individual is an infant,

(a) Use Equation (A-2) to calculate dose factors for lung dose due to inhalation of insoluble material.

$$\begin{aligned}
P_{2ipj} = (\epsilon/m)_C * & \left\{ \left[1 - \text{EXP}(-T_I * \lambda_e^L) - \text{EXP} \left(-(T_C + T_I - T_1) * \lambda_e^L \right) \right. \right. \\
& + \left. \left. \text{EXP} \left(-(T_C + T_I) * \lambda_e^L \right) \right] / (\lambda_e^L)^2 - \left[1 - \text{EXP}(-T_I * \lambda_e^\circ) - \text{EXP} \left(-(T_C + T_I - T_1) * \lambda_e^\circ \right) \right. \right. \\
& \left. \left. + \text{EXP} \left(-(T_C + T_I) * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \tag{A-13}
\end{aligned}$$

If intake occurs when individual is a child,

$$\begin{aligned}
P_{2ipj} = (\epsilon/m)_C * & \left\{ \left[T_1 * \lambda_e^L - \text{EXP} \left(-(T_C - T_1) * \lambda_e^L \right) + \text{EXP} \left(-T_C * \lambda_e^L \right) \right] / (\lambda_e^L)^2 \right. \\
& \left. - \left[T_1 * \lambda_e^\circ - \text{EXP} \left(-(T_C - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_C * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \tag{A-14}
\end{aligned}$$

If intake occurs when individual is past childhood,

$$P_{2ipj} = 0$$

Teen Portion

If intake occurs when individual is an infant or a child,

$$\begin{aligned}
P_{3ipj} = (\epsilon/m)_T * & \left\{ \left[\text{EXP} \left(-(T_C + T_I - T_1) * \lambda_e^L \right) - \text{EXP} \left(-(T_C + T_I) * \lambda_e^L \right) \right. \right. \\
& - \left. \left. \text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^L \right) + \text{EXP} \left(-(T_T + T_C + T_I) * \lambda_e^L \right) \right] / (\lambda_e^L)^2 \right. \\
& - \left[\text{EXP} \left(-(T_C + T_I - T_1) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_C + T_I) * \lambda_e^\circ \right) \right. \\
& \left. \left. - \text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-(T_T + T_C + T_I) * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \tag{A-15}
\end{aligned}$$

If intake occurs when individual is a teen,

$$P_{3ipj} = (\epsilon/m)_T * \left\{ \left[T_1 I \lambda_e^L - \text{EXP} \left(-(T_T - T_1) * \lambda_e^L \right) + \text{EXP} \left(-T_T * \lambda_e^L \right) \right] / (\lambda_e^L)^2 \right. \\ \left. - \left[T_1 * \lambda_e^\circ - \text{EXP} \left(-(T_T - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_T * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \quad (\text{A-16})$$

If intake occurs when individual is an adult,

$$P_{3ipj} = 0$$

Adult Portion

If intake occurs when individual is an infant, a child or a teen,

$$(\epsilon/m)_A * \left\{ \left[\text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^L \right) - \text{EXP} \left(-(T_T + T_C + T_I) * \lambda_e^L \right) \right. \right. \\ \left. \left. - \text{EXP} \left(-(T_A - T_1) * \lambda_e^L \right) + \text{EXP} \left(-T_A * \lambda_e^L \right) \right] / (\lambda_e^L)^2 \right. \\ \left. - \left[\text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^\circ \right) - \text{EXP} \left(-(T_T + T_C + T_I - T_1) * \lambda_e^\circ \right) \right. \right. \\ \left. \left. - \text{EXP} \left(-(T_A - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_A * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \quad (\text{A-17})$$

If intake occurs when individual is an adult,

$$(\epsilon/m)_A * \left\{ \left[T_1 * \lambda_e^L - \text{EXP} \left(-(T_A - T_1) * \lambda_e^L \right) + \text{EXP} \left(-T_A * \lambda_e^L \right) \right] / (\lambda_e^L)^2 \right. \\ \left. - \left[T_1 * \lambda_e^\circ - \text{EXP} \left(-(T_A - T_1) * \lambda_e^\circ \right) + \text{EXP} \left(-T_A * \lambda_e^\circ \right) \right] / (\lambda_e^\circ)^2 \right\} \quad (\text{A-18})$$

Equations (A-1 through A-18) were used in the appropriate manner to calculate dose commitment factors for all organs except for GI tract and for all nuclides except the noble gases. The format as shown in Equation (A-1) of this appendix was used to make the calculations. For each radionuclide, first select the pathway and organ to be considered, then select the equation which applies for intake during the particular age group of interest. Add to this the equation(s) for all successive age groups and evaluate. Then, multiply by the constant which applies for that pathway, organ and nuclide.

For example, if an intake of radioactive material were to occur during the childhood of an individual and we were interested in the dose commitment factor to the total body due to inhalation of an insoluble radionuclide, the following procedure would be used.

1. Inhalation of insoluble material during childhood
Equation (A-14) for P_{2ipj}
(and $P_{1ipj} = 0$ since no intake occurred during infancy)
2. Add to Equation (A-14), Equations (A-15) and (A-17) to account for fifty years of dose commitment.
3. Then multiply this sum by the constant evaluated using Equation (A-4).
4. Using Equation numbers the form would be:

$$D_{aipj} = (A-4) \times [(A-14) + (A-15) + (A-17)]$$

For the GI-tract and inhalation of noble gases, the equations listed below must be used to calculate the dose commitment factors.

SPECIAL CASE FOR THE LUNG

Dose factors for lung due to inhalation of noble gases

$$D_{aipj} = G_{ai} * \epsilon_{ai} \quad (A-19)$$

where:

ϵ_{ai} = energy per disintegration absorbed in lung (MeV) for age group a and nuclide i

G_{ai} = constant determined by age-specific biological parameters listed in Table B-4

SPECIAL CASE FOR GI-TRACT

Ingestion Pathway

$$D_{aipj} = 0.0256 * \tau_a' * f^* * (\epsilon/m)_a * \text{EXP}(-\lambda_R * t_a') \quad (\text{A-20})$$

where:

τ_a' = travel time (days) in LLI for age group a

$(\epsilon/m)_a$ = ratio of effective absorbed energy to mass of the contents of the LLI for age group a

λ_R = radiological decay constant (1/day)

t_a' = travel time to LLI for age group a (in days)

$f^* = 1 - f_1$ = fraction of radionuclide remaining at entrance to LLI

Inhalation Pathway

$$D_{aipj} = 0.0256 * \tau_a' * f^* * f_a * (\epsilon/m)_a * \text{EXP}(-\lambda_R * t_a') \quad (\text{A-21})$$

In the instances where daughter products may contribute significantly to the effective absorbed energy per disintegration of the parent at the entrance to the lower intestine, the equations listed below should be applied.

EFFECTIVE ENERGIES IN THE GI-TRACT FOR DAUGHTER PRODUCTS OF RADIONUCLIDES
WITH SHORT HALF-LIVES

Number of Atoms of Parent Radionuclide

- N_0^P = number of atoms of parent at time of ingestion
- N_1^P = number of atoms entering small intestines (SI)
- N_2^P = number of atoms entering upper-large intestines (ULI)
- N_3^P = number of atoms entering lower-large intestines (LLI)

Number of Atoms of Daughter Products

- N_0^D = number of atoms of daughter at time of ingestion = 0
- N_1^D = number of atoms entering small intestines
- N_2^D = number of atoms entering upper-large intestines
- N_3^D = number of atoms entering lower-large intestines

Time Factors

- t' = total travel time (days) from mouth to entrance of LLI = $t_s + t_{si} + t_u$
- t_s = travel time through stomach (days)
- t_{si} = travel time through small intestine (days)
- t_u = travel time through upper large intestine (days)

Fraction Remaining

- $f_*^P = 1 - f_1^P$ = fraction of parent remaining at entrance to ULI (w/o decay correction)
- $f_*^D = 1 - f_1^D$ = fraction of daughter remaining at entrance to ULI (w/o decay correction)

Decay Constants

- λ_R = radiological decay constant
- $\lambda_A^P = \ln(f_*^P)/t_{si}$ = Removal constant for absorption of parent in small intestine
- $\lambda_A^D = \ln(f_*^D)/t_{si}$ = Removal constant for absorption of daughter in small intestine

Relations of N's

(a) Parent

$$N_1^P = N_0^P * \text{EXP}(-\lambda_R^P * t_s) \quad (\text{A-22})$$

$$N_2^P = N_0^P * f_*^P * \text{EXP} \left[-\lambda_R^P * (t_s + t_{si}) \right] \quad (\text{A-23})$$

$$N_3^P = N_0^P * f_*^P * \text{EXP}(-\lambda_R^P * t') \quad (\text{A-24})$$

(b) Daughter

$$N_1^D = \left[\lambda_R^P * N_0^P / (\lambda_R^D - \lambda_R^P) \right] * \left[\text{EXP}(-\lambda_R^P * t_s) - \text{EXP}(-\lambda_R^D * t_s) \right] \quad (\text{A-25})$$

$$N_2^D = \left\{ \lambda_R^P * N_0^P * \text{EXP}(-\lambda_R^P * t_s) / (\lambda_R^D - \lambda_R^P + \lambda_A^D - \lambda_A^P) \right. \\ \left. * \left[f_*^P * \text{EXP}(-\lambda_R^P * t_{si}) - f_*^D * \text{EXP}(-\lambda_R^D * t_{si}) \right] \right\} \\ + N_1^D * f_*^D * \text{EXP}(-\lambda_R^D * t_{si}) \quad (\text{A-26})$$

$$N_3^D = \left\{ \lambda_R^P * N_0^P * f_*^P * \text{EXP} \left[-\lambda_R^P * (t_s + t_{si}) \right] / (\lambda_R^D - \lambda_R^P) * \right. \\ \left. \left[\text{EXP}(-\lambda_R^P * t_u) - \text{EXP}(-\lambda_R^D * t_u) \right] \right. \\ \left. + N_2^D * \text{EXP}(-\lambda_R^D * t_u) \right\} \quad (\text{A-27})$$

Ratio of Activities at Entrance to LLI

$$R = \left(\lambda_R^D * N_3^D \right) / \left(\lambda_R^P * N_3^P \right) \quad (A-28)$$

Effective Energy at Entrance to LLI

(MeV per Disintegration of Parent)

$$\epsilon_{LLI} = \epsilon_{LLI}^P + \left(R * \epsilon_{LLI}^D \right) \quad (A-29)$$

APPENDIX B

DATA USED TO CALCULATE AGE SPECIFIC RADIATION
DOSE COMMITMENT FACTORS

APPENDIX B

DATA USED TO CALCULATE AGE SPECIFIC RADIATION DOSE COMMITMENT FACTORS

This appendix contains the parameters which were used in the equations listed in Appendix A to calculate the dose commitment factors in this report. The biological, chemical and radiological parameters needed to calculate the dose commitment factors are listed in the following tables.

The masses and radii for the total body and six internal organs for all age groups are listed in Table B-1. The parameters for the adult are taken from the description of Standard Man in ICRP Publication 2.⁽¹⁾ Organ masses for the other age groups were taken from Spector,⁽²⁾ Cook and Snyder,⁽³⁾ Altman and Dittmer,⁽⁴⁾ Spiers⁽⁵⁾ and Cowser et al.⁽⁶⁾ The radius of the organs were assumed to be proportional to the cube root of the mass.

Table B-2 lists the travel time to and through the lower large intestine (LLI) of the gastrointestinal tract. The travel times for the adult were taken from ICRP Publication 2 and those for the other age groups were assumed to be proportional to total-body mass.

The biological parameters used to calculate the dose commitment factors for the lung due to inhalation of noble gases are listed in Table B-4.

Table B-5 lists chemical, radiological and biological parameters used to calculate the dose commitment factors. In most cases, the metabolic parameters were taken from ICRP Publications 2 and 6,^(1,7) but for radioiodine the fractions reaching the thyroid (and total body) calculated from data in ICRP Publication 10.⁽⁸⁾ The 187 radionuclides are listed beside the left-hand margin along with the solubility class for inhalation and the radiological half-life (T-RADIOL). The biological half-life (T-BIOL), effective half-life (T-EFF), fraction reaching organ of reference (F-W, F-A or F-2PRM) and fraction not absorbed before reaching the LLI (F-*) are all assumed to remain constant over all age groups for each radionuclide except tritium, radioiodine and radiocesium. For the latter isotopes, information was available on the variation of biological half-life with age (see Table B-3). The effective energies (EPSILON) for the age groups are listed in the last four columns of Table B-5.

REFERENCES FOR APPENDIX B

1. International Commission on Radiological Protection, Report of ICRP Committee II on Permissible Dose for Internal Radiation, ICRP Publication 2, Pergamon Press, New York, 1959.
2. W. S. Spector, Handbook of Biological Data, W. B. Saunders Co., Philadelphia, PA, 1956.
3. M. S. Cook and W. S. Snyder, "Estimation of Population Exposure," Unpublished Manuscript, Oak Ridge National Laboratory, Oak Ridge, TN, 1965.
4. P. L. Altman and D. S. Dittmer, Growth Including Reproduction and Morphological Development, Federation of Societies for Experimental Biology, Washington, DC, 1962.
5. F. W. Spiers, Radioisotopes in the Human Body, Academic Press, New York, NY, 1968.
6. K. E. Cowser, S. V. Kaye, P. S. Rohwer, W. S. Snyder and E. G. Struxness, Dose Estimation Studies Related to Proposed Construction of an Atlantic-Pacific Interoceanic Canal with Nuclear Explosives: Phase I, USAEC Report ORNL-4101, Oak Ridge National Laboratory, Oak Ridge, TN, 1967.
7. International Commission on Radiological Protection, ICRP Publication 6, Pergamon Press, New York, NY, 1964.
8. International Commission on Radiological Protection, Report of Committee IV on Evaluation of Radiation Doses to Body Tissues from Internal Contamination Due to Occupational Exposure, ICRP Publication 10, Pergamon Press, New York, NY, 1968.
9. P. S. Rohwer and S. V. Kaye, Age Dependent Models for Estimating Internal Dose in Feasibility Evaluations of Plowshare Events, USAEC Report ORNL-TM-2229, Oak Ridge National Laboratory, Oak Ridge, TN, 1968.
10. P. M. Bryant, "Data for Assessments Concerning Controlled and Accidental Releases of ^{131}I and ^{137}Cs to atmosphere," Health Phys., vol. 17, p. 51, 1969.
P. M. Bryant, "Derivation of Working Limits for Continuous Release Rates of ^{129}I to Atmosphere," Health Phys., vol. 19, p. 611, 1970.
11. H. N. Wellman, J. G. Kereiakes and B. M. Branson, "Total- and Partial-Body Counting of Children for Radiopharmaceutical Dosimetry Data," Medical Radionuclides: Radiation Dose and Effects (R. J. Cloutier, C. L. Edwards and W. S. Snyder, eds.), Proceedings of a Symposium Held at the Oak Ridge Assoc. Univer., December 8-11, 1969, NTIS, Springfield, VA, pp. 133-156, 1970.
12. R. D. Lloyd, "Cesium-137 Half-Times in Humans," Health Physics, vol. 25, p. 605, New York, 1973.

TABLE B-1. Mass and Radius of Body Organs for the Four Age Groups (1-6)

Organ	Infant (2-6)		Child (2-6)		Teenager (2-6)		Adult (1)	
	Mass (g)	Radius (cm) (a)	Mass (g)	Radius (cm)	Mass (g)	Radius (cm)	Mass (g)	Radius (cm)
Bone	770	2.4	1,640	3	4,900	4	7,000	5
Liver	200	5	530	7	1,200	9	1,700	10
Total Body	7700	14	16,400	20	49,000	27	70,000	30
Thyroid	2	1.4	5	2	15	2.7	20	3
Kidney	55	4	100	5	210	6	300	7
Lung	110	5	300	7	580	8	1,000	10
GI-LLI	16 ^(b)	2.4	35 ^(b)	3	100 ^(b)	4	150	5

(a) Radius (x) is assumed to be proportional to cube root of the mass.

$$(x)_{\text{age}} = \left(\frac{x}{(\text{mass})^{1/3}} \right)_{\text{adult}} (\text{mass})_{\text{age}}^{1/3}$$

(b) Mass of contents assumed to be proportional to total-body mass.

TABLE B-2. GI Tract Travel Times for the Four Age Groups (a)

	Travel Time to LLI (t') (days)	Travel Time in LLI (τ') (days)
Infant	0.058	0.082
Child	0.12	0.18
Teenager	0.36	0.50
Adult	0.54	0.75

(a) Assumed to be proportional to mass of contents.

TABLE B-3. Elements Having Age Dependent Biological Half Lives

Element	Organ	Half-lives (days)			
		Infant	Child	Teenager	Adult(8)
Tritium ⁽⁹⁾	Total Body	3.2	4.5	7.0	10
Iodine ⁽⁹⁻¹¹⁾	Total Body and Thyroid	20	20	50	100
Cesium ⁽¹²⁾	Total Body	10	20	60	115

TABLE B-4. Biological Parameters Used to Calculate Dose Commitment Factor to Lung for the Noble Gases

Age Group	Vital Capacity of the Lung (liters)	Mass ^(a) (g)	Ratio vc/m (l/g)	Breathing Rate (m ³ /y)	Age-specific Conversion factor, G _{ai} ^(d)
Infant	0.6	110	5.4×10^{-3}	2045	4.94×10^{-8}
Child	1	300	3.3×10^{-3}	2560	2.41×10^{-8}
Teen	3 ^(b)	580	5.2×10^{-3}	4930	1.97×10^{-8}
Adult	4 ^(c)	1000	4.0×10^{-3}	7300	1.025×10^{-8}

(a) From Handbook of Biological Data.⁽²⁾

(b) Spector lists (page 267) 3.7 liters male, 2.7 liters female.⁽²⁾

(c) ICRP Publication 2⁽¹⁾ lists 3-4 liters for adult male and 2.3 liters for female; Handbook of Biological Data⁽²⁾ lists 4.5 liters for males and 2.3 liters for females, aged 18-65 years.

(d) $G_{ai} = (10^{-3} \text{ m}^3/\text{l}) (2.22 \text{ dpm/pCi}) (5.26 \times 10^5 \text{ min/y}) (1.602 \times 10^{-8} \text{ g-rad/MeV}) (10^3 \text{ mrem/rem})$
 $(\text{vc/m l/g}) \div (\text{m}^3/\text{y})$

Age Group	Vital Capacity of the Lung (liters)	Mass (a) (g)	Ratio vc/m (l/g)	Breathing Rate (m ³ /y)	Age-specific Conversion factor, G _{ai} (d)
Infant	0.6	110	5.4 x 10 ⁻³	2045	4.94 x 10 ⁻⁸
Child	1	300	3.3 x 10 ⁻³	2560	2.41 x 10 ⁻⁸
Teen	3 (b)	580	5.2 x 10 ⁻³	4930	1.97 x 10 ⁻⁸
Adult	4 (c)	1000	4.0 x 10 ⁻³	7300	1.025 x 10 ⁻⁸

(a) From Handbook of Biological Data. (2)

(b) Spector lists (page 267) 3.7 liters male, 2.7 liters female. (2)

(c) ICRP Publication 2(1) lists 3-4 liters for adult male and 2.3 liters for female; Handbook of Biological Data(2) lists 4.5 liters for males and 2.3 liters for females, aged 18-65 years.

(d) $G_{ai} = (10^{-3} \text{ m}^3/\text{l}) (2.22 \text{ dpm/pCi}) (5.26 \times 10^5 \text{ min/y}) (1.602 \times 10^{-8} \text{ g-rad/MeV}) (10^3 \text{ mrem/rem})$
 $(\text{vc/m l/g}) \div (\text{m}^3/\text{y})$

TABLE B-5. Radiological, Biological and Chemical Parameters Used to Calculate Dose Commitment Factors

ISOTOPE	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
H3	BONE	0.	0.	0.	0.	0.	0.	0.	0.
	LIVER	(b)	USE TOTAL BODY DOSE FACTOR	1.000	1.0000E-02	1.0000E-02	1.0000E-02	1.0000E-02	
	TOTAL BODY	10.00	9.978	1.000	1.0000E-02	1.0000E-02	1.0000E-02	1.0000E-02	
	THYROID		USE TOTAL BODY DOSE FACTOR						
	KIDNEY		USE TOTAL BODY DOSE FACTOR						
	LUNG INGES		USE TOTAL BODY DOSE FACTOR						
	LUNG INHAL		USE TOTAL BODY DOSE FACTOR						
	GI-LLI INGES		USE TOTAL BODY DOSE FACTOR						
	GI-LLI INHAL		USE TOTAL BODY DOSE FACTOR						
BE10	BONE	450.0	450.0	6.4000E-04	.3200	1.045	1.045	1.045	1.045
	LIVER	270.0	270.0	2.0000E-04	.1000	.2090	.2090	.2090	.2090
	TOTAL BODY	180.0	180.0	2.0000E-03	1.0000	.2090	.2090	.2090	.2090
	THYROID	0.	0.	0.	0.	.2090	.2090	.2090	.2090
	KIDNEY	120.0	120.0	6.0000E-05	3.0000E-02	.2090	.2090	.2090	.2090
	LUNG INGES	0.	0.	0.	.1200	.2090	.2090	.2090	.2090
	LUNG INHAL	120.0	120.0	0.	1.000	.2090	.2090	.2090	.2090
	GI-LLI INGES				1.000	.2090	.2090	.2090	.2090
	GI-LLI INHAL				.6250	.2090	.2090	.2090	.2090
C14	BONE	40.00	40.00	2.5000E-02	2.0000E-02	.2690	.2690	.2690	.2690
	LIVER		USE TOTAL BODY DOSE FACTOR						
	TOTAL BODY	10.00	10.00	1.000	.7500	5.3800E-02	5.3800E-02	5.3800E-02	5.3800E-02
	THYROID		USE TOTAL BODY DOSE FACTOR						
	KIDNEY		USE TOTAL BODY DOSE FACTOR						
	LUNG INGES		USE TOTAL BODY DOSE FACTOR						
	LUNG INHAL		USE TOTAL BODY DOSE FACTOR						
	GI-LLI INGES		USE TOTAL BODY DOSE FACTOR						
	GI-LLI INHAL		USE TOTAL BODY DOSE FACTOR						

(a) For inhalation only. All nuclides, except noble gases, assumed to be soluble for ingestion pathway.

