

Estimates of Internal Dose Equivalent to 22 Target Organs for Radionuclides Occurring in Routine Releases from Nuclear Fuel-Cycle Facilities

Vol. 1

G. G. Killough
D. E. Dunning, Jr.
S. R. Bernard
J. C. Pleasant

Prepared for the U.S. Nuclear Regulatory Commission
Division of Safeguards, Fuel Cycle, and Environmental Research
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RADIONUCLIDES OCCURRING IN ROUTINE RELEASES FROM
NUCLEAR FUEL-CYCLE FACILITIES. VOL. I

G. G. Killough
D. E. Dunning, Jr.
S. R. Bernard
J. C. Pleasant*

* East Tennessee State University

NOTICE

This document contains information of a preliminary nature.
It is subject to revision or correction and therefore does
not represent a final report.

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ABSTRACT

This report is the first of a two-volume tabulation of internal radiation dose conversion factors for man for radionuclides of interest in environmental assessments of light-water-reactor fuel cycles. This volume treats 68 radionuclides, all of mass number less than 150. Intake by inhalation and ingestion is considered. In the former case, the ICRP Task Group Lung Model has been used to simulate the behavior of particulate matter in the respiratory tract. Results corresponding to activity median aerodynamic diameters (AMAD) of 0.3, 1.0, and 5.0 μm are given. The GI tract has been represented by a four-segment catenary model with exponential transfer of radioactivity from one segment to the next. Retention of radionuclides in other organs was characterized by linear combinations of decaying exponential functions. Dose equivalent per microcurie intake of each parent nuclide is given for 22 target organs with contributions from specified source organs plus surplus activity in the rest of the body. Cross irradiation due to penetrating radiations has also been considered in the calculations.

1. INTRODUCTION

This volume presents, in its two appendices, tabulations of dose conversion factors for 22 target organs of man due to the inhalation or ingestion of any one of 64 radionuclides. By "dose conversion factor," we mean the 50-year dose-equivalent commitment (rem) to an individual which results from the initial intake of one microcurie (μCi) of the radionuclide by inhalation or ingestion. The individual of reference is Reference Man, an adult male as defined in Publication 23 of the International Commission on Radiological Protection (ICRP, 1975), though ovaries and uterus are included as target organs in the tabulation.

The primary purpose of this publication is to report the results of research sponsored by the Nuclear Regulatory Commission (NRC), Office of Regulatory Research, under 189 No. B0188, "Dosimetry and Biotransport Models to Implement ALARA." Our objective for the present document has been to assemble data and models that are believed to be representative of the state of the art in the estimation of internal dose from ingested or inhaled radionuclides, and to apply this information to a unified calculation of dose conversion factors for those radionuclides which are of concern to NRC in its regulatory activities. This first volume has been restricted in scope of nuclides of mass number less than 150.

The information presented in this document is intended primarily for the use of NRC in comparing the results of various methodologies. It is not our purpose at this point to endorse or recommend this information for uncritical adoption in radiological applications. Rather, it is hoped that its publication in this format will permit critical examination of the data and methods by the scientific community and encourage comments.

We must state that this tabulation is not intended to anticipate or pre-empt the work of Committee 2 of the ICRP, particularly the new handbook which has not appeared in published form at the time of this writing. The research reported here has been performed independently of ICRP-sponsored work and therefore may be expected to differ from the work of Committee 2 in various respects.

This report presents information which consists entirely of new calculations performed, for the most part, in a unified manner. This systematic approach (embodied largely in the INREM II computer code, which was used for most of the calculations; Killough et al., 1978) is not entirely free of difficulties, which occur as minor conceptual inconsistencies or as the requirement of special treatment for certain radionuclides. We have attempted to identify the former in Chap. 2; instances of the latter are dealt with in Chap. 3 and Appendix A.

While this document has drawn extensively upon the biomedical and health physics literature, it should not be treated as a comprehensive review of internal dose models and the computer codes which implement them. Such an undertaking would have proved prohibitive. Moreover, no systematic attempt has been made to account for the historical evolution of the models described in this work; therefore we acknowledge a general debt to the seminal ideas of earlier investigators whose publications are not explicitly cited here.

A point of emphasis in this work is the documentation of information that has gone into the tabulations. It is our intention to leave a trail from each tabulated dose conversion factor which a reader who is familiar with the various parts of this document can follow backward to the models, data, and special assumptions which went into the factor's calculation. We doubt that we have been completely successful in reaching this goal, but the size of this volume attests to the inclusion of considerable detail. To assist readers in using the tabulation, we offer some general remarks about its content and organization.

Chapter 2 and its subsections provide a general discussion of the mathematical models that are applied to most (but not all) nuclides considered (exceptions are tritium and ^{14}C). In general, the context is the intake of a radionuclide by ingestion or inhalation; in the latter case a particulate form is assumed, with exceptions as noted previously. Dynamic models are applied to the estimation of microcurie-days residence of the radionuclide (and of radioactive daughters that are formed in the body) in the respiratory and gastrointestinal tracts and in other organs which may tend to concentrate the material. These activity integrals

for the source organs are multiplied by dosimetric "S-factors" (rem/ μ Ci-day) to provide estimates of dose equivalent to each of a standard list of 22 target organs. The terms "source" and "target" refer to the irradiation of organs by emissions from radionuclide activity in other organs. For every source and target combination, Appendix A provides dose matrices for the evaluation of these cross irradiation or "cross-fire" components.

We remark that the 22 target organs considered here are (with two exclusions) those used in the S-factor tabulation of ORNL-5000 (Snyder et al., 1974; 1975). In any specific application, relatively few of these organs are likely to be of interest, but comparisons may be facilitated by this more complete listing which, moreover, is consistently provided for all radionuclides considered. It also seems likely that some of the additional information will prove useful in the estimation of radiation-induced health effects to populations by means of risk factors that are organ specific (e.g., ICRP Publication 26: ICRP, 1977b).

The dynamic models include the lung model for inhaled particulates proposed by a task group of the ICRP, headed by P. E. Morrow (Morrow et al., 1966). This model, with parameters from ICRP Publication 19 (ICRP, 1972a), is employed to estimate the deposition and retention in the major regions of the respiratory tract and to calculate translocation of the inspired material into the blood and other organs. The gastrointestinal (GI) tract is represented by a catenary model of four segments (Bernard, 1968) with mean transit times suggested by Eve (1966). The model permits absorption of activity into the blood from any combination of the segments, but we generally assume that all absorption is from the small intestine. Retention of activity in organs other than the respiratory and GI tracts is modeled by linear combinations of decaying exponential functions. Such retention functions are often derived as approximations to other functional forms [e.g., the power functions developed by Marshall et al. (1972) for the alkaline earth elements].

Chapter 3 contains discussions of specific metabolic models and parameters used in these calculations. Many of these models were described by one of the present authors (S. R. Bernard) for Appendix VI of the Rasmussen Study (WASH-1400; USNRC, 1975), and the presentations given here are, in many cases, quite similar to those. The previously noted exceptions, tritium and ^{14}C , are handled differently from most of the other calculations, and Chap. 3 describes these special methods.

The remaining information in this volume is assembled in two appendices. The more detailed is Appendix A, which presents calculation sheets for each parent nuclide considered. For the parent nuclide and each radioactive daughter, these sheets summarize radioactive half-lives and branching ratios, and for each of the organs explicitly treated in the calculation, the retention function and blood-to-organ transfer fraction (f_2^1). A table of S-factors for the parent species is also given (S-factors for daughters may be found in their separate listings in Appendix A). Two or more cases (one inhalation and one ingestion) are generally considered. For an ingestion case, transfer fractions from the GI tract to blood (f_1) are shown for the parent and daughters. In an inhalation calculation, the sheet shows for the parent nuclide the activity median aerodynamic diameter (AMAD, μm); the respiratory regional deposition fractions D_3 , D_4 , and D_5 ; and for the parent and each radioactive daughter, the respiratory clearance class (D, W, or Y) and the GI-to-blood absorption fraction (f_1). In every case, a source-target dose matrix is exhibited, with a column showing the total dose to each of a standard list of 22 target organs. These total dose equivalent estimates are the dose conversion factors. Each represents the dose equivalent (rems) to the indicated organ due to the intake of 1 μCi of the parent nuclide by the intake mode (inhalation or ingestion) assumed for that case. To the left of the column of totals, a column headed "OTHER" gives the dose equivalent contribution from organs and tissues in which the activity is not explicitly accounted for and assumed to be uniformly distributed with respect to mass. Therefore the sum of a row of the matrix, to the left of the total column, gives an accounting for the energy absorbed by the target from all disintegrations of the parent

and daughters in the body, and it is this sum that is tabulated in the total column as the dose conversion factor for that organ. Footnotes to these calculation sheets give special details to assist the reader in interpreting the information.

Appendix B gives summary tabulations of dose conversion factors that include all of those presented in Appendix A and additional factors for inhalation cases. Four tables are presented: three for inhalation and one for ingestion. Each shows dose conversion factors for 22 target organs. The inhalation tables correspond to particle diameters (AMAD) of 0.3, 1, and 5 μm . The respiratory clearance class of the parent nuclide (D, W, or Y, where applicable) is also shown in the column labeled "SOL," and the GI-tract absorption fraction is also exhibited. These parameters will help the reader identify a similar case in Appendix A if further details are needed. The ingestion table shows only the fraction f_1 , in addition to the dose conversion factors.

2. GENERAL COMPUTATIONAL METHODS

Most of the dose conversion factors in this tabulation have been calculated from a general dynamic model of intake, translocation, and metabolism of a radionuclide and, when they exist, radioactive progeny. The model has been implemented as a computer code, INREM II, which approximates the solutions of the differential equations that specify the model. These equations remain formally the same through all calculations except for parameters which vary from one nuclide chain to another. In the coming sections, we describe the model in terms of the differential equations of each of its submodels, such as lungs, gastrointestinal tract, and other organs.

All dose conversion factors given in the appendices represent dose equivalent (rems) to the target organ per microcurie of the parent species taken into the body. This dose equivalent includes the contribution of radioactive daughters that are formed in the body, with their differential migration taken into account. Daughter concentrations present in the external environment (air, water, or food) must be considered separately.

2.1 Computational Schemes for Internal Dose

We assume that the 1 μCi of activity taken into the body belongs to the first in a chain of N radioactive nuclide species ($N \geq 1$; this formulation is always intended to include the special case of a chain with only one radionuclide, which decays to a stable element). Dynamics of decay and the formation of radioactive daughters will be described in Sect. 2.2.

Let $A_{ik}(t)$ denote the activity (μCi) of the i th species of the chain ($1 \leq i \leq N$) in an organ indexed by subscript k , represented as a function of the time, t (days), since the intake of the parent species into the body. The time integral of this activity,

$$\tilde{A}_{ik}(T) = \int_0^T A_{ik}(t) dt \quad \mu\text{Ci-days} , \quad (2.1)$$

is fundamental to the dose estimates to be described. The upper limit, T , will generally denote 18,250 days = 50 years, approximately the remaining life expectancy of a young adult. The integral (2.1) is proportional to the total number of disintegrations of the i th species that occur in the k th organ and therefore is a measure of the total energy emitted by transformations of that species in the organ. The problem is to estimate the fraction of this energy that is absorbed by the k th organ (the source organ) and (possibly) other organs.

The "S-factor" $S_i(X \leftarrow Y)$ (rem/ μ Ci-day) is defined as the average dose equivalent rate to target organ X due to 1 μ Ci of radionuclide species i uniformly distributed in source organ Y . An extensive tabulation of S-factors was initiated by W. S. Snyder and his colleagues (Snyder et al., 1974, 1975; ORNL-5000, Parts 1 and 2, respectively). Dunning et al. (1977) have provided additional S-factors, using the methods described in ORNL-5000 and Monte Carlo data from that report, but nuclear decay data prepared by Kocher (1977). The calculations reported in this document are based on the S-factors tabulated by Dunning et al. or computed with the program described in that report. The S-factors in both tabulations are broken down into components according to emission type, namely, alpha, alpha recoil, electron (β^+ , β^- , Auger, conversion), photon (gamma, X-ray), and spontaneous fission (neutron, fission fragment, and prompt and delayed electron and photon). Thus the total S-factor would be expressed as

$$S_i(X \leftarrow Y) = \sum_{\delta} S_i^{\delta}(X \leftarrow Y) ,$$

where the sum on the right is understood to contain nonzero terms only for those emission types, δ , which are present in transformations of the i th species. We note that the radionuclides treated in ORNL-5000, Parts 1 and 2, involve only electron and photon emissions.

For a given emission type, the S-factor may be defined by the equation

$$S_i^\delta(X \leftarrow Y) = 51.2(Q^\delta N_X^\delta / m_X) \sum_{\ell} F_{\ell}^\delta \bar{E}_{\ell}^\delta \phi^\delta(X \leftarrow Y; \bar{E}_{\ell}^\delta), \quad (2.2)$$

where δ stands for the emission type, ℓ indexes events of type δ , and

$$51.2 = \frac{3.20 \times 10^9 \frac{\text{disintegrations}}{\mu\text{Ci-day}} \times 1.60 \times 10^{-6} \frac{\text{erg}}{\text{MeV}}}{100 \text{ erg/gram of tissue/rad}},$$

m_X = mass (g) of target organ X,

Q^δ = quality factor for emission type δ ,

N_X^δ = distribution or other modifying factor for emission type δ and target organ X,

$\bar{E}_{\ell}^\delta$ = average or unique energy (MeV) of event ℓ and type δ ,

F_{ℓ}^δ = intensity of event ℓ and type δ (average number per disintegration), and

$\phi^\delta(X \leftarrow Y; \bar{E}_{\ell}^\delta)$ = fraction of energy $\bar{E}_{\ell}^\delta$ emitted in source organ Y that is absorbed in target organ X.

The summation in Eq. (2.2) represents the average energy of type δ absorbed by the target organ per disintegration in the source organ. The quality factor, Q^δ , is taken as unity for photon and electron emissions, 10 for alpha particles and neutrons, and 20 for alpha recoil nuclei and fission fragments. The modifying factor, N_X^δ , is assigned the value 5 for alpha emissions, neutrons, and recoil nuclei when the target organ, X, is bone. The exception to this rule occurs when the radionuclide taken into the body is an isotope of radium, in which case $N_{\text{BONE}}^\alpha = N_{\text{BONE}}^{\text{RECOIL}} = 1$ for each alpha emitter in the chain; if the radium isotope occurs as a daughter, however, $N_{\text{BONE}}^\alpha = N_{\text{BONE}}^{\text{RECOIL}} = 5$ for the radium and the other alpha emitters in the chain (ICRP, 1959). Finally, the alpha dose to the walls of the GI tract from activity in the contents is modified by $N_{\text{GI WALL}}^\alpha = 0.01$ in recognition of the observation that the thickness of the mucus layer is usually greater than the range of alpha particles; the corresponding N-factor for alpha recoil nuclei in the GI tract is taken as zero on the assumption that these nuclei fail to penetrate the mucus (ICRP, 1959).

When the radiation δ is nonpenetrating, the absorbed fractions $\phi^\delta(X \leftarrow Y; \overline{E}_\ell^\delta)$ are generally set equal to zero if the source and target organs are separated and unity if they are the same, or 1/2 if the target is a walled organ, such as the bladder or a segment of the GI tract, and the source is the contents. For penetrating radiations (photon, neutron), the absorbed fractions are estimated by Monte Carlo computer simulations. For photons, ORNL-5000 Part 1 tabulates *specific absorbed fractions*, $\phi(X \leftarrow Y; E) = \phi(X \leftarrow Y; E)/m_X$, for 22 source and 24 target organs and 12 discrete photon energies E ; these specific absorbed fractions were used in the present calculation. Dillman and Jones (1975) and Ford et al. (1977) discuss methods for estimating S-factors for radionuclides that decay by spontaneous fission.

The details of bone dosimetry that have been incorporated into the S-factors are too numerous to permit a complete accounting here. They have been presented in ORNL-5000 Parts 1 and 2, however, and the computer code which represents our adaptation of those models to these calculations has been documented by Dunning et al. (1977). Factors for four source tissues in the skeleton (cortical and cancellous bone and red and yellow marrow) have been computed, and skeletal targets are bone, total endosteal cells, and red and yellow marrow. In the tables of the appendices, "BONE" often appears as a source designation; the interpretation is a mass-proportional distribution of activity between cortical (4000 g) and cancellous bone (1000 g). Beta-dose response curves based on data communicated to W. S. Snyder by F. W. Spiers have been used to estimate intra-skeletal transfers of energy due to beta and electron emissions, as described in ORNL-5000. All bone-depositing nuclides have been treated as volume seekers in these calculations, and doses to endosteal cells reported in the appendices of this volume and the next should be weighed with this consideration in mind in the case of the predominantly surface depositors, such as plutonium, thorium, americium, actinium, curium, cerium, berkelium, californium, einsteinium, and so on (ICRP, 1968).

We consider mutually exclusive source organs, $Y_1, Y_2, \dots, Y_M$, which may be assumed to partition all of the radioactivity in the body which

results from the intake. The average dose equivalent to target organ X due to radionuclide species i in these source organs is

$$D_i(X) = \sum_{k=1}^M D_i(X \leftarrow Y_k) \text{ rem} , \quad (2.3)$$

where

$$D_i(X \leftarrow Y_k) = S_i(X \leftarrow Y_k) \tilde{A}_{ik} \text{ rem} , \quad (2.4)$$

where $\tilde{A}_{ik} = \tilde{A}_{ik}(T)$ is the $\mu\text{Ci-days}$ residence of species i in source organ Y_k , as defined by Eq. (2.1). The S-factor in Eq. (2.4) is the sum of the S-factors for those emission types present in the decay of species i. We note that the assumption of uniform distribution of activity in each source organ is implicit in these definitions, as is the averaging of the dose equivalent over the tissue of the target organ.

In the present document, we regard each dose conversion factor as the *dose equivalent commitment* to an organ of an individual due to 1 μCi of the radionuclide taken into the body. Integration over a 50-year period is customary for calculating the $\tilde{A}_{ik}$, and this practice permits us to interpret the result as being proportional to the total disintegrations of species i in source organ Y_k during the remaining lifetime of an individual who is a young adult at the time of intake. Data employed in the dose estimates are generally based on a reference male adult (ICRP, 1975); obvious exceptions are inclusion of dose conversion factors for ovaries and uterus. Age-dependent calculations that include children and adolescents, as we pointed out in the introduction, are not part of the present tabulation.

In general, our calculations are based on the 22 source* and 22 of the 24 target organs† established by ORNL-5000. Lungs and lymph nodes are present as sources in all inhalation calculations and GI tract in all calculations. In addition, a function for retention in the body of activity that is absorbed into the blood from the lungs and GI tract is always required. But metabolic data for only a few other organs (e.g., bone, liver, and kidneys) are usually available for calculating the $\mu\text{Ci-days}$ residence in those sources. In order to account for all activity that is absorbed into the blood and retained in the body, we proceed as follows. Suppose we have computed the $\mu\text{Ci-days}$ $\tilde{A}_{ik}$ in the source organs Y_k , $k = 1, \dots, P < M$, where M denotes the total number that we distinguish. The remaining organs, $Y_{P+1}, \dots, Y_M$, we treat as an "other tissues" compartment and denote as Y_{OTHER} . Let $\tilde{A}_{i,ab}$ stand for the $\mu\text{Ci-days}$ in the body from all radioactivity of species i that is absorbed from the lungs and GI tract or formed after absorption of a progenitor. With Y_{OTHER} as the source, we estimate the dose to a target X from species i as

$$D_i(X \leftarrow Y_{\text{OTHER}}) = S_i(X \leftarrow Y_{\text{OTHER}}) \left[\tilde{A}_{i,ab} - \sum_{k=1}^P \tilde{A}_{ik} \right] \text{ rem} . \quad (2.5)$$

*Adrenals, bladder contents, stomach contents, small intestine contents, upper large intestine contents, lower large intestine contents, kidneys, liver, lung, respiratory lymph nodes, muscle (part of an "other tissues" compartment), ovaries, pancreas, cortical bone, cancellous bone, red marrow, yellow marrow, skin, spleen, testes, thyroid, and total body [not used as a source in these calculations; but see remarks following Eq. (2.7)].

†Adrenals, bladder wall, stomach wall, small intestine wall, upper large intestine wall, lower large intestine wall, kidneys, liver, lungs, respiratory lymph nodes, ovaries, pancreas, bone, red marrow, yellow marrow, total endosteal cells, spleen, testes, thymus, thyroid, uterus, and total body.

The S-factors for source Y_{OTHER} are calculated from the equation

$$S_i(X \leftarrow Y_{\text{OTHER}}) = \left[\sum_{k=P+1}^M m_k S_i(X \leftarrow Y_k) \right] / \sum_{k=P+1}^M m_k \text{ rem}/\mu\text{Ci-day} , \quad (2.6)$$

where m_k denotes the mass of source organ Y_k . With this definition, $S_i(X \leftarrow Y_{\text{OTHER}})$ corresponds to a distribution of activity in Y_{OTHER} which is uniform with respect to mass; this is activity that is not accounted for by the explicit metabolic information which is usually available for the few organs where the concentration tends to be higher. The total dose to X from species i due to activity taken into the body is therefore estimated to be

$$D_i(x) = \sum_{k=1}^P D_i(X \leftarrow Y_k) + D_i(X \leftarrow Y_{\text{OTHER}}) \text{ rem} . \quad (2.7)$$

A point of possible confusion should be clarified. When $X = \text{TOTAL BODY}$, $\sum_i D_i(X)$, computed from Eq. (2.7), is the number reported for total body in our TOTAL columns of Appendix A or under TOTAL BODY in Appendix B. The dose $\sum_i D_i(X \leftarrow Y_{\text{OTHER}})$ is occasionally referred to as a "total body" dose, or more precisely, the "dose from the uniform distribution" in the total body. We avoid such nomenclature, however: an approximation to this latter dose is tabulated in Appendix A in the source column headed OTHER.

One of the M source organs $Y_1, \dots, Y_M$ is considered to represent a compartment for a component of activity which is promptly excreted (biological half-time ~ 0.5 days). This material is assumed to be carried in the blood and distributed uniformly throughout the body. For certain of the radionuclides in this tabulation it is possible to assign an explicit fraction of the absorbed activity to this excretion compartment; in such cases the microcurie-days residence of this activity is combined with the S-factors which have total body as source organ, and these

microcurie-days are deducted from the total absorbed in Eq. (2.5) and therefore are excluded from Y_{OTHER} . Otherwise, when an explicit estimate of prompt excretion is not available, the prompt-excretion component is assumed to be included in Y_{OTHER} . No adjustment is made, however, in the S-factors defined for Y_{OTHER} by Eq. (2.6).

2.2 Dynamic Retention Models

Retention and translocation of radioactivity in the body are modeled in terms of conceptual compartments which correspond to systems of ordinary differential equations. Figure 2.1 depicts the assumed movement of activity among the various compartments as it is carried by various mechanical and physiological processes. More detailed views of the respiratory and GI-tract submodels will be shown in Sect. 2.2.1 and 2.2.2. Following inhalation of a radioactive particulate, part of the activity is absorbed into the blood from the respiratory tract; mechanical processes move another part of it up from the respiratory passages and into the GI tract, from which a further fraction is absorbed into the blood. Ingestion bypasses the respiratory tract, but the submodel used for the GI tract is the same.

Superimposed on the dynamics of translocation and retention is the formation of radioactive daughters for certain radionuclides taken into the body. The daughters may have different chemical and physical properties from those of the parent and therefore may behave differently in the body. If one considers a chain of radionuclide species, indexed $i = 1, \dots, N$, in a compartment of the body, we assume that each species has associated with it a function, $R_i(t)$, which characterizes its retention in that compartment. If we consider, in the compartment, an initial burden of species i that is removed by biological processes and radioactive decay and is not replenished, $R_i(t)$ denotes that fraction which survives t days later.

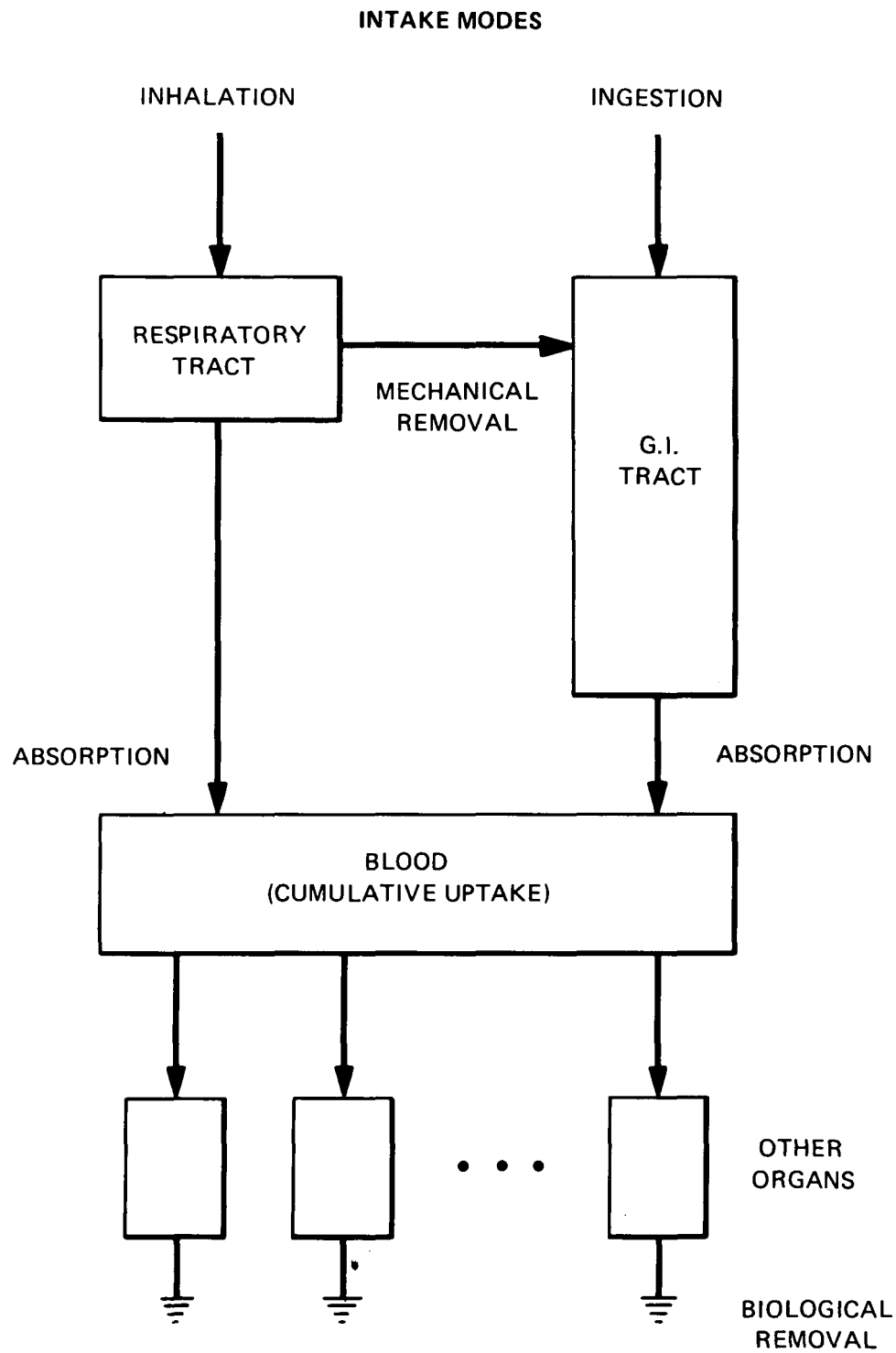


Fig. 2.1 Schematic representation of radioactivity movement assumed in the calculations.

We may express the activities $A_i(t)$ of the radionuclides recursively in terms of the R_i as follows:*

$$A_i(t) = A_i(0)R_i(t) + \int_0^t \left[p_i(\tau) + \lambda_i^R \sum_{j=1}^{i-1} B_{ij} A_j(\tau) \right] R_i(t - \tau) d\tau \quad \mu\text{Ci} , \quad (2.8)$$

where

$\lambda_i^R = (\ln 2)/T_i^R$, where T_i^R = radioactive half-life (days) of species i ,

B_{ij} = radioactive branching ratio from species j to species i , $j < i$, and

$p_i(t)$ = rate ($\mu\text{Ci/day}$) at which activity of species i enters the compartment at time t .

We will always assume that the retention function $R_i(t)$ can be adequately represented as a linear combination of decaying exponential terms:

$$R_i(t) = \sum_{s=1}^{L_i} c_{is} \exp[-(\lambda_i^R + \lambda_{is}^B)t] , \quad (2.9)$$

where

λ_{is}^B = rate coefficient (day^{-1}) for biological removal of species i from the compartment.

For correct interpretation of Eq. (2.8), R_i should satisfy $R_i(0) = 1$. Usually, the coefficients, c_{is} , in Eq. (2.9) are positive and sum to unity, but on occasion better fits are obtained by allowing mixed signs.

*The summations in Eq. (2.8) and subsequent equations of this chapter are defined as zero when the lower limit exceeds the upper limit.

2.2.1 Particulates in the respiratory tract: the ICRP Task Group Lung Model

Our submodel of particulate deposition and retention in the respiratory tract is based on the ICRP Task Group Lung Model (Morrow et al., 1966), shown schematically in Fig. 2.2. The clearance parameters indicated in the figure were adopted from ICRP Publication 19 (ICRP, 1972a). The three clearance classes, D, W, and Y, correspond to rapid, intermediate, and slow absorption, respectively, of material deposited in the respiratory passages. The model identifies four major respiratory regions: nasal-pharynx (N-P), tracheo-bronchial tree (T-B), pulmonary region (P), and lymphatic tissue (L). Fractional depositions of inhaled particulates in the first three of these regions are given by the fractions D_3 , D_4 , and D_5 , respectively (the sum of these is less than one, with the shortfall accounting for prompt exhalation). These fractions are functions of the activity median aerodynamic diameter (AMAD) of the inspired particles; a functional relationship suggested to W. S. Snyder by P. E. Morrow and presented in graphical form in Appendix VI of the Rasmussen Reactor Safety Study (WASH-1400; USNRC, 1975) has been adopted in our calculations (Fig. 2.3).

The schematic presentation of the Task Group Lung Model, as set forth in the 1966 Task Group Report (Morrow et al., 1966), has been variously interpreted for purposes of a mathematical formulation, particularly when radioactive progeny are formed. Our interpretation is based on retention functions for the major regions, which are defined as follows:

Nasal-pharynx

$$R_i^{N-P}(t) = \underbrace{F_{a,i} e^{-\lambda_{a,i} t}}_{\text{to blood}} + \underbrace{F_{b,i} e^{-\lambda_{b,i} t}}_{\text{to GI}}, \quad (2.10)$$

COMPARTMENT		CLASS					
		D		W		Y	
		T	F	T	F	T	F
N-P ($D_3 = 0.30$)	a	0.01	0.5	0.01	0.1	0.01	0.01
	b	0.01	0.5	0.4	0.9	0.4	0.99
T-B ($D_4 = 0.08$)	c	0.01	0.95	0.01	0.5	0.01	0.01
	d	0.2	0.05	0.2	0.5	0.2	0.99
P ($D_5 = 0.25$)	e	0.5	0.8	50	0.15	500	0.05
	f	n.a.	n.a.	1.0	0.4	1.0	0.4
	g	n.a.	n.a.	50	0.4	500	0.4
	h	0.5	0.2	50	0.05	500	0.15
L	i	0.5	1.0	50	1.0	1000	0.9

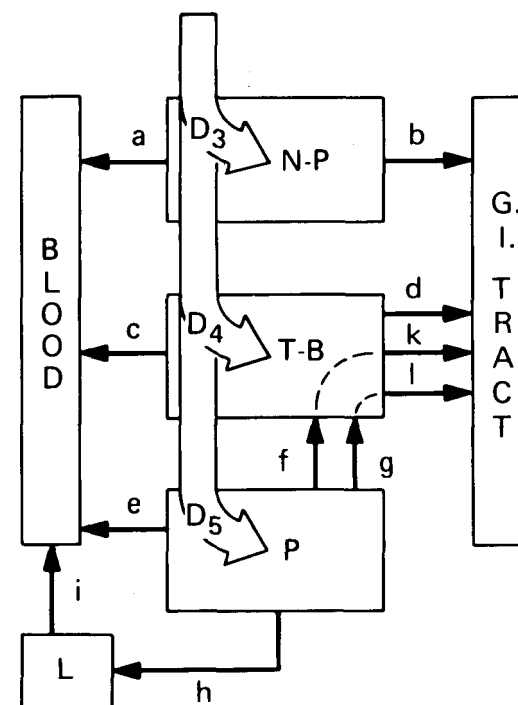


Fig. 2.2 The ICRP Task Group Lung Model for particulates (Morrow et al., 1966; ICRP, 1972). The columns labeled D, W, and Y correspond, respectively, to rapid, intermediate, and slow clearance of the inspired material. The symbols T and F denote the biological half-time (days) and coefficient, respectively, of a term in the appropriate retention function [Eq. (2.10) through (2.14)]. The values shown for D_3 , D_4 , and D_5 correspond to activity median aerodynamic diameter AMAD = $1 \mu\text{m}$. Differential equations for pathways a, b, ..., i are (2.15) through (2.26).

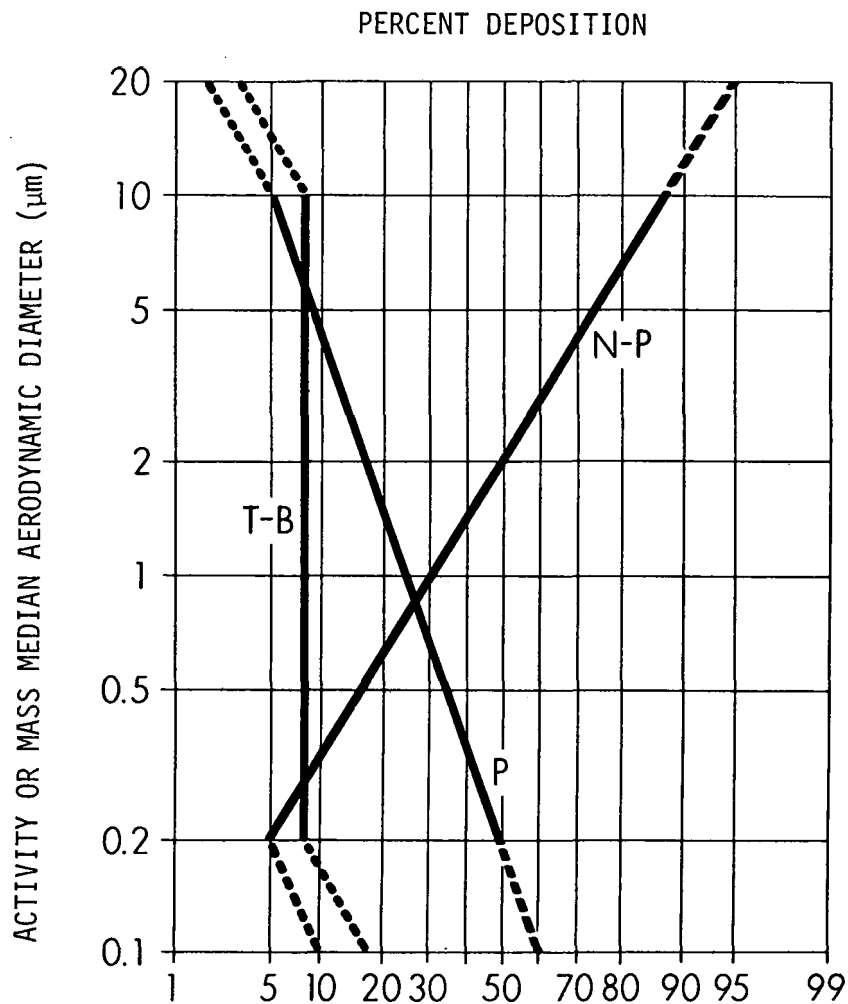


Fig. 2.3. Deposition model [after Fig. VI D-1, Appendix VI, Reactor Safety Study (1975)]. The radioactive or mass fraction of an aerosol that is deposited in the nasopharyngeal, tracheobronchial, and pulmonary regions is shown relative to the activity or mass median aerodynamic diameter (AMAD or MMAD) of the aerosol distribution. The model is intended for use with aerosol distributions that have an AMAD or MMAD between 0.2 and 10 μm with geometric standard deviations less than 4.5. Provisional deposition estimates further extending the size range are given by the broken lines. For the unusual distribution having AMAD or MMAD greater than 20 μm , complete nasopharyngeal deposition can be assumed. The model does not apply to aerosols with AMAD or MMAD below 0.1 μm .

Tracheo-bronchial tree

(i) activity deposited directly

$$R_{1,i}^{T-B}(t) = \underbrace{F_{c,i} e^{-\lambda_{c,i} t}}_{\text{to blood}} + \underbrace{F_{d,i} e^{-\lambda_{d,i} t}}_{\text{to GI}}, \quad (2.11)$$

(ii) activity in transit from pulmonary region (pathways f and g)

$$R_{2,i}^{T-B}(t) = \underbrace{e^{-\lambda_{d,i} t}}_{\text{to GI}}, \quad (2.12)$$

Pulmonary region

$$R_i^P(t) = \underbrace{F_{e,i} e^{-\lambda_{e,i} t}}_{\text{to blood}} + \underbrace{F_{f,i} e^{-\lambda_{f,i} t} + F_{g,i} e^{-\lambda_{g,i} t}}_{\text{to T-B}} + \underbrace{F_{h,i} e^{-\lambda_{h,i} t}}_{\text{to lymph}}, \quad (2.13)$$

Lymphatic tissue

$$R_i^L(t) = \underbrace{F_{i,i} e^{-\lambda_{i,i} t}}_{\text{to blood}} + \underbrace{(1 - F_{i,i}) e^{-\lambda_{i,i}^R t}}_{\substack{\text{remains in lymph} \\ \text{(class Y materials)}}}, \quad (2.14)$$

In these equations, $\lambda_{v,i} = \lambda_i^R + \lambda_{v,i}^B$, where $\lambda_{v,i}^B = (\ln 2)/T_{v,i}^B$ and $T_{v,i}^B$ is the biological half-time (Fig. 2.2) associated with clearance pathway v ($= a, b, \dots, i$). The clearance class (D, W, Y) depends on chemical properties of species i . The pathway fractions, $F_{v,i}$, are also shown in Fig. 2.2 for the three clearance classes.

Application of Eq. (2.8) to these retention functions permits us to write recursive equations for the activity of species i in these major compartments. But for various reasons, it is more practical to

use Eq. (2.8) and Eqs. (2.10) through (2.14) to derive a set of differential equations for the activities $A_{a,i}$, ..., $A_{\ell,i}$ cleared by pathways a , ..., ℓ , respectively. These equations follow:

$$\dot{A}_{a,i} = -\lambda_{a,i} A_{a,i} + F_{a,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{a,j} + A_{b,j}) , \quad (2.15)$$

$$\dot{A}_{b,i} = -\lambda_{b,i} A_{b,i} + F_{b,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{a,j} + A_{b,j}) , \quad (2.16)$$

$$\dot{A}_{c,i} = -\lambda_{c,i} A_{c,i} + F_{c,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{c,j} + A_{d,j}) , \quad (2.17)$$

$$\dot{A}_{d,i} = -\lambda_{d,i} A_{d,i} + F_{d,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{c,j} + A_{d,j}) , \quad (2.18)$$

$$\dot{A}_{e,i} = -\lambda_{e,i} A_{e,i} + F_{e,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{e,j} + A_{f,j} + A_{g,j} + A_{h,j}) , \quad (2.19)$$

$$\dot{A}_{f,i} = -\lambda_{f,i} A_{f,i} + F_{f,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{e,j} + A_{f,j} + A_{g,j} + A_{h,j}) , \quad (2.20)$$

$$\dot{A}_{g,i} = -\lambda_{g,i} A_{g,i} + F_{g,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{e,j} + A_{f,j} + A_{g,j} + A_{h,j}) , \quad (2.21)$$

$$\dot{A}_{h,i} = -\lambda_{h,i} A_{h,i} + F_{h,i} \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{e,j} + A_{f,j} + A_{g,j} + A_{h,j}) , \quad (2.22)$$

$$\dot{A}_{i,i} = -\lambda_{i,i}^R A_{i,i} + F_{i,i} \left\{ \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{i,j} + A_{j,j}) + \lambda_{h,i}^B A_{h,i} \right\} , \quad (2.23)$$

$$\dot{A}_{j,i} = -\lambda_{j,i}^R A_{j,i} + (1 - F_{i,i}) \left\{ \lambda_i^R \sum_{j=1}^{i-1} B_{ij} (A_{i,j} + A_{j,j}) + \lambda_{h,i}^B A_{h,i} \right\} , \quad (2.24)$$

$$\dot{A}_{k,i} = -\lambda_{d,i}^R A_{k,i} + \lambda_i^R \sum_{j=1}^{i-1} B_{ij} A_{k,j} + \lambda_{f,i}^B A_{f,i} , \quad (2.25)$$

$$\dot{A}_{\ell,i} = -\lambda_{d,i}^R A_{\ell,i} + \lambda_i^R \sum_{j=1}^{i-1} B_{ij} A_{\ell,j} + \lambda_{g,i}^B A_{g,i} . \quad (2.26)$$

For an initial intake of 1 μCi , depositions of species 1 (the parent) in the N-P, T-B, and P regions are D_3 , D_4 , and D_5 μCi , respectively, with $1 - D_3 - D_4 - D_5$ μCi being exhaled. The amount of each daughter present initially is assumed to be zero. The initial conditions are therefore the following:

Nasal-pharynx

$$A_{\alpha,1}(0) = F_{\alpha,1} D_3 ; \quad A_{\alpha,i}(0) = 0, \quad i > 1 ; \quad (2.27)$$

$$A_{b,1}(0) = F_{b,1} D_3 ; \quad A_{b,i}(0) = 0, \quad i > 1 ; \quad (2.28)$$

Tracheo-bronchial tree

(i) direct deposition

$$A_{c,1}(0) = F_{c,1} D_4 ; \quad A_{c,i}(0) = 0, \quad i > 1 ; \quad (2.29)$$

$$A_{d,1}(0) = F_{d,1} D_4 ; \quad A_{d,i}(0) = 0, \quad i > 1 ; \quad (2.30)$$

(ii) return from pulmonary

$$A_{k,i}(0) = A_{\ell,i}(0) = 0, \quad i = 1, \dots, N ; \quad (2.31)$$

Pulmonary region

$$A_{e,1}(0) = F_{e,1} D_5 ; \quad A_{e,i}(0) = 0, \quad i > 1 ; \quad (2.32)$$

$$A_{f,1}(0) = F_{f,1} D_5 ; \quad A_{f,i}(0) = 0, \quad i > 1 ; \quad (2.33)$$

$$A_{g,1}(0) = F_{g,1} D_5 ; \quad A_{g,i}(0) = 0, \quad i > 1 ; \quad (2.34)$$

$$A_{h,1}(0) = F_{h,1} D_5 ; \quad A_{h,i}(0) = 0, \quad i > 1 ; \quad (2.35)$$

Lymphatic tissue

$$A_{i,i}(0) = A_{j,i}(0) = 0, \quad i = 1, \dots, N . \quad (2.36)$$

For computing $\mu\text{Ci-days}$ residence in the four major respiratory compartments, we add to the system the following equations:

$$\tilde{A}_{N-P,i} = \tilde{A}_{a,i} + \tilde{A}_{b,i} , \quad (2.37)$$

$$\tilde{A}_{T-B,i} = \tilde{A}_{c,i} + \tilde{A}_{d,i} + \tilde{A}_{k,i} + \tilde{A}_{\ell,i} , \quad (2.38)$$

$$\tilde{A}_{P,i} = \tilde{A}_{e,i} + \tilde{A}_{f,i} + \tilde{A}_{g,i} + \tilde{A}_{h,i} , \quad (2.39)$$

$$\tilde{A}_{L,i} = \tilde{A}_{i,i} + \tilde{A}_{j,i} , \quad (2.40)$$

where $\tilde{A}_{N-P,i}$, $\tilde{A}_{T-B,i}$, $\tilde{A}_{P,i}$, and $\tilde{A}_{L,i}$ are the μCi -days residence of species i in the respective compartments. The interpretations of the Task Group Lung Model that are contained in these equations are the same as those adopted by Snyder, Ford, and Watson (1975).

The rate of absorption of activity from the respiratory tract into the blood is used to determine the history of uptake to other organs (except the GI tract). The equation ($\mu\text{Ci/day}$) is

$$\dot{A}_{LB,i} = \lambda_{a,i}^B A_{a,i} + \lambda_{c,i}^B A_{c,i} + \lambda_{e,i}^B A_{e,i} + \lambda_{i,i}^B A_{i,i}, \quad (2.41)$$

where $A_{LB,i}$ is the cumulative activity (μCi) of species i absorbed into the blood. As before, $\lambda_{v,i}^B$ is the rate coefficient for biological removal of the material from the respiratory tract by pathway v .

The equation expressing the rate at which activity of species i is cleared from the respiratory tract into the GI tract is

$$\dot{A}_{LG,i} = \lambda_{b,i}^B A_{b,i} + \lambda_{d,i}^B A_{d,i} + \lambda_{k,i}^B A_{k,i} + \lambda_{l,i}^B A_{l,i}, \quad (2.42)$$

where $A_{LG,i}$ denotes the cumulative activity of species i entering the GI tract from the respiratory tract. The equation governing the subsequent transfer from GI tract to blood is given in Sect. 2.2.2.

2.2.2 The gastrointestinal tract

The GI tract is irradiated following the intake of radioactivity either by inhalation or ingestion. In the former case, particulate matter deposited in the respiratory tract and cleared from there by way of pathways b , d , k , and l enters the GI tract, as is indicated schematically in Fig. 2.4. Moreover, the dynamics of absorption of activity from the GI tract into the blood must be examined to determine the availability to other organs.

The four-segment catenary model of the GI tract adopted for use in these calculations (Fig. 2.4) is equivalent to the one described by

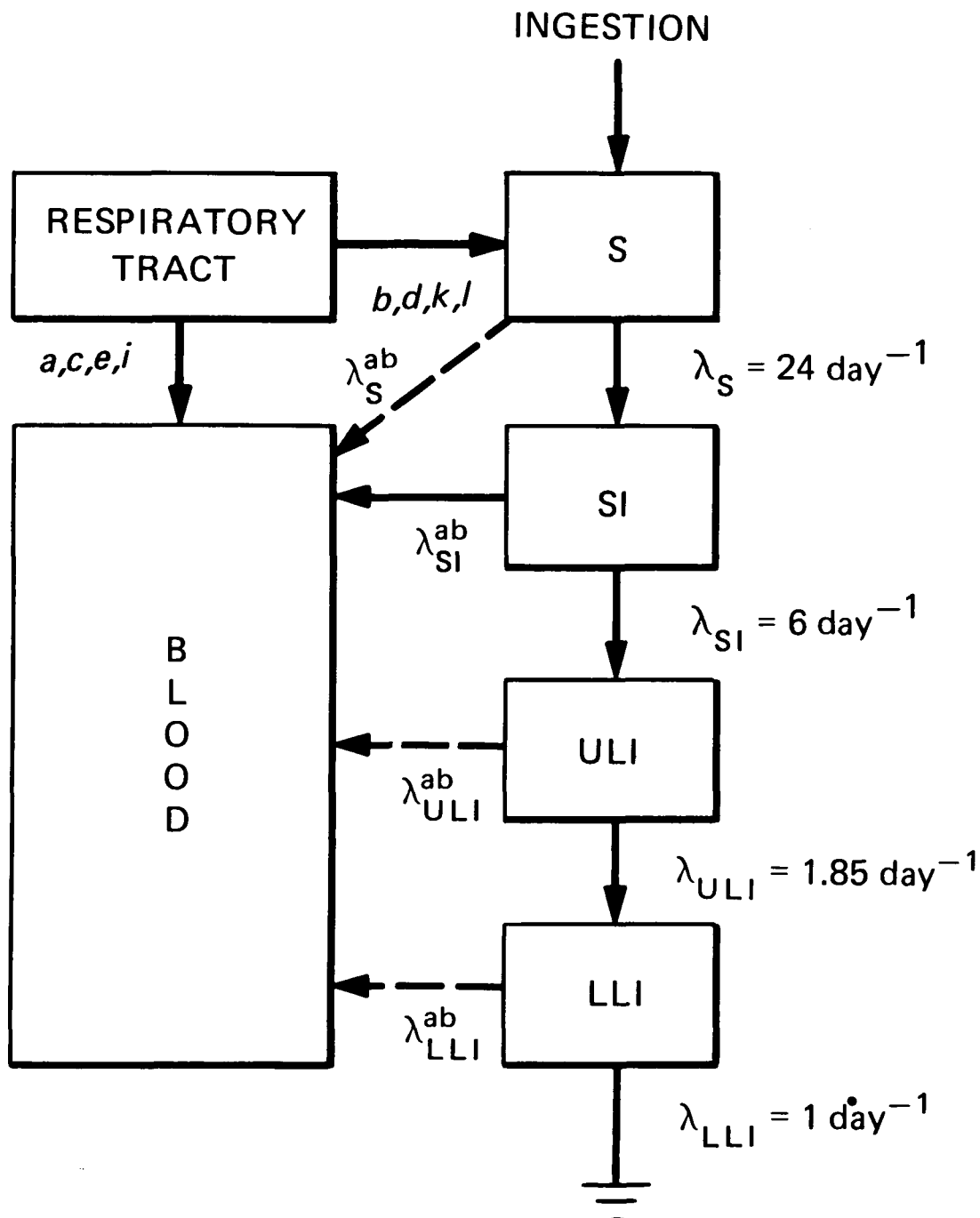


Fig. 2.4 Schematic representation of radioactivity movement among respiratory tract, GI tract, and blood.

Bernard (1968). It assumes exponential outflow of activity from each segment into the next or out of the system. Outflow rate coefficients have been calculated from the transit times suggested by Eve (1966) and are shown in the figure. Absorption of activity into the blood is usually assumed to be confined to the small intestine, but the equations are written to provide for absorption from any combination of the four segments at differential rates.

The differential equations for activity (μCi) and μCi -days residence of species i in the stomach (S), small intestine (SI), upper large intestine (ULI), and lower large intestine (LLI) follow:

$$\begin{aligned} \dot{A}_{S,i} = & -(\lambda_S + \lambda_i^R + \lambda_{S,i}^{ab})A_{S,i} + \lambda_i^R \sum_{j=1}^{i-1} B_{ij}A_{S,j} \\ & + \theta(\lambda_{b,i}^B A_{b,i} + \lambda_{d,i}^B A_{d,i} + \lambda_{d,i}^B A_{k,i} + \lambda_{d,i}^B A_{\ell,i}) , \end{aligned} \quad (2.43)$$

$$\dot{A}_{SI,i} = -(\lambda_{SI} + \lambda_i^R + \lambda_{SI,i}^{ab})A_{SI,i} + \lambda_S A_{S,i} + \lambda_i^R \sum_{j=1}^{i-1} B_{ij}A_{SI,j} , \quad (2.44)$$

$$\begin{aligned} \dot{A}_{ULI,i} = & -(\lambda_{ULI} + \lambda_i^R + \lambda_{ULI,i}^{ab})A_{ULI,i} + \lambda_{SI} A_{SI,i} \\ & + \lambda_i^R \sum_{j=1}^{i-1} B_{ij}A_{ULI,j} , \end{aligned} \quad (2.45)$$

$$\begin{aligned} \dot{A}_{LLI,i} = & -(\lambda_{LLI} + \lambda_i^R + \lambda_{LLI,i}^{ab})A_{LLI,i} + \lambda_{ULI} A_{ULI,i} \\ & + \lambda_i^R \sum_{j=1}^{i-1} B_{ij}A_{LLI,j} , \end{aligned} \quad (2.46)$$

$$\dot{Y}_{S,i} = A_{S,i} , \quad (2.47)$$

$$\dot{Y}_{SI,i} = A_{SI,i} , \quad (2.48)$$

$$\dot{Y}_{ULI,i} = A_{ULI,i} , \quad (2.49)$$

$$\dot{Y}_{LLI,i} = A_{LLI,i} , \quad (2.50)$$

where

$A_{\sigma,i}$ = activity (μCi) of species i in the segment σ ($= S, SI, ULI,$ or LLI) of the GI tract,

$Y_{\sigma,i}$ = time-integrated activity ($\mu\text{Ci-days}$) of species i in segment σ ,

λ_{σ} = outflow rate coefficient (day^{-1}) for activity in segment σ ($= S, SI, ULI,$ or LLI) of the GI tract [calculated from transit times of Eve (1966); see Fig. 2.4],

λ_i^R = radioactive decay rate coefficient (day^{-1}) for nuclide species i ,

$\lambda_{\sigma,i}^{ab}$ = rate coefficient (day^{-1}) for absorption of nuclide species i from segment σ into the blood,

B_{ij} = branching ratio of nuclide species j to species i , and

$\theta = 0$ or 1 according as intake of the parent nuclide occurs by ingestion or inhalation.

Initial conditions for the GI segments are

$$A_{S,1}(0) = 1 - \theta ; \quad A_{S,i}(0) = 0, \quad i > 1 ; \quad (2.51)$$

$$A_{SI,i}(0) = A_{ULI,i}(0) = A_{LLI,i}(0) = 0, \quad i = 1, \dots, N . \quad (2.52)$$

Thus, when $\theta = 1$ (inhalation), all activity enters the GI tract from the respiratory tract through the last term in Eq. (2.43); in case of ingestion, that term is zero, but the condition $A_{S,1}(0) = 1$ from Eq. (2.51) puts $1 \mu\text{Ci}$ of the parent species in the stomach at time zero.

The coefficient $\lambda_{SI,i}^{ab}$ for the rate of absorption of species i into the blood from the small intestine is related to the absorption fraction $f_{1,i}$ by the equation

$$f_{1,i} = \lambda_{SI,i}^{ab} \int_0^{+\infty} \exp[-(\lambda_{SI} + \lambda_{SI,i}^{ab})t] dt \quad (2.53)$$

which expresses the requirement that the fraction $f_{1,i}$ of each mass unit of the element introduced into the small intestine is absorbed into the blood, if radioactive decay is neglected. Integration and solution for $\lambda_{SI,i}^{ab}$ give

$$\lambda_{SI,i}^{ab} = \lambda_{SI} f_{1,i} / (1 - f_{1,i}) . \quad (2.54)$$

The rate coefficients $\lambda_{S,i}^{ab}$, $\lambda_{ULI,i}^{ab}$, and $\lambda_{LLI,i}^{ab}$ can similarly be related to absorption fractions applicable to their respective segments. Published data occasionally suggest complete absorption of a radionuclide from the GI tract, i.e., $f_{1,i} = 1$. But such a condition sets the denominator in Eq. (2.54) equal to zero and cannot be met exactly with any finite rate of absorption. We therefore impose an arbitrary ceiling of 0.95 on $f_{1,i}$, as have Snyder, Ford, and Watson (1975), on the assumption that experimental data may well err by five percent or more in their indication of total absorption of an element.

The rate of absorption, $\dot{A}_{GB,i}$, of species i from the GI tract into the blood is given by the equation

$$\dot{A}_{GB,i} = \lambda_{S,i}^{ab} A_{S,i} + \lambda_{SI,i}^{ab} A_{SI,i} + \lambda_{ULI,i}^{ab} A_{ULI,i} + \lambda_{LLI,i}^{ab} A_{LLI,i} . \quad (2.55)$$

The quantity $A_{GB,i}$ is used, together with $A_{LB,i}$ of Eq. (2.41) in case of intake by inhalation, to compute the availability of species i to other organs.

2.2.3 Other organs

The dynamics of activity of a radionuclide species in an organ other than the respiratory or GI tract are assumed to be characterized by a fractional retention function of the form specified by Eq. (2.9). In general, as we mentioned in Sect. 2.2.1, we assume that $R_i(0) = 1$, i.e., that the coefficients, c_{is} , sum to unity. This assumption permits us to interpret the retention function as representing the fractional survival of each μCi deposited in the organ with respect to radioactive decay and the organ's removal processes. The integral of Eq. (2.8) then convolutes this fractional survival with the rate of formation of species i from the decay of progenitors in the organ plus the flow of activity into the organ from other parts of the system. Also, with this interpretation, there is no sojourn of activity in an explicit blood compartment; rather, each μCi entering the blood from respiratory or GI tract is immediately allocated among several competing organs, with the remainder assigned to OTHER. The fractional allocation to an organ is denoted $f'_{2,i}$. Therefore, we may rewrite Eq. (2.8) as

$$A_i(t) = \int_0^t \left\{ f'_{2,i} [\theta \dot{A}_{LB,i}(\tau) + \dot{A}_{GB,i}(\tau)] + \lambda_i^R \sum_{j=1}^{i-1} B_{ij} A_j(\tau) \right\} \times R_i(t - \tau) d\tau \quad \mu\text{Ci} , \quad (2.56)$$

with $\dot{A}_{LB,i}$ and $\dot{A}_{GB,i}$ defined by Eqs. (2.41) and (2.55), respectively. Therefore, the quantity in brackets represents the rate at which species- i activity moves into the blood from the GI tract and (in case of intake by inhalation, viz., $\theta = 1$) the lungs; the fraction $f'_{2,i}$ of it is assumed to flow without delay into the organ. The initial level in the organ is set equal to zero.

The differential equations corresponding to Eq. (2.56) are

$$\dot{A}_{is} = -(\lambda_i^R + \lambda_{is}^R)A_{is} + c_{is} \left\{ \lambda_i^R \sum_{j=1}^{i-1} B_{ij} \sum_{r=1}^{L_j} A_{jr} + f'_{2,i} [\theta \dot{A}_{LB,i} + \dot{A}_{GB,i}] \right\}, \quad s = 1, \dots, L_i, \quad (2.57)$$

with initial conditions

$$A_{is}(0) = 0, \quad s = 1, \dots, L_i. \quad (2.58)$$

This formulation does not attempt to deal explicitly with recirculation of material from the organ to the blood and redistribution of the effluent among the competing organs. The product of the retention functions and their f'_2 fractions are collectively interpreted to represent the resultant of such interactions among the organs for a unit uptake of radioactivity to blood. It is acknowledged that the application of the same retention functions to the nuclide produced *in situ* by the decay of a progenitor, as implied by Eq. (2.57), is not consistent with such an interpretation, but a rigorous approach would require, for each source organ, a complete set of retention functions to represent the systemic response to a unit quantity of the radionuclide deposited in that organ. Such detailed information does not yet exist for most elements, but there are indications that this recirculation pathway is of potential importance for some ingrowing radioactive progeny. Bernard (1973) used a mammillary model to analyze data for ^{232}Th , ^{228}Ra - ^{228}Ac , ^{228}Th , and ^{224}Ra , and he considered the recirculation of daughters in his calculations. Snyder, Ford, and Watson (1975) proposed an approximate scheme for including the effects of daughter recycling in dose calculations when the recirculated fractions can be estimated, and Watson, Snyder, and Ford (1976) implemented this scheme in a computer code for calculating microcurie-days residence times in various organs.

As we noted earlier, we define a retention function, $R_{i,ab}(t)$, to represent retention *in the body* of all radioactivity of species i that

is absorbed into the blood from the respiratory and GI tracts. If for each of the organs Y_k , $k = 1, \dots, P$ (assumed not to include respiratory or GI tract) we have a retention function $R_{i,k}(t)$ and a blood-to-organ transfer fraction $f'_{2,i,k}$, then we may write the equation

$$R_{i,ab}(t) = \sum_{k=1}^P f'_{2,i,k} R_{i,k}(t) + f'_{2,i,OTHER} R_{i,OTHER}(t) \quad (2.59)$$

for the fraction of activity surviving in the body t days after absorption into the blood. This relation may be used to calculate the retention function and uptake fraction for the compartment Y_{OTHER} :

$$R_{i,OTHER}(t) = \left[R_{i,ab}(t) - \sum_{k=1}^P f'_{2,i,k} R_{i,k}(t) \right] \left[f'_{2,i,OTHER} \right]^{-1} \quad (2.60)$$

and

$$f'_{2,i,OTHER} = 1 - \sum_{k=1}^P f'_{2,i,k} \quad (2.61)$$

It is important that relations (2.59) and (2.61) be kept in mind when retention data are organized for the calculation. Sometimes such data may give us the product $f'_{2,i,OTHER} R_{i,OTHER}(t)$, and $R_{i,ab}(t)$ is then calculated from (2.59). In other cases, the available data permit us to estimate $R_{i,ab}(t)$, and Eqs. (2.60) and (2.61) are used to obtain $R_{i,OTHER}(t)$ and $f'_{2,i,OTHER}$.

Retention of species i in an organ Y_k in Y_{OTHER} is assumed to be represented by $R_{i,OTHER}$, with blood-to-organ transfer function

$$f'_{2,i,k} = (m_k/m_{\text{OTHER}})f'_{2,i,\text{OTHER}} , \quad (2.62)$$

in accordance with the assumption of a uniform distribution with respect to mass. These assumptions are implicit in our calculations of dose equivalent to the 22 target organs when Y_{OTHER} is the source.

When explicit data for prompt excretion of species i are available, one of the terms in Eq. (2.59) may be thought of as representing that component. In some of the calculations shown in Appendix A, a compartment for prompt excretion has been explicitly included. But inconsistencies of interpretation arise when such a compartment is associated with a nuclide that is produced in the body as a daughter, and the refinement has accordingly been excluded from such cases (when an excretion compartment is included for a parent nuclide, the computer code requires the formal inclusion of such a compartment for each daughter, but in such cases the effect on each daughter is nullified by using zero for the transfer fraction f'_2 and the retention coefficient). When an excretion compartment is not shown explicitly, prompt excretion may be assumed to be part of the complementary compartment Y_{OTHER} .

Some general remarks concerning the interpretation of Y_{OTHER} are in order. Calculations of microcurie-days for this compartment are intended to account — but only in an approximate way — for disintegrations of a radionuclide that are not counted elsewhere in the body (i.e., in lungs, GI tract, or one of the other organs for which a retention function is shown). This estimate, as was indicated in Eq. (2.5), is based on the difference

$$\tilde{A}_{i,\text{OTHER}} = \tilde{A}_{i,\text{ab}} - \sum_{k=1}^P \tilde{A}_{ik} \quad \mu\text{Ci-days} , \quad (2.63)$$

where P counts the number of organs (other than lungs and GI tract) for which explicit retention data are used and other notations have their previous meanings. This relation is approximate for daughter radionuclides because of the method of calculation of $\tilde{A}_{i,\text{ab}}$ when $i > 1$: the

retention function $R_{i,ab}$ cannot distinguish between activity of species i that is absorbed from lungs and GI tract and activity that is formed in an organ by decay of a progenitor. The effect is that $\tilde{A}_{i,ab}$ is calculated as if each microcurie of species i which is formed from the decay of a progenitor in the body were redistributed among the organs in the same way that a microcurie absorbed or injected into the blood would be. But in the calculation of each $\tilde{A}_{ik}$ for the sum in Eq. (2.63), one microcurie of species i formed in organ k is not made available to other organs. This potential underestimation of the microcurie-days residence estimated for daughter nuclides in Y_{OTHER} should be borne in mind in appraising the dose conversion factors for organs which are part of Y_{OTHER} .

A related point concerns dose estimates for two special organs: uterus and thymus. In the S-factor compilations of Snyder et al. (1974, 1975) and Dunning et al. (1977), these are not included as source organs. Thus the S-factors $S(X \leftarrow Y_{OTHER})$, where X stands for either of these organs, must be estimated independently for use in Eq. (2.5) [the use of Eq. (2.6) would omit the dominant term $S(X \leftarrow X)$ since X is not among the list of source organs that make up Y_{OTHER}]. The approximation

$$S(X \leftarrow Y_{OTHER}) \approx (m_{TB}/m_{OTHER})S(X \leftarrow TB) ,$$

where TB stands for total body, has been used for these organs. This S-factor, together with the acknowledged approximate nature of the microcurie-days residence of daughter radionuclides in Y_{OTHER} , should discourage the assumption of too much precision for the dose conversion factors for uterus and thymus.

3. METABOLIC DATA AND RETENTION MODELS

The information in this chapter is arranged in increasing order of atomic (Z) numbers of the elements considered. Typically, the information given for an element consists of the following:

1. Respiratory clearance classes (D, W, or Y) of expected chemical forms of the element if it is assumed to be inhaled as a particulate.
2. Fractional absorption (f_1) of expected chemical forms from the GI tract.
3. Fractional retention functions for the element in the body and various organs. It is understood throughout this chapter that radioactive decay factors $\exp(-\lambda^R t)$ are not included in the retention functions.
4. Fractional allocations of the element to those organs where it is assumed to concentrate.

For many of the elements treated in this volume, the information in this chapter was originally contributed by one of the authors (S. R. Bernard) to Appendix VI of the Rasmussen Reactor Safety Study (USNRC WASH-1400, 1975), and we have often adopted corresponding passages of text from that document intact or with minor editing. For some of these elements, however, the calculations in this volume represent departures from the methods of WASH-1400. The information about most of the other elements has been adapted from unpublished compilations by S. R. Bernard and W. S. Snyder. Another author (G. G. Killough) contributed the section on carbon (^{14}C).

3.1 Hydrogen (Tritium) (1)

An intake of $^3\text{H}^1\text{HO}$ or $^3\text{H}_2\text{O}$ either by ingestion or inhalation is assumed to be completely absorbed and to mix rapidly with the total water content of the body; and the activity in body water, sampled from sweat, sputum, urine, blood, insensible perspiration, or expired water vapor, is assumed to be equal (Pinson and Langham, 1957). Also, exposure to a

contaminated atmosphere results in complete deposition of inhaled $^3\text{H}^1\text{HO}$ and absorption through the intact skin of 50% of that inhaled (Pinson and Langham, 1957; Osborne, 1966).

Excretion data on many human subjects have indicated that the retention is essentially exponential over the first two months or more (Pinson and Langham, 1957). However, cases have been reported where a second exponential term or even a third has been observed (Snyder et al., 1968; Sanders and Reinig, 1968; Moghissi et al., 1973). In the present discussion, the retention in body water is taken to be of the form

$$R(t) = a \exp(-0.693t/T_1^B) + b \exp(-0.693t/T_2^B) .$$

The value of b was 0.03 in one case but was less than 0.01 in the others, and since T_2^B varied from 30 to 100 days, the dose due to tritium present in body water as estimated by a single exponential is considered to be adequate for early times post-exposure. The existence of the second exponential suggests the existence of other pools. The dosimetric implications have been discussed by Snyder et al. (1968) and do not indicate markedly higher doses than those due to ^3H in body water. The value of T_1^B has been shown to be closely related to the turnover rate of body water (Pinson and Langham, 1957) and thus can be estimated if the intake and size of the body water pool are known. The value of T_1^B has been observed to vary with the season and may show climatic variation and age dependence (Wylie et al., 1963; Butler and LeRoy, 1965; Moghissi and Carter, 1971; Moghissi et al., 1972). Individual values of T_1^B have been observed to range from 4 to 18 days. A variety of equations have been given for estimation of total body water (Snyder et al., 1968; Friis-Hansen, 1961; Cheek, 1968; Moore et al., 1963). The following are due to Moore et al.:

Male:

$$\text{TBW/W } 100(\text{liters/kg}) = 79.45 - 0.24 W - 0.15 \text{ Age} ,$$

Female:

$$\text{TBW/W } 100(\text{liters/kg}) = 69.81 - 0.26 W - 0.12 \text{ Age} ,$$

where TBW is total body water in liters, W is the body weight in kg, and Age is in years. For a reference male of W = 70 kg and age 20 years, this formula yields a value of 42 liters. Since water intake (including water of oxidation) is taken as 2500 ml/day,

$$T_1^B = (42 \text{ liters}/2.5 \text{ liters/day}) \ln 2 \approx 12 \text{ days}.$$

Many organs contain 60 → 80% water by weight; in particular, testes ~83%, muscle ~79%, gastrointestinal tract ~75%, red marrow ~77% (Snyder et al., 1968). Thus, correction of dose to body water for the presence of organically bound ^3H has been demonstrated in animals chronically exposed to $^3\text{H}^1\text{HO}$ (Evans, 1969). The specific activity as compared with ^1H present in these tissues seems to be nearly constant (0.85 to 1). If one assumes at equilibrium a constant specific activity in the body equal to the ratio $^3\text{H}/^1\text{H}$ in the daily intake of food and water, and that there are 7 kg of ^1H in the body, one obtains a body burden of

$$7,000 \times 1/350 = 20 \text{ } \mu\text{Ci}/(\mu\text{Ci/day intake}),$$

where a 1- μCi daily intake of ^3H and a 350-g daily intake of ^1H are assumed. Under conditions of chronic exposure, and again with the assumption of the same ratio of $^3\text{H}/^1\text{H}$ in the organs as in the daily intake, the organ burden is found to be $WF_H \times 1/350 \text{ } \mu\text{Ci}/(\mu\text{Ci/day intake})$, where W is the organ weight (g) and F_H is the fractional weight of ^1H in the organ. On the basis of the above assumptions and the principle that a day's intake must produce the dose rate in rem/day, one finds that the dose per μCi of intake to an organ is given by

$$\begin{aligned} D_0 &= 51.2 \text{ } WF_H \epsilon / (350 \text{ W}) = 51.2 \text{ } F_H (5.68 \times 10^{-3}) / 350 \\ &= 8.3 \times 10^{-4} \times F_H \text{ rem}/\mu\text{Ci intake}, \end{aligned}$$

where F_H is the fractional weight of ^1H in the organ, ϵ is the effective absorbed energy for the organ ($5.68 \times 10^{-3} \text{ MeV/disintegration}$ with quality factor $QF = 1 \text{ rem/rad}$), and

$$51.2 = \frac{3.20 \times 10^9 \frac{\text{disintegrations}}{\mu\text{Ci-day}} \times 1.60 \times 10^{-6} \frac{\text{erg}}{\text{MeV}}}{100 \text{ erg/gram of tissue/rad}} .$$

For most soft tissues, $F_H \approx 0.1$, but for bone $F_H \approx 0.05$ (Snyder et al., 1968). Thus, for soft tissues, $D_0 = 8.3 \times 10^{-5} \text{ rem}/\mu\text{Ci}$ is considered to represent the organ dose per μCi of intake of $^3\text{H}^1\text{HO}$ or of $^3\text{H}_2\text{O}$, much as for the above exponential model.

A refinement of the foregoing calculation has been used to produce the tritium dose conversion factors of Appendix A. For ingestion of 1 μCi of tritium, complete absorption is assumed and the μCi -days residence in a source organ is

$$WF_H/350 = W_H/350 ,$$

where W_H is the mass (g) of hydrogen in the source organ. For inhalation, as previously indicated, we assume complete absorption of each inspired microcurie and absorption of an additional 0.5 μCi through the skin, so that the μCi -days residence is

$$1.5 \times W_H/350 \text{ per } \mu\text{Ci inspired}.$$

The μCi -days residences in the contents of the four segments of the GI tract require a separate calculation, based on the model of Chap. 3. For ingestion, these μCi -days residences are

$$\tilde{A}_{S \text{ CONT}} = 1/\lambda_S = 1/24 = 4.17 \times 10^{-2} \mu\text{Ci-days} ,$$

$$\tilde{A}_{SI \text{ CONT}} = 1/(\lambda_{SI}^{ab} + \lambda_{SI}) = 1/(114 + 6) = 8.33 \times 10^{-3} \mu\text{Ci-days} ,$$

$$\begin{aligned} \tilde{A}_{ULI \text{ CONT}} &= \lambda_{SI} \tilde{A}_{SI \text{ CONT}} / \lambda_{ULI} = 6 \times 8.33 \times 10^{-3} / 1.85 \\ &= 2.70 \times 10^{-2} \mu\text{Ci-days} , \end{aligned}$$

$$\begin{aligned} \tilde{A}_{LLI \text{ CONT}} &= \lambda_{ULI} \tilde{A}_{ULI \text{ CONT}} / \lambda_{LLI} = 1.85 \times 2.70 \times 10^{-2} / 1.00 \\ &= 5.00 \times 10^{-2} \mu\text{Ci-days} . \end{aligned}$$

Values of W_H are generally those from Table 108 of the Reference Man report (ICRP, 1975). In the cases of respiratory lymph nodes, ovaries, and uterus, for which no values are shown in Table 108, $W_H = 10\%$ of the organ mass has been adopted. Table 3.1 shows the $\mu\text{Ci-days}$ residence for each source for the inhalation/skin-absorption and ingestion pathways. The S-factors are displayed in Appendix A, along with the dose conversion factors.

3.2 Carbon (6)

This discussion is restricted to ^{14}C , which is further assumed to reach man (1) by inhalation as $^{14}\text{CO}_2$, or (2) by ingestion as biologically bound ^{14}C in compounds typical of those deriving from photosynthesis of $^{14}\text{CO}_2$ (this is intended to include tissues of animals that have assimilated the ^{14}C fixed in vegetation). The dose conversion factors for ^{14}C shown in Appendix A are not based on explicit dynamic retention functions; rather, they are estimated from a steady-state model of carbon specific activity in various organs of the body. A similar approach is outlined by Killough and Rohwer (1977).

We assume that the reference individual's carbon pool consists of two components, one sustained by CO_2 absorbed from inhalation (against the tide of CO_2 going to exhalation), and the other by dietary carbon. Let these intake pathways be denoted by the subscript g (ingestion) and h (inhalation). If the carbon taken in by one of these pathways is of constant ^{14}C specific activity until equilibrium is established between uptake and removal, the ^{14}C activity in the k^{th} organ due to intake by that pathway is estimated as

$$A_{kj} = m_k^C F_j (\text{SpA})_j \mu\text{Ci} , \quad (3.1)$$

where $j = g$ or h for intake by ingestion or inhalation, respectively; m_k^C is the mass of carbon in the k^{th} organ; F_j is the fraction of the body's carbon pool that is maintained by intake pathway j ; and $(\text{SpA})_j$ is the average specific activity of ^{14}C ($\mu\text{Ci } ^{14}\text{C/g C}$) which is available to pathway j .

Table 3.1. Microcurie-days residence of ^3H in various organs per microcurie taken into the body as water

Source organ	Inhalation/ skin-absorption	Ingestion
Lungs	4.2×10^{-1}	2.8×10^{-1}
Respiratory lymph	1.1×10^{-1}	7.1×10^{-2}
Stomach {	wall	6.4×10^{-2}
	contents	4.3×10^{-2}
Small intestine {	wall	4.2×10^{-2}
	contents	1.9×10^{-1}
Upper large intestine {	wall	8.3×10^{-3}
	contents	6.6×10^{-2}
Lower large intestine {	wall	2.7×10^{-2}
	contents	4.9×10^{-2}
Total body	30	5.0 $\times 10^{-2}$
Adrenals	6.4×10^{-3}	2.0×10^{-2}
Urinary bladder {	wall	4.3×10^{-3}
	contents	9.1×10^{-3}
Kidneys	4.7×10^{-2}	3.1×10^{-2}
Liver	1.4×10^{-1}	9.1×10^{-2}
Ovaries	7.7×10^{-1}	5.1×10^{-1}
Pancreas	4.7×10^{-3}	3.1×10^{-3}
Cortical bone	4.2×10^{-2}	2.8×10^{-2}
Cancellous bone	7.7×10^{-1}	5.1×10^{-1}
Red marrow	1.8×10^{-1}	1.2×10^{-1}
Yellow marrow	6.4×10^{-1}	4.3×10^{-1}
Spleen	7.3×10^{-1}	4.9×10^{-1}
Testes	7.7×10^{-2}	5.1×10^{-2}
Thymus	1.5×10^{-2}	1.0×10^{-2}
Thyroid	7.7×10^{-3}	5.1×10^{-3}
Uterus	8.6×10^{-3}	5.7×10^{-3}
	3.4×10^{-2}	2.3×10^{-2}

The intake rate of ^{14}C by pathway j is the product of the intake rate of carbon, I_j^{C} (g C/day), and $(\text{SpA})_j$. Therefore, from Eq. (3.1), the μCi -days in the k th organ per μCi taken into the body by pathway j is estimated to be

$$\tilde{A}_{kj} = A_{kj} / [I_j^{\text{C}} (\text{SpA})_j] = m_k^{\text{C}} F_j / I_j^{\text{C}} \text{ (}\mu\text{Ci-days}/\mu\text{Ci intake) .} \quad (3.2)$$

The values of F_j and I_j^{C} which we have assumed for this report are shown below:

Intake pathway	F_j	I_j^{C} (g C/day)
Ingestion	~ 1	300^a
Inhalation	$\sim 10^{-4}{}^b$	4.1^c

^{a} ICRP (1975).

^{b} Buchanan (1951).

^{c} Based on ambient CO_2 concentration of 0.18 g C/m^3 (equivalent to 330 parts per million CO_2 by volume) and breathing rate $23 \text{ m}^3/\text{day}$ (ICRP, 1975).

We emphasize that the ^{14}C entering the body by the inhalation pathway is assumed to be diluted about 100 times by nonradioactive carbon absorbed from the GI tract, as if the reference individual ate an uncontaminated diet. The calculation is done in this manner to provide dose conversion factors that may be applied to the inhalation and ingestion pathways independently. But in a uniformly contaminated exposure environment (such as that created by natural radiocarbon) more than 99% of the body's ^{14}C which derives from that environment is taken in by ingestion.

The reader is also cautioned that the fraction $F_h = 10^{-4}$ which we have applied to the inhalation pathway is based entirely on an experiment with mice, which were maintained in inhalation chambers for a maximum period of 34 days. Therefore we urge discretion in applying the ^{14}C inhalation dose conversion factors given in this report in exposure

situations where the inhalation pathway is dominant. Similar caution is urged in applying the ingestion dose conversion factors in this report to ^{14}C -labeled special compounds whose metabolism may not be typical of the biologically bound carbon assumed in deriving these factors.

In most cases, the value of m_k^{C} in Eq. (3.2) is obtained from Table 108 of the Reference Man report (ICRP, 1975). Default values for certain organs are based on an estimated 11.4% average carbon content of the rest of the body after skeleton, fat, and several other organs are accounted for. Uterus, thymus, and respiratory lymph nodes were assigned this fraction; ovaries were assumed to have the same fractional content of carbon as testes.

For walled organs (GI tract and urinary bladder) we calculated components of dose due to ^{14}C in the contents and in the tissues of the walls. For the migrating contents of the GI tract, we used the dynamic model described in Sect. 2.2.2, with $f_1 = 0.95$. In the case of the urinary bladder, the Reference Man report (ICRP, 1975) gives an average value of 0.34 g carbon in the contents; this estimate was substituted into Eq. (3.2) to compute μCi -days residence values for ^{14}C in the bladder contents. The S-factors for wall $\leftarrow$ wall are given by the equation

$$S(\text{wall} \leftarrow \text{wall}) = 51.2\varepsilon/m_{\text{wall}} \text{ rem}/\mu\text{Ci-day} ,$$

where $\varepsilon = 0.0495 \text{ MeV}$ (average β^- energy 100% of disintegrations). The S-factors for wall $\leftarrow$ contents are included in the tabulation in Appendix A.

Table 3.2 shows μCi -days residence in each source organ due to inhalation and ingestion, respectively, of 1 μCi of ^{14}C . Since an "other tissues" compartment would add no dose component to any of our standard target organs, such a compartment is not considered for this radionuclide.

3.3 Sodium (11)

The Reference Man report (ICRP, 1975) gives the sodium content of the body as 100 g. The soft tissues contain 68 g while the skeleton contains 32 g. The daily intake in food and fluids is 4.4 g.

Table 3.2. Microcurie-days residence of ^{14}C in various organs per microcurie taken into the body

Source organ	Inhalation	Ingestion
Lungs	2.4×10^{-3}	3.3×10^{-1}
Respiratory lymph	4.2×10^{-5}	5.7×10^{-3}
Stomach { wall	4.4×10^{-4}	6.0×10^{-2}
{ contents		4.2×10^{-2}
Small intestine { wall	1.8×10^{-3}	2.5×10^{-1}
{ contents		8.3×10^{-3}
Upper large intestine { wall	5.8×10^{-4}	8.0×10^{-2}
{ contents		2.7×10^{-2}
Lower large intestine { wall	4.6×10^{-4}	6.3×10^{-2}
{ contents		5.0×10^{-2}
Total body	3.9×10^{-1}	53
Adrenals	9.7×10^{-5}	1.3×10^{-2}
Urinary bladder { wall	1.2×10^{-4}	1.6×10^{-2}
{ contents	8.2×10^{-6}	1.1×10^{-3}
Kidneys	9.7×10^{-4}	1.3×10^{-1}
Liver	6.3×10^{-3}	8.7×10^{-1}
Ovaries	2.3×10^{-5}	3.2×10^{-3}
Pancreas	3.1×10^{-4}	4.3×10^{-2}
Cortical bone	1.3×10^{-2}	1.8
Cancellous bone	3.1×10^{-3}	4.3×10^{-1}
Red marrow	1.5×10^{-2}	2.1
Yellow marrow	2.3×10^{-2}	3.2
Spleen	4.8×10^{-4}	6.7×10^{-2}
Testes	7.5×10^{-5}	1.0×10^{-2}
Thymus	5.6×10^{-5}	7.7×10^{-3}
Thyroid	5.1×10^{-5}	7.0×10^{-3}
Uterus	2.2×10^{-4}	3.0×10^{-2}

The absorption of sodium from the gastrointestinal tract is essentially complete (Wiseman, 1964), and therefore f_1 is taken to be 0.95.

The ICRP Task Group on Lung Dynamics (Morrow et al., 1966) has recommended that all compounds of sodium should be of inhalation clearance class D. The f_1 value for inhaled compounds is also taken to be 0.95.

For distribution and retention, the biological half-time of sodium in the body is strongly influenced by the level of stable sodium in the diet, decreasing from 335 days for a daily intake of 0.25 g to 5 days for a daily intake of 30 g (Smiley et al., 1961). Studies on three human subjects indicated three components of sodium retention with biological half-times of 8.5, 13.5, and 445 days (Richmond, 1958). However, the component with a biological half-time of 445 days was associated with less than 0.03% of the administered sodium and has been neglected in this report.

For purposes of radiological protection, the fraction of sodium translocated from blood to skeleton is taken to be 0.3. The remainder of sodium in the blood is assumed to be translocated to all other organs and tissues of the body and distributed uniformly throughout them. Sodium in all organs and tissues of the body, including the skeleton, is assumed to be retained with a biological half-time of 15 days, this half-time being consistent with the daily intake and total-body content of sodium given for Reference Man (ICRP, 1975).

3.4 Phosphorus (15)

Many references suggest that dietary phosphorus is well absorbed from the gastrointestinal tract into blood, as are various inorganic compounds (ICRP, 1975; Wiseman, 1964; Hopstead and Brady, 1967; Castle et al., 1964). In this report, f_1 has been taken to be 0.8 for all compounds of the element.

For inhalation classes, the ICRP Task Group on Lung Dynamics (Morrow et al., 1966) has recommended that all compounds of phosphorus should be associated with inhalation class D, except for phosphates of some particular elements, which should be associated with inhalation class W.

This classification has been used here, and for information on the inhalation class appropriate for a phosphate of a particular element, the dosimetric data for that element of the Task Group report should be consulted.

Jackson and Dolphin (1966) conclude that the total-body retention of phosphorus is well described by the function

$$R(t) = 0.15 \exp(-0.693t/0.5) + 0.15 \exp(-0.693t/2) \\ + 0.40 \exp(-0.693t/19) + 0.30 .$$

In this report the model of Dyson (1966) is used. Here phosphorus entering the blood is assumed to be retained with a biological half-time of 0.5 days. Of this phosphorus, 0.15 is assumed to be excreted directly; 0.15 goes to intracellular fluids, where it is retained with a half-time of 2 days; 0.40 to soft tissue, where it is assumed to be retained with a half-time of 19 days; and 0.3 to bone, where it is assumed to be permanently retained. Although permanent retention of phosphorus in mineral bone is assumed, consideration of the data on Reference Man indicates a half-time of retention in bone of 1500 days. In this report, however, an infinite biological half-time was used since the radioactive half-life of phosphorus is much less than 15 days. Phosphorus in mineral bone and also soft tissues, for the isotope considered here, is assumed to be uniformly distributed.

3.5 Manganese (25)

The Reference Man report (ICRP, 1975) gives the manganese content of the total body as 12 mg; the skeleton has 5.2 mg, and the muscle has 1.5 mg. The daily intake in food and fluids is 3.7 mg.

For uptake to blood, the evidence suggests that inorganic compounds are only poorly absorbed from the gastrointestinal tract (Cotzias, 1962; Underwood, 1971; Furchner et al., 1966). Since the fractional absorption of $MnCl_2$ from the gastrointestinal tract is in the range of 0.06 to 0.16 for normal subjects (MacDonald and Figueroa, 1969) f_1 has been taken to be 0.1 for all compounds of manganese.

For inhalation classes from the Task Group on Lung Dynamics report (Morrow, 1966), it has been recommended that oxides, hydroxides, halides, and nitrates of manganese should be associated with inhalation class W and that all other compounds of the element should be associated with class D. Studies on dogs by Morrow et al. (1964) are in agreement with this classification, and it has been adopted here. The value of f_1 for both D and W inhalation classes is taken as 0.1.

The metabolism of manganese shows considerable interspecies variation (Furchner et al., 1963; Mahoney and Small, 1968) and is also influenced by the levels of manganese and iron in the diet (Mahoney and Small, 1968; Britton and Cotzias, 1966). Volunteer human studies by Mahoney and Small (1968) have shown that the whole-body retention of manganese in the first 60 days post-injection may be described by

$$R(t) = 0.3 \exp(-0.693t/4) + 0.7 \exp(-0.693t/38) .$$

Because of the considerable differences in manganese metabolism between species, measurements of tissue distributions of manganese in the rat by Furchner et al. (1963) cannot be directly extrapolated to man. However, these measurements indicate that bone and brain retain manganese considerably more avidly than do most other organs and tissues of the body. Thus, in this report, of manganese entering the blood, 0.35 will be assumed to go to bone and be retained there with a half-time of 40 days. Of the remainder, fractions 0.10 and 0.15 will be assumed to go to liver and be retained there with half-times of 4 and 40 days, respectively, while fractions 0.2 and 0.2 will be assumed to become uniformly distributed among all other organs and tissues of the body and be retained in these organs with half-times of 4 and 40 days, respectively.

3.6 Iron (26)

Data from the Reference Man report (ICRP, 1975) indicate the iron content of the body to be 4.2 g. The iron content of soft tissue is 3.3 g, and the daily intake in food and fluids is 16 mg.

The uptake to blood from the gastrointestinal tract has been reviewed by several authors (ICRP, 1975; Price, 1964; Underwood, 1971). It has been found to be dependent upon several factors: the amount of iron in the diet and its chemical form, the body's need for that iron, and the presence or absence of interfering substances in the diet. Absorption of ferrous salts has generally been considered to be greater than that of ferric salts (ICRP, 1975), but the distinction is not clear cut (Price, 1964; Underwood, 1971). In this report, f_1 has been taken to be 0.1 for all compounds of iron.

For inhalation classes, experiments on rats by Fisher et al. (1973) and dogs by Morrow et al. (1964) have indicated that ferric oxide behaves as a class W material. However, experiments with labeled submicron particles of ferric oxide have indicated a clearance half-time of this compound from the human lung of 270 days (Ramsden and Waite, 1972). In view of this slower clearance from the human lung, oxides, hydroxides, and halides of iron are taken to be of inhalation class Y and all other compounds of the element to be of class W. The value of f_1 for both classes W and Y is taken to be 0.1.

The distribution and retention of iron has been the subject of various reviews (Price, 1964; Underwood, 1971; Moore and Dubach, 1962; Finch et al., 1970). In adult man some 70% of the total-body iron is bound in hemoglobin and most of the rest is associated with the iron storage compounds ferritin and hemosiderin in the reticulo-endothelial system.

Studies covering the first hundred days post-ingestion (Price, 1964) indicate a component of iron retention with a half-time of 600 days. However, these studies cannot reasonably be used to estimate long-term iron retention since little recycling of labeled hemoglobin iron will have occurred over this period. In this report the half-time of iron retention in the body has been taken to be 2000 days, in accordance with the metabolic data given for Reference Man (ICRP, 1975).

The distribution of iron among the organs and tissues of the body has been determined from the data given in Reference Man. Thus, of iron entering the blood, fractions of 0.08, 0.013, and 0.907 are assumed to

be translocated to liver, spleen, and all other tissues, respectively. Iron translocated to all these organs and tissues is assumed to be retained in them with a biological half-time of 2000 days. Iron associated with tissues of the body other than the liver and spleen is assumed to be uniformly distributed throughout them.

3.7 Cobalt (27)

Data from several balance studies on human beings indicate that the absorption of dietary cobalt from the gastrointestinal tract to blood is from 20 to 95% (Harp and Scoular, 1952; Hubbard et al., 1966; Engel et al., 1967; Valberg et al., 1969). The absorption of inorganic compounds, usually cobalt chloride, depends on the quantity administered and may vary from 2% at trace levels to 20% if carrier cobalt is present (Paley and Sussman, 1963; Smith et al., 1972). Studies with animals confirm the generally high absorption of organic complexes (Taylor, 1962), but there seems to be no data available on the absorption of insoluble cobalt compounds. Here f_1 is taken as 0.05, which would be appropriate for trace levels of inorganic, poorly soluble compounds.

Oxides and hydroxides of cobalt are assumed to be in clearance class Y, and all other compounds are assumed to be in class W (Morrow, 1966).

Table 108, *Gross and Elemental Composition of Reference Man* (ICRP, 1975) indicates that the cobalt reaching the blood is distributed rather generally throughout the body, except that the concentration in the liver is approximately threefold. The retention half-time for stable cobalt after unit intake to blood is taken from Smith et al., (1972), who studied two human subjects for 1000 days:

$$R(t) = 0.5 \exp(-0.693t/0.5) + 0.3 \exp(-0.693t/6) \\ + 0.1 \exp(-0.693t/60) + 0.1 \exp(-0.693t/800).$$

In our calculations, the first term has been assigned to prompt excretion. This retention function is quite similar to that found by Letourneau et al., (1972), who studied more subjects but for a shorter time.

It is assumed that the activity reaching the blood is uniformly distributed in all tissues except the liver, in which it is assumed to reach a concentration three times that in the rest of the body. Further, it is assumed that the concentration in all these tissues follows the same time course. Thus $0.93R(t)$ is taken to represent the fraction of activity that reaches the blood and is distributed uniformly in the total body, and $0.07R(t)$ is taken as the additional activity that is concentrated in the liver.

3.8 Zinc (30)

The Reference Man report (ICRP, 1975) gives the zinc content of the body as 2.3 g. The zinc content of soft tissues is 1.8 g, and the daily intake in food and fluids is 0.013 g.

For uptake to blood from the gastrointestinal tract, the fraction of orally administered zinc has been estimated to be in the range 0.31 to 0.51 for adult man (ICRP, 1975), although there is some indication that this fraction is dependent upon the level of daily intake of the element (Vallee, 1962; Underwood, 1971) and that fractional uptakes of as much as 0.9 may sometimes be achieved (Richmond et al., 1962). In this report f_1 has been taken to be 0.5 for all compounds of the element.

There is little information concerning the retention of inhaled compounds of zinc in the lungs. In one case of accidental inhalation, ^{65}Zn appeared to be cleared rapidly from the lungs (Newton and Holmes, 1966), but the compound of the element inhaled is not known. In this report the recommendations of the ICRP Task Group on Lung Dynamics (Morrow, et al., 1966) have been adopted. Oxides and hydroxides of the element have been assigned to inhalation class Y; halides, phosphates, and sulfides to inhalation class W; and sulfates to inhalation class D. The f_1 value for all three classes is assumed to be 0.5.

The metabolism of zinc has been reviewed by various authors (Vallee, 1962; Underwood, 1971). In man, Spencer et al. (1965) found that the whole-body retention of the element is well described by a function of the form

$$R(t) = 0.25 \exp(-0.693t/12) + 0.75 \exp(-0.693t/320).$$

Richmond et al. (1962) also found two components of whole-body zinc retention. The first component, associated with between 0.16 and 0.27 of the retained zinc, was found to have a biological half-time of between 4.5 and 26 days. The second component was found to have a biological half-time of between 387 and 423 days.

At early times post-injection, the highest concentration of zinc is found in the liver, with kidney, spleen, and pancreas exhibiting rather lower concentrations of the element (Spencer et al., 1965; Siegel et al., 1961). However, from the data of Richmond et al. (1962) it is clear that zinc is more avidly retained in the skeleton than it is in other tissues, and this observation is in agreement with the distribution of zinc given for Reference Man. The data given above have been used to derive the following model of zinc distribution and retention for the purposes of radiation protection.

Of zinc entering the blood, a fraction 0.2 is assumed to be translocated to the skeleton, where it is retained with a biological half-time of 400 days. The remainder of zinc entering the blood is assumed to be translocated to all organs and tissues of the body other than the skeleton. Of zinc translocated to these other organs and tissues, fractions 0.3 and 0.7 are assumed to be retained with biological half-times of 20 and 400 days, respectively. Zinc associated with all organs and tissues of the body other than the skeleton is assumed to be uniformly distributed throughout those organs and tissues at all times following its deposition in them.

Studies of zinc deficiency in various species have shown that adequate dietary zinc is necessary for normal bone growth and development (Underwood, 1971) and that a dietary deficiency of the element is associated with decreased osteoblastic activity, decreased alkaline phosphatase activity, and a reduction or failure in chondrogenesis (Underwood, 1971). These results show that zinc clearly plays a part in the events leading to calcification of bone and is, therefore, likely to be primarily associated with osteogenic tissue close to bone surfaces. For this reason, and because no isotope of zinc considered in this volume has a radioactive half-life greater than 250 days, zinc may be assumed to be uniformly distributed over bone surfaces at all times following its

deposition in the skeleton. Our calculations, however, depend upon S-factors which are based on the assumption of a volume distribution of activity in bone, and the reported dose to skeletal tissues in Appendix A should be weighed with this consideration.

3.9 Rubidium (37)

Absorption from the gastrointestinal tract to blood has been found to be approximately 100% (Richmond, 1958). Thus f_1 is taken as 0.95. Since rubidium is an alkali metal and most of its salts are readily soluble, it would be expected that absorption would be high for most compounds inhaled. All common compounds are indicated as being of clearance class D (Morrow et al., 1966).

Retention half-time is taken from studies on four adults who ingested the chloride in a saline solution (Richmond, 1958; Iinuma et al., 1967). Retention in the whole body, when corrected for decay and averaged, for these individuals yielded, for t in days,

$$R(t) = 0.1 \exp(-0.693t/4) + 0.9 \exp(-0.693t/95) .$$

The activity is taken as uniformly distributed in the total body (Hamilton, 1948; Iinuma et al., 1967; Inaba et al., 1968).

3.10 Strontium (38)

An ICRP task group has reviewed the metabolism of the alkaline earth elements, barium, calcium, strontium, and radium (Marshall et al., 1972; issued as ICRP Publication 20). The report suggests retention models for these elements in the adult and recommends parameter values for the models. The model for strontium has been adopted for this tabulation.

The value $f_1 = 0.2$ is assumed for absorption of strontium from the gastrointestinal tract, corresponding to the range $0.19 \rightarrow 0.21$ given by Marshall et al. For inhaled particulate forms, the chloride, nitrate, sulfate, oxide, carbonate, phosphate, and similar ionic forms of strontium are assumed to be of class D; strontium titanate is considered to be class Y (USNRC Wash-1400, App. D).

The functional representations of the retention models for strontium given by Marshall et al. are not of the form required by the INREM II computer code; accordingly, we have fitted linear combinations of decaying exponentials to these models. These fitted retention functions are

$$\begin{aligned} R_{\text{BONE}}(t) = & -0.525 \exp(-0.693t/1.19) + 0.424 \exp(-0.693t/3.33) \\ & - 0.0613 \exp(-0.693t/5.78) + 0.0823 \exp(-0.693t/971) \\ & + 0.08 \exp(-0.693t/6660) , \end{aligned}$$

$$R_{\text{SOFT}}(t) = 0.805 \exp(-0.693t/3.33) + 0.011 \exp(-0.693t/971) ,$$

$$R_{\text{BLOOD}}(t) = 0.184 \exp(-0.693t/3.33) ,$$

$$\begin{aligned} R_{\text{ABSORBED}}(t) = & -0.525 \exp(-0.693t/1.19) + 1.41 \exp(-0.693t/3.33) \\ & - 0.0613 \exp(-0.693t/5.78) + 0.0933 \exp(-0.693t/971) \\ & + 0.08 \exp(-0.693t/6660) , \end{aligned}$$

where the function labeled ABSORBED is obtained as the sum of the functions for BONE, SOFT, and BLOOD. The retention function for BONE includes both compact and cancellous bone tissues. Comparisons of 50-year integrals of these exponential fits with those of the original functions gave agreement to within two percent of the latter; selected short-term integrals showed deviations no greater than ten percent.

It should be noted that R_{BONE} , R_{SOFT} , and R_{BLOOD} are not normalized to unity at time zero.

3.11 Yttrium (39)

When yttrium is produced as a daughter in an organ of the body, it is assumed to be retained in that organ as though it had just entered from blood or by inhalation. Its uptake by blood from the gastrointestinal tract is assumed to be 10^{-4} , and in the lungs it is assumed to be of clearance class W. Yttrium reaching blood is assumed to behave as follows: 50% is deposited in bone, 15% in liver, and 10% in all other tissues; the remaining 25% is excreted. The deposition in bone is

considered to be partitioned equally between cancellous and cortical bone. Retention is assumed to follow a single exponential with a retention half-time of 8000 days in all these tissues. This estimate of the distribution in tissues is based largely on data for yttrium-91 chloride inhaled by dogs (Lovelace Foundation, 1968a). However, the retention time in the whole body and in the organs is that given by Palmer et al., (1970), for promethium; that is, it is assumed that the retention of the trivalent yttrium ion will be similar to that of the lanthanides (Durbin, 1960).

3.12 Zirconium (40)

Data on intake of zirconium and its concentration in some tissues of Reference Man (ICRP, 1975) indicate a much higher absorption from the gastrointestinal tract into blood than has been found in experiments with small animals and a variety of chemical forms (Furchner et al., 1963; Schroeder and Balassa, 1965; Fletcher, 1969; Tipton et al., 1969). For inhalation exposure, this report assumes an f_1 value of 2×10^{-3} and a class W for all compounds except the oxides and hydroxides, which are class Y (Morrow et al., 1966).

Early work of Hamilton (1947) indicated that the bone was a major site of retention after uptake to blood. Fletcher (1969) and Furchner et al. (1963) have also given data on retention in rodents for periods of up to 14 months. For man retention is assumed to be given by

$$R(t) = 0.5 \exp(-0.693t/7) + 0.5 \exp(-0.693t/8000) .$$

This equation represents a recombination of the terms found by Fletcher and Furchner et al. and is consistent with the generally observed tendency for longer retention in larger animals. Ninety percent of the term for long retention half-time is assigned to bone; the other 10%, as well as the term for shorter retention half-time, is assigned to soft tissues.

3.13 Niobium (41)

Furchner and Drake (1971) have compared the metabolism of niobium in the mouse, rat, monkey, and dog; they have also reviewed the earlier literature. Their study showed that after the nuclide has reached blood, the bone has a concentration 10 times higher than the average concentration in the body and that kidneys, spleen, and testes have concentrations that are higher by a factor of about three. All these organs seem to lose niobium at about the same rate. Thus retention in the total body following a unit intake to blood is given by

$$R(t) = 0.5 \exp(-0.693t/6) + 0.5 \exp(-0.693t/200) .$$

This formula is arrived at by adjusting the results on rodents as was done for zirconium. The short-term exponential is assumed to represent material distributed uniformly in all the tissues. The long-term exponential is separated into fractions present in bone, kidneys, spleen, testes, and other soft tissues by factors $A_b = 0.357$, $A_k = 8.55 \times 10^{-3}$, $A_s = 5.00 \times 10^{-3}$, $A_t = 1.28 \times 10^{-3}$, and $A_{ot} = 0.128$, respectively, each multiplied by $\exp(-0.693t/200)$.

Uptake from the gastrointestinal tract to blood is set at $f_1 = 0.01$, a value given by Fletcher (1969) and by Furchner and Drake (1971). The clearance class is taken as Y, since experimental work indicates long retention in the lungs (McClellan, 1968; Thomas et al., 1971).

3.14 Molybdenum (42)

The only isotope treated in this volume is molybdenum-99. Absorption from the gastrointestinal tract into blood is nearly complete for molybdenum trioxide, calcium molybdate, and ammonium molybdate (Comar, 1948; Underwood, 1971). A value of $f_1 = 0.95$ is used for the molybdates; for the oxides, we have adopted $f_1 = 0.05$ (Underwood, 1971). The oxides appear to be in clearance class Y (Cuddihy et al., 1969), whereas the molybdates appear to be in class D (Morrow et al., 1966).

Retention after unit uptake to blood is given by

$$R(t) = 0.15 \exp(-0.693t/1) + 0.85 \exp(-0.693/50) , \quad (t \leq 10 \text{ days})$$

(Rosoff and Spencer, 1964). It is assumed that the liver, kidney, bone, and the other tissues have concentrations in the ratios of 100:60:10:1. These ratios are concentrations found at 8 days after inhalation in experiments with beagles (Cuddihy et al., 1969). This concentration is approximately realized if $R(t)$ is multiplied by factors $A_l = 0.57$, $A_k = 0.06$, $A_b = 0.15$, and $A_{tb} = 0.22$ to obtain, respectively, retention in liver, kidneys, bone, and a component distributed uniformly in the total body.

3.15 Technetium (43)

There are no stable isotopes of technetium, and the element is not a normal constituent of the human body.

For uptake to blood, Beasley et al. (1966) have reported that the fractional absorption of technetium, in the form of pertechnetate, from the gastrointestinal tract of man is about 0.95. However, Hayes (1973) has shown that orally administered pertechnetate is erratically absorbed with marked variability in the timing and extent of absorption. In rats the fractional absorption of technetium chloride from the gastrointestinal tract has been found to be about 0.5 (Hamilton, 1948). In this report, f_1 has been taken to be 0.8 for all compounds of technetium.

For inhalation classes, the ICRP Task Group on Lung Dynamics (Morrow et al., 1966) has recommended that oxides, hydroxides, halides, and nitrates of technetium should be assigned to inhalation class W and that all other compounds of the element should be assigned to inhalation class D. Experiments with ^{99m}Tc -pertechnetate in man (Cook and Lander, 1971) are in agreement with this classification, and it has been adopted here. The f_1 value of 0.8 has been assumed for both D and W classes.

In man, technetium, administered intravenously as pertechnetate, is concentrated in the thyroid, stomach, and liver (ICRP, 1975; Harper et al., 1974; McAfee et al., 1964). In mice, pertechnetate is found to concentrate in the kidneys and stomach (Razzak et al., 1967).

The whole-body retention of pertechnetate in man following intravenous injection (Beasley et al., 1966) is well fitted by a curve of the form

$$R(t) = 0.76 \exp(-0.693t/1.6) + 0.19 \exp(-0.693t/3.7) + 0.043 \exp(-0.693t/22) .$$

In this report, it is assumed that, of technetium entering the blood, fractions 0.01, 0.01, 0.02, and 0.08 are translocated to kidneys, stomach, thyroid, and liver, respectively, and the remaining fraction to all other tissues of the body, in which it is uniformly distributed. Of technetium translocated from the blood to any organ or tissue of the body, fractions 0.76, 0.20, and 0.04 are assumed to be retained with half-times of 1.6, 3.7, and 22 days, respectively.

It is emphasized that the metabolic model set out above will, in general, be inappropriate for ^{99m}Tc -labeled radiopharmaceuticals other than pertechnetates. For guidance on radiological protection when working with such compounds, the reader is referred to ICRP Publication 17 (ICRP, 1971) and ICRP Publication 25 (ICRP, 1977a).

3.16 Ruthenium (44)

The metabolic behavior of ruthenium has been studied or reviewed by several authors (Burykina, 1962; Furchner et al., 1963; Thompson et al., 1956; Buldakov and Moskalev, 1968). All compounds of ruthenium are assigned to clearance class Y; and standard models for the lung and for the gastrointestinal tract are used. These assumptions are based on experimental data on the citrated complex of ruthenium, which was expected to be a reasonably soluble compound. However, in these studies, some 20% of the activity remained in the lung with a retention half-time of approximately one year. On this basis other compounds might also be expected to show a similar retention in the lung, and hence clearance class Y is used here for all compounds (Boecker and Harris, 1969).

The multispecies study by Furchner et al. (1963) yields an estimated absorption of ruthenium from the gastrointestinal tract of approximately

4%. The report of Thompson et al. (1965) explores in some detail the effect of pH on absorption into blood as well as absorption after chronic feeding experiments. The value $f_1 = 0.04$ is adopted for this report.

The retention function for a single uptake to blood has been studied by Furchner et al. (1963) in mice, rats, monkeys, and dogs. When the function is corrected for radioactive decay, one obtains the estimated retention for stable ruthenium. The retention in the total body is approximately

$$R(t) = 0.15 \exp(-2t) + 0.4 \exp(-0.07t) \\ + 0.25 \exp(-0.012t) + 0.2 \exp(-0.0004t) ,$$

with t in days. The activity seems to be fairly uniformly distributed, kidneys being high by a factor of perhaps three. The term of longest retention half-time might be considered to be the fraction present in bone and in muscle, but since these tissues are rather generally distributed in the body and the radioactive half-life is one year or less, the activity reaching the blood is considered to be uniformly distributed throughout the body.

3.17 Rhodium (45)

Rhodium isotopes considered here have radioactive half-lives on the order of minutes or hours except for rhodium-105, which has a radioactive half-life of approximately 1.5 days.

Metabolic data on rhodium are quite limited, there being only one study. Hamilton (1947) injected rhodium into a few rats and studied its metabolism for six days. About one-third of the injected activity had a long retention half-time, the remaining two-thirds being excreted in two to three days. Because there are so few data and because of the short half-lives of these isotopes, the activity will be considered to be distributed uniformly in the body once it has reached the blood. This retention is given by

$$R(t) = 0.67 \exp(-0.693t/3) + 0.33 \exp(-0.693t/200)$$

for all rhodium isotopes reaching the blood. The models described in Chapter 2 are used for the lungs and gastrointestinal tract. Because of the short radioactive half-life and by analogy with ruthenium, all compounds are assigned to clearance class Y. The value $f_1 = 0.04$ is used, as in the case of ruthenium.

3.18 Antimony (51)

The total-body burden of antimony in Reference Man (ICRP, 1975) is about 8 mg, corresponding to an average concentration of about 0.1 microgram per gram of tissue. Of the eight specimen types for which there are data, hair shows a concentration that is 65 times the average, and blood shows a concentration one-twentieth of the average. The other organs have about the average concentration.

For Reference Man, excretion of antimony in urine is about 40 micrograms per day. Dietary intake is placed at 50 micrograms per day, but this is estimated from excretion. It implies an f_1 value of about 0.8. In its Publication 2, the ICRP (1959) gave an f_1 value of 0.03, determined by Hamilton (1948) on an unspecified form of antimony fed to rats. From studies on pigs and dogs fed a gelatin capsule containing fallout debris from a nuclear explosion (Chertok and Lake, 1971), f_1 is indicated to be greater than 0.05 because urinary excretion is greater than 5%, and, as will be discussed, urinary excretion is the predominant pathway for excretion after injection into blood. Oral doses of antimony tartrate given to mice also gave results that suggest 5% uptake to blood (Waitz et al., 1965).

Some studies indicate a lower uptake to blood from the gut. Westrick (1953) fed rats antimony trioxide in a synthetic casein diet and, assuming a total-body retention half-time of about 40 days, estimated f_1 to be about 0.005. Rose and Jacobs (1969) studied human accidental exposure and found that in 10 days about 1% of the amount excreted in feces (~24 nanocuries) was excreted in urine.

There are no adequate human data for estimating retention for unit uptake to blood, but a provisional retention function can be constructed from studies on rats and the Reference Man data. In rats Durbin (1960)

found that about 95% of an injected dose was excreted in urine within 4 days. Sollman (1957, p. 1227) states that in man antimony compounds are rapidly excreted into urine, and of 1.7 g of antimony tartrate injected during six weeks, about 50% was excreted in urine. Studies of organ and total-body retention in rats after the inhalation of antimony trichloride (Djuric et al., 1962) suggest that the long half-time for retention is about 140 days, with 10 to 20% of the initial body burden excreted with this long half-time. Djuric et al. found that the blood contained approximately 50% of the total-body retention, the rest being approximately uniformly distributed. In a following study of lung retention in a human subject, Palmer (1962) found a retention half-time in lung of about 100 days.

From the above data, f_1 is taken to be 0.05, except for antimony trioxide, for which the value of 0.01 is used.

The sulfides, oxides, and halides of antimony are assumed to be in clearance class W. Studies of Felicetti et al. (1974) on dogs that had inhaled heated antimony tartrate indicated the possibility that a class Y compound also exists.

The total-body retention is taken as

$$R(t) = 0.85 \exp(-0.693t/1) + 0.15 \exp(-0.693t/100),$$

and the distribution is assumed to be uniform.

3.19 Tellurium (52)

Data on the uptake and distribution of stable tellurium are widely discrepant (Hollins, 1969; Soman, 1970; ICRP, 1975). Fortunately most of the tellurium isotopes of concern in this volume have a radioactive half-life of less than four days, but ^{129m}Te (33.6 days) and ^{127m}Te (109 days) have a possibility of longer retention in the body.

Hollins (1969) found $f_1 = 0.1$ in the rat for tetravalent tellurium, but Scott et al. (1947) found $f_1 = 0.25$ for uptake to blood after intramuscular injection in the rat. Scott and associates (1947) also studied the absorption of hexavalent tellurium but did not cite a value for f_1

because of complications, although they did indicate that the uptake by blood was less than that for the tetravalent form. Because of the uncertainty of the results for the rat and because of the uncertainty of extrapolation from rat to man, $f_1 = 0.25$ is used here conservatively for all forms of tellurium.

Morrow et al. (1966) indicate that the oxides would be expected to be of clearance class W, and this class is chosen here for all forms of tellurium.

Retention in the rat has been studied by Hollins (1969) and by Scott et al. (1947). Hollins has attempted to indicate the organs that might be represented by the various exponentials, and his prescription is adopted here: that is, merely assigning a long retention half-time to the final 2% which he indicated for bone. The retention function after unit uptake to blood is given by

$$\begin{aligned} R(t) = & 0.32 \exp(-0.693t/9.2) + 0.055 \exp(-0.693t/10.2) \\ & + 0.10 \exp(-0.693t/17.7) + 0.034 \exp(-0.693t/23) \\ & + 0.02 \exp(-0.693t/8000) \end{aligned}$$

for t in days. The sum of the coefficients of this function is 0.53, and we have assigned the remaining 47% to prompt excretion with half-time 0.5 days. The final term is assigned to bone, the kidneys are represented by the term with the coefficient 0.034, muscle by the 0.10 term, liver by the 0.055 term, and the term with the coefficient 0.32 is assumed to be uniformly distributed in the body. Though these are not exactly the assignments made by Hollins, they approximate his distribution and are somewhat simpler for dose estimation.

When tellurium is a daughter nuclide, we have followed the conservative practice of neglecting prompt excretion and normalizing the coefficients of the above function to sum to unity.

3.20 Iodine (53)

Iodine has been used extensively in nuclear medicine and also has been studied when present in the environment from weapons fallout. Thus iodine retention in the human body is rather well documented.

After inhalation, iodine in all forms is virtually completely absorbed into the blood (Cuddihy, 1964; ICRP, 1959; NCRP, 1969). Nevertheless, a rather wide variation of doses per microcurie of intake is possible. The weight of the thyroid varies greatly among individuals and also with age. In addition to this rather large variation in thyroid mass, there is some indication that other parameters (uptake by the thyroid and retention half-time) may be affected, at least under chronic conditions of intake (Dolphin, 1971; ICRP, 1975, pp. 196-199).

Metabolic models for iodine retention have been given by many authors (Riggs, 1952; Cuddihy, 1964; Berman et al., 1968). The model of Riggs, which provides for an inorganic and an organic pool generally distributed in the body as well as for a special component in the thyroid, is generally adequate for the normal adult (Bernard, 1970; Berman, 1971). Retention at time t days after the absorption in blood of one unit of stable iodine is given by

$$R_{th}(t) = -0.328 \exp(-0.693t/0.243) + 0.016 \exp(-0.693t/11.3) \\ + 0.312 \exp(-0.693t/117)$$

and

$$R_{tb}(t) = 0.997 \exp(-0.693t/0.243) - 0.0487 \exp(-0.693t/11.3) \\ + 0.0514 \exp(-0.693t/117) ,$$

where R_{th} represents retention in the thyroid and R_{tb} , the retention for total body less the thyroid, includes both the inorganic and organic pools referred to above. The lung and the gastrointestinal tract models of Chap. 2 have been used for the inhalation and ingestion of a soluble form of iodine (clearance class D). For the calculations represented in this volume, we have modified $R_{th}(t)$ by deleting the short-lived negative term and normalizing the two remaining terms to unity at time zero. The resulting retention,

$$R_{th}^*(t) = 0.05 \exp(-0.693t/11.3) + 0.95 \exp(-0.693t/117) ,$$

has been used with $f_2' = 0.33$ (= the normalizing fraction). The normalized retention function, $R_{th}^*(t)$, expresses the thyroid's response to an initial unit deposition of iodine in that organ, whereas $R_{th}(t)$ models the thyroid's response to an initial unit deposition in the blood. Since R_{th} achieves its maximum within two days, our replacement makes very little change in the 50-year integrated retention for iodine in the thyroid (~53 days in both cases for the stable element). We have introduced R_{th}^* for the primary purpose of representing iodine daughters of tellurium in the thyroid. In contrast to the procedure described in WASH-1400 (USNRC, 1975) for the tellurium $\rightarrow$ iodine calculations for Appendix VI of that document, we have assumed that each microcurie of iodine produced in the thyroid (or in any systemic organ) is metabolized according to the retention function of that organ, the same as one microcurie just introduced into the organ from blood.

Our representation of the retention of total absorbed iodine in the body is the sum of R_{th} and R_{tb} :

$$R_{ab}(t) = 0.669 \exp(-0.693t/0.243) - 0.0327 \exp(-0.693t/11.3) \\ + 0.363 \exp(-0.693t/117) .$$

There is evidence that the iodine produced in the body by tellurium decay, even in the rectum, is available to the thyroid and other organs (Revis and Muravei, 1959). In this volume it is assumed that iodine produced in the lungs and all segments of the gastrointestinal tract is available to the blood; in our calculations, absorption fractions of 95% have been applied to iodine activity in each of the four gastrointestinal segments, namely, the stomach, small intestine, upper large intestine, and lower large intestine. This refinement is of particular consequence when iodine occurs as a daughter of tellurium and the relatively less completely absorbed tellurium acts as an iodine-producing source in all segments of the tract. It is less important for the gastrointestinal absorption of iodine that is ingested or cleared from the lungs.

In some cases an iodine isotope decays to form a xenon daughter that is also radioactive. Since xenon is a noble gas, its elimination

would be expected to be rapid. Conservatively, we have applied the lung model to xenon formed in the respiratory tract as if it were a class D particulate; but no uptake of the absorbed xenon by the thyroid or other organs of the absorbed xenon is assumed, and the fractional absorption of xenon from the gastrointestinal tract is taken as zero. The application of the lung model leads to the artificial movement of xenon (as if it were a particulate) from the respiratory to the gastrointestinal tract, with a resulting incremental dose to the latter. Some corrections for this effect are indicated in the appropriate footnotes in Appendix A. For organs other than the lungs and gastrointestinal tract, only xenon formed in situ is considered; this is assumed to be removed with a half-time of two hours, i.e., the retention function

$$R(t) = \exp(-0.693t/0.0833) ,$$

with t in days, has been used.

3.21 Cesium (55)

The metabolism and dosimetry of cesium taken into the human body have been investigated because of the importance of ^{137}Cs as a constituent of weapons fallout. Practically all forms of inhaled cesium are absorbed readily into the blood (Stara et al., 1971). In this volume $f_1 = 0.95$ and clearance class D are assumed.

When absorbed into blood, cesium is widely distributed among the body tissues, muscle being higher in concentration (generally by a factor of about two). Since muscle is so widely distributed in the body, cesium is generally considered to irradiate the entire body. A two-exponential formula for retention has been found to represent retention adequately:

$$R(t) = 0.13 \exp(-0.693t/1.4) + 0.87 \exp(-0.693t/135) .$$

The coefficients were selected on the basis of controlled studies on adult human beings (Richmond et al., 1962). There has been speculation that there should be a component of longer retention half-time, perhaps

associated with bone, and several such high values have been reported (Yamagata and Yamagata, 1960; Anderson and Gustafson, 1962; Takizawa and Sugai, 1971). However, Rundo (1964) has followed an individual case for over 1000 days without detecting any significant departure from the single-exponential model after the first few days. He calculates that such a component, if present, would not make a significant contribution to dose.

In individual cases there is considerable variability about the values selected above; for example, the longer elimination half-time ranged from 110 to 142 days for the four subjects studied by Richmond et al. (1962). There is also some buildup of the dose from photons in organs near the center of the trunk, with smaller values of dose for organs near the surface. This variation, however, is only by about a factor of two (Fisher and Snyder, 1966).

More importantly, the retention half-time seems to be shorter for children, pregnant women, and individuals suffering from certain diseases (Lloyd et al., 1968; Zundel et al., 1969). This tends to decrease the dose estimated for these individuals and for fetuses. For example, Lloyd et al. (1968) estimate that the retention half-time for cesium in the normal infant is about 19 days. There are also factors that may influence dose in the opposite direction. Generally, for a given concentration of cesium in the body, the dose to the child is somewhat smaller because of the greater escape of photon energies from the smaller body of the child.

3.22 Barium (56)

Retention models for barium are adopted from the report of an ICRP task group which reviewed the metabolism of the alkaline earth elements, calcium, strontium, barium, and radium (Marshall et al., 1972; issued as ICRP Publication 20). The function representations of these models are not given in the form required by the INREM II computer code, and we have fitted linear combinations of decaying exponentials to them. The fitted retention functions are

$$R_{\text{BONE}}(t) = -0.555 \exp(-0.693t/0.96) + 0.50 \exp(-0.693t/1.24) \\ + 0.030 \exp(-0.693t/433) + 0.025 \exp(-0.693t/3850) ,$$

$$R_{\text{SOFT}}(t) = 0.30 \exp(-0.693t/1.24) + 0.016 \exp(-0.693t/433) \\ + 0.0001 \exp(-0.693t/3850) ,$$

$$R_{\text{BLOOD}}(t) = 0.684 \exp(-0.693t/1.24) ,$$

$$R_{\text{ABSORBED}}(t) = -0.555 \exp(-0.693t/0.96) + 1.48 \exp(-0.693t/1.24) \\ + 0.046 \exp(-0.693t/433) + 0.0251 \exp(-0.693t/3850) ,$$

where the function labeled ABSORBED is obtained as the sum of the other three. The retention function labeled BONE includes both compact and cancellous bone tissues. The function for blood, correct at time zero, indicates a somewhat higher concentration of barium for $t > 0$ than that calculated with the original power function of Marshall et al. (1972), but the effect on the dose commitment is negligible. Comparisons of the 50-year integrals of the other fitted exponentials with those of the original functions give agreement to within one percent.

It should be noted that R_{BONE} , R_{SOFT} , and R_{BLOOD} are not normalized to unity at time zero. When barium occurs as a daughter of cesium, its retention functions must be normalized and used in connection with a blood-to-organ transfer fraction f_2' . For this purpose, we have retained the last two terms of R_{BONE} and normalized them to obtain

$$R_{\text{BONE}}^*(t) = 0.65 \exp(-0.693t/433) + 0.35 \exp(-0.693t/3850)$$

with $f_2' = 0.072$.

Barium is chemically similar to strontium and to radium, which have been well studied in man. Clearance class D is adopted for barium here, and the value $f_1 = 0.1$ is used for all compounds. This value is selected from the study of Leroy et al. (1966) and is appropriate for barium oxide, which was considered to be a simulant of environmental barium.

3.23 Lanthanum (57)

The uptake of lanthanum by blood from the gastrointestinal tract is assumed to be 10^{-4} , and in the lung it is assumed to be of clearance class W. The distribution among organs is assumed to be that reported by the Lovelace Foundation (1968b, pp. 105-114) for inhalation studies with lanthanum-140 chloride in dogs: bone, liver, and muscle were high among the systemic organs in uptake, but in concentration liver, kidney, skeleton, and spleen were high in that order. In this report it is assumed that lanthanum retention in man is as follows: liver, 40%; bone, 40%; kidney, 5%; deposited in other soft tissues, 10%; and excreted, 5%. The half-time for biological retention is taken to be 5000 days, as with other lanthanides. Since the radioactive half-life of ^{140}La is rather short (40 hr), this model should be adequate.

3.24 Cerium (58), Praseodymium (59), Neodymium (60), Promethium (61), and Samarium (62)

For cerium, f_1 is taken as 10^{-4} (McClellan et al., 1965; Miller and Byrne, 1970). Although in these studies one compound was cerous chloride (CeCl_3) and the other an unspecified cerium oxide, essentially the same value for absorption was obtained in the cow and in the dog. However, Grigoryan (1966) found a value in rats indicated as being less than 10^{-3} . Inhalation studies on beagles have indicated that cerous chloride behaves as a class W aerosol (Boecker and Cuddihy, 1974), and this is true also for ceric oxide (CeO_2) inhaled by hamsters (Hobbs et al., 1974).

Durbin (1960) has discussed the distribution of the rare earths generally, indicating that the liver and bone would be expected to be "major deposition sites." The studies reported by Boecker and Cuddihy (1974) confirm this and give a range for retention in various organs of the beagle. On this basis, retention in the liver, bone, kidney, and other tissues is represented by

$$f_2 \exp(-0.693t/5000) ,$$

where f_2' has the values 0.5, 0.4, 0.025, and 0.05 for the liver, bone, kidneys, and other tissues, respectively (Boecker and Cuddihy, 1974), with the remainder representing early excretion.

The same metabolic models are used for the rare-earth elements praseodymium, neodymium, promethium, and samarium as for cerium. This choice is entirely appropriate for those isotopes with relatively short radioactive half-lives (^{143}Pr , 13.6 days; ^{144}Pr , 0.012 days; $^{144\text{m}}\text{Pr}$, 5×10^{-3} days; and ^{147}Nd , 11.1 days), and it is offered with some reservations in the case of the longer-lived isotopes for which the 5000-day biological half-time has not been directly measured (^{147}Pm , 958 days; and ^{147}Sm , 3.91×10^{13} days).

The respiratory clearance classes for these lanthanides (Morrow et al., 1966) are class Y for the oxides, hydroxides, carbides, and fluorides; class W for the carbonates, phosphates, and halides (except for the fluorides); and class D for the sulfides, sulfates, and nitrates. A value of 10^{-4} is used for f_1 in all cases, by analogy with cerium.

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APPENDIX A
Calculation Sheets

A.1 INTRODUCTION TO APPENDIX A

This appendix shows detailed data for the dose calculations, arranged in sections for the parent radionuclides by increasing Z (atomic number) and A (isotopic mass number). The information for each nuclide consists of

input: physical decay data and uptake and retention data for parent and daughters; and S-factors (rem/ μ Ci-day) for the parent (S-factors for daughters may be found in their own sections of this appendix).

output: dose estimates corresponding to one or more intake cases. A case consists of the inhalation or ingestion of 1 μ Ci of the parent nuclide; the resultant target $\leftarrow$ source dose matrices represent the corresponding 50-year commitments (rem/ μ Ci) due to parent plus ingrowing daughters to each of 22 target organs, as estimated by the models described in Chapter 2.

Each inhalation case shows, along with its dose matrix, the respiratory clearance class (D, W, or Y) for each particulate species in the decay chain and its fractional absorption from the GI tract. The special handling of tritium, $^{14}\text{CO}_2$, and xenon daughters of certain iodine isotopes is discussed in the sections on hydrogen, carbon, and iodine in Chapter 3. Each ingestion case indicates the assumed fractional absorption of each species from the GI tract into the blood. The calculation allows for absorption of activity from each segment of the GI tract, but in nearly all cases this absorption is assumed to be restricted to the small intestine, and the absorption fractions for the other segments are shown as zero. The exception is iodine, which is assumed to be absorbed readily from all segments. This assumption is of particular importance when the iodine occurs in the tract as a daughter of tellurium, which is relatively less well absorbed and therefore acts as an iodine-producing source in the lower GI tract.

Our ordinary practice is to present one inhalation and one ingestion case for a radionuclide, with the former determined by respiratory clearance classes considered likely to be appropriate for applications. But for some nuclides, alternate chemical species have been considered and

one or more additional inhalation cases are shown. In the matter of the particle size distribution for inhaled particulates, all inhalation cases shown in this appendix correspond to an activity median aerodynamic diameter (AMAD) of 1 μm . Two other particle sizes (0.3 and 5 μm) are considered in Appendix B. We remark that in some applications, considerable uncertainty obtains with regard both to chemical form of an inhaled material and its aerosol properties. Moreover, the fractional absorption of a radionuclide from ingested material might depend on unknown factors. Accordingly, the reader is reminded that the appropriateness of the dose estimates shown here may be open to question in such situations.

For each parent radionuclide we indicate near the bottom of the first page of the listing the decay type(s), radioactive half-life and uncertainty, and when appropriate, branching ratios, in formats illustrated by the following examples:

$$\begin{array}{l} \beta^- \text{ decay (5730 Y 40)} \\ \left\{ \begin{array}{l} \beta^- \text{ decay (30 H 2) 77.8\%} \\ \text{IT decay (30 H 2) 22.2\%} \end{array} \right. \end{array}$$

The abbreviations Y, D, H, M, and S are used for years, days, hours, minutes, and seconds, respectively. This information is from the tabulation of D. C. Kocher (1977), from which may be obtained the detailed decay data used to compute the S-factors. Additional footnotes concerning retention functions or the choice of cases sometimes follow the decay information.

When radioactive daughters are formed, a supplementary table labeled "PERCENT DOSE EQUIVALENT" resolves the relative contributions of the parent and each daughter to percentages of the total dose to each of the 22 target organs. This information has proved useful in detecting errors during the preparation of this document, and it is offered with the expectation that it will prove useful to the reader for this and other purposes.

Table A.1-1 lists all radionuclides included in this tabulation. For each nuclide, it shows the radioactive half-life and lists first-generation radioactive progeny with branching ratios.

Finally, a remark on significant digits is in order. The computer-produced tables in this and Appendix B show results to three and four digits. The practice of obtaining printouts in this form has proved useful for diagnostic purposes and data checking. But we would urge readers to round resultant dose conversion factors to two significant digits before making further use of them. The number two is arbitrary and is intended only to stand as a reminder of the considerable uncertainty in the biological information that goes into dose calculations.

Table A.1-1 Radionuclides of Vol. I with first-generation daughters*

Nuclide	Radioactive half-life (days)	Daughter nuclide	Branching ratio	Daughter nuclide	Branching ratio
H-3	4.51E+3				
C-14	2.09E+6				
NA-22	9.50E+2				
P-32	1.43E+1				
MN-54	3.12E+2				
FE-55	9.86E+2				
FE-59	4.46E+1				
CO-57	2.71E+2				
CO-58	7.08E+1				
CO-60	1.92E+3				
ZN-65	2.44E+2				
RB-86	1.87E+1				
SR-89	5.06E+1				
SR-90	1.04E+4	Y-90	1.0		
SR-91	3.96E-1	Y-91M	0.58	Y-91	0.42
Y-90	2.67E+0				
Y-91	5.85E+1				
Y-91M	3.45E-2	Y-91	1.0		
ZR-95	6.40E+1	NB-95	0.993	NB-95M	0.007
ZR-97	7.04E-1	NB-97M	0.946	NB-97	0.054
NB-95	3.52E+1				
NB-95M	3.61E+0	NB-95	1.0		
NB-97	5.01E-2				
NB-97M	6.94E-4	NB-97	1.0		
MO-99	2.75E+0	TC-99M	0.868	TC-99	0.132
TC-99	7.77E+7				
TC-99M	2.51E-1	TC-99	1.0		
RU-103	3.94E+1	RH-103	0.975		
RU-105	1.95E-1	RH-105	0.72	RH-105M	0.28
RU-106	3.68E+2	RH-106	1.0		
RH-103M	3.90E-2				
RH-105	1.47E+0				
RH-105M	5.21E-4	RH-105	1.0		
RH-106	3.46E-4				
SB-127	3.85E+0	TE-127	0.865	TE-127M	0.135
TE-127	3.90E-1				
TE-127M	1.09E+2	TE-127	0.976		
TE-129	4.83E-2	I-129	1.0		
TE-129M	3.36E+1	TE-129	0.64	I-129	0.36
TE-131	1.74E-2	I-131	1.0		
TE-131M	1.25E+0	I-131	0.778	TE-131	0.222
TE-132	3.26E+0	I-132	1.0		
I-129	5.73E+9				
I-131	8.04E+0	XE-131	0.01086		
I-132	9.58E-2				
I-133	8.67E-1	XE-133	0.971	XE-133M	0.029
I-134	3.65E-2				
I-135	2.75E-1	XE-135	0.834	XE-135M	0.166
† XE-133	5.24E+0				
† XE-133M	2.19E+0	XE-133	1.0		
† XE-135	3.79E-1	CS-135	1.0		
† XE-135M	1.06E-2	XE-135	0.999964	CS-135	0.000036
CS-134	7.53E+2				
CS-136	8.40E+8				
CS-136	1.31E+1				
CS-137	1.10E+4	LA-137M	0.946		
BA-137M	1.77E-3				
BA-140	1.28E+1	LA-140	1.0		
LA-140	1.68E+0				
CE-141	3.25E+1				
CE-143	1.38E+0	PR-143	1.0		
CF-144	2.84E+2	PR-144	0.988	PR-144M	0.012
PR-143	1.36E+1				
PR-144	1.20E-2				
PR-144M	5.00E-3	FR-144	0.9994		
ND-147	1.11E+1	PM-147	1.0		
PM-147	9.58E+2	SM-147	1.0		
SM-147	3.91E13				

* Physical data from D. C. Kocher, Nuclear Decay Data for Radionuclides Occurring in Routine Releases from Nuclear Fuel Cycle Facilities, ORNL/NUREG/TM-102, 1977.

† Xenon isotopes are not treated as parent nuclides in this volume.

APPENDIX B

Summary Tables

HYDROGEN-3

RADIONUCLIDE: H-3

PHYSICAL AND METABOLIC PARAMETERS:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)
H-3	4.508E 03

SEE CHAPTER 3, TABLE 3-1, FOR MICROCURIE-DAYS RESIDENCE OF H-3 IN EACH SOURCE ORGAN.

S-FACTORS FOR H-3

TARGET ORGAN	SOURCE ORGAN	(REM/MICROCURIE-DAY)	TARGET ORGAN	SOURCE ORGAN	(REM/MICROCURIE-DAY)
LUNGS	LUNGS	2.91E-04	BONE	CORT. BONE	5.81E-05
	RES. LYMPH	2.91E-04		CANC. BONE	5.75E-05
RES. LYMPH	LUNGS	2.91E-04		RED MARROW	3.93E-07
	RES. LYMPH	1.94E-02		YELLOW MARROW	0.0
STOMACH	S. WALL	1.94E-03	RED MARROW	CORT. BONE	1.54E-08
	S. CONTENTS	5.81E-04		CANC. BONE	1.97E-06
SMALL INTESTINE	S.I. WALL	4.54E-04		RED MARROW	1.92E-04
	S.I. CONTENTS	3.63E-04		YELLOW MARROW	0.0
U. LARGE INTESTINE	U.L.I. WALL	1.39E-03	YELLOW MARROW	CORT. BONE	0.0
	U.L.I. CONTENTS	6.60E-04		CANC. BONE	0.0
L. LARGE INTESTINE	L.L.I. WALL	1.82E-03		RED MARROW	0.0
	L.L.I. CONTENTS	1.08E-03		YELLOW MARROW	1.94E-04
TOTAL BODY	TOTAL BODY	4.15E-06	ENDOSTEAL CELLS	CORT. BONE	3.27E-06
ADRENALS	ADRENALS	2.08E-02		CANC. BONE	6.84E-06
URINARY BLADDER	BLADDER WALL	6.46E-03		RED MARROW	9.23E-05
	BLADDER CONTENTS	7.26E-04		YELLOW MARROW	4.84E-05
KIDNEYS	KIDNEYS	9.37E-04	SPLEEN	SPLEEN	1.61E-03
LIVER	LIVER	1.61E-04	TESTES	TESTES	8.30E-03
OVARIES	OVARIES	2.64E-02	THYMUS	THYMUS	1.45E-02
PANCREAS	PANCREAS	2.91E-03	THYROID	THYROID	1.45E-02
			UTERUS	UTERUS	3.64E-03

 β^- decay (12.35 Y 1)

Unlike most other radionuclides in this compilation, retention data for H-3 are based on a steady-state model. See Chapter 3 for discussion.

HYDROGEN-3 CONTINUED

CASE 1.. INHALATION AND ABSORPTION THROUGH SKIN

0.5 MICROCURIES ARE ABSORBED THROUGH SKIN
PER MICROCURIE INHALED

DOSE EQUIVALENT (REM/MICROCURIE INHALED)

TARGET

LUNGS	1.25E-04
RES. LYMPH	2.48E-04
S. WALL	1.25E-04
S.I. WALL	1.30E-04
U.L.I. WALL	1.37E-04
L.L.I. WALL	1.33E-04
TOTAL BODY	1.25E-04
ADRENALS	1.34E-04
BLADDER WALL	1.23E-04
KIDNEYS	1.29E-04
LIVER	1.24E-04
OVARIES	1.24E-04
PANCREAS	1.21E-04
BONE	5.57E-05
RED MARROW	1.24E-04
YELLOW MARROW	1.41E-04
ENDOSTEAL CELLS	9.85E-05
SPLEEN	1.24E-04
TESTES	1.25E-04
THYMUS	1.12E-04
THYROID	1.24E-04
UTERUS	1.25E-04

CASE 2.. INGESTION

G.I. ABSORPTION FRACTION
F1 = 0.95

DOSE EQUIVALENT (REM/MICROCURIE)

TARGET

LUNGS	8.36E-05
RES. LYMPH	1.66E-04
S. WALL	1.08E-04
S.I. WALL	8.97E-05
U.L.I. WALL	1.09E-04
L.L.I. WALL	1.43E-04
TOTAL BODY	8.30E-05
ADRENALS	8.92E-05
BLADDER WALL	8.18E-05
KIDNEYS	8.56E-05
LIVER	8.28E-05
OVARIES	8.29E-05
PANCREAS	8.06E-05
BONE	3.71E-05
RED MARROW	8.26E-05
YELLOW MARROW	9.43E-05
ENDOSTEAL CELLS	6.56E-05
SPLEEN	8.28E-05
TESTES	8.30E-05
THYMUS	7.45E-05
THYROID	8.28E-05
UTERUS	8.34E-05

CARBON-14

RADIONUCLIDE: C-14

PHYSICAL AND METABOLIC PARAMETERS:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)
C-14	2.092E 06

SEE CHAPTER 3, TABLE 3-1, FOR MICROCURIE-DAYS RESIDENCE OF C-14 IN EACH SOURCE ORGAN.

S-FACTORS FOR C-14

TARGET ORGAN	SOURCE ORGAN	(REM/MICROCURIE-DAY)	TARGET ORGAN	SOURCE ORGAN	(REM/MICROCURIE-DAY)
LUNGS	LUNGS	2.53E-03	BONE	CORT. BONE	5.06E-04
	RES. LYMPH	2.53E-03		CANC. BONE	4.61E-04
RES. LYMPH	LUNGS	2.53E-03		RED MARROW	3.00E-05
	RES. LYMPH	1.69E-01		YELLOW MARROW	0.0
STOMACH	S. WALL	1.67E-02	RED MARROW	CORT. BONE	1.17E-06
	S. CONTENTS	5.06E-03		CANC. BONE	1.50E-04
SMALL INTESTINE	S.I. WALL	3.92E-03		RED MARROW	1.58E-03
	S.I. CONTENTS	3.16E-03		YELLOW MARROW	0.0
U. LARGE INTESTINE	U.L.I. WALL	1.19E-02	YELLOW MARROW	CORT. BONE	0.0
	U.L.I. CONTENTS	5.75E-03		CANC. BONE	0.0
L. LARGE INTESTINE	L.L.I. WALL	1.57E-02		RED MARROW	0.0
	L.L.I. CONTENTS	9.37E-03		YELLOW MARROW	1.69E-03
TOTAL BODY	TOTAL BODY	3.61E-05	ENDOSTEAL CELLS	CORT. BONE	2.46E-04
ADRENALS	ADRENALS	1.81E-01		CANC. BONE	5.15E-04
URINARY BLADDER	BLADDER WALL	5.58E-02		RED MARROW	5.00E-04
	BLADDER CONTENTS	6.33E-03		YELLOW MARROW	4.22E-04
KIDNEYS	KIDNEYS	8.16E-03	SPLEEN	SPLEEN	1.41E-02
LIVER	LIVER	1.41E-03	TESTES	TESTES	7.23E-02
OVARIES	OVARIES	2.30E-01	THYMUS	THYMUS	1.27E-01
PANCREAS	PANCREAS	2.53E-02	THYROID	THYROID	1.27E-01
			UTERUS	UTERUS	3.17E-02

 β^- decay (5730 Y 40)

Unlike most other radionuclides in this compilation, retention data for ^{14}C are based on a steady-state specific activity model. See Chapter 3 for discussion.

CARBON-14 CONTINUED

CASE 1: INHALATION OF C-14 DIOXIDE

G.I. ABSORPTION FRACTION F1 = 0.95

DOSE EQUIVALENT (REM/MICROCURIE)

TARGET

LUNGS	6.18E-06
RES. LYMPH	1.32E-05
S. WALL	7.35E-06
S.I. WALL	7.06E-06
U.L.I. WALL	6.90E-06
L.L.I. WALL	7.22E-06
TOTAL BODY	1.41E-05
ADRENALS	1.76E-05
BLADDER WALL	6.75E-06
KIDNEYS	7.92E-06
LIVER	8.88E-06
OVARIES	5.29E-06
PANCREAS	7.84E-06
BONE	8.46E-06
RED MARROW	2.42E-05
YELLOW MARROW	3.98E-05
ENDOSTEAL CELLS	5.08E-05
SPLEEN	6.77E-06
TESTES	5.42E-06
THYMUS	7.11E-06
THYROID	6.48E-06
UTERUS	6.97E-06

CASE 2: INGESTION OF C-14 IN DIETARY CARBON

G.I. ABSORPTION FRACTION F1 = 0.95

DOSE EQUIVALENT (REM/MICROCURIE)

TARGET

LUNGS	8.94E-04
RES. LYMPH	1.80E-03
S. WALL	1.21E-03
S.I. WALL	1.01E-03
U.L.I. WALL	1.11E-03
L.L.I. WALL	1.46E-03
TOTAL BODY	1.92E-03
ADRENALS	2.35E-03
BLADDER WALL	9.00E-04
KIDNEYS	1.06E-03
LIVER	1.23E-03
OVARIES	7.36E-04
PANCREAS	1.09E-03
BONE	1.17E-03
RED MARROW	3.38E-03
YELLOW MARROW	5.41E-03
ENDOSTEAL CELLS	7.05E-03
SPLEEN	9.45E-04
TESTES	7.23E-04
THYMUS	9.78E-04
THYROID	8.89E-04
UTERUS	9.51E-04

SODIUM-22

RADIONUCLIDE: NA-22

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

	RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE	NA-22			
	950.0			
		BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ORGAN	NA-22	F2-PRIME	1.00	15.0
ABSORBED	NA-22	1.00	1.00	15.0
BONE		0.300		

S FACTORS (REM/MICROCURIE-DAY) FOR NA-22

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER
LUNGS	0.152E-01	0.152E-01	0.666E-03	0.127E-03	0.147E-03	0.524E-04	0.364E-03	0.486E-03
RES LYM	0.152E-01	0.667E-03	0.666E-03	0.127E-03	0.147E-03	0.524E-04	0.364E-03	0.486E-03
S WALL	0.703E-03	0.703E-03	0.384E-01	0.127E-02	0.126E-02	0.607E-03	0.215E-03	0.524E-03
SI WALL	0.114E-03	0.114E-03	0.929E-03	0.235E-01	0.574E-02	0.322E-02	0.297E-03	0.561E-03
ULI WALL	0.154E-03	0.154E-03	0.123E-02	0.819E-02	0.380E-01	0.153E-02	0.273E-03	0.589E-03
LLI WALL	0.298E-04	0.298E-04	0.499E-03	0.246E-02	0.111E-02	0.553E-01	0.366E-03	0.595E-03
T BODY	0.669E-03	0.669E-03	0.651E-03	0.825E-03	0.763E-03	0.776E-03	0.670E-03	0.669E-03
ADREN	0.833E-03	0.833E-03	0.959E-03	0.445E-03	0.409E-03	0.184E-03	0.688E-03	0.835E-03
BL WALL	0.330E-04	0.330E-04	0.176E-03	0.113E-02	0.688E-03	0.210E-02	0.238E-03	0.766E-03
KIDNEYS	0.393E-03	0.393E-03	0.119E-02	0.112E-02	0.102E-02	0.331E-03	0.379E-03	0.880E-03
LIVER	0.868E-03	0.868E-03	0.735E-03	0.673E-03	0.909E-03	0.148E-03	0.267E-03	0.868E-03
OVARIES	0.627E-04	0.627E-04	0.341E-03	0.323E-02	0.339E-02	0.596E-02	0.368E-03	0.917E-03
PANCREAS	0.928E-03	0.928E-03	0.617E-02	0.710E-03	0.715E-03	0.264E-03	0.376E-03	0.952E-03
BONE	0.358E-03	0.358E-03	0.217E-03	0.285E-03	0.258E-03	0.372E-03	0.309E-02	0.440E-03
R MAR	0.454E-03	0.454E-03	0.366E-03	0.883E-03	0.753E-03	0.110E-02	0.162E-02	0.678E-03
Y MAR	0.373E-03	0.373E-03	0.304E-03	0.391E-03	0.366E-03	0.460E-03	0.107E-02	0.619E-03
ENDOST	0.358E-03	0.358E-03	0.217E-03	0.285E-03	0.258E-03	0.372E-03	0.272E-02	0.529E-03
SPLEEN	0.744E-03	0.744E-03	0.343E-02	0.591E-03	0.501E-03	0.366E-03	0.296E-03	0.861E-03
TESTES	0.127E-04	0.127E-04	0.422E-04	0.180E-03	0.186E-03	0.648E-03	0.243E-03	0.688E-03
THYMUS	0.148E-02	0.148E-02	0.204E-03	0.583E-04	0.631E-04	0.267E-04	0.258E-03	0.140E-02
THYROID	0.431E-03	0.431E-03	0.632E-04	0.195E-04	0.206E-04	0.977E-05	0.363E-03	0.659E-03
UTERUS	0.606E-04	0.606E-04	0.357E-03	0.306E-02	0.172E-02	0.206E-02	0.258E-03	0.162E-02

 β^+ decay (2.602 Y 2)

PHOSPHORUS-32

RADIONUCLIDE: P-32

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
P-32	14.30			
ORGAN ABSORBED	NUCLIDE P-32	1.00	0.150 0.150 0.400 0.300	0.500 2.00 19.0 INFINITE
EXCRET. BONE	P-32 P-32	0.150 0.300	1.00 1.00	0.500 INFINITE

S FACTORS (REM/MICROCURIE-DAY) FOR P-32

TARGET ORGANS	SOURCE ORGANS								
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	CTHER
LUNGS	0.355E-01	0.355E-01	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.0
RES LYM	0.355E-01	0.237E-01	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.0
S WALL	0.0	0.0	0.711E-01	0.0	0.0	0.0	0.508E-03	0.0	0.0
SI WALL	0.0	0.0	0.0	0.444E-01	0.0	0.0	0.508E-03	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.808E-01	0.0	0.508E-03	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.132E-00	0.508E-03	0.0	0.0
T BODY	0.508E-03	0.508E-03	0.152E-03	0.406E-03	0.242E-03	0.301E-03	0.508E-03	0.508E-03	0.508E-03
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.490E-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.979E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.648E-02	0.863E-04
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.246E-02	0.641E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.508E-03	0.545E-03
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.979E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.508E-03	0.0	0.980E-03

β^- decay (14.29 D 3)

Case 2 is applicable to inhalation of phosphates of certain elements as noted in Chapter 3.

Uniform distribution is assumed for intracellular fluids and soft tissues.

PHOSPHORUS-32 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
P-32	D	0.0	0.800	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	OTHER	TOTAL
TARGET										
LUNGS	6.403E-03	1.191E-03	0.0	0.0	0.0	0.0	3.168E-05	0.0	0.0	7.626E-03
RES LYM	6.403E-03	7.953E-02	0.0	0.0	0.0	0.0	3.168E-05	0.0	0.0	8.596E-02
S WALL	0.0	0.0	4.656E-04	0.0	0.0	0.0	3.168E-05	0.0	0.0	5.013E-04
SI WALL	0.0	0.0	0.0	2.342E-04	0.0	0.0	3.168E-05	0.0	0.0	2.659E-04
ULI WALL	0.0	0.0	0.0	0.0	1.350E-03	0.0	3.168E-05	0.0	0.0	1.381E-03
LLI WALL	0.0	0.0	0.0	0.0	0.0	3.883E-03	3.168E-05	0.0	0.0	3.914E-03
T BODY	9.162E-05	1.705E-05	1.004E-06	2.142E-06	4.043E-06	8.854E-06	3.168E-05	1.876E-03	1.533E-03	3.565E-03
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	1.487E-03	1.519E-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.972E-03	3.003E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	2.392E-02	2.619E-04	2.422E-02
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	9.082E-03	1.946E-03	1.106E-02
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	1.853E-02	1.654E-03	2.022E-02
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.972E-03	3.003E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-05	0.0	2.975E-03	3.006E-03

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
P-32	W	0.0	0.800	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	OTHER	TOTAL
TARGET										
LUNGS	9.707E-02	1.578E-03	0.0	0.0	0.0	0.0	2.222E-05	0.0	0.0	9.867E-02
RES LYM	9.707E-02	0.105	0.0	0.0	0.0	0.0	2.222E-05	0.0	0.0	0.202
S WALL	0.0	0.0	1.255E-03	0.0	0.0	0.0	2.222E-05	0.0	0.0	1.277E-03
SI WALL	0.0	0.0	0.0	6.261E-04	0.0	0.0	2.222E-05	0.0	0.0	6.483E-04
ULI WALL	0.0	0.0	0.0	0.0	3.608E-03	0.0	2.222E-05	0.0	0.0	3.630E-03
LLI WALL	0.0	0.0	0.0	0.0	0.0	1.038E-02	2.222E-05	0.0	0.0	1.040E-02
T BODY	1.389E-03	2.258E-05	2.483E-06	5.725E-06	1.081E-05	2.367E-05	2.222E-05	1.315E-03	1.075E-03	3.867E-03
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	1.043E-03	1.065E-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.084E-03	2.106E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	1.678E-02	1.837E-04	1.698E-02
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	6.369E-03	1.364E-03	7.755E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	1.300E-02	1.160E-03	1.418E-02
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.084E-03	2.106E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	2.222E-05	0.0	2.086E-03	2.108E-03

PHOSPHORUS-32 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

P-32
STOMACH 0.0
S INT 0.800
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	OTHER	TOTAL
TARGET								
LUNGS	0.0	0.0	0.0	0.0	4.233E-05	0.0	0.0	4.233E-05
RES LYM	0.0	0.0	0.0	0.0	4.233E-05	0.0	0.0	4.233E-05
S WALL	2.957E-03	0.0	0.0	0.0	4.233E-05	0.0	0.0	2.999E-03
SI WALL	0.0	1.475E-03	0.0	0.0	4.233E-05	0.0	0.0	1.517E-03
ULI WALL	0.0	0.0	8.499E-03	0.0	4.233E-05	0.0	0.0	8.541E-03
LLI WALL	0.0	0.0	0.0	2.445E-02	4.233E-05	0.0	0.0	2.449E-02
T BODY	6.321E-06	1.348E-05	2.545E-05	5.575E-05	4.233E-05	2.506E-03	2.048E-03	4.698E-03
ADREN	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
BL WALL	0.0	0.0	0.0	0.0	4.233E-05	0.0	1.987E-03	2.030E-03
KIDNEYS	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.971E-03	4.013E-03
LIVER	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
OVARIES	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
PANCREAS	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
BONE	0.0	0.0	0.0	0.0	4.233E-05	3.197E-02	3.500E-04	3.236E-02
R MAR	0.0	0.0	0.0	0.0	4.233E-05	1.214E-02	2.600E-03	1.478E-02
Y MAR	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
ENDOST	0.0	0.0	0.0	0.0	4.233E-05	2.477E-02	2.210E-03	2.702E-02
SPLEEN	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
TESTES	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.971E-03	4.013E-03
THYMUS	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
THYROID	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03
UTERUS	0.0	0.0	0.0	0.0	4.233E-05	0.0	3.975E-03	4.017E-03

MANGANESE-54

RADIONUCLIDE: MN-54

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCLIDE MN-54		312.0		
ORGAN ABSORBED	NUCLIDE MN-54	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
BONE	MN-54	0.350	0.300	4.00
LIVER	MN-54	0.250	0.700	40.0
			1.00	40.0
			0.400	4.00
			0.600	40.0

S FACTORS (REM/MICROCURIE-DAY) FOR MN-54

TARGET ORGANS		SOURCE ORGANS								
		LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER
LUNGS	0.227E-02	0.223E-02	0.254E-03	0.497E-04	0.561E-04	0.206E-04	0.142E-03	0.342E-03	0.179E-03	
RES LYM	0.223E-02	0.172E-01	0.254E-03	0.497E-04	0.561E-04	0.206E-04	0.142E-03	0.342E-03	0.179E-03	
S WALL	0.271E-03	0.271E-03	0.765E-02	0.489E-03	0.506E-03	0.230E-03	0.790E-04	0.276E-03	0.200E-03	
SI WALL	0.445E-04	0.445E-04	0.361E-03	0.451E-02	0.223E-02	0.125E-02	0.119E-03	0.224E-03	0.214E-03	
ULI WALL	0.581E-04	0.581E-04	0.435E-03	0.318E-02	0.651E-02	0.563E-03	0.109E-03	0.345E-03	0.220E-03	
LLI WALL	0.130E-04	0.130E-04	0.191E-03	0.954E-03	0.455E-03	0.787E-02	0.148E-03	0.412E-04	0.233E-03	
T BODY	0.207E-03	0.207E-03	0.252E-03	0.277E-03	0.271E-03	0.269E-03	0.207E-03	0.243E-03	0.205E-03	
ADREN	0.339E-03	0.339E-03	0.303E-03	0.170E-03	0.168E-03	0.708E-04	0.260E-03	0.684E-03	0.263E-03	
BL WALL	0.124E-04	0.124E-04	0.696E-04	0.360E-03	0.294E-03	0.736E-03	0.715E-04	0.336E-04	0.282E-03	
KIDNEYS	0.143E-03	0.143E-03	0.462E-03	0.448E-03	0.400E-03	0.128E-03	0.159E-03	0.521E-03	0.304E-03	
LIVER	0.336E-03	0.336E-03	0.280E-03	0.262E-03	0.351E-03	0.539E-04	0.103E-03	0.370E-02	0.158E-03	
OVARIES	0.238E-04	0.238E-04	0.169E-03	0.139E-02	0.128E-02	0.234E-02	0.143E-03	0.803E-04	0.305E-03	
PANCREAS	0.339E-03	0.339E-03	0.235E-02	0.288E-03	0.282E-03	0.106E-03	0.138E-03	0.621E-03	0.341E-03	
BONE	0.139E-03	0.139E-03	0.834E-04	0.110E-03	0.984E-04	0.143E-03	0.528E-03	0.101E-03	0.171E-03	
R MAR	0.176E-03	0.176E-03	0.142E-03	0.343E-03	0.288E-03	0.428E-03	0.441E-03	0.144E-03	0.236E-03	
Y MAR	0.147E-03	0.147E-03	0.115E-03	0.152E-03	0.140E-03	0.176E-03	0.424E-03	0.150E-03	0.190E-03	
ENDOST	0.139E-03	0.139E-03	0.834E-04	0.110E-03	0.984E-04	0.143E-03	0.451E-03	0.101E-03	0.182E-03	
SPLEEN	0.308E-03	0.308E-03	0.133E-02	0.221E-03	0.190E-03	0.147E-03	0.126E-03	0.158E-03	0.311E-03	
TESTES	0.467E-05	0.467E-05	0.175E-04	0.688E-04	0.798E-04	0.240E-03	0.919E-04	0.306E-04	0.225E-03	
THYMUS	0.569E-03	0.569E-03	0.930E-04	0.222E-04	0.240E-04	0.100E-04	0.118E-03	0.138E-03	0.395E-03	
THYROID	0.192E-03	0.192E-03	0.241E-04	0.723E-05	0.767E-05	0.355E-05	0.100E-03	0.284E-04	0.222E-03	
UTERUS	0.162E-04	0.162E-04	0.135E-03	0.120E-02	0.653E-03	0.783E-03	0.118E-03	0.580E-04	0.645E-03	

EC decay (312.5 D 5)

Case 1 represents inhalation of compounds of manganese other than oxides, hydroxides, halides, and nitrates, which are represented by Case 2.