(b) See Table B-3 for age dependent biological half-life.

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-* FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
N13								
BONE		USE TOTAL	BODY DOSE	FACTOR				
LIVER		USE TOTAL	BODY DOSE	FACTOR				
TOTAL BODY	90.00	6.9231E-03	1.000	.7500			1.104	1.143
THYROID		USE TOTAL	BODY DOSE	FACTOR		.8800	.9950	
KIDNEY		USE TOTAL	BODY DOSE	FACTOR				
LUNG INGES		USE TOTAL	BODY DOSE	FACTOR				
LUNG INHAL		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INGES		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INHAL		USE TOTAL	BODY DOSE	FACTOR				
F18								
BONE	1450.	7.6246E-02	.5300	.4000		1.339	1.369	1.417
LIVER	0.	0.	0.	0.		.3910	.4450	.4940
TOTAL BODY	808.0	7.6243E-02	1.000	.7500		.6060	.7180	.8230
THYROID	0.	0.	0.	0.		.2860	.3040	.3250
KIDNEY	0.	0.	0.	0.		.3630	.3910	.4210
LUNG INGES	0.	0.	0.	0.		.3910	.4450	.4700
LUNG INHAL	0.	0.	0.	0.		.3910	.4450	.4700
GI-LLI INGES	0.	0.	5.0000E-02	0.		.3170	.3340	.3630
GI-LLI INHAL		0.	5.0000E-02	.5000		.3170	.3340	.3630
N22								
BONE		USE TOTAL	BODY DOSE	FACTOR				
LIVER		USE TOTAL	BODY DOSE	FACTOR				
TOTAL BODY	11.00	10.87	1.000	.7500		.9590	1.199	1.429
THYROID		USE TOTAL	BODY DOSE	FACTOR				
KIDNEY		USE TOTAL	BODY DOSE	FACTOR				
LUNG INGES		USE TOTAL	BODY DOSE	FACTOR				
LUNG INHAL		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INGES		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INHAL		USE TOTAL	BODY DOSE	FACTOR				
NA24								
BONE		USE TOTAL	BODY DOSE	FACTOR				
LIVER		USE TOTAL	BODY DOSE	FACTOR				
TOTAL BODY	11.00	.5921	1.000	.7500		1.771	2.174	2.574
THYROID		USE TOTAL	BODY DOSE	FACTOR				
KIDNEY		USE TOTAL	BODY DOSE	FACTOR				
LUNG INGES		USE TOTAL	BODY DOSE	FACTOR				
LUNG INHAL		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INGES		USE TOTAL	BODY DOSE	FACTOR				
GI-LLI INHAL		USE TOTAL	BODY DOSE	FACTOR				

P32	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F--* FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
P32	BONE	1155.	14.11	.3750	.3200	3.459	3.459	3.459	3.459
	LIVER	18.00	7.963	5.0000E-02	4.0000E-02	.6960	.6960	.6960	.6960
	TOTAL BODY	257.0	13.53	.7500	.6300	.6960	.6960	.6960	.6960
	THYROID	0.	0.	0.	0.	.6960	.6960	.6960	.6960
	KIDNEY	0.	0.	0.	0.	.6960	.6960	.6960	.6960
	LUNG INGES	0.	0.	0.	0.	.6960	.6960	.6960	.6960
	LUNG INHAL	0.	0.	0.	0.	.6960	.6960	.6960	.6960
	GI-LLI INGES	0.	0.	0.	0.	.6960	.6960	.6960	.6960
	GI-LLI INHAL	0.	0.	.2500	.5000	.6960	.6960	.6960	.6960
					.2500				
AR39	BONE	0.	0.	0.	0.	0.	0.	0.	1.103
	LIVER	0.	0.	0.	0.	0.	0.	0.	.2030
	TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.2030
	THYROID	0.	0.	0.	0.	0.	0.	0.	.2030
	KIDNEY	0.	0.	0.	0.	0.	0.	0.	.2030
	LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.2030
	LUNG INHAL	0.	0.	0.	0.	.2030	.2030	.2030	.2030
	GI-LLI INGES	0.	0.	0.	0.	.2030	.2030	.2030	.2030
	GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
					0.	0.	0.	0.	0.
AR41	BONE	0.	0.	0.	0.	0.	0.	0.	2.602
	LIVER	0.	0.	0.	0.	0.	0.	0.	.7860
	TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	1.210
	THYROID	0.	0.	0.	0.	0.	0.	0.	.5690
	KIDNEY	0.	0.	0.	0.	0.	0.	0.	.6980
	LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.7860
	LUNG INHAL	0.	0.	0.	0.	.6360	.6980	.7290	.7860
	GI-LLI INGES	0.	0.	0.	0.	.6360	.6980	.7290	.7860
	GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
					0.	0.	0.	0.	0.
CA41	BONE	1.8000E+04	1.7993E+04	.5400	.9000	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	LIVER	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	TOTAL BODY	1.6400E+04	1.6394E+04	.6000	1.000	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	THYROID	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	KIDNEY	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	LUNG INGES	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	LUNG INHAL	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	GI-LLI INGES	120.0	120.0	0.	.1200	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
	GI-LLI INHAL	0.	0.	0.	0.	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03
					.4000	3.6000E-03	3.6000E-03	3.6000E-03	3.6000E-03

		-----EPSILON-----						
		INFANT	CHILD	TEEN	ADULT			
SC46								
SOLUBLE								
T-RADIOL =								
83.8 D								
83.8 DAY								
ORGAN								
	BONE							
	LIVER							
	TOTAL BODY							
	THYROID							
	KIDNEY							
	LUNG INGES							
	LUNG INHAL							
	GI-LLI INGES							
	GI-LLI INHAL							
T-BIOL (DAY)								
T-EFT (DAY)								
F-W (F-* FOR G1)								
F-A OR F-2PRM								
CR51								
INSOLUBL								
T-RADIOL =								
27.7 D								
27.7 DAY								
ORGAN								
	BONE							
	LIVER							
	TOTAL BODY							
	THYROID							
	KIDNEY							
	LUNG INGES							
	LUNG INHAL							
	GI-LLI INGES							
	GI-LLI INHAL							
T-BIOL (DAY)								
T-EFT (DAY)								
F-W (F-* FOR G1)								
F-A OR F-2PRM								
MN54								
INSOLUBL								
T-RADIOL =								
313. D								
313. DAY								
ORGAN								
	BONE							
	LIVER							
	TOTAL BODY							
	THYROID							
	KIDNEY							
	LUNG INGES							
	LUNG INHAL							
	GI-LLI INGES							
	GI-LLI INHAL							
T-BIOL (DAY)								
T-EFT (DAY)								
F-W (F-* FOR G1)								
F-A OR F-2PRM								
MN55								
INSOLUBL								
T-RADIOL =								
2.58 H								
.108 DAY								
ORGAN								
	BONE							
	LIVER							
	TOTAL BODY							
	THYROID							
	KIDNEY							
	LUNG INGES							
	LUNG INHAL							
	GI-LLI INGES							
	GI-LLI INHAL							
T-BIOL (DAY)								
T-EFT (DAY)								
F-W (F-* FOR G1)								
F-A OR F-2PRM								

		-----EPSILON-----										
		INFANT	CHILD	TEEN	ADULT							
		F-A OR F-2PRM	F-W (F-# FOR GI)	T-EFF (DAY)	T-BIOL (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	CHILD	TEEN	ADULT	
F559								4.1700E-02	4.1700E-02	4.1700E-02	4.2000E-02	4.2000E-02
	INSOLUBL							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	T-RADIOL =							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
2.70	Y							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
985.	DAY							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	ORGAN							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	BONE							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	LIVER							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	TOTAL BODY							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	THYROID							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	KIDNEY							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	LUNG INGES							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	LUNG INHAL							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	GI-LLI INGES							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
	GI-LLI INHAL							9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03	9.5000E-03
F559								.8100	.8430	.8960	.9460	.9460
	INSOLUBL							.2980	.3570	.4130	.4390	.4390
	T-RADIOL =							.5360	.6660	.7900	.8350	.8350
44.6	D							.1620	.2020	.2250	.2350	.2350
44.6	DAY							.2670	.2980	.3280	.3570	.3570
	ORGAN							.2980	.3570	.3850	.4390	.4390
	BONE							.2980	.3570	.3850	.4390	.4390
	LIVER							.2980	.3570	.3850	.4390	.4390
	TOTAL BODY							.2980	.3570	.3850	.4390	.4390
	THYROID							.2980	.3570	.3850	.4390	.4390
	KIDNEY							.2980	.3570	.3850	.4390	.4390
	LUNG INGES							.2980	.3570	.3850	.4390	.4390
	LUNG INHAL							.2980	.3570	.3850	.4390	.4390
	GI-LLI INGES							.2980	.3570	.3850	.4390	.4390
	GI-LLI INHAL							.2980	.3570	.3850	.4390	.4390
C057								.1720	.1760	.1820	.1870	.1870
	INSOLUBL							4.9600E-02	5.5000E-02	6.0200E-02	6.2600E-02	6.2600E-02
	T-RADIOL =							7.1900E-02	8.0400E-02	9.6000E-02	1.000	1.000
271.	D							3.9000E-02	4.0900E-02	4.3100E-02	4.3900E-02	4.3900E-02
271.	DAY							4.6800E-02	4.9600E-02	5.2600E-02	5.5000E-02	5.5000E-02
	ORGAN							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	BONE							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	LIVER							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	TOTAL BODY							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	THYROID							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	KIDNEY							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	LUNG INGES							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	LUNG INHAL							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	GI-LLI INGES							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
	GI-LLI INHAL							4.9600E-02	5.5600E-02	5.7600E-02	6.2600E-02	6.2600E-02
C058								.2480	.2770	.3230	.3670	.3670
	INSOLUBL							.1690	.2200	.2690	.2920	.2920
	T-RADIOL =							.3770	.4860	.5900	.6280	.6280
71.3	D							6.7200E-02	8.4900E-02	1.050	1.140	1.140
71.3	DAY							.1420	.1690	.1980	.2200	.2200
	ORGAN							.1690	.2260	.2450	.2920	.2920
	BONE							.1690	.2260	.2450	.2920	.2920
	LIVER							.1690	.2260	.2450	.2920	.2920
	TOTAL BODY							.1690	.2260	.2450	.2920	.2920
	THYROID							.1690	.2260	.2450	.2920	.2920
	KIDNEY							.1690	.2260	.2450	.2920	.2920
	LUNG INGES							.1690	.2260	.2450	.2920	.2920
	LUNG INHAL							.1690	.2260	.2450	.2920	.2920
	GI-LLI INGES							.1690	.2260	.2450	.2920	.2920
	GI-LLI INHAL							.1690	.2260	.2450	.2920	.2920

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
C060	BONE	0.	0.	0.	0.	.8320	.9010	1.011	1.116
	LIVER	9.500	9.453	7.0000E-03	4.0000E-02	.4490	.5730	1.479	.7450
	TOTAL BODY	9.500	9.453	.3000	1.000	.9520	1.221	1.479	1.575
	THYROID	0.	0.	0.	0.	.2080	.2500	.2980	.3180
1-RADIOL = 5.27 Y	KIDNEY	0.	0.	0.	0.	.3850	.4490	.5110	.5730
	LUNG INGES	0.	0.	0.	0.	.4490	.5730	.6320	.7450
	LUNG INHAL	120.0	113.0	.7000	.1200	.4490	.5730	.6320	.7450
	GI-LLI INGES	120.0	113.0	1.000	.6200	.2770	.3180	.3850	.4490
1.924E+03 DAY	GI-LLI INHAL			1.000	.6200	.2770	.3180	.3850	.4490
N159	BONE	800.0	800.0	.1500	.5000	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	LIVER	500.0	500.0	2.0000E-02	7.0000E-02	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	TOTAL BODY	667.0	667.0	.3000	1.000	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	THYROID	0.	0.	0.	0.	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
1-RADIOL = 8.000E+04 Y	KIDNEY	0.	0.	0.	0.	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	LUNG INGES	0.	0.	0.	0.	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	LUNG INHAL	120.0	120.0	.7000	.1200	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
	GI-LLI INGES	120.0	120.0	1.000	.6200	7.7000E-03	7.7000E-03	7.7000E-03	7.7000E-03
2.920E+07 DAY	GI-LLI INHAL			1.000	.6200	7.7000E-03	7.7000E-03	7.7000E-03	
N163	BONE	800.0	782.8	.1500	.5000	.1050	.1050	.1050	.1050
	LIVER	500.0	493.2	2.0000E-02	7.0000E-02	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
	TOTAL BODY	667.0	655.0	.3000	1.000	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
	THYROID	0.	0.	0.	0.	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
1-RADIOL = 100. Y	KIDNEY	0.	0.	0.	0.	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
	LUNG INGES	0.	0.	0.	0.	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
	LUNG INHAL	120.0	119.6	.7000	.1200	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
	GI-LLI INGES	120.0	119.6	1.000	.6200	2.1000E-02	2.1000E-02	2.1000E-02	2.1000E-02
3.650E+04 DAY	GI-LLI INHAL			1.000	.6200	2.1000E-02	2.1000E-02	2.1000E-02	
N165	BONE	800.0	.1050	.1500	.5000	3.112	3.127	3.152	3.176
	LIVER	500.0	.1050	2.0000E-02	7.0000E-02	.6860	.7140	.7400	.7520
	TOTAL BODY	667.0	.1050	.3000	1.000	.7990	.8600	.9180	.9400
	THYROID	0.	0.	0.	0.	.6320	.6410	.6520	.6560
1-RADIOL = 2.52 H	KIDNEY	0.	0.	0.	0.	.6710	.6860	.7000	.7140
	LUNG INGES	0.	0.	0.	0.	.6860	.7140	.7270	.7520
	LUNG INHAL	120.0	.1049	.7000	.1200	.6860	.7140	.7270	.7520
	GI-LLI INGES	120.0	.1049	1.000	.6200	.6470	.6560	.6710	.6860
.105 DAY	GI-LLI INHAL			1.000	.6200	.6470	.6710	.6860	

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
CU64	BONE	0.	0.	0.	0.	6540	6600	6700	6790
	LIVER	150.0	.5290	2.0000E-02	8.0000E-02	.1560	.1660	.1770	.1810
	TOTAL BODY	80.00	.5273	.2800	1.0000	.1990	.2220	.2430	.2510
	THYROID	0.	0.	0.	0.	.1340	.1380	.1420	.1440
	KIDNEY	16.00	.5138	1.0000E-02	5.0000E-02	.1560	.1610	.1660	.1660
	LUNG INGES	0.	0.	0.	0.	.1560	.1660	.1720	.1810
	LUNG INHAL	120.0	.5285	.7200	.1200	.1560	.1660	.1720	.1810
	GI-LLI INGES	0.	0.	1.0000	.6200	.1410	.1440	.1500	.1560
	GI-LLI INHAL	0.	0.	1.0000	.6200	.1410	.1440	.1500	.1560
ZN65	BONE	1300.	205.2	1.5000E-02	.1500	8.3400E-02	9.9000E-02	.1240	.1490
	LIVER	91.00	66.26	3.5000E-02	.3500	8.4300E-02	.1130	.1400	.1530
	TOTAL BODY	933.0	193.2	.1000	1.0000	.2000	.2610	.3200	.3410
	THYROID	0.	0.	0.	0.	2.8500E-02	3.8300E-02	.4940	5.4000E-02
	KIDNEY	149.0	92.47	4.0000E-03	4.0000E-02	6.9400E-02	8.4300E-02	9.8700E-02	.1130
	LUNG INGES	0.	0.	0.	0.	8.4300E-02	.1130	.1260	.1520
	LUNG INHAL	120.0	80.41	.9000	.1200	8.4300E-02	.1130	.1260	.1520
	GI-LLI INGES	0.	0.	1.0000	.6200	5.4100E-02	6.9400E-02	8.4300E-02	8.4300E-02
	GI-LLI INHAL	0.	0.	1.0000	.6200	5.4100E-02	6.9400E-02	8.4300E-02	8.4300E-02
ZN69M+D	BONE	1300.	.5789	1.5000E-02	.1500	1.800	1.813	1.833	1.852
	LIVER	91.00	.5755	3.5000E-02	.3500	.4120	.4320	.4560	.4660
	TOTAL BODY	933.0	.5788	.1000	1.0000	.5020	.5490	.5940	.6100
	THYROID	0.	0.	0.	0.	.3680	.3760	.3850	.3880
	KIDNEY	149.0	.5769	4.0000E-03	4.0000E-02	.4010	.4120	.4230	.4350
	LUNG INGES	0.	0.	0.	0.	.4120	.4320	.4450	.4660
	LUNG INHAL	120.0	.5764	.9000	.1200	.4120	.4320	.4450	.4660
	GI-LLI INGES	0.	0.	1.0000	.6200	.3810	.3880	.4010	.4120
	GI-LLI INHAL	0.	0.	1.0000	.6200	.3810	.3880	.4010	.4120
ZN69	BONE	1300.	3.9582E-02	1.5000E-02	.1500	1.638	1.638	1.638	1.638
	LIVER	91.00	3.9566E-02	3.5000E-02	.3500	.3280	.3280	.3280	.3280
	TOTAL BODY	933.0	3.9582E-02	.1000	1.0000	.3280	.3280	.3280	.3280
	THYROID	0.	0.	0.	0.	.3280	.3280	.3280	.3280
	KIDNEY	149.0	3.9573E-02	4.0000E-03	4.0000E-02	.3280	.3280	.3280	.3280
	LUNG INGES	0.	0.	0.	0.	.3280	.3280	.3280	.3280
	LUNG INHAL	120.0	3.9570E-02	.9000	.1200	.3280	.3280	.3280	.3280
	GI-LLI INGES	0.	0.	1.0000	.6200	.3280	.3280	.3280	.3280
	GI-LLI INHAL	0.	0.	1.0000	.6200	.3280	.3280	.3280	.3280

SE	INSOLUBLI	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
							INFANT	CHLD	TEEN	
SE79		BONE	0.	0.	0.	0.	0.	0.	0.	0.
		LIVER	24.00	24.00	6.0000E-02	7.0000E-02	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		TOTAL BODY	11.00	11.00	.9000	1.000	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		THYROID	0.	0.	0.	0.	0.	0.	0.	0.
		KIDNEY	11.00	11.00	4.0000E-02	4.0000E-02	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		LUNG INGES	0.	0.	0.	0.	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		LUNG INHAL	120.0	120.0	.1200	.1200	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		GI-LLI INGES			.1000	.6200	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		GI-LLI INHAL			1.000		4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
BR82		BONE	0.	0.	0.	0.	0.	0.	0.	1.900
		LIVER	0.	0.	0.	0.	0.	0.	0.	.8400
		TOTAL BODY	8.000	1.245	1.000	.7500	1.061	1.345	1.616	1.715
		THYROID	0.	0.	0.	0.	0.	0.	0.	.3810
		KIDNEY	0.	0.	0.	0.	0.	0.	0.	.6560
		LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.8400
		LUNG INHAL	0.	0.	0.	0.	0.	0.	0.	.8400
		GI-LLI INGES	0.	0.	5.0000E-02	0.	.3360	.3810	.4530	.5220
		GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.3360	.3810	.4530	.5220
BR83*0		BONE	0.	0.	0.	0.	0.	0.	0.	1.900
		LIVER	0.	0.	0.	0.	0.	0.	0.	.3820
		TOTAL BODY	8.000	9.8765E-02	1.000	.7500	.3830	.3840	.3850	.3850
		THYROID	0.	0.	0.	0.	0.	0.	0.	.3810
		KIDNEY	0.	0.	0.	0.	0.	0.	0.	.3820
		LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.3820
		LUNG INHAL	0.	0.	0.	0.	0.	0.	0.	.3820
		GI-LLI INGES	0.	0.	5.0000E-02	0.	.3810	.3810	.3810	.3820
		GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.3810	.3810	.3810	.3820
BR84		BONE	0.	0.	0.	0.	0.	0.	0.	6.601
		LIVER	0.	0.	0.	0.	0.	0.	0.	1.665
		TOTAL BODY	8.000	2.2023E-02	1.000	.7500	1.806	1.990	2.172	2.241
		THYROID	0.	0.	0.	0.	0.	0.	0.	1.381
		KIDNEY	0.	0.	0.	0.	0.	0.	0.	1.550
		LUNG INGES	0.	0.	0.	0.	0.	0.	0.	1.665
		LUNG INHAL	0.	0.	0.	0.	0.	0.	0.	1.665
		GI-LLI INGES	0.	0.	5.0000E-02	0.	1.355	1.381	1.425	1.468
		GI-LLI INHAL	0.	0.	5.0000E-02	.5000	1.355	1.381	1.425	1.468

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
BR85	0.	0.	0.	0.	0.	0.	0.	5.075
BONE	0.	0.	0.	0.	0.	0.	0.	1.015
LIVER	0.	0.	0.	0.	0.	0.	0.	1.015
TOTAL BODY	8.000	1.9926E-03	1.000	.7500	1.015	1.015	1.015	1.015
THYROID	0.	0.	0.	0.	0.	0.	0.	1.015
KIDNEY	0.	0.	0.	0.	0.	0.	0.	1.015
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	1.015
LUNG INHAL	0.	0.	0.	0.	0.	0.	0.	1.015
GI-LLI INGES	0.	0.	5.0000E-02	0.	1.015	1.015	1.015	1.015
GI-LLI INHAL	0.	0.	5.0000E-02	.5000	1.015	1.015	1.015	1.015
KR83M	0.	0.	0.	0.	0.	0.	0.	.2140
BONE	0.	0.	0.	0.	0.	0.	0.	5.0600E-02
LIVER	0.	0.	0.	0.	0.	0.	0.	5.0600E-02
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	5.0600E-02
THYROID	0.	0.	0.	0.	0.	0.	0.	5.0600E-02
KIDNEY	0.	0.	0.	0.	0.	0.	0.	5.0600E-02
LUNG INGES	0.	0.	0.	0.	5.0600E-02	5.0600E-02	5.0600E-02	5.0600E-02
LUNG INHAL	0.	0.	0.	0.	5.0600E-02	5.0600E-02	5.0600E-02	5.0600E-02
GI-LLI INGES	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
KR85M	0.	0.	0.	0.	0.	0.	0.	1.261
BONE	0.	0.	0.	0.	0.	0.	0.	.2840
LIVER	0.	0.	0.	0.	0.	0.	0.	.3370
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.2580
THYROID	0.	0.	0.	0.	0.	0.	0.	.2730
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.2840
LUNG INGES	0.	0.	0.	0.	.2660	.2730	.2770	.2840
LUNG INHAL	0.	0.	0.	0.	.2660	.2730	.2770	.2840
GI-LLI INGES	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
KR85	0.	0.	0.	0.	0.	0.	0.	1.171
BONE	0.	0.	0.	0.	0.	0.	0.	.2350
LIVER	0.	0.	0.	0.	0.	0.	0.	.2360
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.2340
THYROID	0.	0.	0.	0.	0.	0.	0.	.2350
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.2350
LUNG INGES	0.	0.	0.	0.	.2350	.2350	.2350	.2350
LUNG INHAL	0.	0.	0.	0.	.2350	.2350	.2350	.2350
GI-LLI INGES	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.