MANGANESE-54 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =C.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
MN-54	D	0.0	1.000E-01	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	4.226E-04	7.990E-05	1.682E-06	1.185E-06	4.341E-06	2.936E-06	1.260E-03	1.397E-03	1.009E-03	4.178E-03
RES LYM	4.151E-04	6.163E-04	1.682E-06	1.185E-06	4.341E-06	2.936E-06	1.260E-03	1.397E-03	1.009E-03	4.707E-03
S WALL	5.945E-05	5.710E-06	5.067E-05	1.166E-05	3.915E-05	2.278E-05	7.008E-04	9.127E-03	1.127E-03	3.149E-03
SI WALL	8.284E-06	1.554E-06	2.391E-06	1.075E-04	1.726E-04	1.782E-04	1.056E-03	9.146E-04	1.226E-03	3.647E-03
ULI WALL	1.082E-06	2.082E-06	2.881E-06	7.580E-05	5.037E-04	8.125E-05	9.670E-04	1.405E-03	1.240E-03	4.291E-03
LLI WALL	2.420E-06	4.658E-07	1.265E-06	2.274E-05	3.521E-05	1.122E-03	1.313E-03	1.683E-04	1.313E-03	3.978E-03
T BODY	3.853E-05	7.417E-06	1.669E-06	6.603E-06	2.097E-05	3.834E-05	1.836E-03	9.925E-04	1.155E-03	4.097E-03
ADREN	6.311E-05	1.215E-05	2.007E-06	4.052E-06	1.300E-05	1.009E-05	2.307E-03	2.794E-03	1.482E-03	6.686E-03
BL WALL	2.338E-06	4.443E-07	4.610E-07	3.581E-06	2.275E-05	1.249E-04	6.343E-04	1.372E-04	1.589E-03	2.500E-03
KIDNEYS	2.662E-05	5.124E-06	3.060E-06	1.068E-05	3.095E-05	1.924E-05	1.411E-03	2.128E-03	1.713E-03	5.346E-03
LIVER	6.255E-05	1.204E-05	1.855E-06	6.245E-06	2.716E-05	7.668E-06	9.138E-04	1.511E-02	8.902E-04	1.703E-02
OVARIES	4.431E-06	8.528E-07	1.119E-06	3.313E-05	9.904E-05	3.335E-04	1.269E-03	3.280E-04	1.718E-03	3.787E-03
PANCREAS	6.311E-05	1.215E-05	1.557E-05	6.865E-06	2.182E-05	1.511E-05	1.224E-03	2.536E-03	1.921E-03	5.817E-03
BONE	2.588E-05	4.580E-06	5.524E-07	2.622E-06	7.614E-06	2.338E-05	4.684E-03	4.125E-04	9.634E-04	6.122E-03
R MAR	3.276E-05	6.306E-06	5.405E-07	3.176E-06	2.228E-05	6.100E-05	3.912E-03	5.882E-04	1.330E-03	5.962E-03
Y MAR	2.737E-05	5.267E-06	7.617E-07	3.623E-06	1.083E-05	2.509E-05	3.762E-03	6.127E-04	1.070E-03	5.518E-03
ENDOST	2.588E-05	4.980E-06	5.524E-07	2.622E-06	7.614E-06	2.338E-05	4.684E-03	4.125E-04	1.025E-03	5.856E-03
SPLEEN	5.734E-05	1.104E-05	8.809E-06	3.268E-06	1.470E-05	2.095E-05	1.118E-03	6.453E-04	1.752E-03	3.633E-03
TESTES	8.694E-07	1.673E-07	1.159E-07	1.640E-06	6.175E-06	3.421E-05	8.153E-04	1.250E-04	1.268E-03	2.251E-03
THYMUS	1.059E-04	2.039E-05	6.160E-07	5.292E-07	1.857E-06	1.425E-06	1.047E-03	5.636E-04	2.225E-03	3.967E-03
THYROID	3.574E-05	6.879E-06	1.566E-07	1.723E-07	5.935E-07	5.060E-07	8.871E-04	1.163E-04	1.251E-03	2.298E-03
UTERUS	3.016E-06	5.804E-07	8.942E-07	2.860E-05	5.053E-05	1.116E-04	1.047E-03	2.365E-04	3.634E-03	5.113E-03

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =C.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
MN-54	W	0.0	1.000E-01	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	2.194E-02	1.489E-03	5.330E-06	3.754E-06	1.375E-05	9.303E-06	4.139E-04	4.585E-04	3.313E-04	2.466E-02
RES LYM	2.155E-02	1.148E-02	5.330E-06	3.754E-06	1.375E-05	9.303E-06	4.139E-04	4.585E-04	3.313E-04	3.427E-02
S WALL	2.619E-03	1.805E-04	1.605E-04	3.693E-05	1.241E-04	1.039E-04	2.303E-04	3.704E-04	3.702E-04	4.136E-03
SI WALL	4.301E-04	2.970E-05	7.576E-06	3.406E-04	5.467E-04	5.645E-04	3.468E-04	3.006E-04	3.961E-04	2.663E-03
ULI WALL	5.615E-04	3.878E-05	9.129E-06	2.402E-04	1.596E-03	2.543E-04	3.177E-04	4.630E-04	4.072E-04	3.888E-03
LLI WALL	1.256E-04	8.678E-06	4.008E-06	7.205E-05	1.115E-04	3.554E-03	4.314E-04	5.529E-05	4.313E-04	4.794E-03
T BODY	2.920E-03	1.382E-04	5.289E-06	2.092E-05	6.644E-05	1.215E-04	6.033E-04	3.261E-04	3.795E-04	3.662E-03
ADREN	3.276E-03	2.263E-04	6.359E-06	1.284E-05	4.119E-05	3.197E-05	7.578E-04	9.179E-04	4.868E-04	5.757E-03
BL WALL	1.198E-04	8.277E-06	1.461E-06	2.719E-05	7.208E-05	3.324E-04	2.084E-04	4.505E-05	5.220E-04	1.337E-03
KIDNEYS	1.382E-03	9.546E-05	9.656E-06	3.384E-05	9.807E-05	5.780E-05	4.634E-04	6.091E-04	5.627E-04	3.402E-03
LIVER	3.247E-03	2.243E-04	5.876E-06	1.979E-05	8.605E-05	2.430E-05	3.002E-04	4.965E-03	2.925E-04	9.165E-03
OVARIES	2.300E-04	1.589E-05	3.547E-06	1.050E-04	3.138E-04	1.057E-03	4.168E-04	1.078E-04	5.646E-04	2.814E-03
PANCREAS	3.276E-03	2.263E-04	4.932E-05	2.175E-05	6.914E-05	4.787E-05	4.022E-04	8.333E-04	6.312E-04	5.557E-03
BONE	1.343E-03	9.279E-05	1.750E-06	8.308E-06	2.412E-05	6.458E-05	1.539E-03	1.355E-04	3.165E-04	3.526E-03
R MAR	1.731E-03	1.175E-04	2.980E-06	2.591E-05	7.061E-05	1.933E-04	1.285E-03	1.932E-04	4.369E-04	4.027E-03
Y MAR	1.421E-03	9.813E-05	2.413E-06	1.148E-05	3.432E-05	7.948E-05	1.236E-03	2.013E-04	3.517E-04	3.435E-03
ENDOST	1.343E-03	9.279E-05	1.750E-06	8.308E-06	2.412E-05	6.458E-05	1.431E-03	1.355E-04	3.369E-04	3.438E-03
SPLEEN	2.977E-03	2.056E-04	1.669E-05	1.669E-05	4.658E-05	6.639E-05	3.673E-04	2.120E-04	5.757E-04	4.495E-03
TESTES	4.513E-05	3.117E-06	3.673E-07	5.196E-06	1.956E-05	1.084E-04	2.679E-04	4.106E-05	4.165E-04	9.072E-04
THYMUS	5.499E-03	3.798E-04	1.952E-06	1.677E-06	5.884E-06	4.516E-06	3.439E-04	1.852E-04	7.312E-04	7.153E-03
THYROID	1.856E-03	1.282E-04	5.058E-07	5.460E-07	1.880E-06	1.603E-06	2.915E-04	3.811E-05	4.109E-04	2.729E-03
UTERUS	1.566E-04	1.081E-05	2.833E-06	9.063E-05	1.601E-04	3.536E-04	3.439E-04	7.783E-05	1.194E-03	2.590E-03

MANGANESE-54 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

MN-54
 STOMACH 0.0
 S INT 1.000E-01
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CCNT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET								
LUNGS	1.058E-05	7.452E-06	2.730E-05	1.847E-05	2.541E-04	2.818E-04	2.034E-04	8.031E-04
RES LYM	1.058E-05	7.452E-06	2.730E-05	1.847E-05	2.541E-04	2.818E-04	2.034E-04	8.031E-04
S WALL	3.187E-04	7.332E-05	2.463E-04	2.062E-04	1.414E-04	2.274E-04	2.273E-04	1.441E-03
SI WALL	1.504E-05	6.762E-04	1.085E-03	1.121E-03	2.129E-04	1.845E-04	2.432E-04	3.538E-03
ULI WALL	1.812E-05	4.768E-04	3.168E-03	5.048E-04	1.951E-04	2.842E-04	2.500E-04	4.897E-03
LLI WALL	7.958E-06	1.430E-04	2.215E-04	7.056E-03	2.648E-04	3.394E-05	2.648E-04	7.992E-03
T BODY	1.050E-05	4.153E-05	1.319E-04	2.412E-04	3.704E-04	2.002E-04	2.330E-04	1.229E-03
ADREN	1.262E-05	2.549E-05	8.177E-05	6.348E-05	4.653E-04	5.635E-04	2.989E-04	1.511E-03
BL WALL	2.900E-06	5.398E-05	1.431E-04	6.599E-04	1.279E-04	2.768E-05	3.205E-04	1.336E-03
KIDNEYS	1.925E-05	6.717E-05	1.947E-04	1.148E-04	2.845E-04	4.292E-04	3.455E-04	1.455E-03
LIVER	1.167E-05	3.628E-05	1.708E-04	4.823E-05	1.843E-04	3.348E-03	1.796E-04	3.682E-03
OVARIES	7.041E-06	2.084E-04	6.230E-04	2.098E-03	2.559E-04	6.616E-05	3.466E-04	3.605E-03
PANCREAS	9.791E-05	4.318E-05	1.373E-04	9.503E-05	2.469E-04	5.116E-04	3.875E-04	1.519E-03
BONE	3.475E-06	1.649E-05	4.789E-05	1.282E-04	9.448E-04	8.321E-05	1.943E-04	1.418E-03
R MAR	5.916E-06	5.143E-05	1.402E-04	3.837E-04	7.892E-04	1.186E-04	2.682E-04	1.757E-03
Y MAR	4.791E-06	2.279E-05	6.814E-05	1.578E-04	7.587E-04	1.236E-04	2.159E-04	1.352E-03
ENDOST	3.475E-06	1.649E-05	4.789E-05	1.282E-04	8.786E-04	8.321E-05	2.068E-04	1.365E-03
SPLEEN	5.541E-05	3.314E-05	9.248E-05	1.318E-04	2.255E-04	1.302E-04	3.534E-04	1.022E-03
TESTES	7.291E-07	1.032E-05	3.884E-05	2.152E-04	1.645E-04	2.521E-05	2.557E-04	7.104E-04
THYMUS	3.875E-06	3.329E-06	1.168E-05	8.965E-06	2.112E-04	1.137E-04	4.489E-04	8.016E-04
THYROID	1.004E-06	1.084E-06	3.733E-06	3.183E-06	1.789E-04	2.340E-05	2.523E-04	4.636E-04
UTERUS	5.624E-06	1.759E-04	3.178E-04	7.020E-04	2.112E-04	4.778E-05	7.330E-04	2.197E-03

IRON-55

RADIONUCLIDE: FE-55

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
FE-55	986.0			
ORGAN	NUCLIDE	F2-PRIME	FRACTION	
ABSORBED	FE-55	1.00	1.00	2.000E 03
LIVER	FE-55	8.000E-02	1.00	2.000E 03
SPLEEN	FE-55	1.300E-02	1.00	2.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR FE-55

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CCNT	LLI CCNT	LIVER	SPLEEN	OTHER	
LUNGS	0.280E-03	0.246E-03	0.893E-08	0.225E-18	0.201E-18	0.132E-17	0.393E-08	0.329E-07	0.142E-06	
RES LYM	0.246E-03	0.160E-01	0.893E-08	0.225E-18	0.201E-18	0.132E-17	0.393E-08	0.329E-07	0.142E-06	
S WALL	0.272E-07	0.272E-07	0.426E-03	0.288E-07	0.107E-06	0.634E-09	0.195E-07	0.437E-07	0.440E-08	
SI WALL	0.835E-18	0.835E-18	0.101E-07	0.293E-03	0.276E-06	0.123E-06	0.821E-08	0.895E-11	0.273E-07	
ULI WALL	0.128E-17	0.128E-17	0.409E-07	0.228E-04	0.484E-03	0.521E-06	0.958E-08	0.597E-11	0.162E-06	
LLI WALL	0.317E-20	0.317E-20	0.865E-10	0.143E-05	0.125E-06	0.786E-03	0.139E-17	0.921E-13	0.109E-07	
T BODY	0.365E-05	0.365E-05	0.160E-05	0.306E-05	0.212E-05	0.246E-05	0.365E-05	0.365E-05	0.363E-05	
ADREN	0.627E-07	0.627E-07	0.219E-11	0.109E-14	0.292E-15	0.992E-18	0.124E-06	0.560E-08	0.717E-05	
BL WALL	0.179E-28	0.179E-28	0.814E-19	0.213E-10	0.168E-10	0.701E-08	0.291E-19	0.339E-22	0.283E-05	
KIDNEYS	0.325E-11	0.325E-11	0.194E-10	0.250E-09	0.161E-10	0.215E-12	0.425E-07	0.355E-06	0.745E-05	
LIVER	0.363E-08	0.363E-08	0.109E-07	0.385E-08	0.801E-08	0.149E-17	0.160E-03	0.365E-13	0.239E-07	
OVARIES	0.266E-24	0.266E-24	0.101E-14	0.698E-06	0.102E-05	0.203E-05	0.497E-15	0.497E-17	0.760E-05	
PANCREAS	0.432E-09	0.432E-09	0.420E-06	0.134E-11	0.114E-11	0.867E-15	0.746E-07	0.792E-07	0.807E-05	
BONE	0.137E-08	0.137E-08	0.195E-09	0.109E-07	0.833E-08	0.218E-08	0.255E-08	0.346E-09	0.610E-05	
R MAR	0.142E-08	0.142E-08	0.203E-08	0.458E-07	0.350E-07	0.916E-08	0.306E-08	0.358E-09	0.742E-05	
Y MAR	0.187E-08	0.187E-08	0.266E-08	0.153E-07	0.117E-07	0.305E-08	0.401E-08	0.470E-09	0.723E-05	
ENDOST	0.137E-08	0.137E-08	0.195E-08	0.109E-07	0.833E-08	0.218E-08	0.295E-08	0.346E-09	0.506E-05	
SPLEEN	0.336E-07	0.336E-07	0.570E-09	0.107E-10	0.292E-11	0.772E-13	0.368E-13	0.160E-02	0.506E-07	
TESTES	0.431E-36	0.431E-36	0.173E-26	0.140E-18	0.625E-18	0.237E-10	0.110E-26	0.617E-30	0.718E-05	
THYMUS	0.112E-07	0.112E-07	0.111E-18	0.532E-27	0.681E-27	0.515E-30	0.320E-16	0.278E-20	0.646E-05	
THYROID	0.205E-12	0.205E-12	0.287E-26	0.220E-35	0.267E-35	0.534E-38	0.655E-25	0.319E-27	0.731E-05	
UTERUS	0.193E-25	0.193E-25	0.381E-16	0.691E-07	0.217E-09	0.260E-09	0.885E-17	0.382E-19	0.664E-05	

EC decay (2.7 Y 1)

Case 1 represents inhalation of compounds of iron other than oxides, hydroxides, and halides, which are represented by Case 2.

IRON-55 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
FE-55	W	0.0	1.000E-01	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL
TARGET										
LUNGS	2.978E-03	2.002E-04	1.910E-10	1.732E-20	5.026E-20	6.090E-19	5.067E-08	6.894E-08	2.076E-05	3.199E-03
RES LYM	2.617E-03	1.302E-02	1.910E-10	1.732E-20	5.026E-20	6.090E-19	5.067E-08	6.894E-08	2.076E-05	1.566E-02
S WALL	2.893E-07	2.214E-08	5.110E-06	2.217E-09	2.676E-08	2.925E-10	2.514E-07	9.156E-06	6.432E-07	1.044E-05
SI WALL	8.881E-18	6.797E-19	2.160E-10	2.255E-05	6.902E-08	5.675E-08	1.059E-07	1.875E-11	3.991E-06	2.678E-05
ULI WALL	1.361E-17	1.042E-18	8.746E-10	1.755E-06	1.210E-04	2.404E-07	1.235E-07	1.251E-11	2.368E-05	1.468E-04
LLI WALL	3.372E-20	2.580E-21	1.853E-12	1.101E-07	3.126E-08	3.626E-04	1.792E-17	1.930E-13	1.593E-06	3.643E-04
T BODY	3.882E-05	2.971E-06	3.421E-08	2.355E-07	5.302E-07	1.135E-06	4.706E-05	7.648E-06	5.307E-04	6.291E-04
ADREN	6.669E-07	5.104E-08	4.683E-14	8.390E-17	7.302E-17	4.577E-19	1.599E-06	1.173E-08	1.048E-03	1.050E-03
BL WALL	1.904E-28	1.457E-29	1.741E-21	1.640E-12	4.201E-12	3.234E-09	3.752E-19	7.103E-23	4.137E-04	4.137E-04
KIDNEYS	3.457E-11	2.645E-12	4.148E-13	1.924E-11	4.026E-12	9.919E-14	5.480E-07	7.438E-07	1.089E-03	1.090E-03
LIVER	3.861E-08	2.955E-09	2.331E-10	2.963E-10	2.003E-09	6.828E-19	2.063E-03	7.648E-14	3.494E-06	2.067E-03
OVARIES	2.829E-24	2.165E-25	2.163E-17	5.373E-08	2.551E-07	9.596E-07	6.408E-15	1.041E-17	1.111E-03	1.112E-03
PANCREAS	4.595E-09	3.516E-10	9.981E-09	1.031E-13	2.851E-13	4.000E-16	9.619E-07	1.655E-07	1.180E-03	1.181E-03
BONE	1.457E-08	1.115E-09	4.170E-11	8.390E-10	2.083E-09	1.006E-09	3.804E-08	7.250E-10	8.917E-04	8.918E-04
R MAR	1.510E-08	1.156E-09	4.341E-11	3.525E-09	8.753E-09	4.226E-09	3.946E-08	7.501E-10	1.085E-03	1.085E-03
Y MAR	1.989E-08	1.522E-09	5.688E-11	1.178E-09	2.926E-09	1.407E-09	5.171E-08	9.846E-10	1.057E-03	1.057E-03
ENDOST	1.457E-08	1.115E-09	4.170E-11	8.390E-10	2.083E-09	1.006E-09	3.804E-08	7.250E-10	7.397E-04	7.398E-04
SPLEEN	3.574E-07	2.735E-08	1.219E-10	8.236E-13	7.302E-13	3.562E-14	4.745E-13	3.352E-03	7.357E-06	3.360E-03
TESTES	4.584E-36	3.508E-37	3.699E-29	1.078E-20	1.563E-19	1.093E-11	1.418E-26	1.293E-30	1.050E-03	1.050E-03
THYMUS	1.191E-07	9.116E-09	2.374E-21	4.095E-29	1.703E-28	2.376E-31	4.126E-16	5.825E-21	9.444E-04	9.445E-04
THYROID	2.180E-12	1.669E-13	6.137E-29	1.643E-37	6.677E-37	2.464E-39	8.446E-25	6.684E-28	1.069E-03	1.069E-03
UTERUS	2.053E-25	1.571E-26	8.147E-19	5.319E-09	5.427E-11	1.199E-10	1.141E-16	8.004E-20	9.707E-04	9.707E-04

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
FE-55	Y	0.0	1.000E-01	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL
TARGET										
LUNGS	2.512E-02	4.921E-03	2.052E-10	1.861E-20	5.402E-20	6.544E-19	2.348E-08	3.194E-08	9.617E-06	2.505E-02
RES LYM	1.768E-02	0.320	2.052E-10	1.861E-20	5.402E-20	6.544E-19	2.348E-08	3.194E-08	9.617E-06	0.338
S WALL	1.955E-06	5.441E-07	9.789E-06	2.382E-09	2.875E-08	3.143E-10	1.165E-07	4.242E-08	2.980E-07	1.278E-05
SI WALL	6.001E-17	1.670E-17	2.321E-10	2.424E-05	7.417E-08	6.098E-08	4.904E-08	8.688E-12	1.849E-06	2.627E-05
ULI WALL	9.200E-17	2.561E-17	9.399E-10	1.886E-06	1.301E-04	2.583E-07	5.723E-08	5.795E-12	1.097E-05	1.432E-04
LLI WALL	2.278E-19	6.341E-20	1.988E-12	1.183E-07	3.359E-08	3.897E-04	8.303E-18	8.940E-14	7.382E-07	3.006E-04
T BODY	2.623E-04	7.302E-05	3.677E-08	2.531E-07	5.697E-07	1.220E-06	2.180E-05	3.543E-06	2.458E-04	6.086E-04
ADREN	4.506E-06	1.254E-06	5.033E-14	9.016E-17	7.847E-17	4.918E-19	7.407E-07	5.436E-09	4.856E-04	4.921E-04
BL WALL	1.287E-27	3.581E-28	1.871E-21	1.762E-12	4.515E-12	3.475E-09	1.738E-19	3.291E-23	1.917E-04	1.917E-04
KIDNEYS	2.336E-10	6.501E-11	4.458E-13	2.068E-11	4.327E-12	1.066E-13	2.539E-07	3.446E-07	5.046E-04	5.052E-04
LIVER	2.609E-07	7.262E-08	2.505E-10	3.185E-10	2.153E-09	7.337E-19	9.558E-04	3.543E-14	1.619E-06	9.577E-04
OVARIES	1.912E-23	5.321E-24	2.321E-17	5.774E-08	2.741E-07	1.031E-06	2.969E-15	4.824E-18	5.147E-04	5.161E-04
PANCREAS	3.105E-08	8.642E-09	9.651E-09	1.108E-13	3.064E-13	4.298E-16	4.456E-07	7.688E-08	5.465E-04	5.471E-04
BONE	9.847E-08	2.741E-08	4.481E-11	9.016E-10	2.239E-09	1.081E-09	1.762E-08	3.355E-10	4.131E-04	4.133E-04
R MAR	1.021E-07	2.841E-08	4.665E-11	3.788E-09	9.406E-09	4.541E-09	1.828E-08	3.475E-10	5.025E-04	5.027E-04
Y MAR	1.344E-07	3.741E-08	6.113E-11	1.206E-09	3.144E-09	1.512E-09	2.395E-08	4.562E-10	4.899E-04	4.899E-04
ENDOST	9.847E-08	2.741E-08	4.481E-11	9.016E-10	2.239E-09	1.081E-09	1.762E-08	3.355E-10	3.427E-04	3.428E-04
SPLEEN	2.415E-06	6.721E-07	1.312E-10	8.851E-13	7.847E-13	3.827E-14	2.198E-13	1.553E-03	3.427E-06	1.560E-03
TESTES	3.798E-35	8.622E-36	3.975E-29	1.158E-20	1.680E-19	1.175E-11	6.571E-27	5.985E-31	4.863E-04	4.863E-04
THYMUS	8.350E-07	2.240E-07	2.551E-21	4.401E-29	1.830E-28	2.553E-31	1.912E-16	2.699E-21	4.375E-04	4.385E-04
THYROID	1.473E-11	4.101E-12	6.595E-29	1.820E-37	7.175E-37	2.647E-39	3.913E-25	3.097E-29	4.951E-04	4.951E-04
UTERUS	1.387E-24	3.861E-25	8.755E-19	5.716E-09	5.831E-11	1.289E-10	5.287E-17	3.706E-20	4.497E-04	4.497E-04

IRON-55 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

FE-55
 STOMACH 0.0
 S INT 1.000E-01
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL
TARGET								
LUNGS	3.721E-10	3.375E-20	9.794E-20	1.187E-18	2.995E-08	4.074E-08	1.227E-05	1.234E-05
RES LYM	3.721E-10	3.375E-20	9.794E-20	1.187E-18	2.995E-08	4.074E-08	1.227E-05	1.234E-05
S WALL	1.775E-05	4.319E-09	5.214E-08	5.699E-10	1.486E-07	5.412E-08	3.802E-07	1.839E-05
SI WALL	4.208E-10	4.354E-05	1.345E-07	1.106E-07	6.257E-08	1.108E-11	2.359E-06	4.661E-05
ULI WALL	1.704E-09	3.420E-06	2.358E-04	4.683E-07	7.301E-08	7.393E-12	1.400E-05	2.538E-04
LLI WALL	3.604E-12	2.145E-07	6.091E-08	7.065E-04	1.059E-17	1.141E-13	9.418E-07	7.078E-04
T BODY	6.666E-08	4.589E-07	1.033E-06	2.211E-06	2.782E-05	4.520E-06	3.137E-04	3.494E-04
ADREN	9.125E-14	1.635E-16	1.423E-16	8.917E-19	9.450E-07	6.935E-09	6.195E-04	6.205E-04
BL WALL	3.392E-21	3.195E-12	8.186E-12	6.301E-09	2.218E-19	4.198E-23	2.445E-04	2.445E-04
KIDNEYS	8.083E-13	3.749E-11	7.845E-12	1.933E-13	3.239E-07	4.396E-07	6.437E-04	6.445E-04
LIVER	4.542E-10	5.774E-10	3.903E-09	1.330E-18	1.219E-03	4.520E-14	2.065E-06	1.221E-03
OVARIES	4.208E-17	1.047E-07	4.970E-07	1.870E-06	3.788E-15	6.155E-18	6.567E-04	6.591E-04
PANCREAS	1.750E-08	2.010E-13	5.555E-13	7.793E-16	5.685E-07	9.808E-08	6.973E-04	6.980E-04
BONE	8.125E-11	1.635E-09	4.059E-09	1.960E-09	2.248E-08	4.285E-10	5.271E-04	5.271E-04
R MAR	8.458E-11	6.869E-09	1.705E-08	8.234E-09	2.332E-08	4.434E-10	6.411E-04	6.412E-04
Y MAR	1.108E-10	2.255E-09	5.701E-09	2.742E-09	3.056E-08	5.821E-10	6.247E-04	6.248E-04
ENDOST	8.125E-11	1.635E-09	4.059E-09	1.960E-09	2.248E-08	4.285E-10	4.372E-04	4.372E-04
SPLEEN	2.375E-10	1.605E-12	1.423E-12	6.940E-14	2.805E-13	1.981E-03	4.372E-06	1.986E-03
TESTES	7.208E-29	2.100E-20	3.045E-19	2.130E-11	8.383E-27	7.641E-31	6.204E-04	6.204E-04
THYMUS	4.625E-21	7.579E-29	3.318E-28	4.629E-31	2.439E-16	3.443E-21	5.582E-04	5.582E-04
THYROID	1.196E-28	3.300E-37	1.301E-36	4.800E-39	4.992E-25	3.951E-28	6.316E-04	6.316E-04
UTERUS	1.587E-18	1.036E-08	1.057E-10	2.337E-10	6.745E-17	4.731E-20	5.737E-04	5.737E-04

IRON-59

RADIONUCLIDE: FE-59

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		FE-59	44.60		
		BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
ORGAN	NUCLIDE	F2-PRIME			
ABSORBED	FE-59	1.00	1.00	2.000E 03	
LIVER	FE-59	8.000E-02	1.00	2.000E 03	
SPLEEN	FE-59	1.300E-02	1.00	2.000E 03	

S FACTORS (REM/MICROCURIE-DAY) FOR FE-59

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	LIVER	SPLEEN	OTHER	
LUNGS	0.873E-02	0.873E-02	0.343E-03	0.686E-04	0.850E-04	0.333E-04	0.477E-03	0.403E-03	0.237E-03	
RES LYM	0.873E-02	0.404E 00	0.343E-03	0.686E-04	0.850E-04	0.333E-04	0.477E-03	0.403E-03	0.237E-03	
S WALL	0.381E-03	0.381E-03	0.217E-01	0.679E-03	0.657E-03	0.298E-03	0.382E-03	0.183E-02	0.247E-03	
SI WALL	0.647E-04	0.647E-04	0.478E-03	0.132E-01	0.296E-02	0.168E-02	0.313E-03	0.280E-03	0.276E-03	
ULI WALL	0.853E-04	0.853E-04	0.633E-03	0.427E-02	0.218E-01	0.786E-03	0.442E-03	0.280E-03	0.282E-03	
LLI WALL	0.171E-04	0.171E-04	0.275E-03	0.129E-02	0.608E-03	0.319E-01	0.622E-04	0.126E-03	0.305E-03	
T BODY	0.363E-03	0.363E-03	0.367E-03	0.442E-03	0.407E-03	0.414E-03	0.412E-03	0.411E-03	0.362E-03	
ADREN	0.429E-03	0.429E-03	0.530E-03	0.232E-03	0.237E-03	0.978E-04	0.905E-03	0.134E-02	0.505E-03	
BL WALL	0.192E-04	0.192E-04	0.562E-04	0.504E-03	0.378E-03	0.108E-02	0.414E-04	0.675E-04	0.425E-03	
KIDNEYS	0.205E-03	0.205E-03	0.627E-03	0.589E-03	0.553E-03	0.185E-03	0.710E-03	0.157E-02	0.529E-03	
LIVER	0.458E-03	0.458E-03	0.382E-03	0.361E-03	0.484E-03	0.833E-04	0.811E-02	0.213E-03	0.208E-03	
OVARIES	0.351E-04	0.351E-04	0.260E-03	0.181E-02	0.131E-02	0.324E-02	0.173E-03	0.114E-03	0.533E-03	
PANCREAS	0.443E-03	0.443E-03	0.315E-02	0.365E-03	0.405E-03	0.138E-03	0.791E-03	0.338E-02	0.559E-03	
BONE	0.187E-03	0.187E-03	0.113E-03	0.150E-03	0.133E-03	0.193E-03	0.139E-03	0.149E-03	0.442E-03	
R MAR	0.237E-03	0.237E-03	0.188E-03	0.459E-03	0.383E-03	0.569E-03	0.197E-03	0.215E-03	0.495E-03	
Y MAR	0.194E-03	0.194E-03	0.158E-03	0.205E-03	0.189E-03	0.238E-03	0.208E-03	0.220E-03	0.438E-03	
ENDOST	0.187E-03	0.187E-03	0.113E-03	0.150E-03	0.133E-03	0.193E-03	0.139E-03	0.149E-03	0.483E-03	
SPLEEN	0.394E-03	0.394E-03	0.180E-02	0.313E-03	0.281E-03	0.204E-03	0.212E-03	0.576E-01	0.272E-03	
TESTES	0.785E-05	0.785E-05	0.351E-04	0.112E-03	0.102E-03	0.296E-03	0.437E-04	0.241E-04	0.433E-03	
THYMUS	0.829E-03	0.829E-03	0.160E-03	0.330E-04	0.355E-04	0.158E-04	0.146E-03	0.100E-03	0.682E-03	
THYROID	0.239E-03	0.239E-03	0.356E-04	0.118E-04	0.124E-04	0.611E-05	0.416E-04	0.348E-04	0.428E-03	
UTERUS	0.366E-04	0.366E-04	0.197E-03	0.158E-02	0.934E-03	0.109E-02	0.961E-04	0.937E-04	0.898E-03	

 β^- decay (44.6 D 4)

Case 2 represents inhalation of compounds of iron other than oxides, hydroxides, and halides, which are represented by Case 1.

IRON-59 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249										
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
FE-59	Y	C.0	1.000E-01	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL
TARGET										
LUNGS	8.032E-02	1.653E-03	6.972E-06	5.008E-06	2.000E-05	1.424E-05	1.290E-04	1.771E-05	7.266E-04	8.289E-02
RES LYM	8.032E-02	7.650E-02	6.972E-06	5.008E-06	2.000E-05	1.424E-05	1.290E-04	1.771E-05	7.266E-04	0.158
S WALL	3.505E-03	7.215E-05	4.411E-04	4.957E-05	1.546E-04	1.275E-04	1.033E-04	8.042E-05	7.573E-04	5.291E-03
SI WALL	5.953E-04	1.225E-05	9.716E-06	9.637E-04	6.965E-04	7.186E-04	8.464E-05	1.233E-05	8.462E-04	3.939E-03
ULI WALL	7.848E-04	1.615E-05	1.287E-05	3.117E-04	5.129E-03	3.362E-04	1.195E-04	1.230E-05	8.646E-04	7.588E-03
LLI WALL	1.573E-04	3.238E-06	5.550E-06	9.418E-05	1.431E-04	1.364E-02	1.682E-05	5.537E-06	9.351E-04	1.501E-02
T BODY	3.340E-03	6.874E-05	7.460E-06	3.227E-05	9.576E-05	1.771E-04	1.114E-04	1.806E-05	1.110E-03	4.960E-03
ADREN	3.947E-03	8.124E-05	1.077E-05	1.694E-05	5.576E-05	4.183E-05	2.447E-04	5.889E-05	1.548E-03	6.005E-03
BL WALL	1.766E-04	3.636E-06	1.955E-06	3.680E-05	8.894E-05	4.620E-04	1.120E-05	2.966E-06	1.303E-03	2.087E-03
KIDNEYS	1.886E-03	3.882E-05	1.274E-05	4.300E-05	1.301E-04	7.913E-05	1.920E-04	6.895E-05	1.622E-03	4.073E-03
LIVER	4.214E-03	8.673E-05	7.765E-06	2.636E-05	1.139E-04	3.563E-05	2.193E-03	9.360E-05	6.377E-04	7.324E-03
OVARIES	3.229E-04	6.647E-06	5.285E-06	1.321E-04	3.082E-04	1.386E-03	4.678E-05	5.010E-06	1.634E-03	3.847E-03
PANCREAS	4.076E-03	6.389E-05	6.403E-05	2.665E-05	9.529E-05	5.903E-05	2.139E-04	1.485E-04	1.714E-03	6.481E-03
BONE	1.720E-03	3.541E-05	2.257E-06	1.095E-05	3.129E-05	8.255E-05	3.759E-05	6.542E-06	1.355E-03	3.282E-03
R MAR	2.180E-03	4.488E-05	3.821E-06	3.351E-05	9.012E-05	2.434E-04	5.327E-05	9.442E-06	1.518E-03	4.177E-03
Y MAR	1.785E-03	3.674E-05	3.212E-06	1.497E-05	4.447E-05	1.018E-04	5.625E-05	9.662E-06	1.343E-03	3.395E-03
ENDOST	1.720E-03	3.541E-05	2.257E-06	1.095E-05	3.129E-05	8.255E-05	3.759E-05	6.542E-06	1.481E-03	3.408E-03
SPLEEN	3.625E-03	7.461E-05	3.659E-05	2.285E-05	6.612E-05	8.726E-05	5.733E-05	2.531E-03	8.340E-04	7.335E-03
TESTES	7.222E-05	1.487E-06	7.135E-07	8.177E-06	2.400E-05	1.266E-04	1.182E-05	1.055E-06	1.328E-03	1.574E-03
THYMUS	7.627E-03	1.570E-04	3.252E-06	2.409E-06	8.353E-06	6.758E-06	3.948E-05	4.395E-06	2.091E-03	9.940E-03
THYROID	2.199E-03	4.526E-05	7.236E-07	8.615E-07	2.918E-06	2.613E-06	1.125E-05	1.525E-06	1.312E-03	3.576E-03
UTERUS	3.367E-04	6.931E-06	4.004E-06	1.154E-04	2.198E-04	4.662E-04	2.599E-05	4.118E-06	2.753E-03	3.932E-03

CASE 2.. INHALATION

AMAD (MICRON).. 1.00											
D3 =0.310 D4 =8.000E-02 D5 =0.249											
G.I. UPTAKE FRACTIONS											
SOLUBILITY CLASS		STOMACH				S INT		U L INT		L L INT	
FE-59 W		0.0		1.000E-01		0.0		0.0			
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL	
TARGET											
LUNGS	4.747E-02	1.744E-03	6.572E-06	4.721E-06	1.885E-05	1.343E-05	3.296E-04	4.526E-05	1.857E-03	5.149E-02	
RES LYM	4.747E-02	8.069E-02	6.572E-06	4.721E-06	1.885E-05	1.343E-05	3.296E-04	4.526E-05	1.857E-03	0.130	
S WALL	2.072E-03	7.610E-05	4.158E-04	4.673E-05	1.457E-04	1.201E-04	2.640E-04	2.055E-04	1.935E-03	5.281E-03	
SI WALL	3.518E-04	1.292E-05	9.158E-06	9.084E-04	6.565E-04	6.773E-04	2.163E-04	3.144E-05	2.162E-03	5.026E-03	
ULI WALL	4.639E-04	1.704E-05	1.213E-05	2.938E-04	4.835E-03	3.169E-04	3.055E-04	3.144E-05	2.209E-03	8.485E-03	
LLI WALL	9.299E-05	3.416E-06	5.269E-06	8.877E-05	1.348E-04	1.286E-02	4.298E-05	1.415E-05	2.390E-03	1.563E-02	
T BODY	1.974E-03	7.251E-05	7.032E-06	3.042E-05	9.027E-05	1.669E-04	2.847E-04	4.615E-05	2.836E-03	5.508E-03	
ADREN	2.333E-03	6.569E-05	1.015E-05	1.597E-05	5.256E-05	3.943E-05	6.254E-04	1.505E-04	3.957E-03	7.269E-03	
BL WALL	1.044E-04	3.835E-06	1.843E-06	3.468E-05	8.383E-05	4.354E-04	2.861E-05	7.580E-06	3.330E-03	4.030E-03	
KIDNEYS	1.115E-03	4.055E-05	1.201E-05	4.053E-05	1.226E-04	7.459E-05	4.907E-04	1.763E-04	4.145E-03	6.217E-03	
LIVER	2.491E-03	9.148E-05	7.319E-06	2.484E-05	1.073E-04	3.358E-05	5.605E-03	2.392E-05	1.630E-03	1.001E-02	
OVARIES	1.909E-04	7.011E-06	4.982E-06	1.246E-04	2.905E-04	1.306E-03	1.196E-04	1.280E-05	4.176E-03	6.233E-03	
PANCREAS	2.409E-03	8.848E-05	6.035E-05	2.512E-05	8.982E-05	5.564E-05	5.466E-04	3.796E-04	4.380E-03	8.034E-03	
BONE	1.017E-03	3.735E-05	2.165E-06	1.032E-05	2.950E-05	7.781E-05	9.606E-05	1.673E-05	3.463E-03	4.750E-03	
R MAR	1.289E-03	4.734E-05	3.602E-06	3.159E-05	8.494E-05	2.294E-04	1.361E-04	2.414E-05	3.878E-03	5.724E-03	
Y MAR	1.055E-03	3.875E-05	3.027E-06	1.411E-05	4.192E-05	9.596E-05	1.437E-04	2.471E-05	3.432E-03	4.849E-03	
ENDOST	1.017E-03	3.735E-05	2.165E-06	1.032E-05	2.950E-05	7.781E-05	9.606E-05	1.673E-05	3.784E-03	5.071E-03	
SPLEEN	2.143E-03	7.870E-05	3.449E-05	2.154E-05	6.232E-05	8.225E-05	1.465E-04	6.462E-03	2.131E-03	1.117E-02	
TESTES	4.269E-05	1.568E-06	6.725E-07	7.707E-06	2.262E-05	1.193E-04	3.020E-05	2.706E-06	3.393E-03	3.620E-03	
THYMUS	4.508E-03	1.656E-04	3.066E-06	2.271E-06	7.873E-06	6.370E-06	1.009E-04	1.123E-05	5.343E-03	1.015E-02	
THYROID	1.300E-03	4.774E-05	6.821E-07	8.120E-07	2.750E-06	2.463E-06	2.875E-05	3.902E-06	3.353E-03	4.740E-03	
UTERUS	1.990E-04	7.310E-06	3.775E-06	1.087E-04	2.071E-04	4.395E-04	6.641E-05	1.052E-05	7.036E-03	8.078E-03	

IRON-59 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

FE-59
STOMACH 0.0
S INT 1.000E-01
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	LIVER	SPLEEN	OTHER	TOTAL
TARGET								
LUNGS	1.428E-05	1.026E-05	4.097E-05	2.918E-05	2.395E-04	3.288E-05	1.349E-03	1.716E-03
RES LYM	1.428E-05	1.026E-05	4.097E-05	2.918E-05	2.395E-04	3.288E-05	1.349E-03	1.716E-03
S WALL	9.036E-04	1.015E-04	3.167E-04	2.611E-04	1.918E-04	1.493E-04	1.406E-03	3.330E-03
SI WALL	1.990E-05	1.974E-03	1.427E-03	1.472E-03	1.571E-04	2.284E-05	1.571E-03	6.644E-03
ULI WALL	2.636E-05	6.386E-04	1.051E-02	6.887E-04	2.219E-04	2.284E-05	1.605E-03	1.371E-02
LLI WALL	1.145E-05	1.929E-04	2.931E-04	2.795E-02	3.123E-05	1.028E-05	1.736E-03	3.023E-02
T BODY	1.528E-05	6.610E-05	1.962E-04	3.628E-04	2.068E-04	3.353E-05	2.060E-03	2.941E-03
ADREN	2.277E-05	3.470E-05	1.142E-04	8.569E-05	4.543E-04	1.093E-04	2.874E-03	3.695E-03
BL WALL	4.006E-06	7.538E-05	1.822E-04	9.463E-04	2.078E-05	5.507E-06	2.419E-03	3.653E-03
KIDNEYS	2.611E-05	8.809E-05	2.665E-04	1.621E-04	3.564E-04	1.281E-04	3.011E-03	4.038E-03
LIVER	1.591E-05	5.399E-05	2.333E-04	7.299E-05	4.071E-03	1.738E-05	1.184E-03	5.645E-03
OVARIES	1.083E-05	2.707E-04	6.314E-04	2.839E-03	8.685E-05	9.300E-06	3.034E-03	6.882E-03
PANCREAS	1.312E-04	5.459E-05	1.952E-04	1.209E-04	3.971E-04	2.757E-04	3.182E-03	4.356E-03
BONE	4.705E-06	2.243E-05	6.411E-05	1.691E-04	6.978E-05	1.216E-05	2.516E-03	2.858E-03
R MAR	7.828E-06	6.865E-05	1.846E-04	4.986E-04	9.890E-05	1.754E-05	2.817E-03	3.693E-03
Y MAR	6.579E-06	3.066E-05	9.110E-05	2.085E-04	1.044E-04	1.795E-05	2.493E-03	2.952E-03
ENDOST	4.725E-06	2.243E-05	6.411E-05	1.691E-04	6.978E-05	1.216E-05	2.749E-03	3.091E-03
SPLEEN	7.495E-05	4.681E-05	1.354E-04	1.787E-04	1.064E-04	4.699E-03	1.548E-03	6.790E-03
TESTES	1.462E-06	1.675E-05	4.916E-05	2.594E-04	2.194E-05	1.966E-06	2.465E-03	2.815E-03
THYMUS	6.662E-06	4.935E-06	1.711E-05	1.384E-05	7.330E-05	8.158E-06	3.882E-03	4.006E-03
THYROID	1.482E-06	1.765E-06	5.977E-06	5.354E-06	2.088E-05	2.839E-06	2.436E-03	2.474E-03
UTERUS	8.203E-06	2.363E-04	4.502E-04	9.551E-04	4.824E-05	7.644E-06	5.111E-03	6.817E-03

COBALT-57

RADIONUCL IDE: C0-57

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCL IDE C0-57	RADIOACTIVE HALF-LIFE (DAYS) 271.0	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 0.500 0.300 1.000E-01 1.000E-01 1.000E-01	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500 6.00 60.0 800. 0.500 6.00 60.0 800.
ORGAN ABSORBED	NUCL IDE C0-57			
EXCRET.	C0-57	0.500	1.00	0.500
LIVER	C0-57	7.000E-02	0.300	6.00
			1.000E-01	60.0
			1.000E-01	800.

S FACTORS (REM/MICROCURIE-DAY) FOR C0-57

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	
LUNGS	0.146E-02	0.139E-02	0.412E-04	0.506E-05	0.612E-05	0.182E-05	0.485E-04	0.596E-04	0.278E-04	
RES LYM	0.139E-02	0.671E-01	0.412E-04	0.506E-05	0.612E-05	0.182E-05	0.485E-04	0.596E-04	0.278E-04	
S WALL	0.435E-04	0.435E-04	0.310E-02	0.870E-04	0.895E-04	0.418E-04	0.529E-04	0.434E-04	0.274E-04	
SI WALL	0.440E-04	0.440E-05	0.643E-04	0.199E-02	0.393E-03	0.221E-03	0.617E-04	0.384E-04	0.330E-04	
ULI WALL	0.520E-04	0.520E-05	0.839E-04	0.611E-03	0.315E-02	0.100E-03	0.600E-04	0.600E-04	0.335E-04	
LLI WALL	0.143E-04	0.143E-05	0.276E-04	0.175E-03	0.770E-04	0.468E-02	0.560E-04	0.537E-05	0.365E-04	
T BODY	0.502E-04	0.502E-04	0.480E-04	0.603E-04	0.546E-04	0.562E-04	0.495E-04	0.554E-04	0.461E-04	
ADREN	0.642E-04	0.642E-04	0.664E-04	0.211E-04	0.217E-04	0.778E-05	0.562E-04	0.102E-03	0.656E-04	
BL WALL	0.770E-04	0.770E-06	0.669E-05	0.614E-04	0.529E-04	0.165E-03	0.548E-04	0.373E-05	0.540E-04	
KIDNEYS	0.199E-04	0.199E-04	0.823E-04	0.769E-04	0.678E-04	0.197E-04	0.531E-04	0.942E-04	0.716E-04	
LIVER	0.576E-04	0.576E-04	0.490E-04	0.433E-04	0.606E-04	0.571E-05	0.537E-04	0.121E-02	0.233E-04	
OVARIES	0.208E-05	0.208E-05	0.123E-04	0.255E-03	0.276E-03	0.406E-03	0.593E-04	0.102E-04	0.753E-04	
PANCREAS	0.618E-04	0.618E-04	0.427E-03	0.487E-04	0.549E-04	0.179E-04	0.585E-04	0.103E-03	0.809E-04	
BONE	0.366E-04	0.366E-04	0.224E-04	0.314E-04	0.283E-04	0.405E-04	0.623E-04	0.276E-04	0.639E-04	
R MAR	0.466E-04	0.466E-04	0.400E-04	0.107E-03	0.920E-04	0.126E-03	0.733E-04	0.401E-04	0.917E-04	
Y MAR	0.377E-04	0.377E-04	0.315E-04	0.441E-04	0.408E-04	0.501E-04	0.606E-04	0.411E-04	0.771E-04	
ENDOST	0.366E-04	0.366E-04	0.224E-04	0.314E-04	0.283E-04	0.405E-04	0.641E-04	0.276E-04	0.631E-04	
SPLEEN	0.544E-04	0.544E-04	0.237E-03	0.363E-04	0.345E-04	0.192E-04	0.543E-04	0.216E-04	0.728E-04	
TESTES	0.162E-06	0.162E-06	0.110E-05	0.704E-05	0.611E-05	0.400E-04	0.423E-04	0.136E-05	0.589E-04	
THYMUS	0.104E-03	0.104E-03	0.636E-05	0.176E-05	0.229E-05	0.568E-06	0.536E-04	0.151E-04	0.952E-04	
THYROID	0.224E-04	0.224E-04	0.187E-05	0.309E-06	0.342E-06	0.109E-06	0.375E-04	0.300E-05	0.602E-04	
UTERUS	0.183E-05	0.183E-05	0.179E-04	0.228E-03	0.131E-03	0.167E-03	0.643E-04	0.914E-05	0.114E-03	

EC decay (270.9 D 6)

Case 1 is assumed to represent inhalation of cobalt compounds other than oxides or hydroxides, for which Case 2 would apply.

COBALT-57 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00											D3 =0.310	D4 =8.000E-02	D5 =0.249
SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS												
	STOMACH	S INT	U L INT	L L INT									
CO-57	W	C.C	5.000E-02	0.0	0.0								
DOSE EQUIVALENT (REM/MICROCURIE)													
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL			
TARGET													
LUNGS	1.383E-02	8.503E-04	8.614E-07	4.018E-07	1.577E-06	8.638E-07	2.383E-06	2.211E-05	1.370E-04	1.489E-02			
RES LYM	1.317E-02	4.298E-02	8.614E-07	4.018E-07	1.577E-06	8.638E-07	2.383E-06	2.211E-05	1.370E-04	5.631E-02			
S WALL	4.121E-04	2.786E-05	6.481E-05	6.909E-06	2.307E-05	1.984E-05	2.600E-06	1.610E-05	1.351E-04	7.084E-04			
SI WALL	4.168E-05	2.818E-06	1.344E-06	1.580E-04	1.013E-04	1.049E-04	3.032E-06	1.425E-05	1.627E-04	5.902E-04			
ULI WALL	4.926E-05	3.330E-06	1.754E-06	4.852E-05	8.119E-04	4.746E-05	2.949E-06	2.226E-05	1.651E-04	1.153E-03			
LLI WALL	1.355E-05	9.159E-07	5.770E-07	1.390E-05	1.985E-05	2.221E-03	2.752E-06	1.993E-06	1.759E-04	2.455E-03			
T BODY	4.756E-04	3.215E-05	1.004E-06	4.789E-06	1.407E-05	2.667E-05	2.433E-06	2.056E-05	2.273E-04	8.045E-04			
ADREN	6.082E-04	4.112E-05	1.388E-06	1.676E-06	5.593E-06	3.693E-06	2.762E-06	3.785E-05	3.234E-04	1.726E-03			
BL WALL	7.294E-06	4.532E-07	1.359E-07	4.876E-06	1.363E-05	7.831E-05	2.693E-06	1.384E-06	2.662E-04	3.750E-04			
KIDNEYS	1.885E-04	1.275E-05	1.721E-06	6.107E-06	1.748E-05	9.350E-06	2.609E-06	3.495E-06	3.530E-04	6.264E-04			
LIVER	5.457E-04	3.689E-05	1.004E-06	3.439E-06	1.562E-05	2.710E-06	2.639E-06	4.490E-04	1.149E-04	1.172E-03			
OVARIES	1.970E-05	1.332E-06	2.572E-07	2.025E-05	7.114E-05	1.927E-04	2.914E-06	3.785E-06	3.712E-04	6.833E-04			
PANCREAS	5.854E-04	3.658E-05	8.927E-06	3.868E-06	1.415E-05	8.496E-06	2.875E-06	3.822E-05	3.988E-04	1.100E-03			
BONE	3.467E-04	2.344E-05	4.683E-07	2.494E-06	7.294E-06	1.922E-05	3.062E-06	1.024E-05	3.150E-04	7.279E-04			
R MAR	4.415E-04	2.985E-05	8.363E-07	8.498E-06	2.371E-05	5.980E-05	3.602E-06	1.488E-05	4.520E-04	1.035E-03			
Y MAR	3.571E-04	2.415E-05	6.586E-07	3.502E-06	1.052E-05	2.378E-05	2.978E-06	1.525E-05	3.901E-04	8.180E-04			
ENDOST	3.467E-04	2.344E-05	4.683E-07	2.494E-06	7.294E-06	1.922E-05	3.150E-06	1.024E-05	3.111E-04	7.241E-04			
SPLEEN	5.153E-04	3.484E-05	4.955E-06	2.859E-06	8.892E-06	9.113E-06	2.668E-06	8.015E-06	3.589E-04	9.456E-04			
TESTES	1.535E-06	1.038E-07	2.300E-08	5.591E-07	1.575E-06	1.898E-05	2.079E-06	5.046E-07	2.904E-04	3.157E-04			
THYMUS	9.852E-04	6.661E-05	1.330E-07	1.398E-07	5.902E-07	2.696E-07	2.634E-06	5.603E-06	4.693E-04	1.530E-03			
THYROID	2.122E-04	1.435E-05	3.910E-08	2.454E-08	8.815E-08	5.173E-08	1.843E-06	1.113E-06	2.968E-04	5.265E-04			
UTERUS	1.734E-05	1.172E-06	3.742E-07	1.811E-05	3.377E-05	7.926E-05	3.160E-06	3.391E-06	5.620E-04	7.185E-04			

CASE 2.. INHALATION

AMAD (MICRON).. 1.00											D3 =0.310	D4 =8.000E-02	D5 =0.249
SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS												
	STOMACH	S INT	U L INT	L L INT									
CO-57	Y	0.0	5.000E-02	0.0	0.0								
DOSE EQUIVALENT (REM/MICROCURIE)													
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL			
TARGET LUNGS	5.582E-02	5.851E-03	8.921E-07	4.162E-07	1.634E-06	8.946E-07	6.419E-07	5.956E-06	3.691E-05	6.171E-02			
RES LYM	5.314E-02	0.282	8.921E-07	4.162E-07	1.634E-06	8.946E-07	6.419E-07	5.956E-06	3.691E-05	0.336			
S WALL	1.663E-03	1.831E-04	6.713E-05	7.156E-06	2.389E-05	2.055E-05	7.001E-07	4.337E-06	3.638E-05	2.006E-03			
SI WALL	1.682E-04	1.852E-05	1.352E-06	1.637E-04	1.049E-04	1.086E-04	8.166E-07	3.837E-06	4.381E-05	6.138E-04			
ULI WALL	1.988E-04	2.189E-05	1.817E-06	5.025E-05	8.409E-04	4.916E-05	7.941E-07	5.996E-06	4.448E-05	1.214E-03			
LLI WALL	5.467E-05	6.020E-06	5.976E-07	1.439E-05	2.055E-05	2.301E-03	7.412E-07	5.366E-07	4.846E-05	2.446E-03			
T BODY	1.919E-03	2.113E-04	1.039E-06	4.960E-06	1.458E-05	2.763E-05	6.551E-07	5.536E-06	6.120E-05	2.246E-03			
ADREN	2.454E-03	2.702E-04	1.438E-06	1.735E-06	5.793E-06	3.824E-06	7.438E-07	1.019E-05	8.709E-05	2.835E-03			
BL WALL	2.944E-05	3.241E-06	1.449E-07	5.050E-06	1.412E-05	8.111E-05	7.253E-07	3.727E-07	7.169E-05	2.059E-04			
KIDNEYS	7.608E-04	6.377E-05	1.782E-06	6.325E-06	1.810E-05	9.684E-06	7.028E-07	9.413E-06	9.506E-05	9.856E-04			
LIVER	2.202E-03	2.425E-04	1.039E-06	3.561E-06	1.618E-05	2.807E-06	7.107E-07	1.209E-04	3.093E-05	2.621E-03			
OVARIES	7.952E-05	6.756E-06	2.663E-07	2.097E-05	7.368E-05	1.996E-04	7.848E-07	1.019E-06	9.957E-05	4.845E-04			
PANCREAS	2.363E-03	2.601E-04	9.246E-06	4.006E-06	1.466E-05	8.799E-06	7.742E-07	1.029E-05	1.074E-04	2.778E-03			
BONE	1.399E-03	1.541E-04	4.85CE-07	2.583E-06	7.555E-06	1.991E-05	8.245E-07	2.758E-06	8.484E-05	1.672E-03			
R MAR	1.782E-03	1.962E-04	8.661E-07	8.801E-06	2.456E-05	6.194E-05	9.701E-07	4.007E-06	1.217E-04	2.201E-03			
Y MAR	1.441E-03	1.587E-04	6.821E-07	3.627E-06	1.089E-05	2.463E-05	8.020E-07	4.107E-06	1.024E-04	1.747E-03			
ENDOST	1.399E-03	1.541E-04	4.850E-07	2.583E-06	7.555E-06	1.991E-05	8.484E-07	2.758E-06	8.377E-05	1.671E-03			
SPLEEN	2.180E-03	2.290E-04	5.132E-06	2.961E-06	9.210E-06	9.438E-06	7.187E-07	2.158E-06	9.665E-05	2.435E-03			
TESTES	6.193E-06	6.819E-07	2.382E-08	5.790E-07	1.631E-06	1.966E-05	5.598E-07	1.359E-07	7.820E-05	1.077E-04			
THYMUS	3.976E-03	4.378E-04	1.377E-07	1.448E-07	6.113E-07	2.792E-07	7.094E-07	1.509E-06	1.264E-04	4.543E-03			
THYROID	8.564E-04	9.429E-05	4.049E-08	2.542E-08	9.130E-08	5.358E-08	4.963E-07	2.598E-07	7.952E-05	1.032E-03			
UTERUS	6.996E-05	7.703E-06	3.876E-07	1.875E-05	3.497E-05	8.209E-05	8.510E-07	9.134E-07	1.514E-04	3.670E-04			

COBALT-57 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CC-57
 STOMACH 0.0
 S INT 5.003E-02
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CGNT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET								
LUNGS	1.716E-06	8.008E-07	3.143E-06	1.721E-06	8.726E-07	8.096E-06	5.017E-05	6.652E-05
RES LYM	1.716E-06	8.008E-07	3.143E-06	1.721E-06	8.726E-07	8.096E-06	5.017E-05	6.652E-05
S WALL	1.292E-04	1.377E-05	4.557E-05	3.953E-05	9.517E-07	5.896E-06	4.945E-05	2.847E-04
SI WALL	2.679E-06	3.149E-04	2.019E-04	2.090E-04	1.110E-06	5.216E-06	5.956E-05	7.944E-04
ULI WALL	3.495E-06	9.669E-05	1.618E-03	9.458E-05	1.079E-06	8.150E-06	6.046E-05	1.882E-03
LLI WALL	1.150E-06	2.769E-05	3.955E-05	4.426E-03	1.008E-06	7.295E-07	6.587E-05	4.562E-03
T BODY	2.000E-06	9.543E-06	2.804E-05	5.315E-05	8.906E-07	7.526E-06	8.320E-05	1.844E-04
ADREN	2.766E-06	3.339E-06	1.115E-05	7.358E-06	1.011E-06	1.386E-05	1.184E-04	1.575E-04
BL WALL	2.787E-07	9.717E-06	2.717E-05	1.561E-04	9.859E-07	5.067E-07	9.746E-05	2.922E-04
KIDNEYS	3.429E-06	1.217E-05	3.482E-05	1.863E-05	9.553E-07	1.280E-05	1.292E-04	2.120E-04
LIVER	2.000E-06	6.852E-06	3.113E-05	5.400E-06	9.661E-07	1.644E-04	4.205E-05	2.528E-04
OVARIES	5.124E-07	4.035E-05	1.418E-04	3.840E-04	1.067E-06	1.386E-06	1.359E-04	7.050E-04
PANCREAS	1.779E-05	7.707E-06	2.820E-05	1.693E-05	1.052E-06	1.399E-05	1.460E-04	2.317E-04
BONE	9.332E-07	4.969E-06	1.454E-05	3.830E-05	1.121E-06	3.749E-06	1.153E-04	1.789E-04
R MAR	1.666E-06	1.653E-05	4.725E-05	1.192E-04	1.319E-06	5.447E-06	1.655E-04	3.573E-04
Y MAR	1.312E-06	6.979E-06	2.056E-05	4.738E-05	1.090E-06	5.583E-06	1.391E-04	2.225E-04
ENDOST	9.332E-07	4.969E-06	1.454E-05	3.830E-05	1.153E-06	3.749E-06	1.139E-04	1.775E-04
SPLEEN	9.874E-06	5.697E-06	1.772E-05	1.816E-05	9.769E-07	2.934E-06	1.314E-04	1.867E-04
TESTES	4.583E-08	1.114E-06	3.138E-06	3.783E-05	7.610E-07	1.847E-07	1.063E-04	1.494E-04
THYMUS	2.650E-07	2.785E-07	1.176E-06	5.372E-07	9.643E-07	2.051E-06	1.718E-04	1.771E-04
THYROID	7.791E-08	4.850E-08	1.757E-07	1.031E-07	6.747E-07	4.075E-07	1.086E-04	1.101E-04
UTERUS	7.458E-07	3.608E-05	6.728E-05	1.579E-04	1.157E-06	1.242E-06	2.057E-04	4.702E-04

COBALT-58

RADIONUCL IDE: CO-58

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCL IDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
CO-58	70.80			
ORGAN ABSORBED	NUCLIDE CO-58	F2-PRIME 1.00	0.500 0.300 1.000E-01 1.000E-01	0.500 6.00 60.0 800.
EXCRET. LIVER	CO-58 CO-58	0.500 7.000E-02	1.00 0.300 1.000E-01 1.000E-01	0.500 6.00 60.0 800.

S FACTORS (REM/MICROCURIE-DAY) FOR CO-58

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	
LUNGS	0.416E-02	0.413E-02	0.330E-03	0.579E-04	0.639E-04	0.227E-04	0.271E-03	0.401E-03	0.210E-03	
RES LYM	0.413E-02	0.119E-00	0.330E-03	0.579E-04	0.639E-04	0.227E-04	0.271E-03	0.401E-03	0.210E-03	
S WALL	0.315E-03	0.315E-03	0.120E-01	0.572E-03	0.595E-03	0.277E-03	0.313E-03	0.322E-03	0.223E-03	
SI WALL	0.510E-04	0.510E-04	0.427E-03	0.720E-02	0.264E-02	0.147E-02	0.351E-03	0.263E-03	0.244E-03	
ULI WALL	0.673E-04	0.673E-04	0.519E-03	0.376E-02	0.110E-01	0.671E-03	0.342E-03	0.410E-03	0.251E-03	
LLI WALL	0.147E-04	0.147E-04	0.221E-03	0.112E-02	0.525E-03	0.148E-01	0.353E-03	0.498E-04	0.267E-03	
T BODY	0.265E-03	0.265E-03	0.302E-03	0.343E-03	0.328E-03	0.329E-03	0.266E-03	0.307E-03	0.263E-03	
ADREN	0.399E-03	0.399E-03	0.357E-03	0.201E-03	0.190E-03	0.830E-04	0.363E-03	0.804E-03	0.314E-03	
BL WALL	0.141E-04	0.141E-04	0.804E-04	0.455E-03	0.339E-03	0.881E-03	0.349E-03	0.436E-04	0.311E-03	
KIDNEYS	0.169E-03	0.169E-03	0.543E-03	0.526E-03	0.466E-03	0.148E-03	0.323E-03	0.614E-03	0.328E-03	
LIVER	0.395E-03	0.395E-03	0.331E-03	0.306E-03	0.411E-03	0.621E-04	0.321E-03	0.519E-02	0.181E-03	
OVARIES	0.275E-04	0.275E-04	0.173E-03	0.159E-02	0.164E-02	0.272E-02	0.274E-03	0.813E-04	0.358E-03	
PANCREAS	0.412E-03	0.412E-03	0.279E-02	0.340E-03	0.323E-03	0.124E-03	0.305E-03	0.744E-03	0.372E-03	
BONE	0.164E-03	0.164E-03	0.585E-04	0.130E-03	0.117E-03	0.169E-03	0.269E-03	0.120E-03	0.256E-03	
R MAR	0.207E-03	0.207E-03	0.168E-03	0.405E-03	0.343E-03	0.506E-03	0.294E-03	0.172E-03	0.305E-03	
Y MAR	0.173E-03	0.173E-03	0.137E-03	0.179E-03	0.165E-03	0.209E-03	0.254E-03	0.177E-03	0.258E-03	
ENDOST	0.164E-03	0.164E-03	0.585E-04	0.130E-03	0.117E-03	0.169E-03	0.270E-03	0.120E-03	0.267E-03	
SPLEEN	0.360E-03	0.360E-03	0.156E-02	0.260E-03	0.218E-03	0.169E-03	0.320E-03	0.181E-03	0.331E-03	
TESTES	0.519E-05	0.519E-05	0.170E-04	0.765E-04	0.919E-04	0.295E-03	0.327E-03	0.321E-04	0.257E-03	
THYMUS	0.655E-03	0.655E-03	0.937E-04	0.255E-04	0.276E-04	0.113E-04	0.256E-03	0.175E-03	0.455E-03	
THYROID	0.219E-03	0.219E-03	0.277E-04	0.812E-05	0.863E-05	0.394E-05	0.279E-03	0.328E-04	0.265E-03	
UTERUS	0.186E-04	0.186E-04	0.157E-03	0.141E-02	0.761E-03	0.920E-03	0.375E-03	0.656E-04	0.668E-03	

EC decay (70.8 D 1)

Case 1 is assumed to apply to oxides and hydroxides, and Case 2 to other cobalt compounds.

COBALT-58 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
CO-58	Y	0.0	5.000E-02	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET LUNGS	5.719E-02	1.839E-03	6.178E-06	4.524E-06	1.614E-05	1.048E-05	2.950E-06	1.405E-05	9.773E-05	5.918E-02
RES LYM	5.678E-02	5.299E-02	6.178E-06	4.524E-06	1.614E-05	1.048E-05	2.950E-06	1.405E-05	9.773E-05	0.110
S WALL	4.331E-03	1.4C3E-04	2.471E-04	4.469E-05	1.503E-04	1.279E-04	3.407E-06	1.128E-05	1.038E-04	5.159E-03
SI WALL	7.011E-04	2.271E-05	8.754E-06	5.626E-04	6.669E-04	6.789E-04	3.821E-06	9.212E-06	1.135E-04	2.768E-03
ULI WALL	9.252E-04	2.997E-05	1.069E-05	2.938E-04	2.779E-03	3.099E-04	3.723E-06	1.436E-05	1.168E-04	4.483E-03
LLI WALL	2.021E-04	6.546E-06	4.551E-06	8.751E-05	1.326E-04	6.835E-03	3.843E-06	1.744E-06	1.243E-04	7.398E-03
T BODY	3.643E-03	1.180E-04	6.219E-06	2.680E-05	8.285E-05	1.519E-04	2.896E-06	1.075E-05	1.224E-04	4.165E-03
ADREN	5.485E-03	1.777E-04	7.352E-06	1.571E-05	4.799E-05	3.833E-05	3.951E-06	2.816E-05	1.461E-04	5.951E-03
BL WALL	1.938E-04	6.279E-06	1.656E-06	3.555E-05	8.563E-05	4.069E-04	3.795E-06	1.527E-06	1.447E-04	8.799E-04
KIDNEYS	2.323E-03	7.526E-05	1.118E-05	4.110E-05	1.177E-04	6.835E-05	3.516E-06	2.151E-05	1.526E-04	2.815E-03
LIVER	5.430E-03	1.759E-04	6.817E-06	2.391E-05	1.038E-04	2.868E-05	3.494E-06	1.819E-04	8.423E-05	6.039E-03
OVARIES	3.781E-04	1.225E-05	3.563E-06	1.242E-04	4.143E-04	1.256E-03	2.983E-06	2.848E-06	1.666E-04	2.361E-03
PANCREAS	5.664E-03	1.835E-04	5.746E-05	2.657E-05	8.159E-05	5.727E-05	3.320E-06	2.606E-05	1.731E-04	6.273E-03
BONE	2.255E-03	7.303E-05	2.028E-06	1.016E-05	2.955E-05	7.805E-05	2.928E-06	4.203E-06	1.191E-04	2.574E-03
R MAR	2.846E-03	9.218E-05	3.460E-06	3.164E-05	8.664E-05	2.337E-04	3.200E-06	6.025E-06	1.419E-04	3.445E-03
Y MAR	2.378E-03	7.704E-05	2.821E-06	1.399E-05	4.168E-05	9.652E-05	2.765E-06	6.200E-06	1.201E-04	2.739E-03
ENDOST	2.255E-03	7.303E-05	2.028E-06	1.016E-05	2.955E-05	7.805E-05	2.939E-06	4.203E-06	1.243E-04	2.579E-03
SPLEEN	4.949E-03	1.6C3E-04	3.213E-05	2.032E-05	5.507E-05	7.805E-05	3.483E-06	6.340E-06	1.540E-04	5.459E-03
TESTES	7.135E-05	2.311E-06	3.5C1E-07	5.977E-06	2.321E-05	1.362E-04	3.560E-06	1.124E-06	1.196E-04	3.637E-04
THYMUS	9.005E-03	2.917E-04	1.930E-06	1.992E-06	6.972E-06	5.219E-06	2.787E-06	6.130E-06	2.117E-04	9.533E-03
THYROID	3.011E-03	9.752E-05	5.7C4E-07	6.345E-07	2.180E-06	1.820E-06	3.037E-06	1.149E-06	1.233E-04	3.241E-03
UTERUS	2.557E-04	8.283E-06	3.233E-06	1.102E-04	1.922E-04	4.249E-04	4.082E-06	2.438E-06	3.109E-04	1.312E-03

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS										
	STOMACH	S INT	U L INT	L L INT							
CO-58	W	C.O	5.C00E-02	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL	
TARGET											
LUNGS	2.779E-02	1.275E-03	5.917E-06	4.333E-06	1.546E-05	1.004E-05	1.172E-05	5.582E-05	3.884E-04	2.955E-02	
RES LYM	2.759E-02	3.673E-02	5.917E-06	4.333E-06	1.546E-05	1.004E-05	1.172E-05	5.582E-05	3.884E-04	6.481E-02	
S WALL	2.1C4E-03	9.723E-05	2.367E-04	4.280E-05	1.439E-04	1.225E-04	1.354E-05	4.483E-05	4.125E-04	3.218E-03	
SI WALL	3.4C7E-04	1.574E-05	8.422E-06	5.388E-04	6.387E-04	6.502E-04	1.519E-05	3.661E-05	4.513E-04	2.696E-03	
ULI WALL	4.495E-04	2.077E-05	1.024E-05	2.814E-04	2.661E-03	2.968E-04	1.480E-05	5.702E-05	4.642E-04	4.256E-03	
LLI WALL	9.819E-05	4.538E-06	4.359E-06	8.381E-05	1.270E-04	6.546E-03	1.527E-05	6.933E-06	4.938E-04	7.380E-03	
T BODY	1.770E-03	8.180E-05	5.956E-06	2.567E-05	7.935E-05	1.455E-04	1.515E-05	4.274E-05	4.864E-04	2.649E-03	
ADREN	2.665E-03	1.232E-04	7.641E-06	1.504E-05	4.596E-05	3.671E-05	1.570E-05	1.119E-04	5.898E-04	3.601E-03	
BL WALL	9.418E-05	4.352E-06	1.586E-06	3.405E-05	8.201E-05	3.897E-04	1.510E-05	6.070E-06	5.752E-04	1.202E-03	
KIDNEYS	1.129E-03	5.217E-05	1.071E-05	3.936E-05	1.127E-04	6.546E-05	1.397E-05	8.548E-05	6.067E-04	2.115E-03	
LIVER	2.638E-03	1.219E-04	6.528E-06	2.290E-05	9.943E-05	2.747E-05	1.389E-05	7.225E-04	3.348E-04	3.988E-03	
OVARIES	1.837E-04	8.489E-06	3.412E-06	1.190E-04	3.967E-04	1.203E-03	1.185E-05	1.132E-05	6.621E-04	2.600E-03	
PANCREAS	2.752E-03	1.272E-04	5.5C3E-05	2.544E-05	7.814E-05	5.484E-05	1.320E-05	1.036E-04	6.880E-04	3.897E-03	
BONE	1.095E-03	5.062E-05	1.943E-06	9.728E-06	2.830E-05	7.475E-05	1.164E-05	1.671E-05	4.735E-04	1.763E-03	
R MAR	1.383E-03	6.390E-05	3.313E-06	3.031E-05	8.298E-05	2.238E-04	1.272E-05	2.394E-05	5.641E-04	2.388E-03	
Y MAR	1.156E-03	5.340E-05	2.7C2E-06	1.339E-05	3.992E-05	9.244E-05	1.099E-05	2.464E-05	4.772E-04	1.870E-03	
ENDOST	1.095E-03	5.062E-05	1.943E-06	9.728E-06	2.830E-05	7.475E-05	1.168E-05	1.671E-05	4.938E-04	1.783E-03	
SPLEEN	2.405E-03	1.111E-04	3.077E-05	1.946E-05	5.274E-05	7.475E-05	1.384E-05	2.520E-05	6.122E-04	3.345E-03	
TESTES	3.467E-05	1.6C2E-06	3.353E-07	5.725E-06	2.223E-05	1.305E-04	1.415E-05	4.469E-06	4.753E-04	6.890E-04	
THYMUS	4.375E-03	2.022E-04	1.848E-06	1.908E-06	6.677E-06	4.998E-06	1.108E-05	2.436E-05	8.416E-04	5.470E-03	
THYROID	1.463E-03	6.760E-05	5.463E-07	6.076E-07	2.088E-06	1.743E-06	1.207E-05	4.566E-06	4.901E-04	2.042E-03	
UTERUS	1.242E-04	5.741E-06	3.056E-06	1.055E-04	1.841E-04	4.069E-04	1.622E-05	9.689E-06	1.236E-03	2.091E-03	

COBALT-58 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CO-58
 STOMACH 0.0
 S INT 5.000E-02
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET								
LUNGS	1.249E-05	9.150E-06	3.264E-05	2.120E-05	4.843E-06	2.306E-05	1.604E-04	2.638E-04
RES LYM	1.249E-05	9.150E-06	3.264E-05	2.120E-05	4.843E-06	2.306E-05	1.604E-04	2.638E-04
S WALL	4.958E-04	9.039E-05	3.040E-04	2.587E-04	5.594E-06	1.852E-05	1.704E-04	1.347E-03
SI WALL	1.778E-05	1.138E-03	1.349E-03	1.373E-03	6.273E-06	1.512E-05	1.864E-04	4.085E-03
ULI WALL	2.162E-05	5.542E-04	5.620E-03	6.267E-04	6.112E-06	2.358E-05	1.918E-04	7.084E-03
LLI WALL	9.205E-06	1.770E-04	2.682E-04	1.382E-02	6.309E-06	2.864E-06	2.040E-04	1.449E-02
T BODY	1.258E-05	5.420E-05	1.676E-04	3.073E-04	4.754E-06	1.766E-05	2.009E-04	7.650E-04
ADREN	1.487E-05	3.176E-05	9.707E-05	7.752E-05	6.488E-06	4.624E-05	2.399E-04	5.139E-04
BL WALL	3.349E-06	7.190E-05	1.732E-04	8.229E-04	6.237E-06	2.507E-06	2.376E-04	1.318E-03
KIDNEYS	2.262E-05	8.312E-05	2.381E-04	1.382E-04	5.773E-06	3.531E-05	2.506E-04	7.737E-04
LIVER	1.379E-05	4.836E-05	2.100E-04	5.800E-05	5.737E-06	2.985E-04	1.383E-04	7.726E-04
OVARIES	7.205E-06	2.513E-04	8.378E-04	2.540E-03	4.897E-06	4.675E-06	2.735E-04	3.920E-03
PANCREAS	1.162E-04	5.373E-05	1.650E-04	1.158E-04	5.451E-06	4.279E-05	2.842E-04	7.832E-04
BONE	4.102E-06	2.054E-05	5.977E-05	1.578E-04	4.808E-06	6.901E-06	1.956E-04	4.496E-04
R MAR	6.957E-06	6.400E-05	1.752E-04	4.726E-04	5.254E-06	9.891E-06	2.330E-04	9.670E-04
Y MAR	5.706E-06	2.829E-05	8.429E-05	1.952E-04	4.540E-06	1.018E-05	1.971E-04	5.253E-04
ENDOST	4.102E-06	2.054E-05	5.977E-05	1.578E-04	4.825E-06	6.901E-06	2.040E-04	4.580E-04
SPLEEN	6.497E-05	4.109E-05	1.114E-04	1.578E-04	5.719E-06	1.041E-05	2.529E-04	6.443E-04
TESTES	7.080E-07	1.209E-05	4.655E-05	2.755E-04	5.844E-06	1.846E-06	1.964E-04	5.393E-04
THYMUS	3.903E-06	4.030E-06	1.410E-05	1.055E-05	4.575E-06	1.006E-05	3.476E-04	3.945E-04
THYROID	1.154E-06	1.283E-06	4.409E-06	3.680E-06	4.986E-06	1.886E-06	2.025E-04	2.199E-04
UTERUS	6.539E-06	2.228E-04	3.888E-04	8.593E-04	6.702E-06	4.003E-06	5.104E-04	1.998E-03

COBALT-60

RADIOISOTOPE: CO-60

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE CO-60	RADIOACTIVE HALF-LIFE (DAYS) 1920.	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ORGAN ABSORBED	NUCLIDE CO-60		0.500 0.300 1.000E-01 1.000E-01	0.500 6.00 60.0 800.
EXCRET. LIVER	CO-60 CO-60	0.500 7.000E-02	1.00 0.300 1.000E-01 1.000E-01	0.500 6.00 60.0 800.

S FACTORS (REM/MICROCURIE-DAY) FOR CO-60

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCAT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	
LUNGS	0.106E-01	0.106E-01	0.719E-03	0.143E-03	0.180E-03	0.703E-04	0.622E-03	0.100E-02	0.496E-03	
RES LYM	0.106E-01	0.334E-00	0.719E-03	0.143E-03	0.180E-03	0.703E-04	0.622E-03	0.100E-02	0.496E-03	
S WALL	0.799E-03	0.799E-03	0.299E-01	0.142E-02	0.134E-02	0.621E-03	0.681E-03	0.796E-03	0.531E-03	
SI WALL	0.136E-03	0.136E-03	0.553E-03	0.181E-01	0.613E-02	0.351E-02	0.848E-03	0.657E-03	0.575E-03	
ULI WALL	0.181E-03	0.181E-03	0.137E-02	0.889E-02	0.280E-01	0.167E-02	0.797E-03	0.909E-03	0.589E-03	
LLI WALL	0.340E-04	0.340E-04	0.579E-03	0.270E-02	0.124E-02	0.383E-01	0.855E-03	0.137E-03	0.634E-03	
T BODY	0.648E-03	0.648E-03	0.733E-03	0.836E-03	0.797E-03	0.801E-03	0.654E-03	0.752E-03	0.647E-03	
ADREN	0.872E-03	0.872E-03	0.119E-02	0.484E-03	0.487E-03	0.205E-03	0.108E-02	0.187E-02	0.870E-03	
BL WALL	0.411E-04	0.411E-04	0.200E-03	0.113E-02	0.757E-03	0.234E-02	0.862E-03	0.920E-04	0.791E-03	
KIDNEYS	0.438E-03	0.438E-03	0.131E-02	0.121E-02	0.115E-02	0.388E-03	0.760E-03	0.149E-02	0.922E-03	
LIVER	0.954E-03	0.954E-03	0.800E-03	0.753E-03	0.101E-02	0.179E-03	0.769E-03	0.127E-01	0.434E-03	
OVARIES	0.744E-04	0.744E-04	0.515E-03	0.363E-02	0.267E-02	0.673E-02	0.765E-03	0.381E-03	0.918E-03	
PANCREAS	0.939E-03	0.939E-03	0.659E-02	0.742E-03	0.842E-03	0.283E-03	0.723E-03	0.164E-02	0.100E-02	
BONE	0.387E-03	0.387E-03	0.235E-03	0.312E-03	0.278E-03	0.401E-03	0.647E-03	0.252E-03	0.727E-03	
R MAR	0.493E-03	0.493E-03	0.389E-03	0.949E-03	0.797E-03	0.118E-02	0.702E-03	0.414E-03	0.833E-03	
Y MAR	0.400E-03	0.400E-03	0.331E-03	0.425E-03	0.393E-03	0.496E-03	0.606E-03	0.435E-03	0.716E-03	
ENDOST	0.387E-03	0.387E-03	0.235E-03	0.312E-03	0.278E-03	0.401E-03	0.647E-03	0.252E-03	0.768E-03	
SPLEEN	0.796E-03	0.796E-03	0.374E-02	0.662E-03	0.595E-03	0.422E-03	0.734E-03	0.432E-03	0.917E-03	
TESTES	0.176E-04	0.176E-04	0.745E-04	0.238E-03	0.205E-03	0.620E-03	0.748E-03	0.854E-04	0.707E-03	
THYMUS	0.174E-02	0.174E-02	0.327E-03	0.699E-04	0.752E-04	0.337E-04	0.726E-03	0.301E-03	0.129E-02	
THYROID	0.471E-03	0.471E-03	0.755E-04	0.253E-04	0.267E-04	0.133E-04	0.661E-03	0.876E-04	0.703E-03	
UTERUS	0.864E-04	0.864E-04	0.416E-03	0.328E-02	0.197E-02	0.229E-02	0.857E-03	0.216E-03	0.159E-02	

β⁻ decay (5.271 Y 1)

Case 1 is assumed to represent inhalation of cobalt compounds other than oxides or hydroxides, for which Case 2 would apply.

COBALT-60 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
CO-60	W	0.0	5.000E-02	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET										
LUNGS	0.115	9.048E-03	1.545E-05	1.167E-05	4.775E-05	3.442E-05	3.253E-05	9.386E-04	6.185E-03	0.132
RES LYM	0.115	0.285	1.545E-05	1.167E-05	4.775E-05	3.442E-05	3.253E-05	9.386E-04	6.185E-03	0.408
S WALL	8.696E-03	6.820E-04	6.424E-04	1.159E-04	3.555E-04	3.040E-04	3.561E-05	7.471E-04	6.622E-03	1.820E-02
SI WALL	1.480E-03	1.161E-04	2.133E-05	1.478E-03	1.626E-03	1.718E-03	4.435E-05	6.167E-04	7.170E-03	1.427E-02
ULI WALL	1.970E-03	1.545E-04	2.943E-05	7.257E-04	7.428E-03	8.175E-04	4.168E-05	8.532E-04	7.345E-03	1.936E-02
LLI WALL	3.700E-04	2.902E-05	1.244E-05	2.204E-04	3.289E-04	1.875E-02	4.471E-05	1.286E-04	7.906E-03	2.779E-02
T BODY	7.053E-03	5.531E-04	1.575E-05	6.825E-05	2.114E-04	3.921E-04	3.420E-05	7.058E-04	8.068E-03	1.710E-02
ADREN	9.491E-03	7.443E-04	2.557E-05	3.951E-05	1.292E-04	1.004E-04	5.648E-05	1.755E-03	1.085E-02	2.319E-02
BL WALL	4.473E-04	3.508E-05	4.257E-06	9.225E-05	2.008E-04	1.146E-03	4.508E-05	8.635E-05	9.864E-03	1.192E-02
KIDNEYS	4.767E-03	3.735E-04	2.814E-05	9.878E-05	3.051E-04	1.899E-04	3.975E-05	1.399E-03	1.150E-02	1.870E-02
LIVER	1.338E-02	8.143E-04	1.719E-05	6.147E-05	2.679E-04	8.763E-05	4.022E-05	1.192E-02	5.412E-03	2.900E-02
OVARIES	8.097E-04	6.351E-05	1.106E-05	2.963E-04	7.083E-04	3.295E-03	4.001E-05	3.576E-04	1.145E-02	1.703E-02
PANCREAS	1.022E-02	8.015E-04	1.416E-04	6.057E-05	2.234E-04	1.385E-04	3.781E-05	1.539E-03	1.247E-02	2.563E-02
BONE	4.212E-03	3.303E-04	5.049E-06	2.547E-05	7.374E-05	1.963E-04	3.384E-05	2.741E-04	9.066E-03	1.422E-02
R MAR	5.366E-03	4.208E-04	8.357E-06	7.747E-05	2.114E-04	5.777E-04	3.671E-05	3.886E-04	1.039E-02	1.747E-02
Y MAR	4.353E-03	3.414E-04	7.111E-06	3.470E-05	1.043E-04	2.428E-04	3.169E-05	4.083E-04	8.929E-03	1.445E-02
ENDOST	4.212E-03	3.303E-04	5.049E-06	2.547E-05	7.374E-05	1.963E-04	3.384E-05	2.741E-04	9.577E-03	1.473E-02
SPLEEN	8.663E-03	6.795E-04	8.035E-05	5.404E-05	1.578E-04	2.066E-04	3.839E-05	4.055E-04	1.144E-02	2.172E-02
TESTES	1.850E-04	1.451E-05	1.601E-06	1.943E-05	5.438E-05	3.335E-04	3.912E-05	8.016E-05	8.816E-03	9.514E-03
THYMUS	1.894E-02	1.485E-03	7.025E-06	5.706E-06	1.995E-05	1.650E-05	3.797E-05	2.825E-04	1.609E-02	3.688E-02
THYROID	5.126E-03	4.020E-04	1.622E-06	2.065E-06	7.083E-06	6.511E-06	3.457E-05	8.222E-05	8.767E-03	1.443E-02
UTERUS	9.404E-04	7.375E-05	8.938E-06	2.678E-04	5.226E-04	1.121E-03	4.691E-05	2.027E-04	1.983E-02	2.301E-02

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249				
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS								
		STOMACH	S INT	U L INT	L L INT					
CO-60	Y	0.0	5.000E-02	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET										
LUNGS	0.908	0.362	1.691E-05	1.278E-05	5.227E-05	3.767E-05	1.334E-05	3.848E-04	2.536E-03	1.27
RES LYM	0.908	11.4	1.691E-05	1.278E-05	5.227E-05	3.767E-05	1.334E-05	3.848E-04	2.536E-03	12.3
S WALL	6.847E-02	2.729E-02	7.032E-04	1.269E-04	3.891E-04	3.328E-04	1.460E-05	3.063E-04	2.715E-03	0.100
SI WALL	1.165E-02	4.645E-03	2.335E-05	1.617E-03	1.780E-03	1.881E-03	1.818E-05	2.528E-04	2.940E-03	2.481E-02
ULI WALL	1.551E-02	6.182E-03	3.222E-05	7.944E-04	8.130E-03	8.949E-04	1.709E-05	3.49E-04	3.011E-03	3.492E-02
LLI WALL	2.913E-03	1.161E-03	1.362E-05	2.413E-04	3.601E-04	2.052E-02	1.833E-05	5.272E-05	3.242E-03	2.853E-02
T BODY	5.553E-02	2.213E-02	1.724E-05	7.471E-05	2.314E-04	4.292E-04	1.402E-05	2.894E-04	3.308E-03	8.202E-02
ADREN	7.472E-02	2.678E-02	2.759E-05	4.325E-05	1.414E-04	1.099E-04	2.316E-05	7.197E-04	4.448E-03	0.110
BL WALL	3.522E-03	1.404E-03	4.703E-06	1.010E-04	2.198E-04	1.254E-03	1.848E-05	3.541E-05	4.044E-03	1.060E-02
KIDNEYS	3.753E-02	1.496E-02	3.081E-05	1.081E-04	3.339E-04	2.079E-04	1.630E-05	5.734E-04	4.714E-03	5.848E-02
LIVER	8.175E-02	3.258E-02	1.881E-05	6.729E-05	2.933E-04	9.592E-05	1.649E-05	4.887E-03	2.219E-03	0.122
OVARIES	6.375E-03	2.541E-03	1.211E-05	3.244E-04	7.753E-04	3.606E-03	1.640E-05	1.466E-04	4.694E-03	1.849E-02
PANCREAS	8.046E-02	3.207E-02	1.550E-04	6.631E-05	2.445E-04	1.516E-04	1.550E-05	6.311E-04	5.113E-03	0.119
BONE	3.316E-02	1.322E-02	5.527E-06	2.788E-05	8.072E-05	2.149E-04	1.387E-05	1.124E-04	3.717E-03	5.055E-02
R MAR	4.225E-02	1.684E-02	9.148E-06	8.480E-05	2.314E-04	6.323E-04	1.505E-05	1.593E-04	4.259E-03	6.447E-02
Y MAR	3.428E-02	1.366E-02	7.784E-06	3.798E-05	1.141E-04	2.658E-04	1.299E-05	1.674E-04	3.661E-03	5.220E-02
ENDOST	3.316E-02	1.322E-02	5.527E-06	2.788E-05	8.072E-05	2.149E-04	1.387E-05	1.124E-04	3.927E-03	5.076E-02
SPLEEN	6.321E-02	2.719E-02	8.755E-05	5.916E-05	1.728E-04	2.261E-04	1.574E-05	1.663E-04	4.689E-03	0.101
TESTES	1.457E-03	5.806E-04	1.752E-06	2.127E-05	5.953E-05	3.322E-04	1.604E-05	3.287E-05	3.615E-03	6.116E-03
THYMUS	0.149	5.943E-02	7.690E-06	6.246E-06	2.184E-05	1.806E-05	1.557E-05	1.158E-04	6.596E-03	0.215
THYROID	4.036E-02	1.609E-02	1.776E-06	2.261E-06	7.753E-06	7.127E-06	1.417E-05	3.371E-05	3.594E-03	6.011E-02
UTERUS	7.404E-03	2.951E-03	9.783E-06	2.931E-04	5.720E-04	1.227E-03	1.923E-05	8.313E-05	8.129E-03	2.069E-02

COBALT-60 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CD-60
 STOMACH 0.0
 S INT 5.000E-02
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CONT	LLI CONT	EXCRET.	LIVER	OTHER	TOTAL
TARGET								
LUNGS	2.996E-05	2.264E-05	9.260E-05	6.674E-05	1.121E-05	3.236E-04	2.132E-03	2.675E-03
RES LYM	2.996E-05	2.264E-05	9.260E-05	6.674E-05	1.121E-05	3.236E-04	2.132E-03	2.675E-03
S WALL	1.246E-03	2.248E-04	6.894E-04	5.896E-04	1.228E-05	2.576E-04	2.283E-03	5.302E-03
SI WALL	4.137E-05	2.866E-03	3.154E-03	3.332E-03	1.529E-05	2.126E-04	2.472E-03	1.209E-02
ULI WALL	5.708E-05	1.407E-03	1.440E-02	1.586E-03	1.437E-05	2.941E-04	2.532E-03	2.030E-02
LLI WALL	2.412E-05	4.275E-04	6.379E-04	3.636E-02	1.541E-05	4.433E-05	2.725E-03	4.024E-02
T BODY	3.054E-05	1.324E-04	4.100E-04	7.605E-04	1.179E-05	2.433E-04	2.781E-03	4.370E-03
ADREN	4.958E-05	7.663E-05	2.505E-04	1.946E-04	1.947E-05	6.051E-04	3.740E-03	4.936E-03
BL WALL	8.333E-06	1.789E-04	3.894E-04	2.222E-03	1.554E-05	2.977E-05	3.400E-03	6.244E-03
KIDNEYS	5.458E-05	1.516E-04	5.916E-04	3.684E-04	1.370E-05	4.821E-04	3.963E-03	5.665E-03
LIVER	3.333E-05	1.192E-04	5.156E-04	1.699E-04	1.386E-05	4.109E-03	1.866E-03	6.831E-03
OVARIES	2.146E-05	5.747E-04	1.374E-03	6.389E-03	1.379E-05	1.233E-04	3.946E-03	1.244E-02
PANCREAS	2.746E-04	1.175E-04	4.332E-04	2.637E-04	1.303E-05	5.306E-04	4.299E-03	5.936E-03
BONE	9.792E-06	4.540E-05	1.430E-04	3.807E-04	1.166E-05	9.448E-05	3.125E-03	3.814E-03
R MAR	1.621E-05	1.502E-04	4.100E-04	1.120E-03	1.266E-05	1.340E-04	3.581E-03	5.424E-03
Y MAR	1.379E-05	6.729E-05	2.022E-04	4.709E-04	1.092E-05	1.407E-04	3.078E-03	3.984E-03
ENDOST	9.792E-06	4.540E-05	1.430E-04	3.807E-04	1.166E-05	9.448E-05	3.301E-03	3.990E-03
SPLEEN	1.558E-04	1.048E-04	3.061E-04	4.006E-04	1.323E-05	1.398E-04	3.942E-03	5.062E-03
TESTES	3.104E-06	3.768E-05	1.055E-04	5.886E-04	1.348E-05	2.763E-05	3.039E-03	3.815E-03
THYMUS	1.362E-05	1.107E-05	3.869E-05	3.199E-05	1.309E-05	9.739E-05	5.545E-03	5.751E-03
THYROID	3.146E-06	4.006E-06	1.374E-05	1.263E-05	1.192E-05	2.834E-05	3.022E-03	3.096E-03
UTERUS	1.733E-05	5.193E-04	1.013E-03	2.174E-03	1.617E-05	6.989E-05	6.835E-03	1.065E-02

ZINC-65

RADIOISOTOPE: ZN-65

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ZN-65	244.0			
ORGAN ABSORBED	NUCLIDE	F2-PRIME		
BONE	ZN-65	1.00	C.240 0.760 1.00	20.0 400. 400.

S FACTORS (REM/MICROCURIE-DAY) FOR ZN-65

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER
LUNGS	0.181E-02	0.178E-02	0.169E-03	0.340E-04	0.412E-04	0.162E-04	0.959E-04	0.126E-03
RES LYM	0.178E-02	0.259E-01	0.169E-03	0.340E-04	0.412E-04	0.162E-04	0.959E-04	0.126E-03
S WALL	0.187E-03	0.187E-03	0.552E-02	0.334E-03	0.331E-03	0.147E-03	0.535E-04	0.138E-03
SI WALL	0.318E-04	0.318E-04	0.238E-03	0.333E-02	0.147E-02	0.833E-03	0.800E-04	0.145E-03
ULI WALL	0.414E-04	0.414E-04	0.300E-03	0.217E-02	0.485E-02	0.382E-03	0.755E-04	0.152E-03
LLI WALL	0.877E-05	0.877E-05	0.134E-03	0.644E-03	0.307E-03	0.607E-02	0.102E-03	0.151E-03
T BODY	0.143E-03	0.143E-03	0.172E-03	0.190E-03	0.185E-03	0.184E-03	0.145E-03	0.144E-03
ADREN	0.218E-03	0.218E-03	0.238E-03	0.114E-03	0.119E-03	0.481E-04	0.185E-03	0.201E-03
BL WALL	0.928E-05	0.928E-05	0.479E-04	0.231E-03	0.195E-03	0.510E-03	0.493E-04	0.185E-03
KIDNEYS	0.984E-04	0.984E-04	0.310E-03	0.295E-03	0.274E-03	0.907E-04	0.113E-03	0.221E-03
LIVER	0.226E-03	0.226E-03	0.188E-03	0.179E-03	0.238E-03	0.397E-04	0.708E-04	0.233E-03
OVARIES	0.171E-04	0.171E-04	0.135E-03	0.933E-03	0.674E-03	0.160E-02	0.917E-04	0.208E-03
PANCREAS	0.216E-03	0.216E-03	0.155E-02	0.185E-03	0.199E-03	0.694E-04	0.100E-03	0.246E-03
BONE	0.924E-04	0.924E-04	0.556E-04	0.741E-04	0.653E-04	0.951E-04	0.402E-03	0.115E-03
R MAR	0.117E-03	0.117E-03	0.528E-04	0.227E-03	0.189E-03	0.282E-03	0.310E-03	0.160E-03
Y MAR	0.968E-04	0.968E-04	0.773E-04	0.101E-03	0.926E-04	0.117E-03	0.292E-03	0.132E-03
ENDOST	0.924E-04	0.924E-04	0.556E-04	0.741E-04	0.653E-04	0.951E-04	0.353E-03	0.125E-03
SPLEEN	0.201E-03	0.201E-03	0.888E-03	0.152E-03	0.136E-03	0.102E-03	0.816E-04	0.213E-03
TESTES	0.373E-05	0.373E-05	0.167E-04	0.537E-04	0.527E-04	0.146E-03	0.671E-04	0.154E-03
THYMUS	0.405E-03	0.405E-03	0.756E-04	0.167E-04	0.173E-04	0.758E-05	0.747E-04	0.275E-03
THYROID	0.125E-03	0.125E-03	0.173E-04	0.562E-05	0.594E-05	0.288E-05	0.640E-04	0.152E-03
UTERUS	0.155E-04	0.155E-04	0.558E-04	0.788E-03	0.455E-03	0.533E-03	0.850E-04	0.431E-03

EC decay (244.1 D 2)

Case 1 represents inhalation of sulphates;

Case 2 represents halides, phosphates, and sulphides; and

Case 3 represents oxides and hydroxides.

ZINC-65 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
ZN-65	D	0.0	0.500	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	3.368E-04	6.372E-05	1.119E-06	4.503E-07	1.771E-06	1.282E-06	2.344E-03	9.074E-03	1.182E-02
RES LYM	3.312E-04	9.272E-04	1.119E-06	4.503E-07	1.771E-06	1.282E-06	2.344E-03	9.074E-03	1.268E-02
S WALL	3.480E-05	6.694E-06	3.656E-05	4.423E-06	1.422E-05	1.163E-05	1.308E-03	9.939E-03	1.135E-02
SI WALL	5.917E-06	1.138E-06	1.576E-06	4.410E-05	6.317E-05	6.590E-05	1.955E-03	1.044E-02	1.258E-02
ULI WALL	7.704E-06	1.482E-06	1.987E-06	2.874E-05	2.084E-04	3.022E-05	1.845E-03	1.095E-02	1.307E-02
LLI WALL	1.532E-06	3.139E-07	8.875E-07	8.529E-06	1.319E-05	4.802E-04	2.493E-03	1.087E-02	1.387E-02
T BODY	2.661E-05	5.119E-06	1.139E-06	2.516E-06	7.951E-06	1.456E-05	3.544E-03	1.037E-02	1.357E-02
ADREN	4.056E-05	7.804E-06	1.576E-06	1.510E-06	5.114E-06	3.805E-06	4.522E-03	1.448E-02	1.906E-02
BL WALL	1.727E-06	3.322E-07	3.173E-07	3.059E-06	8.380E-06	4.035E-05	1.205E-03	1.332E-02	1.458E-02
KIDNEYS	1.831E-05	3.523E-06	2.053E-06	3.907E-06	1.178E-05	7.176E-06	2.762E-03	1.592E-02	1.873E-02
LIVER	4.205E-05	8.090E-06	1.245E-06	2.371E-06	1.023E-05	3.141E-06	1.731E-03	1.678E-02	1.858E-02
OVARIES	3.182E-06	6.121E-07	8.941E-07	1.236E-05	2.897E-05	1.266E-04	2.241E-03	1.496E-02	1.739E-02
PANCREAS	4.019E-05	7.732E-06	1.027E-05	2.450E-06	8.552E-06	5.491E-06	2.444E-03	1.772E-02	2.024E-02
BONE	1.719E-05	3.308E-06	3.683E-07	9.813E-07	2.806E-06	7.524E-06	9.826E-03	8.282E-03	1.814E-02
R MAR	2.177E-05	4.188E-06	6.146E-07	3.006E-06	8.122E-06	2.231E-05	7.577E-03	1.152E-02	1.916E-02
Y MAR	1.801E-05	3.465E-06	5.120E-07	1.338E-06	3.980E-06	9.256E-06	7.137E-03	9.507E-03	1.668E-02
ENDOST	1.719E-05	3.308E-06	3.683E-07	9.813E-07	2.806E-06	7.524E-06	8.629E-03	9.002E-03	1.766E-02
SPLEEN	3.740E-05	7.195E-06	5.882E-06	2.013E-06	5.845E-06	8.070E-06	1.995E-03	1.534E-02	1.740E-02
TESTES	6.941E-07	1.335E-07	1.106E-07	7.112E-07	2.265E-06	1.155E-05	1.640E-03	1.109E-02	1.275E-02
THYMUS	7.536E-05	1.450E-05	5.272E-07	2.119E-07	7.435E-07	5.997E-07	1.826E-03	1.981E-02	2.172E-02
THYROID	2.326E-05	4.475E-06	1.146E-07	7.443E-08	2.553E-07	2.278E-07	1.564E-03	1.095E-02	1.254E-02
UTERUS	2.884E-06	5.549E-07	6.345E-07	1.044E-05	1.955E-05	4.217E-05	2.078E-03	3.104E-02	3.319E-02

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
ZN-65	W	0.0	0.500	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	1.687E-02	1.102E-03	3.523E-06	1.417E-06	5.572E-06	4.033E-06	1.512E-03	5.855E-03	2.535E-02
RES LYM	1.659E-02	1.603E-02	3.523E-06	1.417E-06	5.572E-06	4.033E-06	1.512E-03	5.855E-03	4.000E-02
S WALL	1.743E-03	1.157E-04	1.151E-04	1.392E-05	4.477E-05	3.660E-05	8.438E-04	6.412E-03	9.325E-03
SI WALL	2.963E-04	1.668E-05	4.961E-06	1.388E-04	1.988E-04	2.074E-04	1.262E-03	6.738E-03	8.865E-03
ULI WALL	3.858E-04	2.562E-05	6.253E-06	9.044E-05	6.559E-04	9.511E-05	1.191E-03	7.063E-03	9.513E-03
LLI WALL	8.172E-05	5.428E-06	2.793E-06	2.684E-05	4.152E-05	1.511E-03	1.609E-03	7.017E-03	1.029E-02
T BODY	1.333E-03	8.851E-05	3.585E-06	7.919E-06	2.502E-05	4.581E-05	2.287E-03	6.691E-03	1.048E-02
ADREN	2.031E-03	1.349E-04	4.961E-06	4.751E-06	1.609E-05	1.198E-05	2.918E-03	9.340E-03	1.446E-02
BL WALL	8.648E-05	5.744E-06	9.984E-07	9.627E-06	2.637E-05	1.270E-04	7.775E-04	8.596E-03	9.630E-03
KIDNEYS	9.169E-04	6.051E-05	6.462E-06	1.229E-05	3.706E-05	2.258E-05	1.782E-03	1.027E-02	1.311E-02
LIVER	2.106E-03	1.399E-04	3.919E-06	7.460E-06	3.219E-05	9.884E-06	1.117E-03	1.083E-02	1.424E-02
OVARIES	1.593E-04	1.658E-05	2.814E-06	3.888E-05	9.115E-05	3.984E-04	1.446E-03	9.665E-03	1.181E-02
PANCREAS	2.013E-03	1.337E-04	3.231E-05	7.710E-06	2.691E-05	1.728E-05	1.577E-03	1.143E-02	1.524E-02
BONE	8.610E-04	5.719E-05	1.159E-06	3.088E-06	8.831E-06	2.368E-05	6.340E-03	5.344E-03	1.264E-02
R MAR	1.090E-03	7.242E-05	1.934E-06	9.461E-06	2.556E-05	7.021E-05	4.889E-03	7.435E-03	1.359E-02
Y MAR	9.020E-04	5.592E-05	1.611E-06	4.209E-06	1.252E-05	2.913E-05	4.605E-03	6.134E-03	1.175E-02
ENDOST	8.610E-04	5.719E-05	1.159E-06	3.088E-06	8.831E-06	2.368E-05	5.567E-03	5.806E-03	1.233E-02
SPLEEN	1.873E-03	1.244E-04	1.851E-05	6.335E-06	1.839E-05	2.540E-05	1.287E-03	9.898E-03	1.325E-02
TESTES	3.476E-05	2.309E-06	3.481E-07	2.238E-06	7.127E-06	3.635E-05	1.058E-03	7.156E-03	8.297E-03
THYMUS	3.774E-03	2.507E-04	1.659E-06	6.668E-07	2.340E-06	1.887E-06	1.178E-03	1.277E-02	1.799E-02
THYROID	1.165E-03	7.737E-05	3.606E-07	2.342E-07	8.034E-07	7.170E-07	1.009E-03	7.063E-03	9.317E-03
UTERUS	1.444E-04	9.594E-06	1.957E-06	3.284E-05	6.154E-05	1.327E-04	1.341E-03	2.003E-02	2.175E-02

ZINC-65 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS									
	STOMACH	S INT	U L INT	L L INT						
ZN-65	Y	0.0	0.500	0.0	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)										
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL	
TARGET										
LUNGS	6.464E-02	6.380E-03	3.642E-06	1.465E-06	5.761E-06	4.170E-06	1.127E-03	4.362E-03	7.653E-02	
RES LYM	6.357E-02	9.283E-02	3.642E-06	1.465E-06	5.761E-06	4.170E-06	1.127E-03	4.362E-03	0.162	
S WALL	6.679E-03	6.702E-04	1.150E-04	1.439E-05	4.629E-05	3.784E-05	6.286E-04	4.778E-03	1.297E-02	
SI WALL	1.136E-03	1.140E-04	5.129E-06	1.435E-04	2.056E-04	2.144E-04	9.400E-04	5.020E-03	7.778E-03	
ULI WALL	1.479E-03	1.484E-04	6.466E-06	9.351E-05	6.782E-04	9.834E-05	6.871E-04	5.262E-03	8.653E-03	
LLI WALL	3.132E-04	3.143E-05	2.888E-06	2.775E-05	4.293E-05	1.563E-03	1.199E-03	5.228E-03	8.407E-03	
T BODY	5.107E-03	5.125E-04	3.707E-06	8.188E-06	2.587E-05	4.737E-05	1.704E-03	4.985E-03	1.239E-02	
ADREN	7.786E-03	7.813E-04	5.129E-06	4.913E-06	1.664E-05	1.238E-05	2.174E-03	6.959E-03	1.774E-02	
BL WALL	3.314E-04	3.326E-05	1.032E-06	9.955E-06	2.727E-05	1.313E-04	5.793E-04	6.405E-03	7.518E-03	
KIDNEYS	3.514E-03	3.527E-04	6.681E-06	1.271E-05	3.832E-05	2.335E-05	1.328E-03	7.651E-03	1.293E-02	
LIVER	8.071E-03	8.100E-04	4.052E-06	7.714E-06	3.328E-05	1.022E-05	8.319E-04	8.067E-03	1.784E-02	
OVARIES	6.107E-04	6.129E-05	2.910E-06	4.021E-05	9.425E-05	4.119E-04	1.077E-03	7.201E-03	9.500E-03	
PANCREAS	7.714E-03	7.742E-04	3.341E-05	7.972E-06	2.783E-05	1.787E-05	1.175E-03	8.517E-03	1.827E-02	
BONE	3.300E-03	3.312E-04	1.158E-06	3.193E-06	9.132E-06	2.448E-05	4.724E-03	3.981E-03	1.237E-02	
R MAR	4.179E-03	4.193E-04	2.000E-06	9.782E-06	2.643E-05	7.260E-05	3.643E-03	5.839E-03	1.389E-02	
Y MAR	3.457E-03	3.469E-04	1.666E-06	4.352E-06	1.295E-05	3.012E-05	3.431E-03	4.570E-03	1.185E-02	
ENDOST	3.300E-03	3.312E-04	1.158E-06	3.193E-06	9.132E-06	2.448E-05	4.724E-03	3.981E-03	1.237E-02	
SPLEEN	7.179E-03	7.204E-04	1.914E-05	6.550E-06	1.902E-05	2.626E-05	9.588E-04	7.374E-03	1.630E-02	
TESTES	1.332E-04	1.337E-05	3.559E-07	2.314E-06	7.370E-06	3.759E-05	7.884E-04	5.332E-03	6.314E-03	
THYMUS	1.446E-02	1.452E-03	1.716E-06	6.895E-07	2.419E-06	1.951E-06	8.777E-04	9.521E-03	2.632E-02	
THYROID	4.464E-03	4.480E-04	3.728E-07	2.422E-07	8.307E-07	7.414E-07	7.520E-04	5.262E-03	1.093E-02	
UTERUS	5.536E-04	5.555E-05	2.065E-06	3.396E-05	6.363E-05	1.372E-04	9.988E-04	1.492E-02	1.677E-02	

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

ZN-65
STOMACH 0.0
S INT 0.500
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	BONE	OTHER	TOTAL
TARGET							
LUNGS	7.041E-06	2.832E-06	1.114E-05	8.062E-06	2.096E-03	8.114E-03	1.024E-02
RES LYM	7.041E-06	2.832E-06	1.114E-05	8.062E-06	2.096E-03	8.114E-03	1.024E-02
S WALL	2.300E-04	2.782E-05	8.948E-05	7.315E-05	1.169E-03	8.887E-03	1.048E-02
SI WALL	9.915E-06	2.774E-04	3.974E-04	4.145E-04	1.749E-03	9.338E-03	1.219E-02
ULI WALL	1.250E-05	1.808E-04	1.311E-03	1.901E-04	1.650E-03	9.788E-03	1.313E-02
LLI WALL	5.583E-06	5.365E-05	8.259E-05	3.021E-03	2.229E-03	9.724E-03	1.512E-02
T BODY	7.166E-06	1.583E-05	5.001E-05	3.157E-05	3.169E-03	9.273E-03	1.261E-02
ADREN	9.915E-06	9.497E-06	3.217E-05	2.394E-05	4.043E-03	1.294E-02	1.706E-02
BL WALL	1.996E-06	1.924E-05	5.271E-05	2.538E-04	1.078E-03	1.191E-02	1.332E-02
KIDNEYS	1.292E-05	2.457E-05	7.407E-05	4.514E-05	2.470E-03	1.123E-02	1.686E-02
LIVER	7.832E-06	1.491E-05	6.434E-05	1.976E-05	1.547E-03	1.500E-02	1.666E-02
OVARIES	5.624E-06	7.772E-05	1.822E-04	7.962E-04	2.004E-03	1.339E-02	1.646E-02
PANCREAS	6.458E-05	1.541E-05	5.379E-05	3.454E-05	2.186E-03	1.584E-02	1.820E-02
BONE	2.316E-06	6.173E-06	1.765E-05	4.733E-05	8.786E-03	7.406E-03	1.627E-02
R MAR	3.866E-06	1.891E-05	5.109E-05	1.403E-04	6.776E-03	1.030E-02	1.729E-02
Y MAR	3.220E-06	8.414E-06	2.503E-05	5.822E-05	6.382E-03	8.501E-03	1.498E-02
ENDOST	2.316E-06	6.173E-06	1.765E-05	4.733E-05	7.715E-03	8.501E-03	1.584E-02
SPLEEN	3.700E-05	1.266E-05	3.676E-05	5.076E-05	1.784E-03	1.372E-02	1.564E-02
TESTES	6.958E-07	4.473E-06	1.425E-05	7.266E-06	1.467E-03	9.917E-03	1.148E-02
THYMUS	3.316E-06	1.333E-06	4.677E-06	3.772E-06	1.633E-03	1.771E-02	1.936E-02
THYROID	7.207E-07	4.682E-07	1.606E-06	1.433E-06	1.399E-03	9.788E-03	1.119E-02
UTERUS	3.991E-06	6.564E-05	1.230E-04	2.652E-04	1.858E-03	2.776E-02	3.007E-02

RUBIDIUM-86

RADIONUCLIDE: RB-86

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE RB-86	RADIOACTIVE HALF-LIFE (DAYS) 18.70	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 1.000E-01 0.900	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 4.00 95.0
ORGAN ABSORBED	NUCLIDE RB-86			

S FACTORS (REM/MICROCURIE-DAY) FOR RB-86

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.344E-01	0.344E-01	0.275E-04	0.556E-05	0.672E-05	0.265E-05	0.199E-04
RES LYM	0.344E-01	0.228E-01	0.275E-04	0.556E-05	0.672E-05	0.265E-05	0.199E-04
S WALL	0.305E-04	0.305E-04	0.691E-01	0.544E-04	0.543E-04	0.238E-04	0.208E-04
SI WALL	0.519E-05	0.519E-05	0.388E-04	0.431E-01	0.240E-03	0.136E-03	0.223E-04
ULI WALL	0.671E-05	0.671E-05	0.479E-04	0.344E-03	0.783E-01	0.612E-04	0.233E-04
LLI WALL	0.147E-05	0.147E-05	0.219E-04	0.104E-03	0.506E-04	0.127E-00	0.236E-04
T BODY	0.510E-03	0.510E-03	0.174E-03	0.420E-03	0.262E-03	0.318E-03	0.508E-03
ADREN	0.360E-04	0.360E-04	0.372E-04	0.185E-04	0.196E-04	0.784E-05	0.858E-03
BL WALL	0.151E-05	0.151E-05	0.785E-05	0.357E-04	0.324E-04	0.812E-04	0.440E-03
KIDNEYS	0.158E-04	0.158E-04	0.505E-04	0.485E-04	0.448E-04	0.148E-04	0.859E-03
LIVER	0.369E-04	0.369E-04	0.305E-04	0.291E-04	0.389E-04	0.640E-05	0.860E-03
OVARIES	0.278E-05	0.278E-05	0.230E-04	0.155E-03	0.108E-03	0.262E-03	0.857E-03
PANCREAS	0.346E-04	0.346E-04	0.251E-03	0.305E-04	0.326E-04	0.114E-04	0.862E-03
BONE	0.151E-04	0.151E-04	0.904E-05	0.121E-04	0.106E-04	0.155E-04	0.850E-03
R MAR	0.191E-04	0.191E-04	0.151E-04	0.373E-04	0.306E-04	0.459E-04	0.854E-03
Y MAR	0.158E-04	0.158E-04	0.125E-04	0.166E-04	0.150E-04	0.190E-04	0.850E-03
ENDOST	0.151E-04	0.151E-04	0.904E-05	0.121E-04	0.106E-04	0.155E-04	0.107E-02
SPLEEN	0.332E-04	0.332E-04	0.145E-03	0.246E-04	0.221E-04	0.168E-04	0.857E-03
TESTES	0.603E-06	0.603E-06	0.278E-05	0.875E-05	0.879E-05	0.234E-04	0.849E-03
THYMUS	0.660E-04	0.660E-04	0.134E-04	0.261E-05	0.281E-05	0.123E-05	0.864E-03
THYROID	0.211E-04	0.211E-04	0.292E-05	0.911E-06	0.962E-06	0.466E-06	0.848E-03
UTERUS	0.234E-05	0.234E-05	0.156E-04	0.129E-03	0.738E-04	0.865E-04	0.889E-03

 β^- decay (18.66 D 2)

RUBIDIUM-86 CONTINUED

CASE 1.. INHALATION

ANAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS								
	STOMACH	S INT	U L INT	LL INT					
RB-86	D	0.0	0.950	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER	TOTAL	
TARGET									
LUNGS	6.252E-03	1.173E-03	1.817E-07	7.347E-09	2.829E-08	1.986E-08	2.574E-04	7.683E-03	
RES LYM	6.252E-03	7.774E-02	1.817E-07	7.347E-09	2.829E-08	1.986E-08	2.574E-04	8.425E-02	
S WALL	5.543E-06	1.040E-06	4.567E-04	7.188E-08	2.286E-07	1.784E-07	2.690E-04	7.328E-04	
SI WALL	9.433E-07	1.770E-07	2.564E-07	5.695E-05	1.010E-06	1.019E-06	2.884E-04	3.486E-04	
ULI WALL	1.220E-06	2.288E-07	3.166E-07	4.546E-07	3.297E-04	4.587E-07	3.013E-04	6.337E-04	
LLI WALL	2.672E-07	5.012E-08	1.447E-07	1.374E-07	2.130E-07	9.518E-04	3.052E-04	1.256E-03	
T BODY	9.269E-05	1.739E-05	1.150E-06	5.550E-07	1.103E-06	2.383E-06	6.570E-03	6.685E-03	
ADREN	6.543E-06	1.227E-06	2.459E-07	2.445E-08	8.252E-08	5.876E-08	1.110E-02	1.110E-02	
BL WALL	2.744E-07	5.149E-08	5.188E-08	4.717E-08	1.364E-07	6.086E-07	5.691E-03	5.692E-03	
KIDNEYS	2.872E-06	5.387E-07	3.338E-07	6.409E-08	1.886E-07	1.109E-07	1.111E-02	1.111E-02	
LIVER	6.707E-06	1.258E-06	2.016E-07	3.845E-08	1.634E-07	4.797E-08	1.112E-02	1.113E-02	
OVARIES	5.053E-07	5.479E-08	1.520E-07	2.048E-07	4.547E-07	1.964E-06	1.108E-02	1.105E-02	
PANCREAS	6.289E-06	1.180E-06	1.659E-06	4.030E-08	1.372E-07	8.544E-08	1.115E-02	1.116E-02	
BONE	2.744E-06	5.149E-07	5.975E-08	1.599E-08	4.463E-08	1.162E-07	1.099E-02	1.100E-02	
R MAR	3.471E-06	6.513E-07	9.980E-08	4.889E-08	1.288E-07	3.440E-07	1.104E-02	1.105E-02	
Y MAR	2.872E-06	5.387E-07	8.261E-08	2.194E-08	6.315E-08	1.424E-07	1.099E-02	1.100E-02	
ENDOST	2.744E-06	5.149E-07	5.975E-08	1.599E-08	4.463E-08	1.162E-07	1.384E-02	1.384E-02	
SPLEEN	6.034E-06	1.132E-06	9.583E-07	3.251E-08	9.304E-08	1.259E-07	1.108E-02	1.109E-02	
TESTES	1.096E-07	2.056E-08	1.237E-09	1.156E-08	3.701E-08	1.754E-07	1.098E-02	1.098E-02	
THYMUS	1.200E-05	2.250E-06	8.856E-08	3.449E-09	1.183E-08	9.218E-09	1.117E-02	1.119E-02	
THYROID	3.835E-06	7.154E-07	1.864E-08	1.204E-09	4.050E-09	3.492E-09	1.097E-02	1.097E-02	
UTERUS	4.253E-07	7.579E-08	1.031E-07	1.705E-07	3.107E-07	6.483E-07	1.150E-02	1.150E-02	

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

RB-86
STOMACH 0.0
S INT 0.950
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	OTHER	TOTAL
TARGET						
LUNGS	1.144E-06	4.625E-08	1.781E-07	1.250E-07	3.918E-04	3.933E-04
RES LYM	1.144E-06	4.625E-08	1.781E-07	1.250E-07	3.918E-04	3.933E-04
S WALL	2.875E-03	4.525E-07	1.439E-06	1.123E-06	4.095E-04	3.287E-03
SI WALL	1.614E-06	3.585E-04	6.360E-06	6.416E-06	4.390E-04	8.119E-04
ULI WALL	1.993E-06	2.861E-06	2.075E-03	2.887E-06	4.587E-04	2.542E-03
LLI WALL	9.111E-07	8.651E-07	1.341E-06	5.991E-03	4.646E-04	6.459E-03
T BODY	7.239E-06	3.494E-06	6.943E-06	1.500E-05	1.000E-02	1.003E-02
ADREN	1.548E-06	1.539E-07	5.154E-07	3.699E-07	1.689E-02	1.689E-02
BL WALL	3.266E-07	2.969E-07	8.586E-07	3.831E-06	8.663E-03	8.668E-03
KIDNEYS	2.101E-06	4.034E-07	1.187E-06	6.982E-07	1.691E-02	1.692E-02
LIVER	1.269E-06	2.421E-07	1.028E-06	3.019E-07	1.693E-02	1.693E-02
OVARIES	9.569E-07	1.289E-06	2.862E-06	1.236E-05	1.687E-02	1.689E-02
PANCREAS	1.044E-05	2.537E-07	8.639E-07	5.378E-07	1.697E-02	1.698E-02
BONE	3.761E-07	1.006E-07	2.809E-07	7.312E-07	1.673E-02	1.674E-02
R MAR	6.282E-07	3.078E-07	8.109E-07	2.165E-06	1.681E-02	1.682E-02
Y MAR	5.200E-07	1.381E-07	3.975E-07	8.964E-07	1.673E-02	1.674E-02
ENDOST	3.761E-07	1.006E-07	2.809E-07	7.312E-07	2.107E-02	2.107E-02
SPLEEN	6.032E-06	2.046E-07	5.857E-07	7.926E-07	1.687E-02	1.688E-02
TESTES	1.157E-07	7.278E-08	2.329E-07	1.104E-06	1.672E-02	1.672E-02
THYMUS	5.575E-07	2.171E-08	7.447E-08	5.803E-08	1.701E-02	1.701E-02
THYROID	1.173E-07	7.578E-09	2.549E-08	2.198E-08	1.670E-02	1.670E-02
UTERUS	6.490E-07	1.073E-06	1.956E-06	4.081E-06	1.750E-02	1.751E-02

STRONTIUM-89

RADIONUCLIDE: SR-89

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
SR-89	50.60	1.00	-6.130E-02 -0.525 1.41 9.330E-02 8.000E-02	5.78 1.19 3.33 971. 6.660E 03
ORGAN ABSORBED	NUCLIDE SR-89	F2-PRIME 1.00		
BONE	SR-89	1.00	-6.130E-02 -0.525 0.424 8.230E-02 8.000E-02	5.78 1.19 3.33 971. 6.660E 03

S FACTORS (REM/MICROCURIE-DAY) FOR SR-89

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER
LUNGS	0.298E-01	0.298E-01	0.408E-07	0.814E-08	0.939E-08	0.358E-08	0.230E-07	0.302E-07
RES LYM	0.298E-01	0.199E-01	0.408E-07	0.814E-08	0.939E-08	0.358E-08	0.230E-07	0.302E-07
S WALL	0.442E-07	0.442E-07	0.597E-01	0.796E-07	0.818E-07	0.363E-07	0.126E-07	0.331E-07
SI WALL	0.739E-08	0.739E-08	0.581E-07	0.373E-01	0.359E-06	0.201E-06	0.194E-07	0.348E-07
ULI WALL	0.955E-08	0.955E-08	0.693E-07	0.511E-06	0.678E-01	0.899E-07	0.179E-07	0.366E-07
LLI WALL	0.217E-08	0.217E-08	0.314E-07	0.154E-06	0.748E-07	0.111E-00	0.245E-07	0.361E-07
T BODY	0.426E-03	0.426E-03	0.128E-03	0.341E-03	0.203E-03	0.253E-03	0.426E-03	0.424E-03
ADREN	0.548E-07	0.548E-07	0.493E-07	0.274E-07	0.282E-07	0.115E-07	0.428E-07	0.823E-03
BL WALL	0.209E-08	0.209E-08	0.114E-07	0.537E-07	0.486E-07	0.117E-06	0.107E-07	0.411E-03
KIDNEYS	0.229E-07	0.229E-07	0.747E-07	0.726E-07	0.655E-07	0.212E-07	0.269E-07	0.823E-03
LIVER	0.544E-07	0.544E-07	0.451E-07	0.427E-07	0.570E-07	0.890E-08	0.168E-07	0.823E-03
OVARIES	0.394E-08	0.394E-08	0.312E-07	0.231E-06	0.187E-06	0.383E-06	0.228E-07	0.823E-03
PANCREAS	0.528E-07	0.528E-07	0.375E-06	0.465E-07	0.468E-07	0.171E-07	0.227E-07	0.823E-03
BONE	0.225E-07	0.225E-07	0.134E-07	0.179E-07	0.158E-07	0.231E-07	0.547E-02	0.692E-04
R MAR	0.284E-07	0.284E-07	0.227E-07	0.553E-07	0.460E-07	0.687E-07	0.193E-02	0.556E-03
Y MAR	0.237E-07	0.237E-07	0.185E-07	0.246E-07	0.224E-07	0.283E-07	0.679E-07	0.823E-03
ENDOST	0.225E-07	0.225E-07	0.134E-07	0.179E-07	0.158E-07	0.231E-07	0.427E-02	0.450E-03
SPLEEN	0.502E-07	0.502E-07	0.215E-06	0.357E-07	0.313E-07	0.244E-07	0.206E-07	0.823E-03
TESTES	0.801E-09	0.801E-09	0.337E-08	0.118E-07	0.132E-07	0.368E-07	0.153E-07	0.823E-03
THYMUS	0.941E-07	0.941E-07	0.174E-07	0.368E-08	0.398E-08	0.169E-08	0.196E-07	0.823E-03
THYROID	0.318E-07	0.318E-07	0.399E-08	0.123E-08	0.130E-08	0.613E-09	0.141E-07	0.823E-03
UTERUS	0.273E-08	0.273E-08	0.223E-07	0.193E-06	0.107E-06	0.127E-06	0.205E-07	0.823E-03

β^- decay (50.55 D 9)

Inhalation and ingestion of SrTiO_3 is represented by Cases 2 and 4, respectively. Other compounds of strontium are assumed to be represented by the data in Cases 1 and 3.

* Retention data derived from "other tissues" compartment.

STRONTIUM-89 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
SR-89	D	0.0	0.200	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	5.504E-03	1.050E-03	2.700E-10	1.721E-10	6.404E-10	4.447E-10	1.414E-07	8.003E-08	6.554E-03
RES LYM	5.504E-03	7.014E-02	2.700E-10	1.721E-10	6.404E-10	4.447E-10	1.414E-07	8.003E-08	7.564E-02
S WALL	8.163E-09	1.558E-09	3.951E-04	1.683E-09	5.579E-09	4.509E-09	7.744E-08	8.772E-08	3.953E-04
SI WALL	1.365E-09	2.605E-10	3.846E-10	7.886E-04	2.449E-08	2.497E-08	1.192E-07	9.222E-08	7.888E-04
ULI WALL	1.764E-09	3.366E-10	4.587E-10	1.080E-08	4.624E-03	1.117E-08	1.100E-07	9.699E-08	4.625E-03
LLI WALL	4.008E-10	7.648E-11	2.078E-10	3.256E-09	5.102E-09	1.379E-02	1.506E-07	9.567E-08	1.379E-02
T BODY	7.867E-05	1.501E-05	8.472E-07	7.209E-06	1.385E-05	3.143E-05	2.618E-03	1.124E-03	3.889E-03
ADREN	1.012E-08	1.931E-09	3.263E-10	5.793E-10	1.923E-09	1.428E-09	2.631E-07	2.181E-03	2.181E-03
BL WALL	3.860E-10	7.366E-11	7.545E-11	1.135E-09	3.315E-09	1.453E-08	6.577E-08	1.089E-03	1.089E-03
KIDNEYS	4.229E-09	8.071E-10	4.944E-10	1.535E-09	4.467E-09	2.633E-09	1.653E-07	2.181E-03	2.181E-03
LIVER	1.005E-08	1.917E-09	2.985E-10	9.027E-10	3.888E-09	1.106E-09	1.033E-07	2.181E-03	2.181E-03
OVARIES	7.276E-10	1.389E-10	2.065E-10	4.884E-09	1.275E-08	4.757E-08	1.401E-07	2.181E-03	2.181E-03
PANCREAS	5.751E-09	1.861E-09	2.482E-09	9.831E-10	3.192E-09	2.124E-09	1.395E-07	2.181E-03	2.181E-03
BONE	4.155E-09	7.930E-10	8.869E-11	3.784E-10	1.078E-09	2.869E-09	3.362E-02	1.834E-04	3.380E-02
R MAR	5.245E-09	1.001E-09	1.502E-10	1.169E-09	3.137E-09	8.533E-09	1.186E-02	1.473E-03	1.334E-02
Y MAR	4.377E-09	8.353E-10	1.224E-10	5.201E-10	1.528E-09	3.515E-09	4.173E-07	2.181E-03	2.181E-03
ENDOST	4.155E-09	7.930E-10	8.869E-11	3.784E-10	1.078E-09	2.869E-09	2.625E-02	1.193E-03	2.744E-02
SPLEEN	9.271E-09	1.769E-09	1.423E-09	7.548E-10	2.135E-09	3.031E-09	1.266E-07	2.181E-03	2.181E-03
TESTES	1.479E-10	2.823E-11	2.231E-11	2.495E-10	9.003E-10	4.571E-09	9.404E-08	2.181E-03	2.181E-03
THYMUS	1.738E-08	3.317E-09	1.152E-10	7.780E-11	2.715E-10	2.099E-10	1.205E-07	2.181E-03	2.181E-03
THYROID	5.873E-09	1.121E-09	2.641E-11	2.600E-11	8.867E-11	7.614E-11	8.666E-08	2.181E-03	2.181E-03
UTERUS	5.042E-10	9.622E-11	1.476E-10	4.080E-09	7.298E-09	1.578E-08	1.260E-07	2.181E-03	2.181E-03

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
SR-89	Y	0.0	1.000E-02	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	0.306	7.148E-03	8.322E-10	6.560E-10	2.441E-09	1.695E-09	2.799E-09	1.585E-09	0.313
RES LYM	0.306	0.477	8.322E-10	6.560E-10	2.441E-09	1.695E-09	2.799E-09	1.585E-09	0.784
S WALL	4.544E-07	1.060E-08	1.218E-03	6.415E-09	2.127E-08	1.719E-08	1.534E-09	1.737E-09	1.218E-03
SI WALL	7.597E-08	1.773E-09	1.185E-09	3.006E-03	9.334E-08	9.518E-08	2.361E-09	1.826E-09	3.006E-03
ULI WALL	9.818E-08	2.291E-09	1.414E-09	4.118E-08	1.763E-02	4.257E-08	2.179E-09	1.921E-09	1.763E-02
LLI WALL	2.231E-08	5.235E-10	6.405E-10	1.241E-08	1.945E-08	5.256E-02	2.982E-09	1.894E-09	5.256E-02
T BODY	4.379E-03	1.022E-04	2.611E-06	2.748E-05	5.278E-05	1.199E-04	5.185E-05	2.225E-05	4.758E-03
ADREN	5.634E-07	1.314E-08	1.006E-09	2.208E-09	7.332E-09	5.445E-09	5.209E-09	4.319E-05	4.379E-05
BL WALL	2.149E-08	5.013E-10	2.325E-10	4.328E-09	1.264E-08	5.542E-08	1.302E-09	2.157E-05	2.166E-05
KIDNEYS	2.354E-07	5.493E-09	1.524E-09	5.851E-09	1.703E-08	1.004E-08	3.274E-09	4.319E-05	4.379E-05
LIVER	5.592E-07	1.305E-08	9.199E-10	3.441E-09	1.482E-08	4.214E-09	2.045E-09	4.319E-05	4.379E-05
OVARIES	4.050E-08	9.450E-10	6.364E-10	1.862E-08	4.862E-08	1.814E-07	2.775E-09	4.319E-05	4.348E-05
PANCREAS	5.428E-07	1.266E-08	7.649E-09	3.748E-09	1.217E-08	8.097E-09	2.763E-09	4.319E-05	4.378E-05
BONE	2.313E-07	5.397E-09	2.733E-10	1.443E-09	4.108E-09	1.094E-08	6.658E-04	3.631E-06	6.697E-04
R MAR	2.920E-07	6.812E-09	4.630E-10	4.457E-09	1.196E-08	3.253E-08	2.349E-04	2.918E-05	2.644E-04
Y MAR	2.436E-07	5.685E-09	3.774E-10	1.983E-09	5.824E-09	1.340E-08	8.264E-09	4.319E-05	4.347E-05
ENDOST	2.313E-07	5.397E-09	2.733E-10	1.443E-09	4.108E-09	1.094E-08	5.197E-04	2.362E-05	5.436E-04
SPLEEN	5.161E-07	1.204E-08	4.386E-09	2.877E-09	8.138E-09	1.155E-08	2.507E-09	4.319E-05	4.375E-05
TESTES	8.234E-09	1.921E-10	6.874E-11	9.510E-10	3.432E-09	1.743E-08	1.862E-09	4.319E-05	4.322E-05
THYMUS	9.674E-07	2.257E-08	3.549E-10	2.966E-10	1.035E-09	8.002E-10	2.386E-09	4.319E-05	4.418E-05
THYROID	3.269E-07	7.627E-09	8.139E-11	9.913E-11	3.380E-10	2.903E-10	1.716E-09	4.319E-05	4.353E-05
UTERUS	2.806E-08	6.548E-10	4.549E-10	1.555E-08	2.782E-08	6.014E-08	2.495E-09	4.319E-05	4.332E-05

STRONTIUM-89 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

SR-89
STOMACH 0.0
S INT 0.200
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET							
LUNGS	1.699E-09	1.083E-09	4.029E-09	2.798E-09	5.543E-08	3.138E-08	9.641E-08
RES LYM	1.699E-09	1.083E-09	4.029E-09	2.798E-09	5.543E-08	3.138E-08	9.641E-08
S WALL	2.486E-03	1.059E-08	3.510E-08	2.837E-08	3.036E-08	3.439E-08	2.486E-03
SI WALL	2.419E-09	4.961E-03	1.541E-07	1.571E-07	4.675E-08	3.616E-08	4.962E-03
ULI WALL	2.886E-09	6.797E-08	2.909E-02	7.026E-08	4.314E-08	3.803E-08	2.909E-02
LLI WALL	1.308E-09	2.048E-08	3.210E-08	8.675E-02	5.904E-08	3.751E-08	8.675E-02
T BODY	5.330E-06	4.536E-05	8.711E-05	1.977E-04	1.027E-03	4.406E-04	1.803E-03
ADREN	2.053E-09	3.645E-09	1.210E-08	8.987E-09	1.031E-07	8.551E-04	8.553E-04
BL WALL	4.747E-10	7.143E-09	2.086E-08	9.144E-08	2.579E-08	4.270E-04	4.272E-04
KIDNEYS	3.111E-09	9.657E-09	2.811E-08	1.657E-08	6.482E-08	8.551E-04	8.553E-04
LIVER	1.878E-09	5.680E-09	2.446E-08	6.955E-09	4.049E-08	8.551E-04	8.552E-04
OVARIES	1.299E-09	3.073E-08	8.024E-08	2.993E-07	5.494E-08	8.551E-04	8.556E-04
PANCREAS	1.562E-08	6.185E-09	2.008E-08	1.336E-08	5.470E-08	8.551E-04	8.552E-04
BONE	5.580E-10	2.381E-09	6.780E-09	1.805E-08	1.318E-02	7.190E-05	1.325E-02
R MAR	9.453E-10	7.356E-09	1.974E-08	5.369E-08	4.651E-03	5.777E-04	5.229E-03
Y MAR	7.704E-10	3.272E-09	9.612E-09	2.212E-08	1.636E-07	8.551E-04	8.553E-04
ENDOST	5.580E-10	2.381E-09	6.780E-09	1.805E-08	1.029E-02	4.676E-04	1.076E-02
SPLEEN	8.953E-09	4.749E-09	1.343E-08	1.907E-08	4.964E-08	8.551E-04	8.552E-04
TESTES	1.403E-10	1.570E-09	5.664E-09	2.876E-08	3.697E-08	8.551E-04	8.552E-04
THYMUS	7.246E-10	4.895E-10	1.708E-09	1.321E-09	4.723E-08	8.551E-04	8.552E-04
THYROID	1.662E-10	1.636E-10	5.579E-10	4.791E-10	3.398E-08	8.551E-04	8.552E-04
UTERUS	9.286E-10	2.567E-08	4.592E-08	9.925E-08	4.940E-08	8.551E-04	8.553E-04

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

SR-89
STOMACH 0.0
S INT 1.000E-02
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET							
LUNGS	1.699E-09	1.339E-09	4.984E-09	3.461E-09	2.770E-09	1.568E-09	1.582E-08
RES LYM	1.699E-09	1.339E-09	4.984E-09	3.461E-09	2.770E-09	1.568E-09	1.582E-08
S WALL	2.486E-03	1.310E-08	4.342E-08	3.509E-08	1.518E-09	1.719E-09	2.486E-03
SI WALL	2.419E-09	6.137E-03	1.906E-07	1.943E-07	2.337E-09	1.807E-09	6.137E-03
ULI WALL	2.886E-09	8.408E-08	3.599E-02	8.691E-08	2.156E-09	1.901E-09	3.599E-02
LLI WALL	1.308E-09	2.534E-08	3.970E-08	0.107	2.951E-09	1.875E-09	0.107
T BODY	5.330E-06	5.611E-05	1.078E-04	2.446E-04	5.131E-05	2.202E-05	4.871E-04
ADREN	2.053E-09	4.508E-09	1.497E-08	1.112E-08	5.155E-09	4.274E-05	4.278E-05
BL WALL	4.747E-10	8.835E-09	2.580E-08	1.131E-07	1.289E-09	2.134E-05	2.149E-05
KIDNEYS	3.111E-09	1.195E-08	3.477E-08	2.049E-08	3.240E-09	4.274E-05	4.281E-05
LIVER	1.878E-09	7.026E-09	3.026E-08	8.604E-09	2.023E-09	4.274E-05	4.279E-05
OVARIES	1.299E-09	3.801E-08	9.926E-08	3.702E-07	2.746E-09	4.274E-05	4.325E-05
PANCREAS	1.562E-08	7.651E-09	2.484E-08	1.653E-08	2.734E-09	4.274E-05	4.281E-05
BONE	5.580E-10	2.945E-09	8.387E-09	2.233E-08	6.588E-04	3.594E-06	6.624E-04
R MAR	9.453E-10	9.099E-09	2.442E-08	6.641E-08	2.324E-04	2.887E-05	2.614E-04
Y MAR	7.704E-10	4.048E-09	1.189E-08	2.736E-08	8.178E-09	4.274E-05	4.279E-05
ENDOST	5.580E-10	2.945E-09	8.387E-09	2.233E-08	5.143E-04	2.337E-05	5.377E-04
SPLEEN	8.953E-09	5.874E-09	1.661E-08	2.359E-08	2.481E-09	4.274E-05	4.280E-05
TESTES	1.403E-10	1.942E-09	7.007E-09	3.557E-08	1.843E-09	4.274E-05	4.278E-05
THYMUS	7.246E-10	6.055E-10	2.113E-09	1.634E-09	2.361E-09	4.274E-05	4.275E-05
THYROID	1.662E-10	2.024E-10	6.900E-10	5.926E-10	1.698E-09	4.274E-05	4.274E-05
UTERUS	9.286E-10	3.176E-08	5.680E-08	1.228E-07	2.469E-09	4.274E-05	4.295E-05

STRONTIUM-90

RADIONUCLIDE: SR-90

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE					
SR-90		1.0400E 04			
Y-90		2.670			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		SR-90	Y-90	1.000	
ORGAN ABSORBED	NUCLIDE SR-90	BLOOD TRANSFER FRACTION F2-PRIME 1.00		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
				-6.130E-02	5.78
				-0.525	1.19
				1.41	3.33
				9.330E-02	971.
BONE	Y-90	1.00		8.000E-02	6.660E 03
				1.00	8.000E 03
				-6.130E-02	5.78
				-0.525	1.19
				0.424	3.33
LIVER	*SR-90	0.500	4.960E-02	8.230E-02	971.
				8.000E-02	6.660E 03
				1.00	8.000E 03
				0.805	3.33
				1.100E-02	971.
	Y-90	0.150		1.00	8.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR SR-90

TARGET ORGANS		SOURCE ORGANS								
		LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER
LUNGS	0.100E-01	0.100E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	0.100E-01	0.668E 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.200E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.125E-01	0.0	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.228E-01	0.0	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.371E-01	0.0	0.0	0.0	0.0
T BODY	0.143E-03	0.143E-03	0.429E-04	0.114E-03	0.683E-04	0.848E-04	0.143E-03	0.143E-03	0.142E-03	0.0
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.145E-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.556E-02	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.186E-02	0.0	0.201E-04
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.487E-03	0.0	0.220E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.147E-02	0.0	0.150E-03
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.290E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.291E-03

β^- decay (28.5 Y 8)

Inhalation and ingestion of SrTiO_3 is represented by Cases 3 and 4, respectively. Other compounds of strontium are assumed to be represented by the data in Cases 1 and 2.

* Retention data derived from "other tissues" compartment.

STRONTIUM-90 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
SR-90	D	0.0	0.200	0.0	0.0
Y-90	W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	7.884E-03	2.004E-03	4.438E-14	6.181E-19	3.990E-18	4.061E-19	1.026E-08	1.772E-10	4.756E-09	9.888E-03
RES LYM	7.884E-03	0.134	4.438E-14	6.181E-19	3.990E-18	4.061E-19	1.026E-08	1.772E-10	4.756E-09	0.142
S WALL	1.492E-11	4.077E-12	1.970E-04	9.411E-13	7.760E-12	9.090E-13	5.640E-09	2.415E-11	1.304E-09	1.970E-04
SI WALL	6.791E-17	1.855E-17	2.889E-14	4.716E-04	1.024E-10	1.590E-10	6.944E-09	1.393E-11	1.726E-09	4.716E-04
ULI WALL	1.055E-16	2.882E-17	1.258E-13	1.295E-10	3.557E-03	1.100E-10	9.382E-09	2.306E-11	3.351E-09	3.557E-03
LLI WALL	2.618E-18	7.152E-19	3.606E-15	1.629E-11	8.440E-12	1.407E-02	2.806E-08	1.698E-16	1.423E-09	1.407E-02
T BODY	1.127E-04	2.863E-05	4.222E-07	4.306E-06	1.068E-05	3.221E-05	0.233	3.757E-04	7.520E-03	0.241
ADREN	2.150E-11	5.874E-12	1.306E-15	9.306E-17	3.751E-16	2.913E-17	3.345E-08	2.274E-10	1.534E-02	1.534E-02
BL WALL	6.171E-22	1.686E-22	1.076E-19	1.125E-14	4.303E-14	6.645E-12	1.052E-10	2.959E-17	7.676E-03	7.676E-03
KIDNEYS	1.366E-13	3.732E-14	5.229E-15	5.556E-14	1.208E-13	1.281E-14	1.176E-08	7.625E-11	1.534E-02	1.534E-02
LIVER	3.617E-11	9.882E-12	1.989E-14	1.670E-13	9.470E-13	2.297E-17	6.037E-09	1.463E-02	1.497E-09	1.463E-02
OVARIES	8.106E-20	2.215E-20	1.312E-17	7.640E-12	5.516E-11	3.774E-10	5.329E-09	4.657E-15	1.534E-02	1.534E-02
PANCREAS	1.593E-12	4.353E-13	1.434E-12	2.639E-15	1.703E-14	1.154E-15	1.522E-08	9.223E-11	1.534E-02	1.534E-02
BONE	1.429E-11	3.904E-12	1.049E-14	2.792E-13	7.668E-13	1.042E-11	3.00	3.397E-11	1.268E-03	3.00
R MAR	1.568E-11	4.284E-12	1.103E-14	1.163E-12	3.218E-12	4.349E-11	1.09	3.265E-11	1.024E-02	1.10
Y MAR	1.846E-11	5.045E-12	1.434E-14	3.889E-13	1.076E-12	1.451E-11	2.131E-06	5.068E-11	1.534E-02	1.534E-02
ENDOST	1.429E-11	3.904E-12	1.049E-14	2.792E-13	7.668E-13	1.042E-11	2.19	3.397E-11	8.750E-03	2.20
SPLEEN	1.935E-11	5.286E-12	1.394E-13	3.924E-15	1.734E-14	7.549E-15	2.537E-08	3.844E-14	1.534E-02	1.534E-02
TESTES	1.340E-25	3.662E-26	2.354E-23	1.073E-18	8.642E-18	2.190E-13	1.165E-10	7.999E-21	1.533E-02	1.533E-02
THYMUS	1.062E-11	2.902E-12	1.475E-19	6.806E-23	5.369E-22	2.222E-23	1.108E-08	1.338E-15	1.534E-02	1.534E-02
THYROID	5.349E-14	1.462E-14	2.828E-23	7.084E-27	5.388E-26	3.689E-27	5.130E-09	9.406E-20	1.534E-02	1.534E-02
UTERUS	2.592E-20	7.083E-21	3.504E-18	1.736E-12	4.174E-13	2.312E-12	2.619E-10	6.894E-16	1.534E-02	1.534E-02

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-90	Y-90
TARGET		
LUNGS	22.5	77.5
RES LYM	18.3	81.7
S WALL	67.3	32.7
SI WALL	56.2	43.8
ULI WALL	44.2	55.8
LLI WALL	33.5	66.5
T BODY	17.4	82.6
ADREN	17.4	82.6
BL WALL	17.3	82.7
KIDNEYS	17.4	82.6
LIVER	17.3	82.7
OVARIES	17.4	82.6
PANCREAS	17.4	82.6
BONE	17.6	82.4
R MAR	12.7	87.3
Y MAR	17.4	82.6
ENDOST	19.0	81.0
SPLEEN	17.4	82.6
TESTES	17.4	82.6
THYMUS	17.4	82.6
THYROID	17.4	82.6
UTERUS	17.4	82.6

STRONTIUM-90 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	SR-90	Y-90
STOMACH	0.0	0.0
S INT	0.200	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET								
LUNGS	2.925E-14	1.288E-18	1.607E-17	2.089E-18	4.039E-09	6.910E-11	1.858E-09	5.935E-09
RES LYM	2.925E-14	1.288E-18	1.607E-17	2.089E-18	4.009E-09	6.910E-11	1.858E-09	5.935E-09
S WALL	8.758E-04	1.962E-12	3.125E-11	4.675E-12	2.204E-09	9.422E-12	5.093E-10	8.758E-04
SI WALL	1.904E-14	2.097E-03	4.124E-10	8.174E-10	2.713E-09	5.432E-12	6.742E-10	2.097E-03
ULI WALL	8.293E-14	2.700E-10	1.788E-02	5.659E-10	3.665E-09	8.994E-12	1.309E-09	1.788E-02
LLI WALL	2.377E-15	3.395E-11	3.399E-11	7.779E-02	1.096E-08	6.625E-17	5.559E-10	7.779E-02
T BODY	1.878E-06	1.914E-05	5.366E-06	1.780E-04	9.114E-02	1.466E-04	2.937E-03	9.448E-02
ADREN	8.605E-16	1.940E-16	1.511E-15	1.498E-16	1.307E-08	8.869E-11	5.993E-03	5.993E-03
BL WALL	7.889E-20	2.345E-14	1.733E-13	3.417E-11	4.108E-11	1.154E-17	2.998E-03	2.998E-03
KIDNEYS	3.447E-15	1.158E-13	4.865E-13	6.589E-14	4.595E-09	2.974E-11	5.993E-03	5.993E-03
LIVER	1.311E-14	3.482E-13	3.813E-12	1.181E-16	2.359E-09	5.710E-03	5.846E-10	5.710E-03
OVARIES	8.650E-18	1.592E-11	2.221E-10	1.941E-09	2.082E-09	1.817E-15	5.993E-03	5.993E-03
PANCREAS	9.453E-13	5.501E-15	6.857E-14	5.933E-15	5.946E-09	3.598E-11	5.993E-03	5.993E-03
BONE	6.911E-15	5.820E-13	3.088E-12	5.358E-11	1.17	1.325E-11	4.953E-04	1.17
R MAR	7.268E-15	2.425E-12	1.296E-11	2.236E-10	0.426	1.273E-11	3.999E-03	0.430
Y MAR	9.453E-15	8.107E-13	4.332E-12	7.463E-11	8.327E-07	1.977E-11	5.993E-03	5.994E-03
ENDOST	6.911E-15	5.820E-13	3.088E-12	5.358E-11	0.856	1.325E-11	3.418E-03	0.859
SPLEEN	9.185E-14	8.180E-15	6.983E-14	3.882E-14	9.911E-09	1.500E-14	5.993E-03	5.993E-03
TESTES	1.552E-23	2.237E-18	3.480E-17	1.126E-12	4.551E-11	3.081E-21	5.990E-03	5.990E-03
THYMUS	9.720E-20	1.419E-22	2.162E-21	1.143E-22	4.330E-09	5.218E-16	5.993E-03	5.993E-03
THYROID	1.864E-23	1.477E-26	2.170E-25	1.897E-26	2.004E-09	3.669E-20	5.993E-03	5.993E-03
UTERUS	2.310E-18	3.619E-12	1.681E-12	1.189E-11	1.023E-10	2.689E-16	5.993E-03	5.993E-03

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-90	Y-90
TARGET		
LUNGS	0.0	100.0
RES LYM	0.0	100.0
S WALL	55.1	4.9
SI WALL	79.5	20.5
ULI WALL	55.3	44.7
LLI WALL	38.1	61.9
T BODY	17.5	82.5
ADREN	17.4	82.6
BL WALL	17.3	82.7
KIDNEYS	17.4	82.6
LIVER	17.3	82.7
OVARIES	17.4	82.6
PANCREAS	17.4	82.6
BONE	17.6	82.4
R MAR	12.7	87.3
Y MAR	17.4	82.6
ENDOST	19.0	81.0
SPLEEN	17.4	82.6
TESTES	17.4	82.6
THYMUS	17.4	82.6
THYROID	17.4	82.6
UTERUS	17.4	82.6

STRONTIUM-90 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
SR-90	Y	0.0	1.000E-02	0.0
Y-90	W	0.0	1.000E-04	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	4.46	4.03	1.935E-11	2.020E-16	7.098E-16	3.753E-17	1.094E-09	2.743E-10	1.272E-09	8.49
RES LYM	4.46	269.	1.935E-11	2.020E-16	7.098E-16	3.753E-17	1.094E-09	2.743E-10	1.272E-09	274.
S WALL	8.488E-09	7.951E-09	2.859E-02	3.075E-10	1.380E-09	8.401E-11	6.016E-10	3.740E-11	3.487E-10	2.859E-02
SI WALL	3.863E-14	3.618E-14	1.259E-11	6.870E-02	1.822E-08	1.469E-08	7.406E-10	2.156E-11	4.616E-10	6.870E-02
ULI WALL	5.999E-14	5.620E-14	5.485E-11	4.232E-08	0.360	1.017E-08	1.001E-09	3.570E-11	8.962E-10	0.360
LLI WALL	1.489E-15	1.395E-15	1.572E-12	5.321E-09	1.501E-09	0.886	2.993E-09	2.630E-16	3.806E-10	0.886
T BODY	6.368E-02	5.760E-02	6.120E-05	6.281E-04	1.084E-03	2.029E-03	2.457E-02	4.872E-04	1.792E-03	0.152
ADREN	1.223E-08	1.145E-08	5.692E-13	3.041E-14	6.673E-14	2.692E-15	3.567E-09	3.521E-10	3.654E-03	3.654E-03
BL WALL	3.510E-19	3.288E-19	4.689E-17	3.676E-12	7.655E-12	6.141E-10	1.122E-11	4.581E-17	1.829E-03	1.829E-03
KIDNEYS	7.769E-11	7.277E-11	2.280E-12	1.815E-11	2.149E-11	1.184E-12	1.255E-09	1.181E-10	3.654E-03	3.654E-03
LIVER	2.057E-08	1.927E-08	8.670E-12	5.457E-11	1.685E-10	2.122E-15	6.439E-10	1.899E-02	4.002E-10	1.899E-02
OVARIES	4.611E-17	4.319E-17	5.721E-15	2.496E-09	9.814E-09	3.488E-08	5.683E-10	7.211E-15	3.654E-03	3.654E-03
PANCREAS	9.064E-10	8.490E-10	6.252E-10	8.623E-13	3.029E-12	1.066E-13	1.623E-09	1.428E-10	3.654E-03	3.654E-03
BONE	8.129E-09	7.614E-09	4.571E-12	9.122E-11	1.364E-10	9.629E-10	0.315	5.260E-11	3.081E-04	0.316
R MAR	8.920E-09	8.355E-09	4.807E-12	3.801E-10	5.725E-10	4.019E-09	0.115	5.055E-11	2.398E-03	0.118
Y MAR	1.050E-08	9.838E-09	6.252E-12	1.271E-10	1.914E-10	1.341E-09	2.273E-07	7.847E-11	3.654E-03	3.654E-03
ENDOST	8.129E-09	7.614E-09	4.571E-12	9.122E-11	1.364E-10	9.629E-10	0.230	5.260E-11	2.109E-03	0.233
SPLEEN	1.101E-08	1.031E-08	6.075E-11	1.282E-12	3.085E-12	6.976E-13	2.706E-09	5.953E-14	3.654E-03	3.654E-03
TESTES	7.625E-23	7.142E-23	1.026E-20	3.506E-16	1.537E-15	2.024E-11	1.242E-11	1.223E-20	3.653E-03	3.653E-03
THYMUS	6.043E-09	5.660E-09	6.429E-17	2.224E-20	9.552E-20	2.054E-21	1.182E-09	2.071E-15	3.654E-03	3.654E-03
THYROID	3.043E-11	2.850E-11	1.233E-20	2.315E-24	9.585E-24	3.410E-25	5.472E-10	1.456E-19	3.654E-03	3.654E-03
UTERUS	1.475E-17	1.381E-17	1.528E-15	5.673E-10	7.426E-11	2.137E-10	2.793E-11	1.068E-15	3.654E-03	3.654E-03

PERCENT DOSE EQUIVALENT..