ORGAN	T-HIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
KR87	0.	0.	0.	0.	0.	0.	0.	6.073
BONE	0.	0.	0.	0.	0.	0.	0.	1.495
LIVER	0.	0.	0.	0.	0.	0.	0.	1.958
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	1.265
THYROID	0.	0.	0.	0.	0.	0.	0.	1.402
KIDNEY	0.	0.	0.	0.	0.	0.	0.	1.495
T-RADIOL =	0.	0.	0.	0.	1.335	1.402	1.434	1.495
76.0 M	0.	0.	0.	0.	1.335	1.402	1.434	1.495
5.278E-02 DAY	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
KR88+D	0.	0.	0.	0.	0.	0.	0.	3.270
BONE	0.	0.	0.	0.	0.	0.	0.	.6740
LIVER	0.	0.	0.	0.	0.	0.	0.	.7060
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.6580
THYROID	0.	0.	0.	0.	0.	0.	0.	.6680
KIDNEY	0.	0.	0.	0.	0.	0.	0.	3.051
T-RADIOL =	0.	0.	0.	0.	2.793	2.900	2.951	3.051
2.80 H	0.	0.	0.	0.	2.793	2.900	2.951	3.051
DAY	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
KR89	0.	0.	0.	0.	0.	0.	0.	0.
BONE	0.	0.	0.	0.	0.	0.	0.	0.
LIVER	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	0.
THYROID	0.	0.	0.	0.	0.	0.	0.	0.
KIDNEY	0.	0.	0.	0.	0.	0.	0.	0.
T-RADIOL =	0.	0.	0.	0.	1.755	1.889	1.953	2.076
3.16 M	0.	0.	0.	0.	1.755	1.889	1.953	2.076
2.194E-03 DAY	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
KR86	0.	0.	0.	0.	0.	0.	0.	3.270
BONE	63.00	14.39	5.0000E-02	0.	3.259	3.261	3.266	.6740
LIVER	45.00	13.19	1.0000	4.0000E-02	.6630	.6680	.6720	.7060
TOTAL BODY	0.	0.	.7500	0.	.6820	.6930	.7020	.6580
THYROID	0.	0.	0.	0.	.6530	.6550	.6570	.6680
KIDNEY	0.	0.	0.	0.	.6600	.6630	.6660	.6680
T-RADIOL =	0.	0.	0.	0.	.6630	.6680	.6700	.6740
18.7 U	0.	0.	0.	0.	.6630	.6680	.6700	.6740
DAY	0.	0.	0.	0.	.6630	.6680	.6700	.6630
GI-LLI INHAL	0.	0.	5.0000E-02	0.	.6560	.6580	.6600	.6630
GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.6560	.6580	.6600	.6630

ORGAN	T-BIOL (DAY)	T-LFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
R887								
BONE	0.	0.	0.	0.	0.	0.	0.	0.
LIVER	63.00	63.00	5.0000E-02	4.0000E-02	9.0000E-02	9.0000E-02	9.0000E-02	9.0000E-02
TOTAL BODY	45.00	45.00	1.000	.7500	9.0000E-02	9.0000E-02	9.0000E-02	9.0000E-02
THYROID	0.	0.	0.	0.	0.	0.	0.	0.
KIDNEY	0.	0.	0.	0.	0.	0.	0.	0.
INGES	0.	0.	0.	0.	0.	0.	0.	0.
LUNG INHAL	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INGES	0.	0.	5.0000E-02	0.	9.0000E-02	9.0000E-02	9.0000E-02	9.0000E-02
GI-LLI INHAL	0.	0.	5.0000E-02	.5000	9.0000E-02	9.0000E-02	9.0000E-02	9.0000E-02
R888								
BONE	0.	0.	0.	0.	10.60	10.70	10.70	10.70
LIVER	63.00	1.2289E-02	5.0000E-02	4.0000E-02	2.193	2.223	2.251	2.265
TOTAL BODY	45.00	1.2289E-02	1.000	.7500	2.316	2.383	2.441	2.473
THYROID	0.	0.	0.	0.	2.135	2.145	2.157	2.180
KIDNEY	0.	0.	0.	0.	2.178	2.193	2.208	0.
INGES	0.	0.	0.	0.	2.193	2.223	2.237	2.280
LUNG INHAL	0.	0.	0.	0.	2.193	2.223	2.237	2.280
GI-LLI INGES	0.	0.	5.0000E-02	0.	2.152	2.162	2.178	2.193
GI-LLI INHAL	0.	0.	5.0000E-02	.5000	2.152	2.162	2.178	2.193
R889*0								
BONE	0.	0.	0.	0.	6.010	6.080	6.180	6.280
LIVER	63.00	1.0554E-02	5.0000E-02	4.0000E-02	1.469	1.584	1.693	1.746
TOTAL BODY	45.00	1.0553E-02	1.000	.7500	1.940	2.194	2.441	2.533
THYROID	0.	0.	0.	0.	1.244	1.288	1.328	1.347
KIDNEY	0.	0.	0.	0.	1.409	1.469	1.532	1.584
INGES	0.	0.	0.	0.	1.469	1.584	1.644	1.746
LUNG INHAL	0.	0.	0.	0.	1.469	1.584	1.644	1.746
GI-LLI INGES	0.	0.	5.0000E-02	0.	.7540	.7920	.8540	.9140
GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.7540	.7920	.8540	.9140
SR89*0								
BONE	1.8000E+04	50.36	.2100	.7000	2.760	2.760	2.760	2.760
LIVER	0.	0.	0.	0.	.5550	.5550	.5550	.5550
TOTAL BODY	1.3000E+04	50.30	.3000	1.000	.5550	.5550	.5550	.5550
THYROID	0.	0.	0.	0.	.5550	.5550	.5550	.5550
KIDNEY	0.	0.	0.	0.	.5550	.5550	.5550	.5550
INGES	0.	0.	0.	0.	.5550	.5550	.5550	.5550
LUNG INHAL	0.	0.	0.	0.	.5550	.5550	.5550	.5550
GI-LLI INGES	120.0	35.54	.7000	.1200	.5550	.5550	.5550	.5550
GI-LLI INHAL	0.	0.	1.000	.6200	.5550	.5550	.5550	.5550

		-----EPSILON-----						
		INFANT	CHILD	TEEN	ADULT			
ORGAN	T-BIOL (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	CHILD	TEEN	ADULT	
SR90+D								
BONE	1.8000E+04	2.2500E-02	.3000	5.650	5.650	5.650	5.650	
LIVER	0.	0.	0.	1.137	1.137	1.137	1.137	
TOTAL BODY	1.3000E+04	.3000	1.000	1.137	1.137	1.137	1.137	
THYROID	0.	0.	0.	1.137	1.137	1.137	1.137	
KIDNEY	0.	0.	0.	1.137	1.137	1.137	1.137	
LUNG INGES	0.	0.	0.	1.137	1.137	1.137	1.137	
LUNG INHAL	120.0	0.	.1200	1.137	1.137	1.137	1.137	
GI-LLI INGES		.7000		2.480	2.480	2.450	2.440	
GI-LLI INHAL		1.000	.6200	1.137	1.137	1.137	1.137	
SR91+D								
BONE	1.8000E+04	.2100	.7000	6.290	6.428	6.450	6.470	
LIVER	0.	0.	0.	1.387	1.437	1.484	1.507	
TOTAL BODY	1.3000E+04	.3000	1.000	1.590	1.696	1.797	1.834	
THYROID	0.	0.	0.	0.	0.	0.	0.	
KIDNEY	0.	0.	0.	0.	0.	0.	0.	
LUNG INGES	0.	0.	0.	1.186	1.236	1.260	1.305	
LUNG INHAL	120.0	0.	.1200	1.186	1.236	1.260	1.305	
GI-LLI INGES		.7000		.7070	.7230	.7500	.7770	
GI-LLI INHAL		1.000	.6200	.7070	.7230	.7500	.7770	
SR92+D								
BONE	1.8000E+04	.2100	.7000	8.417	8.452	8.533	8.602	
LIVER	0.	0.	0.	1.867	1.947	2.023	2.060	
TOTAL BODY	1.3000E+04	.3000	1.000	2.194	2.369	2.538	2.601	
THYROID	0.	0.	0.	0.	0.	0.	1.782	
KIDNEY	0.	0.	0.	0.	0.	0.	1.947	
LUNG INGES	0.	0.	0.	1.867	1.947	1.986	2.060	
LUNG INHAL	120.0	0.	.1200	1.867	1.947	1.986	2.060	
GI-LLI INGES		.7000		3.212	4.120	8.431	13.08	
GI-LLI INHAL		1.000	.6200	1.755	1.782	1.825	1.867	
Y90								
BONE	1.8000E+04	7.5000E-05	.7500	4.555	4.555	4.555	4.555	
LIVER	0.	0.	0.	.9170	.9170	.9170	.9170	
TOTAL BODY	1.4000E+04	1.0000E-04	1.000	.9170	.9170	.9170	.9170	
THYROID	0.	0.	0.	.9170	.9170	.9170	.9170	
KIDNEY	0.	0.	0.	.9170	.9170	.9170	.9170	
LUNG INGES	0.	0.	0.	.9170	.9170	.9170	.9170	
LUNG INHAL	120.0	0.	.1200	.9170	.9170	.9170	.9170	
GI-LLI INGES		1.000		.9170	.9170	.9170	.9170	
GI-LLI INHAL		1.000	.6200	.9170	.9170	.9170	.9170	

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
Y91M*D	BONE	1.8000E+04	3.4514E-02	7.5000E-05	.7500	3.260	3.276	3.301	3.325
	LIVER	0.	0.	0.	0.	.7170	.7450	.7720	.7850
INSOLUBL	TOTAL BODY	1.4000E+04	3.4514E-02	1.0000E-04	1.0000	.8320	.8910	.9470	.9670
	THYROID	0.	0.	0.	0.	.6620	.6720	.6830	.6870
	KIDNEY	0.	0.	0.	0.	.7030	.7170	.7310	.7450
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	.7170	.7450	.7590	.7850
.49.7 M	LUNG INHAL	0.	0.	0.	0.	.7170	.7450	.7590	.7850
3.451E-02 DAY	GI-LLI INGES	120.0	3.4504E-02	1.0000	.6200	6.7900E-02	7.7300E-02	9.2500E-02	.1070
	GI-LLI INHAL	0.	0.	0.	0.	6.7900E-02	7.7300E-02	9.2500E-02	.1070
Y91	BONE	1.8000E+04	58.41	7.5000E-05	.7500	3.049	3.049	3.049	3.049
	LIVER	0.	0.	0.	0.	.6100	.6100	.6100	.6100
INSOLUBL	TOTAL BODY	1.4000E+04	58.36	1.0000E-04	1.0000	.6100	.6100	.6100	.6100
	THYROID	0.	0.	0.	0.	.6100	.6100	.6100	.6100
	KIDNEY	0.	0.	0.	0.	.6100	.6100	.6100	.6100
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	.6100	.6100	.6100	.6100
58.6 U	LUNG INHAL	0.	0.	0.	0.	.6100	.6100	.6100	.6100
58.6 DAY	GI-LLI INGES	120.0	39.37	1.0000	.6200	.6100	.6100	.6100	.6100
	GI-LLI INHAL	0.	0.	0.	0.	.6100	.6100	.6100	.6100
Y92	BONE	1.8000E+04	.1471	7.5000E-05	.7500	7.228	7.235	7.246	7.257
	LIVER	0.	0.	0.	0.	1.475	1.487	1.499	1.505
INSOLUBL	TOTAL BODY	1.4000E+04	.1471	1.0000E-04	1.0000	1.526	1.553	1.579	1.589
	THYROID	0.	0.	0.	0.	1.450	1.454	1.459	1.487
	KIDNEY	0.	0.	0.	0.	1.468	1.475	1.481	1.505
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	1.475	1.487	1.493	1.505
3.53 H	LUNG INHAL	0.	0.	0.	0.	1.475	1.487	1.493	1.505
.147 DAY	GI-LLI INGES	120.0	.1469	1.0000	.6200	1.457	1.461	1.468	1.475
	GI-LLI INHAL	0.	0.	0.	0.	1.457	1.461	1.468	1.475
Y93	BONE	1.8000E+04	.4250	7.5000E-05	.7500	7.955	7.958	7.962	7.967
	LIVER	0.	0.	0.	0.	1.602	1.607	1.612	1.614
INSOLUBL	TOTAL BODY	1.4000E+04	.4250	1.0000E-04	1.0000	1.623	1.633	1.644	1.648
	THYROID	0.	0.	0.	0.	1.593	1.594	1.596	1.597
	KIDNEY	0.	0.	0.	0.	1.600	1.602	1.605	1.607
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	1.602	1.607	1.610	1.614
10.2 H	LUNG INHAL	0.	0.	0.	0.	1.602	1.607	1.610	1.614
.425 DAY	GI-LLI INGES	120.0	.4235	1.0000	.6200	1.595	1.597	1.600	1.602
	GI-LLI INHAL	0.	0.	0.	0.	1.595	1.597	1.600	1.602

ORGAN	T-BIOL (DAY)	T-EFT (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----		
					INFANT	CHILD	TEEN
ZR93+D	BONE 1000. LIVER 320.0 TOTAL BODY 450.0 THYROID 0. KIDNEY 900.0 LUNG INGES 0. LUNG INHAL 120.0 GI-LLI INGES GI-LLI INHAL	1000. 320.0 450.0 0. 900.0 0. 120.0	3.6000E-05 7.0000E-06 1.0000E-04 0. 2.0000E-06 0. 1.000 1.000	.3600 7.0000E-02 1.000 0. 2.0000E-02 0. .1200 .6200	.1100 .1900 .2100 .1700 .1900 .1900 .1900 .1800 .1800	.1100 .2000 .2300 .1900 .1900 .2000 .2000 .1900 .1900	.1100 2.4000E-02 2.3000E-02 0. 2.0000E-02 2.0000E-02 2.0000E-02 1.9000E-02 1.9000E-02
ZR95+D	BONE 1000. LIVER 320.0 TOTAL BODY 450.0 THYROID 0. KIDNEY 900.0 LUNG INGES 0. LUNG INHAL 120.0 GI-LLI INGES GI-LLI INHAL	1000. 320.0 450.0 0. 900.0 0. 120.0	3.6000E-05 7.0000E-06 1.0000E-04 0. 2.0000E-06 0. 1.000 1.000	.3600 7.0000E-02 1.000 0. 2.0000E-02 0. .1200 .6200	1.100 .4040 .7170 .2510 .3630 .4040 .4040 .1880 .1880	1.234 .5540 1.036 .3080 .4440 .5180 .5180 .2220 .2220	1.299 .5890 1.093 .3120 .5100 .5890 .5890 .2430 .2380
ZR97+D	BONE 1000. LIVER 320.0 TOTAL BODY 450.0 THYROID 0. KIDNEY 900.0 LUNG INGES 0. LUNG INHAL 120.0 GI-LLI INGES GI-LLI INHAL	1000. 320.0 450.0 0. 900.0 0. 120.0	3.6000E-05 7.0000E-06 1.0000E-04 0. 2.0000E-06 0. 1.000 1.000	.3600 7.0000E-02 1.000 0. 2.0000E-02 0. .1200 .6200	6.119 1.406 1.725 1.251 1.365 1.406 1.406 1.295 1.295	6.234 1.559 2.050 1.308 1.445 1.522 1.522 1.365 1.365	6.300 1.594 2.107 1.322 1.485 1.594 1.594 1.406 1.406
NB93M	BONE 1600. LIVER 845.0 TOTAL BODY 760.0 THYROID 0. KIDNEY 760.0 LUNG INGES 0. LUNG INHAL 120.0 GI-LLI INGES GI-LLI INHAL	1600. 845.0 760.0 0. 760.0 0. 120.0	3.8000E-05 9.0000E-06 1.0000E-04 0. 2.0000E-06 0. 1.000 1.000	.3800 9.0000E-02 1.000 0. 2.0000E-02 0. .1200 .6200	7.8000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02	7.8000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02	7.8000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02 3.0000E-02

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
N895	BONE	1000.	33.91	3.8000E-05	.3600	.3640	.3870	.4230	.4570
	LIVER	845.0	33.70	9.0000E-06	9.0000E-02	.1660	.2070	.2440	.2620
	TOTAL BODY	760.0	33.55	1.0000E-04	1.000	.3290	.4140	.4950	.5250
	THYROID	0.	0.	0.	0.	8.6500E-02	.1000	.1160	.1230
	KIDNEY	760.0	33.55	2.0000E-06	2.0000E-02	.1450	.1660	.1870	.2070
	LUNG INGES	0.	0.	0.	0.	.1660	.2070	.2260	.2620
	LUNG INHAL	120.0	27.16	1.000	.1200	.1660	.2070	.2260	.2620
	GI-LLI INGES	0.	0.	1.000	.1200	.1100	.1230	.1450	.1660
	GI-LLI INHAL	0.	0.	1.000	.6200	.1100	.1230	.1450	.1660
N897	BONE	1000.	5.1108E-02	3.8000E-05	.3800	2.464	2.484	2.516	2.546
	LIVER	845.0	5.1108E-02	9.0000E-06	9.0000E-02	.5760	.6110	.6450	.6610
	TOTAL BODY	760.0	5.1108E-02	1.0000E-04	1.000	.7200	.7950	.8670	.8930
	THYROID	0.	0.	0.	0.	.5050	.5170	.5310	.5370
	KIDNEY	760.0	5.1108E-02	2.0000E-06	2.0000E-02	.5570	.5760	.5940	.6110
	LUNG INGES	0.	0.	0.	0.	.5760	.6110	.6280	.6610
	LUNG INHAL	120.0	5.1089E-02	1.000	.1200	.5760	.6110	.6280	.6610
	GI-LLI INGES	0.	0.	1.000	.6200	.5250	.5370	.5570	.5760
	GI-LLI INHAL	0.	0.	1.000	.6200	.5250	.5370	.5570	.5760
M093	BONE	0.	0.	0.	0.	.1830	.1830	.1830	.1830
	LIVER	45.00	45.00	8.0000E-02	.1000	4.7700E-02	4.8000E-02	4.8000E-02	4.8000E-02
	TOTAL BODY	5.000	5.000	.8000	1.000	4.8000E-02	4.8000E-02	4.8000E-02	4.8000E-02
	THYROID	0.	0.	0.	0.	4.4200E-02	4.5300E-02	4.6000E-02	4.6300E-02
	KIDNEY	3.000	3.000	6.0000E-02	8.0000E-02	4.7000E-02	4.7700E-02	4.8000E-02	4.8000E-02
	LUNG INGES	0.	0.	0.	0.	4.7700E-02	4.8000E-02	4.8000E-02	4.8000E-02
	LUNG INHAL	120.0	120.0	.2000	.1200	4.7700E-02	4.8000E-02	4.8000E-02	4.8000E-02
	GI-LLI INGES	0.	0.	1.000	.6200	4.5700E-02	4.6300E-02	4.7400E-02	4.7700E-02
	GI-LLI INHAL	0.	0.	1.000	.6200	4.5700E-02	4.6300E-02	4.7400E-02	4.7700E-02
M099+D	BONE	0.	0.	0.	0.	2.069	2.097	2.109	2.121
	LIVER	45.00	2.592	8.0000E-02	.1000	.4470	.4600	.4720	.4780
	TOTAL BODY	5.000	1.775	.8000	1.000	.4880	.5140	.5380	.5470
	THYROID	0.	0.	0.	0.	.4220	.4260	.4310	.4330
	KIDNEY	3.000	1.435	6.0000E-02	8.0000E-02	.4400	.4470	.4540	.4600
	LUNG INGES	0.	0.	0.	0.	.4470	.4600	.4660	.4780
	LUNG INHAL	120.0	2.689	.2000	.1200	.4470	.4600	.4660	.4780
	GI-LLI INGES	0.	0.	1.000	.6200	.4290	.4330	.4400	.4470
	GI-LLI INHAL	0.	0.	1.000	.6200	.4290	.4330	.4400	.4470

	ORGAN	T-BIOL (DAY)	T-LFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
TC99M	BONE	25.00	.2483	1.0000E-03	2.0000E-03	8.0400E-02	8.2500E-02	8.8500E-02	9.4200E-02
	LIVER	30.00	.2488	1.5000E-03	3.0000E-03	2.8700E-02	3.4700E-02	4.0300E-02	4.3000E-02
	TOTAL BODY	1.000	.2005	.5000	1.000	5.3000E-02	6.6300E-02	7.9200E-02	8.4000E-02
	THYROID	0.	0.	0.	0.	1.1200E-02	1.9200E-02	2.1500E-02	2.2500E-02
	KIDNEY	20.00	.2477	5.0000E-03	1.0000E-02	2.5000E-02	2.8700E-02	3.1700E-02	3.4700E-02
	INGES	5.000	.2389	4.5000E-04	.1200	2.8700E-02	3.4700E-02	3.7500E-02	4.3000E-02
	LUNG INHAL	120.0	.2503	.5000	.6300	2.8700E-02	2.2500E-02	2.5600E-02	2.8700E-02
	GI-LLI INGES			1.000		2.0500E-02	2.2500E-02	2.5600E-02	2.8700E-02
	GI-LLI INHAL								
TC99	BONE	25.00	25.00	1.0000E-03	2.0000E-03	.4750	.4750	.4750	.4750
	LIVER	30.00	30.00	1.5000E-03	3.0000E-03	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	TOTAL BODY	1.000	1.000	.5000	1.000	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	THYROID	0.	0.	0.	0.	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	KIDNEY	20.00	20.00	5.0000E-03	1.0000E-02	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	INGES	5.000	5.000	4.5000E-04	.1200	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	LUNG INHAL	120.0	120.0	.5000	.6200	9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	GI-LLI INGES			1.000		9.5000E-02	9.5000E-02	9.5000E-02	9.5000E-02
	GI-LLI INHAL								
TC101	BONE	25.00	9.8572E-03	1.0000E-03	2.0000E-03	2.395	2.405	2.424	2.441
	LIVER	30.00	9.8579E-03	1.5000E-03	3.0000E-03	.5240	.5430	.5620	.5700
	TOTAL BODY	1.000	9.7648E-03	.5000	1.000	.6030	.6440	.6830	.6970
	THYROID	0.	0.	0.	0.	.4850	.4920	.5000	.5000
	KIDNEY	20.00	9.8563E-03	5.0000E-03	1.0000E-02	.5140	.5240	.5340	.5430
	INGES	5.000	9.8417E-03	4.5000E-04	.1200	.5240	.5430	.5530	.5700
	LUNG INHAL	120.0	9.8603E-03	.5000	.6200	.5240	.5430	.5530	.5700
	GI-LLI INGES			1.000		.4970	.5030	.5140	.5240
	GI-LLI INHAL					.4970	.5030	.5140	.5240
RU103*D	BONE	16.00	11.40	2.4000E-03	8.0000E-02	.5760	.5930	.6170	.6390
	LIVER	0.	0.	0.	0.	.1760	.2030	.2270	.2390
	TOTAL BODY	7.300	6.164	3.0000E-02	1.000	.2820	.3370	.3890	.4080
	THYROID	0.	0.	0.	0.	.1250	.1340	.1440	.1480
	KIDNEY	2.500	2.352	6.0000E-03	.2000	.1630	.1760	.1810	.2030
	INGES	0.	0.	0.	.1200	.1760	.2030	.2150	.2390
	LUNG INHAL	120.0	29.77	.9700	.6200	.1760	.2030	.2150	.2390
	GI-LLI INGES			1.000		.1400	.1480	.1630	.1760
	GI-LLI INHAL					.1400	.1480	.1630	.1760

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F- FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
RU105*D	BONE	16.00	.1829	2.4000E-03	8.0000E-02	3.239	3.259	3.293	3.325
	LIVER	0.	0.	0.	0.	.7510	.7890	.8250	0.
INSOLUBL	TOTAL BODY	7.300	.1804	3.0000E-02	1.000	.8810	.9610	1.036	1.063
	THYROID	0.	0.	0.	0.	.6760	.6880	.7040	0.
	KIDNEY	2.500	.1723	6.0000E-03	2.0000E-02	.7220	.7420	.7560	.7800
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	.7490	.7870	.8050	.8390
4.44	LUNG INHAL	120.0	.1847	.9700		.7490	.7870	.8050	.8390
.185	GI-LLI INGES			1.000	.6200	.5260	.5370	.5560	.5740
	GI-LLI INHAL					.5260	.5370	.5560	.5740
RU106*D	BONE	16.00	15.34	2.4000E-03	8.0000E-02	7.053	7.059	7.069	7.078
	LIVER	0.	0.	0.	0.	1.436	1.447	1.457	1.462
INSOLUBL	TOTAL BODY	7.300	7.158	3.0000E-02	1.000	1.481	1.504	1.526	1.534
	THYROID	0.	0.	0.	0.	1.414	1.418	1.422	1.424
	KIDNEY	2.500	2.483	6.0000E-03	.2000	1.430	1.436	1.442	1.447
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	1.436	1.447	1.452	1.462
369.	LUNG INHAL	120.0	90.55	.9700		1.436	1.447	1.452	1.462
369.	GI-LLI INGES			1.000	.6200	1.421	1.424	1.430	1.436
	GI-LLI INHAL					1.421	1.424	1.430	1.436
RH105	BONE	16.60	1.358	1.0000E-02	5.0000E-02	.8380	.8400	.8440	.8470
	LIVER	18.20	1.368	8.0000E-03	4.0000E-02	.1770	.1810	.1850	.1860
INSOLUBL	TOTAL BODY	10.40	1.295	.2000	1.000	.1930	.2020	.2100	.2130
	THYROID	0.	0.	0.	0.	.1690	.1700	.1720	.1730
	KIDNEY	28.00	1.405	6.0000E-03	3.0000E-02	.1750	.1770	.1790	.1810
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	.1770	.1810	.1830	.1860
35.5	LUNG INHAL	120.0	1.461	.8000		.1770	.1810	.1830	.1860
1.48	GI-LLI INGES			1.000	.6200	.1710	.1730	.1750	.1770
	GI-LLI INHAL					.1710	.1730	.1750	.1770
PD107	BONE	0.	0.	0.	0.	0.	0.	0.	0.
	LIVER	19.00	19.00	2.0000E-02	9.0000E-02	8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
INSOLUBL	TOTAL BODY	5.000	5.000	.2000	1.000	8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	30.00	30.00	2.0000E-02	8.0000E-02	8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
T-RADIOL =	LUNG INGES	0.	0.	0.	.1200	8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
6.500E+06 Y	LUNG INHAL	120.0	120.0	.6000		8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
2.373E+09 DAY	GI-LLI INGES			1.000	.6200	8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03
	GI-LLI INHAL					8.9000E-03	8.9000E-03	8.9000E-03	8.9000E-03

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-* FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
PDI09	0.	0.	0.	0.	1.864	1.865	1.865	1.865
INSOLUBL	19.00	.5448	2.0000E-02	9.0000E-02	.3730	.3730	.3740	.3740
T-RADIOL =	5.000	.5043	.2000	1.000	.3740	.3750	.3750	.3750
13.5 H	0.	0.	0.	0.	.3730	.3730	.3730	.3730
.561 DAY	30.00	.5505	2.0000E-02	8.0000E-02	.3730	.3730	.3740	.3740
	0.	0.	0.	.1200	.3730	.3730	.3740	.3740
	120.0	.5582	.8000	.6200	.3730	.3730	.3730	.3730
			1.000		.3730	.3730	.3730	.3730
AG110M+D	30.00	26.81	5.0000E-04	5.0000E-02	.8160	.8920	1.014	1.129
INSOLUBL	15.00	14.16	3.0000E-04	3.0000E-02	.4770	.6140	.7420	.8030
T-RADIOL =	5.000	4.503	1.0000E-02	1.000	1.029	1.319	1.596	1.697
252. D	0.	0.	0.	0.	.2090	.2560	.3100	.3320
252. DAY	10.00	9.618	2.0000E-04	2.0000E-02	.4060	.4770	.5470	.6140
	0.	0.	0.	.1200	.4770	.6140	.6790	.8030
	120.0	81.29	.9900	.6200	.4770	.6140	.6790	.8030
			1.000		.2870	.3320	.4060	.4770
					.2870	.3320	.4060	.4770
AG111	30.00	5.981	5.0000E-04	5.0000E-02	1.836	1.837	1.838	1.840
INSOLUBL	15.00	4.987	3.0000E-04	3.0000E-02	.3700	.3720	.3730	.3740
T-RADIOL =	5.000	2.995	1.0000E-02	1.000	.3760	.3790	.3820	.3830
7.47 D	0.	0.	0.	0.	.3680	.3680	.3690	.3690
7.47 DAY	10.00	4.276	2.0000E-04	2.0000E-02	.3700	.3700	.3710	.3720
	0.	0.	0.	.1200	.3700	.3720	.3720	.3740
	120.0	7.032	.9900	.6200	.3700	.3720	.3720	.3740
			1.000		.3690	.3690	.3700	.3700
					.3690	.3690	.3700	.3700
CU113M	0.	0.	0.	0.	0.	0.	0.	0.
INSOLUBL	200.0	192.8	1.9000E-03	.7500	.2000	.2000	.2000	.2000
T-RADIOL =	200.0	192.8	2.5000E-03	1.000	.2000	.2000	.2000	.2000
14.6 Y	0.	0.	0.	0.	0.	0.	0.	0.
5.329E+03 DAY	300.0	284.0	2.5000E-04	.1000	.2000	.2000	.2000	.2000
	0.	0.	0.	.1200	.2000	.2000	.2000	.2000
	120.0	117.4	1.000	.6200	.2000	.2000	.2000	.2000
			1.000		.2000	.2000	.2000	.2000

COLI15M	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
INSOLUBL	BONE	0.	0.	0.	0.	0.	0.	0.	0.
	LIVER	200.0	36.47	1.9000E-03	.7500	.6100	.6100	.6100	.6100
	TOTAL BODY	200.0	36.47	2.5000E-03	1.0000	.6100	.6100	.6100	.6100
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
T-RADIOL = 44.6 D 44.6 DAY	KIDNEY	300.0	38.83	2.5000E-04	.1000	.6100	.6100	.6100	.6100
	LUNG INGES	0.	0.	0.	.1200	.6100	.6100	.6100	.6100
	LUNG INHAL	120.0	32.52	0.	.1200	.6100	.6100	.6100	.6100
	GI-LLI INGES	0.	0.	1.0000	.6200	.6100	.6100	.6100	.6100
GI-LLI INHAL	0.	0.	1.0000	.6200	.6100	.6100	.6100	.6100	
INSOLUBL	BONE	100.0	56.33	2.0000E-02	.3000	2.611	2.611	2.611	2.611
	LIVER	70.00	45.38	5.0000E-04	1.0000E-02	.5220	.5220	.5220	.5220
	TOTAL BODY	35.00	27.53	5.0000E-02	1.0000	.5220	.5220	.5220	.5220
	THYROID	70.00	45.38	5.0000E-06	1.0000E-04	.5220	.5220	.5220	.5220
T-RADIOL = 129. D 129. DAY	KIDNEY	0.	0.	0.	0.	.5220	.5220	.5220	.5220
	LUNG INGES	0.	0.	0.	.1200	.5220	.5220	.5220	.5220
	LUNG INHAL	120.0	62.17	0.	.1200	.5220	.5220	.5220	.5220
	GI-LLI INGES	0.	0.	.9500	.6200	.5220	.5220	.5220	.5220
GI-LLI INHAL	0.	0.	.9500	.6200	.5220	.5220	.5220	.5220	
INSOLUBL	BONE	100.0	8.801	2.0000E-02	.3000	4.467	4.470	4.476	4.482
	LIVER	70.00	8.481	5.0000E-04	1.0000E-02	.8990	.9040	.9090	.9110
	TOTAL BODY	35.00	7.564	5.0000E-02	1.0000	.9200	.9310	.9420	.9460
	THYROID	70.00	8.481	5.0000E-06	1.0000E-04	.8840	.8860	.8880	.8880
T-RADIOL = 9.65 D 9.65 DAY	KIDNEY	0.	0.	0.	0.	0.	0.	0.	0.
	LUNG INGES	0.	0.	0.	.1200	.9130	.9200	.9210	.9300
	LUNG INHAL	120.0	8.932	0.	.1200	.9130	.9200	.9210	.9300
	GI-LLI INGES	0.	0.	.9500	.6200	.8860	.8870	.8900	.8920
GI-LLI INHAL	0.	0.	1.0000	.6200	.8860	.8870	.8900	.8920	
INSOLUBL	BONE	100.0	100.0	2.0000E-02	.3000	3.540	3.690	3.850	4.000
	LIVER	70.00	70.00	5.0000E-04	1.0000E-02	.6500	.8500	1.000	1.100
	TOTAL BODY	35.00	35.00	5.0000E-02	1.0000	1.150	1.200	1.250	1.300
	THYROID	70.00	70.00	5.0000E-06	1.0000E-04	.5200	.6500	.7600	.8300
T-RADIOL = 1.000E+05 Y 3.650E+07 DAY	KIDNEY	0.	0.	0.	0.	.6500	.8500	.9400	1.100
	LUNG INGES	0.	0.	0.	.1200	.6500	.8500	.9400	1.100
	LUNG INHAL	120.0	120.0	.9500	.6200	.6500	.8500	.9400	1.100
	GI-LLI INGES	0.	0.	1.0000	.6200	.2000	.2000	.2000	.2000
GI-LLI INHAL	0.	0.	1.0000	.6200	.2000	.2000	.2000	.2000	

		-----EPSILON-----						
		INFANT	CHILD	TEEN	ADULT			
ORGAN	T-BIOL (DAY)	T-LEFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	CHILD	TEEN	ADULT
SB124	BONE	100.0	37.58	3.0000E-03	.1000	2.191	2.275	2.356
	LIVER	38.00	23.30	6.0000E-05	2.0000E-03	.7390	.8280	.8710
	TOTAL BODY	38.00	23.30	3.0000E-02	1.000	1.235	1.433	1.507
	THYROID	4.000	3.751	9.0000E-07	3.0000E-05	.4910	.5280	.5440
	KIDNEY	0.	0.	0.	0.	0.	0.	.7390
	LUNG INGES	100.0	37.58	9.0000E-04	.6440	.7390	.7840	.8710
	LUNG INHAL	120.0	40.09	.9700	.6440	.7390	.7840	.8710
	GI-LLI INGES			1.000	.5130	.5440	.5950	.6440
	GI-LLI INHAL				.5130	.5440	.5950	.6440
SB125+D	BONE	100.0	90.88	3.0000E-03	.1000	.5830	.6040	.6230
	LIVER	36.00	34.74	6.0000E-05	2.0000E-03	.1900	.2110	.2210
	TOTAL BODY	38.00	36.60	3.0000E-02	1.000	.3040	.3500	.3670
	THYROID	4.000	3.984	9.0000E-07	3.0000E-05	.1250	.1340	.1370
	KIDNEY	0.	0.	0.	0.	0.	0.	0.
	LUNG INGES	100.0	90.88	9.0000E-04	.1200	.1980	.2090	.2290
	LUNG INHAL	120.0	107.1	.9700	.1200	.1980	.2090	.2290
	GI-LLI INGES			1.000	.6200	.1340	.1470	.1590
	GI-LLI INHAL				.6200	.1340	.1470	.1590
SB126	BONE	100.0	11.03	3.0000E-03	.1000	2.950	3.180	3.300
	LIVER	38.00	9.349	6.0000E-05	2.0000E-03	.8600	.9400	.9600
	TOTAL BODY	38.00	9.349	3.0000E-02	1.000	1.250	1.350	1.400
	THYROID	4.000	3.024	9.0000E-07	3.0000E-05	.6400	.6700	.7000
	KIDNEY	0.	0.	0.	0.	.7800	.8200	0.
	LUNG INGES	100.0	11.03	9.0000E-04	.1200	.8600	.9000	.9600
	LUNG INHAL	120.0	11.24	.9700	.1200	.8600	.9000	.9600
	GI-LLI INGES			1.000	.6500	.7000	.7300	.7800
	GI-LLI INHAL				.6500	.7000	.7300	.7800
SB127	BONE	100.0	3.661	3.0000E-03	.1000	2.151	2.190	2.226
	LIVER	38.00	3.455	6.0000E-05	2.0000E-03	.5240	.6080	.6270
	TOTAL BODY	38.00	3.455	3.0000E-02	1.000	.7880	.8740	.9050
	THYROID	4.000	1.949	9.0000E-07	3.0000E-05	.4550	.4720	.4790
	KIDNEY	0.	0.	0.	0.	0.	0.	.5670
	LUNG INGES	100.0	3.661	9.0000E-04	.1200	.5670	.5880	.6270
	LUNG INHAL	120.0	3.683	.9700	.1200	.5670	.5880	.6270
	GI-LLI INGES			1.000	.6200	.4790	.5020	.5240
	GI-LLI INHAL				.6200	.4790	.5020	.5240

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
TE125M	BONE	30.00	19.77	2.3000E-02	9.0000E-02	.5570	.5580	.5580	.5580
	LIVER	30.00	19.77	1.0000E-02	5.0000E-02	.1120	.1120	.1130	.1130
	TOTAL BODY	15.00	11.92	.2500	1.0000	.1130	.1130	.1140	.1140
	THYROID	9.000	7.791	2.5000E-04	1.0000E-03	.1110	.1110	.1120	.1120
	KIDNEY	30.00	19.77	2.0000E-02	7.0000E-02	0.	0.	0.	.1120
	LUNG INGES	0.	0.	0.	0.	.1120	.1120	.1130	.1130
	LUNG INHAL	120.0	39.10	.7500	.1200	.1120	.1120	.1120	.1130
	GI-LLI INGES			1.000	.6200	.1120	.1120	.1120	.1120
	GI-LLI INHAL					.1120	.1120	.1120	.1120
TE127M+D	BONE	30.00	23.53	2.3000E-02	9.0000E-02	1.165	1.185	1.185	1.185
	LIVER	30.00	23.53	1.0000E-02	5.0000E-02	.2370	.2370	.2370	.2370
	TOTAL BODY	15.00	13.19	.2500	1.000	.2300	.2310	.2310	.2370
	THYROID	9.000	8.314	2.5000E-04	1.0000E-03	.2250	.2250	.2250	.2250
	KIDNEY	30.00	23.53	2.0000E-02	7.0000E-02	.2370	.2370	.2370	.2370
	LUNG INGES	0.	0.	0.	0.	.2370	.2370	.2370	.2370
	LUNG INHAL	120.0	57.12	.7500	.1200	.2370	.2370	.2370	.2370
	GI-LLI INGES			1.000	.6200	.2370	.2370	.2370	.2370
	GI-LLI INHAL					.2370	.2370	.2370	.2370
TE127	BONE	30.00	.3866	2.3000E-02	9.0000E-02	1.175	1.175	1.175	1.175
	LIVER	30.00	.3866	1.0000E-02	5.0000E-02	.2350	.2350	.2350	.2350
	TOTAL BODY	15.00	.3817	.2500	1.000	.2350	.2360	.2360	.2360
	THYROID	9.000	.3753	2.5000E-04	1.0000E-03	.2350	.2350	.2350	.2350
	KIDNEY	30.00	.3866	2.0000E-02	7.0000E-02	.2350	.2350	.2350	.2350
	LUNG INGES	0.	0.	0.	0.	.2350	.2350	.2350	.2350
	LUNG INHAL	120.0	.3904	.7500	.1200	.2350	.2350	.2350	.2350
	GI-LLI INGES			1.000	.6200	.2350	.2350	.2350	.2350
	GI-LLI INHAL					.2350	.2350	.2350	.2350
TE129M+D	BONE	30.00	15.80	2.3000E-02	9.0000E-02	2.970	2.975	2.980	2.985
	LIVER	30.00	15.80	1.0000E-02	5.0000E-02	.6100	.6160	.6220	.6250
	TOTAL BODY	15.00	10.35	.2500	1.000	.6350	.6480	.6610	.6650
	THYROID	9.000	7.090	2.5000E-04	1.0000E-03	.5960	.5990	.6020	.6030
	KIDNEY	30.00	15.80	2.0000E-02	7.0000E-02	.6060	.6100	.6130	.6160
	LUNG INGES	0.	0.	0.	0.	.6100	.6160	.6190	.6250
	LUNG INHAL	120.0	26.13	.7500	.1200	.6100	.6160	.6190	.6250
	GI-LLI INGES			1.000	.6200	.6000	.6030	.6060	.6100
	GI-LLI INHAL					.6000	.6030	.6060	.6100