MUCLIDE	SR-90	Y-90
TARGET		
LUNGS	21.9	78.1
RES LYM	20.5	79.5
S WALL	1.7	98.3
SI WALL	1.7	98.3
ULI WALL	2.0	98.0
LLI WALL	2.4	97.6
T BODY	20.3	79.7
ADREN	7.3	92.7
BL WALL	7.2	92.8
KIDNEYS	7.3	92.7
LIVER	1.3	98.7
OVARIES	7.3	92.7
PANCREAS	7.3	92.7
BONE	16.5	83.5
R MAR	11.8	88.2
Y MAR	7.3	92.7
ENDOST	17.8	82.2
SPLEEN	7.3	92.7
TESTES	7.2	92.8
THYMUS	7.3	92.7
THYROID	7.3	92.7
UTERUS	7.3	92.7

STRONTIUM-90 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	SR-90	Y-90
STOMACH	0.0	0.0
S INT	1.000E-02	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET								
LUNGS	2.925E-14	1.522E-18	1.963E-17	2.572E-18	2.004E-10	3.456E-12	9.289E-11	2.968E-10
RES LYM	2.925E-14	1.522E-18	1.963E-17	2.572E-18	2.004E-10	3.456E-12	9.289E-11	2.968E-10
S WALL	8.758E-04	2.318E-12	3.818E-11	5.756E-12	1.102E-10	4.712E-13	2.546E-11	8.758E-04
SI WALL	1.904E-14	2.571E-03	5.040E-10	1.006E-09	1.356E-10	2.717E-13	3.371E-11	2.571E-03
ULI WALL	8.293E-14	3.190E-10	2.200E-02	6.968E-10	1.833E-10	4.498E-13	6.545E-11	2.200E-02
LLI WALL	2.377E-15	4.011E-11	4.153E-11	9.597E-02	5.481E-10	3.314E-18	2.780E-11	9.597E-02
T BODY	1.878E-06	2.346E-05	6.603E-05	2.196E-04	4.557E-03	7.331E-06	1.469E-04	5.022E-03
ADREN	8.605E-16	2.292E-16	1.846E-15	1.845E-16	6.533E-10	4.436E-12	2.997E-04	2.997E-04
BL WALL	7.089E-20	2.771E-14	2.117E-13	4.208E-11	2.054E-12	5.772E-19	1.499E-04	1.499E-04
KIDNEYS	3.447E-15	1.368E-13	5.944E-13	8.113E-14	2.298E-10	1.488E-12	2.997E-04	2.997E-04
LIVER	1.311E-14	4.113E-13	4.660E-12	1.454E-16	1.179E-10	2.856E-04	2.923E-11	2.856E-04
OVARIES	8.650E-18	1.881E-11	2.714E-10	2.390E-09	1.041E-10	9.086E-17	2.997E-04	2.997E-04
PANCREAS	9.453E-13	6.499E-15	8.378E-14	7.305E-15	2.973E-10	1.799E-12	2.997E-04	2.997E-04
BONE	6.911E-15	6.876E-13	3.773E-12	6.598E-11	5.853E-02	6.627E-13	2.477E-05	5.855E-02
R MAR	7.268E-15	2.865E-12	1.583E-11	2.754E-10	2.130E-02	6.369E-13	2.000E-04	2.150E-02
Y MAR	9.453E-15	9.578E-13	5.293E-12	9.190E-11	4.164E-08	9.888E-13	2.997E-04	2.997E-04
ENDOST	6.911E-15	6.876E-13	3.773E-12	6.598E-11	4.280E-02	6.627E-13	1.709E-04	4.297E-02
SPLEEN	9.185E-14	9.663E-15	8.532E-14	4.780E-14	4.955E-10	7.500E-16	2.997E-04	2.997E-04
TESTES	1.552E-23	2.642E-18	4.252E-17	1.387E-12	2.276E-12	1.541E-22	2.995E-04	2.995E-04
THYMUS	9.720E-20	1.676E-22	2.642E-21	1.407E-22	2.165E-10	2.617E-17	2.997E-04	2.997E-04
THYROID	1.864E-23	1.745E-26	2.651E-25	2.336E-26	1.002E-10	1.835E-21	2.997E-04	2.997E-04
UTERUS	2.310E-18	4.276E-12	2.054E-12	1.464E-11	5.116E-12	1.345E-17	2.997E-04	2.997E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-90	Y-90
TARGET		
LUNGS	0.0	100.0
RES LYM	0.0	100.0
S WALL	95.1	4.9
SI WALL	80.2	19.8
ULI WALL	55.6	44.4
LLI WALL	38.3	61.7
T BODY	19.1	80.9
ADREN	17.4	82.6
BL WALL	17.3	82.7
KIDNEYS	17.4	82.6
LIVER	17.3	82.7
OVARIES	17.4	82.6
PANCREAS	17.4	82.6
BONE	17.6	82.4
R MAR	12.7	87.3
Y MAR	17.4	82.6
ENDOST	19.0	81.0
SPLEEN	17.4	82.6
TESTES	17.4	82.6
THYMUS	17.4	82.6
THYROID	17.4	82.6
UTERUS	17.4	82.6

STRONTIUM-91

RADIONUCLIDE: SR-91

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)
SR-91	0.3960
Y-91M	3.4500E-02
Y-91	58.50

BRANCHING RATIOS:	FROM	TO	FRACTION
	SR-91	Y-91M	0.5800
	SR-91	Y-91	0.4200
	Y-91M	Y-91	1.000

ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
	SR-91	1.00	-6.130E-02	5.78
			-0.525	1.19
			1.41	3.33
			9.330E-02	971.
			8.000E-02	6.660E 03
	Y-91M	1.00	1.00	8.000E 03
	Y-91	1.00	1.00	8.000E 03
BONE	SR-91	1.00	-6.130E-02	5.78
			-0.525	1.19
			0.424	3.33
			8.230E-02	971.
			8.000E-02	6.660E 03
	Y-91M	0.500	1.00	8.000E 03
	Y-91	0.500	1.00	8.000E 03
LIVER	*SR-91	4.960E-02	0.805	3.33
			1.100E-02	971.
	Y-91M	0.150	1.00	8.000E 03
	Y-91	0.150	1.00	8.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR SR-91

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	
LUNGS	0.351E-01	0.351E-01	0.209E-03	0.413E-04	0.477E-04	0.180E-04	0.117E-03	0.284E-03	0.148E-03	
RES LYM	0.351E-01	0.223E-01	0.209E-03	0.413E-04	0.477E-04	0.180E-04	0.117E-03	0.284E-03	0.148E-03	
S WALL	0.226E-03	0.226E-03	0.729E-01	0.406E-03	0.415E-03	0.188E-03	0.654E-04	0.229E-03	0.166E-03	
SI WALL	0.375E-04	0.375E-04	0.297E-03	0.453E-01	0.184E-02	0.103E-02	0.983E-04	0.186E-03	0.177E-03	
ULI WALL	0.488E-04	0.488E-04	0.362E-03	0.261E-02	0.810E-01	0.465E-03	0.908E-04	0.282E-03	0.182E-03	
LLI WALL	0.108E-04	0.108E-04	0.160E-03	0.788E-03	0.377E-03	0.133E-00	0.124E-03	0.344E-04	0.193E-03	
T BODY	0.646E-03	0.646E-03	0.350E-03	0.609E-03	0.450E-03	0.503E-03	0.647E-03	0.675E-03	0.642E-03	
ADREN	0.277E-03	0.277E-03	0.263E-03	0.141E-03	0.141E-03	0.587E-04	0.218E-03	0.563E-03	0.118E-02	
BL WALL	0.106E-04	0.106E-04	0.577E-04	0.292E-03	0.243E-03	0.614E-03	0.591E-04	0.264E-04	0.716E-03	
KIDNEYS	0.119E-03	0.119E-03	0.382E-03	0.369E-03	0.333E-03	0.108E-03	0.134E-03	0.430E-03	0.122E-02	
LIVER	0.278E-03	0.278E-03	0.232E-03	0.218E-03	0.291E-03	0.457E-04	0.859E-04	0.215E-01	0.131E-03	
OVARIES	0.201E-04	0.201E-04	0.148E-03	0.115E-02	0.989E-03	0.195E-02	0.116E-03	0.758E-04	0.122E-02	
PANCREAS	0.275E-03	0.275E-03	0.193E-02	0.235E-03	0.238E-03	0.870E-04	0.117E-03	0.504E-03	0.125E-02	
BONE	0.115E-03	0.115E-03	0.689E-04	0.914E-04	0.812E-04	0.119E-03	0.654E-02	0.839E-04	0.221E-03	
R MAR	0.146E-03	0.146E-03	0.117E-03	0.283E-03	0.237E-03	0.352E-03	0.257E-02	0.119E-03	0.838E-03	
Y MAR	0.121E-03	0.121E-03	0.954E-04	0.126E-03	0.115E-03	0.145E-03	0.346E-03	0.125E-03	0.112E-02	
ENDOST	0.115E-03	0.115E-03	0.689E-04	0.914E-04	0.812E-04	0.118E-03	0.487E-02	0.839E-04	0.702E-03	
SPLEEN	0.253E-03	0.253E-03	0.110E-02	0.184E-03	0.160E-03	0.123E-03	0.103E-03	0.131E-03	0.122E-02	
TESTES	0.407E-05	0.407E-05	0.164E-04	0.598E-04	0.657E-04	0.193E-03	0.783E-04	0.262E-04	0.115E-02	
THYMUS	0.479E-03	0.479E-03	0.834E-04	0.187E-04	0.203E-04	0.859E-05	0.962E-04	0.107E-03	0.123E-02	
THYROID	0.157E-03	0.157E-03	0.203E-04	0.625E-05	0.663E-05	0.312E-05	0.804E-04	0.239E-04	0.115E-02	
UTERUS	0.150E-04	0.150E-04	0.114E-03	0.984E-03	0.546E-03	0.652E-03	0.999E-04	0.495E-04	0.143E-02	

β^- decay (9.5 H 2)

Inhalation and ingestion of SrTiO_3 is represented by Cases 3 and 4, respectively. Other compounds of strontium are assumed to be represented by Cases 1 and 2.

* Retention data derived from "other tissues" compartment.

STRONTIUM-91 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
SR-91	D	0.0	0.200	0.0	0.0		
Y-91M	W	0.0	1.000E-04	0.0	0.0		
Y-91	W	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	3.832E-03	3.873E-04	1.548E-06	9.077E-07	1.754E-06	4.236E-07	3.068E-06	2.993E-06	3.681E-05	4.267E-03
RES LYM	3.832E-03	2.467E-02	1.548E-06	9.077E-07	1.754E-06	4.236E-07	3.068E-06	2.993E-06	3.681E-05	2.855E-02
S WALL	2.771E-05	2.288E-06	4.504E-04	8.977E-06	1.611E-05	5.078E-06	1.747E-06	2.400E-06	4.106E-05	5.558E-04
SI WALL	4.496E-06	3.712E-07	2.197E-06	7.468E-04	7.168E-05	2.697E-05	2.560E-06	1.967E-06	4.402E-05	9.010E-04
ULI WALL	5.938E-06	4.903E-07	2.688E-06	5.852E-05	2.252E-03	1.236E-05	2.327E-06	3.037E-06	4.516E-05	2.383E-03
LLI WALL	1.289E-06	1.064E-07	1.163E-06	1.755E-05	1.426E-05	2.520E-03	3.167E-06	3.746E-07	4.792E-05	2.606E-03
T BODY	7.274E-05	7.021E-06	2.392E-06	1.117E-05	1.477E-05	1.115E-05	2.377E-05	9.595E-06	1.994E-04	3.520E-04
ADREN	3.475E-05	2.870E-06	1.914E-06	3.157E-06	5.187E-06	1.525E-06	5.608E-06	5.982E-06	3.746E-04	4.356E-04
BL WALL	1.254E-06	1.035E-07	4.195E-07	7.116E-06	9.160E-06	1.632E-05	1.688E-06	3.214E-07	2.187E-04	2.551E-04
KIDNEYS	1.492E-05	1.232E-06	2.812E-06	8.225E-06	1.268E-05	2.730E-06	3.331E-06	4.582E-06	3.844E-04	4.349E-04
LIVER	3.460E-05	2.857E-06	1.713E-06	4.811E-06	1.119E-05	1.153E-06	2.240E-06	3.223E-04	3.244E-05	4.133E-04
OVARIES	2.425E-06	2.002E-07	9.827E-07	2.485E-05	4.370E-05	5.002E-05	3.138E-06	6.481E-07	3.846E-04	5.106E-04
PANCREAS	3.590E-05	2.966E-06	1.433E-05	5.287E-06	8.854E-06	2.274E-06	3.001E-06	5.505E-06	3.923E-04	4.704E-04
BONE	1.438E-05	1.188E-06	5.088E-07	2.035E-06	3.173E-06	3.109E-06	2.585E-04	8.940E-07	6.197E-05	3.457E-04
R MAR	1.822E-05	1.504E-06	8.669E-07	6.346E-06	9.326E-06	9.278E-06	9.841E-05	1.281E-06	2.637E-04	4.089E-04
Y MAR	1.514E-05	1.250E-06	7.050E-07	2.814E-06	4.495E-06	3.826E-06	9.163E-06	1.325E-06	3.600E-04	3.987E-04
ENDOST	1.438E-05	1.188E-06	5.088E-07	2.035E-06	3.173E-06	3.109E-06	1.983E-04	8.940E-07	2.173E-04	4.408E-04
SPLEEN	3.133E-05	2.587E-06	8.100E-06	4.096E-06	5.985E-06	3.112E-06	2.683E-06	1.346E-06	3.847E-04	4.440E-04
TESTES	4.659E-07	3.845E-08	1.044E-07	1.229E-06	2.480E-06	5.407E-06	1.982E-06	2.405E-07	3.673E-04	3.792E-04
THYMUS	5.783E-05	4.774E-06	5.464E-07	4.023E-07	7.579E-07	2.108E-07	2.489E-06	1.277E-06	3.947E-04	4.629E-04
THYROID	1.901E-05	1.569E-06	1.463E-07	1.300E-07	2.381E-07	7.386E-08	2.479E-06	2.460E-07	3.673E-04	3.911E-04
UTERUS	1.733E-06	1.431E-07	8.271E-07	2.209E-05	2.080E-05	1.695E-05	2.397E-06	5.293E-07	4.345E-04	5.000E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	SR-91	Y-91M	Y-91
TARGET			
LUNGS	77.0	3.7	19.3
RES LYM	65.5	1.8	32.7
S WALL	91.3	8.3	0.3
SI WALL	89.4	9.9	0.6
ULI WALL	91.7	6.5	1.9
LLI WALL	88.8	5.2	6.0
T BODY	61.6	9.2	29.2
ADREN	55.5	9.0	35.5
BL WALL	57.0	12.7	30.3
KIDNEYS	55.6	8.9	35.5
LIVER	52.4	10.1	37.5
OVARIES	56.6	13.1	30.3
PANCREAS	56.5	10.6	32.9
BONE	49.5	7.4	43.2
R MAR	53.6	9.0	37.3
Y MAR	44.2	7.1	38.7
ENDOST	50.5	6.2	43.3
SPLEEN	56.0	9.2	34.8
TESTES	33.5	5.8	40.8
THYMUS	55.4	11.1	33.4
THYROID	44.0	6.4	39.5
UTERUS	57.4	11.6	30.9

STRONTIUM-91 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	SR-91	Y-91M	Y-91
STOMACH	0.0	0.0	0.0
S INT	0.200	1.000E-04	1.000E-04
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET								
LUNGS	9.882E-06	5.871E-06	1.139E-05	2.753E-06	1.325E-06	1.296E-06	1.605E-05	4.857E-05
RES LYM	9.882E-06	5.871E-06	1.139E-05	2.753E-06	1.325E-06	1.296E-06	1.605E-05	4.857E-05
S WALL	2.910E-03	5.806E-05	1.047E-04	3.301E-05	7.540E-07	1.039E-06	1.790E-05	3.125E-03
SI WALL	1.403E-05	4.824E-03	4.656E-04	1.753E-04	1.106E-06	8.515E-07	1.919E-05	5.500E-03
ULI WALL	1.716E-05	3.784E-04	1.449E-02	8.031E-05	1.005E-06	1.315E-06	1.969E-05	1.499E-02
LLI WALL	7.435E-06	1.135E-04	9.265E-05	1.593E-02	1.368E-06	1.621E-07	2.089E-05	1.616E-02
T BODY	1.535E-05	7.217E-05	9.552E-05	7.146E-05	9.114E-06	3.808E-06	8.613E-05	3.536E-04
ADREN	1.224E-05	2.041E-05	3.369E-05	9.911E-06	2.422E-06	2.590E-06	1.617E-04	2.429E-04
BL WALL	2.682E-06	4.597E-05	5.950E-05	1.061E-04	7.276E-07	1.389E-07	9.453E-05	3.096E-04
KIDNEYS	1.797E-05	5.318E-05	8.233E-05	1.774E-05	1.440E-06	1.983E-06	1.660E-04	3.406E-04
LIVER	1.094E-05	3.111E-05	7.267E-05	7.494E-06	9.675E-07	1.261E-04	1.415E-05	2.634E-04
OVARIES	6.329E-06	1.608E-04	2.838E-04	3.251E-04	1.354E-06	2.814E-07	1.660E-04	9.437E-04
PANCREAS	9.147E-05	3.418E-05	5.751E-05	1.478E-05	1.296E-06	2.382E-06	1.694E-04	3.710E-04
BONE	3.249E-06	1.316E-05	2.061E-05	2.020E-05	9.687E-05	3.870E-07	2.688E-05	1.814E-04
R MAR	5.535E-06	4.104E-05	6.057E-05	6.030E-05	3.722E-05	5.545E-07	1.139E-04	3.191E-04
Y MAR	4.502E-06	1.819E-05	2.920E-05	2.487E-05	3.956E-06	5.737E-07	1.553E-04	2.366E-04
ENDOST	3.249E-06	1.316E-05	2.061E-05	2.020E-05	7.409E-05	3.870E-07	9.383E-05	2.255E-04
SPLEEN	5.174E-05	2.649E-05	3.888E-05	2.023E-05	1.159E-06	5.831E-07	1.661E-04	3.052E-04
TESTES	6.751E-07	7.952E-06	1.611E-05	3.514E-05	8.561E-07	1.043E-07	1.585E-04	2.193E-04
THYMUS	3.523E-06	2.603E-06	4.923E-06	1.370E-06	1.075E-06	5.520E-07	1.704E-04	1.845E-04
THYROID	9.361E-07	8.415E-07	1.547E-06	4.800E-07	1.067E-06	1.065E-07	1.585E-04	1.634E-04
UTERUS	5.289E-06	1.429E-04	1.351E-04	1.102E-04	1.037E-06	2.291E-07	1.878E-04	5.825E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-91	Y-91M	Y-91
TARGET			
LUNGS	72.2	27.7	0.1
RES LYM	72.2	27.7	0.1
S WALL	95.2	4.7	0.0
SI WALL	91.2	8.6	0.2
ULI WALL	93.2	6.0	0.9
LLI WALL	91.8	4.8	3.4
T BODY	74.1	15.0	11.0
ADREN	59.9	13.1	27.0
BL WALL	63.1	26.3	10.6
KIDNEYS	62.5	18.3	19.3
LIVER	61.7	18.1	20.2
OVARIES	63.5	29.6	7.0
PANCREAS	65.6	16.7	17.7
BONE	58.6	14.3	27.1
R MAR	61.1	20.2	18.7
Y MAR	58.3	14.0	27.7
ENDOST	57.1	11.9	31.0
SPLEEN	63.4	15.1	21.5
TESTES	57.1	13.0	29.9
THYMUS	55.0	9.3	35.6
THYROID	54.2	5.6	40.2
UTERUS	64.4	24.3	11.3

STRONTIUM-91 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
SR-91	Y	0.0	1.000E-02	0.0	0.0		
Y-91M	W	0.0	1.000E-04	0.0	0.0		
Y-91	W	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET										
LUNGS	9.699E-03	4.877E-05	2.600E-06	1.611E-06	3.039E-06	7.313E-07	3.953E-07	2.997E-07	8.907E-07	9.757E-03
RES LYM	9.699E-03	3.243E-03	2.600E-06	1.611E-06	3.039E-06	7.313E-07	3.953E-07	2.997E-07	8.907E-07	1.295E-02
S WALL	7.432E-05	7.736E-09	6.740E-04	1.594E-05	2.793E-05	8.769E-06	2.325E-07	2.381E-07	9.894E-07	8.024E-04
SI WALL	1.208E-05	1.265E-09	3.688E-06	1.300E-03	1.243E-04	4.656E-05	3.255E-07	1.982E-07	1.065E-06	1.489E-03
ULI WALL	1.593E-05	1.674E-09	4.522E-06	1.040E-04	3.921E-03	2.134E-05	2.871E-07	3.154E-07	1.091E-06	4.069E-03
LLI WALL	3.463E-06	3.543E-10	1.933E-06	3.117E-05	2.472E-05	4.443E-03	3.881E-07	3.968E-08	1.158E-06	4.506E-03
T BODY	1.868E-04	7.022E-07	3.833E-06	1.960E-05	2.566E-05	1.947E-05	8.110E-06	2.499E-06	8.517E-06	2.752E-04
ADREN	9.312E-05	9.477E-09	3.183E-06	5.609E-06	8.987E-06	2.633E-06	6.973E-07	6.075E-07	1.660E-05	1.314E-04
BL WALL	3.370E-06	3.581E-10	6.974E-07	1.271E-05	1.587E-05	2.819E-05	2.501E-07	3.975E-08	9.059E-06	7.019E-05
KIDNEYS	3.997E-05	4.179E-09	4.709E-06	1.461E-05	2.197E-05	4.713E-06	3.861E-07	4.676E-07	1.683E-05	1.037E-04
LIVER	9.274E-05	9.589E-09	2.873E-06	8.538E-06	1.939E-05	1.991E-06	2.857E-07	9.198E-05	7.825E-07	2.186E-04
OVARIES	6.510E-06	6.840E-10	1.546E-06	4.405E-05	7.585E-05	8.637E-05	4.264E-07	3.877E-08	1.684E-05	2.316E-04
PANCREAS	9.600E-05	9.870E-09	2.411E-05	9.396E-06	1.534E-05	3.926E-06	3.711E-07	5.850E-07	1.703E-05	1.668E-04
BONE	3.853E-05	3.966E-09	8.534E-07	3.615E-06	5.501E-06	5.368E-06	9.791E-05	9.123E-08	2.140E-06	1.540E-04
R MAR	4.882E-05	5.029E-09	1.457E-06	1.128E-05	1.617E-05	1.602E-05	3.578E-05	1.330E-07	1.146E-05	1.411E-04
Y MAR	4.056E-05	4.164E-06	1.183E-06	4.998E-06	7.793E-06	6.606E-06	1.201E-06	1.341E-07	1.625E-05	7.873E-05
ENDOST	3.853E-05	3.966E-09	8.534E-07	3.615E-06	5.501E-06	5.368E-06	7.659E-05	9.123E-08	9.355E-06	1.399E-04
SPLEEN	8.401E-05	8.571E-09	1.356E-05	7.274E-06	1.037E-05	5.373E-06	3.409E-07	1.287E-07	1.684E-05	1.379E-04
TESTES	1.254E-06	1.360E-10	1.596E-07	2.170E-06	4.298E-06	9.337E-06	2.387E-07	1.780E-08	1.642E-05	3.390E-05
THYMUS	1.552E-04	1.626E-08	8.517E-07	7.129E-07	1.313E-06	3.640E-07	3.122E-07	1.539E-07	1.722E-05	1.762E-04
THYROID	5.103E-05	5.176E-09	2.421E-07	2.299E-07	4.125E-07	1.275E-07	4.065E-07	2.362E-08	1.642E-05	6.890E-05
UTERUS	4.663E-06	5.443E-10	1.374E-06	3.926E-05	3.606E-05	2.926E-05	2.567E-07	5.447E-08	1.801E-05	1.289E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-91	Y-91M	Y-91
TARGET			
LUNGS	84.6	3.5	11.9
RES LYM	64.0	2.6	33.4
S WALL	90.1	9.2	0.6
SI WALL	89.8	9.2	1.0
ULI WALL	51.3	6.1	2.6
LLI WALL	87.3	4.6	8.0
T BODY	75.7	12.1	12.2
ADREN	62.7	27.6	9.7
BL WALL	59.8	31.2	9.0
KIDNEYS	60.4	27.4	12.2
LIVER	41.3	19.4	39.3
OVARIES	61.5	33.0	5.5
PANCREAS	62.6	29.8	7.6
BONE	25.7	12.6	61.7
R MAR	47.4	22.7	29.9
Y MAR	57.4	26.5	16.1
ENDOST	28.9	13.8	57.3
SPLEEN	63.8	27.0	9.2
TESTES	42.7	20.0	37.2
THYMUS	67.1	25.7	7.2
THYROID	59.1	22.6	18.4
UTERUS	60.9	29.3	9.8

STRONTIUM-91 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	SR-91	Y-91M	Y-91
STOMACH	0.0	0.0	0.0
S INT	1.000E-02	1.000E-04	1.000E-04
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	OTHER	TOTAL
TARGET								
LUNGS	9.882E-06	6.898E-06	1.348E-05	3.260E-06	6.348E-08	6.206E-08	7.681E-07	3.441E-05
RES LYM	9.882E-06	6.898E-06	1.348E-05	3.260E-06	6.348E-08	6.206E-08	7.681E-07	3.441E-05
S WALL	2.910E-03	6.821E-05	1.238E-04	3.908E-05	3.613E-08	4.978E-08	8.567E-07	3.142E-03
SI WALL	1.403E-05	5.704E-03	5.506E-04	2.075E-04	5.297E-08	4.079E-08	9.184E-07	6.478E-03
ULI WALL	1.716E-05	4.444E-04	1.715E-02	9.510E-05	4.816E-08	6.297E-08	9.423E-07	1.771E-02
LLI WALL	7.435E-06	1.333E-04	1.096E-04	1.885E-02	6.556E-08	7.765E-09	9.999E-07	1.910E-02
T BODY	1.535E-05	8.512E-05	1.130E-04	8.460E-05	4.395E-07	1.833E-07	4.124E-06	3.028E-04
ADREN	1.224E-05	2.398E-05	3.986E-05	1.174E-05	1.160E-07	1.241E-07	7.741E-06	9.578E-05
BL WALL	2.682E-06	5.391E-05	7.037E-05	1.256E-04	3.487E-08	6.654E-09	4.526E-06	2.572E-04
KIDNEYS	1.797E-05	6.247E-05	9.739E-05	2.101E-05	6.897E-08	9.500E-08	7.946E-06	2.069E-04
LIVER	1.094E-05	3.655E-05	8.595E-05	8.874E-06	4.636E-08	6.074E-06	6.769E-07	1.491E-04
OVARIES	6.329E-06	1.890E-04	3.356E-04	3.849E-04	6.490E-08	1.347E-08	7.950E-06	9.238E-04
PANCREAS	9.147E-05	4.015E-05	6.803E-05	1.750E-05	6.210E-08	1.141E-07	8.109E-06	2.254E-04
BONE	3.249E-06	1.546E-05	2.437E-05	2.392E-05	4.678E-06	1.854E-08	1.287E-06	7.299E-05
R MAR	5.535E-06	4.820E-05	7.164E-05	7.140E-05	1.796E-06	2.656E-08	5.452E-06	2.040E-04
Y MAR	4.502E-06	2.137E-05	3.453E-05	2.944E-05	1.895E-07	2.748E-08	7.437E-06	9.750E-05
ENDOST	3.249E-06	1.546E-05	2.437E-05	2.392E-05	3.579E-06	1.854E-08	4.492E-06	7.510E-05
SPLEEN	5.174E-05	3.111E-05	4.599E-05	2.395E-05	5.552E-08	2.793E-08	7.952E-06	1.608E-04
TESTES	6.751E-07	9.356E-06	1.905E-05	4.161E-05	4.102E-08	4.995E-09	7.587E-06	7.833E-05
THYMUS	3.523E-06	3.059E-06	5.823E-06	1.623E-06	5.152E-08	2.645E-08	8.159E-06	2.227E-05
THYROID	9.361E-07	9.898E-07	1.830E-06	5.684E-07	5.116E-08	5.103E-09	7.587E-06	1.197E-05
UTERUS	5.289E-06	1.678E-04	1.598E-04	1.304E-04	4.967E-08	1.097E-08	8.991E-06	4.724E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE	SR-91	Y-91M	Y-91
TARGET			
LUNGS	74.3	25.7	0.0
RES LYM	74.3	25.7	0.0
S WALL	95.1	4.9	0.0
SI WALL	91.4	8.4	0.2
ULI WALL	93.2	5.9	0.9
LLI WALL	91.8	4.8	3.4
T BODY	81.1	17.6	1.3
ADREN	70.2	26.5	3.3
BL WALL	66.1	33.2	0.6
KIDNEYS	69.6	28.9	1.5
LIVER	68.9	29.3	1.7
OVARIES	65.4	34.2	0.3
PANCREAS	73.9	24.7	1.4
BONE	66.8	29.9	3.3
R MAR	66.9	31.7	1.4
Y MAR	66.8	30.0	3.2
ENDOST	66.3	29.2	4.5
SPLEEN	73.0	25.1	2.0
TESTES	64.8	31.2	4.0
THYMUS	67.6	18.2	14.2
THYROID	61.6	12.1	26.3
UTERUS	68.3	31.1	0.7

YTTRIUM-90

RADIONUCLIDE: Y-90

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)	
NUCLIDE		Y-90	
Y-90		2.670	
ORGAN ABSORBED	NUCLIDE Y-90	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION
		1.00	0.250
EXCRET.	Y-90	0.250	0.750
BONE	Y-90	0.500	1.00
LIVER	Y-90	0.150	1.00
		COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
		0.530	
		8.000E 03	
		0.500	
		8.000E 03	
		0.800	

S FACTORS (REM/MICROCURIE-DAY) FOR Y-90

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCAT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	CTHER
LUNGS	0.476E-01	0.476E-01	0.656E-10	0.178E-15	0.217E-15	0.764E-17	0.680E-03	0.362E-10	0.388E-09	0.518E-09
RES LYM	0.476E-01	0.318E-01	0.656E-10	0.178E-15	0.217E-15	0.764E-17	0.680E-03	0.362E-10	0.388E-09	0.518E-09
S WALL	0.118E-09	0.118E-09	0.953E-01	0.271E-09	0.422E-09	0.171E-10	0.680E-03	0.159E-10	0.529E-10	0.142E-09
SI WALL	0.537E-11	0.537E-15	0.427E-10	0.595E-01	0.557E-08	0.299E-08	0.680E-03	0.245E-10	0.305E-10	0.188E-09
ULI WALL	0.834E-11	0.834E-13	0.186E-09	0.373E-07	0.108E-00	0.207E-08	0.680E-03	0.331E-10	0.505E-10	0.365E-09
LLI WALL	0.207E-16	0.207E-16	0.533E-11	0.469E-08	0.459E-09	0.176E-00	0.680E-03	0.960E-10	0.372E-15	0.155E-09
T BODY	0.680E-03	0.680E-03	0.204E-03	0.544E-03	0.325E-03	0.403E-03	0.680E-03	0.680E-03	0.680E-03	0.677E-03
ADREN	0.170E-09	0.170E-09	0.193E-11	0.268E-13	0.204E-13	0.548E-15	0.680E-03	0.118E-09	0.498E-09	0.138E-02
BL WALL	0.488E-20	0.488E-20	0.159E-15	0.324E-11	0.234E-11	0.125E-09	0.680E-03	0.371E-12	0.648E-16	0.691E-03
KIDNEYS	0.108E-11	0.108E-11	0.773E-11	0.160E-10	0.657E-11	0.241E-12	0.680E-03	0.415E-10	0.167E-09	0.138E-02
LIVER	0.286E-09	0.286E-09	0.234E-10	0.481E-10	0.515E-10	0.432E-15	0.680E-03	0.213E-10	0.265E-01	0.163E-09
OVARIES	0.641E-18	0.641E-18	0.194E-13	0.225E-08	0.300E-08	0.710E-08	0.680E-03	0.188E-10	0.102E-13	0.138E-02
PANCREAS	0.126E-10	0.126E-10	0.212E-08	0.760E-12	0.926E-12	0.217E-13	0.680E-03	0.537E-10	0.202E-09	0.138E-02
BONE	0.113E-08	0.113E-09	0.155E-10	0.804E-10	0.417E-10	0.196E-09	0.680E-03	0.871E-12	0.744E-10	0.118E-03
R MAR	0.124E-08	0.124E-09	0.163E-10	0.335E-09	0.175E-09	0.818E-09	0.680E-03	0.336E-12	0.715E-10	0.895E-03
Y MAR	0.146E-08	0.146E-09	0.212E-10	0.112E-09	0.585E-10	0.273E-09	0.680E-03	0.752E-08	0.111E-09	0.138E-02
ENDOST	0.113E-08	0.113E-09	0.155E-10	0.804E-10	0.417E-10	0.196E-09	0.680E-03	0.626E-12	0.744E-10	0.803E-03
SPLEEN	0.153E-08	0.153E-09	0.206E-09	0.113E-11	0.943E-12	0.142E-12	0.680E-03	0.895E-10	0.842E-13	0.138E-02
TESTES	0.106E-23	0.106E-23	0.348E-19	0.309E-15	0.470E-15	0.412E-11	0.680E-03	0.411E-12	0.173E-19	0.138E-02
THYMUS	0.840E-10	0.840E-10	0.218E-15	0.196E-19	0.292E-19	0.418E-21	0.680E-03	0.351E-10	0.293E-14	0.138E-02
THYROID	0.423E-12	0.423E-12	0.418E-19	0.204E-23	0.293E-23	0.694E-25	0.680E-03	0.181E-10	0.206E-18	0.138E-02
UTERUS	0.205E-18	0.205E-18	0.518E-14	0.500E-09	0.227E-10	0.435E-10	0.680E-03	0.924E-12	0.151E-14	0.138E-02

β^- decay (64.0 H 1)

YTTRIUM-90 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

G.I. UPTAKE FRACTIONS

SOLUBILITY CLASS	STOMACH	S INT	U L INT	L L INT
Y-90	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET											
LUNGS	3.921E-02	1.059E-04	9.518E-13	9.901E-18	3.439E-17	1.775E-18	7.508E-06	5.067E-12	3.757E-12	3.123E-11	3.933E-02
RES LYM	3.921E-02	7.343E-03	9.518E-13	9.901E-18	3.439E-17	1.775E-18	7.508E-06	5.067E-12	3.757E-12	3.123E-11	4.557E-02
S WALL	9.721E-11	2.725E-13	1.383E-03	1.507E-11	6.689E-11	3.972E-12	7.508E-06	2.785E-12	5.123E-13	8.562E-12	1.390E-03
SI WALL	4.424E-16	1.240E-18	6.156E-13	3.310E-03	8.828E-10	6.946E-10	7.508E-06	3.429E-12	2.953E-13	1.134E-11	3.317E-03
ULI WALL	6.871E-16	1.526E-18	2.699E-12	2.675E-09	1.712E-02	4.809E-10	7.508E-06	4.633E-12	4.890E-13	2.201E-11	1.713E-02
LLI WALL	1.705E-17	4.780E-20	7.734E-14	2.609E-10	7.275E-11	4.088E-02	7.508E-06	1.386E-11	3.602E-18	9.346E-12	4.089E-02
T BODY	5.602E-04	1.570E-06	2.960E-06	3.026E-05	5.151E-05	9.362E-05	7.508E-06	9.517E-05	6.585E-06	4.082E-05	8.902E-04
ADREN	1.401E-10	3.926E-13	2.800E-14	1.491E-15	3.233E-15	1.273E-16	7.508E-06	1.652E-11	4.822E-12	8.321E-05	9.072E-05
BL WALL	4.020E-21	1.127E-23	2.307E-18	1.802E-13	3.709E-13	2.904E-11	7.508E-06	5.192E-14	6.275E-19	4.166E-05	4.917E-05
KIDNEYS	8.897E-13	2.494E-15	1.122E-13	8.900E-13	1.041E-12	5.598E-14	7.508E-06	5.808E-12	1.617E-12	8.321E-05	9.072E-05
LIVER	2.356E-10	6.604E-13	4.266E-13	2.676E-12	8.163E-12	1.004E-16	7.508E-06	2.981E-12	2.566E-04	9.828E-12	2.641E-04
OVARIES	5.281E-19	1.480E-21	2.815E-16	1.224E-10	4.755E-10	1.649E-09	7.508E-06	2.631E-12	9.877E-17	8.321E-05	9.072E-05
PANCREAS	1.038E-11	2.910E-14	3.076E-11	4.228E-14	1.468E-13	5.041E-15	7.508E-06	7.516E-12	1.956E-12	8.321E-05	9.072E-05
BONE	9.309E-11	2.609E-13	2.249E-13	4.472E-12	6.609E-12	4.553E-11	7.508E-06	1.219E-03	7.204E-13	7.115E-06	1.234E-03
R MAR	1.022E-10	2.863E-13	2.365E-13	1.863E-11	2.774E-11	1.900E-10	7.508E-06	4.703E-04	6.924E-13	5.396E-05	5.317E-04
Y MAR	1.203E-10	3.372E-13	3.076E-13	6.230E-12	9.272E-12	6.342E-11	7.508E-06	1.052E-09	1.075E-12	8.321E-05	9.072E-05
ENDOST	9.309E-11	2.609E-13	2.249E-13	4.472E-12	6.609E-12	4.553E-11	7.508E-06	8.761E-04	7.204E-13	4.842E-05	9.321E-04
SPLEEN	1.260E-10	3.533E-13	2.989E-12	6.286E-14	1.495E-13	3.299E-14	7.508E-06	1.253E-11	8.153E-16	8.321E-05	9.072E-05
TESTES	8.733E-25	2.448E-27	5.049E-22	1.719E-17	7.449E-17	9.571E-13	7.508E-06	5.752E-14	1.675E-22	8.321E-05	9.072E-05
THYMUS	6.920E-11	1.640E-13	3.163E-18	1.090E-21	4.628E-21	9.710E-23	7.508E-06	5.472E-12	2.837E-17	8.321E-05	9.072E-05
THYROID	3.485E-13	9.768E-16	6.065E-22	1.135E-25	4.644E-25	1.612E-26	7.508E-06	2.533E-12	1.995E-21	8.321E-05	9.072E-05
UTERUS	1.689E-19	4.734E-22	7.516E-17	2.781E-11	3.598E-12	1.011E-11	7.508E-06	1.293E-13	1.462E-17	8.321E-05	9.072E-05

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

Y-90

STOMACH	0.0
S INT	1.000E-04
U L INT	0.0
L L INT	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET									
LUNGS	2.704E-12	2.813E-17	9.771E-17	5.042E-18	9.794E-09	6.609E-15	4.901E-15	4.074E-14	9.797E-09
RES LYM	2.704E-12	2.813E-17	9.771E-17	5.042E-18	9.794E-09	6.609E-15	4.901E-15	4.074E-14	9.797E-09
S WALL	3.928E-03	4.283E-11	1.900E-10	1.129E-11	9.794E-09	3.633E-15	6.682E-16	1.117E-14	3.928E-03
SI WALL	1.760E-12	9.403E-03	2.508E-09	1.973E-09	9.794E-09	4.473E-15	3.853E-16	1.479E-14	9.403E-03
ULI WALL	7.667E-12	5.655E-09	4.863E-02	1.366E-09	9.794E-09	6.043E-15	6.379E-16	2.871E-14	4.863E-02
LLI WALL	2.157E-13	7.412E-10	2.067E-10	0.116	9.794E-09	1.808E-14	4.699E-21	1.219E-14	0.116
T BODY	8.409E-06	8.597E-05	1.463E-04	2.660E-04	9.794E-09	1.242E-07	8.590E-09	5.325E-08	5.069E-04
ADREN	7.956E-14	4.235E-15	9.186E-15	3.617E-16	9.794E-09	2.154E-14	6.291E-15	1.085E-07	1.183E-07
BL WALL	6.554E-18	5.120E-13	1.054E-12	8.249E-11	9.794E-09	6.774E-17	8.186E-22	5.435E-08	6.423E-08
KIDNEYS	3.186E-13	2.528E-12	2.958E-12	1.590E-13	9.794E-09	7.577E-15	2.110E-15	1.085E-07	1.183E-07
LIVER	1.212E-12	7.601E-12	2.319E-11	2.851E-16	9.794E-09	3.889E-15	3.347E-07	1.282E-14	3.446E-07
OVARIES	7.997E-16	3.477E-10	1.351E-09	4.686E-09	9.794E-09	3.432E-15	1.288E-19	1.085E-07	1.247E-07
PANCREAS	8.739E-11	1.201E-13	4.170E-13	1.432E-14	9.794E-09	9.804E-15	2.552E-15	1.085E-07	1.184E-07
BONE	6.389E-13	1.271E-11	1.878E-11	1.294E-10	9.794E-09	1.590E-06	9.398E-16	9.281E-05	1.609E-06
R MAR	6.719E-13	5.294E-11	7.880E-11	5.398E-10	9.794E-09	6.135E-07	9.032E-16	7.040E-08	6.943E-07
Y MAR	8.739E-13	1.770E-11	2.634E-11	1.802E-10	9.794E-09	1.373E-12	1.402E-15	1.085E-07	1.186E-07
ENDOST	6.389E-13	1.271E-11	1.878E-11	1.294E-10	9.794E-09	1.143E-06	9.398E-16	6.316E-08	1.216E-06
SPLEEN	8.491E-12	1.786E-13	4.246E-13	9.371E-14	9.794E-09	1.634E-14	1.064E-18	1.085E-07	1.183E-07
TESTES	1.434E-21	4.883E-17	2.116E-16	2.719E-12	9.794E-09	7.504E-17	2.185E-25	1.085E-07	1.183E-07
THYMUS	8.986E-18	3.097E-21	1.315E-20	2.759E-22	9.794E-09	7.139E-15	3.701E-20	1.085E-07	1.183E-07
THYROID	1.723E-21	3.224E-25	1.319E-24	4.580E-26	9.794E-09	3.305E-15	2.602E-24	1.085E-07	1.183E-07
UTERUS	2.135E-16	7.901E-11	1.022E-11	2.871E-11	9.794E-09	1.687E-16	1.907E-20	1.085E-07	1.185E-07

RADIONUCL IDE: Y-91

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)				
NUCLIDE Y-91	58.50			
ORGAN ABSORBED	NUCLIDE Y-91	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 0.250 0.750	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500 8.000E 03
EXCRET .	Y-91	0.250	1.00	0.500
BONE	Y-91	0.500	1.00	8.000E 03
LIVER	Y-91	0.150	1.00	8.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR Y-91

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER
LUNGS	0.308E-01	0.308E-01	0.104E-05	0.208E-06	0.259E-06	0.102E-06	0.441E-03	0.588E-06	0.145E-05	0.740E-06
RES LYM	0.308E-01	0.205E-01	0.104E-05	0.208E-06	0.259E-06	0.102E-06	0.441E-03	0.588E-06	0.145E-05	0.740E-06
S WALL	0.116E-05	0.116E-05	0.616E-01	0.206E-05	0.198E-05	0.902E-06	0.441E-03	0.337E-06	0.116E-05	0.834E-06
SI WALL	0.197E-06	0.197E-06	0.145E-05	0.385E-01	0.835E-05	0.511E-05	0.441E-03	0.462E-06	0.950E-06	0.888E-06
ULI WALL	0.260E-06	0.260E-06	0.193E-05	0.129E-04	0.700E-01	0.239E-05	0.441E-03	0.462E-06	0.134E-05	0.912E-06
LLI WALL	0.512E-07	0.512E-07	0.836E-06	0.392E-05	0.184E-05	0.114E-00	0.441E-03	0.620E-06	0.191E-06	0.965E-06
T BODY	0.441E-03	0.441E-03	0.133E-03	0.353E-03	0.211E-03	0.262E-03	0.441E-03	0.441E-03	0.441E-03	0.439E-03
ADREN	0.129E-05	0.129E-05	0.164E-05	0.701E-06	0.717E-06	0.297E-06	0.442E-03	0.117E-05	0.274E-05	0.895E-03
BL WALL	0.588E-07	0.588E-07	0.293E-06	0.155E-05	0.114E-05	0.330E-05	0.441E-03	0.344E-06	0.128E-06	0.448E-03
KIDNEYS	0.625E-06	0.625E-06	0.160E-05	0.178E-05	0.168E-05	0.562E-06	0.441E-03	0.678E-06	0.216E-05	0.895E-03
LIVER	0.139E-05	0.139E-05	0.116E-05	0.110E-05	0.147E-05	0.255E-06	0.441E-03	0.437E-06	0.171E-01	0.659E-06
OVARIES	0.107E-06	0.107E-06	0.784E-06	0.545E-05	0.394E-05	0.980E-05	0.441E-03	0.556E-06	0.532E-06	0.895E-03
PANCREAS	0.135E-05	0.135E-05	0.955E-05	0.110E-05	0.123E-05	0.417E-06	0.441E-03	0.640E-06	0.240E-05	0.895E-03
BONE	0.564E-06	0.564E-06	0.342E-06	0.454E-06	0.403E-06	0.583E-06	0.441E-03	0.564E-06	0.422E-06	0.765E-04
R MAR	0.718E-06	0.718E-06	0.567E-06	0.139E-05	0.116E-05	0.172E-05	0.441E-03	0.202E-02	0.597E-06	0.602E-03
Y MAR	0.586E-06	0.586E-06	0.478E-06	0.620E-06	0.570E-06	0.720E-06	0.441E-03	0.171E-05	0.630E-06	0.894E-03
ENDOST	0.564E-06	0.564E-06	0.342E-06	0.454E-06	0.403E-06	0.583E-06	0.441E-03	0.440E-02	0.422E-06	0.401E-03
SPLEEN	0.119E-05	0.119E-05	0.544E-05	0.952E-06	0.855E-06	0.619E-06	0.441E-03	0.476E-06	0.640E-06	0.895E-03
TESTES	0.241E-07	0.241E-07	0.107E-06	0.342E-06	0.308E-06	0.896E-06	0.441E-03	0.424E-06	0.131E-06	0.895E-03
THYMUS	0.252E-05	0.252E-05	0.484E-06	0.101E-06	0.108E-06	0.482E-07	0.441E-03	0.417E-06	0.442E-06	0.896E-03
THYROID	0.717E-06	0.717E-06	0.109E-06	0.361E-07	0.381E-07	0.188E-07	0.441E-03	0.464E-06	0.126E-06	0.895E-03
UTERUS	0.114E-06	0.114E-06	0.600E-06	0.479E-05	0.284E-05	0.331E-05	0.441E-03	0.495E-06	0.297E-06	0.896E-03

 β^- decay (58.51 D 6)

YTTRIUM-91 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	W	G.I. LPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
Y-91	W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET											
LUNGS	0.190	8.046E-03	2.028E-08	1.619E-08	6.509E-08	4.677E-08	7.476E-06	2.335E-06	1.728E-06	5.878E-07	0.198
RES LYM	0.190	0.536	2.028E-08	1.619E-08	6.509E-08	4.677E-08	7.476E-06	2.335E-06	1.728E-06	5.878E-07	0.726
S WALL	7.159E-06	3.030E-07	1.201E-03	1.603E-07	4.976E-07	4.136E-07	7.476E-06	1.338E-06	1.382E-06	6.625E-07	1.220E-03
SI WALL	1.216E-06	5.146E-08	2.827E-08	2.996E-03	2.249E-06	2.343E-06	7.476E-06	1.922E-06	1.132E-06	7.053E-07	3.013E-03
ULI WALL	1.605E-06	6.792E-08	3.763E-08	1.004E-06	1.759E-02	1.096E-06	7.476E-06	1.835E-06	1.597E-06	7.244E-07	1.761E-02
LLI WALL	3.160E-07	1.338E-08	1.630E-08	3.051E-07	4.624E-07	5.227E-02	7.476E-06	2.462E-06	2.276E-07	7.665E-07	5.229E-02
T BODY	2.722E-03	1.152E-04	2.593E-06	2.747E-05	5.303E-05	1.201E-04	7.476E-06	1.751E-03	5.254E-04	3.487E-04	5.573E-03
ADREN	7.961E-06	3.370E-07	3.157E-08	5.456E-08	1.802E-07	1.362E-07	7.493E-06	4.647E-06	3.265E-06	7.109E-04	7.350E-04
BL WALL	3.629E-07	1.536E-08	5.713E-09	1.206E-07	2.865E-07	1.513E-06	7.476E-06	1.366E-06	1.525E-07	3.559E-04	3.571E-04
KIDNEYS	3.857E-06	1.633E-07	3.704E-08	1.385E-07	4.222E-07	2.577E-07	7.476E-06	2.693E-06	2.574E-06	7.119E-04	7.285E-04
LIVER	8.578E-06	3.631E-07	2.262E-08	8.561E-08	3.694E-07	1.169E-07	7.476E-06	1.736E-06	2.037E-02	5.234E-07	2.039E-02
OVARIES	6.604E-07	2.795E-08	1.529E-08	4.241E-07	9.902E-07	4.494E-06	7.476E-06	2.206E-06	6.339E-07	7.109E-04	7.278E-04
PANCREAS	8.332E-06	3.527E-07	1.862E-07	8.561E-08	3.091E-07	1.912E-07	7.476E-06	2.542E-06	2.860E-06	7.109E-04	7.332E-04
BONE	3.481E-06	1.473E-07	6.668E-09	3.533E-08	1.013E-07	2.673E-07	7.476E-06	2.242E-02	5.028E-07	6.076E-05	2.247E-02
R MAR	4.431E-06	1.876E-07	1.105E-08	1.082E-07	2.915E-07	7.887E-07	7.476E-06	8.023E-03	7.113E-07	4.782E-04	8.515E-03
Y MAR	3.617E-06	1.531E-07	9.319E-09	4.825E-08	1.433E-07	3.301E-07	7.476E-06	6.791E-06	7.506E-07	7.101E-04	7.294E-04
ENDOST	3.481E-06	1.473E-07	6.668E-09	3.533E-08	1.013E-07	2.673E-07	7.476E-06	1.747E-02	5.028E-07	3.900E-04	1.788E-02
SPLEEN	7.344E-06	3.109E-07	1.061E-07	7.409E-08	2.149E-07	2.838E-07	7.476E-06	1.890E-06	7.625E-07	7.109E-04	7.294E-04
TESTES	1.487E-07	6.296E-09	2.086E-09	2.662E-08	7.741E-08	4.109E-07	7.476E-06	1.684E-06	1.561E-07	7.109E-04	7.209E-04
THYMUS	1.555E-05	6.563E-07	9.436E-09	7.860E-09	2.714E-08	2.210E-08	7.476E-06	1.656E-06	5.266E-07	7.117E-04	7.376E-04
THYROID	4.425E-06	1.873E-07	2.125E-09	2.809E-09	9.575E-09	8.621E-09	7.476E-06	1.843E-06	1.501E-07	7.109E-04	7.250E-04
UTERUS	7.036E-07	2.978E-08	1.170E-08	3.728E-07	7.138E-07	1.518E-06	7.476E-06	1.966E-06	3.539E-07	7.117E-04	7.248E-04

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

Y-91
STOMACH 0.0
S INT 1.000E-04
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET									
LUNGS	4.331E-08	3.458E-08	1.350E-07	9.991E-08	7.866E-09	2.457E-09	1.818E-09	6.185E-10	3.296E-07
RES LYM	4.331E-08	3.458E-08	1.350E-07	9.991E-08	7.866E-09	2.457E-09	1.818E-09	6.185E-10	3.296E-07
S WALL	2.565E-03	3.425E-07	1.063E-06	8.835E-07	7.866E-09	1.408E-09	1.454E-09	6.970E-10	2.568E-03
SI WALL	6.039E-08	6.400E-03	4.805E-06	5.005E-06	7.866E-09	2.023E-09	1.191E-09	7.422E-10	6.410E-03
ULI WALL	8.038E-08	2.144E-06	3.758E-02	2.341E-06	7.866E-09	1.931E-09	1.680E-09	7.622E-10	3.758E-02
LLI WALL	3.482E-08	6.517E-07	9.878E-07	0.112	7.866E-09	2.591E-09	2.395E-10	8.065E-10	0.112
T BODY	5.539E-06	5.868E-05	1.133E-04	2.566E-04	7.866E-09	1.843E-06	5.529E-07	3.669E-07	4.369E-04
ADREN	6.830E-08	1.165E-07	3.849E-07	2.909E-07	7.884E-09	4.889E-09	3.435E-09	7.480E-07	1.625E-06
BL WALL	1.220E-08	2.577E-07	6.120E-07	3.232E-06	7.866E-09	1.438E-09	1.605E-10	3.744E-07	4.499E-06
KIDNEYS	7.913E-08	2.559E-07	5.019E-07	5.505E-07	7.866E-09	2.833E-09	2.708E-09	7.480E-07	2.589E-06
LIVER	4.831E-08	1.829E-07	7.952E-07	2.498E-07	7.866E-09	1.826E-09	2.144E-05	5.506E-10	2.272E-05
OVARIES	3.265E-06	9.060E-07	2.115E-06	9.599E-06	7.866E-09	2.323E-09	6.670E-10	7.480E-07	1.341E-05
PANCREAS	3.977E-07	1.829E-07	6.603E-07	4.084E-07	7.866E-09	2.675E-09	3.009E-09	7.480E-07	2.411E-06
BONE	1.424E-08	7.547E-08	2.163E-07	5.710E-07	7.866E-09	2.357E-05	5.291E-10	6.394E-08	2.452E-05
R MAR	2.361E-08	2.311E-07	6.227E-07	1.685E-06	7.866E-09	8.441E-06	7.484E-10	5.031E-07	1.152E-05
Y MAR	1.991E-08	1.031E-07	3.760E-07	7.052E-07	7.866E-09	7.146E-09	7.898E-10	7.472E-07	1.897E-06
ENDOST	1.424E-08	7.547E-08	2.163E-07	5.710E-07	7.866E-09	1.839E-05	5.291E-10	4.104E-07	1.968E-05
SPLEEN	2.266E-07	1.583E-07	4.550E-07	6.063E-07	7.866E-09	1.989E-09	8.024E-10	7.480E-07	2.209E-06
TESTES	4.456E-09	5.685E-08	1.653E-07	8.776E-07	7.866E-09	1.772E-09	1.642E-10	7.480E-07	1.862E-06
THYMUS	2.016E-08	1.679E-08	5.758E-08	4.721E-08	7.866E-09	1.743E-09	5.541E-10	7.480E-07	9.012E-07
THYROID	4.539E-05	6.001E-09	2.045E-08	1.841E-08	7.866E-09	1.939E-09	1.580E-10	7.480E-07	8.074E-07
UTERUS	2.499E-08	7.963E-07	1.525E-06	3.242E-06	7.866E-09	2.069E-09	3.723E-10	7.480E-07	6.347E-06

RADIONUCLIDE: Y-91M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)	
NUCLIDE		3.4500E-02	
Y-91M		58.50	
Y-91			
BRANCHING RATIOS:		FROM Y-91M	TO Y-91
		FRACTION 1.000	
ORGAN ABSORBED	NUCLIDE Y-91M	BLOOD TRANSFER FRACTION F2-PRIME 1.00	
		COMPARTMENT DEPOSITION FRACTION 0.250 0.750	
EXCRET.	Y-91	COMPARTMENT DEPOSITION FRACTION 1.00	
		BIOLOGICAL HALF-TIME (DAYS) 0.500 8.000E 03	
BONE	Y-91M	0.250 1.00	
		0.500 8.000E 03	
LIVER	Y-91M	0.500 1.00	
		0.150 8.000E 03	
Y-91	Y-91	0.150 1.00	
		0.150 8.000E 03	

S FACTORS (REM/MICROCURIE-DAY) FOR Y-91M

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER
LUNGS	0.273E-02	0.273E-02	0.172E-03	0.314E-04	0.324E-04	0.101E-04	0.163E-03	0.915E-04	0.222E-03	0.118E-03
RES LYM	0.273E-02	0.931E-01	0.172E-03	0.314E-04	0.324E-04	0.101E-04	0.163E-03	0.915E-04	0.222E-03	0.118E-03
S WALL	0.171E-03	0.171E-03	0.758E-02	0.315E-03	0.335E-03	0.165E-03	0.185E-03	0.541E-04	0.176E-03	0.130E-03
SI WALL	0.263E-04	0.263E-04	0.243E-03	0.460E-02	0.150E-02	0.826E-03	0.203E-03	0.752E-04	0.147E-03	0.141E-03
ULI WALL	0.360E-04	0.360E-04	0.302E-03	0.212E-02	0.710E-02	0.388E-03	0.201E-03	0.659E-04	0.236E-03	0.144E-03
LLI WALL	0.746E-05	0.746E-05	0.119E-03	0.626E-03	0.281E-03	0.988E-02	0.204E-03	0.890E-04	0.297E-04	0.153E-03
T BODY	0.154E-03	0.154E-03	0.171E-03	0.197E-03	0.187E-03	0.188E-03	0.154E-03	0.153E-03	0.178E-03	0.151E-03
ADREN	0.226E-03	0.226E-03	0.197E-03	0.114E-03	0.959E-04	0.460E-04	0.228E-03	0.160E-03	0.452E-03	0.205E-03
BL WALL	0.708E-05	0.708E-05	0.430E-04	0.304E-03	0.179E-03	0.515E-03	0.191E-03	0.591E-04	0.308E-04	0.204E-03
KIDNEYS	0.968E-04	0.968E-04	0.305E-03	0.294E-03	0.253E-03	0.777E-04	0.184E-03	0.875E-04	0.348E-03	0.236E-03
LIVER	0.221E-03	0.221E-03	0.188E-03	0.168E-03	0.228E-03	0.327E-04	0.182E-03	0.660E-04	0.315E-02	0.103E-03
OVARIES	0.144E-04	0.144E-04	0.567E-04	0.825E-03	0.113E-02	0.147E-02	0.174E-03	0.998E-04	0.235E-04	0.238E-03
PANCREAS	0.253E-03	0.253E-03	0.161E-02	0.193E-03	0.168E-03	0.694E-04	0.179E-03	0.850E-04	0.440E-03	0.264E-03
BONE	0.928E-04	0.928E-04	0.559E-04	0.726E-04	0.668E-04	0.964E-04	0.159E-03	0.576E-03	0.679E-04	0.115E-03
R MAR	0.117E-03	0.117E-03	0.966E-04	0.230E-03	0.199E-03	0.288E-03	0.173E-03	0.374E-03	0.994E-04	0.181E-03
Y MAR	0.978E-04	0.978E-04	0.777E-04	0.101E-03	0.947E-04	0.119E-03	0.149E-03	0.279E-03	0.996E-04	0.162E-03
ENDOST	0.928E-04	0.928E-04	0.559E-04	0.726E-04	0.668E-04	0.964E-04	0.159E-03	0.520E-03	0.679E-04	0.138E-03
SPLEEN	0.198E-03	0.198E-03	0.879E-03	0.146E-03	0.115E-03	0.888E-04	0.186E-03	0.789E-04	0.944E-04	0.239E-03
TESTES	0.240E-05	0.240E-05	0.372E-05	0.354E-04	0.486E-04	0.187E-03	0.194E-03	0.544E-04	0.121E-04	0.182E-03
THYMUS	0.344E-03	0.344E-03	0.277E-04	0.132E-04	0.145E-04	0.561E-05	0.158E-03	0.722E-04	0.119E-03	0.321E-03
THYROID	0.114E-03	0.114E-03	0.144E-04	0.389E-05	0.415E-05	0.179E-05	0.155E-03	0.976E-04	0.173E-04	0.182E-03
UTERUS	0.916E-05	0.916E-05	0.840E-04	0.803E-03	0.416E-03	0.515E-03	0.188E-03	0.572E-04	0.404E-04	0.382E-03

IT decay (49.71 M 4)

YTTRIUM-91m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
Y-91M	W	0.0	1.000E-04	0.0	0.0		
Y-91	W	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET											
LUNGS	1.856E-04	4.687E-06	1.113E-07	1.870E-08	5.311E-09	1.697E-10	1.069E-07	1.272E-07	9.263E-08	3.393E-08	1.907E-04
RES LYM	1.856E-04	3.119E-04	1.113E-07	1.870E-08	5.311E-09	1.697E-10	1.069E-07	1.272E-07	9.263E-08	3.393E-08	4.980E-04
S WALL	4.732E-06	2.495E-10	5.545E-06	1.876E-07	5.482E-08	2.580E-09	1.210E-07	7.520E-08	7.345E-08	3.742E-08	1.083E-05
SI WALL	7.279E-07	4.121E-11	1.573E-07	4.377E-06	2.455E-07	1.306E-08	1.325E-07	1.046E-07	6.133E-08	4.055E-08	5.860E-06
ULI WALL	9.963E-07	5.494E-11	1.955E-07	1.263E-06	1.085E-05	6.134E-09	1.312E-07	9.176E-08	9.829E-08	4.142E-08	1.368E-05
LLI WALL	2.064E-07	1.098E-11	7.702E-08	3.728E-07	4.601E-08	2.897E-05	1.332E-07	1.239E-07	1.239E-08	4.400E-08	2.999E-05
T BODY	5.834E-06	6.716E-08	1.120E-07	1.323E-07	5.968E-08	6.894E-08	1.011E-07	1.588E-06	4.866E-07	9.800E-07	9.430E-06
ADREN	6.253E-06	2.928E-10	1.275E-07	6.789E-08	1.571E-08	7.307E-10	1.486E-07	2.229E-07	1.884E-07	1.970E-06	8.995E-06
BL WALL	1.960E-07	1.197E-11	2.783E-08	1.810E-07	2.930E-08	8.174E-09	1.248E-07	8.207E-08	1.278E-08	1.014E-06	1.676E-06
KIDNEYS	2.679E-06	1.364E-10	1.974E-07	1.751E-07	4.143E-08	1.249E-09	1.203E-07	1.220E-07	1.451E-07	1.978E-06	5.460E-06
LIVER	6.116E-06	3.059E-10	1.217E-07	1.001E-07	3.733E-08	5.305E-10	1.191E-07	9.182E-08	1.733E-05	2.964E-08	2.394E-05
OVARIES	3.985E-07	2.243E-11	3.670E-08	4.914E-07	1.845E-07	2.343E-08	1.139E-07	1.385E-07	1.016E-08	1.979E-06	3.376E-06
PANCREAS	7.000E-06	3.135E-10	1.042E-06	1.149E-07	2.752E-08	1.095E-09	1.171E-07	1.185E-07	1.832E-07	1.986E-06	1.059E-05
BONE	2.568E-06	1.255E-10	3.618E-08	4.324E-08	1.093E-08	1.521E-09	1.043E-07	1.841E-05	2.831E-08	1.951E-07	2.140E-05
R MAR	3.238E-06	1.592E-10	6.252E-08	1.370E-07	3.256E-08	4.539E-09	1.133E-07	6.825E-06	4.143E-08	1.337E-06	1.179E-05
Y MAR	2.706E-06	1.309E-10	5.029E-08	6.015E-08	1.550E-08	1.878E-09	9.791E-08	3.877E-07	4.154E-08	1.956E-06	5.317E-06
ENDOST	2.568E-06	1.255E-10	3.618E-08	4.324E-08	1.093E-08	1.521E-09	1.043E-07	1.446E-05	2.831E-08	1.088E-06	1.834E-05
SPLEEN	5.479E-06	2.656E-10	5.689E-07	8.695E-08	1.884E-08	1.422E-09	1.216E-07	1.096E-07	3.941E-08	1.979E-06	8.405E-06
TESTES	6.644E-08	4.692E-12	2.409E-09	2.109E-08	7.956E-09	2.892E-09	1.268E-07	7.588E-08	5.098E-09	1.963E-06	2.272E-06
THYMUS	9.520E-06	5.303E-10	1.793E-08	7.862E-09	2.376E-09	9.214E-11	1.037E-07	1.003E-07	4.934E-08	2.004E-06	1.181E-05
THYROID	3.155E-06	1.578E-10	9.321E-09	2.317E-09	6.810E-10	3.027E-11	1.018E-07	1.352E-07	7.231E-09	1.963E-06	5.375E-06
UTERUS	2.537E-07	2.126E-11	5.437E-08	4.782E-07	6.813E-08	8.177E-09	1.229E-07	7.994E-08	1.689E-08	2.020E-06	3.103E-06

PERCENT DOSE EQUIVALENT..

NUCLIDE	Y-91M	Y-91
TARGET		
LUNGS	39.8	60.2
RES LYM	15.3	84.7
S WALL	54.0	6.0
SI WALL	71.9	28.1
ULI WALL	29.0	71.0
LLI WALL	3.8	96.2
T BODY	52.4	47.6
ADREN	78.6	21.4
BL WALL	42.6	57.4
KIDNEYS	64.8	35.2
LIVER	33.0	67.0
OVARIES	43.1	56.9
PANCREAS	81.8	18.2
BONE	16.9	83.1
R MAR	35.5	64.5
Y MAR	63.8	36.2
ENDOST	19.3	80.7
SPLEEN	77.1	22.9
TESTES	15.6	84.4
THYMUS	83.7	16.3
THYROID	64.3	35.7
UTERUS	38.1	61.9

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	Y-91M	Y-91
STOMACH	0.0	0.0
S INT	1.000E-04	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	OTHER	TOTAL
TARGET									
LUNGS	3.901E-06	6.551E-07	1.850E-07	5.103E-09	2.430E-11	2.996E-11	2.182E-11	8.621E-12	4.746E-06
RES LYM	3.901E-06	6.551E-07	1.850E-07	5.103E-09	2.430E-11	2.996E-11	2.182E-11	8.621E-12	4.746E-06
S WALL	1.726E-04	6.572E-06	1.912E-06	8.293E-08	2.750E-11	1.769E-11	1.731E-11	9.530E-12	1.812E-04
SI WALL	5.511E-06	9.927E-05	8.562E-06	4.155E-07	3.012E-11	2.462E-11	1.444E-11	1.031E-11	1.138E-04
ULI WALL	6.849E-06	4.423E-05	6.245E-05	1.952E-07	2.983E-11	2.167E-11	2.305E-11	1.054E-11	1.137E-04
LLI WALL	2.699E-06	1.306E-05	1.604E-06	7.079E-05	3.027E-11	2.926E-11	2.917E-12	1.119E-11	6.815E-05
T BODY	3.880E-06	4.140E-06	1.133E-06	2.452E-07	2.298E-11	1.135E-09	3.429E-10	7.622E-10	9.401E-06
ADREN	4.468E-06	2.378E-06	5.474E-07	2.315E-08	3.377E-11	5.273E-11	4.427E-11	1.548E-09	7.419E-06
BL WALL	9.753E-07	6.342E-06	1.022E-06	2.591E-07	2.838E-11	1.926E-11	2.973E-12	7.810E-10	6.599E-06
KIDNEYS	6.917E-06	6.134E-06	1.444E-06	3.913E-08	2.736E-11	2.893E-11	3.412E-11	1.549E-09	1.454E-05
LIVER	4.264E-06	3.505E-06	1.301E-06	1.648E-08	2.706E-11	2.164E-11	1.294E-08	7.548E-12	9.100E-06
OVARIES	1.286E-06	1.721E-05	6.449E-06	7.398E-07	2.590E-11	3.246E-11	2.590E-12	1.550E-09	2.569E-05
PANCREAS	3.652E-05	4.026E-06	9.590E-07	3.490E-08	2.663E-11	2.806E-11	4.290E-11	1.551E-09	4.154E-05
BONE	1.268E-06	1.515E-06	3.813E-07	4.848E-08	2.371E-11	1.409E-08	6.658E-12	1.383E-10	3.226E-06
R MAR	2.191E-06	4.798E-06	1.136E-06	1.448E-07	2.575E-11	5.097E-09	9.732E-12	1.044E-09	8.276E-06
Y MAR	1.762E-06	2.107E-06	5.405E-07	5.985E-08	2.226E-11	9.114E-11	9.775E-12	1.543E-09	4.471E-06
ENDOST	1.268E-06	1.515E-06	3.813E-07	4.848E-08	2.371E-11	1.101E-08	6.658E-12	8.506E-10	3.224E-06
SPLEEN	1.994E-05	3.046E-06	6.564E-07	4.471E-08	2.765E-11	2.575E-11	9.296E-12	1.550E-09	2.368E-05
TESTES	8.437E-08	7.385E-07	2.774E-07	9.391E-08	2.881E-11	1.799E-11	1.228E-12	1.546E-09	1.196E-06
THYMUS	6.282E-07	2.754E-07	8.277E-08	2.830E-09	2.357E-11	2.352E-11	1.145E-11	1.556E-09	9.908E-07
THYROID	3.266E-07	8.116E-08	2.369E-08	9.049E-10	2.313E-11	3.155E-11	1.710E-12	1.546E-09	4.340E-07
UTERUS	1.905E-06	1.675E-05	2.375E-06	2.591E-07	2.794E-11	1.904E-11	3.996E-12	1.560E-09	2.129E-05

PERCENT DOSE EQUIVALENT..

NUCLIDE	Y-91M	Y-91
TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
S WALL	99.6	0.4
SI WALL	97.1	2.9
ULI WALL	80.7	19.3
LLI WALL	25.3	74.7
T BODY	97.3	2.7
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	100.0	0.0
LIVER	99.9	0.1
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	99.5	0.5
R MAR	99.9	0.1
Y MAR	100.0	0.0
ENDOST	99.6	0.4
SPLEEN	100.0	0.0
TESTES	99.8	0.2
THYMUS	99.8	0.2
THYROID	99.6	0.4
UTERUS	100.0	0.0

ZIRCONIUM-95

RADIONUCLIDE: ZR-95

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE					
ZR-95		64.00			
NB-95		35.20			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		ZR-95	NB-95	0.9930	
ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
		1.00			
	NB-95	1.00		0.500	7.00
BONE	ZR-95	0.450		1.00	8.000E 03
		0.357			
KIDNEYS	*ZR-95	4.710E-03		0.910	7.00
SPLEEN	NB-95	8.550E-03		9.000E-02	8.000E 03
		*ZR-95			
TESTES	NB-95	5.000E-03		1.00	200.
		*ZR-95			
	NB-95	1.280E-03		9.000E-02	8.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR ZR-95

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
LUNGS	0.772E-02	0.772E-02	0.229E-03	0.439E-04	0.482E-04	0.169E-04	0.126E-03	0.124E-03	0.273E-03	0.281E-05	0.167E-03
RES LYM	0.772E-02	0.396E-00	0.229E-03	0.439E-04	0.482E-04	0.169E-04	0.126E-03	0.124E-03	0.273E-03	0.281E-05	0.167E-03
S WALL	0.239E-03	0.239E-03	0.183E-01	0.435E-03	0.454E-03	0.213E-03	0.717E-04	0.421E-03	0.120E-02	0.129E-04	0.175E-03
SI WALL	0.385E-04	0.385E-04	0.326E-03	0.112E-01	0.202E-02	0.112E-02	0.105E-03	0.349E-03	0.177E-03	0.687E-04	0.191E-03
ULI WALL	0.510E-04	0.510E-04	0.397E-03	0.285E-02	0.189E-01	0.512E-03	0.947E-04	0.361E-03	0.178E-03	0.471E-04	0.201E-03
LLI WALL	0.111E-04	0.111E-04	0.168E-03	0.852E-03	0.399E-03	0.283E-01	0.129E-03	0.111E-03	0.847E-04	0.324E-03	0.201E-03
T BODY	0.267E-03	0.267E-03	0.249E-03	0.314E-03	0.281E-03	0.289E-03	0.267E-03	0.299E-03	0.298E-03	0.266E-03	0.265E-03
ADREN	0.305E-03	0.305E-03	0.270E-03	0.154E-03	0.143E-03	0.632E-04	0.227E-03	0.157E-02	0.834E-03	0.103E-04	0.398E-03
BL WALL	0.106E-04	0.106E-04	0.610E-04	0.354E-03	0.257E-03	0.674E-03	0.696E-04	0.547E-04	0.317E-04	0.659E-03	0.324E-03
KIDNEYS	0.129E-02	0.129E-03	0.414E-03	0.401E-03	0.354E-03	0.112E-03	0.135E-03	0.281E-01	0.104E-02	0.161E-04	0.196E-03
LIVER	0.301E-03	0.301E-03	0.253E-03	0.233E-03	0.313E-03	0.469E-04	0.916E-04	0.493E-03	0.137E-03	0.101E-04	0.458E-03
OVARIES	0.208E-04	0.208E-04	0.126E-03	0.120E-02	0.128E-02	0.206E-02	0.131E-03	0.177E-03	0.103E-03	0.0	0.424E-03
PANCREAS	0.318E-03	0.318E-03	0.213E-02	0.260E-03	0.244E-03	0.947E-04	0.121E-03	0.849E-03	0.237E-02	0.911E-05	0.465E-03
BONE	0.125E-03	0.125E-03	0.752E-04	0.989E-04	0.891E-04	0.129E-03	0.157E-02	0.123E-03	0.970E-04	0.839E-04	0.158E-03
R MAR	0.158E-03	0.158E-03	0.128E-03	0.309E-03	0.262E-03	0.386E-03	0.578E-03	0.309E-03	0.143E-03	0.663E-04	0.341E-03
Y MAR	0.132E-03	0.132E-03	0.104E-03	0.137E-03	0.126E-03	0.159E-03	0.376E-03	0.153E-03	0.145E-03	0.363E-04	0.329E-03
ENDOST	0.125E-03	0.125E-03	0.752E-04	0.989E-04	0.891E-04	0.129E-03	0.126E-02	0.123E-03	0.970E-04	0.839E-04	0.241E-03
SPLEEN	0.274E-03	0.274E-03	0.119E-02	0.198E-03	0.165E-03	0.128E-03	0.111E-03	0.105E-02	0.491E-01	0.128E-04	0.177E-03
TESTES	0.387E-05	0.387E-05	0.121E-04	0.571E-04	0.697E-04	0.225E-03	0.755E-04	0.206E-04	0.135E-04	0.214E-00	0.144E-03
THYMUS	0.495E-03	0.495E-03	0.678E-04	0.192E-04	0.209E-04	0.852E-05	0.103E-03	0.325E-04	0.764E-04	0.192E-05	0.539E-03
THYROID	0.166E-02	0.166E-03	0.209E-04	0.607E-05	0.646E-05	0.293E-05	0.104E-03	0.134E-04	0.204E-04	0.578E-06	0.352E-03
UTERUS	0.138E-04	0.138E-04	0.119E-03	0.108E-02	0.578E-03	0.701E-03	0.962E-04	0.107E-03	0.699E-04	0.0	0.719E-03

β^- decay (63.98 D 6)

Case 1 is assumed to represent inhalation of zirconium compounds other than oxides and hydroxides, for which Case 2 would apply.