	ORGAN	T-RADIOL (DAY)	T-EFF (DAY)	F-W (F- FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
TE129	BONE	30.00	4.8532E-02	2.3000E-02	9.0000E-02	2.656	2.661	2.666	2.666
	LIVER	30.00	4.8532E-02	1.0000E-02	5.0000E-02	.560	.580	.580	.580
	TOTAL BODY	15.00	4.8454E-02	.2500	1.000	.570	.590	.590	.590
	THYROID	9.000	4.8350E-02	2.5000E-04	1.0000E-03	.530	.530	.530	.530
	KIDNEY	30.00	4.8532E-02	2.0000E-02	7.0000E-02	.540	.540	.540	.540
	LUNG INGES	0.	0.	0.		.550	.550	.550	.550
	LUNG INHAL	120.0	4.6591E-02	.7500	.1200	.540	.550	.550	.550
	GI-LLI INGES			1.000	.6200	.530	.540	.540	.540
	GI-LLI INHAL					.530	.540	.540	.540
TE131M+D	BONE	30.00	1.200	2.3000E-02	9.0000E-02	5.733	5.787	5.872	5.953
	LIVER	30.00	1.200	1.0000E-02	5.0000E-02	1.384	1.485	1.577	1.621
	TOTAL BODY	15.00	1.154	.2500	1.000	1.826	2.039	2.242	2.316
	THYROID	9.000	1.098	2.5000E-04	1.0000E-03	1.228	1.263	1.301	1.317
	KIDNEY	30.00	1.200	2.0000E-02	7.0000E-02	1.307	1.356	1.442	1.449
	LUNG INGES	0.	0.	0.		1.423	1.521	1.570	1.661
	LUNG INHAL	120.0	1.237	.7500	.1200	1.423	1.521	1.570	1.661
	GI-LLI INGES			1.000	.6200	1.069	1.095	1.139	1.181
	GI-LLI INHAL					1.069	1.095	1.139	1.181
TE131+D	BONE	30.00	1.7351E-02	2.3000E-02	9.0000E-02	4.596	4.613	4.640	4.666
	LIVER	30.00	1.7351E-02	1.0000E-02	5.0000E-02	1.013	1.045	1.076	1.091
	TOTAL BODY	15.00	1.7341E-02	.2500	1.000	1.188	1.262	1.333	1.358
	THYROID	9.000	1.7328E-02	2.5000E-04	1.0000E-03	.9790	.9920	1.005	1.010
	KIDNEY	30.00	1.7351E-02	2.0000E-02	7.0000E-02	.9650	.9800	1.000	1.009
	LUNG INGES	0.	0.	0.		1.047	1.081	1.099	1.131
	LUNG INHAL	120.0	1.7359E-02	.7500	.1200	1.047	1.081	1.099	1.131
	GI-LLI INGES			1.000	.6200	.7830	.7920	87.20	6.7000E+04
	GI-LLI INHAL					.7830	.7920	87.20	6.7000E+04
TE132+D	BONE	30.00	2.932	2.3000E-02	9.0000E-02	3.231	3.308	3.430	3.544
	LIVER	30.00	2.932	1.0000E-02	5.0000E-02	.9580	1.093	1.221	1.282
	TOTAL BODY	15.00	2.671	.2500	1.000	1.506	1.795	2.068	2.169
	THYROID	9.000	2.388	2.5000E-04	1.0000E-03	.6920	.7380	.7920	.8140
	KIDNEY	30.00	2.932	2.0000E-02	7.0000E-02	.8200	.9580	1.025	1.090
	LUNG INGES	0.	0.	0.		.9580	1.093	1.159	1.282
	LUNG INHAL	120.0	3.164	.7500	.1200	.9580	1.093	1.159	1.282
	GI-LLI INGES			1.000	.6200	.3870	.4690	.460	.9010
	GI-LLI INHAL					.3870	.4690	.460	.9010

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-4 FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
TE133M+D	BONE	30.00	3.8423E-02	2.3000E-02	9.0000E-02	4.614	4.699	4.831	4.955
	LIVER	30.00	3.8423E-02	1.0000E-02	5.0000E-02	1.264	1.410	1.548	1.614
	TOTAL BODY	15.00	3.8374E-02	.2500	1.000	1.858	2.168	2.463	2.570
	THYROID	9.000	3.8308E-02	2.5000E-04	1.0000E-03	.9740	1.024	1.082	1.106
	KIDNEY	30.00	3.8423E-02	2.0000E-02	7.0000E-02	1.186	1.264	1.337	1.410
	LUNG INGES	0.	0.	0.		1.264	1.410	1.481	1.614
55.4 M	LUNG INHAL	120.0	3.8460E-02	.7500	.1200	1.264	1.410	1.481	1.614
3.847E-02 DAY	GI-LLI INGES			1.000	.6200	.5710	.6080	1.370	11.62
	GI-LLI INHAL					.5710	.6080	1.370	11.62
TE134+D	BONE	30.00	2.9138E-02	2.3000E-02	9.0000E-02	4.158	4.259	4.420	4.572
	LIVER	30.00	2.9138E-02	1.0000E-02	5.0000E-02	1.247	1.428	1.529	1.677
	TOTAL BODY	15.00	2.9110E-02	.2500	1.000	1.977	2.361	2.729	1.687
	THYROID	9.000	2.9072E-02	2.5000E-04	1.0000E-03	.8910	.9530	1.025	1.054
	KIDNEY	30.00	2.9138E-02	2.0000E-02	7.0000E-02	1.153	1.247	1.337	1.428
	LUNG INGES	0.	0.	0.		1.247	1.428	1.513	1.677
42.0 M	LUNG INHAL	120.0	2.9160E-02	.7500	.1200	1.247	1.428	1.513	1.677
2.917E-02 DAY	GI-LLI INGES			1.000	.6200	.1280	.1310	.1360	.1400
	GI-LLI INHAL					.1280	.1310	.1360	.1400
I129	BONE	14.00	14.00	7.0000E-02	5.3000E-02	.3130	.3140	.3150	.3160
	LIVER	7.000	7.000	.1200	9.0000E-02	6.9400E-02	7.2800E-02	7.5700E-02	7.6900E-02
	TOTAL BODY	100.0 (b)	100.0	1.000	.7500	8.0800E-02	8.4400E-02	8.6600E-02	8.7200E-02
	THYROID	100.0 (b)	100.0	.3000	.2300	6.1200E-02	6.2800E-02	6.4500E-02	6.5200E-02
	KIDNEY	7.000	7.000	4.0000E-02	3.0000E-02	6.7400E-02	6.9400E-02	7.1100E-02	7.1600E-02
	LUNG INGES	0.	0.	0.		6.9400E-02	7.2800E-02	7.4300E-02	7.4700E-02
T-RADIOL =	LUNG INHAL	0.	0.	0.		6.9400E-02	7.2800E-02	7.4300E-02	7.4700E-02
1.590E+07 Y	GI-LLI INGES			5.0000E-02	0.	6.3800E-02	6.5200E-02	6.7400E-02	6.9400E-02
5.804E+09 DAY	GI-LLI INHAL			5.0000E-02	.5000	6.3800E-02	6.5200E-02	6.7400E-02	6.9400E-02
I130	BONE	14.00	.4983	7.0000E-02	5.3000E-02	1.794	1.857	1.958	2.053
	LIVER	7.000	.4812	.1200	9.0000E-02	.6200	.7330	.8390	.8900
	TOTAL BODY	100.0 (b)	.5140	1.000	.7500	1.076	1.314	1.540	1.622
	THYROID	100.0 (b)	.5140	.2000	.1500	.3970	.4360	.4810	.4990
	KIDNEY	7.000	.4812	4.0000E-02	3.0000E-02	.5610	.6200	.6770	.7330
	LUNG INGES	0.	0.	0.		.6200	.7330	.7870	.8900
T-RADIOL =	LUNG INHAL	0.	0.	0.		.6200	.7330	.7870	.8900
12.4 H	GI-LLI INGES			5.0000E-02	0.	.4620	.4990	.5610	.6200
.517 DAY	GI-LLI INHAL			5.0000E-02	.5000	.4620	.4990	.5610	.6200

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
I131+D	BONE	14.00	5.107	7.0000E-02	5.3000E-02	1.056	1.067	1.085	1.102
	LIVER	7.000	3.742	.1200	9.0000E-02	.2570	.2770	.2960	.3050
SOLUBLE	TOTAL BODY	100.0 (b)	7.442	1.000	.7500	.3380	.3800	.4200	.4340
	THYROID	100.0 (b)	7.442	.3000	.2300	.2180	.2250	.2330	.2360
	KIDNEY	7.000	3.742	4.0000E-02	3.0000E-02	.2470	.2570	.2670	.2770
T-RADIOL =	LUNG INGES	0.	0.	0.	0.	.2570	.2770	.2870	.3050
8.04 D	LUNG INHAL	0.	0.	0.	0.	.2770	.2770	.2870	.3050
8.04 DAY	GI-LLI INGES	0.	0.	5.0000E-02	0.	.2290	.2360	.2470	.2570
	GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.2290	.2360	.2470	.2570
I132	BONE	14.00	9.4565E-02	7.0000E-02	5.0000E-02	2.613	2.683	2.794	2.899
	LIVER	7.000 (b)	9.3931E-02	.1200	9.0000E-02	.8100	.9340	1.051	1.107
SOLUBLE	TOTAL BODY	100.0 (b)	9.5118E-02	1.000	.7500	1.313	1.578	1.829	1.921
	THYROID	100.0 (b)	9.5118E-02	8.0000E-02	6.0000E-02	.5650	.6080	.6570	.6770
	KIDNEY	7.000	9.3931E-02	4.0000E-02	3.0000E-02	.7450	.8100	.8720	.9340
T-RADIOL =	LUNG INGES	0.	0.	0.	0.	.8100	.9340	.9940	1.107
2.29 H	LUNG INHAL	0.	0.	0.	0.	.8100	.9340	.9940	1.107
9.521E-02 DAY	GI-LLI INGES	0.	0.	5.0000E-02	0.	.6360	.6770	.7450	.8100
	GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.6360	.6770	.7450	.8100
I133+D	BONE	14.00	.8161	7.0000E-02	5.3000E-02	2.281	2.300	2.330	2.358
	LIVER	7.000	.7712	.1200	9.0000E-02	.5340	.5670	.5980	.6130
SOLUBLE	TOTAL BODY	100.0 (b)	.8592	1.000	.7500	.6670	.7390	.8060	.8300
	THYROID	100.0 (b)	.8592	.2300	.1700	.4680	.4790	.4920	.4980
	KIDNEY	7.000	.7712	4.0000E-02	3.0000E-02	.5160	.5340	.5510	.5670
T-RADIOL =	LUNG INGES	0.	0.	0.	0.	.5340	.5670	.5830	.6130
20.8 H	LUNG INHAL	0.	0.	0.	0.	.5340	.5670	.5830	.6130
.867 DAY	GI-LLI INGES	0.	0.	5.0000E-02	0.	.4870	.4980	.5160	.5340
	GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.4870	.4980	.5160	.5340
I134	BONE	14.00	3.6433E-02	7.0000E-02	5.3000E-02	3.550	3.647	3.801	3.947
	LIVER	7.000	3.6338E-02	.1200	9.0000E-02	1.107	1.280	1.442	1.519
SOLUBLE	TOTAL BODY	100.0 (b)	3.6514E-02	1.000	.7500	1.807	2.176	2.530	2.660
	THYROID	100.0 (b)	3.6514E-02	4.0000E-02	3.0000E-02	.7680	.8270	.8950	.9230
	KIDNEY	7.000	3.6338E-02	4.0000E-02	3.0000E-02	1.017	1.107	1.193	1.280
T-RADIOL =	LUNG INGES	0.	0.	0.	0.	1.017	1.280	1.362	1.519
52.6 M	LUNG INHAL	0.	0.	0.	0.	1.017	1.280	1.362	1.519
3.653E-02 DAY	GI-LLI INGES	0.	0.	5.0000E-02	0.	.8660	.9230	1.017	1.107
	GI-LLI INHAL	0.	0.	5.0000E-02	.5000	.8660	.9230	1.017	1.107

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
1135+D	14.00	.2691	7.0000E-02	5.3000E-02	2.014	2.062	2.147	2.227
BONE	7.000	.2640	.1200	9.0000E-02	.6190	.7130	.8030	.8450
LIVER	100.0	.2736	1.000	.7500	1.004	1.211	1.410	1.483
TOTAL BODY	100.0	.2736	.1500	.1100	.4330	.4660	.5030	.5030
THYROID	7.000	.2640	4.0000E-02	3.0000E-02	.5690	.6190	.6660	.7130
KIDNEY	0.	0.	0.	0.	.6190	.7130	.7590	.8450
LUNG INGES	0.	0.	0.	0.	.6190	.7130	.7590	.8450
LUNG INHAL	0.	0.	5.0000E-02	0.	.4590	.5070	.6690	.8020
GI-LLI INGES	0.	0.	5.0000E-02	.5000	.4590	.5070	.6690	.8020
GI-LLI INHAL					.4590	.5070	.6690	.8020
XE131M	0.	0.	0.	0.	0.	0.	0.	.6810
BONE	0.	0.	0.	0.	0.	0.	0.	.1370
LIVER	0.	0.	0.	0.	0.	0.	0.	.1390
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.1360
THYROID	0.	0.	0.	0.	0.	0.	0.	.1370
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.1370
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.1370
LUNG INHAL	0.	0.	0.	0.	.1370	.1370	.1370	.1370
GI-LLI INGES	0.	0.	0.	0.	.1370	.1370	.1370	.1370
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
XE133M	0.	0.	0.	0.	0.	0.	0.	.8820
BONE	0.	0.	0.	0.	0.	0.	0.	.1840
LIVER	0.	0.	0.	0.	0.	0.	0.	.1960
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.1780
THYROID	0.	0.	0.	0.	0.	0.	0.	.1810
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.1840
LUNG INGES	0.	0.	0.	0.	.1800	.1810	.1820	.1840
LUNG INHAL	0.	0.	0.	0.	.1800	.1810	.1820	.1840
GI-LLI INGES	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
XE133	0.	0.	0.	0.	0.	0.	0.	.7450
BONE	0.	0.	0.	0.	0.	0.	0.	.1530
LIVER	0.	0.	0.	0.	0.	0.	0.	.1630
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.1490
THYROID	0.	0.	0.	0.	0.	0.	0.	.1520
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.1530
LUNG INGES	0.	0.	0.	0.	.1500	.1520	.1520	.1530
LUNG INHAL	0.	0.	0.	0.	.1500	.1520	.1520	.1530
GI-LLI INGES	0.	0.	0.	0.	0.	0.	0.	0.
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
XE135M	0.	0.	0.	0.	0.	0.	0.	.6050
NOBLE GA	0.	0.	0.	0.	0.	0.	0.	.2170
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.3630
THYROID	0.	0.	0.	0.	0.	0.	0.	.1390
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.1860
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.2170
LUNG INHAL	0.	0.	0.	0.	.1630	.1860	.1970	.2170
GI-LLI INGES	0.	0.	0.	0.	.1630	.1860	.1970	.2170
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
								0.
XE135	0.	0.	0.	0.	0.	0.	0.	1.708
NOBLE GA	0.	0.	0.	0.	0.	0.	0.	.3950
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	.4780
THYROID	0.	0.	0.	0.	0.	0.	0.	.3510
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.3770
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	.3950
LUNG INHAL	0.	0.	0.	0.	.3650	.3770	.3830	.3950
GI-LLI INGES	0.	0.	0.	0.	.3650	.3770	.3830	.3950
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
								0.
XE137	0.	0.	0.	0.	0.	0.	0.	8.327
NOBLE GA	0.	0.	0.	0.	0.	0.	0.	1.700
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	1.752
THYROID	0.	0.	0.	0.	0.	0.	0.	1.672
KIDNEY	0.	0.	0.	0.	0.	0.	0.	1.688
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	1.700
LUNG INHAL	0.	0.	0.	0.	1.680	1.688	1.692	1.700
GI-LLI INGES	0.	0.	0.	0.	1.680	1.688	1.692	1.700
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
								0.
XE138+D	0.	0.	0.	0.	0.	0.	0.	2.559
NOBLE GA	0.	0.	0.	0.	0.	0.	0.	.7820
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	1.225
THYROID	0.	0.	0.	0.	0.	0.	0.	.5600
KIDNEY	0.	0.	0.	0.	0.	0.	0.	.6920
LUNG INGES	0.	0.	0.	0.	0.	0.	0.	2.378
LUNG INHAL	0.	0.	0.	0.	1.980	2.146	2.225	2.378
GI-LLI INGES	0.	0.	0.	0.	1.980	2.146	2.225	2.378
GI-LLI INHAL	0.	0.	0.	0.	0.	0.	0.	0.
								0.

		-----EPISILON-----																				
		INFANT			TEEN		ADULT															
		F-W (F-*	F-A	T-EFF	T-BIOL	T-EFF	F-W (F-*	F-A	T-EFF	T-BIOL	T-EFF	F-W (F-*	F-A	T-EFF	T-BIOL	T-EFF	F-W (F-*	F-A	T-EFF	T-BIOL		
		FOR GI)	OR F-2PRM	(DAY)	(DAY)	(DAY)	FOR GI)	OR F-2PRM	(DAY)	(DAY)	(DAY)	FOR GI)	OR F-2PRM	(DAY)	(DAY)	(DAY)	FOR GI)	OR F-2PRM	(DAY)	(DAY)	(DAY)	
CS134M*U	BONE	4.0000E-02	3.0000E-02	.1207	140.0	.1207	4.0000E-02	3.0000E-02	.1207	140.0	.1207	4.0000E-02	3.0000E-02	.1207	140.0	.1207	4.0000E-02	3.0000E-02	.1207	140.0	.1207	
	LIVER	7.0000E-02	5.0000E-02	.1207	90.00	.1207	7.0000E-02	5.0000E-02	.1207	90.00	.1207	7.0000E-02	5.0000E-02	.1207	90.00	.1207	7.0000E-02	5.0000E-02	.1207	90.00	.1207	
	TOTAL BODY	1.000	.7500	0.	115.0 (b)	0.	1.000	.7500	0.	115.0 (b)	0.	1.000	.7500	0.	115.0 (b)	0.	1.000	.7500	0.	115.0 (b)	0.	
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	1.0000E-02	7.5000E-03	.1205	42.00	.1205	1.0000E-02	7.5000E-03	.1205	42.00	.1205	1.0000E-02	7.5000E-03	.1205	42.00	.1205	1.0000E-02	7.5000E-03	.1205	42.00	.1205	
	LUNG INGES	3.0000E-03	2.3000E-03	.1207	140.0	.1207	3.0000E-03	2.3000E-03	.1207	140.0	.1207	3.0000E-03	2.3000E-03	.1207	140.0	.1207	3.0000E-03	2.3000E-03	.1207	140.0	.1207	
	LUNG INHAL	5.0000E-02	.5000	.1207	140.0	.1207	5.0000E-02	.5000	.1207	140.0	.1207	5.0000E-02	.5000	.1207	140.0	.1207	5.0000E-02	.5000	.1207	140.0	.1207	
	GI-LLI INGES	5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				
	GI-LLI INHAL																					
CS134	BONE	4.0000E-02	3.0000E-02	118.0	140.0	118.0	4.0000E-02	3.0000E-02	118.0	140.0	118.0	4.0000E-02	3.0000E-02	118.0	140.0	118.0	4.0000E-02	3.0000E-02	118.0	140.0	118.0	
	LIVER	7.0000E-02	5.0000E-02	80.38	90.00	80.38	7.0000E-02	5.0000E-02	80.38	90.00	80.38	7.0000E-02	5.0000E-02	80.38	90.00	80.38	7.0000E-02	5.0000E-02	80.38	90.00	80.38	
	TOTAL BODY	1.000	.7500	99.74	115.0 (b)	99.74	1.000	.7500	99.74	115.0 (b)	99.74	1.000	.7500	99.74	115.0 (b)	99.74	1.000	.7500	99.74	115.0 (b)	99.74	
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	1.0000E-02	7.5000E-03	39.78	42.00	39.78	1.0000E-02	7.5000E-03	39.78	42.00	39.78	1.0000E-02	7.5000E-03	39.78	42.00	39.78	1.0000E-02	7.5000E-03	39.78	42.00	39.78	
	LUNG INGES	3.0000E-03	2.3000E-03	118.0	140.0	118.0	3.0000E-03	2.3000E-03	118.0	140.0	118.0	3.0000E-03	2.3000E-03	118.0	140.0	118.0	3.0000E-03	2.3000E-03	118.0	140.0	118.0	
	LUNG INHAL	5.0000E-02	.5000	118.0	140.0	118.0	5.0000E-02	.5000	118.0	140.0	118.0	5.0000E-02	.5000	118.0	140.0	118.0	5.0000E-02	.5000	118.0	140.0	118.0	
	GI-LLI INGES	5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				
	GI-LLI INHAL																					
CS135	BONE	4.0000E-02	3.0000E-02	140.0	140.0	140.0	4.0000E-02	3.0000E-02	140.0	140.0	140.0	4.0000E-02	3.0000E-02	140.0	140.0	140.0	4.0000E-02	3.0000E-02	140.0	140.0	140.0	
	LIVER	7.0000E-02	5.0000E-02	90.00	90.00	90.00	7.0000E-02	5.0000E-02	90.00	90.00	90.00	7.0000E-02	5.0000E-02	90.00	90.00	90.00	7.0000E-02	5.0000E-02	90.00	90.00	90.00	
	TOTAL BODY	1.000	.7500	115.0	115.0 (b)	115.0	1.000	.7500	115.0	115.0 (b)	115.0	1.000	.7500	115.0	115.0 (b)	115.0	1.000	.7500	115.0	115.0 (b)	115.0	
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	1.0000E-02	7.5000E-03	42.00	42.00	42.00	1.0000E-02	7.5000E-03	42.00	42.00	42.00	1.0000E-02	7.5000E-03	42.00	42.00	42.00	1.0000E-02	7.5000E-03	42.00	42.00	42.00	
	LUNG INGES	3.0000E-03	2.3000E-03	140.0	140.0	140.0	3.0000E-03	2.3000E-03	140.0	140.0	140.0	3.0000E-03	2.3000E-03	140.0	140.0	140.0	3.0000E-03	2.3000E-03	140.0	140.0	140.0	
	LUNG INHAL	5.0000E-02	.5000	140.0	140.0	140.0	5.0000E-02	.5000	140.0	140.0	140.0	5.0000E-02	.5000	140.0	140.0	140.0	5.0000E-02	.5000	140.0	140.0	140.0	
	GI-LLI INGES	5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				
	GI-LLI INHAL																					
CS136	BONE	4.0000E-02	3.0000E-02	11.90	140.0	11.90	4.0000E-02	3.0000E-02	11.90	140.0	11.90	4.0000E-02	3.0000E-02	11.90	140.0	11.90	4.0000E-02	3.0000E-02	11.90	140.0	11.90	
	LIVER	7.0000E-02	5.0000E-02	11.36	90.00	11.36	7.0000E-02	5.0000E-02	11.36	90.00	11.36	7.0000E-02	5.0000E-02	11.36	90.00	11.36	7.0000E-02	5.0000E-02	11.36	90.00	11.36	
	TOTAL BODY	1.000	.7500	11.68	115.0 (b)	11.68	1.000	.7500	11.68	115.0 (b)	11.68	1.000	.7500	11.68	115.0 (b)	11.68	1.000	.7500	11.68	115.0 (b)	11.68	
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	1.0000E-02	7.5000E-03	9.927	42.00	9.927	1.0000E-02	7.5000E-03	9.927	42.00	9.927	1.0000E-02	7.5000E-03	9.927	42.00	9.927	1.0000E-02	7.5000E-03	9.927	42.00	9.927	
	LUNG INGES	3.0000E-03	2.3000E-03	11.90	140.0	11.90	3.0000E-03	2.3000E-03	11.90	140.0	11.90	3.0000E-03	2.3000E-03	11.90	140.0	11.90	3.0000E-03	2.3000E-03	11.90	140.0	11.90	
	LUNG INHAL	5.0000E-02	.5000	11.90	140.0	11.90	5.0000E-02	.5000	11.90	140.0	11.90	5.0000E-02	.5000	11.90	140.0	11.90	5.0000E-02	.5000	11.90	140.0	11.90	
	GI-LLI INGES	5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				5.0000E-02	.5000				
	GI-LLI INHAL																					