* Retention data derived from "other tissues" compartment.

ZIRCONIUM-95 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
ZR-95	W	0.0	2.000E-03	0.0	0.0						
NB-95	Y	0.0	1.000E-02	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	6.392E-02	3.539E-03	5.028E-06	3.850E-06	1.379E-05	8.989E-06	9.469E-04	1.813E-06	2.306E-06	4.748E-09	1.455E-04
RES LYM	6.392E-02	0.162	5.028E-06	3.850E-06	1.379E-05	8.989E-06	9.469E-04	1.813E-06	2.306E-06	4.748E-09	1.455E-04
S WALL	2.409E-03	1.499E-04	3.842E-04	3.813E-05	1.297E-04	1.129E-04	5.366E-04	6.135E-06	1.010E-05	2.127E-08	1.525E-04
SI WALL	3.885E-04	2.420E-05	7.157E-06	9.369E-04	5.770E-04	5.944E-04	7.885E-04	5.088E-06	1.496E-06	1.142E-07	1.665E-04
ULI WALL	5.139E-04	3.198E-05	8.710E-06	2.497E-04	5.113E-03	2.716E-04	7.118E-04	5.260E-06	1.504E-06	7.889E-08	1.752E-04
LLI WALL	1.122E-04	6.989E-06	3.689E-06	7.468E-05	1.141E-04	1.404E-02	9.690E-04	1.620E-06	7.139E-07	5.357E-07	1.752E-04
T BODY	2.489E-03	1.485E-04	5.429E-06	2.710E-05	7.945E-05	1.511E-04	1.811E-03	3.976E-06	2.297E-06	3.984E-07	2.309E-04
ADREN	3.069E-03	1.508E-04	5.929E-06	1.350E-05	4.094E-05	3.354E-05	1.706E-03	2.286E-06	7.078E-06	1.725E-08	3.468E-04
BL WALL	1.072E-04	6.681E-06	1.340E-06	3.095E-05	7.349E-05	3.573E-04	5.167E-04	8.017E-07	2.739E-07	1.097E-06	2.924E-04
KIDNEYS	1.297E-03	8.662E-05	9.089E-06	3.515E-05	1.012E-04	5.944E-05	1.017E-03	3.241E-04	8.808E-06	2.705E-08	1.708E-04
LIVER	3.029E-03	1.883E-04	5.553E-06	2.042E-05	8.947E-05	2.490E-05	6.872E-04	7.174E-06	1.155E-06	1.708E-08	3.901E-04
OVARIES	2.097E-04	1.305E-05	2.781E-06	1.053E-04	3.647E-04	1.094E-03	9.804E-04	2.600E-06	8.566E-07	0.0	3.695E-04
PANCREAS	3.187E-03	1.578E-04	4.676E-05	2.278E-05	6.982E-05	5.024E-05	9.099E-04	1.239E-05	1.999E-05	1.551E-08	4.052E-04
BONE	1.257E-03	7.816E-05	1.651E-06	8.666E-06	2.545E-05	6.842E-05	9.269E-03	1.792E-06	8.186E-07	1.395E-07	1.377E-04
R MAR	1.589E-03	9.878E-05	2.809E-06	2.708E-05	7.485E-05	2.047E-04	3.757E-03	4.501E-06	1.205E-06	1.102E-07	2.972E-04
Y MAR	1.330E-03	8.279E-05	2.284E-06	1.200E-05	3.600E-05	8.434E-05	2.819E-03	2.222E-06	1.226E-06	6.035E-08	2.867E-04
ENDOST	1.257E-03	7.816E-05	1.651E-06	8.666E-06	2.545E-05	6.842E-05	7.340E-03	1.792E-06	8.186E-07	1.395E-07	2.100E-04
SPLEEN	2.760E-03	1.717E-04	2.612E-05	1.735E-05	4.720E-05	6.796E-05	8.328E-04	1.527E-05	3.294E-04	2.095E-08	1.543E-04
TESTES	3.923E-05	2.448E-06	2.677E-07	5.015E-06	1.993E-05	1.207E-04	5.982E-04	3.016E-07	1.146E-07	2.686E-04	1.255E-04
THYMUS	4.997E-03	3.112E-04	1.497E-06	1.684E-06	5.979E-06	4.528E-06	7.771E-04	4.601E-07	6.520E-07	3.236E-09	4.597E-04
THYROID	1.676E-03	1.044E-04	4.593E-07	5.330E-07	1.850E-06	1.559E-06	7.675E-04	1.970E-07	1.728E-07	1.148E-09	3.068E-04
UTERUS	1.397E-04	8.715E-06	2.615E-06	9.460E-05	1.652E-04	3.719E-04	7.296E-04	1.555E-06	5.952E-07	0.0	6.266E-04
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	TOTAL	PERCENT DOSE EQUIVALENT..									
		NUCL IDE	ZR-95	NB-95							
TARGET		TARGET									
LUNGS	6.858E-02	LUNGS	76.4	23.6							
RES LYM	0.227	RES LYM	71.5	28.5							
S WALL	3.929E-03	S WALL	67.5	32.5							
SI WALL	3.490E-03	SI WALL	78.9	21.1							
ULI WALL	7.083E-03	ULI WALL	86.6	13.4							
LLI WALL	1.550E-02	LLI WALL	90.2	9.8							
T BODY	4.950E-03	T BODY	67.1	32.9							
ADREN	5.436E-03	ADREN	62.4	37.6							
BL WALL	1.378E-03	BL WALL	75.2	24.8							
KIDNEYS	3.103E-03	KIDNEYS	63.5	36.5							
LIVER	4.452E-03	LIVER	65.3	34.7							
OVARIES	3.143E-03	OVARIES	76.4	23.6							
PANCREAS	4.922E-03	PANCREAS	65.0	35.0							
BONE	1.085E-02	BONE	67.6	32.4							
R MAR	6.058E-03	R MAR	65.0	35.0							
Y MAR	4.657E-03	Y MAR	59.9	40.1							
ENDOST	8.993E-03	ENDOST	68.6	31.4							
SPLEEN	4.422E-03	SPLEEN	62.2	37.8							
TESTES	1.180E-03	TESTES	66.0	34.0							
THYMUS	6.570E-03	THYMUS	64.0	36.0							
THYROID	2.859E-03	THYROID	64.3	35.7							
UTERUS	2.141E-03	UTERUS	77.5	22.5							

ZIRCONIUM-95 CONTINUED

CASE 2., INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
ZR-95	Y	0.0	2.000E-03	0.0	0.0						
NB-95	Y	0.0	1.000E-02	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	0.126	4.753E-03	5.736E-06	4.389E-06	1.571E-05	1.023E-05	6.807E-05	2.226E-07	2.838E-07	6.696E-10	9.309E-06
RES LYM	0.126	0.218	5.736E-06	4.389E-06	1.571E-05	1.023E-05	6.807E-05	2.226E-07	2.838E-07	6.696E-10	9.309E-06
S WALL	4.763E-03	2.061E-04	4.246E-04	4.346E-05	1.477E-04	1.281E-04	3.857E-05	7.520E-07	1.240E-06	2.960E-09	1.028E-05
SI WALL	7.694E-04	3.327E-05	8.164E-06	1.034E-03	6.567E-04	6.754E-04	5.668E-05	6.239E-07	1.841E-07	1.597E-08	1.122E-05
ULI WALL	1.016E-03	4.397E-05	9.931E-06	2.846E-04	5.622E-03	3.085E-04	5.117E-05	6.442E-07	1.851E-07	1.107E-08	1.181E-05
LLI WALL	2.218E-04	5.610E-06	4.208E-06	8.511E-05	1.299E-04	1.538E-02	6.966E-05	1.987E-07	8.776E-08	7.468E-08	1.181E-05
T BODY	4.919E-03	2.032E-04	6.164E-06	3.057E-05	8.986E-05	1.703E-04	1.292E-04	4.645E-07	2.695E-07	5.237E-08	1.556E-05
ADREN	6.068E-03	2.623E-04	6.765E-06	1.538E-05	4.665E-05	3.810E-05	1.226E-04	2.802E-06	8.731E-07	2.421E-09	2.338E-05
BL WALL	2.120E-04	9.188E-06	1.529E-06	3.520E-05	8.369E-05	4.057E-04	3.712E-05	9.855E-08	3.407E-08	1.535E-07	1.903E-05
KIDNEYS	2.565E-03	1.108E-04	1.037E-05	4.006E-05	1.152E-04	6.754E-05	7.310E-05	3.465E-05	1.085E-06	3.804E-09	1.151E-05
LIVER	5.990E-03	2.589E-04	6.333E-06	2.328E-05	1.019E-04	2.831E-05	4.940E-05	8.789E-07	1.420E-07	2.410E-09	2.690E-05
OVARIES	4.147E-04	1.794E-05	3.185E-06	1.200E-04	4.145E-04	1.243E-03	7.046E-05	3.200E-07	1.046E-07	0.0	2.490E-05
PANCREAS	6.303E-03	2.718E-04	5.333E-05	2.596E-05	7.955E-05	5.708E-05	6.542E-05	1.520E-06	2.458E-06	2.195E-09	2.731E-05
BONE	2.486E-03	1.074E-04	1.883E-06	9.875E-06	2.897E-05	7.772E-05	6.535E-04	2.196E-07	1.007E-07	1.950E-08	9.280E-06
R MAR	3.142E-03	1.358E-04	3.204E-06	3.086E-05	8.519E-05	2.326E-04	2.671E-04	5.516E-07	1.481E-07	1.541E-08	2.003E-05
Y MAR	2.631E-03	1.138E-04	2.606E-06	1.367E-05	4.098E-05	9.580E-05	2.026E-04	2.720E-07	1.509E-07	8.437E-09	1.932E-05
ENDOST	2.486E-03	1.074E-04	1.883E-06	9.875E-06	2.897E-05	7.772E-05	5.169E-04	2.196E-07	1.007E-07	1.950E-08	1.415E-05
SPLEEN	5.459E-03	2.361E-04	2.980E-05	1.977E-05	5.377E-05	7.724E-05	5.986E-05	1.870E-06	3.545E-05	2.993E-09	1.340E-05
TESTES	7.758E-05	3.367E-06	3.069E-07	5.722E-06	2.270E-05	1.370E-04	4.301E-05	3.706E-08	1.414E-08	3.092E-05	8.459E-06
THYMUS	9.882E-03	4.279E-04	1.715E-06	1.921E-06	6.811E-06	5.149E-06	5.588E-05	5.560E-08	8.063E-08	4.558E-10	3.166E-05
THYROID	3.314E-03	1.435E-04	5.242E-07	6.082E-07	2.108E-06	1.773E-06	5.511E-05	2.425E-08	2.130E-08	1.621E-10	2.367E-05
UTERUS	2.763E-04	1.198E-05	2.924E-06	1.078E-04	1.881E-04	4.225E-04	5.249E-05	1.904E-07	7.352E-08	0.0	4.223E-05
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	TOTAL	PERCENT DOSE EQUIVALENT..									
TARGET		NUCL IDE									
LUNGS	0.131	TARGET									
RES LYM	0.344	LUNGS 76.5 23.5									
S WALL	5.764E-03	RES LYM 70.9 25.1									
SI WALL	3.244E-03	S WALL 65.3 34.7									
ULI WALL	7.349E-03	SI WALL 78.2 21.8									
LLI WALL	1.591E-02	ULI WALL 84.2 15.8									
T BODY	5.564E-03	LLI WALL 88.2 11.8									
ADREN	6.587E-03	T BODY 68.2 31.8									
BL WALL	8.037E-04	ADREN 62.7 37.3									
KIDNEYS	3.029E-03	BL WALL 74.5 25.5									
LIVER	6.486E-03	KIDNEYS 63.6 36.4									
OVARIES	2.109E-03	LIVER 63.0 37.0									
PANCREAS	6.887E-03	OVARIES 76.4 23.6									
BONE	3.375E-03	PANCREAS 63.4 36.6									
R MAR	3.918E-03	BONE 63.7 36.3									
Y MAR	3.120E-03	R MAR 64.1 35.9									
ENDOST	3.244E-03	Y MAR 62.7 37.3									
SPLEEN	5.983E-03	ENDOST 63.8 36.2									
TESTES	3.291E-04	SPLEEN 62.8 37.2									
THYMUS	1.041E-02	TESTES 68.6 31.4									
THYROID	3.538E-03	THYMUS 62.4 37.6									
UTERUS	1.105E-03	THYROID 62.4 37.6									
		UTERUS 75.1 24.9									

ZIRCONIUM-95 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TC BLOOD)

	ZR-95	NB-95
STOMACH	0.0	0.0
S INT	2.000E-03	1.000E-02
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CCNT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	TOTAL
TARGET										
LUNGS	9.545E-06	7.316E-06	2.624E-05	1.714E-05	1.954E-05	3.811E-08	4.848E-08	1.005E-10	2.999E-06	8.286E-05
RES LYM	9.545E-06	7.316E-06	2.624E-05	1.714E-05	1.954E-05	3.811E-08	4.848E-08	1.005E-10	2.999E-06	8.286E-05
S WALL	7.625E-04	7.249E-05	2.471E-04	2.158E-04	1.108E-05	1.290E-07	2.123E-07	4.497E-10	3.143E-06	1.312E-03
SI WALL	1.359E-05	1.863E-03	1.059E-03	1.135E-03	1.628E-05	1.070E-07	3.145E-08	2.416E-09	3.430E-06	4.131E-03
ULI WALL	1.655E-05	4.749E-04	1.022E-02	5.188E-04	1.469E-05	1.106E-07	3.162E-08	1.669E-09	3.610E-06	1.125E-02
LLI WALL	7.003E-06	1.420E-04	2.172E-04	2.820E-02	2.000E-05	3.405E-08	1.501E-08	1.133E-08	3.610E-06	2.859E-02
T BODY	1.038E-05	5.230E-05	1.527E-04	2.917E-04	3.738E-05	8.341E-08	4.819E-08	8.402E-09	4.759E-06	5.494E-04
ADREN	1.125E-05	2.566E-05	7.785E-05	6.404E-05	3.521E-05	4.806E-07	1.488E-07	3.645E-10	7.148E-06	2.218E-04
BL WALL	2.543E-06	5.859E-05	1.359E-04	6.828E-04	1.067E-05	1.685E-08	5.762E-09	2.321E-08	5.819E-06	9.007E-04
KIDNEYS	1.726E-05	6.683E-05	1.927E-04	1.135E-04	2.099E-05	6.776E-06	1.852E-07	5.724E-10	3.520E-06	4.217E-04
LIVER	1.055E-05	3.883E-05	1.704E-04	4.753E-05	1.418E-05	1.508E-07	2.429E-08	3.614E-10	8.225E-06	2.898E-04
OVARIES	5.252E-06	2.000E-04	6.964E-04	2.088E-03	2.024E-05	5.467E-08	1.800E-08	0.0	7.615E-06	3.017E-03
PANCREAS	8.878E-05	4.333E-05	1.328E-04	9.596E-05	1.878E-05	2.605E-07	4.202E-07	3.281E-10	8.351E-06	3.887E-04
BONE	3.135E-06	1.648E-05	4.849E-05	1.307E-04	1.912E-04	3.766E-08	1.721E-08	2.951E-09	2.838E-06	3.929E-04
R MAR	5.335E-06	5.149E-05	1.426E-04	3.911E-04	7.754E-05	9.461E-08	2.534E-08	2.331E-09	6.124E-06	6.743E-04
Y MAR	4.335E-06	2.283E-05	6.857E-05	1.611E-04	5.819E-05	4.671E-08	2.577E-08	1.274E-09	5.909E-06	3.210E-04
ENDOST	3.135E-06	1.648E-05	4.849E-05	1.307E-04	1.514E-04	3.766E-08	1.721E-08	2.951E-09	4.328E-06	3.546E-04
SPLEEN	4.960E-05	3.300E-05	8.981E-05	1.297E-04	1.719E-05	3.209E-07	6.888E-06	4.429E-10	3.179E-06	3.297E-04
TESTES	5.044E-07	9.516E-06	3.744E-05	2.309E-04	1.235E-05	6.341E-09	2.411E-09	5.631E-06	2.586E-06	2.994E-04
THYMUS	2.826E-06	3.200E-06	1.138E-05	8.637E-06	1.604E-05	9.666E-09	1.371E-08	6.847E-11	9.680E-06	5.178E-05
THYROID	8.712E-07	1.012E-06	3.517E-06	2.971E-06	1.584E-05	4.142E-09	3.634E-09	2.425E-11	6.322E-06	3.054E-05
UTERUS	4.960E-06	1.800E-04	3.146E-04	7.103E-04	1.506E-05	3.269E-08	1.252E-08	0.0	1.291E-05	1.238E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	ZR-95	NB-95
TARGET		
LUNGS	87.6	12.4
RES LYM	87.6	12.4
S WALL	98.7	1.3
SI WALL	98.4	1.6
ULI WALL	99.0	1.0
LLI WALL	98.3	1.7
T BODY	95.2	4.8
ADREN	90.9	9.1
BL WALL	96.7	3.3
KIDNEYS	95.4	4.6
LIVER	96.2	3.8
OVARIES	97.0	3.0
PANCREAS	96.2	3.8
BONE	82.9	17.1
R MAR	93.3	6.7
Y MAR	89.5	10.5
ENDOST	85.1	14.9
SPLEEN	95.0	5.0
TESTES	94.7	5.3
THYMUS	84.4	15.6
THYROID	75.6	24.4
UTERUS	97.1	2.9

ZIRCONIUM-97

RADIONUCLIDE: ZR-97

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE					
ZR-97		3.7343			
NB-97M		6.9400E-04			
NB-97		5.3100E-02			
BRANCHING RATIOS:		FROM	TC	FRACTION	
		ZR-97	NB-97M	0.9460	
		ZR-97	NB-97	5.4000E-02	
		NB-97M	NB-97	1.000	
ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
	ZR-97	1.00	0.500	7.00	
	NB-97M	1.00	0.500	8.000E 03	
	NB-97	1.00	0.500	200.	
BONE	ZR-97	0.450	1.00	200.	
	NB-97M	0.357	1.00	8.000E 03	
	NB-97	0.357	1.00	200.	
KIDNEYS	* ZR-97	4.710E-03	0.910	7.00	
	NB-97M	8.550E-03	9.000E-02	8.000E 03	
	NB-97	8.550E-03	1.00	200.	
SPLEEN	* ZR-97	2.730E-03	0.910	7.00	
	NB-97M	5.300E-03	9.000E-02	8.000E 03	
	NB-97	5.000E-03	1.00	200.	
TESTES	* ZR-97	5.320E-04	0.910	7.00	
	NB-97M	1.280E-03	9.000E-02	8.000E 03	
	NB-97	1.280E-03	1.00	200.	

S FACTORS (REM/MICROCURIE-DAY) FOR ZR-97

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
LUNGS	0.362E-01	0.362E-01	0.532E-04	0.103E-04	0.120E-04	0.462E-05	0.297E-04	0.289E-04	0.633E-04	0.916E-06	0.392E-04
RES LYM	0.362E-01	0.238E-01	0.532E-04	0.103E-04	0.120E-04	0.462E-05	0.297E-04	0.289E-04	0.633E-04	0.916E-06	0.392E-04
S WALL	0.579E-04	0.579E-04	0.729E-01	0.103E-03	0.103E-03	0.493E-04	0.172E-04	0.953E-04	0.285E-03	0.327E-05	0.411E-04
SI WALL	0.942E-03	0.942E-05	0.755E-04	0.455E-01	0.463E-03	0.261E-03	0.242E-04	0.832E-04	0.425E-04	0.165E-04	0.449E-04
ULI WALL	0.124E-04	0.124E-04	0.974E-04	0.662E-03	0.324E-01	0.122E-03	0.226E-04	0.851E-04	0.427E-04	0.123E-04	0.471E-04
LLI WALL	0.253E-03	0.253E-05	0.437E-04	0.201E-03	0.907E-04	0.134E-00	0.301E-04	0.279E-04	0.201E-04	0.759E-04	0.474E-04
T BODY	0.553E-03	0.553E-03	0.236E-03	0.466E-03	0.300E-03	0.359E-03	0.553E-03	0.561E-03	0.560E-03	0.553E-03	0.550E-03
ADREN	0.653E-04	0.653E-04	0.763E-04	0.373E-04	0.335E-04	0.149E-04	0.537E-04	0.356E-03	0.195E-03	0.266E-05	0.105E-02
BL WALL	0.272E-05	0.272E-05	0.137E-04	0.858E-04	0.589E-04	0.169E-03	0.181E-04	0.130E-04	0.812E-05	0.148E-03	0.556E-02
KIDNEYS	0.306E-04	0.306E-04	0.568E-04	0.912E-04	0.827E-04	0.280E-04	0.310E-04	0.117E-00	0.245E-03	0.416E-05	0.461E-04
LIVER	0.703E-04	0.703E-04	0.596E-04	0.550E-04	0.741E-04	0.119E-04	0.220E-04	0.114E-03	0.325E-04	0.291E-05	0.107E-02
OVARIES	0.513E-04	0.513E-05	0.330E-04	0.268E-03	0.271E-03	0.492E-03	0.290E-04	0.405E-04	0.208E-04	0.0	0.106E-02
PANCREAS	0.723E-04	0.723E-04	0.494E-03	0.580E-04	0.607E-04	0.218E-04	0.311E-04	0.193E-03	0.537E-03	0.311E-05	0.107E-02
BONE	0.293E-04	0.293E-04	0.178E-04	0.234E-04	0.211E-04	0.305E-04	0.663E-02	0.250E-04	0.230E-04	0.198E-04	0.122E-02
R MAR	0.372E-04	0.372E-04	0.299E-04	0.726E-04	0.617E-04	0.900E-04	0.254E-02	0.730E-04	0.136E-04	0.156E-04	0.703E-02
Y MAR	0.306E-04	0.306E-04	0.248E-04	0.322E-04	0.298E-04	0.376E-04	0.871E-04	0.359E-04	0.342E-04	0.880E-05	0.104E-02
ENDOST	0.293E-04	0.293E-04	0.178E-04	0.234E-04	0.211E-04	0.305E-04	0.507E-02	0.290E-04	0.230E-04	0.198E-04	0.597E-03
SPLEEN	0.617E-04	0.617E-04	0.277E-03	0.479E-04	0.407E-04	0.301E-04	0.240E-04	0.243E-03	0.202E-00	0.287E-05	0.417E-04
TESTES	0.107E-05	0.107E-05	0.351E-05	0.154E-04	0.154E-04	0.524E-04	0.215E-04	0.513E-05	0.344E-05	0.103E-01	0.346E-04
THYMUS	0.121E-03	0.121E-03	0.178E-04	0.478E-05	0.517E-05	0.221E-05	0.213E-04	0.766E-05	0.151E-04	0.567E-06	0.694E-03
THYROID	0.351E-04	0.351E-04	0.518E-05	0.162E-05	0.172E-05	0.825E-06	0.250E-04	0.342E-05	0.505E-05	0.223E-06	0.104E-02
UTERUS	0.479E-05	0.479E-05	0.286E-04	0.248E-03	0.141E-03	0.168E-03	0.216E-04	0.275E-04	0.141E-04	0.0	0.709E-03

 β^- decay (16.90 H 5)

Case 1 is assumed to represent inhalation of zirconium compounds other than oxides and hydroxides, for which Case 2 would apply.

* Retention data derived from "other tissues" compartment.

ZIRCONIUM-97 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
ZR-97	W	0.0	2.000E-03	0.0	0.0
NB-97M	Y	0.0	1.000E-02	0.0	0.0
NB-97	Y	0.0	1.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	2.076E-02	1.116E-05	4.532E-06	3.046E-06	7.154E-06	2.315E-06	8.444E-06	8.026E-08	1.032E-07	2.058E-10	1.243E-05
RES LYM	2.076E-02	7.011E-04	4.532E-06	3.046E-06	7.154E-06	2.315E-06	8.444E-06	8.026E-08	1.032E-07	2.058E-10	1.243E-05
S WALL	1.597E-04	8.611E-08	1.280E-03	3.027E-05	6.786E-05	3.010E-05	4.864E-06	2.733E-07	4.559E-07	9.848E-10	1.296E-05
SI WALL	2.548E-05	1.374E-08	6.436E-06	2.805E-03	3.027E-04	1.560E-04	7.028E-06	2.274E-07	6.680E-08	5.080E-09	1.418E-05
ULI WALL	3.357E-05	1.831E-08	7.928E-06	1.987E-04	1.072E-02	7.224E-05	6.313E-06	2.354E-07	6.719E-08	3.447E-09	1.492E-05
LLI WALL	7.286E-06	3.928E-09	3.257E-06	5.945E-05	5.902E-05	1.597E-02	8.549E-06	7.281E-08	3.224E-08	2.436E-08	1.500E-05
T BODY	4.011E-04	2.158E-07	6.865E-06	4.035E-05	6.587E-05	6.785E-05	4.023E-06	4.104E-07	2.375E-07	4.414E-08	4.422E-05
ADREN	2.020E-04	1.050E-07	5.451E-06	1.075E-05	2.112E-05	8.826E-06	1.518E-05	1.020E-06	3.102E-07	7.526E-10	7.767E-05
BL WALL	7.558E-06	3.803E-09	1.189E-06	2.556E-05	3.793E-05	9.579E-05	4.887E-06	3.505E-08	1.122E-08	4.825E-08	4.821E-05
KIDNEYS	8.667E-05	4.676E-08	8.163E-06	2.784E-05	5.273E-05	1.557E-05	8.828E-06	6.697E-05	3.960E-07	1.170E-09	1.454E-05
LIVER	2.005E-04	1.082E-07	5.002E-06	1.617E-05	4.696E-05	6.556E-06	6.156E-06	3.213E-07	5.163E-08	7.235E-10	8.238E-05
OVARIES	1.384E-05	7.460E-05	2.311E-06	8.221E-05	1.975E-04	2.868E-04	8.804E-06	1.114E-07	4.035E-08	0.0	7.974E-05
PANCREAS	2.150E-04	1.160E-07	4.217E-05	1.805E-05	3.643E-05	1.321E-05	8.139E-06	5.485E-07	8.951E-07	6.589E-10	8.290E-05
BONE	8.404E-05	4.534E-08	1.489E-06	6.901E-06	1.343E-05	1.821E-05	3.887E-04	2.032E-03	3.665E-08	6.198E-09	1.523E-05
R MAR	1.758E-04	5.707E-08	2.544E-06	2.163E-05	3.959E-05	5.419E-05	1.542E-04	2.022E-07	5.397E-08	4.906E-09	5.584E-05
Y MAR	8.823E-05	4.760E-08	2.067E-06	9.525E-06	1.904E-05	2.238E-05	2.533E-05	9.936E-08	5.479E-08	2.689E-09	7.283E-05
ENDOST	8.404E-05	4.534E-08	1.489E-06	6.901E-06	1.343E-05	1.821E-05	3.067E-04	8.032E-08	3.665E-08	6.198E-09	4.498E-05
SPLEEN	1.816E-04	9.799E-08	2.346E-05	1.387E-05	2.468E-05	1.770E-05	7.325E-06	6.803E-07	6.722E-05	9.857E-10	1.315E-05
TESTES	2.566E-06	1.381E-09	2.222E-07	3.925E-06	1.026E-05	3.258E-05	5.371E-06	1.339E-08	5.087E-09	6.470E-05	1.073E-05
THYMUS	3.253E-04	1.775E-07	1.242E-06	1.329E-06	3.112E-06	1.180E-06	6.787E-06	2.305E-08	2.737E-08	1.477E-10	5.529E-05
THYROID	1.082E-04	5.837E-08	4.100E-07	4.192E-07	9.589E-07	4.050E-07	7.417E-06	8.708E-05	7.639E-09	4.961E-11	7.433E-05
UTERUS	9.584E-06	5.158E-09	2.336E-06	7.511E-05	8.675E-05	9.824E-05	6.195E-06	7.010E-03	2.533E-08	0.0	6.207E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.076E-02
RES LYM	2.150E-02
S WALL	1.596E-03
SI WALL	3.317E-03
ULI WALL	1.105E-02
LLI WALL	1.612E-02
T BODY	6.574E-04
ADREN	3.424E-04
BL WALL	2.277E-04
KIDNEYS	2.817E-04
LIVER	3.642E-04
OVARIES	6.713E-04
PANCREAS	4.174E-04
BONE	5.292E-04
R MAR	4.340E-04
Y MAR	2.396E-04
ENDOST	4.759E-04
SPLEEN	3.498E-04
TESTES	1.304E-04
THYMUS	3.984E-04
THYROID	1.922E-04
UTERUS	3.404E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	ZR-97	NB-97M	NB-97
TARGET			
LUNGS	57.7	3.9	38.4
RES LYM	57.7	3.8	38.5
S WALL	46.8	13.3	39.9
SI WALL	47.3	11.3	41.4
ULI WALL	52.9	5.6	41.5
LLI WALL	54.6	3.9	41.5
T BODY	42.5	17.0	40.5
ADREN	19.4	36.2	42.4
BL WALL	18.0	37.8	44.2
KIDNEYS	21.6	35.6	42.8
LIVER	19.4	38.2	42.4
OVARIES	15.1	40.0	44.9
PANCREAS	18.2	36.9	42.9
BONE	44.1	14.9	41.0
R MAR	30.6	28.0	41.4
Y MAR	23.4	34.1	42.5
ENDOST	42.0	16.5	41.5
SPLEEN	19.5	38.1	42.4
TESTES	33.4	23.8	42.8
THYMUS	16.7	42.0	41.3
THYROID	26.0	32.5	41.5
UTERUS	16.8	35.4	43.8

ZIRCONIUM-97 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310	D4 =8.000E-02	D5 =0.249
SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
ZR-97	Y	0.0	2.000E-03	0.0
NB-97M	Y	0.0	1.000E-02	0.0
NB-97	Y	0.0	1.000E-02	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET LUNGS	2.195E-02	3.454E-06	5.3E3E-06	3.634E-06	8.549E-06	2.767E-06	5.714E-07	6.197E-09	7.992E-09	1.651E-11	8.889E-07
RES LYM	2.195E-02	2.194E-04	5.383E-06	3.634E-06	8.549E-06	2.767E-06	5.714E-07	6.197E-09	7.992E-09	1.651E-11	8.889E-07
S WALL	1.688E-04	2.699E-08	1.521E-03	3.611E-05	8.109E-05	3.599E-05	3.254E-07	2.114E-08	3.533E-08	8.152E-11	9.260E-07
SI WALL	2.694E-05	4.305E-09	7.644E-06	3.347E-03	3.618E-04	1.865E-04	4.755E-07	1.756E-08	5.167E-09	4.181E-10	1.014E-06
ULI WALL	3.590E-05	5.740E-09	9.417E-06	2.370E-04	1.281E-02	8.636E-05	4.268E-07	1.819E-08	5.198E-09	2.813E-10	1.067E-06
LLI WALL	7.702E-06	1.231E-09	3.917E-06	7.092E-05	7.053E-05	1.909E-02	5.779E-07	5.620E-09	2.499E-09	2.017E-09	1.073E-06
T BODY	4.240E-04	6.758E-08	8.152E-06	4.814E-05	7.872E-05	8.112E-05	2.697E-06	3.107E-08	1.802E-08	3.543E-09	3.115E-06
ADREN	2.135E-04	3.417E-08	6.476E-06	1.282E-05	2.523E-05	1.055E-05	1.027E-06	7.890E-08	2.393E-08	6.150E-11	5.462E-06
BL WALL	7.461E-06	1.192E-09	1.412E-06	3.049E-05	4.533E-05	1.145E-04	3.316E-07	2.695E-09	8.507E-10	3.976E-09	3.401E-06
KIDNEYS	9.161E-05	1.466E-08	9.656E-06	3.321E-05	6.301E-05	1.861E-05	5.960E-07	5.035E-06	3.069E-08	9.533E-11	1.039E-06
LIVER	2.119E-04	3.391E-08	5.941E-06	1.929E-05	5.612E-05	7.837E-06	4.164E-07	2.486E-08	3.993E-09	5.826E-11	5.797E-06
OVARIES	1.463E-05	2.338E-09	2.747E-06	9.808E-05	2.360E-04	3.428E-04	5.968E-07	8.553E-09	3.168E-09	0.0	5.509E-06
PANCREAS	2.272E-04	3.640E-08	5.008E-05	2.153E-05	4.353E-05	1.579E-05	5.498E-07	4.237E-08	6.945E-08	5.240E-11	5.336E-06
BONE	8.883E-05	1.421E-08	1.768E-06	8.232E-06	1.604E-05	2.176E-05	2.599E-05	6.211E-09	2.837E-09	5.106E-10	1.150E-06
R MAR	1.118E-04	1.789E-08	3.021E-06	2.580E-05	4.731E-05	6.478E-05	1.026E-05	1.563E-08	4.177E-09	4.043E-10	3.944E-06
Y MAR	9.326E-05	1.493E-08	2.456E-06	1.136E-05	2.276E-05	2.675E-05	1.715E-06	7.680E-09	4.241E-09	2.212E-10	5.115E-06
ENDOST	8.883E-05	1.421E-08	1.768E-06	8.232E-06	1.604E-05	2.176E-05	2.054E-05	6.211E-09	2.837E-09	5.106E-10	3.158E-06
SPLEEN	1.920E-04	3.072E-08	2.787E-05	1.654E-05	2.950E-05	2.116E-05	4.962E-07	5.259E-08	5.062E-06	8.239E-11	9.397E-07
TESTES	2.712E-06	4.326E-10	2.642E-07	4.683E-06	1.227E-05	3.895E-05	3.624E-07	1.030E-09	3.914E-10	5.144E-06	7.566E-07
THYMUS	3.480E-04	5.563E-08	1.476E-06	1.586E-06	3.719E-06	1.411E-06	4.595E-07	1.819E-09	2.109E-09	1.137E-11	3.394E-06
THYROID	1.144E-04	1.830E-08	4.871E-07	5.002E-07	1.146E-06	4.842E-07	5.048E-07	6.687E-10	5.886E-10	3.974E-12	5.224E-06
UTERUS	1.013E-05	1.615E-09	2.775E-06	8.960E-05	1.037E-04	1.174E-04	4.178E-07	5.403E-09	1.955E-09	0.0	4.373E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET LUNGS	2.198E-02
RES LYM	2.219E-02
S WALL	1.845E-03
SI WALL	3.931E-03
ULI WALL	1.318E-02
LLI WALL	1.924E-02
T BODY	6.461E-04
ADREN	2.752E-04
BL WALL	2.029E-04
KIDNEYS	2.229E-04
LIVER	3.074E-04
OVARIES	7.005E-04
PANCREAS	3.647E-04
BONE	1.638E-04
R MAR	2.670E-04
Y MAR	1.634E-04
ENDOST	1.604E-04
SPLEEN	2.937E-04
TESTES	6.515E-05
THYMUS	3.607E-04
THYROID	1.228E-04
UTERUS	3.284E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	ZR-97	NB-97M	NB-97
TARGET LUNGS	57.8	3.8	38.3
RES LYM	57.8	3.8	38.3
S WALL	47.8	12.6	39.6
SI WALL	47.6	11.0	41.3
ULI WALL	53.0	5.5	41.5
LLI WALL	54.7	3.8	41.5
T BODY	41.9	17.6	40.5
ADREN	11.5	45.6	42.9
BL WALL	11.8	43.1	45.1
KIDNEYS	12.1	44.1	43.7
LIVER	12.1	45.1	42.9
OVARIES	10.9	43.5	45.5
PANCREAS	11.7	44.9	43.4
BONE	17.7	38.8	43.5
R MAR	13.2	43.0	43.8
Y MAR	12.4	44.1	43.5
ENDOST	16.8	35.6	43.6
SPLEEN	11.9	45.3	42.8
TESTES	13.5	46.4	46.2
THYMUS	12.5	46.2	41.3
THYROID	12.2	45.8	42.0
UTERUS	11.7	42.7	44.6

ZIRCONIUM-97 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	ZR-97	NB-97M	NB-57
STOMACH	0.0	0.0	0.0
S INT	2.000E-03	1.000E-02	1.000E-02
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	TOTAL
TARGET										
LUNGS	1.345E-05	1.143E-05	2.907E-05	9.538E-06	2.158E-07	2.321E-09	2.994E-09	6.161E-12	3.345E-07	6.404E-05
RES LYM	1.345E-05	1.143E-05	2.907E-05	9.538E-06	2.158E-07	2.321E-09	2.994E-09	6.161E-12	3.345E-07	6.404E-05
S WALL	3.974E-03	1.136E-04	2.756E-04	1.240E-04	1.244E-07	7.919E-09	1.324E-08	3.044E-11	3.485E-07	4.487E-03
SI WALL	1.910E-05	1.060E-02	1.229E-03	6.427E-04	1.796E-07	6.579E-09	1.935E-09	1.561E-10	3.814E-07	1.249E-02
ULI WALL	2.354E-05	7.449E-04	4.359E-02	2.976E-04	1.612E-07	6.814E-09	1.947E-09	1.050E-10	4.015E-07	4.466E-02
LLI WALL	9.848E-06	2.230E-04	2.397E-04	6.580E-02	2.182E-07	2.105E-09	9.361E-10	7.530E-10	4.037E-07	6.627E-02
T BODY	2.086E-05	1.521E-04	2.677E-04	2.796E-04	1.022E-06	1.172E-08	6.797E-09	1.334E-09	1.178E-06	7.225E-04
ADREN	1.635E-05	4.032E-05	8.580E-05	3.636E-05	3.877E-07	2.956E-08	8.962E-09	2.295E-11	2.067E-06	1.813E-04
BL WALL	3.543E-06	9.548E-05	1.541E-04	3.946E-04	1.253E-07	1.010E-09	3.185E-10	1.484E-09	1.286E-06	6.492E-04
KIDNEYS	2.427E-05	1.044E-04	2.142E-04	6.414E-05	2.251E-07	1.904E-06	1.149E-08	3.557E-11	3.910E-07	4.095E-04
LIVER	1.486E-05	6.067E-05	1.908E-04	2.701E-05	1.573E-07	9.311E-09	1.496E-09	2.174E-11	2.193E-06	2.956E-04
OVARIES	7.155E-06	3.088E-04	8.013E-04	1.181E-03	2.254E-07	3.203E-09	1.187E-09	0.0	2.123E-06	2.301E-03
PANCREAS	1.250E-04	6.763E-05	1.480E-04	5.441E-05	2.077E-07	1.587E-08	2.601E-08	1.955E-11	2.208E-06	3.976E-04
BONE	4.423E-06	2.588E-05	5.453E-05	7.500E-05	9.858E-06	2.327E-09	1.063E-09	1.906E-10	4.338E-07	1.701E-04
R MAR	7.553E-06	8.108E-05	1.608E-04	2.233E-04	3.891E-06	5.855E-09	1.565E-09	1.509E-10	1.492E-06	4.780E-04
Y MAR	6.146E-06	3.573E-05	7.733E-05	9.219E-05	6.478E-07	2.877E-09	1.589E-09	8.256E-11	1.937E-06	2.140E-04
ENDOST	4.423E-06	2.588E-05	5.453E-05	7.500E-05	7.791E-06	2.327E-09	1.063E-09	1.906E-10	1.195E-06	1.688E-04
SPLEEN	6.966E-05	5.200E-05	1.003E-04	7.293E-05	1.874E-07	1.970E-08	1.914E-06	3.076E-11	3.536E-07	2.974E-04
TESTES	7.110E-07	1.480E-05	4.169E-05	1.342E-04	1.369E-07	3.858E-10	1.466E-10	1.944E-06	2.885E-07	1.938E-04
THYMUS	3.880E-06	4.997E-06	1.264E-05	4.863E-06	1.735E-07	6.820E-10	7.897E-10	4.245E-12	1.473E-06	2.803E-05
THYROID	1.229E-06	1.580E-06	3.858E-06	1.669E-06	1.907E-07	2.505E-10	2.205E-10	1.483E-12	1.978E-06	1.054E-05
UTERUS	6.973E-06	2.815E-04	3.524E-04	4.048E-04	1.578E-07	2.024E-09	7.321E-10	0.0	1.653E-06	1.047E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	ZR-97	NB-97M	NB-57
TARGET			
LUNGS	13.0	45.3	37.7
RES LYM	13.0	45.3	37.7
S WALL	66.3	11.7	22.0
SI WALL	51.7	11.6	36.7
ULI WALL	54.0	5.5	40.6
LLI WALL	54.8	3.8	41.3
T BODY	35.7	23.6	40.8
ADREN	12.6	46.8	40.5
BL WALL	11.7	44.3	44.0
KIDNEYS	12.0	46.7	41.4
LIVER	12.1	46.1	41.8
OVARIES	10.9	44.6	44.5
PANCREAS	13.1	50.7	36.2
BONE	13.8	42.9	43.4
R MAR	11.7	44.7	43.6
Y MAR	11.8	45.1	43.1
ENDOST	13.4	43.2	43.4
SPLEEN	13.0	45.1	37.9
TESTES	11.3	43.6	45.1
THYMUS	14.5	46.4	39.1
THYROID	19.3	40.5	40.1
UTERUS	11.7	45.5	42.8

NIOBIMUM-95

RADIONUCLIDE: NB-95

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		NB-95		35.20	
ORGAN	NUCLIDE	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
ABSORBED	NB-95	1.00	0.500	6.00	
			0.500	200.	
BONE	NB-95	0.357	1.00	200.	
KIDNEYS	NB-95	8.55E-03	1.00	200.	
SPLEEN	NB-95	5.00E-03	1.00	200.	
TESTES	NB-95	1.28E-03	1.00	200.	

S FACTORS (REM/MICROCURIE-DAY) FOR NB-95

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
LUNGS	0.408E-02	0.408E-02	0.237E-03	0.456E-04	0.503E-04	0.178E-04	0.131E-03	0.129E-03	0.282E-03	0.300E-05	0.173E-03
RES LYM	0.408E-02	0.150E-00	0.237E-03	0.456E-04	0.503E-04	0.178E-04	0.131E-03	0.129E-03	0.282E-03	0.300E-05	0.173E-03
S WALL	0.248E-03	0.248E-03	0.112E-01	0.450E-03	0.469E-03	0.218E-03	0.739E-04	0.435E-03	0.123E-02	0.131E-04	0.181E-04
SI WALL	0.401E-04	0.401E-04	0.337E-03	0.672E-02	0.208E-02	0.116E-02	0.109E-03	0.361E-03	0.183E-03	0.710E-04	0.198E-04
ULI WALL	0.529E-04	0.529E-04	0.408E-03	0.294E-02	0.106E-01	0.528E-03	0.985E-04	0.373E-03	0.184E-03	0.494E-04	0.208E-04
LLI WALL	0.116E-04	0.116E-04	0.174E-03	0.881E-03	0.414E-03	0.148E-01	0.134E-03	0.115E-03	0.871E-04	0.331E-03	0.208E-04
T BODY	0.220E-03	0.220E-03	0.241E-03	0.279E-03	0.264E-03	0.265E-03	0.220E-03	0.253E-03	0.252E-03	0.219E-03	0.219E-03
ADREN	0.315E-03	0.315E-03	0.280E-03	0.159E-03	0.150E-03	0.654E-04	0.236E-03	0.162E-02	0.870E-03	0.108E-04	0.302E-04
BL WALL	0.111E-04	0.111E-04	0.634E-04	0.357E-03	0.267E-03	0.692E-03	0.705E-04	0.572E-04	0.343E-04	0.683E-03	0.280E-04
KIDNEYS	0.133E-03	0.133E-03	0.428E-03	0.415E-03	0.367E-03	0.116E-03	0.141E-03	0.165E-01	0.108E-02	0.170E-04	0.202E-04
LIVER	0.311E-03	0.311E-03	0.261E-03	0.241E-03	0.324E-03	0.488E-04	0.949E-04	0.508E-03	0.141E-03	0.108E-04	0.364E-04
OVARIES	0.216E-04	0.216E-04	0.137E-03	0.125E-02	0.129E-02	0.214E-02	0.135E-03	0.186E-03	0.103E-03	0.0	0.329E-03
PANCREAS	0.325E-03	0.325E-03	0.220E-02	0.268E-03	0.255E-03	0.979E-04	0.126E-03	0.880E-03	0.244E-02	0.987E-05	0.370E-03
BONE	0.129E-03	0.129E-03	0.776E-04	0.102E-03	0.918E-04	0.133E-03	0.886E-03	0.127E-03	0.100E-03	0.867E-04	0.156E-03
R MAR	0.163E-03	0.163E-03	0.132E-03	0.319E-03	0.270E-03	0.398E-03	0.428E-03	0.319E-03	0.147E-03	0.685E-04	0.267E-03
Y MAR	0.137E-03	0.137E-03	0.108E-03	0.141E-03	0.130E-03	0.164E-03	0.389E-03	0.157E-03	0.150E-03	0.375E-04	0.231E-03
ENDOST	0.129E-03	0.129E-03	0.776E-04	0.102E-03	0.918E-04	0.133E-03	0.682E-03	0.127E-03	0.100E-03	0.867E-04	0.196E-03
SPLEEN	0.284E-01	0.284E-03	0.123E-02	0.204E-03	0.172E-03	0.133E-03	0.115E-03	0.108E-02	0.291E-01	0.128E-04	0.184E-03
TESTES	0.408E-05	0.408E-05	0.134E-04	0.601E-04	0.725E-04	0.232E-03	0.829E-04	0.215E-04	0.141E-04	0.110E-00	0.149E-03
THYMUS	0.316E-03	0.316E-03	0.740E-04	0.200E-04	0.218E-04	0.892E-03	0.108E-03	0.316E-04	0.806E-04	0.204E-05	0.213E-03
THYROID	0.173E-03	0.173E-03	0.218E-04	0.638E-05	0.678E-05	0.309E-05	0.104E-03	0.141E-04	0.212E-04	0.727E-06	0.255E-03
UTERUS	0.145E-04	0.145E-04	0.124E-03	0.111E-02	0.599E-03	0.724E-03	0.102E-03	0.110E-03	0.734E-04	0.0	0.308E-03

β^- decay (35.15 D 3)

NIOBIUM-95 CONTINUED

CASE 1.. INHALATION

AMAD (M ICN) .. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS ----- G.I. UPTAKE FRACTIONS -----
STOMACH S INT U L INT L L INT
NB-95 Y C.0 1.000E-02 0.0 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	3.044E-02	4.937E-04	4.786E-06	3.635E-06	1.289E-05	8.261E-06	1.944E-05	4.584E-07	5.860E-07	1.596E-09	1.537E-05
RES LYM	3.044E-02	1.815E-02	4.786E-06	3.635E-06	1.289E-05	8.261E-06	1.944E-05	4.584E-07	5.860E-07	1.596E-09	1.537E-05
S WALL	1.850E-03	3.001E-05	2.262E-04	3.587E-05	1.202E-04	1.012E-04	1.096E-05	1.546E-06	2.556E-06	6.969E-09	1.608E-05
SI WALL	2.991E-04	4.852E-06	6.805E-06	5.357E-04	5.332E-04	5.383E-04	1.617E-05	1.283E-06	3.803E-07	3.777E-08	1.759E-05
ULI WALL	3.946E-04	6.401E-06	8.239E-06	2.343E-04	2.717E-03	2.450E-04	1.461E-05	1.325E-06	3.823E-07	2.628E-08	1.848E-05
LLI WALL	8.653E-05	1.404E-06	3.514E-06	7.022E-05	1.061E-04	6.868E-03	1.988E-05	4.086E-07	1.810E-07	1.761E-07	1.848E-05
T BODY	1.641E-03	2.662E-05	4.867E-06	2.224E-05	6.767E-05	1.230E-04	3.264E-05	8.990E-07	5.236E-07	1.165E-07	1.946E-05
ADREN	2.350E-03	3.812E-05	5.654E-06	1.267E-05	3.845E-05	3.035E-05	3.501E-05	5.756E-06	1.808E-06	5.745E-09	2.683E-05
BL WALL	8.280E-05	1.343E-06	1.280E-06	2.846E-05	6.844E-05	3.211E-04	1.046E-05	2.033E-07	7.127E-08	3.633E-07	2.488E-05
KIDNEYS	9.921E-04	1.609E-05	8.643E-06	3.308E-05	9.407E-05	5.383E-05	2.092E-05	5.863E-05	2.244E-06	9.043E-09	1.795E-05
LIVER	2.320E-03	3.763E-05	5.271E-06	1.921E-05	8.305E-05	2.265E-05	1.408E-05	1.805E-06	2.930E-07	5.745E-09	3.234E-05
OVARIES	1.611E-04	2.614E-06	2.767E-06	9.964E-05	3.307E-04	9.931E-04	2.003E-05	6.605E-07	2.140E-07	0.0	2.923E-05
PANCREAS	2.424E-03	3.933E-05	4.443E-05	2.136E-05	6.536E-05	4.543E-05	1.869E-05	3.127E-06	5.070E-06	5.250E-09	3.288E-05
BONE	9.623E-04	1.561E-05	1.567E-06	8.130E-06	2.353E-05	6.172E-05	1.315E-04	4.513E-07	2.078E-07	4.612E-08	1.386E-05
R MAR	1.216E-03	1.972E-05	2.666E-06	2.543E-05	6.921E-05	1.847E-04	6.350E-05	1.134E-06	3.055E-07	3.644E-08	2.372E-05
Y MAR	1.012E-03	1.658E-05	2.181E-06	1.124E-05	3.332E-05	7.611E-05	5.771E-05	5.575E-07	3.117E-07	1.995E-08	2.053E-05
ENDOST	9.623E-04	1.561E-05	1.567E-06	8.130E-06	2.353E-05	6.172E-05	1.012E-04	4.513E-07	2.078E-07	4.612E-08	1.742E-05
SPLEEN	2.119E-03	3.436E-05	2.484E-05	1.626E-05	4.409E-05	6.172E-05	1.706E-05	3.838E-06	6.047E-05	6.809E-09	1.635E-05
TESTES	3.044E-05	4.937E-07	2.706E-07	4.791E-06	1.858E-05	1.077E-04	1.230E-05	7.640E-08	2.930E-08	5.852E-05	1.324E-05
THYMUS	3.849E-03	6.244E-05	1.454E-06	1.594E-06	5.588E-06	4.140E-06	1.602E-05	1.123E-07	1.675E-07	1.085E-09	1.393E-05
THYROID	1.291E-03	2.093E-05	4.402E-07	5.085E-07	1.738E-06	1.434E-06	1.543E-05	5.010E-08	4.405E-08	3.867E-10	2.266E-05
UTERUS	1.082E-04	1.755E-06	2.504E-06	8.848E-05	1.535E-04	3.360E-04	1.513E-05	3.905E-07	1.525E-07	0.0	2.737E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	3.099E-02
RES LYM	4.865E-02
S WALL	2.395E-03
SI WALL	1.953E-03
ULI WALL	3.641E-03
LLI WALL	7.175E-03
T BODY	1.939E-03
ADREN	2.544E-03
BL WALL	5.394E-04
KIDNEYS	1.298E-03
LIVER	2.536E-03
OVARIES	1.640E-03
PANCREAS	2.700E-03
BONE	1.219E-03
R MAR	1.606E-03
Y MAR	1.241E-03
ENDOST	1.192E-03
SPLEEN	2.398E-03
TESTES	2.464E-04
THYMUS	3.960E-03
THYROID	1.354E-03
UTERUS	7.335E-04

NIOBium-95 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

NB-95
STOMACH 0.0
S INT 1.000E-02
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	TOTAL
TARGET										
LUNGS	9.867E-06	7.453E-06	2.658E-05	1.703E-05	2.011E-05	4.744E-07	6.064E-07	1.651E-09	1.551E-05	9.807E-05
RES LYM	9.867E-06	7.493E-06	2.658E-05	1.703E-05	2.011E-05	4.744E-07	6.064E-07	1.651E-09	1.591E-05	9.807E-05
S WALL	4.663E-04	7.395E-05	2.478E-04	2.086E-04	1.135E-05	1.600E-06	2.645E-06	7.212E-09	1.664E-05	1.029E-03
SI WALL	1.403E-05	1.104E-03	1.059E-03	1.110E-03	1.674E-05	1.327E-06	3.935E-07	3.909E-08	1.821E-05	3.364E-03
ULI WALL	1.699E-05	4.831E-04	5.602E-03	5.052E-04	1.512E-05	1.372E-06	3.957E-07	2.719E-08	1.913E-05	6.643E-03
LLI WALL	7.244E-06	1.448E-04	2.188E-04	1.416E-02	2.057E-05	4.229E-07	1.873E-07	1.822E-07	1.913E-05	1.457E-02
T BODY	1.003E-05	4.585E-05	1.395E-04	2.535E-04	3.378E-05	9.303E-07	5.419E-07	1.206E-07	2.014E-05	5.044E-04
ADREN	1.166E-05	2.613E-05	7.927E-05	6.257E-05	3.623E-05	5.957E-06	1.871E-06	5.945E-09	2.777E-05	2.515E-04
BL WALL	2.640E-06	5.867E-05	1.411E-04	6.621E-04	1.082E-05	2.103E-07	7.376E-08	3.760E-07	2.575E-05	9.017E-04
KIDNEYS	1.782E-05	6.820E-05	1.939E-04	1.110E-04	2.165E-05	6.067E-05	2.322E-06	9.356E-09	1.857E-05	4.942E-04
LIVER	1.087E-05	3.960E-05	1.712E-04	4.669E-05	1.457E-05	1.868E-06	3.032E-07	5.945E-09	3.347E-05	3.186E-04
OVARIES	5.704E-06	2.054E-04	6.817E-04	2.047E-03	2.073E-05	6.839E-07	2.215E-07	0.0	3.025E-05	2.992E-03
PANCREAS	9.159E-05	4.404E-05	1.348E-04	9.366E-05	1.935E-05	3.236E-06	5.247E-06	5.433E-09	3.402E-05	4.259E-04
BONE	3.231E-06	1.676E-05	4.851E-05	1.272E-04	1.360E-04	4.670E-07	2.150E-07	4.773E-08	1.434E-05	3.469E-04
R MAR	5.495E-06	5.242E-05	1.427E-04	3.808E-04	6.571E-05	1.173E-06	3.161E-07	3.771E-08	2.455E-05	6.732E-04
Y MAR	4.496E-06	2.317E-05	6.870E-05	1.569E-04	5.973E-05	5.773E-07	3.226E-07	2.064E-08	2.124E-05	3.352E-04
ENDOST	3.231E-06	1.676E-05	4.851E-05	1.272E-04	1.047E-04	4.670E-07	2.150E-07	4.773E-08	1.802E-05	3.192E-04
SPLEEN	5.121E-05	3.352E-05	9.089E-05	1.272E-04	1.766E-05	3.971E-06	6.258E-05	7.046E-09	1.692E-05	4.040E-04
TESTES	5.579E-07	9.876E-06	3.631E-05	2.220E-04	1.273E-05	7.906E-08	3.032E-08	6.055E-05	1.370E-05	3.578E-04
THYMUS	3.081E-06	3.287E-06	1.152E-05	8.534E-06	1.658E-05	1.162E-07	1.733E-07	1.123E-09	1.959E-05	6.288E-05
THYROID	9.076E-07	1.048E-06	3.583E-06	2.956E-06	1.597E-05	5.185E-08	4.559E-08	4.002E-10	2.345E-05	4.801E-05
UTERUS	5.162E-06	1.824E-04	3.165E-04	6.927E-04	1.566E-05	4.045E-07	1.578E-07	0.0	2.832E-05	1.241E-03

NIObIUM-97

RADIONUCLIDE: NB-97

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		NB-97		5.0100E-02	
ORGAN ABSORBED	NUCLIDE NB-97	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
		1.00			
BONE	NB-97	0.357	0.500	6.00	
KIDNEYS	NB-97	8.550E-03	0.500	200.	
SPLEEN	NB-97	5.000E-03	1.00	200.	
TESTES	NB-97	1.280E-03	1.00	200.	

S FACTORS (REN/MICROCURIE-DAY) FOR NB-97

TARGET ORGANS	SOURCE ORGANS											
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	
LUNGS	0.254E-01	0.254E-01	0.207E-03	0.389E-04	0.416E-04	0.139E-04	0.112E-03	0.110E-03	0.246E-03	0.222E-05	0.150E-03	
RES LYM	0.254E-01	0.159E-01	0.207E-03	0.389E-04	0.416E-04	0.139E-04	0.112E-03	0.110E-03	0.246E-03	0.222E-05	0.150E-03	
S WALL	0.212E-03	0.212E-03	0.534E-01	0.387E-03	0.407E-03	0.196E-03	0.651E-04	0.378E-03	0.109E-02	0.122E-04	0.156E-03	
SI WALL	0.334E-04	0.334E-04	0.294E-03	0.332E-01	0.182E-02	0.100E-02	0.930E-04	0.312E-03	0.158E-03	0.613E-04	0.171E-03	
ULI WALL	0.449E-04	0.449E-04	0.362E-03	0.256E-02	0.589E-01	0.466E-03	0.828E-04	0.324E-03	0.159E-03	0.401E-04	0.180E-03	
LLI WALL	0.956E-05	0.956E-05	0.148E-03	0.763E-03	0.350E-03	0.938E-01	0.112E-03	0.957E-04	0.771E-04	0.302E-03	0.181E-03	
T BODY	0.503E-03	0.503E-03	0.303E-03	0.492E-03	0.378E-03	0.415E-03	0.502E-03	0.531E-03	0.531E-03	0.502E-03	0.500E-03	
AOREN	0.274E-03	0.274E-03	0.242E-03	0.138E-03	0.123E-03	0.564E-04	0.200E-03	0.141E-02	0.723E-03	0.881E-05	0.872E-03	
GL WALL	0.913E-05	0.913E-05	0.537E-04	0.341E-03	0.224E-03	0.616E-03	0.669E-04	0.470E-04	0.237E-04	0.585E-03	0.549E-03	
KIDNEYS	0.117E-03	0.117E-03	0.371E-03	0.359E-03	0.313E-03	0.978E-04	0.114E-03	0.849E-01	0.945E-03	0.135E-04	0.175E-03	
LIVER	0.269E-03	0.269E-03	0.228E-03	0.207E-03	0.280E-03	0.411E-04	0.814E-04	0.445E-03	0.122E-03	0.793E-05	0.927E-03	
OVARIES	0.182E-04	0.182E-04	0.931E-04	0.104E-02	0.125E-02	0.182E-02	0.119E-03	0.148E-03	0.103E-03	0.0	0.896E-03	
PANCREAS	0.296E-03	0.296E-03	0.193E-02	0.234E-03	0.213E-03	0.848E-04	0.106E-03	0.753E-03	0.215E-02	0.682E-05	0.935E-03	
BONE	0.113E-03	0.113E-03	0.678E-04	0.886E-04	0.806E-04	0.117E-03	0.477E-02	0.111E-03	0.869E-04	0.751E-04	0.187E-03	
R HAR	0.142E-03	0.142E-03	0.116E-03	0.279E-03	0.238E-03	0.349E-03	0.178E-02	0.279E-03	0.128E-03	0.595E-04	0.647E-03	
Y HAR	0.119E-03	0.119E-03	0.940E-04	0.122E-03	0.114E-03	0.144E-03	0.338E-03	0.137E-03	0.130E-03	0.324E-04	0.812E-03	
ENDOST	0.113E-03	0.113E-03	0.678E-04	0.886E-04	0.806E-04	0.117E-03	0.384E-02	0.111E-03	0.869E-04	0.751E-04	0.497E-03	
SPLEEN	0.244E-03	0.244E-03	0.107E-02	0.178E-03	0.145E-03	0.112E-03	0.977E-04	0.938E-03	0.147E-00	0.127E-04	0.158E-03	
TESTES	0.323E-05	0.323E-05	0.800E-05	0.476E-04	0.609E-04	0.215E-03	0.691E-04	0.180E-04	0.117E-04	0.719E-00	0.129E-03	
THYMUS	0.433E-03	0.433E-03	0.485E-04	0.167E-04	0.182E-04	0.728E-05	0.904E-04	0.352E-04	0.633E-04	0.157E-05	0.625E-03	
THYROID	0.144E-03	0.144E-03	0.182E-04	0.513E-05	0.547E-05	0.243E-05	0.105E-03	0.116E-04	0.177E-04	0.532E-06	0.832E-03	
UTERUS	0.119E-04	0.119E-04	0.105E-03	0.972E-03	0.514E-03	0.628E-03	0.787E-04	0.953E-04	0.591E-04	0.0	0.698E-03	

β^- decay (72.1 M 7)

NIOBIUM-97 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
NB-97	Y	0.0	1.000E-02	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	1.074E-03	6.874E-05	2.789E-07	6.322E-08	2.587E-08	1.076E-09	9.681E-09	2.277E-10	2.978E-10	6.880E-13	2.267E-08
RES LYM	1.074E-03	4.303E-07	2.789E-07	6.322E-08	2.587E-08	1.076E-09	9.681E-09	2.277E-10	2.978E-10	6.880E-13	2.267E-08
S WALL	8.962E-06	5.737E-11	7.155E-05	6.290E-07	2.531E-07	1.517E-08	5.627E-09	7.825E-10	1.320E-09	3.781E-12	2.357E-08
SI WALL	1.412E-06	9.039E-12	3.961E-07	5.396E-05	1.132E-06	7.739E-08	8.039E-09	6.459E-10	1.913E-10	1.900E-11	2.584E-08
ULI WALL	1.398E-06	1.215E-11	4.877E-07	4.161E-06	3.663E-05	3.606E-08	7.157E-09	6.707E-10	1.925E-10	1.243E-11	2.720E-08
LLI WALL	4.042E-07	2.587E-12	1.994E-07	1.240E-06	2.177E-07	7.259E-06	9.681E-09	2.064E-10	9.334E-11	9.359E-11	2.735E-08
T BODY	2.126E-05	1.361E-10	4.083E-07	7.996E-07	2.351E-07	3.212E-08	4.339E-08	1.095E-09	6.428E-10	1.556E-10	7.556E-08
ADREN	1.158E-05	7.415E-11	3.261E-07	2.243E-07	7.649E-08	4.365E-09	1.729E-08	2.915E-09	8.753E-10	2.730E-12	1.318E-07
BL WALL	3.860E-07	2.471E-12	7.235E-08	5.542E-07	1.393E-07	4.767E-08	5.783E-09	9.730E-11	2.869E-11	1.813E-10	8.296E-08
KIDNEYS	4.946E-06	3.166E-11	4.959E-07	5.835E-07	1.946E-07	7.568E-09	9.854E-09	1.755E-07	1.144E-09	4.184E-12	2.645E-08
LIVER	1.137E-05	7.280E-11	3.072E-07	3.364E-07	1.741E-07	3.181E-09	7.036E-09	9.212E-10	1.477E-10	2.458E-12	1.401E-07
OVARIES	7.694E-07	4.925E-12	1.254E-07	1.690E-06	7.773E-07	1.408E-07	1.029E-08	3.064E-10	1.247E-10	0.0	1.354E-07
PANCREAS	1.251E-05	6.011E-11	2.600E-06	3.803E-07	1.325E-07	6.562E-09	9.162E-09	1.555E-09	2.603E-09	2.114E-12	1.413E-07
BONE	4.777E-06	3.058E-11	9.135E-08	1.440E-07	5.012E-08	9.054E-09	4.123E-07	2.298E-10	1.052E-10	2.327E-11	2.926E-08
R MAR	6.003E-06	3.843E-11	1.563E-07	4.535E-07	1.480E-07	2.701E-08	1.539E-07	5.776E-10	1.550E-10	1.844E-11	9.777E-08
Y MAR	5.031E-06	3.220E-11	1.267E-07	1.983E-07	7.089E-08	1.114E-08	2.922E-08	2.836E-10	1.574E-10	1.004E-11	1.227E-07
ENDOST	4.777E-06	3.058E-11	9.135E-08	1.440E-07	5.012E-08	9.054E-09	3.319E-07	2.298E-10	1.052E-10	2.327E-11	7.511E-08
SPLEEN	1.032E-05	6.603E-11	1.442E-06	2.893E-07	9.017E-08	8.667E-09	8.445E-09	1.942E-09	1.780E-07	3.936E-12	2.388E-08
TESTES	1.365E-07	8.741E-13	1.078E-08	7.736E-08	3.787E-08	1.664E-08	5.973E-09	3.726E-11	1.416E-11	2.228E-07	1.949E-08
THYMUS	1.831E-05	1.172E-10	6.535E-08	2.714E-08	1.132E-08	5.634E-10	7.814E-09	7.287E-11	7.663E-11	4.866E-13	9.445E-08
THYROID	6.088E-06	3.897E-11	2.452E-08	8.338E-09	3.402E-09	1.880E-10	9.076E-09	2.401E-11	2.143E-11	1.649E-13	1.257E-07
UTERUS	5.031E-07	3.220E-12	1.415E-07	1.580E-06	3.196E-07	4.860E-08	6.803E-09	1.973E-10	7.155E-11	0.0	1.055E-07
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	TOTAL										
TARGET											
LUNGS	1.074E-03										
RES LYM	1.075E-03										
S WALL	8.184E-05										
SI WALL	5.701E-05										
ULI WALL	4.325E-05										
LLI WALL	9.358E-06										
T BODY	2.286E-05										
ADREN	1.237E-05										
BL WALL	1.289E-06										
KIDNEYS	6.445E-06										
LIVER	1.234E-05										
OVARIES	3.649E-06										
PANCREAS	1.579E-05										
BONE	5.513E-06										
R MAR	7.040E-06										
Y MAR	5.590E-06										
ENDOST	5.479E-06										
SPLEEN	1.236E-05										
TESTES	5.275E-07										
THYMUS	1.851E-05										
THYROID	6.259E-06										
UTERUS	2.705E-06										

NIOBIMUM-97 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

NB-57
STOMACH 0.0
S INT 1.000E-02
UL INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	TOTAL
TARGET										
LUNGS	5.471E-06	1.240E-06	5.075E-07	2.110E-08	5.583E-09	1.313E-10	1.717E-10	3.96E-13	1.3C7E-08	7.259E-06
RES LYM	5.471E-06	1.240E-06	5.075E-07	2.110E-08	5.583E-09	1.313E-10	1.717E-10	3.96E-13	1.3C7E-08	7.259E-06
S WALL	1.411E-03	1.234E-05	4.965E-06	2.975E-07	3.245E-09	4.513E-10	7.610E-10	2.180E-12	1.36CE-08	1.429E-03
SI WALL	7.771E-06	1.058E-03	2.220E-05	1.518E-06	4.636E-09	3.725E-10	1.103E-10	1.096E-11	1.490E-08	1.090E-03
ULI WALL	9.368E-06	8.162E-05	7.185E-04	7.074E-07	4.127E-09	3.868E-10	1.110E-10	7.167E-12	1.569E-08	8.104E-04
LLI WALL	3.912E-06	2.433E-05	4.270E-06	1.424E-04	5.583E-09	1.190E-10	5.383E-11	5.397E-11	1.577E-08	1.749E-04
T BODY	8.308E-06	1.569E-05	4.611E-06	6.300E-07	2.502E-08	6.339E-10	3.707E-10	8.972E-11	4.357E-08	2.901E-05
ADREN	6.396E-06	4.400E-06	1.500E-06	8.562E-08	9.969E-09	1.683E-09	5.048E-10	1.575E-12	7.599E-08	1.247E-05
BL WALL	1.419E-06	1.087E-05	2.733E-06	9.351E-07	3.335E-09	5.611E-11	1.655E-11	1.046E-10	4.784E-08	1.601E-05
KIDNEYS	9.806E-06	1.145E-05	3.818E-06	1.485E-07	5.683E-09	1.014E-07	6.597E-10	2.413E-12	1.525E-08	2.534E-05
LIVER	6.026E-06	6.600E-06	3.416E-06	6.239E-08	4.058E-09	5.312E-10	8.517E-11	1.417E-12	8.079E-08	1.619E-05
OVARIES	2.461E-06	3.316E-05	1.525E-05	2.763E-06	5.932E-09	1.767E-10	7.191E-11	0.0	7.809E-08	5.371E-05
PANCREAS	5.101E-05	7.460E-06	2.358E-06	1.287E-07	5.284E-09	8.989E-10	1.501E-09	1.219E-12	8.148E-08	6.129E-05
BONE	1.792E-06	2.825E-06	9.832E-07	1.776E-07	2.378E-07	1.325E-10	6.067E-11	1.342E-11	1.630E-08	6.032E-06
R MAR	3.066E-06	8.895E-06	2.903E-06	5.298E-07	8.873E-08	3.331E-10	8.936E-11	1.063E-11	5.639E-08	1.554E-05
Y MAR	2.484E-06	3.890E-06	1.351E-06	2.186E-07	1.685E-08	1.636E-10	9.076E-11	5.791E-12	7.076E-08	8.071E-06
ENDOST	1.792E-06	2.825E-06	9.832E-07	1.776E-07	1.914E-07	1.325E-10	6.067E-11	1.342E-11	4.331E-08	6.013E-06
SPLEEN	2.828E-05	5.675E-06	1.769E-06	1.700E-07	4.870E-09	1.120E-09	1.026E-07	2.270E-12	1.377E-08	3.602E-05
TESTES	2.114E-07	1.518E-06	7.429E-07	3.264E-07	3.444E-09	2.149E-11	8.168E-12	1.285E-07	1.124E-08	2.942E-06
THYMUS	1.282E-06	5.324E-07	2.220E-07	1.105E-08	4.506E-09	4.202E-11	4.419E-11	2.806E-13	5.447E-08	2.106E-06
THYROID	4.810E-07	1.636E-07	6.673E-08	3.689E-09	5.234E-09	1.385E-11	1.236E-11	9.50E-14	7.251E-08	7.928E-07
UTERUS	2.775E-06	3.059E-05	6.270E-06	9.533E-07	3.923E-09	1.138E-10	4.126E-11	0.0	6.083E-08	4.105E-05

NIObIUM-97m

RADIOISOTOPE: NB-97M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)	
NUCLIDE			
NB-97M		6.9400E-04	
NB-97		5.0100E-02	
BRANCHING RATIOS:		FROM NB-97M	TO NB-97
		FRACTION 1.000	
		BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION
ORGAN ABSORBED	NUCLIDE NB-97M	1.00	0.500
	NB-97	1.00	0.500
			0.500
			0.500
BONE	NB-97M	0.357	1.00
	NB-97	0.357	1.00
KIDNEYS	NB-97M	8.550E-03	1.00
	NB-97	8.550E-03	1.00
SPLEEN	NB-97M	5.000E-03	1.00
	NB-97	5.000E-03	1.00
TESTES	NB-97M	1.280E-03	1.00
	NB-97	1.280E-03	1.00
			200.