	ORGAN	T-BIOL (DAY)	T-LEFT (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
CS137+D	BONE	140.0	138.2	4.0000E-02	3.0000E-02	1.296	1.313	1.340	1.365
	LIVER	90.00	89.27	7.0000E-02	5.0000E-02	.3290	.3590	.3870	.4000
	TOTAL BODY	115.0 (b)	113.8	1.000	.7500	.4500	.5130	.5730	.5940
	THYROID	0.	0.	0.	0.	.2690	.2800	.2920	.2970
	KIDNEY	42.00	41.84	1.0000E-02	7.5000E-03	.3130	.3290	.3440	.3590
	LUNG INGES	140.0	138.2	3.0000E-03	2.3000E-03	.3290	.3590	.3730	.4000
	LUNG INHAL	140.0	138.2	5.0000E-02	.5000	.2870	.2970	.3130	.3290
	GI-LLI INGES			5.0000E-02	.5000	.2870	.2970	.3130	.3290
	GI-LLI INHAL								
CS138	BONE	140.0	2.2358E-02	4.0000E-02	3.0000E-02	5.608	5.665	5.756	5.842
	LIVER	90.00	2.2356E-02	7.0000E-02	5.0000E-02	1.352	1.454	1.550	1.596
	TOTAL BODY	115.0 (b)	2.2357E-02	1.000	.7500	1.767	1.990	2.208	2.289
	THYROID	0.	0.	0.	0.	1.155	1.189	1.229	1.245
	KIDNEY	42.00	2.2349E-02	1.0000E-02	7.5000E-03	1.300	1.352	1.403	1.454
	LUNG INGES	140.0	2.2358E-02	3.0000E-03	2.3000E-03	1.352	1.454	1.502	1.596
	LUNG INHAL	140.0	2.2358E-02	5.0000E-02	.5000	1.352	1.454	1.502	1.596
	GI-LLI INGES			5.0000E-02	.5000	1.212	1.245	1.300	1.352
	GI-LLI INHAL			5.0000E-02	.5000	1.212	1.245	1.300	1.352
CS139+D	BONE	140.0	6.4580E-03	4.0000E-02	3.0000E-02	12.50	12.50	12.50	12.50
	LIVER	90.00	6.4579E-03	7.0000E-02	5.0000E-02	2.536	2.557	2.575	2.584
	TOTAL BODY	115.0 (b)	6.4580E-03	1.000	.7500	2.616	2.658	2.697	2.711
	THYROID	0.	0.	0.	0.	2.501	2.508	2.516	2.518
	KIDNEY	42.00	6.4573E-03	1.0000E-02	7.5000E-03	2.528	2.536	2.547	2.557
	LUNG INGES	140.0	6.4580E-03	3.0000E-03	2.3000E-03	2.536	2.557	2.566	2.584
	LUNG INHAL	140.0	6.4580E-03	5.0000E-02	2.3000E-03	2.536	2.557	2.566	2.584
	GI-LLI INGES			5.0000E-02	.5000	2.513	2.518	2.528	2.536
	GI-LLI INHAL			5.0000E-02	.5000	2.513	2.518	2.528	2.536
BA139	BONE	65.00	5.7796E-02	3.5000E-02	.7000	4.536	4.537	4.539	4.540
	LIVER	975.0	5.7844E-02	3.0000E-05	6.0000E-04	.9110	.9130	.9150	.9160
	TOTAL BODY	65.00	5.7796E-02	5.0000E-02	1.0000	.9200	.9250	.9290	.9310
	THYROID	0.	0.	0.	0.	.9070	.9080	.9090	.9090
	KIDNEY	8.500	5.7456E-02	5.0000E-06	1.0000E-04	.9100	.9110	.9120	.9130
	LUNG INGES	6500.	5.7847E-02	1.0000E-05	.1200	.9110	.9130	.9140	.9160
	LUNG INHAL	120.0	5.7819E-02	.9500		.9110	.9130	.9140	.9160
	GI-LLI INGES			1.000	.6200	.9080	.9090	.9100	.9110
	GI-LLI INHAL					.9080	.9090	.9100	.9110

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
BA140+D								
BONE	65.00	10.69	3.5000E-02	.7000	4.856	4.928	5.036	5.139
LIVER	975.0	12.62	3.0000E-05	6.0000E-04	1.257	1.379	1.493	1.548
TOTAL BODY	65.00	10.69	5.0000E-02	1.000	1.751	2.015	2.270	2.364
THYROID	0.	0.	0.	0.	1.019	1.061	1.108	1.128
KIDNEY	8.500	5.106	5.0000E-06	1.0000E-04	1.194	1.257	1.318	1.379
LUNG INGES	6500.	12.76	1.0000E-05	.1200	1.257	1.379	1.437	1.548
LUNG INHAL	120.0	11.56	.9500	.6200	1.257	1.379	1.437	1.548
GI-LLI INGES			1.000		.3340	.3390	.3470	.3540
GI-LLI INHAL					.3340	.3390	.3470	.3540
BA141+D								
BONE	65.00	1.2706E-02	3.5000E-02	.7000	9.958	9.976	10.01	10.04
LIVER	975.0	1.2708E-02	3.0000E-05	6.0000E-04	2.067	2.101	2.132	2.147
TOTAL BODY	65.00	1.2706E-02	5.0000E-02	1.000	2.202	2.273	2.339	2.365
THYROID	0.	0.	0.	0.	2.003	2.014	2.027	2.032
KIDNEY	8.500	1.2689E-02	5.0000E-06	1.0000E-04	2.056	2.067	2.084	2.116
LUNG INGES	6500.	1.2708E-02	1.0000E-05	.1200	2.067	2.101	2.116	2.147
LUNG INHAL	120.0	1.2707E-02	.9500	.6200	2.067	2.101	2.116	2.147
GI-LLI INGES			1.000		1.085	1.095	1.112	1.129
GI-LLI INHAL					1.085	1.095	1.112	1.129
BA142+D								
BONE	65.00	7.4297E-03	3.5000E-02	.7000	7.366	7.460	7.612	7.755
LIVER	975.0	7.4305E-03	3.0000E-05	6.0000E-04	1.855	2.022	2.181	2.257
TOTAL BODY	65.00	7.4297E-03	5.0000E-02	1.000	2.541	2.913	3.275	3.409
THYROID	0.	0.	0.	0.	1.528	1.585	1.710	1.677
KIDNEY	8.500	7.4241E-03	5.0000E-06	1.0000E-04	1.767	1.855	1.940	2.022
LUNG INGES	6500.	7.4305E-03	1.0000E-05	.1200	1.855	2.022	2.103	2.257
LUNG INHAL	120.0	7.4301E-03	.9500	.6200	1.855	2.022	2.103	2.257
GI-LLI INGES			1.000		1.622	1.677	1.767	1.855
GI-LLI INHAL					1.622	1.677	1.767	1.855
LA140								
BONE	1000.	1.673	4.0000E-05	.4000	3.289	3.349	3.445	3.536
LIVER	400.0	1.669	1.5000E-05	.1500	.9030	1.011	1.112	1.160
TOTAL BODY	500.0	1.671	1.0000E-04	1.000	1.341	1.577	1.804	1.889
THYROID	0.	0.	0.	0.	.6930	.7300	.7720	.7890
KIDNEY	0.	0.	0.	0.	.8470	.9030	.9580	1.011
LUNG INGES	0.	0.	0.	0.	.9030	1.011	1.062	1.160
LUNG INHAL	120.0	1.653	1.000	.1200	.9030	1.011	1.062	1.160
GI-LLI INGES			1.000	.6200	.7540	.7890	.8470	.9030
GI-LLI INHAL					.7540	.7890	.8470	.9030

		-----EPSILON-----					
		INFANT	CHILD	TEEN	ADULT		
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-* FOR GI)	F-A OR F-2PRM			
LAI41	BONE LIVER TOTAL BODY THYROID KIDNEY	1000. 400.0 500.0 0. 0.	.1612 .1612 .1612 0. 0.	4.0000E-05 1.5000E-05 1.0000E-04 0. 0.	4.677 .9380 .9470 .9360 .9380	4.680 .9410 .9490 .9370 .9390	4.680 .9420 .9510 .9370 .9400
T-RADIOL = 3.87 H .161 DAY	LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	0. 0. 120.0	0. 0. .1610	0. 0. .1200 .6200	.9380 .9360 .9400 .9370 .9370	.9400 .9400 .9400 .9380 .9380	.9420 .9420 .9380 .9380 .9380
LAI42	BONE LIVER TOTAL BODY THYROID KIDNEY	1000. 400.0 500.0 0. 0.	6.4163E-02 6.4156E-02 6.4158E-02 0. 0.	4.0000E-05 1.5000E-05 1.0000E-04 0. 0.	4.473 1.135 1.571 .9290 1.080	4.628 1.342 2.045 1.006 1.189	4.718 1.390 2.133 1.023 1.241
T-RADIOL = 92.4 M 6.417E-02 DAY	LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	0. 0. 120.0	0. 0. 6.4132E-02	0. 0. .1200 .6200	1.135 1.241 .9880 .9880	1.292 1.292 1.080 1.080	1.390 1.390 1.135 1.135
CE141	BONE LIVER TOTAL BODY THYROID KIDNEY	1500. 293.0 563.0 0. 0.	31.84 29.28 30.75 0. 0.	3.0000E-05 2.5000E-05 1.0000E-04 0. 0.	.9200 .1910 .2040 .1850 .1890	.9250 .1970 .2190 .1870 .1930	.9280 .1990 .2210 .1880 .1940
T-RADIOL = 32.5 D 32.5 DAY	LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	0. 0. 120.0	0. 0. 25.59	2.0000E-06 0. .1200 .6200	.1910 .1910 .1870 .1870	.1960 .1960 .1890 .1890	.1990 .1990 .1910 .1910
CE143+D	BONE LIVER TOTAL BODY THYROID KIDNEY	1500. 293.0 563.0 0. 0.	1.374 1.369 1.372 0. 0.	3.0000E-05 2.5000E-02 1.0000E-04 0. 0.	3.752 .7790 .8530 0. 0.	3.777 .8110 .9210 0. 0.	3.791 .8180 .9330 0. 0.
T-RADIOL = 33.0 H 1.38 DAY	LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	0. 0. 120.0	0. 0. 1.359	2.0000E-06 0. .1200 .6200	.7770 .7600 .7600 .4450 .4450	.7940 .7840 .7840 .4590 .4590	.7950 .8270 .8270 .4680 .4680

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
CE144+D	BONE	1500.	239.1	3.0000E-05	.3000	6.433	6.439	6.441	6.443
	LIVER	293.0	144.3	2.5000E-05	.2500	1.292	1.295	1.297	1.298
	TOTAL BODY	563.0	189.0	1.0000E-04	1.0000	1.301	1.306	1.311	1.313
	THYROID	0.	0.	0.	0.	1.288	1.289	1.290	1.290
	KIDNEY	563.0	189.0	2.0000E-06	2.0000E-02	1.291	1.292	1.294	1.295
	LUNG INGES	0.	0.	0.	0.	1.292	1.295	1.296	1.298
	LUNG INHAL	120.0	84.39	0.	.1200	1.292	1.295	1.296	1.298
	GI-LLI INGES	0.	0.	1.000	0.	1.289	1.290	1.290	1.292
	GI-LLI INHAL	0.	0.	1.000	.6200	1.289	1.290	1.290	1.292
PRI43	BONE	1500.	13.46	4.0000E-05	.4000	1.618	1.618	1.618	1.618
	LIVER	375.0	13.11	2.0000E-05	.2000	.3240	.3240	.3240	.3240
	TOTAL BODY	750.0	13.34	1.0000E-04	1.0000	.3240	.3240	.3240	.3240
	THYROID	0.	0.	0.	0.	.3240	.3240	.3240	.3240
	KIDNEY	750.0	13.34	2.0000E-06	2.0000E-02	.3240	.3240	.3240	.3240
	LUNG INGES	0.	0.	0.	0.	.3240	.3240	.3240	.3240
	LUNG INHAL	120.0	12.20	0.	.1200	.3240	.3240	.3240	.3240
	GI-LLI INGES	0.	0.	1.000	0.	.3240	.3240	.3240	.3240
	GI-LLI INHAL	0.	0.	1.000	.6200	.3240	.3240	.3240	.3240
PRI44	BONE	1500.	1.2000E-02	4.0000E-05	.4000	5.941	5.941	5.943	5.944
	LIVER	375.0	1.2000E-02	2.0000E-05	.2000	1.191	1.193	1.194	1.195
	TOTAL BODY	750.0	1.2000E-02	1.0000E-04	1.0000	1.197	1.200	1.203	1.205
	THYROID	0.	0.	0.	0.	1.189	1.189	1.190	1.190
	KIDNEY	750.0	1.2000E-02	2.0000E-06	2.0000E-02	1.191	1.191	1.192	1.193
	LUNG INGES	0.	0.	0.	0.	1.191	1.193	1.193	1.195
	LUNG INHAL	120.0	1.1999E-02	0.	.1200	1.191	1.193	1.193	1.195
	GI-LLI INGES	0.	0.	1.000	0.	1.189	1.190	1.191	1.191
	GI-LLI INHAL	0.	0.	1.000	.6200	1.189	1.190	1.191	1.191
NU147+D	BONE	1500.	10.91	3.5000E-05	.3500	1.541	1.621	1.629	1.560
	LIVER	131.0	10.14	5.0000E-05	.5000	.3110	.3190	.3270	.3300
	TOTAL BODY	656.0	10.81	1.0000E-04	1.0000	.3430	.3600	.3750	.3810
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	656.0	10.81	5.0000E-06	5.0000E-02	.3070	.3110	.3150	.3190
	LUNG INGES	0.	0.	0.	0.	.2900	.2980	.3020	.3090
	LUNG INHAL	120.0	10.07	0.	.1200	.2900	.2980	.3020	.3090
	GI-LLI INGES	0.	0.	1.000	0.	.2720	.2740	.2780	.2820
	GI-LLI INHAL	0.	0.	1.000	.6200	.2720	.2740	.2780	.2820

ORGAN	T-810L (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
PM147	1500.	584.5	3.5000E-05	.3500	.3490	.3490	.3490	.3490
BONE	656.0	389.3	6.0000E-06	6.0000E-02	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
LIVER	656.0	389.3	1.0000E-04	1.0000	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
TOTAL BODY	0.	0.	0.	0.	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
THYROID	656.0	389.3	2.0000E-06	2.0000E-02	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
KIDNEY	0.	0.	0.	0.	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
LUNG INGES	0.	0.	0.	0.	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
LUNG INHAL	120.0	106.6	1.0000	.1200	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
GI-LLI INGES			1.0000	.6200	6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
GI-LLI INHAL					6.9800E-02	6.9800E-02	6.9800E-02	6.9800E-02
PM148M+D	1500.	40.19	3.5000E-05	.3500	1.310	1.630	1.950	2.067
BONE	656.0	38.85	6.0000E-06	6.0000E-02	.5300	.6300	.7300	.7840
LIVER	656.0	38.85	1.0000E-04	1.0000	.9400	1.170	1.400	1.481
TOTAL BODY	0.	0.	0.	0.	.3800	.3900	.4350	0.
THYROID	656.0	38.85	2.0000E-06	2.0000E-02	.4900	.5300	.5800	.6290
KIDNEY	0.	0.	0.	0.	.5300	.6300	.6800	.7840
LUNG INGES	0.	0.	0.	0.	.5300	.6300	.6800	.7840
LUNG INHAL	120.0	30.73	1.0000	.1200	.4100	.4400	.4900	.5310
GI-LLI INGES			1.0000	.6200	.4100	.4400	.4900	.5310
GI-LLI INHAL								
PM148	1500.	5.351	3.5000E-05	.3500	3.555	3.573	3.601	3.627
BONE	656.0	5.326	6.0000E-06	6.0000E-02	.7830	.8140	.8430	.8570
LIVER	656.0	5.326	1.0000E-04	1.0000	.9090	.9770	1.041	1.065
TOTAL BODY	0.	0.	0.	0.	.7220	.7320	.7440	.7490
THYROID	656.0	5.326	2.0000E-06	2.0000E-02	.7660	.7830	.7990	.8570
KIDNEY	0.	0.	0.	0.	.7830	.8140	.8290	.8570
LUNG INGES	0.	0.	0.	0.	.7830	.8140	.8290	.8570
LUNG INHAL	120.0	5.140	1.0000	.1200	.7390	.7490	.7660	.7830
GI-LLI INGES			1.0000	.6200	.7390	.7490	.7660	.7830
GI-LLI INHAL								
PM149	1500.	2.209	3.5000E-05	.3500	1.862	1.862	1.863	1.863
BONE	656.0	2.205	6.0000E-06	6.0000E-02	.3730	.3740	.3740	.3740
LIVER	656.0	2.205	1.0000E-04	1.0000	.3730	.3760	.3770	.3770
TOTAL BODY	0.	0.	0.	0.	.3730	.3730	.3730	.3730
THYROID	656.0	2.205	2.0000E-06	2.0000E-02	.3730	.3730	.3740	.3740
KIDNEY	0.	0.	0.	0.	.3730	.3740	.3740	.3740
LUNG INGES	0.	0.	0.	0.	.3730	.3740	.3740	.3740
LUNG INHAL	120.0	2.172	1.0000	.1200	.3730	.3740	.3740	.3740
GI-LLI INGES			1.0000	.6200	.3730	.3730	.3730	.3730
GI-LLI INHAL								