S FACTORS (REM/MICROCURIE-DAY) FOR NB-97M

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
LUNGS	0.252E-02	0.252E-02	0.226E-03	0.433E-04	0.475E-04	0.166E-04	0.124E-03	0.122E-03	0.269E-03	0.277E-05	0.165E-03
RES LYM	0.252E-02	0.507E-01	0.226E-03	0.433E-04	0.475E-04	0.166E-04	0.124E-03	0.122E-03	0.269E-03	0.277E-05	0.165E-03
S WALL	0.236E-03	0.236E-03	0.789E-02	0.429E-03	0.448E-03	0.210E-03	0.707E-04	0.415E-03	0.118E-02	0.127E-04	0.172E-03
ST WALL	0.379E-04	0.379E-04	0.321E-03	0.470E-02	0.199E-02	0.110E-02	0.104E-03	0.344E-03	0.174E-03	0.677E-04	0.188E-03
ULI WALL	0.503E-04	0.503E-04	0.391E-03	0.281E-02	0.701E-02	0.505E-03	0.933E-04	0.356E-03	0.175E-03	0.464E-04	0.198E-03
LLI WALL	0.110E-04	0.110E-04	0.165E-03	0.841E-03	0.393E-03	0.905E-03	0.127E-03	0.109E-03	0.835E-04	0.319E-03	0.199E-03
T BODY	0.191E-03	0.191E-03	0.224E-03	0.251E-03	0.243E-03	0.242E-03	0.190E-03	0.222E-03	0.221E-03	0.190E-03	0.189E-03
ADREN	0.301E-03	0.301E-03	0.266E-03	0.151E-03	0.142E-03	0.623E-04	0.224E-03	0.155E-02	0.822E-03	0.101E-04	0.250E-03
GL WALL	0.105E-04	0.105E-04	0.602E-04	0.348E-03	0.253E-03	0.664E-03	0.686E-04	0.540E-04	0.313E-04	0.649E-03	0.248E-03
KIDNEYS	0.127E-03	0.127E-03	0.408E-03	0.395E-03	0.349E-03	0.110E-03	0.133E-03	0.113E-03	0.103E-02	0.159E-03	0.193E-03
LIVER	0.296E-03	0.296E-03	0.249E-03	0.229E-03	0.309E-03	0.463E-04	0.903E-04	0.485E-03	0.135E-03	0.993E-05	0.309E-03
OVARIES	0.205E-04	0.205E-04	0.125E-03	0.119E-02	0.126E-02	0.203E-02	0.129E-03	0.174E-03	0.102E-03	0.0	0.275E-03
PANCREAS	0.313E-03	0.313E-03	0.210E-02	0.256E-03	0.241E-03	0.933E-04	0.119E-03	0.837E-03	0.233E-02	0.900E-05	0.316E-03
BONE	0.124E-03	0.124E-03	0.741E-04	0.975E-04	0.878E-04	0.128E-03	0.564E-03	0.121E-03	0.956E-04	0.826E-04	0.150E-03
R MAR	0.156E-03	0.156E-03	0.127E-03	0.305E-03	0.259E-03	0.151E-03	0.437E-03	0.305E-03	0.141E-03	0.654E-04	0.213E-03
Y MAR	0.130E-03	0.130E-03	0.103E-03	0.135E-03	0.125E-03	0.157E-03	0.372E-03	0.150E-03	0.143E-03	0.358E-04	0.182E-03
ENDOST	0.124E-03	0.124E-03	0.741E-04	0.975E-04	0.878E-04	0.128E-03	0.532E-03	0.121E-03	0.956E-04	0.826E-04	0.165E-03
SPLEEN	0.270E-03	0.270E-03	0.117E-02	0.195E-03	0.163E-03	0.126E-03	0.109E-03	0.103E-02	0.202E-01	0.126E-04	0.175E-03
TESTES	0.382E-05	0.382E-05	0.119E-04	0.563E-04	0.687E-04	0.225E-03	0.784E-04	0.204E-04	0.134E-04	0.656E-01	0.142E-03
THYMUS	0.489E-03	0.489E-03	0.669E-04	0.189E-04	0.206E-04	0.840E-05	0.102E-03	0.319E-04	0.753E-04	0.190E-05	0.230E-03
THYROID	0.164E-03	0.164E-03	0.206E-04	0.599E-05	0.637E-05	0.289E-05	0.103E-03	0.133E-04	0.201E-04	0.669E-06	0.205E-03
UTERUS	0.136E-04	0.136E-04	0.117E-03	0.106E-02	0.570E-03	0.691E-03	0.949E-04	0.105E-03	0.690E-04	0.0	0.336E-03

IT decay (60 S 1)

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
NB-97M	Y	0.0	1.000E-02	0.0	0.0
NB-97	Y	0.0	1.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER
TARGET											
LUNGS	1.646E-05	9.664E-11	4.091E-09	8.884E-10	3.632E-10	1.510E-11	1.552E-10	3.650E-12	4.769E-12	1.113E-14	3.633E-10
RES LYM	1.646E-05	6.044E-09	4.091E-09	8.884E-10	3.632E-10	1.510E-11	1.552E-10	3.650E-12	4.769E-12	1.113E-14	3.633E-10
S WALL	2.747E-07	8.178E-13	1.016E-06	8.838E-09	3.553E-09	2.129E-10	9.006E-11	1.253E-11	2.111E-11	6.033E-14	3.779E-10
SI WALL	4.374E-08	1.289E-13	5.811E-09	7.576E-07	1.589E-08	1.086E-09	1.289E-10	1.035E-11	3.064E-12	3.044E-13	4.141E-10
ULI WALL	5.839E-08	1.732E-13	7.151E-09	5.846E-08	5.142E-07	5.063E-10	1.148E-10	1.074E-11	3.084E-12	1.998E-13	4.359E-10
LLI WALL	1.262E-08	3.690E-14	2.928E-09	1.742E-08	3.056E-09	1.019E-07	1.554E-10	3.305E-12	1.494E-12	1.495E-12	4.383E-10
T BODY	4.161E-07	1.921E-12	5.904E-09	1.123E-08	3.300E-09	4.509E-10	6.623E-10	1.682E-11	9.837E-12	2.375E-12	1.153E-09
ADREN	3.525E-07	1.057E-12	4.784E-09	3.151E-09	1.074E-09	6.127E-11	2.773E-10	4.676E-11	1.405E-11	4.387E-14	1.999E-09
BL WALL	1.205E-08	3.524E-14	1.063E-09	7.787E-09	1.956E-09	6.692E-10	9.218E-11	1.564E-12	4.662E-13	2.906E-12	1.273E-09
KIDNEYS	1.495E-07	4.511E-13	7.335E-09	8.199E-09	2.733E-09	1.062E-10	1.585E-10	2.638E-09	1.831E-11	6.736E-14	4.239E-10
LIVER	3.464E-07	1.037E-12	4.506E-09	4.727E-09	2.444E-09	4.465E-11	1.128E-10	1.475E-11	2.367E-12	3.976E-14	2.132E-09
OVARIES	2.374E-08	7.022E-14	1.858E-09	2.375E-08	1.091E-08	1.977E-09	1.646E-10	4.932E-12	1.983E-12	0.0	2.557E-09
PANCREAS	3.730E-07	1.141E-12	3.814E-08	5.344E-09	1.860E-09	9.213E-11	1.470E-10	2.499E-11	4.165E-11	3.434E-14	2.151E-09
BONE	1.453E-07	4.358E-13	1.340E-09	2.023E-09	7.037E-10	1.271E-10	6.181E-09	3.679E-12	1.685E-12	3.728E-13	4.442E-10
R MAR	1.827E-07	5.476E-13	2.293E-09	6.371E-09	2.078E-09	3.791E-10	2.327E-09	9.248E-12	2.482E-12	2.954E-13	1.488E-09
Y MAR	1.526E-07	4.589E-13	1.858E-09	2.786E-09	9.952E-10	1.564E-10	4.680E-10	4.542E-12	2.521E-12	1.609E-13	1.853E-09
ENDOST	1.453E-07	4.358E-13	1.340E-09	2.023E-09	7.037E-10	1.271E-10	4.983E-09	3.679E-12	1.685E-12	3.728E-13	1.143E-09
SPLEEN	3.152E-07	9.411E-13	2.115E-08	4.065E-09	1.266E-09	1.217E-10	1.354E-10	3.110E-11	2.671E-09	6.260E-14	3.928E-10
TESTES	4.329E-09	1.247E-14	1.606E-10	1.087E-09	5.317E-10	2.336E-10	9.589E-11	5.982E-13	2.276E-13	3.334E-09	3.124E-10
THYMUS	5.656E-07	1.671E-12	9.695E-10	3.814E-10	1.589E-10	7.909E-12	1.254E-10	1.152E-12	1.235E-12	7.850E-15	1.441E-09
THYROID	1.890E-07	5.557E-13	3.603E-10	1.172E-10	4.775E-11	2.640E-12	1.443E-10	3.858E-13	3.440E-13	2.668E-15	1.322E-09
UTERUS	1.565E-08	4.592E-14	2.077E-09	2.220E-08	4.487E-09	6.823E-10	1.097E-10	3.161E-12	1.151E-12	0.0	1.522E-09

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.647E-05
RES LYM	1.647E-05
S WALL	1.304E-06
SI WALL	8.247E-07
ULI WALL	6.393E-07
LLI WALL	1.385E-07
T BODY	4.388E-07
ADREN	3.639E-07
BL WALL	2.489E-08
KIDNEYS	1.712E-07
LIVER	3.604E-07
OVARIES	6.447E-08
PANCREAS	4.208E-07
BONE	1.561E-07
R MAR	1.976E-07
Y MAR	1.608E-07
ENDOST	1.556E-07
SPLEEN	3.450E-07
TESTES	1.009E-08
THYMUS	5.687E-07
THYROID	1.915E-07
UTERUS	4.683E-08

PERCENT DOSE EQUIVALENT..

NUCLIDE	NB-97M	NB-97
TARGET		
LUNGS	9.8	90.2
RES LYM	9.8	90.2
S WALL	12.0	88.0
SI WALL	3.0	97.0
ULI WALL	5.1	94.9
LLI WALL	5.2	94.8
T BODY	27.9	72.1
ADREN	52.9	47.1
BL WALL	27.4	72.6
KIDNEYS	47.6	52.4
LIVER	52.5	47.5
OVARIES	20.6	79.4
PANCREAS	47.9	52.1
BONE	50.8	49.2
R MAR	50.5	49.5
Y MAR	51.8	48.2
ENDOST	51.0	49.0
SPLEEN	50.3	49.7
TESTES	24.8	75.2
THYMUS	55.0	45.0
THYROID	54.7	45.3
UTERUS	18.9	81.1

NIOBIUM-97m CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	NB-97M	NB-97
STOMACH	0.0	0.0
S INT	1.000E-02	1.000E-02
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	BONE	KIDNEYS	SPLEEN	TESTES	OTHER	TOTAL
TARGET										
LUNGS	2.950E-07	1.842E-08	7.135E-09	2.964E-10	7.848E-11	1.846E-12	2.414E-12	5.578E-15	1.838E-10	3.211E-07
RES LYM	2.950E-07	1.842E-08	7.135E-09	2.964E-10	7.848E-11	1.846E-12	2.414E-12	5.578E-15	1.838E-10	3.211E-07
S WALL	2.681E-05	1.632E-07	6.980E-08	4.180E-09	4.562E-11	6.344E-12	1.070E-11	3.065E-14	1.911E-10	2.706E-05
SI WALL	4.190E-07	1.497E-05	3.121E-07	2.132E-08	6.517E-11	5.236E-12	1.551E-12	1.540E-13	2.095E-10	1.572E-05
ULI WALL	5.117E-07	1.211E-06	1.009E-05	9.937E-09	5.802E-11	5.438E-12	1.560E-12	1.008E-13	2.205E-10	1.183E-05
LLI WALL	2.142E-07	3.611E-07	6.003E-08	2.000E-08	7.849E-11	1.673E-12	7.567E-13	7.587E-13	2.217E-10	2.636E-06
T BODY	3.273E-07	2.260E-07	6.481E-08	8.849E-09	3.516E-10	8.907E-12	5.209E-12	1.261E-12	6.122E-10	6.280E-07
ADREN	3.466E-07	6.528E-08	2.110E-08	1.203E-09	1.402E-10	2.366E-11	7.096E-12	2.214E-14	1.068E-09	4.354E-07
BL WALL	7.806E-08	1.607E-07	3.842E-08	1.314E-08	4.688E-11	7.888E-13	2.326E-13	1.470E-12	6.723E-10	2.911E-07
KIDNEYS	5.316E-07	1.699E-07	5.368E-08	2.085E-09	7.989E-11	1.424E-09	9.274E-12	3.392E-14	2.144E-10	7.589E-07
LIVER	3.250E-07	9.798E-08	4.802E-08	8.764E-10	5.704E-11	7.468E-12	1.197E-12	1.993E-14	1.135E-09	4.731E-07
OVARIES	1.555E-07	4.932E-07	2.144E-07	3.881E-08	8.339E-11	2.484E-12	1.011E-12	0.0	1.097E-09	9.031E-07
PANCREAS	2.743E-06	1.107E-07	3.653E-08	1.808E-09	7.425E-11	1.264E-11	2.110E-11	1.714E-14	1.145E-09	2.894E-06
BONE	9.669E-08	4.193E-08	1.382E-08	2.495E-09	3.340E-09	1.863E-12	8.529E-13	1.887E-13	2.291E-10	1.585E-07
R MAR	1.656E-07	1.320E-07	4.082E-08	7.442E-09	1.247E-09	4.682E-12	1.256E-12	1.495E-13	7.922E-10	3.479E-07
Y MAR	1.343E-07	5.775E-08	1.955E-08	3.071E-09	2.369E-10	2.299E-12	1.276E-12	8.140E-14	9.942E-10	2.159E-07
ENDOST	9.669E-08	4.193E-08	1.382E-08	2.495E-09	2.689E-09	1.863E-12	8.529E-13	1.887E-13	6.086E-10	1.582E-07
SPLEEN	1.527E-06	8.421E-08	2.487E-08	2.388E-09	6.846E-11	1.574E-11	1.442E-09	3.191E-14	1.936E-10	1.640E-06
TESTES	1.450E-08	2.262E-08	1.045E-08	4.585E-09	4.842E-11	3.021E-13	1.148E-13	1.805E-09	1.580E-10	5.415E-08
THYMUS	8.275E-08	7.915E-09	3.122E-09	1.552E-10	6.335E-11	5.907E-13	6.213E-13	3.945E-15	7.653E-10	9.477E-08
THYROID	2.665E-08	2.436E-09	9.382E-10	5.182E-11	7.357E-11	1.947E-13	1.737E-13	1.337E-15	1.019E-09	3.117E-08
UTERUS	1.519E-07	4.597E-07	8.816E-08	1.339E-08	5.515E-11	1.599E-12	5.801E-13	0.0	8.548E-10	7.141E-07

PERCENT DOSE EQUIVALENT..

NUCLIDE	NB-97M	NB-97
TARGET		
LUNGS	69.1	30.9
RES LYM	69.1	30.9
S WALL	28.5	71.5
SI WALL	2.7	97.3
ULI WALL	3.8	96.2
LLI WALL	6.9	93.1
T BODY	35.8	64.2
ADREN	60.5	39.5
BL WALL	23.0	77.0
KIDNEYS	53.8	46.2
LIVER	52.6	47.4
OVARIES	16.6	83.4
PANCREAS	71.2	28.8
BONE	47.2	52.8
R MAR	37.7	62.3
Y MAR	48.1	51.9
ENDOST	47.2	52.8
SPLEEN	70.0	30.0
TESTES	23.9	76.1
THYMUS	69.5	30.5
THYROID	65.1	34.9
UTERUS	19.5	80.5

MOLYBDENUM-99

RADIONUCLIDE: MO-99

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)
MO-99	2.750
TC-99M	0.2510
TC-99	7.7700E 07

BRANCHING RATIOS:	FROM	TO	FRACTION
	MO-99	TC-99M	0.8680
	MO-99	TC-99	0.1320
	TC-99M	TC-99	1.000

ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
	MO-99	1.00	0.150	1.00
			0.850	50.0
	TC-99M	1.00	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
	TC-99	1.00	0.760	1.60
BONE			0.200	3.70
			4.000E-02	22.0
	MO-99	0.150	0.150	1.00
			0.850	50.0
	TC-99M	0.128	0.760	1.60
			0.200	3.70
LIVER			4.000E-02	22.0
	TC-99	0.128	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
	MO-99	0.570	0.150	1.00
			0.850	50.0
KIDNEYS			0.760	1.60
			0.200	3.70
	TC-99M	8.000E-02	4.000E-02	22.0
			0.760	1.60
	TC-99	8.000E-02	0.200	3.70
			4.000E-02	22.0
THYROID			0.150	1.00
			0.850	50.0
	MO-99	6.000E-02	0.760	1.60
			0.200	3.70
	TC-99M	1.000E-02	4.000E-02	22.0
			0.760	1.60
			0.200	3.70
			4.000E-02	22.0
	TC-99	1.000E-02	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
	* MO-99	1.290E-04	0.150	1.00
			0.850	50.0
			0.760	1.60
	TC-99M	2.000E-02	0.200	3.70
			4.000E-02	22.0
	TC-99	2.000E-02	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
			4.000E-02	22.0

β⁻ decay (66.02 H 1)

Inhalation and ingestion of molybdenum oxides is represented by Cases 2 and 4, respectively; inhalation and ingestion of molybdates is represented by Cases 1 and 3.

* Retention data derived from "other tissues" compartment.

MOLYBDENUM-99 CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR MO-99

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID
LUNGS	0.203E-01	0.203E-01	0.501E-04	0.916E-05	0.101E-04	0.349E-05	0.276E-04	0.679E-04	0.267E-04	0.304E-04
RES LYM	0.203E-01	0.133E-01	0.501E-04	0.916E-05	0.101E-04	0.349E-05	0.276E-04	0.679E-04	0.267E-04	0.304E-04
S WALL	0.525E-04	0.525E-04	0.412E-01	0.969E-04	0.101E-03	0.471E-04	0.157E-04	0.536E-04	0.932E-04	0.337E-05
SI WALL	0.797E-05	0.797E-05	0.720E-04	0.257E-01	0.452E-03	0.251E-03	0.227E-04	0.443E-04	0.772E-04	0.616E-06
ULI WALL	0.105E-04	0.105E-04	0.892E-04	0.647E-03	0.464E-01	0.115E-03	0.207E-04	0.690E-04	0.795E-04	0.699E-06
LLI WALL	0.245E-05	0.245E-05	0.365E-04	0.192E-03	0.879E-04	0.751E-01	0.285E-04	0.806E-05	0.239E-04	0.490E-06
T BODY	0.325E-03	0.325E-03	0.135E-03	0.282E-03	0.189E-03	0.222E-03	0.325E-03	0.332E-03	0.331E-03	0.321E-03
ADREN	0.678E-04	0.678E-04	0.612E-04	0.340E-04	0.306E-04	0.134E-04	0.474E-04	0.135E-03	0.340E-03	0.558E-05
BL WALL	0.216E-05	0.216E-05	0.124E-04	0.766E-04	0.571E-04	0.154E-03	0.150E-04	0.697E-05	0.114E-04	0.327E-06
KIDNEYS	0.277E-04	0.277E-04	0.620E-04	0.879E-04	0.778E-04	0.246E-04	0.288E-04	0.104E-03	0.662E-01	0.218E-05
LIVER	0.668E-04	0.668E-04	0.555E-04	0.512E-04	0.693E-04	0.985E-05	0.199E-04	0.118E-01	0.108E-03	0.467E-05
OVARIES	0.432E-05	0.432E-05	0.256E-04	0.272E-03	0.288E-03	0.471E-03	0.273E-04	0.129E-04	0.379E-04	0.581E-06
PANCREAS	0.699E-04	0.699E-04	0.477E-03	0.570E-04	0.556E-04	0.207E-04	0.266E-04	0.124E-03	0.186E-03	0.186E-05
BONE	0.292E-04	0.292E-04	0.175E-04	0.234E-04	0.210E-04	0.307E-04	0.377E-02	0.215E-04	0.286E-04	0.216E-04
R MAR	0.369E-04	0.369E-04	0.302E-04	0.744E-04	0.632E-04	0.926E-04	0.123E-02	0.308E-04	0.726E-04	0.236E-04
Y MAR	0.308E-04	0.308E-04	0.244E-04	0.324E-04	0.299E-04	0.379E-04	0.891E-04	0.317E-04	0.354E-04	0.115E-04
ENDOST	0.292E-04	0.292E-04	0.175E-04	0.234E-04	0.210E-04	0.307E-04	0.298E-02	0.215E-04	0.286E-04	0.216E-04
SPLEEN	0.610E-04	0.610E-04	0.265E-03	0.433E-04	0.368E-04	0.272E-04	0.233E-04	0.294E-04	0.234E-03	0.454E-05
TESTES	0.764E-06	0.764E-06	0.251E-05	0.120E-04	0.142E-04	0.504E-04	0.175E-04	0.473E-05	0.427E-05	0.130E-06
THYMUS	0.110E-03	0.110E-03	0.138E-04	0.397E-05	0.435E-05	0.172E-05	0.214E-04	0.281E-04	0.682E-05	0.115E-03
THYROID	0.347E-04	0.347E-04	0.432E-05	0.121E-05	0.129E-05	0.576E-06	0.230E-04	0.539E-05	0.274E-05	0.101E-01
UTERUS	0.295E-05	0.295E-05	0.255E-04	0.242E-03	0.129E-03	0.161E-03	0.205E-04	0.115E-04	0.241E-04	0.553E-06

S FACTORS (REM/MICROCURIE-DAY) FOR MO-99

TARGET ORGANS	SOURCE ORGANS									
	OTHER									
LUNGS	0.354E-04									
RES LYM	0.354E-04									
S WALL	0.386E-04									
SI WALL	0.420E-04									
ULI WALL	0.430E-04									
LLI WALL	0.461E-04									
T BODY	0.322E-03									
ADREN	0.630E-03									
BL WALL	0.347E-03									
KIDNEYS	0.407E-04									
LIVER	0.302E-04									
OVARIES	0.642E-03									
PANCREAS	0.648E-03									
BONE	0.785E-04									
R MAR	0.464E-03									
Y MAR	0.620E-03									
ENDOST	0.347E-03									
SPLEEN	0.641E-03									
TESTES	0.626E-03									
THYMUS	0.670E-03									
THYROID	0.351E-04									
UTERUS	0.705E-03									

MOLYBDENUM-99 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	LL INT
MO-99	D	0.0	0.950	0.0	0.0
TC-99M	D	0.0	0.800	0.0	0.0
TC-99	D	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	3.324E-03	5.463E-04	3.555E-07	1.549E-08	5.538E-08	2.846E-08	1.338E-05	1.283E-04	4.997E-06	3.417E-08	2.599E-05
RES LYM	3.323E-03	3.534E-02	3.555E-07	1.549E-08	5.538E-08	2.846E-08	1.338E-05	1.283E-04	4.997E-06	3.417E-08	2.599E-05
S WALL	1.227E-05	2.278E-06	2.709E-04	1.858E-07	6.329E-07	4.681E-07	7.655E-06	9.840E-05	1.880E-05	2.134E-09	2.785E-05
SI WALL	1.666E-06	2.995E-07	5.206E-07	3.461E-05	2.821E-06	2.489E-06	1.076E-05	8.348E-05	1.541E-05	4.180E-10	3.133E-05
ULI WALL	2.142E-06	3.823E-07	6.450E-07	1.224E-06	1.806E-04	1.128E-06	9.923E-06	1.294E-04	1.564E-05	4.915E-10	3.191E-05
LLI WALL	5.413E-07	9.894E-08	2.606E-07	3.681E-07	5.451E-07	4.324E-04	1.415E-05	1.375E-05	4.379E-06	2.462E-10	3.438E-05
T BODY	5.575E-05	9.345E-06	9.168E-07	4.058E-07	8.521E-07	1.483E-06	1.062E-04	4.153E-04	4.356E-05	1.297E-07	1.542E-04
ADREN	1.644E-05	3.081E-06	4.507E-07	6.108E-08	1.762E-07	1.156E-07	1.999E-05	2.441E-04	6.406E-05	4.968E-09	2.938E-04
BL WALL	4.197E-07	7.370E-08	8.556E-08	1.417E-07	3.635E-07	1.664E-06	7.259E-06	1.102E-05	1.959E-06	1.416E-10	1.710E-04
KIDNEYS	6.203E-06	1.138E-06	6.661E-07	1.663E-07	4.829E-07	2.369E-07	1.306E-05	1.983E-04	8.151E-03	1.507E-09	2.971E-05
LIVER	1.585E-05	2.954E-06	4.001E-07	9.642E-08	4.330E-07	8.354E-08	9.504E-06	1.406E-02	2.116E-05	3.828E-09	2.203E-05
OVARIES	8.874E-07	1.587E-07	1.764E-07	5.283E-07	1.863E-06	4.690E-06	1.195E-05	2.366E-05	6.909E-06	2.855E-10	3.037E-04
PANCREAS	1.663E-05	3.102E-06	3.454E-06	1.074E-07	3.666E-07	2.018E-07	1.258E-05	2.267E-04	3.621E-05	2.524E-09	3.078E-04
BONE	7.781E-06	1.452E-06	1.313E-07	5.089E-08	1.556E-07	3.615E-07	1.166E-03	4.724E-05	6.523E-06	3.428E-08	4.452E-05
R MAR	9.866E-06	1.854E-06	2.275E-07	1.656E-07	4.858E-07	1.108E-06	3.887E-04	6.805E-05	1.683E-05	3.747E-08	2.276E-04
Y MAR	8.140E-06	1.558E-06	1.831E-07	7.088E-08	2.227E-07	4.468E-07	4.756E-05	6.987E-05	8.036E-06	1.773E-08	2.906E-04
ENDOST	7.781E-06	1.452E-06	1.313E-07	5.089E-08	1.556E-07	3.615E-07	9.214E-04	4.724E-05	6.523E-06	3.428E-08	1.549E-04
SPLEEN	1.461E-05	2.730E-06	1.918E-06	8.126E-08	2.354E-07	2.438E-07	1.009E-05	5.184E-05	4.628E-05	4.134E-09	3.021E-04
TESTES	1.383E-07	2.367E-08	1.733E-08	2.062E-08	7.117E-08	4.847E-07	8.730E-06	6.570E-06	6.947E-07	4.692E-11	2.905E-04
THYMUS	2.671E-05	5.009E-06	9.459E-08	6.476E-09	2.309E-08	1.260E-08	9.206E-06	4.455E-05	1.240E-06	1.481E-07	3.296E-04
THYROID	7.472E-06	1.356E-06	2.962E-08	1.816E-09	5.921E-09	3.799E-09	1.115E-05	5.083E-06	4.265E-07	3.141E-04	2.568E-05
UTERUS	6.427E-07	1.170E-07	1.809E-07	4.705E-07	8.448E-07	1.722E-06	9.195E-06	2.088E-05	4.882E-06	2.691E-10	3.498E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE TOTAL

TARGET	4.043E-03
LUNGS	3.883E-02
RES LYM	4.395E-04 *
S WALL	1.834E-04
SI WALL	3.730E-04
ULI WALL	5.008E-04
LLI WALL	7.881E-04
T BODY	6.423E-04
ADREN	1.940E-04
BL WALL	8.401E-03
KIDNEYS	1.413E-02
OVARIES	3.545E-04
PANCREAS	6.071E-04
BONE	1.274E-03
R MAR	7.150E-04
Y MAR	4.267E-04
ENDOST	1.150E-03
SPLEEN	4.301E-04
TESTES	3.072E-04
THYMUS	4.166E-04
THYROID	3.693E-04
UTERUS	3.888E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE MO-99 TC-99M TC-99

TARGET	95.1	4.5	0.0
LUNGS	96.7	3.3	0.0
RES LYM	84.4	15.6	0.0
* S WALL	66.3	33.7	0.0
SI WALL	77.1	22.5	0.0
ULI WALL	90.5	9.5	0.0
LLI WALL	85.6	14.4	0.0
T BODY	76.0	24.0	0.0
ADREN	84.7	15.3	0.0
BL WALL	94.2	5.8	0.0
KIDNEYS	93.4	6.6	0.0
LIVER	86.8	13.2	0.0
OVARIES	76.2	23.8	0.0
PANCREAS	92.0	8.0	0.0
BONE	85.5	14.5	0.0
R MAR	79.3	20.7	0.0
Y MAR	91.9	8.1	0.0
ENDOST	82.8	17.2	0.0
SPLEEN	91.3	8.7	0.0
TESTES	82.3	16.7	0.0
THYMUS	78.4	21.6	0.0
THYROID	84.2	15.8	0.0
UTERUS			

* The estimated dose to the stomach wall should be increased to 4.5E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

MOLYBDENUM-99 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =C.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
MO-99	Y	0.0	5.000E-02	0.0	0.0
TC-99M	W	0.0	0.800	0.0	0.0
TC-99	W	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	1.886E-02	1.740E-05	1.256E-06	6.325E-07	2.471E-06	1.329E-06	8.329E-07	5.71E-06	2.245E-07	5.251E-08	3.608E-06
RES LYM	1.886E-02	1.121E-03	1.296E-06	6.325E-07	2.471E-06	1.329E-06	8.329E-07	5.71E-06	2.245E-07	5.251E-08	3.538E-06
S WALL	7.638E-05	8.041E-08	7.274E-04	7.096E-06	2.776E-05	2.170E-05	4.820E-07	4.37E-05	8.552E-07	2.564E-09	3.796E-06
SI WALL	1.011E-05	1.031E-08	1.916E-06	1.611E-03	1.238E-04	1.154E-04	6.621E-07	3.72E-06	6.999E-07	5.236E-10	4.417E-06
ULI WALL	1.293E-05	1.308E-08	2.430E-06	4.707E-05	8.510E-03	5.234E-05	6.141E-07	5.763E-06	7.084E-07	6.279E-10	4.475E-06
LLI WALL	3.328E-06	3.450E-09	9.266E-07	1.406E-05	2.394E-05	2.049E-02	8.922E-07	6.040E-07	1.960E-07	2.464E-10	4.846E-06
T BODY	3.209E-04	3.031E-07	2.783E-06	1.815E-05	3.915E-05	6.978E-05	4.883E-06	1.721E-05	1.814E-06	9.915E-08	9.342E-06
ADREN	1.031E-04	1.055E-07	1.741E-06	2.414E-06	7.810E-06	5.385E-06	1.144E-06	1.082E-05	2.841E-06	7.070E-09	1.728E-05
BL WALL	2.503E-06	2.488E-09	2.755E-07	5.514E-06	1.591E-05	7.657E-05	4.516E-07	4.783E-07	8.667E-08	1.197E-10	1.207E-05
KIDNEYS	3.825E-05	3.581E-08	2.461E-06	6.395E-06	2.120E-05	1.099E-05	7.829E-07	8.853E-06	3.332E-04	1.908E-09	4.098E-06
LIVER	9.892E-05	1.045E-07	1.461E-06	3.717E-06	1.900E-05	3.894E-06	5.870E-07	5.757E-04	9.581E-07	5.267E-09	3.037E-06
OVARIES	5.365E-06	5.438E-09	5.625E-07	2.004E-05	8.140E-05	2.175E-04	7.010E-07	1.050E-06	3.089E-07	2.795E-10	1.880E-05
PANCREAS	1.039E-04	1.058E-07	1.277E-05	4.140E-06	1.598E-05	9.364E-06	7.724E-07	1.006E-05	1.638E-06	4.066E-09	1.933E-05
BONE	4.966E-05	5.352E-08	5.313E-07	1.825E-06	6.696E-06	1.668E-05	5.033E-05	2.147E-06	3.022E-07	5.702E-08	4.354E-06
R MAR	6.300E-05	6.847E-08	9.291E-07	5.873E-06	2.083E-05	5.110E-05	1.721E-05	3.097E-06	7.812E-07	6.232E-08	1.555E-05
Y MAR	5.188E-05	5.623E-08	7.411E-07	2.535E-06	9.577E-06	2.062E-05	3.109E-06	3.177E-06	3.720E-07	2.932E-08	1.741E-05
ENDOST	4.966E-05	5.392E-08	5.313E-07	1.825E-06	6.696E-06	1.668E-05	3.975E-05	2.147E-06	3.022E-07	5.702E-08	1.037E-05
SPLEEN	9.136E-05	9.679E-08	7.082E-06	3.135E-06	1.030E-05	1.134E-05	5.873E-07	2.288E-06	2.099E-06	5.933E-09	1.847E-05
TESTES	8.085E-07	7.819E-10	5.562E-08	8.345E-07	3.217E-06	2.250E-05	5.520E-07	2.783E-07	3.040E-08	2.914E-11	1.576E-05
THYMUS	1.575E-04	1.781E-07	3.018E-07	2.697E-07	1.035E-06	5.905E-07	5.339E-07	1.934E-06	5.543E-08	2.357E-07	2.315E-05
THYROID	4.368E-05	4.700E-08	5.566E-08	7.928E-08	2.712E-07	1.789E-07	6.944E-07	3.982E-07	1.849E-08	1.271E-04	3.551E-06
UTERUS	3.940E-06	4.067E-09	6.314E-07	1.784E-05	3.686E-05	7.967E-05	5.476E-07	9.260E-07	2.222E-07	2.609E-10	2.519E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.889E-02
RES LYM	1.999E-02
S WALL	8.699E-04 *
SI WALL	1.871E-03
ULI WALL	8.637E-03
LLI WALL	2.054E-02
T BODY	4.850E-04
ADREN	1.526E-04
BL WALL	1.143E-04
KIDNEYS	4.262E-04
LIVER	7.074E-04
OVARIES	3.457E-04
PANCREAS	1.780E-04
BONE	1.326E-04
R MAR	1.788E-04
Y MAR	1.095E-04
ENDOST	1.281E-04
SPLEEN	1.468E-04
TESTES	4.504E-05
THYMUS	1.958E-04
THYROID	1.781E-04
UTERUS	1.658E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	MO-99	TC-99M	TC-99
TARGET			
LUNGS	95.9	4.1	0.0
RES LYM	95.9	4.1	0.0
* S WALL	90.1	5.5	0.0
* SI WALL	93.3	6.7	0.0
ULI WALL	96.0	4.0	0.0
LLI WALL	95.5	4.5	0.0
T BODY	88.0	12.0	0.0
ADREN	60.0	40.0	0.0
BL WALL	55.7	44.3	0.0
KIDNEYS	86.9	13.1	0.0
LIVER	86.2	13.8	0.0
OVARIES	59.9	40.1	0.0
PANCREAS	60.2	39.8	0.0
BONE	65.2	34.8	0.0
R MAR	54.6	45.4	0.0
Y MAR	53.4	46.6	0.0
ENDOST	63.9	36.1	0.0
SPLEEN	60.6	39.4	0.0
TESTES	63.1	36.9	0.0
THYMUS	57.7	42.3	0.0
THYROID	24.1	75.9	0.0
UTERUS	57.8	42.2	0.0

* The estimated dose to the stomach wall should be increased to 8.8E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TC BLOOD)

	MO-99	TC-99M	TC-99
STOMACH	0.0	0.0	0.0
S INT	0.950	0.800	0.800
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CCNT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET										
LUNGS	2.221E-06	9.308E-08	3.426E-07	1.738E-07	2.139E-05	2.062E-04	8.032E-06	3.095E-08	4.063E-05	2.791E-04
RES LYM	2.221E-06	9.308E-08	3.426E-07	1.738E-07	2.139E-05	2.062E-04	8.032E-06	3.095E-08	4.063E-05	2.791E-04
S WALL	1.709E-03	1.093E-06	3.853E-06	2.934E-06	1.231E-05	1.582E-04	3.021E-05	2.270E-09	4.356E-05	1.961E-03 *
SI WALL	3.210E-06	2.173E-04	1.736E-05	1.560E-05	1.722E-05	1.342E-04	2.477E-05	4.345E-10	4.695E-05	4.786E-04
ULI WALL	3.996E-06	7.216E-06	1.139E-03	7.074E-06	1.587E-05	2.080E-04	2.513E-05	5.051E-10	4.986E-05	1.456E-03
LLI WALL	1.612E-06	2.166E-06	3.354E-06	2.731E-03	2.262E-05	2.211E-05	7.039E-06	2.850E-10	5.371E-05	2.844E-03
T BODY	5.739E-06	2.513E-06	5.325E-06	9.345E-06	1.706E-04	6.683E-04	7.009E-05	1.645E-07	2.464E-04	1.178E-03
ADREN	2.707E-06	3.632E-07	1.088E-06	7.259E-07	3.202E-05	3.925E-04	1.070E-04	4.766E-09	4.703E-04	1.003E-03
BL WALL	5.354E-07	8.384E-07	2.234E-06	1.042E-05	1.161E-05	1.773E-05	3.150E-06	1.743E-10	2.728E-04	3.193E-04
KIDNEYS	4.136E-06	9.804E-07	2.971E-06	1.485E-06	2.090E-05	3.188E-04	1.312E-02	1.557E-05	4.645E-05	1.351E-02
LIVER	2.409E-06	5.689E-07	2.664E-06	5.247E-07	1.520E-05	2.262E-02	3.401E-05	3.757E-09	3.445E-05	2.271E-02
OVARIES	1.120E-06	3.102E-06	1.144E-05	2.940E-05	1.913E-05	3.803E-05	1.111E-05	3.334E-10	4.857E-04	5.990E-04
PANCREAS	2.123E-05	5.338E-07	2.250E-06	1.266E-06	2.012E-05	3.645E-04	5.820E-05	2.198E-09	4.921E-04	9.604E-04
BONE	8.028E-07	2.938E-07	9.510E-07	2.263E-06	1.875E-03	7.593E-05	1.048E-05	2.901E-08	7.046E-05	2.037E-03
R MAR	1.390E-06	9.530E-07	2.965E-06	6.932E-06	6.249E-04	1.094E-04	2.703E-05	3.171E-08	3.632E-04	1.137E-03
Y MAR	1.119E-06	4.089E-07	1.361E-06	2.797E-06	7.599E-05	1.123E-04	1.291E-05	1.506E-08	4.650E-04	6.719E-04
ENDOST	8.038E-07	2.938E-07	9.510E-07	2.263E-06	1.482E-03	7.593E-05	1.048E-05	2.901E-08	2.637E-04	1.836E-03
SPLEEN	1.182E-05	4.787E-07	1.447E-06	1.530E-06	1.615E-05	8.335E-05	7.438E-05	3.942E-09	4.833E-04	6.725E-04
TESTES	1.080E-07	1.235E-07	4.422E-07	3.040E-06	1.396E-05	1.057E-05	1.117E-06	6.270E-11	4.651E-04	4.945E-04
THYMUS	5.926E-07	3.915E-09	1.431E-07	7.927E-08	1.474E-05	7.164E-05	1.993E-06	1.303E-07	5.259E-04	6.153E-04
THYROID	1.859E-07	1.115E-08	3.656E-08	2.395E-08	1.783E-05	1.461E-05	6.858E-07	4.517E-04	4.015E-05	5.253E-04
UTERUS	1.121E-06	2.762E-06	5.187E-06	1.079E-05	1.472E-05	3.358E-05	7.846E-06	3.155E-10	5.579E-04	6.338E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	MO-99	TC-99M	TC-99
TARGET			
LUNGS	59.8	40.2	0.0
RES LYM	55.8	40.2	0.0
* S WALL	94.4	5.6	0.0
SI WALL	76.8	23.2	0.0
ULI WALL	88.1	11.9	0.0
LLI WALL	94.1	5.9	0.0
T BODY	89.5	10.5	0.0
ADREN	76.7	23.3	0.0
BL WALL	84.5	15.5	0.0
KIDNEYS	94.3	5.7	0.0
LIVER	93.5	6.5	0.0
OVARIES	85.8	14.2	0.0
PANCREAS	77.1	22.9	0.0
BONE	52.4	7.6	0.0
R MAR	86.0	14.0	0.0
Y MAR	80.1	19.9	0.0
ENDOST	92.2	7.8	0.0
SPLEEN	84.0	16.0	0.0
TESTES	91.6	8.4	0.0
THYMUS	85.5	14.5	0.0
THYROID	86.8	13.2	0.0
UTERUS	84.3	15.7	0.0

* The estimated dose to the stomach wall should be increased to 2.0E-3 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

MOLYBDENUM-99 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	MO-99	TC-99M	TC-99
STOMACH	0.0	0.0	0.0
S INT	5.000E-02	0.000	0.800
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET										
LUNGS	2.221E-06	1.454E-06	5.886E-06	3.217E-06	1.357E-06	1.097E-05	4.288E-07	4.886E-06	4.429E-06	3.001E-05
RES LYM	2.221E-06	1.454E-06	5.886E-06	3.217E-06	1.357E-06	1.097E-05	4.288E-07	4.886E-06	4.429E-06	3.001E-05
S WALL	1.709E-03	1.583E-05	6.569E-05	5.244E-05	7.832E-07	8.398E-06	1.623E-06	2.407E-05	4.683E-06	1.859E-03
SI WALL	3.210E-06	3.856E-03	2.930E-04	2.789E-04	1.085E-06	7.137E-06	1.329E-06	4.906E-10	5.401E-06	4.486E-03
ULI WALL	3.996E-06	1.053E-04	2.068E-02	1.265E-04	1.003E-06	1.106E-05	1.347E-06	5.881E-10	5.479E-06	2.093E-02
LLI WALL	1.612E-06	3.136E-05	5.662E-05	4.988E-02	1.445E-06	1.168E-06	3.751E-07	2.332E-10	5.925E-06	4.998E-02
T BODY	5.739E-06	4.329E-05	5.426E-05	1.695E-04	9.214E-06	3.433E-05	3.609E-06	9.522E-08	1.595E-05	3.760E-04
ADREN	2.767E-06	5.469E-06	1.856E-05	1.303E-05	1.937E-06	2.081E-05	5.500E-06	6.596E-09	2.889E-05	9.697E-05
BL WALL	5.354E-07	1.241E-05	3.762E-05	1.858E-04	7.361E-07	9.308E-07	1.669E-07	1.143E-10	1.863E-05	2.568E-04
KIDNEYS	4.106E-06	1.431E-05	5.020E-05	2.657E-05	1.298E-06	1.697E-05	6.697E-04	1.787E-09	5.039E-06	7.882E-04
LIVER	2.469E-06	8.327E-06	4.456E-05	9.426E-06	9.598E-07	1.156E-03	1.823E-06	4.920E-09	3.736E-06	1.228E-03
OVARIES	1.100E-06	4.457E-05	1.923E-04	5.254E-04	1.173E-06	2.019E-06	5.916E-07	2.648E-10	3.070E-05	7.979E-04
PANCREAS	2.129E-05	9.272E-06	3.773E-05	2.263E-05	1.266E-06	1.934E-05	3.118E-06	3.778E-09	3.137E-05	1.460E-04
BONE	8.728E-07	3.546E-06	1.573E-05	4.024E-05	9.821E-05	4.077E-06	5.680E-07	5.293E-08	5.942E-06	1.696E-04
R MAR	1.390E-06	1.262E-05	4.884E-05	1.232E-04	3.313E-05	5.878E-06	1.467E-06	5.786E-08	2.460E-05	2.512E-04
Y MAR	1.119E-06	5.472E-06	2.249E-05	4.974E-05	4.957E-06	6.030E-06	6.996E-07	2.722E-08	2.886E-05	1.194E-04
ENDOST	8.328E-07	3.546E-06	1.573E-05	4.024E-05	7.759E-05	4.077E-06	5.680E-07	5.293E-08	1.682E-05	1.598E-04
SPLEEN	1.182E-05	7.032E-06	2.435E-05	2.744E-05	9.865E-07	4.412E-06	3.989E-06	5.533E-09	3.034E-05	1.104E-04
TESTES	1.380E-07	1.911E-06	7.659E-06	5.438E-05	8.932E-07	5.486E-07	5.888E-08	2.833E-11	2.827E-05	9.387E-05
THYMUS	5.326E-07	6.251E-07	2.470E-06	1.432E-06	8.984E-07	3.762E-06	1.062E-07	2.191E-07	3.581E-05	4.591E-05
THYROID	1.859E-07	1.873E-07	6.524E-07	4.345E-07	1.131E-06	7.706E-07	3.599E-08	1.287E-04	4.364E-06	1.365E-04
UTERUS	1.121E-06	3.966E-05	8.705E-05	1.924E-04	9.103E-07	1.791E-06	4.216E-07	2.473E-10	3.856E-05	3.619E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	MO-99	TC-99M	TC-99
TARGET			
LUNGS	61.2	38.8	0.0
RES LYM	61.2	38.8	0.0
S WALL	96.5	3.5	0.0
SI WALL	94.4	5.6	0.0
ULI WALL	96.4	3.6	0.0
LLI WALL	95.6	4.4	0.0
T BODY	85.9	14.1	0.0
ADREN	70.3	29.7	0.0
BL WALL	57.3	42.5	0.0
KIDNEYS	90.3	9.7	0.0
LIVER	91.4	8.6	0.0
OVARIES	61.4	38.6	0.0
PANCREAS	69.7	30.3	0.0
BONE	75.5	24.5	0.0
R MAR	58.8	41.2	0.0
Y MAR	58.6	41.4	0.0
ENDOST	74.2	25.8	0.0
SPLEEN	71.2	28.8	0.0
TESTES	67.0	33.0	0.0
THYMUS	67.1	32.9	0.0
THYROID	17.9	82.1	0.0
UTERUS	61.3	38.7	0.0

* The estimated dose to the stomach wall should be increased to 1.9E-3 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

TECHNETIUM-99

RADIONUCLIDE: TC-99

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)				
NUCL IDE TC-99	7.7700E 07			
ORGAN ABSORBED	NUCL IDE TC-99	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
			0.760	1.60
			0.200	3.70
BONE	* TC-99	0.128	4.000E-02	22.0
			0.760	1.60
			0.200	3.70
			4.000E-02	22.0
LIVER	TC-99	8.000E-02	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
KIDNEYS	TC-99	1.000E-02	0.760	1.60
			0.200	3.70
			4.000E-02	22.0
THYROID	TC-99	2.000E-02	0.760	1.60
			0.200	3.70
			4.000E-02	22.0

S FACTORS (REM/MICROCURIE-DAY) FOR TC-99

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
LUNGS	0.433E-02	0.433E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	0.433E-02	0.288E 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.866E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.541E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.984E-02	0.0	0.0	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.160E-01	0.0	0.0	0.0	0.0	0.0
T BODY	0.618E-04	0.618E-04	0.186E-04	0.495E-04	0.295E-04	0.366E-04	0.618E-04	0.618E-04	0.618E-04	0.618E-04	0.615E-04
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.634E-04
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.140E-01	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.240E-02	0.0	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.834E-03	0.0	0.0	0.0	0.457E-05
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.107E-03	0.0	0.0	0.0	0.111E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.589E-03	0.0	0.0	0.0	0.655E-04
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.216E 00	0.0
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.127E-03

β⁻ decay (2.13E 5 Y 5)

Case 2 represents inhalation of oxide and hydroxide forms; Case 1 represents inhalation of other compounds.

* Retention data derived from "other tissues" compartment.

TECHNETIUM-99 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
TC-99 D	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	8.073E-04	1.556E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	8.073E-04	1.035E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	5.737E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	2.867E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	1.695E-04	0.0	0.0	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	5.088E-04	0.0	0.0	0.0	0.0	0.0
T BODY	1.152E-05	2.221E-06	1.232E-07	2.623E-07	5.081E-07	1.164E-06	1.966E-05	1.229E-05	1.536E-06	3.071E-06	1.164E-04
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.200E-04
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.479E-04	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.771E-04	0.0	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
BONE	0.0	0.0	0.0	0.0	0.0	0.0	2.653E-04	0.0	0.0	0.0	8.653E-06
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	3.403E-05	0.0	0.0	0.0	2.102E-04
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	1.873E-04	0.0	0.0	0.0	1.240E-04
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.073E-02	0.0
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.405E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	9.630E-04
RES LYM	1.116E-02
S WALL	5.737E-05 *
SI WALL	2.867E-05
ULI WALL	1.695E-04
LLI WALL	5.088E-04
T BODY	1.688E-04
ADREN	2.405E-04
BL WALL	1.200E-04
KIDNEYS	3.479E-04
LIVER	4.771E-04
OVARIES	2.405E-04
PANCREAS	2.405E-04
BONE	2.739E-04
R MAR	2.442E-04
Y MAR	2.405E-04
ENDOST	3.114E-04
SPLEEN	2.405E-04
TESTES	2.405E-04
THYMUS	2.405E-04
THYROID	1.073E-02
UTERUS	2.405E-04

*The estimated dose to the stomach wall should be increased to 4.9E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

TECHNETIUM-99 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
TC-99	W	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	4.832E-02	3.891E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	4.832E-02	0.259	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	1.870E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	9.347E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	5.525E-04	0.0	0.0	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	1.659E-03	0.0	0.0	0.0	0.0	0.0
T BODY	6.896E-04	5.553E-05	4.017E-07	8.552E-07	1.656E-06	3.794E-06	1.733E-05	1.083E-05	1.354E-06	2.708E-06	1.027E-04
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.206E-04	3.067E-04	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BONE	0.0	0.0	0.0	0.0	0.0	0.0	2.339E-04	0.0	0.0	0.0	0.0
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	3.001E-05	0.0	0.0	0.0	0.0
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	1.652E-04	0.0	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.464E-03	0.0
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.120E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	5.221E-02
RES LYM	0.307
S WALL	1.870E-04 *
SI WALL	9.347E-05
ULI WALL	5.525E-04
LLI WALL	1.659E-03
T BODY	8.867E-04
ADREN	2.120E-04
BL WALL	1.058E-04
KIDNEYS	3.067E-04
LIVER	4.206E-04
OVARIES	2.120E-04
PANCREAS	2.120E-04
BONE	2.415E-04
R MAR	2.153E-04
Y MAR	2.120E-04
ENDOST	2.745E-04
SPLEEN	2.120E-04
TESTES	2.120E-04
THYMUS	2.120E-04
THYROID	9.464E-03
UTERUS	2.120E-04

* The estimated dose to the stomach wall should be increased to 5.7E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

TECHNETIUM-99 CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

TC-99
STOMACH 0.0
S INT 0.800
UL INT 0.0
LL INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET										
LUNGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	3.608E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.608E-04 *
SI WALL	0.0	1.803E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.803E-04
ULI WALL	0.0	0.0	1.066E-03	0.0	0.0	0.0	0.0	0.0	0.0	1.066E-03
LLI WALL	0.0	0.0	0.0	3.200E-03	0.0	0.0	0.0	0.0	0.0	3.200E-03
T BODY	7.750E-07	1.650E-06	3.196E-06	7.320E-06	2.589E-05	1.618E-05	2.023E-06	4.046E-06	1.534E-04	2.145E-04
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.581E-04	1.581E-04
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	4.582E-04	0.0	0.0	4.582E-04
LIVER	0.0	0.0	0.0	0.0	0.0	6.285E-04	0.0	0.0	0.0	6.285E-04
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
BONE	0.0	0.0	0.0	0.0	3.494E-04	0.0	0.0	0.0	1.140E-05	3.608E-04
R MAR	0.0	0.0	0.0	0.0	4.483E-05	0.0	0.0	0.0	2.769E-04	3.217E-04
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
ENDOST	0.0	0.0	0.0	0.0	2.468E-04	0.0	0.0	0.0	1.634E-04	4.101E-04
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.414E-02	0.0	1.414E-02
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.168E-04	3.168E-04

*The estimated dose to the stomach wall should be increased to 9.3E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

RADIONUCLIDE: TC-99M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)		BRANCHING RATIOS: FROM TO		FRACTION 1.000	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
NUCLIDE	TC-99M	TC-99M	TC-99			
TC-99M	0.2510					
TC-99	7.7700E 07					
ORGAN ABSORBED	NUCLIDE TC-99M	BLOOD TRANSFER FRACTION F2-PRIME 1.00				
					0.760	1.60
					0.200	3.70
	TC-99	1.00			4.000E-02	22.0
					0.760	1.60
					0.200	3.70
					4.000E-02	22.0
BONE	* TC-99M	0.128			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
	* TC-99	0.128			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
LIVER	TC-99M	8.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
	TC-99	8.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
KIDNEYS	TC-99M	1.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
	TC-99	1.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
THYROID	TC-99M	2.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0
	TC-99	2.000E-02			0.760	1.60
					0.200	3.70
					4.000E-02	22.0

S FACTORS (REM/MICROCURIE-DAY) FOR TC-99M

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
LUNGS	0.116E-02	0.115E-02	0.419E-04	0.535E-05	0.634E-05	0.191E-05	0.229E-04	0.612E-04	0.206E-04	0.227E-04	0.293E-04
RES LYM	0.115E-02	0.535E-01	0.419E-04	0.535E-05	0.634E-05	0.191E-05	0.229E-04	0.612E-04	0.206E-04	0.227E-04	0.293E-04
S WALL	0.447E-04	0.447E-04	0.283E-02	0.894E-04	0.916E-04	0.430E-04	0.134E-04	0.450E-04	0.869E-04	0.110E-05	0.306E-04
SI WALL	0.455E-05	0.455E-05	0.653E-04	0.174E-02	0.406E-03	0.228E-03	0.178E-04	0.397E-04	0.702E-04	0.225E-06	0.361E-04
ULI WALL	0.540E-05	0.540E-05	0.861E-04	0.572E-03	0.283E-02	0.102E-03	0.167E-04	0.611E-04	0.697E-04	0.270E-06	0.365E-04
LLI WALL	0.173E-05	0.173E-05	0.289E-04	0.177E-03	0.777E-04	0.415E-02	0.251E-04	0.555E-05	0.174E-04	0.105E-06	0.396E-04
T BODY	0.473E-04	0.473E-04	0.466E-04	0.580E-04	0.537E-04	0.543E-04	0.471E-04	0.527E-04	0.522E-04	0.417E-04	0.427E-04
ADREN	0.644E-04	0.644E-04	0.660E-04	0.252E-04	0.222E-04	0.863E-05	0.264E-04	0.109E-03	0.267E-03	0.305E-05	0.623E-04
BL WALL	0.873E-06	0.873E-06	0.652E-05	0.629E-04	0.538E-04	0.168E-03	0.124E-04	0.379E-05	0.687E-05	0.506E-07	0.593E-04
KIDNEYS	0.205E-04	0.205E-04	0.846E-04	0.777E-04	0.689E-04	0.209E-04	0.200E-04	0.959E-04	0.424E-02	0.820E-06	0.332E-04
LIVER	0.595E-04	0.595E-04	0.488E-04	0.446E-04	0.624E-04	0.605E-05	0.159E-04	0.105E-02	0.938E-04	0.227E-05	0.246E-04
OVARIES	0.229E-05	0.229E-05	0.121E-04	0.261E-03	0.282E-03	0.432E-03	0.171E-04	0.108E-04	0.272E-04	0.119E-06	0.751E-04
PANCREAS	0.628E-04	0.628E-04	0.439E-03	0.498E-04	0.569E-04	0.181E-04	0.207E-04	0.103E-03	0.159E-03	0.176E-05	0.793E-04
BONE	0.357E-04	0.357E-04	0.220E-04	0.306E-04	0.276E-04	0.396E-04	0.276E-03	0.271E-04	0.350E-04	0.247E-04	0.293E-04
R MAR	0.455E-04	0.455E-04	0.391E-04	0.103E-03	0.893E-04	0.123E-03	0.121E-03	0.393E-04	0.918E-04	0.270E-04	0.764E-04
Y MAR	0.369E-04	0.369E-04	0.307E-04	0.430E-04	0.397E-04	0.490E-04	0.929E-04	0.402E-04	0.429E-04	0.127E-04	0.653E-04
ENDOST	0.357E-04	0.357E-04	0.220E-04	0.306E-04	0.276E-04	0.396E-04	0.205E-03	0.271E-04	0.350E-04	0.247E-04	0.427E-04
SPLFEN	0.555E-04	0.555E-04	0.243E-03	0.370E-04	0.351E-04	0.194E-04	0.141E-04	0.222E-04	0.208E-03	0.256E-05	0.721E-04
TESTES	0.193E-06	0.193E-06	0.123E-05	0.749E-05	0.653E-05	0.427E-04	0.156E-04	0.151E-05	0.214E-05	0.121E-07	0.579E-04
THYMUS	0.105E-03	0.105E-03	0.639E-05	0.196E-05	0.246E-05	0.648E-06	0.127E-04	0.154E-04	0.486E-05	0.102E-03	0.113E-03
THYROID	0.223E-04	0.223E-04	0.211E-05	0.361E-06	0.399E-06	0.131E-06	0.191E-04	0.358E-05	0.116E-05	0.508E-01	0.288E-04
UTERUS	0.198E-05	0.198E-05	0.187E-04	0.233E-03	0.130E-03	0.172E-03	0.138E-04	0.939E-05	0.227E-04	0.111E-06	0.127E-03

IT decay (6.02 H 3)

Case 2 represents inhalation of oxide and hydroxide forms; Case 1 represents inhalation of other compounds.

* Retention data derived from "other tissues" compartment.

TECHNETIUM-99m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
TC-99m	D	0.0	0.800	0.0	0.0
TC-99	D	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	7.664E-05	4.617E-06	2.368E-07	2.215E-08	3.419E-08	5.055E-09	3.693E-07	6.169E-07	2.596E-08	5.720E-08	2.813E-06
RES LYM	7.597E-05	2.148E-04	2.368E-07	2.215E-08	3.419E-08	5.055E-09	3.693E-07	6.169E-07	2.596E-08	5.720E-08	2.813E-06
S WALL	2.953E-06	1.795E-07	1.600E-05	3.702E-07	4.939E-07	1.138E-07	2.161E-07	4.536E-07	1.095E-07	2.772E-09	2.938E-06
SI WALL	3.006E-07	1.827E-08	3.691E-07	7.205E-06	2.189E-06	6.034E-07	2.871E-07	4.002E-07	8.845E-08	5.670E-10	3.466E-06
ULI WALL	3.567E-07	2.168E-08	4.867E-07	2.369E-06	1.526E-05	2.699E-07	2.693E-07	6.159E-07	8.782E-08	6.804E-10	3.504E-06
LLI WALL	1.143E-07	6.946E-09	1.634E-07	7.330E-07	4.190E-07	1.098E-05	4.048E-07	5.594E-08	2.192E-08	2.646E-10	3.802E-06
T BODY	3.125E-06	1.899E-07	2.634E-07	2.402E-07	2.858E-07	1.437E-07	7.596E-07	5.312E-07	6.577E-08	1.051E-07	4.100E-06
ADREN	4.255E-06	2.586E-07	3.731E-07	1.044E-07	1.197E-07	2.284E-08	4.258E-07	1.099E-06	3.364E-07	7.686E-09	5.981E-06
BL WALL	5.767E-08	3.505E-09	3.686E-08	2.605E-07	2.901E-07	4.446E-07	2.000E-07	3.820E-08	8.656E-09	1.275E-10	5.693E-06
KIDNEYS	1.354E-06	8.231E-08	4.782E-07	3.218E-07	3.715E-07	5.531E-08	3.226E-07	9.667E-07	5.342E-06	2.066E-09	3.188E-06
LIVER	3.931E-06	2.389E-07	2.759E-07	1.847E-07	3.365E-07	1.601E-08	2.564E-07	1.058E-05	1.182E-07	5.720E-09	2.362E-06
OVARIES	1.513E-07	9.195E-09	6.840E-08	1.081E-06	1.521E-06	1.143E-06	2.758E-07	1.089E-07	3.427E-08	2.999E-10	7.210E-06
PANCREAS	4.149E-06	2.521E-07	2.482E-06	2.062E-07	3.068E-07	4.790E-08	3.338E-07	1.038E-06	2.003E-07	4.435E-09	7.614E-06
BONE	2.359E-06	1.433E-07	1.244E-07	1.267E-07	1.488E-07	1.048E-07	4.209E-06	2.732E-07	4.410E-08	6.224E-08	2.813E-06
R MAR	3.006E-06	1.827E-07	2.218E-07	4.265E-07	4.815E-07	3.255E-07	1.951E-06	3.961E-07	1.157E-07	6.804E-08	7.335E-06
Y MAR	2.438E-06	1.482E-07	1.735E-07	1.781E-07	2.141E-07	1.297E-07	1.498E-06	4.052E-07	5.405E-08	3.200E-08	6.269E-06
ENDOST	2.359E-06	1.433E-07	1.244E-07	1.267E-07	1.488E-07	1.048E-07	3.306E-06	2.732E-07	4.410E-08	6.224E-08	4.100E-06
SPLEEN	3.693E-06	2.244E-07	1.374E-06	1.532E-07	1.893E-07	5.134E-08	2.274E-07	2.238E-07	2.621E-07	6.451E-09	6.922E-06
TESTES	1.275E-08	7.749E-10	6.953E-09	3.102E-08	3.521E-08	1.130E-07	2.516E-07	1.522E-08	2.696E-09	3.049E-11	5.559E-06
THYMUS	6.937E-06	4.216E-07	3.612E-08	8.116E-09	1.326E-08	1.715E-09	2.048E-07	1.552E-07	6.124E-09	2.570E-07	1.085E-05
THYROID	1.473E-06	8.954E-08	1.193E-08	1.495E-09	2.152E-09	3.467E-10	3.080E-07	3.609E-08	1.462E-09	1.280E-04	2.765E-06
UTERUS	1.308E-07	7.950E-09	1.057E-07	9.648E-07	7.010E-07	4.552E-07	2.226E-07	9.465E-08	2.860E-08	2.797E-10	1.219E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	8.543E-05
RES LYM	2.950E-04
S WALL	2.383E-05 *
SI WALL	1.493E-05
ULI WALL	2.324E-05
LLI WALL	1.670E-05
T BODY	9.809E-06
ADREN	1.298E-05
BL WALL	7.034E-06
KIDNEYS	1.248E-05
LIVER	1.831E-05
OVARIES	1.160E-05
PANCREAS	1.663E-05
BONE	1.041E-05
R MAR	1.451E-05
Y MAR	1.154E-05
ENDOST	1.079E-05
SPLEEN	1.333E-05
TESTES	6.028E-06
THYMUS	1.889E-05
THYROID	1.327E-04
UTERUS	1.490E-05

PERCENT DOSE EQUIVALENT..

NUCLIDE	TC-99m	TC-99
TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
* S WALL	100.0	0.0
SI WALL	100.0	0.0
ULI WALL	100.0	0.0
LLI WALL	100.0	0.0
T BODY	100.0	0.0
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	100.0	0.0
LIVER	100.0	0.0
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	100.0	0.0
R MAR	100.0	0.0
Y MAR	100.0	0.0
ENDOST	100.0	0.0
SPLEEN	100.0	0.0
TESTES	100.0	0.0
THYMUS	100.0	0.0
THYROID	100.0	0.0
UTERUS	100.0	0.0

* The estimated dose to the stomach wall should be increased to 3.1E-5 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

TECHNETIUM-99m CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
TC-99m	M	0.0	0.800	0.0	0.0
TC-99	M	0.0	0.800	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	1.804E-04	2.579E-08	2.211E-07	2.068E-08	3.192E-08	4.719E-09	1.513E-07	2.527E-07	1.063E-08	2.343E-08	1.152E-06
RES LYM	1.788E-04	1.200E-06	2.211E-07	2.068E-08	3.192E-08	4.719E-09	1.513E-07	2.527E-07	1.063E-08	2.343E-08	1.152E-06
S WALL	6.950E-06	1.002E-09	1.493E-05	3.456E-07	4.611E-07	1.062E-07	8.851E-08	1.858E-07	4.484E-08	1.135E-09	1.203E-06
SI WALL	7.074E-07	1.020E-10	3.446E-07	6.727E-06	2.044E-06	5.633E-07	1.176E-07	1.639E-07	3.623E-08	2.322E-10	1.420E-06
ULI WALL	8.396E-07	1.211E-10	4.544E-07	2.211E-06	1.425E-05	2.520E-07	1.103E-07	2.522E-07	3.597E-08	2.787E-10	1.435E-06
LLI WALL	2.690E-07	3.879E-11	1.525E-07	6.843E-07	3.912E-07	1.023E-05	1.658E-07	2.291E-08	8.979E-09	1.084E-10	1.557E-06
T BODY	7.354E-06	1.061E-09	2.459E-07	2.242E-07	2.668E-07	1.342E-07	3.111E-07	2.176E-07	2.694E-08	4.304E-08	1.679E-06
ADREN	1.001E-05	1.444E-09	3.483E-07	9.742E-08	1.118E-07	2.132E-08	1.744E-07	4.500E-07	1.378E-07	3.148E-09	2.450E-06
BL WALL	1.357E-07	1.957E-11	3.441E-08	2.432E-07	2.708E-07	4.151E-07	8.191E-08	1.565E-08	3.545E-09	5.222E-11	2.332E-06
KIDNEYS	3.187E-06	4.596E-10	4.465E-07	3.004E-07	3.469E-07	5.164E-08	1.321E-07	3.959E-07	2.188E-06	8.463E-10	1.306E-06
LIVER	9.251E-06	1.334E-09	2.575E-07	1.724E-07	3.141E-07	1.495E-08	1.050E-07	4.335E-06	4.841E-08	2.343E-09	9.673E-07
OVARIES	3.561E-07	5.134E-11	6.386E-08	1.009E-06	1.420E-06	1.067E-06	1.130E-07	4.459E-08	1.404E-08	1.228E-10	2.953E-06
PANCREAS	9.764E-06	1.408E-09	2.317E-06	1.925E-07	2.864E-07	4.472E-08	1.367E-07	4.252E-07	8.205E-08	1.228E-10	2.953E-06
BONE	5.551E-06	8.004E-10	1.161E-07	1.183E-07	1.389E-07	9.784E-08	1.724E-06	1.119E-07	1.806E-08	2.549E-08	1.152E-06
R MAR	7.074E-06	1.020E-09	2.063E-07	3.982E-07	4.496E-07	3.039E-07	7.993E-07	1.622E-07	4.737E-08	2.787E-08	3.004E-06
Y MAR	5.737E-06	8.273E-10	1.620E-07	1.662E-07	1.999E-07	1.211E-07	6.136E-07	1.660E-07	2.214E-08	1.311E-08	2.568E-06
ENDOST	5.551E-06	8.004E-10	1.161E-07	1.183E-07	1.389E-07	9.784E-08	1.354E-06	1.119E-07	1.806E-08	2.549E-08	1.152E-06
SPLEEN	8.691E-06	1.253E-09	1.282E-06	1.430E-07	1.767E-07	4.793E-08	9.314E-08	9.165E-08	1.073E-07	2.642E-09	2.835E-06
TESTES	3.001E-08	4.327E-12	6.491E-09	2.896E-08	3.287E-08	1.055E-07	1.030E-07	6.234E-09	1.104E-09	1.249E-11	2.277E-06
THYMUS	1.633E-05	2.354E-09	3.372E-08	7.577E-09	1.238E-08	1.601E-09	8.389E-08	6.358E-08	2.508E-09	1.053E-07	4.443E-06
THYROID	3.467E-06	5.000E-10	1.114E-08	1.396E-09	2.009E-09	3.237E-10	1.262E-07	1.478E-08	5.986E-10	5.243E-05	1.133E-06
UTERUS	3.079E-07	4.439E-11	9.869E-08	9.008E-07	6.544E-07	4.250E-07	9.115E-08	3.877E-08	1.171E-08	1.146E-10	4.994E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE TOTAL

TARGET	1.823E-04
LUNGS	1.819E-04
RES LYM	2.432E-05 *
S WALL	1.212E-05
SI WALL	1.984E-05
ULI WALL	1.351E-05
LLI WALL	1.050E-05
T BODY	1.381E-05
ADREN	3.532E-06
BL WALL	8.356E-06
KIDNEYS	1.547E-05
LIVER	7.041E-06
OVARIES	1.637E-05
PANCREAS	9.054E-06
BONE	1.247E-05
R MAR	9.770E-06
Y MAR	9.211E-06
ENDOST	1.347E-05
SPLEEN	2.591E-06
TESTES	2.108E-05
THYMUS	5.719E-05
THYROID	7.523E-06
UTERUS	

PERCENT DOSE EQUIVALENT..

NUCLIDE TC-99m TC-99

TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
* S WALL	100.0	0.0
SI WALL	100.0	0.0
ULI WALL	100.0	0.0
LLI WALL	100.0	0.0
T BODY	100.0	0.0
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	100.0	0.0
LIVER	100.0	0.0
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	100.0	0.0
R MAR	100.0	0.0
Y MAR	100.0	0.0
ENDOST	100.0	0.0
SPLEEN	100.0	0.0
TESTES	100.0	0.0
THYMUS	100.0	0.0
THYROID	100.0	0.0
UTERUS	100.0	0.0

*The estimated dose to the stomach wall should be increased to 2.7E-5 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

TECHNETIUM-99m CONTINUED

CASE 3.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TC-99M	TC-99
STOMACH	0.0	0.0
S INT	0.800	0.800
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET										
LUNGS	1.566E-06	1.465E-07	2.260E-07	3.341E-08	6.163E-07	1.029E-06	4.331E-08	9.545E-08	4.694E-06	8.450E-06
RES LYM	1.566E-06	1.465E-07	2.260E-07	3.341E-08	6.163E-07	1.029E-06	4.331E-08	9.545E-08	4.694E-06	8.450E-06
S WALL	1.057E-04	2.447E-06	3.265E-06	7.523E-07	3.636E-07	7.569E-07	1.827E-07	4.626E-09	4.902E-06	1.184E-04 *
SI WALL	2.440E-06	4.763E-05	1.447E-05	3.989E-06	4.790E-07	6.678E-07	1.476E-07	9.461E-10	5.784E-06	7.561E-05
ULI WALL	3.217E-06	1.566E-05	1.009E-04	1.784E-06	4.494E-07	1.028E-06	1.465E-07	1.135E-09	5.848E-06	1.290E-04
LLI WALL	1.080E-06	4.845E-06	2.770E-06	7.260E-05	6.755E-07	9.335E-08	3.658E-08	4.415E-10	6.344E-06	8.845E-05
T BODY	1.741E-06	1.588E-06	1.889E-06	9.500E-07	1.268E-06	8.864E-07	1.098E-07	1.754E-07	6.841E-06	1.545E-05
ADREN	2.466E-06	6.898E-07	7.913E-07	1.510E-07	7.105E-07	1.833E-06	5.614E-07	1.283E-08	9.981E-06	1.720E-05
BL WALL	2.436E-07	1.722E-06	1.918E-06	2.939E-06	3.337E-07	6.375E-08	1.444E-08	2.128E-10	9.501E-06	1.673E-05
KIDNEYS	3.161E-06	2.127E-06	2.456E-06	3.656E-07	5.382E-07	1.613E-06	8.915E-06	3.448E-09	5.319E-06	2.450E-05
LIVER	1.824E-06	1.221E-06	2.224E-06	1.058E-07	4.279E-07	1.766E-05	1.972E-07	9.545E-09	3.941E-06	2.761E-05
OVARIES	4.521E-07	7.145E-06	1.005E-05	7.558E-06	4.602E-07	1.817E-07	5.719E-08	5.004E-10	1.203E-05	3.794E-05
PANCREAS	1.640E-05	1.363E-06	2.028E-06	3.167E-07	5.571E-07	1.732E-06	3.343E-07	7.401E-09	1.270E-05	3.545E-05
BONE	8.221E-07	8.376E-07	9.838E-07	6.928E-07	7.024E-06	4.558E-07	7.359E-08	1.039E-07	4.694E-06	1.569E-05
R MAR	1.461E-06	2.820E-06	3.183E-06	2.152E-06	3.236E-06	6.610E-07	1.930E-07	1.135E-07	1.224E-05	2.608E-05
Y MAR	1.147E-06	1.177E-06	1.415E-06	8.572E-07	2.500E-06	6.762E-07	9.020E-08	5.340E-08	1.046E-05	1.838E-05
ENDOST	8.221E-07	8.376E-07	9.838E-07	6.928E-07	5.517E-06	4.558E-07	7.359E-08	1.039E-07	6.841E-06	1.633E-05
SPLEEN	9.080E-06	1.013E-06	1.251E-06	3.394E-07	3.795E-07	3.734E-07	4.373E-07	1.076E-08	1.155E-05	2.444E-05
TESTES	4.596E-08	2.050E-07	2.328E-07	7.470E-07	4.198E-07	2.540E-08	4.499E-09	5.088E-11	9.276E-06	1.096E-05
THYMUS	2.388E-07	5.365E-08	8.769E-08	1.134E-08	3.418E-07	2.590E-07	1.022E-08	4.289E-07	1.810E-05	1.954E-05
THYROID	7.884E-08	9.882E-09	1.422E-08	2.292E-09	5.140E-07	6.022E-08	2.439E-09	2.136E-04	4.614E-06	2.189E-04
UTERUS	6.988E-07	6.378E-06	4.634E-06	3.009E-06	3.714E-07	1.579E-07	4.773E-08	4.668E-10	2.035E-05	3.564E-05

PERCENT DOSE EQUIVALENT..

NUCL IDE	TC-99M	TC-99
TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
* S WALL	100.0	0.0
SI WALL	100.0	0.0
ULI WALL	100.0	0.0
LLI WALL	100.0	0.0
T BODY	100.0	0.0
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	100.0	0.0
LIVER	100.0	0.0
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	100.0	0.0
R MAR	100.0	0.0
Y MAR	100.0	0.0
ENDOST	100.0	0.0
SPLEEN	100.0	0.0
TESTES	100.0	0.0
THYMUS	100.0	0.0
THYROID	100.0	0.0
UTERUS	100.0	0.0

* The estimated dose to the stomach wall should be increased to 1.3E-4 rem/microcurie. The added component is due to the concentration of technetium in the stomach.

RUTHENIUM-103

RADIONUCLIDE: RU-103

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCLIDE				
RU-103		39.40		
RH-103M		3.9000E-02		
BRANCHING RATIOS:	FROM	TC	FRACTION	
	RU-103	RH-103M	1.000	
ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
	RU-103	1.00	0.150 0.400 0.250 0.200 0.670 0.330	0.347 9.90 58.0 1.730E 03 3.00 200.
	RH-103M	1.00		

S FACTORS (REM/MICROCURIE-DAY) FOR RU-103

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.502E-02	0.502E-02	0.153E-03	0.277E-04	0.281E-04	0.844E-05	0.106E-03
RES LYM	0.502E-02	0.256E-00	0.153E-03	0.277E-04	0.281E-04	0.844E-05	0.106E-03
S WALL	0.152E-03	0.152E-03	0.119E-01	0.280E-03	0.298E-03	0.149E-03	0.109E-03
SI WALL	0.229E-04	0.229E-04	0.217E-03	0.733E-02	0.134E-02	0.736E-03	0.119E-03
ULI WALL	0.316E-04	0.316E-04	0.272E-03	0.189E-02	0.122E-01	0.348E-03	0.123E-03
LLI WALL	0.650E-05	0.650E-05	0.105E-03	0.557E-03	0.247E-03	0.184E-01	0.125E-03
T BODY	0.174E-03	0.174E-03	0.163E-03	0.205E-03	0.184E-03	0.189E-03	0.172E-03
ADREN	0.201E-03	0.201E-03	0.175E-03	0.102E-03	0.830E-04	0.408E-04	0.249E-03
BL WALL	0.611E-05	0.611E-05	0.377E-04	0.280E-03	0.157E-03	0.464E-03	0.190E-03
KIDNEYS	0.864E-04	0.864E-04	0.271E-03	0.261E-03	0.224E-03	0.683E-04	0.260E-03
LIVER	0.196E-03	0.196E-03	0.168E-03	0.149E-03	0.203E-03	0.286E-04	0.269E-03
OVARIES	0.126E-04	0.126E-04	0.420E-04	0.723E-03	0.104E-02	0.131E-02	0.251E-03
PANCREAS	0.230E-03	0.230E-03	0.144E-02	0.172E-03	0.147E-03	0.617E-04	0.286E-03
BONE	0.829E-04	0.829E-04	0.501E-04	0.648E-04	0.599E-04	0.863E-04	0.213E-03
R MAR	0.104E-03	0.104E-03	0.867E-04	0.206E-03	0.179E-03	0.259E-03	0.242E-03
Y MAR	0.874E-04	0.874E-04	0.696E-04	0.899E-04	0.850E-04	0.107E-03	0.218E-03
ENDOST	0.829E-04	0.829E-04	0.501E-04	0.648E-04	0.599E-04	0.863E-04	0.213E-03
SPLEEN	0.176E-03	0.176E-03	0.783E-03	0.130E-03	0.101E-03	0.777E-04	0.252E-03
TESTES	0.202E-05	0.202E-05	0.216E-05	0.300E-04	0.425E-04	0.170E-03	0.204E-03
THYMUS	0.302E-03	0.302E-03	0.196E-04	0.115E-04	0.126E-04	0.482E-05	0.306E-03
THYROID	0.995E-04	0.995E-04	0.126E-04	0.331E-05	0.354E-05	0.150E-05	0.210E-03
UTERUS	0.792E-05	0.792E-05	0.739E-04	0.717E-03	0.369E-03	0.459E-03	0.338E-03

β⁻ decay (39.35 D 5)

RUTHENIUM-103 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
RU-103	Y	0.0	4.000E-02	0.0	0.0
RH-103M	Y	0.0	4.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER	TOTAL
TARGET								
LUNGS	5.730E-02	1.043E-03	3.106E-06	2.149E-06	7.018E-06	3.824E-06	6.272E-05	5.842E-02
RES LYM	5.730E-02	5.741E-02	3.106E-06	2.149E-06	7.018E-06	3.824E-06	6.272E-05	0.115
S WALL	1.256E-03	2.283E-05	3.463E-04	2.178E-05	7.467E-05	6.755E-05	6.429E-05	1.853E-03
SI WALL	1.888E-04	3.432E-06	4.400E-06	7.732E-04	3.371E-04	3.358E-04	7.018E-05	1.713E-03
ULI WALL	2.605E-04	4.736E-06	5.525E-06	1.486E-04	4.151E-03	1.588E-04	7.260E-05	4.802E-03
LLI WALL	5.359E-05	9.742E-07	2.128E-06	4.368E-05	6.193E-05	1.157E-02	7.372E-05	1.180E-02
T BODY	1.667E-03	3.032E-05	3.555E-06	1.784E-05	4.950E-05	9.348E-05	1.176E-04	1.975E-03
ADREN	1.659E-03	3.016E-05	3.546E-06	7.913E-06	2.073E-05	1.849E-05	1.743E-04	1.914E-03
BL WALL	5.038E-05	9.157E-07	7.637E-07	2.172E-05	3.922E-05	2.105E-04	1.258E-04	4.493E-04
KIDNEYS	7.125E-04	1.255E-05	5.452E-06	2.026E-05	5.596E-05	3.095E-05	1.810E-04	1.019E-03
LIVER	1.621E-03	2.947E-05	3.405E-06	1.157E-05	5.074E-05	1.296E-05	1.863E-04	1.916E-03
OVARIES	1.039E-04	1.888E-06	8.509E-07	5.640E-05	2.609E-04	5.996E-04	1.755E-04	1.199E-03
PANCREAS	1.897E-03	3.449E-05	2.934E-05	1.334E-05	3.672E-05	2.796E-05	1.965E-04	2.236E-03
BONE	6.863E-04	1.248E-05	1.017E-06	5.041E-06	1.499E-05	3.933E-05	1.531E-04	9.122E-04
R MAR	8.606E-04	1.564E-05	1.758E-06	1.604E-05	4.484E-05	1.183E-04	1.707E-04	1.226E-03
Y MAR	7.241E-04	1.316E-05	1.413E-06	6.994E-06	2.128E-05	4.880E-05	1.565E-04	9.722E-04
ENDOST	6.863E-04	1.248E-05	1.017E-06	5.041E-06	1.499E-05	3.933E-05	1.655E-04	9.246E-04
SPLEEN	1.455E-03	2.644E-05	1.589E-05	1.009E-05	2.523E-05	3.521E-05	1.763E-04	1.744E-03
TESTES	1.665E-05	3.027E-07	4.376E-08	2.327E-06	1.061E-05	7.704E-05	1.477E-04	2.547E-04
THYMUS	2.493E-03	4.532E-05	3.971E-07	8.921E-07	3.147E-06	2.184E-06	2.087E-04	2.754E-03
THYROID	8.204E-04	1.451E-05	2.552E-07	2.568E-07	8.840E-07	6.796E-07	1.514E-04	9.886E-04
UTERUS	6.530E-05	1.187E-06	1.457E-06	5.578E-05	9.220E-05	2.081E-04	2.271E-04	6.511E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-103	RH-103M
TARGET		
LUNGS	72.3	27.7
RES LYM	65.6	34.4
S WALL	94.1	5.9
SI WALL	87.8	12.2
ULI WALL	76.9	23.1
LLI WALL	72.6	27.4
T BODY	86.5	13.5
ADREN	98.4	1.6
BL WALL	96.8	3.2
KIDNEYS	97.2	2.8
LIVER	98.3	1.7
OVARIES	97.0	3.0
PANCREAS	98.7	1.3
BONE	96.6	3.4
R MAR	97.3	2.7
Y MAR	96.7	3.3
ENDOST	96.6	3.4
SPLEEN	98.2	1.8
TESTES	89.1	10.9
THYMUS	98.8	1.2
THYROID	97.2	2.8
UTERUS	95.6	4.4

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	RU-103	RH-103M
STOMACH	0.0	0.0
S INT	4.000E-02	4.000E-02
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	OTHER	TOTAL
TARGET						
LUNGS	6.375E-06	4.416E-06	1.442E-05	7.859E-06	1.029E-04	1.360E-04
RES LYM	6.375E-06	4.416E-06	1.442E-05	7.859E-06	1.029E-04	1.360E-04
S WALL	5.640E-04	4.474E-05	1.535E-04	1.388E-04	1.055E-04	1.007E-03
SI WALL	9.038E-06	1.457E-03	6.528E-04	6.902E-04	1.151E-04	3.004E-03
ULI WALL	1.133E-05	3.041E-04	8.480E-03	3.265E-04	1.191E-04	9.241E-03
LLI WALL	4.372E-06	8.557E-05	1.273E-04	2.377E-02	1.209E-04	2.411E-02
T BODY	6.952E-06	3.579E-05	1.016E-04	1.921E-04	1.929E-04	5.293E-04
ADREN	7.287E-06	1.626E-05	4.261E-05	3.799E-05	2.859E-04	3.900E-04
BL WALL	1.570E-06	4.465E-05	8.060E-05	4.327E-04	2.063E-04	7.658E-04
KIDNEYS	1.129E-05	4.163E-05	1.150E-04	6.361E-05	2.968E-04	5.283E-04
LIVER	6.956E-06	2.377E-05	1.043E-04	2.663E-05	3.056E-04	4.573E-04
OVARIES	1.749E-06	1.158E-04	5.361E-04	1.232E-03	2.878E-04	2.174E-03
PANCREAS	6.007E-05	2.743E-05	7.546E-05	5.746E-05	3.223E-04	5.427E-04
BONE	2.087E-06	1.035E-05	3.082E-05	8.084E-05	2.511E-04	3.752E-04
R MAR	3.611E-06	3.294E-05	9.216E-05	2.432E-04	2.800E-04	6.519E-04
Y MAR	2.900E-06	1.437E-05	4.373E-05	1.003E-04	2.655E-04	4.178E-04
ENDOST	2.087E-06	1.035E-05	3.082E-05	8.084E-05	2.714E-04	3.955E-04
SPLEEN	3.262E-06	2.073E-05	5.185E-05	7.236E-05	2.891E-04	4.666E-04
TESTES	8.993E-08	4.783E-06	2.181E-05	1.583E-04	2.422E-04	4.272E-04
THYMUS	1.616E-07	1.833E-06	6.467E-06	4.488E-06	3.423E-04	3.559E-04
THYROID	5.246E-07	5.277E-07	1.817E-06	1.397E-06	2.483E-04	2.525E-04
UTERUS	3.077E-06	1.146E-04	1.855E-04	4.277E-04	3.724E-04	1.107E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-103	RH-103M
TARGET		
LUNGS	95.6	4.4
RES LYM	95.6	4.4
S WALL	93.1	6.9
SI WALL	88.7	11.3
ULI WALL	75.9	24.1
LLI WALL	72.5	27.5
T BODY	89.9	10.1
ADREN	88.3	11.7
BL WALL	96.9	3.1
KIDNEYS	91.3	8.7
LIVER	90.1	9.9
OVARIES	97.2	2.8
PANCREAS	91.5	8.5
BONE	87.7	12.3
R MAR	92.5	7.5
Y MAR	88.8	11.2
ENDOST	88.1	11.9
SPLEEN	90.2	9.8
TESTES	89.4	10.6
THYMUS	86.8	13.2
THYROID	82.1	17.9
UTERUS	95.8	4.2

RUTHENIUM-105

RADIONUCLIDE: RU-105

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	
	RU-105	RH-105M
RU-105	0.1850	
RH-105M	5.2100E-04	
RH-105	1.470	

BRANCHING RATIOS:			FROM	TC	FRACTION
			RU-105	RH-105M	0.2800
			RU-105	RH-105	0.7200
			RH-105M	RH-105	1.000

ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION		COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
			RU-105		RH-105M	
	RU-105	1.00	0.150	0.347	0.347	0.347
			0.400	9.90	9.90	9.90
			0.250	58.0	58.0	58.0
			0.200	1.730E 03	1.730E 03	1.730E 03
	RH-105M	1.00	0.670	3.00	3.00	3.00
			0.330	200.	200.	200.
	RH-105	1.00	0.670	3.00	3.00	3.00
			0.330	200.	200.	200.