PM151	INSOLUBL	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
							INFANT	CHILD	TEEN	
		BONE	1500.	1.182	3.5000E-05	.3500	1.559	1.568	1.581	1.594
		LIVER	656.0	1.181	6.0000E-06	6.0000E-02	.3450	.3590	.3730	.3790
		TOTAL BODY	656.0	1.181	1.0000E-04	1.000	.4030	.4340	.4630	.4740
		THYROID	0.	0.	0.	0.	.3160	.3210	.3270	.3300
		KIDNEY	656.0	1.181	2.0000E-06	2.0000E-02	.3450	.3520	.3660	.3590
		LUNG INGES	0.	0.	0.	0.	.3450	.3590	.3660	.3790
		LUNG INHAL	120.0	1.172	1.000	.1200	.3250	.3300	.3370	.3450
		GI-LLI INGES			1.000	.6200	.3250	.3300	.3370	.3450
		GI-LLI INHAL			1.000	.6200	.3250	.3300	.3370	.3450
SM151		BONE	1500.	1437.	3.5000E-05	.3500	.1300	.1300	.1300	.1300
		LIVER	187.0	186.0	3.5000E-05	.3500	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		TOTAL BODY	656.0	643.6	1.0000E-04	1.000	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		THYROID	0.	0.	0.	0.	4.2000E-02	4.2000E-02	4.2000E-02	0.
		KIDNEY	656.0	643.6	2.0000E-06	2.0000E-02	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		LUNG INGES	0.	0.	0.	0.	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		LUNG INHAL	120.0	119.6	1.000	.1200	4.2000E-02	4.2000E-02	4.2000E-02	4.2000E-02
		GI-LLI INGES			1.000	.6200	4.2000E-02	4.2000E-02	4.2000E-02	4.1000E-02
		GI-LLI INHAL			1.000	.6200	4.2000E-02	4.2000E-02	4.2000E-02	4.1000E-02
SM153		BONE	1500.	1.935	3.5000E-05	.3500	1.193	1.195	1.197	1.199
		LIVER	187.0	1.918	3.5000E-05	.3500	.2420	.2430	.2450	.2450
		TOTAL BODY	656.0	1.932	1.0000E-04	1.000	.2480	.2520	.2550	.2560
		THYROID	0.	0.	0.	0.	.2390	.2390	.2400	.2400
		KIDNEY	656.0	1.932	2.0000E-06	2.0000E-02	.2410	.2420	.2430	.2430
		LUNG INGES	0.	0.	0.	0.	.2420	.2430	.2440	.2450
		LUNG INHAL	120.0	1.907	1.000	.1200	.2420	.2430	.2440	.2450
		GI-LLI INGES			1.000	.6200	.2400	.2400	.2410	.2420
		GI-LLI INHAL			1.000	.6200	.2400	.2400	.2410	.2420
EUI52		BONE	1500.	1140.	3.6000E-05	.3600	.2900	.3600	.4300	.4500
		LIVER	127.0	123.7	2.5000E-05	.2500	.2000	.2600	.3100	.3300
		TOTAL BODY	635.0	560.1	1.0000E-04	1.000	.4200	.5300	.6300	.6600
		THYROID	0.	0.	0.	0.	.1200	.1200	.1200	0.
		KIDNEY	1480.	1128.	3.0000E-06	3.0000E-02	.1600	.2000	.2300	.3300
		LUNG INGES	0.	0.	0.	0.	.2000	.2600	.2800	.3300
		LUNG INHAL	120.0	117.0	1.000	.1200	.2000	.2600	.2800	.3300
		GI-LLI INGES			1.000	.6200	.1200	.1400	.1600	.2000
		GI-LLI INHAL			1.000	.6200	.1200	.1400	.1600	.2000

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
EUI54	1500. 127.0 635.0 0. 1480. 0. 120.0	1015. 122.1 528.2 0. 1006. 0. 115.6	3.6000E-05 2.5000E-05 1.0000E-04 0. 3.0000E-06 0.	.3600 .2500 1.000 0. 3.0000E-02 .1200 .6200	1.457 .4280 .6700 .3110 .3970 .4280 .4280 .3450 .3450	1.490 .7980 .3310 .4280 .4870 .4870 .3650 .3650	1.544 .5430 .9200 .3550 .4590 .5160 .3970 .3970	1.595 .5700 .9650 0. .4870 .5700 .4280 .4280
INSOLUBL	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL							
T-RADIOL = 8.60 Y 3.139E+03 DAY								
EUI55	1500. 127.0 635.0 0. 1480. 0. 120.0	808.1 118.4 466.1 0. 802.3 0. 112.3	3.6000E-05 2.5000E-05 1.0000E-04 0. 3.0000E-06 0.	.3600 .2500 1.000 0. 3.0000E-02 .1200 .6200	.3200 7.5000E-02 .1100 5.9000E-02 6.1000E-02 7.5000E-02 7.5000E-02 .6300 .6300	.3800 8.4000E-02 .1300 6.1000E-02 7.5000E-02 8.4000E-02 8.4000E-02 .6600 .6600	.4400 9.2000E-02 .1500 6.5000E-02 8.0000E-02 .8800 .8800 .7100 .7100	.2800 9.5000E-02 .1600 0. 9.5000E-02 9.5000E-02 9.5000E-02 7.5000E-02 7.5000E-02
INSOLUBL	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL							
T-RADIOL = 4.80 Y 1.752E+03 DAY								
EUI56	1500. 127.0 635.0 0. 1480. 0. 120.0	15.05 13.58 14.84 0. 15.05 0. 13.49	3.6000E-05 2.5000E-05 1.0000E-04 0. 3.0000E-06 0.	.3600 .2500 1.000 0. 3.0000E-02 .1200 .6200	2.271 .5810 .8090 .4730 .5520 .5810 .5810 .5040 .5040	2.302 .6370 .9310 .4910 .5810 .6370 .6370 .5220 .5220	2.352 .6900 1.049 .5130 .6100 .6640 .6640 .5520 .5520	2.399 .7150 1.092 .5220 .6370 .7150 .5810 .5810
INSOLUBL	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL							
T-RADIOL = 15.2 U 15.2 DAY								
THI60	1000. 0. 670.0 0. 700.0 0. 120.0	67.43 0. 65.26 0. 65.53 0. 45.12	6.0000E-05 0. 1.0000E-04 0. 3.0000E-06 0.	.6000 0. 1.000 0. 3.0000E-02 .1200 .6200	.7500 .3400 .5800 .2200 .3100 .3400 .3400 .2600 .2600	.9100 .4000 .7000 .2500 .3400 .4000 .4000 .2800 .2800	1.060 .4500 .8200 .2700 .3700 .4300 .4300 .3100 .3100	1.100 0. .8500 0. .4000 .4800 .4800 .3400 .3400
INSOLUBL	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL							
T-RADIOL = 72.3 U 72.3 DAY								

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
H0166M	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	1000. 875.0 750.0 0. 800.0 0. 120.0	997.7 873.3 748.7 0. 798.5 0. 120.0	6.4000E-05 6.0000E-06 1.0000E-04 0. 2.0000E-06 0. 1.000	.6400 6.0000E-02 1.000 0. 2.0000E-02 0. .6200	.4000 .2800 .4600 .2000 .2600 .2800 .2800 0. .2000	.4000 .3700 .8100 0. .3200 .3700 .3700 0. .2000	
W181	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	9.000 4.000 1.000 0. 0. 0. 120.0	8.379 3.873 .9918 0. 0. 0. 60.37	7.0000E-03 6.0000E-03 1.000 0. 0. 0. 1.200 1.000	7.0000E-02 6.0000E-02 1.000 0. 0. 0. .1200 .6200	1.6000E-02 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03	1.6000E-02 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03 3.2000E-03	
W185	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	9.000 4.000 1.000 0. 0. 0. 120.0	8.036 3.797 .9868 0. 0. 0. 46.15	7.0000E-03 6.0000E-03 1.000 0. 0. 0. 1.200 1.000	7.0000E-02 6.0000E-02 1.000 0. 0. 0. .1200 .6200	.6820 .1360 .1360 .1360 .1360 .1360 .1360 .1360 .1360	.6820 .1360 .1360 .1360 .1360 .1360 .1360 .1360 .1360	
W187	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	9.000 4.000 1.000 0. 0. 0. 120.0	.8966 .7973 .4990 0. 0. 0. .9876	7.0000E-03 6.0000E-03 1.000 0. 0. 0. 1.200 1.000	7.0000E-02 6.0000E-02 1.000 0. 0. 0. .1200 .6200	1.501 .3560 .4540 .3080 .3430 .3560 .3560 .3220 .3220	1.558 .4140 .5720 .3300 .3810 .4140 .4140 .3560 .3560	

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
PB210+D	3650.	2520.	2.0000E-02	.2800	29.00	29.00	29.00	29.00
BONE	1947.	1571.	6.4000E-03	8.0000E-02	10.00	10.00	10.00	10.00
LIVER	1460.	1238.	8.0000E-02	1.0000	5.200	5.200	5.200	5.200
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	0.
THYROID	531.0	498.5	1.0000E-02	.1400	10.00	10.00	10.00	10.00
KIDNEY	0.	0.	0.	0.	25.00	25.00	25.00	25.00
LUNG INGES	120.0	118.3	.9200	.1200	25.00	25.00	25.00	25.00
LUNG INHAL			1.000	.6200	.4600	.4600	.4600	.4600
GI-LLI INGES					.4600	.4600	.4600	.4600
GI-LLI INHAL								
T-RADIOL =								
22.3 Y								
8.139E+03 DAY								
B1210+D	13.30	3.639	3.0000E-04	0.	40.00	40.00	40.00	40.00
BONE	15.00	3.756	1.5000E-03	.1500	13.00	13.00	13.00	13.00
LIVER	5.000	2.502	1.5000E-03	1.000	10.00	10.00	10.00	10.00
TOTAL BODY	0.	0.	0.	0.	0.	0.	0.	0.
THYROID	6.000	2.730	3.0000E-03	.3000	19.00	19.00	19.00	19.00
KIDNEY	0.	0.	0.	0.	26.00	26.00	26.00	26.00
LUNG INGES	120.0	4.809	1.000	.1200	.4000	.4000	.4000	.4000
LUNG INHAL			1.000	.6200	.4000	.4000	.4000	.4000
GI-LLI INGES								
GI-LLI INHAL								
T-RADIOL =								
5.01 D								
5.01 DAY								
P0210	24.00	20.45	6.0000E-03	.1000	275.0	275.0	275.0	275.0
BONE	41.00	31.63	1.0000E-02	.1700	55.00	55.00	55.00	55.00
LIVER	30.00	24.65	6.0000E-02	1.000	55.00	55.00	55.00	55.00
TOTAL BODY	0.	0.	0.	0.	55.00	55.00	55.00	55.00
THYROID	70.00	46.49	4.0000E-03	7.0000E-02	55.00	55.00	55.00	55.00
KIDNEY	0.	0.	0.	0.	55.00	55.00	55.00	55.00
LUNG INGES	120.0	64.27	.9400	.1200	55.00	55.00	55.00	55.00
LUNG INHAL			1.000	.6200	.5300	.5300	.5300	.5300
GI-LLI INGES					.5300	.5300	.5300	.5300
GI-LLI INHAL								
T-RADIOL =								
138. D								
138. DAY								
RN222+D	0.	0.	0.	0.	200.0	200.0	200.0	200.0
BONE	0.	0.	0.	0.	200.0	200.0	200.0	200.0
LIVER	0.	0.	0.	0.	200.0	200.0	200.0	200.0
TOTAL BODY	0.	0.	0.	0.	200.0	200.0	200.0	200.0
THYROID	0.	0.	0.	0.	200.0	200.0	200.0	200.0
KIDNEY	0.	0.	0.	0.	200.0	200.0	200.0	200.0
LUNG INGES	0.	0.	0.	0.	200.0	200.0	200.0	200.0
LUNG INHAL	0.	0.	0.	0.	200.0	200.0	200.0	200.0
GI-LLI INGES	0.	0.	0.	0.	3.200	3.200	3.200	3.200
GI-LLI INHAL	0.	0.	0.	0.	3.200	3.200	3.200	3.200

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
					INFANT	CHILD	TEEN	
RA223*0								
BONE	1.6400E+04	11.42	.1500	.5000	275.0	275.0	275.0	275.0
LIVER	10.00	5.334	1.2000E-04	4.0000E-04	275.0	275.0	275.0	275.0
TOTAL BODY	8100.	11.41	.3000	1.000	275.0	275.0	275.0	275.0
THYROID	0.	0.	0.	0.	275.0	275.0	275.0	0.
KIDNEY	10.00	5.334	6.0000E-04	2.0000E-03	275.0	275.0	275.0	275.0
LUNG INGES	0.	0.	0.	.1200	275.0	275.0	275.0	275.0
LUNG INHAL	120.0	10.44	.7000	.6200	3.700	3.700	3.700	3.700
GI-LLI INGES			1.0000		3.700	3.700	3.700	3.700
GI-LLI INHAL					3.700	3.700	3.700	3.700
RA224*0								
BONE	1.6400E+04	3.639	.1500	.5000	280.0	280.0	280.0	280.0
LIVER	10.00	2.669	1.2000E-04	4.0000E-04	280.0	280.0	280.0	280.0
TOTAL BODY	8100.	3.638	.3000	1.000	280.0	280.0	280.0	280.0
THYROID	0.	0.	0.	0.	280.0	280.0	280.0	0.
KIDNEY	10.00	2.669	6.0000E-04	2.0000E-03	280.0	280.0	280.0	280.0
LUNG INGES	0.	0.	0.	.1200	280.0	280.0	280.0	280.0
LUNG INHAL	120.0	3.533	.7000	.6200	4.200	4.200	4.200	4.200
GI-LLI INGES			1.0000		4.200	4.200	4.200	4.200
GI-LLI INHAL					4.200	4.200	4.200	4.200
RA225*0								
BONE	1.6400E+04	14.79	.1500	.5000	280.0	280.0	280.0	280.0
LIVER	10.00	5.968	1.2000E-04	4.0000E-04	250.0	250.0	250.0	250.0
TOTAL BODY	8100.	14.77	.3000	1.000	280.0	280.0	280.0	280.0
THYROID	0.	0.	0.	0.	250.0	250.0	250.0	0.
KIDNEY	10.00	5.968	6.0000E-04	2.0000E-03	250.0	250.0	250.0	250.0
LUNG INGES	0.	0.	0.	.1200	250.0	250.0	250.0	250.0
LUNG INHAL	120.0	13.18	.7000	.6200	3.500	3.500	3.500	3.500
GI-LLI INGES			1.0000		3.500	3.500	3.500	3.500
GI-LLI INHAL					3.500	3.500	3.500	3.500
RA226*0								
BONE	1.6400E+04	1.5952E+04	3.0000E-02	.1000	110.0	110.0	110.0	110.0
LIVER	10.00	10.00	1.2000E-04	4.0000E-04	110.0	110.0	110.0	110.0
TOTAL BODY	8100.	7989.	.3000	1.000	110.0	110.0	110.0	110.0
THYROID	0.	0.	0.	0.	110.0	110.0	110.0	0.
KIDNEY	10.00	10.00	6.0000E-04	2.0000E-03	110.0	110.0	110.0	110.0
LUNG INGES	0.	0.	0.	.1200	110.0	110.0	110.0	110.0
LUNG INHAL	120.0	120.0	.7000	.6200	110.0	110.0	110.0	110.0
GI-LLI INGES			1.0000		3.700	3.700	3.700	3.700
GI-LLI INHAL					3.700	3.700	3.700	3.700

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			
						INFANT	CHILD	TEEN	ADULT
RA228+D	BONE	1.6400E+04	1861.	3.0000E-02	.1000	190.0	190.0	190.0	190.0
	LIVER	10.00	9.953	1.2000E-04	4.0000E-04	60.00	60.00	60.00	60.00
	TOTAL BODY	8100.	1667.	.3000	1.000	230.0	230.0	230.0	230.0
	THYROID	0.	0.	0.	0.	60.00	60.00	60.00	0.
	KIDNEY	10.00	9.953	6.0000E-04	2.0000E-03	60.00	60.00	60.00	60.00
	LUNG INGES	0.	0.	0.	.1200	160.0	160.0	160.0	160.0
	LUNG INHAL	120.0	113.5	.7000		160.0	160.0	160.0	160.0
	GI-LLI INGES			1.000	.6200	.6300	.6300	.6300	.6300
	GI-LLI INHAL					.6300	.6300	.6300	.6300
AC225	BONE	7.3000E+04	9.999	3.0000E-05	.3000	1390.	1390.	1390.	1390.
	LIVER	2400.	9.959	5.0000E-05	.5000	280.0	280.0	280.0	280.0
	TOTAL BODY	2.4000E+04	9.996	1.0000E-04	1.000	280.0	280.0	280.0	280.0
	THYROID	0.	0.	0.	0.	280.0	280.0	280.0	0.
	KIDNEY	2.4000E+04	9.996	1.0000E-06	1.0000E-02	280.0	280.0	280.0	280.0
	LUNG INGES	0.	0.	0.	.1200	270.0	270.0	270.0	270.0
	LUNG INHAL	120.0	9.231	1.000		270.0	270.0	270.0	270.0
	GI-LLI INGES			1.000	.6200	3.300	3.300	3.300	3.300
	GI-LLI INHAL					3.300	3.300	3.300	3.300
AC227+D	BONE	7.3000E+04	7166.	3.0000E-05	.3000	1000.	1000.	1000.	1000.
	LIVER	2400.	1843.	5.0000E-05	.5000	62.00	62.00	62.00	62.00
	TOTAL BODY	2.4000E+04	5970.	1.0000E-04	1.000	200.0	200.0	200.0	200.0
	THYROID	0.	0.	0.	0.	62.00	62.00	62.00	0.
	KIDNEY	2.4000E+04	5970.	1.0000E-06	1.0000E-02	62.00	62.00	62.00	62.00
	LUNG INGES	0.	0.	0.	.1200	230.0	230.0	230.0	230.0
	LUNG INHAL	120.0	118.2	1.000		230.0	230.0	230.0	230.0
	GI-LLI INGES			1.000	.6200	.6400	.6400	.6400	.6400
	GI-LLI INHAL					.6400	.6400	.6400	.6400
TH227+D	BONE	7.3000E+04	18.72	7.0000E-05	.7000	990.0	990.0	990.0	990.0
	LIVER	5.7000E+04	18.71	5.0000E-06	5.0000E-02	61.00	61.00	61.00	61.00
	TOTAL BODY	5.7000E+04	18.71	1.0000E-04	1.000	200.0	200.0	200.0	200.0
	THYROID	0.	0.	0.	0.	61.00	61.00	61.00	0.
	KIDNEY	2.2000E+04	18.70	5.0000E-06	5.0000E-02	61.00	61.00	61.00	61.00
	LUNG INGES	0.	0.	0.	.1200	230.0	230.0	230.0	230.0
	LUNG INHAL	1460.	18.48	1.000		230.0	230.0	230.0	230.0
	GI-LLI INGES			1.000	.6200	4.300	4.300	4.300	4.300
	GI-LLI INHAL					4.300	4.300	4.300	4.300

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
TH234	BONE	7.3000E+04	24.09	7.0000E-05	.7000	4.500	4.500	4.500	4.500
	LIVER	5.7000E+04	24.09	5.0000E-06	5.0000E-02	.9000	.9000	.9000	.9000
	TOTAL BODY	5.7000E+04	24.09	1.0000E-04	1.000	.9100	.9100	.9100	.9100
	THYROID	0.	0.	0.	0.	.9000	.9000	.9000	0.
	KIDNEY	2.2000E+04	24.07	5.0000E-06	5.0000E-02	.9000	.9000	.9000	.9000
	LUNG INGES	0.	0.	0.	.1200	.9000	.9000	.9000	.9000
	LUNG INHAL	1460.	23.71	1.000		.9000	.9000	.9000	.9000
	GI-LLI INGES			1.000	.6200	.9000	.9000	.9000	.9000
	GI-LLI INHAL					.9000	.9000	.9000	.9000
PA231+D	BONE	7.3000E+04	7.2554E+04	4.5000E-05	.4500	750.0	750.0	750.0	750.0
	LIVER	5.8000E+04	5.7718E+04	5.0000E-06	5.0000E-02	63.00	63.00	63.00	63.00
	TOTAL BODY	4.1000E+04	4.0659E+04	1.0000E-04	1.000	140.0	140.0	140.0	140.0
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	5.1000E+04	5.0782E+04	4.0000E-06	4.0000E-02	79.00	79.00	79.00	79.00
	LUNG INGES	0.	0.	0.	.1200	54.00	54.00	54.00	54.00
	LUNG INHAL	120.0	120.0	1.000		54.00	54.00	54.00	54.00
	GI-LLI INGES			1.000	.6200	.5600	.5600	.5600	.5600
	GI-LLI INHAL			1.000		.5600	.5600	.5600	.5600
PA233	BONE	7.3000E+04	26.99	4.5000E-05	.4500	.2800	.3300	.4000	.4100
	LIVER	5.8000E+04	26.99	5.0000E-06	5.0000E-02	.1300	.1500	.1700	.1800
	TOTAL BODY	4.1000E+04	26.99	1.0000E-04	1.000	.2200	.2600	.3100	.3200
	THYROID	0.	0.	0.	0.	.1100	.1100	.1100	0.
	KIDNEY	5.1000E+04	26.99	4.0000E-06	4.0000E-02	.1200	.1300	.1400	.1500
	LUNG INGES	0.	0.	0.	.1200	.1300	.1500	.1600	.1800
	LUNG INHAL	120.0	22.04	1.000		.1300	.1500	.1600	.1800
	GI-LLI INGES			1.000	.6200	.1100	.1100	.1200	.1300
	GI-LLI INHAL			1.000		.1100	.1100	.1200	.1300
U232+D	BONE	300.0	296.6	1.1000E-03	.1100	1200.	1200.	1200.	1200.
	LIVER	0.	0.	0.	0.	0.	0.	0.	0.
	TOTAL BODY	100.0	99.62	1.0000E-02	1.000	280.0	280.0	280.0	280.0
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	15.00	14.99	1.1000E-03	.1100	110.0	110.0	110.0	110.0
	LUNG INGES	0.	0.	0.	.1200	210.0	210.0	210.0	210.0
	LUNG INHAL	120.0	119.5	1.000		210.0	210.0	210.0	210.0
	GI-LLI INGES			1.000	.6200	.5300	.5300	.5300	.5300
	GI-LLI INHAL			1.000		.5300	.5300	.5300	.5300

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
U233*0	BONE	300.0	300.0	1.1000E-03	.1100	250.0	250.0	250.0	250.0
	LIVER	0.	0.	0.	0.	50.00	50.00	50.00	0.
	TOTAL BODY	100.0	100.0	1.0000E-02	1.000	50.00	50.00	50.00	50.00
	THYROID	0.	0.	0.	0.	50.00	50.00	50.00	0.
	KIDNEY	15.00	15.00	1.1000E-03	.1100	50.00	50.00	50.00	50.00
	LUNG INGES	0.	0.	0.	0.	50.00	50.00	50.00	50.00
	LUNG INHAL	120.0	120.0	1.000	.1200	50.00	50.00	50.00	50.00
	GI-LLI INGES			1.000	.6200	.4900	.4900	.4900	.4900
	GI-LLI INHAL			1.000	.6200	.4900	.4900	.4900	.4900
U234	BONE	300.0	300.0	1.1000E-03	.1100	240.0	240.0	240.0	240.0
	LIVER	0.	0.	0.	0.	49.00	49.00	49.00	0.
	TOTAL BODY	100.0	100.0	1.0000E-02	1.000	49.00	49.00	49.00	49.00
	THYROID	0.	0.	0.	0.	49.00	49.00	49.00	0.
	KIDNEY	15.00	15.00	1.1000E-03	.1100	49.00	49.00	49.00	49.00
	LUNG INGES	0.	0.	0.	0.	49.00	49.00	49.00	49.00
	LUNG INHAL	120.0	120.0	1.000	.1200	49.00	49.00	49.00	49.00
	GI-LLI INGES			1.000	.6200	.4800	.4800	.4800	.4800
	GI-LLI INHAL			1.000	.6200	.4800	.4800	.4800	.4800
U235*0	BONE	300.0	300.0	1.1000E-03	.1100	230.0	230.0	230.0	230.0
	LIVER	0.	0.	0.	0.	0.	0.	0.	0.
	TOTAL BODY	100.0	100.0	1.0000E-02	1.000	46.00	46.00	46.00	46.00
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	15.00	15.00	1.1000E-03	.1100	46.00	46.00	46.00	46.00
	LUNG INGES	0.	0.	0.	0.	46.00	46.00	46.00	46.00
	LUNG INHAL	120.0	120.0	1.000	.1200	46.00	46.00	46.00	46.00
	GI-LLI INGES			1.000	.6200	.6100	.6100	.6100	.6100
	GI-LLI INHAL			1.000	.6200	.6100	.6100	.6100	.6100
U236	BONE	300.0	300.0	1.1000E-03	.1100	230.0	230.0	230.0	230.0
	LIVER	0.	0.	0.	0.	0.	0.	0.	0.
	TOTAL BODY	100.0	100.0	1.0000E-02	1.000	47.00	47.00	47.00	47.00
	THYROID	0.	0.	0.	0.	47.00	47.00	47.00	0.
	KIDNEY	15.00	15.00	1.1000E-03	.1100	47.00	47.00	47.00	47.00
	LUNG INGES	0.	0.	0.	0.	47.00	47.00	47.00	47.00
	LUNG INHAL	120.0	120.0	1.000	.1200	47.00	47.00	47.00	47.00
	GI-LLI INGES			1.000	.6200	.4500	.4500	.4500	.4500
	GI-LLI INHAL			1.000	.6200	.4500	.4500	.4500	.4500

	ORGAN	T-RADIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----			ADULT
						INFANT	CHILD	TEEN	
U237	BONE	300.0	6.601	1.1000E-03	.1100	.7200	.7200	.7200	.7200
	LIVER	0.	0.	0.	0.	0.	0.	0.	.1800
	TOTAL BODY	100.0	6.323	1.0000E-02	1.000	.2200	.2200	.2200	.2200
	THYROID	0.	0.	0.	0.	0.	0.	0.	.1600
	KIDNEY	15.00	4.655	1.1000E-03	.1100	.1800	.1800	.1800	.1800
	LUNG INGES	0.	0.	0.	.1200	.1800	.1800	.1800	.1800
	LUNG INHAL	120.0	6.391	1.000	.1600	.1600	.1600	.1600	.1600
	GI-LLI INGES			1.000	.6200	.1600	.1600	.1600	.1600
	GI-LLI INHAL								
U238+U	BONE	300.0	300.0	1.1000E-03	.1100	220.0	220.0	220.0	220.0
	LIVER	0.	0.	0.	0.	0.	0.	0.	0.
	TOTAL BODY	100.0	100.0	1.0000E-02	1.000	43.00	43.00	43.00	43.00
	THYROID	0.	0.	0.	0.	43.00	43.00	43.00	43.00
	KIDNEY	15.00	15.00	1.1000E-03	.1100	43.00	43.00	43.00	43.00
	LUNG INGES	0.	0.	0.	.1200	43.00	43.00	43.00	43.00
	LUNG INHAL	120.0	120.0	1.000	.6200	43.00	43.00	43.00	43.00
	GI-LLI INGES			1.000	.6200	.4300	.4300	.4300	.4300
	GI-LLI INHAL					.4300	.4300	.4300	.4300
NP237+D	BONE	7.3000E+04	7.2993E+04	4.5000E-05	.4500	250.0	250.0	250.0	250.0
	LIVER	5.4000E+04	5.3996E+04	5.0000E-06	5.0000E-02	49.00	49.00	49.00	49.00
	TOTAL BODY	3.9000E+04	3.8998E+04	1.0000E-04	1.000	49.00	49.00	49.00	49.00
	THYROID	0.	0.	0.	0.	49.00	49.00	49.00	49.00
	KIDNEY	6.4000E+04	6.3995E+04	3.0000E-06	3.0000E-02	49.00	49.00	49.00	49.00
	LUNG INGES	0.	0.	0.	.1200	49.00	49.00	49.00	49.00
	LUNG INHAL	120.0	120.0	1.000	.6200	49.00	49.00	49.00	49.00
	GI-LLI INGES			1.000	.6200	.6200	.6200	.6200	.6200
	GI-LLI INHAL					.6200	.6200	.6200	.6200
NP238	BONE	7.3000E+04	2.120	4.5000E-05	.4500	13.56	13.56	13.56	13.56
	LIVER	5.4000E+04	2.120	5.0000E-06	5.0000E-02	.8000	.8000	.8000	.8000
	TOTAL BODY	3.9000E+04	2.120	1.0000E-04	1.000	.9500	.9500	.9500	.9500
	THYROID	0.	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	6.4000E+04	2.120	3.0000E-06	3.0000E-02	.8000	.8000	.8000	.8000
	LUNG INGES	0.	0.	0.	.1200	.5500	.5500	.5500	.5500
	LUNG INHAL	120.0	2.083	1.000	.6200	.5500	.5500	.5500	.5500
	GI-LLI INGES			1.000	.6200	.3200	.3200	.3200	.3200
	GI-LLI INHAL					.3200	.3200	.3200	.3200

ORGAN	T-RADIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----		
					INFANT	CHILD	TEEN
NP239	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	7.3000E+04 5.4000E+04 3.9000E+04 0. 6.4000E+04 120.0 2.305	4.5000E-05 5.0000E-06 1.0000E-04 0. 3.0000E-06 0. 1.000 1.000	.4500 5.0000E-02 1.000 0. 3.0000E-02 0. .1200 .6200	1.098 .2300 .2500 0. .2100 .2300 .2300 .2200 .2200	1.105 .2300 .2600 0. .2100 .2300 .2300 .2200 .2200	1.070 .2300 .2600 0. .2100 .2300 .2300 .2200 .2200
PU238	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	7.3000E+04 3.0000E+04 6.5000E+04 0. 3.2000E+04 0. 365.0	2.4000E-05 4.5000E-06 3.0000E-05 0. 6.0000E-07 0. 360.9 1.000 1.000	.8000 .1500 1.000 0. 2.0000E-02 0. .1200 .6200	280.0 57.00 57.00 57.00 57.00 57.00 57.00 57.00 57.00	280.0 57.00 57.00 57.00 57.00 57.00 57.00 57.00 57.00	280.0 57.00 57.00 57.00 57.00 57.00 57.00 57.00 57.00
PU239	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	7.3000E+04 3.0000E+04 6.5000E+04 0. 3.2000E+04 0. 365.0	2.4000E-05 4.5000E-06 3.0000E-05 0. 6.0000E-07 0. 365.0 1.000 1.000	.8000 .1500 1.000 0. 2.0000E-02 0. .1200 .6200	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00
PU240	BONE LIVER TOTAL BODY THYROID KIDNEY LUNG INGES LUNG INHAL GI-LLI INGES GI-LLI INHAL	7.3000E+04 3.0000E+04 6.5000E+04 0. 3.2000E+04 0. 365.0	2.4000E-05 4.5000E-06 3.0000E-05 0. 6.0000E-07 0. 364.9 1.000 1.000	.8000 .1500 1.000 0. 2.0000E-02 0. .1200 .6200	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00	270.0 53.00 53.00 53.00 53.00 53.00 53.00 53.00 53.00

		-----EPSILON-----						
		INFANT	CHILD	TEEN	ADULT			
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	INFANT	CHILD	TEEN	ADULT
PU241*0	BONE	7.3000E+04	2.4000E-05	.8000	14.00	14.00	14.00	14.00
	LIVER	3.0000E+04	4.5000E-06	.1500	.9990	.9990	.9990	.9990
INSOLUBL	TOTAL BODY	6.5000E+04	3.0000E-05	1.0000	2.262	2.262	2.262	2.262
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	3.2000E+04	6.0000E-07	2.0000E-02	2.372	2.372	2.372	2.372
T-RADIOL =	LUNG INGES	0.	0.	.1200	5.0000E-02	5.0000E-02	5.0000E-02	5.0000E-02
15.0	LUNG INHAL	365.0	1.000	.6200	5.0000E-02	5.0000E-02	5.0000E-02	5.0000E-02
5.475E+03 DAY	GI-LLI INGES		1.000		1.0900E-02	1.0900E-02	1.0900E-02	1.0900E-02
	GI-LLI INHAL				1.0900E-02	1.0900E-02	1.0900E-02	1.0900E-02
PU242	BONE	7.3000E+04	2.4000E-05	.8000	250.0	250.0	250.0	250.0
	LIVER	3.0000E+04	4.5000E-06	.1500	51.00	51.00	51.00	51.00
INSOLUBL	TOTAL BODY	6.5000E+04	3.0000E-05	1.0000	51.00	51.00	51.00	51.00
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	3.2000E+04	6.0000E-07	2.0000E-02	51.00	51.00	51.00	51.00
T-RADIOL =	LUNG INGES	0.	0.	.1200	51.00	51.00	51.00	51.00
3.870E+05 Y	LUNG INHAL	365.0	1.000	.6200	51.00	51.00	51.00	51.00
1.413E+08 DAY	GI-LLI INGES		1.000		.5100	.5100	.5100	.5100
	GI-LLI INHAL				.5100	.5100	.5100	.5100
PU244	BONE	7.3000E+04	2.4000E-05	.8000	292.0	292.0	292.0	292.0
	LIVER	3.0000E+04	4.5000E-06	.1500	58.40	58.40	58.40	58.40
INSOLUBL	TOTAL BODY	6.5000E+04	3.0000E-05	1.0000	58.40	58.40	58.40	58.40
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	3.2000E+04	6.0000E-07	2.0000E-02	58.40	58.40	58.40	58.40
T-RADIOL =	LUNG INGES	0.	0.	.1200	58.40	58.40	58.40	58.40
8.300E+07 Y	LUNG INHAL	365.0	1.000	.6200	58.40	58.40	58.40	58.40
3.030E+10 DAY	GI-LLI INGES		1.000		.7600	.7600	.7600	.7600
	GI-LLI INHAL				.7600	.7600	.7600	.7600
AM241	BONE	7.3000E+04	2.5000E-05	.2500	280.0	280.0	280.0	280.0
	LIVER	3480.	3.5000E-05	.3500	57.00	57.00	57.00	57.00
INSOLUBL	TOTAL BODY	2.0000E+04	1.0000E-04	1.0000	57.00	57.00	57.00	57.00
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	2.7000E+04	3.0000E-06	3.0000E-02	57.00	57.00	57.00	57.00
T-RADIOL =	LUNG INGES	0.	0.	.1200	57.00	57.00	57.00	57.00
433.	LUNG INHAL	120.0	1.000	.6200	57.00	57.00	57.00	57.00
1.580E+05 DAY	GI-LLI INGES		1.000		.5800	.5800	.5800	.5800
	GI-LLI INHAL				.5800	.5800	.5800	.5800

ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	-----EPSILON-----		
					INFANT	CHILD	TEEN
							ADULT
AM242M							
INSOLUBL	7.3000E+04	3.1523E+04	2.5000E-05	.2500	302.0	302.0	302.0
	3480.	3275.	3.5000E-05	.3500	57.00	57.00	57.00
	2.0000E+04	1.4701E+04	1.0000E-04	1.000	61.00	61.00	61.00
	0.	0.	0.	0.	0.	0.	0.
T-RADIOL =	2.7000E+04	1.8161E+04	3.0000E-06	3.0000E-02	60.50	60.50	60.50
152. Y	0.	0.	0.	.1200	23.00	23.00	23.00
5.548E+04 DAY	120.0	119.7	1.000	.7300	23.00	23.00	23.00
			1.000	.7300	.7300	.7300	.7300
				.6200	.7300	.7300	.7300
AM243							
INSOLUBL	7.3000E+04	7.1071E+04	2.5000E-05	.2500	270.0	270.0	270.0
	3480.	3476.	3.5000E-05	.3500	54.00	54.00	54.00
	2.0000E+04	1.9852E+04	1.0000E-04	1.000	54.00	54.00	54.00
	0.	0.	0.	0.	0.	0.	0.
T-RADIOL =	2.7000E+04	2.6732E+04	3.0000E-06	3.0000E-02	54.00	54.00	54.00
7.370E+03 Y	0.	0.	0.	.1200	54.00	54.00	54.00
2.690E+06 DAY	120.0	120.0	1.000	.6800	54.00	54.00	54.00
			1.000	.6800	.6800	.6800	.6800
				.6800	.6800	.6800	.6800
CM242							
INSOLUBL	7.3000E+04	162.6	3.0000E-05	.3000	400.0	400.0	400.0
	3000.	154.6	4.0000E-05	.4000	78.00	78.00	78.00
	2.4000E+04	161.9	1.0000E-04	1.000	80.00	80.00	80.00
	0.	0.	0.	0.	0.	0.	0.
T-RADIOL =	2.4000E+04	161.9	2.0000E-06	2.0000E-02	78.00	78.00	78.00
163. D	0.	0.	0.	.1200	64.00	64.00	64.00
163. DAY	120.0	69.12	1.000	.6200	64.00	64.00	64.00
			1.000	.6200	.6200	.6200	.6200
				.6200	.6200	.6200	.6200
CM243							
INSOLUBL	7.3000E+04	8965.	3.0000E-05	.3000	299.0	299.0	299.0
	3000.	2319.	4.0000E-05	.4000	60.00	60.00	60.00
	2.4000E+04	7168.	1.0000E-04	1.000	60.00	60.00	60.00
	0.	0.	0.	0.	0.	0.	0.
T-RADIOL =	2.4000E+04	7168.	2.0000E-06	2.0000E-02	60.00	60.00	60.00
28.0 Y	0.	0.	0.	.1200	60.00	60.00	60.00
1.022E+04 DAY	120.0	118.6	1.000	.6100	60.00	60.00	60.00
			1.000	.6100	.6100	.6100	.6100
				.6100	.6100	.6100	.6100

		-----EPSILON-----				
		INFANT	CHILD	TEEN	ADULT	
CM244						
INSOLUBL						
T-RADIOL =						
17.9 Y						
6.533E+03 DAY						
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	
BONE	7.3000E+04	5997.	3.0000E-05	.3000	290.0	
LIVER	3000.	2056.	4.0000E-05	.4000	58.00	
TOTAL BODY	2.4000E+04	5135.	1.0000E-04	1.0000	58.00	
THYROID	0.	0.	0.	0.	0.	
KIDNEY	2.4000E+04	5135.	2.0000E-06	2.0000E-02	58.00	
LUNG INGES	0.	0.	0.	.1200	58.00	
LUNG INHAL	120.0	117.8	1.000	.5900	58.00	
GI-LLI INGES			1.000	.5900	.5900	
GI-LLI INHAL			1.000	.6200	.5900	
CM245						
INSOLUBL						
T-RADIOL =						
8.500E+03 Y						
3.103E+06 DAY						
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	
BONE	7.3000E+04	7.1322E+04	3.0000E-05	.3000	280.0	
LIVER	3000.	2997.	4.0000E-05	.4000	56.00	
TOTAL BODY	2.4000E+04	2.3816E+04	1.0000E-04	1.0000	56.00	
THYROID	0.	0.	0.	0.	0.	
KIDNEY	2.4000E+04	2.3816E+04	2.0000E-06	2.0000E-02	56.00	
LUNG INGES	0.	0.	0.	.1200	55.00	
LUNG INHAL	120.0	120.0	1.000	.5500	55.00	
GI-LLI INGES			1.000	.5500	.5500	
GI-LLI INHAL			1.000	.6200	.5500	
CM246						
INSOLUBL						
T-RADIOL =						
4.760E+03 Y						
1.737E+06 DAY						
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	
BONE	7.3000E+04	7.0056E+04	3.0000E-05	.3000	278.0	
LIVER	3000.	2995.	4.0000E-05	.4000	56.00	
TOTAL BODY	2.4000E+04	2.3673E+04	1.0000E-04	1.0000	56.00	
THYROID	0.	0.	0.	0.	0.	
KIDNEY	2.4000E+04	2.3673E+04	2.0000E-06	2.0000E-02	56.00	
LUNG INGES	0.	0.	0.	.1200	56.00	
LUNG INHAL	120.0	120.0	1.000	.5400	56.00	
GI-LLI INGES			1.000	.5400	.5400	
GI-LLI INHAL			1.000	.6200	.5400	
CM247+D						
INSOLUBL						
T-RADIOL =						
1.540E+07 Y						
5.621E+09 DAY						
ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-# FOR GI)	F-A OR F-2PRM	INFANT	
BONE	7.3000E+04	7.2999E+04	3.0000E-05	.3000	270.0	
LIVER	3000.	3000.	4.0000E-05	.4000	55.00	
TOTAL BODY	2.4000E+04	2.4000E+04	1.0000E-04	1.0000	55.00	
THYROID	0.	0.	0.	0.	0.	
KIDNEY	2.4000E+04	2.4000E+04	2.0000E-06	2.0000E-02	55.00	
LUNG INGES	0.	0.	0.	.1200	55.00	
LUNG INHAL	120.0	120.0	1.000	.7100	55.00	
GI-LLI INGES			1.000	.7100	.7100	
GI-LLI INHAL			1.000	.6200	.7100	

	ORGAN	T-BIOL (DAY)	T-EFF (DAY)	F-W (F-*) FOR GI)	F-A OR F-2PRM	-----EPSILON-----		
						INFANT	CHILD	TEEN
CM24A	BONE	7.3000E+04	7.2958E+04	3.0000E-05	.3000	2244.	2244.	2244.
	LIVER	3000.	3000.	4.0000E-05	.4000	453.3	453.3	453.3
	TOTAL BODY	2.4000E+04	2.3995E+04	1.0000E-04	1.0000	453.3	453.3	453.3
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	2.4000E+04	2.3995E+04	2.0000E-06	2.0000E-02	453.3	453.3	453.3
	LUNG INGES	0.	0.	0.	.1200	453.3	453.3	453.3
	LUNG INHAL	120.0	120.0	1.0000	.1200	453.3	453.3	453.3
	GI-LLI INGES				11.45	11.45	11.45	11.45
	GI-LLI INHAL				.6200	11.45	11.45	11.45
CF252	BONE	7.3000E+04	947.5	2.4000E-05	.8000	1100.	1100.	1100.
	LIVER	0.	0.	0.	0.	210.0	210.0	210.0
	TOTAL BODY	6.5000E+04	946.0	3.0000E-05	1.0000	210.0	210.0	210.0
	THYROID	0.	0.	0.	0.	0.	0.	0.
	KIDNEY	0.	0.	0.	0.	210.0	210.0	210.0
	LUNG INGES	0.	0.	0.	.1200	210.0	210.0	210.0
	LUNG INHAL	120.0	106.7	1.0000	.1200	210.0	210.0	210.0
	GI-LLI INGES				.6200	2.250	2.250	2.250
	GI-LLI INHAL				.6200	2.250	2.250	2.250

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300