S FACTORS (REM/MICROCURIE-DAY) FOR RU-105

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.224E-01	0.224E-01	0.246E-03	0.457E-04	0.493E-04	0.167E-04	0.174E-03
RES LYM	0.224E-01	0.137E-01	0.246E-03	0.457E-04	0.493E-04	0.167E-04	0.174E-03
S WALL	0.255E-03	0.255E-03	0.479E-01	0.468E-03	0.489E-03	0.233E-03	0.180E-03
SI WALL	0.393E-04	0.393E-04	0.352E-03	0.297E-01	0.218E-02	0.121E-02	0.195E-03
ULI WALL	0.522E-04	0.522E-04	0.435E-03	0.307E-02	0.523E-01	0.557E-03	0.203E-03
LLI WALL	0.119E-04	0.119E-04	0.178E-03	0.919E-03	0.421E-03	0.827E-01	0.205E-03
T BODY	0.488E-03	0.488E-03	0.328E-03	0.499E-03	0.398E-03	0.430E-03	0.485E-03
ADREN	0.329E-03	0.329E-03	0.293E-03	0.170E-03	0.148E-03	0.672E-04	0.755E-03
BL WALL	0.107E-04	0.107E-04	0.617E-04	0.395E-03	0.273E-03	0.747E-03	0.482E-03
KIDNEYS	0.138E-03	0.138E-03	0.448E-03	0.429E-03	0.377E-03	0.119E-03	0.772E-03
LIVER	0.324E-03	0.324E-03	0.272E-03	0.249E-03	0.337E-03	0.487E-04	0.784E-03
OVARIES	0.215E-04	0.215E-04	0.115E-03	0.128E-02	0.146E-02	0.224E-02	0.754E-03
PANCREAS	0.349E-03	0.349E-03	0.232E-02	0.279E-03	0.264E-03	0.101E-03	0.808E-03
BONE	0.137E-03	0.137E-03	0.826E-04	0.109E-03	0.985E-04	0.142E-03	0.693E-03
R MAR	0.173E-03	0.173E-03	0.142E-03	0.343E-03	0.293E-03	0.426E-03	0.741E-03
Y MAR	0.144E-03	0.144E-03	0.115E-03	0.151E-03	0.140E-03	0.176E-03	0.701E-03
ENDOST	0.137E-03	0.137E-03	0.826E-04	0.109E-03	0.985E-04	0.142E-03	0.829E-03
SPLEEN	0.294E-03	0.294E-03	0.129E-02	0.212E-03	0.176E-03	0.133E-03	0.758E-03
TESTES	0.377E-05	0.377E-05	0.106E-04	0.576E-04	0.710E-04	0.255E-03	0.680E-03
THYMUS	0.525E-03	0.525E-03	0.607E-04	0.199E-04	0.216E-04	0.855E-05	0.521E-03
THYROID	0.169E-03	0.169E-03	0.215E-04	0.600E-05	0.640E-05	0.284E-05	0.683E-03
UTERUS	0.144E-04	0.144E-04	0.125E-03	0.117E-02	0.620E-03	0.771E-03	0.592E-03

β⁻ decay (4.44 H 5)

RUTHENIUM-105 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
RU-105	Y	0.0	4.000E-02	0.0	0.0		
RH-105M	Y	0.0	4.000E-02	0.0	0.0		
RH-105	Y	0.0	4.000E-02	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET								
LUNGS	3.636E-03	3.375E-07	1.314E-06	5.912E-07	7.330E-07	1.181E-07	3.764E-07	3.639E-03
RES LYM	3.636E-03	2.163E-05	1.314E-06	5.912E-07	7.330E-07	1.181E-07	3.764E-07	3.660E-03
S WALL	3.557E-05	1.753E-09	2.841E-04	6.148E-06	7.489E-06	1.819E-06	3.892E-07	3.355E-04
SI WALL	5.406E-06	2.457E-10	1.822E-06	4.488E-04	3.351E-05	9.440E-06	4.221E-07	4.995E-04
ULI WALL	7.165E-06	3.214E-10	2.334E-06	4.077E-05	1.066E-03	4.348E-06	4.391E-07	1.121E-03
LLI WALL	1.665E-06	6.772E-11	9.453E-07	1.214E-05	6.403E-06	1.172E-03	4.441E-07	1.194E-03
T BODY	7.347E-05	5.924E-09	1.819E-06	7.083E-06	6.892E-06	4.547E-06	2.277E-06	5.475E-05
ADREN	4.598E-05	2.294E-05	1.572E-06	2.236E-06	2.216E-06	5.104E-07	1.277E-06	5.475E-05
BL WALL	1.456E-06	6.561E-11	3.253E-07	5.162E-06	4.174E-06	6.004E-06	1.366E-06	1.850E-05
KIDNEYS	1.914E-05	6.235E-10	2.357E-06	5.608E-06	5.736E-06	9.292E-07	2.316E-06	3.613E-05
LIVER	4.533E-05	2.268E-09	1.453E-06	3.259E-06	5.155E-06	3.570E-07	2.341E-06	5.790E-05
OVARIES	2.963E-06	1.382E-10	6.038E-07	1.686E-05	2.264E-05	1.799E-05	2.276E-06	6.334E-05
PANCREAS	4.871E-05	2.435E-09	1.246E-05	3.650E-06	4.091E-06	7.680E-07	2.396E-06	7.207E-05
BONE	1.933E-05	9.874E-10	4.454E-07	1.447E-06	1.539E-06	1.147E-06	2.145E-06	2.605E-05
R MAR	2.441E-05	1.253E-09	7.666E-07	4.569E-06	4.636E-06	3.451E-06	2.262E-06	4.007E-05
Y MAR	2.331E-05	1.032E-09	6.222E-07	2.006E-06	2.187E-06	1.419E-06	2.170E-06	2.871E-05
ENDOST	1.933E-05	9.874E-10	4.454E-07	1.447E-06	1.539E-06	1.147E-06	2.586E-06	2.649E-05
SPLEEN	4.115E-05	2.068E-09	6.907E-06	2.772E-06	2.693E-06	9.743E-07	2.283E-06	5.678E-05
TESTES	5.124E-07	2.146E-11	5.584E-08	7.457E-07	1.044E-06	2.019E-06	2.113E-06	6.490E-06
THYMUS	7.334E-05	3.639E-09	3.187E-07	2.557E-07	3.213E-07	5.986E-08	1.566E-06	7.587E-05
THYROID	2.326E-05	1.051E-05	1.137E-07	7.672E-08	9.307E-08	1.887E-08	2.123E-06	2.569E-05
UTERUS	1.994E-06	9.578E-11	6.651E-07	1.539E-05	9.477E-06	6.228E-06	1.678E-06	3.543E-05

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-105	RH-105M	RH-105
TARGET			
LUNGS	81.0	5.1	13.8
RES LYM	80.7	5.1	14.2
S WALL	87.5	4.6	8.0
SI WALL	81.8	4.6	13.6
ULI WALL	66.2	3.9	29.9
LLI WALL	37.3	2.3	60.4
T BODY	82.6	3.7	13.7
ADREN	92.1	1.2	6.6
BL WALL	80.4	1.0	18.5
KIDNEYS	90.4	1.0	8.5
LIVER	91.8	1.3	6.9
OVARIES	81.1	1.4	17.5
PANCREAS	92.5	1.2	6.3
BONE	88.3	1.9	5.8
R MAR	87.5	1.9	10.6
Y MAR	88.3	1.9	5.8
ENDOST	87.7	1.9	10.4
SPLEEN	92.0	1.3	6.7
TESTES	72.0	1.4	26.7
THYMUS	93.4	1.3	5.4
THYROID	92.2	1.0	6.9
UTERUS	85.1	1.2	13.7

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	RU-105	RH-105M	RH-105
STOMACH	0.0	0.0	0.0
S INT	4.000E-02	4.000E-02	4.000E-02
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CNT	SI CNT	LLI CNT	LLI CNT	OTHER	TOTAL
TARGET						
LUNGS	8.985E-06	4.015E-06	4.783E-06	6.889E-07	1.095E-06	1.957E-05
RES LYM	8.985E-06	4.015E-06	4.783E-06	6.889E-07	1.095E-06	1.957E-05
S WALL	1.839E-03	4.147E-05	4.814E-05	1.009E-05	1.131E-06	1.940E-03
SI WALL	1.286E-05	2.812E-03	2.154E-04	5.252E-05	1.226E-06	3.094E-03
ULI WALL	1.592E-05	2.753E-04	5.909E-03	2.419E-05	1.276E-06	6.226E-03
LLI WALL	6.490E-06	8.197E-05	4.136E-05	5.045E-03	1.290E-06	5.176E-03
T BODY	1.222E-05	4.582E-05	4.150E-05	2.195E-05	3.767E-06	1.253E-04
ADREN	1.273E-05	1.500E-05	1.441E-05	2.865E-06	5.969E-06	4.897E-05
BL WALL	2.241E-06	3.486E-05	2.683E-05	3.283E-05	3.645E-06	1.004E-04
KIDNEYS	1.636E-05	3.791E-05	3.656E-05	5.148E-06	6.081E-06	1.025E-04
LIVER	9.929E-06	2.201E-05	3.312E-05	2.043E-06	6.156E-06	7.326E-05
OVARIES	4.175E-06	1.138E-04	1.446E-04	9.868E-05	5.965E-06	3.671E-04
PANCREAS	8.503E-05	2.465E-05	2.608E-05	4.316E-06	6.312E-06	1.464E-04
BONE	3.235E-06	9.726E-06	9.757E-06	6.282E-06	5.585E-06	3.442E-05
R MAR	5.219E-06	3.068E-05	2.926E-05	1.889E-05	5.914E-06	8.996E-05
Y MAR	4.226E-06	1.348E-05	1.353E-05	7.781E-06	5.653E-06	4.507E-05
ENDOST	3.035E-06	9.726E-06	9.757E-06	6.282E-06	6.715E-06	3.555E-05
SPLEEN	4.716E-05	1.872E-05	1.730E-05	5.582E-06	5.988E-06	9.476E-05
TESTES	3.850E-07	5.065E-06	6.852E-06	1.110E-05	5.494E-06	2.890E-05
THYMUS	2.204E-06	1.737E-06	2.095E-06	3.507E-07	4.109E-06	1.049E-05
THYROID	7.804E-07	5.244E-07	6.145E-07	1.137E-07	5.521E-06	7.554E-06
UTERUS	4.553E-06	1.038E-04	6.096E-05	3.395E-05	4.478E-06	2.077E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-105	RH-105M	RH-105
TARGET			
LUNGS	96.8	0.9	2.3
RES LYM	96.8	0.9	2.3
S WALL	92.9	5.3	0.8
SI WALL	91.5	5.2	3.4
ULI WALL	82.8	4.9	12.2
LLI WALL	60.1	3.7	36.2
T BODY	87.8	3.2	8.9
ADREN	92.0	1.2	5.8
BL WALL	91.0	1.2	7.9
KIDNEYS	94.4	1.2	4.4
LIVER	93.7	1.3	5.0
OVARIES	91.4	1.6	7.1
PANCREAS	95.8	1.4	2.7
BONE	88.4	2.1	9.5
R MAR	90.5	2.2	7.4
Y MAR	89.6	2.1	8.3
ENDOST	87.7	2.2	10.2
SPLEEN	95.1	1.3	3.6
TESTES	86.0	1.3	12.7
THYMUS	86.1	1.7	12.2
THYROID	75.4	2.7	21.9
UTERUS	93.6	1.3	5.1

RUTHENIUM-106

RADIONUCLIDE: RU-106

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

	RADIOACTIVE HALF-LIFE (DAYS)	
NUCLIDE		
RU-106	368.0	
RH-106	3.4600E-04	

BRANCHING RATIOS:	FROM	TO	FRACTION
	RU-106	RH-106	1.000

ORGAN	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ABSORBED	RU-106	1.00	0.150 0.400 0.250 0.200 0.670 0.330	0.347 9.90 58.0 1.730E 03 3.00 200.
	RH-106	1.00		

S FACTORS (REM/MICROCURIE-CAY) FOR RU-106

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.513E-03	0.513E-03	0.0	0.0	0.0	0.0	0.0
RES LYM	0.513E-03	0.342E-01	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.103E-02	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.641E-03	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.117E-02	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.190E-02	0.0
T BODY	0.733E-05	0.733E-05	0.220E-05	0.586E-05	0.350E-05	0.434E-05	0.730E-05
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.622E-05
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.103E-04
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.124E-04

 β^- decay (368.2 D 12)

RUTHENIUM-106 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
RU-106	Y	0.0	4.000E-02	0.0	0.0
RH-106	Y	0.0	4.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET								
LUNGS	3.38	0.468	1.433E-06	1.020E-06	3.505E-06	2.114E-06	1.722E-04	3.85
RES LYM	3.38	31.0	1.433E-06	1.020E-06	3.505E-06	2.114E-06	1.722E-04	34.3
S WALL	3.052E-03	4.222E-04	3.231E-03	1.020E-05	3.477E-05	3.123E-05	1.787E-04	6.960E-03
SI WALL	4.748E-04	6.569E-05	2.031E-06	7.770E-03	1.563E-04	1.589E-04	1.935E-04	8.822E-03
ULI WALL	6.454E-04	8.929E-05	2.527E-06	6.763E-05	4.577E-02	7.416E-05	2.011E-04	4.685E-02
LLI WALL	1.341E-04	1.856E-05	1.013E-06	2.015E-05	2.957E-05	0.137	2.034E-04	0.137
T BODY	5.013E-02	6.935E-03	8.245E-06	7.597E-05	1.543E-04	3.448E-04	4.125E-03	6.177E-02
ADREN	3.937E-03	5.446E-04	1.705E-06	3.668E-06	1.032E-05	8.930E-06	6.952E-03	1.146E-02
BL WALL	1.300E-04	1.798E-05	3.648E-07	9.445E-06	1.886E-05	9.889E-05	3.579E-03	3.854E-03
KIDNEYS	1.706E-03	2.360E-04	2.549E-06	9.445E-06	2.670E-05	1.529E-05	6.952E-03	8.948E-03
LIVER	3.886E-03	5.376E-04	1.576E-06	5.439E-06	2.393E-05	6.508E-06	6.990E-03	1.145E-02
OVARIES	2.609E-04	3.610E-05	5.670E-07	2.690E-05	1.103E-04	2.866E-04	6.952E-03	7.673E-03
PANCREAS	4.352E-03	6.020E-04	1.338E-05	6.139E-06	1.799E-05	1.332E-05	6.990E-03	1.199E-02
BONE	1.627E-03	2.251E-04	4.681E-07	2.336E-06	6.927E-06	1.847E-05	6.876E-03	8.757E-03
R MAR	2.051E-03	2.838E-04	8.043E-07	7.370E-06	2.056E-05	5.499E-05	6.952E-03	9.371E-03
Y MAR	1.715E-03	2.372E-04	6.505E-07	3.230E-06	9.829E-06	2.280E-05	6.876E-03	8.865E-03
ENDOST	1.627E-03	2.251E-04	4.681E-07	2.336E-06	6.927E-06	1.847E-05	8.120E-03	1.000E-02
SPLEEN	3.481E-03	4.815E-04	7.362E-06	4.706E-06	1.235E-05	1.741E-05	6.952E-03	1.096E-02
TESTES	4.568E-05	6.320E-06	4.725E-08	1.223E-06	5.120E-06	3.471E-05	6.876E-03	6.969E-03
THYMUS	6.223E-03	8.610E-04	2.945E-07	4.385E-07	1.552E-06	1.135E-06	4.372E-03	1.146E-02
THYROID	2.028E-03	2.806E-04	1.244E-07	1.332E-07	4.627E-07	3.764E-07	6.876E-03	9.186E-03
UTERUS	1.789E-04	2.474E-05	7.164E-07	2.572E-05	4.408E-05	9.939E-05	4.448E-03	4.822E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-106	RH-106
TARGET		
LUNGS	0.7	95.3
RES LYM	0.7	95.3
S WALL	0.3	95.7
SI WALL	0.6	95.4
ULI WALL	0.7	95.3
LLI WALL	0.7	95.3
T BODY	0.7	95.3
ADREN	0.4	95.6
BL WALL	0.6	95.4
KIDNEYS	0.5	95.5
LIVER	0.4	95.6
OVARIES	0.6	95.4
PANCREAS	0.4	95.6
BONE	0.5	95.5
R MAR	0.5	95.5
Y MAR	0.5	95.5
ENDOST	0.4	95.6
SPLEEN	0.4	95.6
TESTES	0.7	95.3
THYMUS	0.4	95.6
THYROID	0.5	95.5
UTERUS	1.0	95.0

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	RU-106	RH-106
STOMACH	0.0	0.0
S INT	4.000E-02	4.000E-02
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET						
LUNGS	2.684E-06	1.935E-06	6.647E-06	4.009E-06	2.020E-04	2.172E-04
RES LYM	2.684E-06	1.935E-06	6.647E-06	4.009E-06	2.020E-04	2.172E-04
S WALL	6.054E-03	1.935E-05	6.545E-05	5.923E-05	2.095E-04	6.408E-03
SI WALL	3.804E-06	1.474E-02	2.965E-04	3.014E-04	2.269E-04	1.557E-02
ULI WALL	4.735E-06	1.283E-04	8.681E-02	1.407E-04	2.358E-04	8.732E-02
LLI WALL	1.898E-06	3.822E-05	5.608E-05	0.259	2.384E-04	0.260
T BODY	1.545E-05	1.441E-04	2.926E-04	6.539E-04	4.837E-03	5.943E-03
ADREN	3.195E-06	6.957E-06	1.958E-05	1.694E-05	8.152E-03	8.198E-03
BL WALL	6.834E-07	1.791E-05	3.578E-05	1.875E-04	4.196E-03	4.438E-03
KIDNEYS	4.776E-06	1.791E-05	5.063E-05	2.899E-05	8.152E-03	8.254E-03
LIVER	2.952E-06	1.032E-05	4.538E-05	1.234E-05	8.196E-03	8.267E-03
OVARIES	1.062E-06	5.102E-05	2.053E-04	5.435E-04	8.152E-03	8.957E-03
PANCREAS	2.507E-05	1.164E-05	3.412E-05	2.526E-05	8.196E-03	8.292E-03
BONE	8.769E-07	4.430E-06	1.314E-05	3.502E-05	8.063E-03	8.116E-03
R MAR	1.507E-06	1.398E-05	3.900E-05	1.043E-04	8.152E-03	8.310E-03
Y MAR	1.219E-06	6.125E-06	1.864E-05	4.325E-05	8.063E-03	8.132E-03
ENDOST	8.769E-07	4.430E-06	1.314E-05	3.502E-05	9.521E-03	9.575E-03
SPLEEN	1.379E-05	8.924E-06	2.342E-05	3.301E-05	8.152E-03	8.231E-03
TESTES	8.852E-08	2.319E-06	9.711E-06	6.583E-05	8.063E-03	8.141E-03
THYMUS	5.517E-07	8.317E-07	2.944E-06	2.153E-06	5.127E-03	5.133E-03
THYROID	2.330E-07	2.527E-07	8.776E-07	7.138E-07	8.063E-03	8.065E-03
UTERUS	1.342E-06	4.878E-05	8.360E-05	1.885E-04	5.216E-03	5.538E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	RU-106	RH-106
TARGET		
LUNGS	0.0	100.0
RES LYM	0.0	100.0
S WALL	0.7	95.3
SI WALL	0.7	95.3
ULI WALL	0.7	95.3
LLI WALL	0.7	95.3
T BODY	0.7	95.3
ADREN	0.7	95.3
BL WALL	0.6	95.4
KIDNEYS	0.7	95.3
LIVER	0.7	95.3
OVARIES	0.6	95.4
PANCREAS	0.7	95.3
BONE	0.7	95.3
R MAR	0.7	95.3
Y MAR	0.7	95.3
ENDOST	0.5	95.5
SPLEEN	0.7	95.3
TESTES	0.7	95.3
THYMUS	1.1	95.9
THYROID	0.7	95.3
UTERUS	1.0	95.0

RHODIUM-103m

RADIOISOTOPE: RH-103M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCLIDE		3.9000E-02		
RH-103M				
			BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION
ORGAN	NUCLIDE	F2-PRIME		COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ABSORBED	RH-103M	1.00	0.670 0.330	3.00 200.

S FACTORS (REM/MICROCURIE-DAY) FOR RH-103M

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.194E-02	0.194E-02	0.250E-06	0.693E-09	0.850E-09	0.973E-10	0.596E-06
RES LYM	0.194E-02	0.127E-00	0.250E-06	0.693E-09	0.850E-09	0.973E-10	0.596E-06
S WALL	0.316E-06	0.316E-06	0.387E-02	0.715E-06	0.101E-05	0.101E-06	0.279E-06
SI WALL	0.528E-06	0.528E-06	0.142E-06	0.242E-02	0.993E-05	0.515E-05	0.276E-06
ULI WALL	0.814E-06	0.814E-09	0.539E-06	0.323E-04	0.438E-02	0.260E-05	0.390E-06
LLI WALL	0.101E-06	0.101E-09	0.353E-07	0.562E-05	0.987E-06	0.712E-02	0.302E-06
T BODY	0.283E-04	0.283E-04	0.932E-05	0.229E-04	0.141E-04	0.173E-04	0.280E-04
ADREN	0.239E-06	0.239E-06	0.366E-07	0.458E-08	0.948E-08	0.762E-09	0.475E-04
BL WALL	0.378E-10	0.378E-10	0.537E-09	0.549E-07	0.374E-07	0.637E-06	0.239E-04
KIDNEYS	0.138E-07	0.138E-07	0.514E-07	0.113E-06	0.696E-07	0.805E-08	0.478E-04
LIVER	0.640E-06	0.640E-06	0.621E-07	0.133E-06	0.198E-06	0.513E-09	0.479E-04
OVARIES	0.178E-06	0.178E-06	0.342E-08	0.379E-05	0.454E-05	0.134E-04	0.475E-04
PANCREAS	0.110E-06	0.110E-06	0.617E-05	0.231E-07	0.254E-07	0.462E-08	0.482E-04
BONE	0.339E-06	0.339E-06	0.696E-07	0.172E-06	0.138E-06	0.516E-06	0.474E-04
R MAR	0.381E-06	0.381E-06	0.780E-07	0.704E-06	0.567E-06	0.214E-05	0.484E-04
Y MAR	0.421E-06	0.421E-06	0.566E-07	0.238E-06	0.194E-06	0.716E-06	0.481E-04
ENDOST	0.339E-06	0.339E-06	0.696E-07	0.172E-06	0.138E-06	0.516E-06	0.485E-04
SPLEEN	0.439E-06	0.439E-06	0.115E-05	0.239E-07	0.174E-07	0.618E-08	0.478E-04
TESTES	0.352E-11	0.352E-11	0.412E-10	0.624E-09	0.639E-09	0.487E-07	0.472E-04
THYMUS	0.373E-06	0.373E-06	0.130E-08	0.354E-10	0.433E-10	0.741E-11	0.489E-04
THYROID	0.811E-08	0.811E-08	0.438E-10	0.244E-11	0.292E-11	0.598E-12	0.475E-04
UTERUS	0.141E-06	0.141E-06	0.215E-08	0.186E-05	0.193E-06	0.335E-06	0.481E-04

IT decay (56.12 M 1)

RHODIUM-103m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249		
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS						
		STOMACH	S INT	U L INT	L L INT			
RH-103M	Y	0.0	4.000E-02	0.0	0.0			
DOSE EQUIVALENT (REM/MICROCURIE)								
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CCNT	LLI CCNT	OTHER	TOTAL
TARGET								
LUNGS	6.497E-05	3.182E-10	2.442E-10	6.762E-13	2.536E-13	2.855E-15	1.113E-10	6.497E-05
RES LYM	6.497E-05	2.083E-08	2.442E-10	6.762E-13	2.536E-13	2.855E-15	1.113E-10	6.497E-05
S WALL	1.058E-08	5.182E-14	3.780E-06	6.976E-10	3.014E-10	2.964E-12	5.211E-11	3.791E-06
SI WALL	1.768E-11	8.659E-17	1.387E-10	2.361E-06	2.963E-09	1.511E-10	5.155E-11	2.365E-06
ULI WALL	2.726E-11	1.335E-16	5.264E-10	3.152E-08	1.307E-06	7.630E-11	7.285E-11	1.339E-06
LLI WALL	3.383E-12	1.656E-17	3.448E-11	5.484E-09	2.945E-10	2.089E-07	5.641E-11	2.148E-07
T BODY	9.478E-07	4.641E-12	9.1C2E-09	2.234E-08	4.207E-09	5.077E-10	5.230E-09	9.892E-07
ADREN	8.004E-05	3.520E-14	3.575E-11	4.469E-12	2.829E-12	2.236E-14	8.872E-09	1.692E-08
BL WALL	1.266E-12	6.199E-18	5.245E-13	5.357E-11	1.116E-11	1.869E-11	4.464E-09	4.545E-09
KIDNEYS	4.622E-10	2.263E-15	8.927E-11	1.103E-10	2.077E-11	2.362E-13	8.928E-09	9.611E-09
LIVER	2.143E-08	1.050E-13	6.065E-11	1.298E-10	5.908E-11	1.505E-14	8.947E-09	3.063E-08
OVARIES	5.961E-12	2.919E-17	3.340E-12	3.698E-09	1.355E-09	3.932E-10	8.872E-09	1.433E-08
PANCREAS	3.684E-09	1.804E-14	6.026E-09	2.254E-11	7.579E-12	1.356E-13	9.003E-09	1.874E-08
BONE	1.135E-08	5.560E-14	6.758E-11	1.678E-10	4.118E-11	1.514E-11	8.854E-09	2.050E-08
R MAR	1.276E-08	6.248E-14	7.618E-11	6.869E-10	1.692E-10	6.280E-11	9.041E-09	2.280E-08
Y MAR	1.410E-08	6.904E-14	9.435E-11	2.322E-10	5.789E-11	2.101E-11	8.985E-09	2.349E-08
ENDOST	1.135E-08	5.560E-14	6.758E-11	1.678E-10	4.118E-11	1.514E-11	9.055E-09	2.070E-08
SPLEEN	1.470E-08	7.199E-14	1.123E-09	2.332E-11	5.192E-12	1.813E-13	8.928E-09	2.478E-08
TESTES	1.179E-13	5.773E-19	4.024E-14	6.089E-13	1.907E-13	1.429E-12	8.816E-09	8.819E-09
THYMUS	1.249E-08	6.117E-14	1.270E-12	3.454E-14	1.292E-14	2.174E-16	9.134E-09	2.163E-08
THYROID	2.716E-10	1.330E-15	4.278E-14	2.391E-15	8.713E-16	1.755E-17	8.872E-09	9.144E-09
UTERUS	4.722E-12	2.312E-17	2.100E-12	1.815E-09	5.759E-11	9.830E-12	8.985E-09	1.087E-08

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TC BLOOD)

RH-103M						
STOMACH	0.0					
S INT	4.000E-02					
U L INT	0.0					
L L INT	0.0					
DOSE EQUIVALENT (REM/MICROCURIE)						
SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	OTHER	TOTAL
TARGET						
LUNGS	5.985E-09	1.657E-11	6.217E-12	6.998E-14	1.988E-10	6.206E-09
RES LYM	5.985E-09	1.657E-11	6.217E-12	6.998E-14	1.988E-10	6.206E-09
S WALL	9.264E-05	1.710E-08	7.387E-09	7.265E-11	9.304E-11	9.267E-05
SI WALL	3.399E-05	5.788E-05	7.263E-08	3.704E-09	9.204E-11	5.796E-05
ULI WALL	1.290E-08	7.725E-07	3.204E-05	1.870E-09	1.301E-10	3.282E-05
LLI WALL	8.450E-10	1.344E-07	7.219E-09	5.121E-06	1.007E-10	5.264E-06
T BODY	2.231E-07	5.477E-07	1.031E-07	1.244E-08	9.338E-09	8.957E-07
ADREN	8.762E-10	1.095E-10	6.934E-11	5.481E-13	1.584E-08	1.690E-08
BL WALL	1.286E-11	1.313E-09	2.735E-10	4.582E-10	7.971E-09	1.003E-08
KIDNEYS	2.188E-05	2.703E-09	5.091E-10	5.790E-12	1.594E-08	2.135E-08
LIVER	1.487E-05	3.181E-05	1.448E-09	3.690E-13	1.597E-08	2.209E-08
OVARIES	8.187E-11	9.064E-08	3.321E-08	9.638E-09	1.584E-08	1.494E-07
PANCREAS	1.477E-07	5.525E-10	1.858E-10	3.323E-12	1.607E-08	1.645E-07
BONE	1.666E-05	4.114E-05	1.009E-09	3.711E-10	1.581E-08	2.297E-08
R MAR	1.867E-05	1.684E-08	4.147E-09	1.539E-09	1.614E-08	4.053E-08
Y MAR	2.312E-05	5.692E-05	1.419E-09	5.150E-10	1.604E-08	2.598E-08
ENDOST	1.666E-05	4.114E-05	1.009E-09	3.711E-10	1.617E-08	2.333E-08
SPLEEN	2.753E-08	5.716E-10	1.273E-10	4.445E-12	1.594E-08	4.417E-08
TESTES	9.863E-13	1.492E-11	4.674E-12	3.503E-11	1.574E-08	1.580E-08
THYMUS	3.112E-11	8.466E-13	3.167E-13	5.330E-15	1.631E-08	1.634E-08
THYROID	1.049E-12	5.836E-14	2.136E-14	4.301E-16	1.584E-08	1.584E-08
UTERUS	5.147E-11	4.448E-08	1.412E-09	2.410E-10	1.604E-08	6.223E-08

RHODIUM-105

RADIONUCLIDE: RH-105

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE RH-105	RADIOACTIVE HALF-LIFE (DAYS) 1.470	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 0.670 0.330	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 3.00 200.
ORGAN ABSORBED	NUCLIDE RH-105			

S FACTORS (REM/MICROCURIE-DAY) FOR RH-105

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.804E-02	0.804E-02	0.244E-04	0.397E-05	0.419E-05	0.130E-05	0.176E-04
RES LYM	0.804E-02	0.523E-00	0.244E-04	0.397E-05	0.419E-05	0.130E-05	0.176E-04
S WALL	0.258E-04	0.258E-04	0.164E-01	0.498E-04	0.513E-04	0.250E-04	0.184E-04
SI WALL	0.321E-05	0.321E-05	0.365E-04	0.102E-01	0.230E-03	0.128E-03	0.200E-04
ULI WALL	0.411E-05	0.411E-05	0.481E-04	0.322E-03	0.184E-01	0.590E-04	0.207E-04
LLI WALL	0.140E-05	0.140E-05	0.180E-04	0.971E-04	0.416E-04	0.297E-01	0.211E-04
T BODY	0.132E-03	0.132E-03	0.581E-04	0.117E-03	0.801E-04	0.929E-04	0.131E-03
ADREN	0.343E-04	0.343E-04	0.319E-04	0.206E-04	0.133E-04	0.668E-05	0.216E-03
BL WALL	0.836E-06	0.836E-06	0.435E-05	0.407E-04	0.287E-04	0.867E-04	0.119E-03
KIDNEYS	0.132E-04	0.132E-04	0.481E-04	0.431E-04	0.383E-04	0.128E-04	0.218E-03
LIVER	0.340E-04	0.340E-04	0.278E-04	0.257E-04	0.356E-04	0.431E-05	0.219E-03
OVARIES	0.188E-05	0.188E-05	0.633E-05	0.137E-03	0.167E-03	0.257E-03	0.216E-03
PANCREAS	0.365E-04	0.365E-04	0.248E-03	0.288E-04	0.306E-04	0.100E-04	0.222E-03
BONE	0.152E-04	0.152E-04	0.949E-05	0.127E-04	0.116E-04	0.165E-04	0.210E-03
R MAR	0.194E-04	0.194E-04	0.168E-04	0.414E-04	0.357E-04	0.496E-04	0.217E-03
Y MAR	0.158E-04	0.158E-04	0.132E-04	0.178E-04	0.165E-04	0.203E-04	0.212E-03
ENDOST	0.152E-04	0.152E-04	0.949E-05	0.127E-04	0.116E-04	0.165E-04	0.256E-03
SPLEEN	0.312E-04	0.312E-04	0.137E-03	0.218E-04	0.186E-04	0.117E-04	0.216E-03
TESTES	0.242E-06	0.242E-06	0.711E-06	0.501E-05	0.552E-05	0.286E-04	0.208E-03
THYMUS	0.540E-04	0.540E-04	0.337E-05	0.169E-05	0.186E-05	0.646E-06	0.148E-03
THYROID	0.136E-04	0.136E-04	0.187E-05	0.414E-06	0.448E-06	0.174E-06	0.209E-03
UTERUS	0.136E-05	0.136E-05	0.120E-04	0.126E-03	0.645E-04	0.909E-04	0.146E-03

 β^- decay (35.36 H 5)

RHODIUM-105 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

G.I. UPTAKE FRACTIONS

SOLUBILITY CLASS	STOMACH	S INT	U L INT	L L INT
RH-105 Y	0.0	4.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CCNT	LLI CCNT	OTHER	TOTAL
TARGET								
LUNGS	4.633E-03	1.866E-06	3.624E-07	2.105E-07	5.752E-07	2.239E-07	4.980E-07	4.633E-03
RES LYM	4.633E-03	1.214E-04	3.624E-07	2.105E-07	5.752E-07	2.239E-07	4.980E-07	4.756E-03
S WALL	1.487E-05	5.986E-09	2.435E-04	2.641E-06	7.042E-06	4.305E-06	5.207E-07	2.729E-04
SI WALL	1.850E-06	7.448E-10	5.420E-07	5.409E-04	3.157E-05	2.204E-05	5.659E-07	5.974E-04
ULI WALL	2.368E-06	9.536E-10	7.143E-07	1.707E-05	2.526E-03	1.016E-05	5.857E-07	2.557E-03
LLI WALL	8.067E-07	3.248E-10	2.673E-07	5.149E-06	5.711E-06	5.115E-03	5.971E-07	5.127E-03
T BODY	7.606E-05	3.063E-08	8.628E-07	6.204E-06	1.100E-05	1.600E-05	3.707E-06	1.139E-04
ADREN	1.976E-05	7.559E-09	4.737E-07	1.092E-06	1.826E-06	1.150E-06	6.112E-06	3.043E-05
BL WALL	4.817E-07	1.940E-10	6.460E-08	2.158E-06	3.940E-06	1.493E-05	3.367E-06	2.494E-05
KIDNEYS	7.606E-06	3.063E-09	7.143E-07	2.285E-06	5.258E-06	2.204E-06	6.169E-06	2.424E-05
LIVER	1.959E-05	7.889E-09	4.128E-07	1.363E-06	4.887E-06	7.423E-07	6.197E-06	3.320E-05
OVARIES	1.083E-06	4.362E-10	9.400E-08	7.265E-06	2.292E-05	4.426E-05	6.112E-06	8.174E-05
PANCREAS	2.103E-05	8.469E-09	3.683E-06	1.527E-06	4.201E-06	1.722E-06	6.282E-06	3.845E-05
BONE	8.758E-06	3.527E-09	1.409E-07	6.734E-07	1.592E-06	2.842E-06	5.942E-06	1.995E-05
R MAR	1.118E-05	4.501E-09	2.495E-07	2.195E-06	4.901E-06	8.542E-06	6.140E-06	3.321E-05
Y MAR	9.104E-06	3.666E-09	1.960E-07	9.439E-07	2.265E-06	3.496E-06	5.999E-06	2.201E-05
ENDOST	8.758E-06	3.527E-09	1.409E-07	6.734E-07	1.592E-06	2.842E-06	7.244E-06	2.125E-05
SPLEEN	1.798E-05	7.239E-09	2.035E-06	1.156E-06	2.553E-06	2.015E-06	6.112E-06	3.186E-05
TESTES	1.394E-07	5.615E-11	1.056E-08	2.657E-07	7.577E-07	4.925E-06	5.886E-06	1.198E-05
THYMUS	3.111E-05	1.253E-08	5.005E-08	8.961E-08	2.553E-07	1.113E-07	4.188E-06	3.582E-05
THYROID	7.836E-06	3.156E-09	2.777E-08	2.195E-08	6.150E-08	2.997E-08	5.914E-06	1.389E-05
UTERUS	7.836E-07	3.156E-10	1.782E-07	6.681E-06	8.854E-06	1.565E-05	4.131E-06	3.628E-05

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

RH-105
STOMACH 0.0
S INT 4.000E-02
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CCNT	SI CCNT	ULI CCNT	LLI CCNT	OTHER	TOTAL
TARGET						
LUNGS	9.971E-07	5.793E-07	1.583E-06	6.161E-07	1.058E-06	4.833E-06
RES LYM	9.971E-07	5.793E-07	1.583E-06	6.161E-07	1.058E-06	4.833E-06
S WALL	6.702E-04	7.266E-06	1.938E-05	1.185E-05	1.106E-06	7.098E-04
SI WALL	1.492E-06	1.488E-03	8.688E-05	6.066E-05	1.203E-06	1.639E-03
ULI WALL	1.966E-06	4.698E-05	6.950E-03	2.796E-05	1.245E-06	7.028E-03
LLI WALL	7.355E-07	1.417E-05	1.571E-05	1.407E-02	1.269E-06	1.411E-02
T BODY	2.374E-06	1.707E-05	3.026E-05	4.402E-05	7.877E-06	1.016E-04
ADREN	1.304E-06	3.006E-06	5.024E-06	3.166E-06	1.299E-05	2.549E-05
BL WALL	1.778E-07	5.538E-06	1.084E-05	4.109E-05	7.155E-06	6.520E-05
KIDNEYS	1.966E-06	6.289E-06	1.447E-05	6.066E-06	1.311E-05	4.190E-05
LIVER	1.136E-06	3.750E-06	1.345E-05	2.042E-06	1.317E-05	3.354E-05
OVARIES	2.587E-07	1.999E-05	6.308E-05	1.218E-04	1.299E-05	2.181E-04
PANCREAS	1.013E-05	4.202E-06	1.156E-05	4.739E-06	1.335E-05	4.398E-05
BONE	3.878E-07	1.853E-06	4.382E-06	7.819E-06	1.263E-05	2.707E-05
R MAR	6.865E-07	6.041E-06	1.349E-05	2.350E-05	1.305E-05	5.676E-05
Y MAR	5.394E-07	2.597E-06	6.233E-06	9.620E-06	1.275E-05	3.174E-05
ENDOST	3.878E-07	1.853E-06	4.382E-06	7.819E-06	1.539E-05	2.983E-05
SPLEEN	5.598E-06	3.181E-06	7.026E-06	5.545E-06	1.299E-05	3.434E-05
TESTES	2.905E-08	7.310E-07	2.085E-06	1.355E-05	1.251E-05	2.891E-05
THYMUS	1.377E-07	2.466E-07	7.026E-07	3.061E-07	8.899E-06	1.029E-05
THYROID	7.642E-08	6.041E-08	1.692E-07	8.246E-08	1.257E-05	1.296E-05
UTERUS	4.904E-07	1.838E-05	2.436E-05	4.308E-05	8.779E-06	9.509E-05

RADIONUCLIDE: RH-105M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

	RADIOACTIVE HALF-LIFE (DAYS)
NUCLIDE	
RH-105M	5.2100E-04
RH-105	1.470

BRANCHING RATIOS:	FROM RH-105M	TO RH-105	FRACTION
			1.000

ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
	RH-105M	1.00	0.670	3.00
	RH-105	1.00	0.330	200.
			0.670	3.00
			0.330	200.

S FACTORS (REM/MICROCURIE-DAY) FOR RH-105M

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.506E-02	0.506E-02	0.103E-04	0.112E-05	0.135E-05	0.402E-06	0.943E-05
RES LYM	0.506E-02	0.320E-00	0.103E-04	0.112E-05	0.135E-05	0.402E-06	0.943E-05
S WALL	0.112E-04	0.112E-04	0.102E-01	0.228E-04	0.249E-04	0.971E-05	0.767E-05
SI WALL	0.969E-06	0.969E-06	0.148E-04	0.638E-02	0.138E-03	0.755E-04	0.873E-05
ULI WALL	0.115E-05	0.115E-05	0.212E-04	0.285E-03	0.115E-01	0.353E-04	0.955E-05
LLI WALL	0.334E-06	0.334E-06	0.629E-05	0.668E-04	0.219E-04	0.185E-01	0.928E-05
T BODY	0.821E-04	0.821E-04	0.358E-04	0.713E-04	0.489E-04	0.568E-04	0.803E-04
ADREN	0.152E-04	0.152E-04	0.146E-04	0.492E-05	0.481E-05	0.176E-05	0.132E-03
BL WALL	0.174E-06	0.174E-06	0.144E-05	0.137E-04	0.118E-04	0.395E-04	0.714E-04
KIDNEYS	0.444E-05	0.444E-05	0.186E-04	0.174E-04	0.152E-04	0.442E-05	0.135E-03
LIVER	0.160E-04	0.160E-04	0.108E-04	0.102E-04	0.144E-04	0.127E-05	0.136E-03
OVARIES	0.467E-06	0.467E-06	0.267E-05	0.754E-04	0.837E-04	0.159E-03	0.133E-03
PANCREAS	0.141E-04	0.141E-04	0.126E-03	0.108E-04	0.122E-04	0.394E-05	0.138E-03
BONE	0.967E-05	0.967E-05	0.521E-05	0.767E-05	0.683E-05	0.114E-04	0.131E-03
R MAR	0.121E-04	0.121E-04	0.906E-05	0.266E-04	0.228E-04	0.384E-04	0.141E-03
Y MAR	0.103E-04	0.103E-04	0.730E-05	0.108E-04	0.981E-05	0.146E-04	0.137E-03
ENDOST	0.967E-05	0.967E-05	0.521E-05	0.767E-05	0.683E-05	0.114E-04	0.155E-03
SPL EEN	0.142E-04	0.142E-04	0.580E-04	0.803E-05	0.765E-05	0.422E-05	0.134E-03
TESTES	0.370E-07	0.370E-07	0.249E-06	0.157E-05	0.136E-05	0.914E-05	0.128E-03
THYMUS	0.247E-04	0.247E-04	0.139E-05	0.396E-06	0.511E-06	0.129E-06	0.897E-04
THYROID	0.491E-05	0.491E-05	0.423E-06	0.703E-07	0.779E-07	0.249E-07	0.130E-03
UTERUS	0.411E-06	0.411E-06	0.397E-05	0.596E-04	0.294E-04	0.385E-04	0.894E-04

IT decay (45 S)

RHODIUM-105m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
RH-105M	Y	0.0	4.000E-02	0.0	0.0		
RH-105	Y	0.0	4.000E-02	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET								
LUNGS	4.069E-06	6.614E-10	1.330E-10	7.462E-11	2.039E-10	7.935E-11	1.798E-10	4.070E-06
RES LYM	4.069E-06	4.302E-08	1.330E-10	7.462E-11	2.039E-10	7.935E-11	1.798E-10	4.112E-06
S WALL	1.064E-08	2.122E-12	9.087E-08	9.361E-10	2.496E-09	1.526E-09	1.876E-10	1.067E-07
SI WALL	1.120E-09	2.640E-13	1.987E-10	1.917E-07	1.119E-08	7.813E-09	2.040E-10	2.123E-07
ULI WALL	1.391E-09	3.381E-13	2.626E-10	6.054E-09	8.952E-07	3.601E-09	2.112E-10	9.067E-07
LLI WALL	4.460E-10	1.152E-13	9.755E-11	1.825E-09	2.024E-09	1.813E-06	2.152E-10	1.817E-06
T BODY	6.633E-08	1.086E-11	3.218E-10	3.199E-09	3.897E-09	5.670E-09	1.340E-09	7.977E-08
ADREN	1.429E-08	2.821E-12	1.744E-10	3.872E-10	6.471E-10	4.077E-10	2.209E-09	1.812E-08
BL WALL	2.541E-10	6.876E-14	2.354E-11	7.650E-10	1.396E-09	5.292E-09	1.217E-09	8.948E-09
KIDNEYS	4.824E-09	1.086E-12	2.615E-10	8.101E-10	1.863E-09	7.813E-10	2.229E-09	1.077E-08
LIVER	1.462E-08	2.797E-12	1.511E-10	4.831E-10	1.732E-09	2.631E-10	2.240E-09	1.949E-08
OVARIES	6.077E-10	1.154E-13	3.451E-11	2.575E-09	8.125E-09	1.569E-08	2.209E-09	2.924E-08
PANCREAS	1.421E-10	3.002E-12	3.362E-09	5.413E-10	1.489E-09	6.104E-10	2.270E-09	2.049E-08
BONE	7.742E-09	1.250E-12	5.227E-11	2.387E-10	5.644E-10	1.007E-09	2.148E-09	1.175E-08
R MAR	9.765E-09	1.596E-12	9.247E-11	7.783E-10	1.737E-09	3.027E-09	2.220E-09	1.762E-08
Y MAR	8.166E-09	1.300E-12	7.273E-11	3.346E-10	8.028E-10	1.239E-09	2.169E-09	1.127E-08
ENDOST	7.742E-09	1.250E-12	5.227E-11	2.387E-10	5.644E-10	1.007E-09	2.618E-09	1.222E-08
SPLEEN	1.318E-08	2.566E-12	7.477E-10	4.098E-10	9.049E-10	7.141E-10	2.209E-09	1.817E-08
TESTES	6.714E-11	1.990E-14	3.853E-12	9.417E-11	2.686E-10	1.746E-09	2.127E-09	4.306E-09
THYMUS	2.287E-08	4.442E-12	1.836E-11	3.176E-11	9.049E-11	3.943E-11	1.513E-09	2.457E-08
THYROID	1.131E-09	1.119E-12	1.003E-11	7.781E-12	2.180E-11	1.062E-11	2.138E-09	7.320E-09
UTERUS	4.747E-10	1.119E-13	6.493E-11	2.368E-09	3.138E-09	5.548E-09	1.493E-09	1.309E-08

PERCENT DOSE EQUIVALENT..

NUCLIDE	RH-105M	RH-105
TARGET		
LUNGS	59.7	40.3
RES LYM	59.0	41.0
S WALL	9.3	90.7
SI WALL	0.2	95.8
ULI WALL	0.1	95.9
LLI WALL	0.0	100.0
T BODY	49.4	50.6
ADREN	40.4	59.6
BL WALL	1.1	98.9
KIDNEYS	20.0	80.0
LIVER	39.5	60.5
OVARIES	0.8	99.2
PANCREAS	33.4	66.6
BONE	39.7	60.3
R MAR	33.1	66.9
Y MAR	38.8	61.2
ENDOST	38.2	61.8
SPLEEN	37.8	62.2
TESTES	0.8	99.2
THYMUS	48.3	51.7
THYROID	32.4	67.6
UTERUS	1.6	98.4

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	RH-105M	RH-105
STOMACH	0.0	0.0
S INT	4.000E-02	4.000E-02
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET						
LUNGS	7.952E-09	2.202E-10	5.612E-10	2.184E-10	3.752E-10	9.327E-09
RES LYM	7.952E-09	2.202E-10	5.612E-10	2.184E-10	3.752E-10	9.327E-09
S WALL	7.764E-06	2.878E-09	6.872E-09	4.200E-09	3.923E-10	7.779E-06
SI WALL	1.145E-08	6.122E-07	3.081E-08	2.151E-08	4.264E-10	6.764E-07
ULI WALL	1.634E-08	2.043E-08	2.465E-06	9.913E-09	4.413E-10	2.512E-06
LLI WALL	4.900E-09	5.508E-09	5.573E-09	4.990E-06	4.498E-10	5.007E-06
T BODY	2.726E-08	6.997E-09	1.073E-08	1.561E-08	2.793E-09	6.339E-08
ADREN	1.123E-08	1.131E-09	1.781E-09	1.122E-09	4.605E-09	1.987E-08
BL WALL	1.125E-09	2.287E-09	3.844E-09	1.457E-08	2.537E-09	2.436E-08
KIDNEYS	1.442E-08	2.460E-09	5.130E-09	2.151E-09	4.648E-09	2.881E-08
LIVER	8.369E-09	1.465E-09	4.769E-09	7.242E-10	4.669E-09	2.000E-08
OVARIES	2.061E-09	8.086E-09	2.237E-08	4.318E-08	4.605E-09	8.030E-08
PANCREAS	9.656E-08	1.633E-09	4.059E-09	1.680E-09	4.733E-09	1.087E-07
BONE	3.982E-09	7.586E-10	1.554E-09	2.772E-09	4.477E-09	1.354E-08
R MAR	6.928E-09	2.494E-09	4.782E-09	8.334E-09	4.626E-09	2.716E-08
Y MAR	5.578E-09	1.064E-09	2.210E-09	3.411E-09	4.520E-09	1.678E-08
ENDOST	3.982E-09	7.586E-10	1.554E-09	2.772E-09	5.458E-09	1.452E-08
SPLEEN	4.477E-08	1.234E-09	2.491E-09	1.966E-09	4.605E-09	5.507E-08
TESTES	1.940E-10	2.800E-10	7.393E-10	4.805E-09	4.435E-09	1.045E-08
THYMUS	1.074E-09	9.269E-11	2.491E-10	1.085E-10	3.155E-09	4.680E-09
THYROID	3.389E-10	2.235E-11	6.000E-11	2.923E-11	4.456E-09	4.906E-09
UTERUS	3.102E-09	7.308E-09	8.640E-09	1.527E-08	3.113E-09	3.743E-08

PERCENT DOSE EQUIVALENT..

NUCLIDE	RH-105M	RH-105
TARGET		
LUNGS	81.7	18.3
RES LYM	81.7	18.3
S WALL	96.8	3.2
SI WALL	14.1	85.9
ULI WALL	0.8	99.2
LLI WALL	0.1	99.9
T BODY	43.2	56.8
ADREN	54.6	45.4
BL WALL	5.1	94.9
KIDNEYS	48.5	51.5
LIVER	40.6	59.4
OVARIES	3.7	96.3
PANCREAS	85.7	14.3
BONE	29.2	70.8
R MAR	25.9	74.1
Y MAR	33.0	67.0
ENDOST	27.2	72.8
SPLEEN	78.0	22.0
TESTES	2.0	98.0
THYMUS	22.0	78.0
THYROID	6.4	93.6
UTERUS	9.9	90.1

RADIONUCL IDE: RH-106

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCL IDE		3.4600E-04		
RH-106				
		BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ORGAN	NUCLIDE	F2-PRIME		
ABSORBED	RH-106	1.00	0.670 0.330	3.00 200.

S FACTORS (REM/MICROCURIE-DAY) FOR RH-106

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.728E-01	0.728E-01	0.652E-04	0.121E-04	0.128E-04	0.419E-05	0.454E-04
RES LYM	0.728E-01	0.482E-01	0.652E-04	0.121E-04	0.128E-04	0.419E-05	0.454E-04
S WALL	0.662E-04	0.662E-04	0.146E-00	0.121E-03	0.127E-03	0.619E-04	0.471E-04
SI WALL	0.103E-04	0.103E-04	0.924E-04	0.915E-01	0.571E-03	0.315E-03	0.510E-04
ULI WALL	0.140E-04	0.140E-04	0.115E-03	0.802E-03	0.166E-00	0.147E-03	0.530E-04
LLI WALL	0.291E-05	0.291E-05	0.461E-04	0.239E-03	0.108E-03	0.269E-00	0.536E-04
T BODY	0.108E-02	0.108E-02	0.373E-03	0.895E-03	0.560E-03	0.679E-03	0.108E-02
ADREN	0.854E-04	0.854E-04	0.776E-04	0.435E-04	0.377E-04	0.177E-04	0.182E-02
BL WALL	0.282E-05	0.282E-05	0.166E-04	0.112E-03	0.689E-04	0.196E-03	0.937E-03
KIDNEYS	0.370E-04	0.370E-04	0.116E-03	0.112E-03	0.975E-04	0.303E-04	0.182E-02
LIVER	0.843E-04	0.843E-04	0.717E-04	0.645E-04	0.874E-04	0.129E-04	0.183E-02
OVARIES	0.566E-05	0.566E-05	0.258E-04	0.319E-03	0.403E-03	0.568E-03	0.182E-02
PANCREAS	0.944E-04	0.944E-04	0.609E-03	0.728E-04	0.657E-04	0.264E-04	0.183E-02
BONE	0.353E-04	0.353E-04	0.213E-04	0.366E-04	0.253E-04	0.366E-04	0.180E-02
R MAR	0.445E-04	0.445E-04	0.366E-04	0.874E-04	0.751E-04	0.109E-03	0.182E-02
Y MAR	0.372E-04	0.372E-04	0.296E-04	0.383E-04	0.359E-04	0.452E-04	0.180E-02
ENDOST	0.353E-04	0.353E-04	0.213E-04	0.277E-04	0.253E-04	0.366E-04	0.213E-02
SPLEEN	0.755E-04	0.755E-04	0.335E-03	0.558E-04	0.451E-04	0.345E-04	0.182E-02
TESTES	0.991E-06	0.991E-06	0.215E-05	0.145E-04	0.187E-04	0.688E-04	0.180E-02
THYMUS	0.135E-03	0.135E-03	0.134E-04	0.520E-05	0.567E-05	0.225E-05	0.114E-02
THYROID	0.440E-04	0.440E-04	0.566E-05	0.158E-05	0.169E-05	0.746E-06	0.180E-02
UTERUS	0.388E-05	0.388E-05	0.326E-04	0.305E-03	0.161E-03	0.197E-03	0.116E-02

 β^- decay (29.9 S 1)

RHODIUM-106 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS ----- G.I. UPTAKE FRACTIONS -----

	STOMACH	S INT	U L INT	L L INT
RH-106 Y	0.0	4.000E-02	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	OTHER	TOTAL
TARGET								
LUNGS	2.321E-05	9.398E-13	1.293E-11	2.866E-14	9.072E-17	2.735E-20	2.956E-12	2.321E-05
RES LYM	2.321E-05	6.222E-11	1.293E-11	2.866E-14	9.072E-17	2.735E-20	2.956E-12	2.321E-05
S WALL	2.110E-08	8.546E-16	2.895E-08	2.866E-13	9.001E-16	4.041E-19	3.066E-12	5.006E-08
SI WALL	3.283E-09	1.330E-16	1.832E-11	2.167E-10	4.047E-15	2.056E-18	3.320E-12	3.522E-09
ULI WALL	4.463E-09	1.607E-16	2.281E-11	1.900E-12	1.176E-12	9.596E-19	3.450E-12	4.492E-09
LLI WALL	9.276E-10	3.757E-17	9.143E-12	5.661E-13	7.654E-16	1.756E-15	3.489E-12	9.408E-10
T BODY	3.443E-07	1.394E-14	7.357E-11	2.120E-12	3.969E-15	4.432E-18	7.031E-11	3.444E-07
ADREN	2.722E-08	1.102E-15	1.539E-11	1.030E-13	2.672E-16	1.155E-19	1.185E-10	2.736E-08
BL WALL	8.989E-10	3.640E-17	3.292E-12	2.653E-13	4.883E-16	1.279E-18	6.100E-11	9.635E-10
KIDNEYS	1.179E-08	4.776E-16	2.301E-11	2.653E-13	6.910E-16	1.978E-19	1.185E-10	1.194E-08
LIVER	2.687E-08	1.088E-15	1.422E-11	1.528E-13	6.194E-16	8.421E-20	1.191E-10	2.701E-08
OVARIES	1.804E-05	7.307E-17	5.117E-12	7.556E-13	2.856E-15	3.708E-18	1.185E-10	1.925E-09
PANCREAS	3.009E-08	1.219E-15	1.208E-10	1.724E-13	4.656E-16	1.723E-19	1.191E-10	3.033E-08
BONE	1.125E-02	4.557E-16	4.224E-12	6.561E-14	1.793E-16	2.389E-19	1.172E-10	1.137E-08
R MAR	1.419E-08	5.745E-16	7.259E-12	2.070E-13	5.323E-16	7.115E-19	1.185E-10	1.431E-08
Y MAR	1.186E-08	4.602E-16	5.870E-12	9.071E-14	2.544E-16	2.951E-19	1.172E-10	1.198E-08
ENDOST	1.125E-08	4.557E-16	4.224E-12	6.561E-14	1.793E-16	2.389E-19	1.387E-10	1.140E-08
SPLEEN	2.407E-03	9.747E-16	6.644E-11	1.322E-13	3.196E-16	2.252E-19	1.185E-10	2.425E-08
TESTES	3.159E-10	1.279E-17	4.264E-13	3.434E-14	1.325E-16	4.491E-19	1.172E-10	4.335E-10
THYMUS	4.303E-08	1.743E-15	2.657E-12	1.232E-14	4.018E-17	1.469E-20	7.422E-11	4.311E-08
THYROID	1.403E-02	5.680E-16	1.122E-12	3.742E-15	1.198E-17	4.870E-21	1.172E-10	1.414E-02
UTERUS	1.237E-09	5.009E-17	6.465E-12	7.224E-13	1.141E-15	1.286E-18	7.552E-11	1.320E-09

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

RH-106

STOMACH	0.0
S INT	4.000E-02
U L INT	0.0
L L INT	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CCNT	SI CCNT	ULI CCNT	LLI CONT	OTHER	TOTAL
TARGET						
LUNGS	3.216E-08	7.128E-11	2.256E-13	6.803E-17	3.337E-14	3.223E-08
RES LYM	3.216E-08	7.128E-11	2.256E-13	6.803E-17	3.337E-14	3.223E-08
S WALL	7.202E-05	7.128E-10	2.239E-12	1.005E-15	3.462E-14	7.202E-05
SI WALL	4.558E-08	5.390E-07	1.007E-11	5.114E-15	3.749E-14	5.846E-07
ULI WALL	5.673E-08	4.725E-09	2.926E-09	2.387E-15	3.896E-14	6.438E-08
LLI WALL	2.274E-08	1.408E-09	1.904E-12	4.368E-12	3.940E-14	2.415E-08
T BODY	1.840E-07	5.272E-09	9.871E-12	1.102E-14	7.939E-13	1.893E-07
ADREN	3.828E-08	2.563E-10	6.646E-13	2.874E-16	1.338E-12	3.854E-08
BL WALL	8.188E-09	6.598E-10	1.215E-12	3.182E-15	6.888E-13	8.850E-09
KIDNEYS	9.722E-08	6.598E-10	1.719E-12	4.320E-16	1.338E-12	5.788E-08
LIVER	3.537E-08	3.800E-10	1.541E-12	2.094E-16	1.345E-12	3.575E-08
OVARIES	1.273E-06	1.879E-09	7.104E-12	9.222E-15	1.338E-12	1.461E-06
PANCREAS	3.004E-07	4.289E-10	1.158E-12	4.286E-16	1.345E-12	3.008E-07
BONE	1.051E-08	1.632E-10	4.460E-13	5.942E-16	1.323E-12	1.067E-08
R MAR	1.805E-08	5.149E-10	1.324E-12	1.770E-15	1.338E-12	1.857E-08
Y MAR	1.460E-08	2.256E-10	6.328E-13	7.339E-16	1.323E-12	1.483E-08
ENDOST	1.051E-08	1.632E-10	4.460E-13	5.942E-16	1.566E-12	1.067E-08
SPLEEN	1.652E-07	3.287E-10	7.950E-13	5.601E-16	1.338E-12	1.656E-07
TESTES	1.061E-09	8.542E-11	3.296E-13	1.117E-15	1.323E-12	1.148E-09
THYMUS	6.610E-09	3.063E-11	9.995E-14	3.653E-17	8.380E-13	6.641E-09
THYROID	2.792E-05	9.308E-12	2.979E-14	1.211E-17	1.323E-12	2.803E-05
UTERUS	1.608E-08	1.797E-09	2.838E-12	3.199E-15	8.527E-13	1.788E-08

ANTIMONY-127

RADIONUCLIDE: SE-127

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)						
NUCLIDE		SB-127		TE-127M				
SB-127		3.850		105.0				
TE-127M		105.0		0.3900				
TE-127		0.3900						
BRANCHING RATIOS:		FROM	TO	FRACTION				
		SB-127	TE-127M	0.1350				
		SB-127	TE-127	0.8650				
		TE-127M	TE-127	0.9760				
ORGAN ABSORBED	NUCLIDE	F2-PRIME	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)			
	TE-127M	1.00						
	TE-127	1.00						
BONE	* SB-127	0.121	0.850	0.150	100.			
MUSCLE	* SB-127	0.678	0.850	0.150	100.			
LIVER	* SB-127	4.360E-02	0.850	0.150	100.			
KIDNEYS	* SB-127	7.510E-03	0.850	0.150	100.			
	TE-127M	3.400E-02	1.00	23.0	23.0			

β^- decay (3.85 D 5)

* Retention data derived from "other tissues" compartment.

ANTIMONY-127 CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR SB-127

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSCLE	LIVER	KIDNEYS
LUNGS	0.177E-01	0.177E-01	0.217E-03	0.402E-04	0.430E-04	0.143E-04	0.118E-03	0.160E-03	0.288E-03	0.115E-03
RES LYM	0.177E-01	0.107E-01	0.217E-03	0.402E-04	0.430E-04	0.143E-04	0.118E-03	0.160E-03	0.288E-03	0.115E-03
S WALL	0.223E-03	0.223E-03	0.382E-01	0.410E-03	0.431E-03	0.206E-03	0.686E-04	0.168E-03	0.229E-03	0.399E-03
SI WALL	0.344E-04	0.344E-04	0.310E-03	0.237E-01	0.193E-02	0.107E-02	0.975E-04	0.185E-03	0.190E-03	0.329E-03
ULI WALL	0.459E-04	0.459E-04	0.385E-03	0.271E-02	0.414E-01	0.493E-03	0.874E-04	0.195E-03	0.299E-03	0.342E-03
LLI WALL	0.103E-04	0.103E-04	0.156E-03	0.810E-03	0.369E-03	0.653E-01	0.119E-03	0.202E-03	0.364E-04	0.105E-03
T BODY	0.402E-03	0.402E-03	0.280E-03	0.416E-03	0.337E-03	0.362E-03	0.400E-03	0.401E-03	0.432E-03	0.431E-03
ADREN	0.289E-03	0.289E-03	0.257E-03	0.149E-03	0.128E-03	0.591E-04	0.206E-03	0.183E-03	0.582E-03	0.146E-02
BL WALL	0.935E-05	0.935E-05	0.544E-04	0.356E-03	0.238E-03	0.659E-03	0.695E-04	0.212E-03	0.343E-04	0.486E-04
KIDNEYS	0.122E-03	0.122E-03	0.393E-03	0.377E-03	0.330E-03	0.104E-03	0.120E-03	0.171E-03	0.446E-03	0.602E-01
LIVER	0.285E-03	0.285E-03	0.240E-03	0.218E-03	0.296E-03	0.426E-04	0.853E-04	0.134E-03	0.119E-01	0.468E-03
OVARIES	0.188E-04	0.188E-04	0.947E-04	0.111E-02	0.132E-02	0.196E-02	0.123E-03	0.237E-03	0.452E-04	0.155E-03
PANCREAS	0.311E-03	0.311E-03	0.205E-02	0.246E-03	0.229E-03	0.888E-04	0.113E-03	0.214E-03	0.544E-03	0.792E-03
BONE	0.121E-03	0.121E-03	0.726E-04	0.954E-04	0.867E-04	0.126E-03	0.338E-02	0.133E-03	0.885E-04	0.118E-03
R MAR	0.152E-03	0.152E-03	0.125E-03	0.302E-03	0.258E-03	0.377E-03	0.124E-02	0.165E-03	0.128E-03	0.299E-03
Y MAR	0.127E-03	0.127E-03	0.101E-03	0.132E-03	0.123E-03	0.155E-03	0.361E-03	0.134E-03	0.130E-03	0.147E-03
ENDOST	0.121E-03	0.121E-03	0.726E-04	0.954E-04	0.867E-04	0.126E-03	0.276E-02	0.133E-03	0.885E-04	0.118E-03
SPLEEN	0.258E-03	0.258E-03	0.113E-02	0.187E-03	0.154E-03	0.116E-03	0.101E-03	0.176E-03	0.125E-03	0.995E-03
TESTES	0.327E-05	0.327E-05	0.840E-05	0.496E-04	0.623E-04	0.228E-03	0.729E-04	0.148E-03	0.186E-04	0.186E-04
THYMUS	0.458E-03	0.458E-03	0.497E-04	0.173E-04	0.189E-04	0.744E-05	0.923E-04	0.200E-03	0.135E-03	0.360E-04
THYROID	0.148E-03	0.148E-03	0.188E-04	0.521E-05	0.556E-05	0.245E-05	0.111E-03	0.164E-03	0.232E-04	0.119E-04
UTERUS	0.125E-04	0.125E-04	0.109E-03	0.103E-02	0.543E-03	0.675E-03	0.822E-04	0.258E-03	0.507E-04	0.102E-03

S FACTORS (REM/MICROCURIE-DAY) FOR SB-127

TARGET
ORGANS

SOURCE ORGANS

	OTHER
LUNGS	0.113E-03
RES LYM	0.113E-03
S WALL	0.155E-03
SI WALL	0.158E-03
ULI WALL	0.135E-03
LLI WALL	0.179E-03
T BODY	0.371E-03
ADREN	0.289E-02
BL WALL	0.165E-02
KIDNEYS	0.188E-03
LIVER	0.110E-03
OVARIES	0.293E-02
PANCREAS	0.318E-02
BONE	0.387E-03
R MAR	0.224E-02
Y MAR	0.286E-02
ENDOST	0.160E-02
SPLEEN	0.318E-02
TESTES	0.254E-02
THYMUS	0.465E-02
THYROID	0.287E-02
UTERUS	0.527E-02

ANTIMONY-127 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
SB-127	W	0.0	5.000E-02	0.0	0.0		
TE-127M	W	0.0	0.250	0.0	0.0		
TE-127	W	0.0	0.250	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSCLE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	2.802E-02	1.524E-04	3.361E-06	2.298E-06	7.287E-06	3.792E-06	2.344E-06	1.776E-05	2.062E-06	1.431E-07	2.807E-06
RES LYM	2.802E-02	9.639E-03	3.361E-06	2.298E-06	7.287E-06	3.792E-06	2.344E-06	1.776E-05	2.062E-06	1.431E-07	2.807E-06
S WALL	2.292E-04	1.039E-06	8.206E-04	2.345E-05	7.309E-05	5.472E-05	1.362E-06	1.865E-05	1.639E-06	4.974E-07	3.851E-06
SI WALL	3.686E-05	1.593E-07	4.802E-06	1.833E-03	3.273E-04	2.842E-04	1.935E-06	2.053E-05	1.360E-06	4.102E-07	3.924E-06
ULI WALL	4.515E-05	2.125E-07	5.964E-06	1.550E-04	1.031E-02	1.309E-04	1.735E-06	2.164E-05	2.140E-06	4.263E-07	3.353E-06
LLI WALL	1.105E-05	4.775E-08	2.416E-06	4.633E-05	6.256E-05	2.703E-02	2.365E-06	2.242E-05	2.603E-07	1.307E-07	4.448E-06
T BODY	5.604E-04	2.675E-06	4.826E-06	2.816E-05	6.698E-05	1.183E-04	1.164E-05	6.099E-05	4.584E-06	1.072E-06	1.923E-05
ADREN	3.100E-04	1.344E-06	3.981E-06	8.525E-06	2.169E-05	1.569E-05	4.087E-06	2.031E-05	4.167E-06	1.829E-06	1.889E-04
BL WALL	1.002E-05	4.327E-08	8.419E-07	2.037E-05	4.036E-05	1.751E-04	1.379E-06	2.353E-05	2.453E-07	6.032E-08	9.964E-05
KIDNEYS	1.308E-04	5.660E-07	6.087E-06	2.156E-05	5.596E-05	2.761E-05	2.380E-06	1.898E-05	3.193E-06	1.957E-04	4.670E-06
LIVER	3.058E-04	1.331E-06	3.717E-06	1.247E-05	5.020E-05	1.130E-05	1.693E-06	1.487E-05	1.433E-04	5.843E-07	2.731E-06
OVARIES	2.015E-05	8.706E-08	1.464E-06	6.349E-05	2.240E-04	5.206E-04	2.443E-06	2.631E-05	3.227E-07	1.925E-07	1.899E-04
PANCREAS	3.337E-04	1.447E-06	3.176E-05	1.407E-05	3.894E-05	2.358E-05	2.243E-06	2.376E-05	3.893E-06	9.880E-07	1.966E-04
BONE	1.299E-04	5.680E-07	1.125E-06	5.459E-06	1.471E-05	3.347E-05	1.152E-04	1.476E-05	6.342E-07	1.480E-07	1.792E-05
R MAR	1.632E-04	7.129E-07	1.937E-06	1.728E-05	4.378E-05	1.002E-04	3.730E-05	1.833E-05	9.171E-07	3.751E-07	1.438E-04
Y MAR	1.363E-04	5.969E-07	1.565E-06	7.553E-06	2.087E-05	4.118E-05	7.286E-06	1.489E-05	9.318E-07	1.843E-07	1.882E-04
ENDOST	1.299E-04	5.680E-07	1.125E-06	5.459E-06	1.471E-05	3.347E-05	9.296E-05	1.476E-05	6.342E-07	1.480E-07	1.006E-04
SPLEEN	2.768E-04	1.204E-06	1.750E-05	1.070E-05	2.611E-05	3.078E-05	2.046E-06	1.954E-05	8.937E-07	1.247E-06	1.966E-04
TESTES	3.502E-06	1.512E-08	1.298E-07	2.835E-06	1.056E-05	6.057E-05	1.446E-06	1.642E-05	1.326E-07	2.309E-08	1.901E-04
THYMUS	4.513E-04	2.134E-06	7.682E-07	9.890E-07	3.203E-06	1.973E-06	1.825E-06	2.224E-05	9.655E-07	4.488E-08	2.331E-04
THYROID	1.586E-04	6.857E-07	2.910E-07	2.977E-07	9.418E-07	6.494E-07	2.206E-06	1.821E-05	1.660E-07	1.476E-08	1.884E-04
UTERUS	1.340E-05	5.789E-08	1.688E-06	5.892E-05	9.208E-05	1.793E-04	1.630E-06	2.863E-05	3.627E-07	1.271E-07	2.482E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL	PERCENT DOSE EQUIVALENT..		
		NUCLIDE	SB-127	TE-127M TE-127
TARGET		TARGET		
LUNGS	2.822E-02	LUNGS	67.3	0.4 32.3
RES LYM	3.770E-02	RES LYM	63.2	1.3 35.4
S WALL	1.233E-03	S WALL	81.1	0.0 18.9
SI WALL	2.515E-03	SI WALL	80.6	0.0 19.4
ULI WALL	1.068E-02	ULI WALL	68.9	0.0 31.1
LLI WALL	2.715E-02	LLI WALL	63.9	0.1 36.0
T BODY	8.791E-04	T BODY	76.9	0.3 22.9
ADREN	5.605E-04	ADREN	79.2	0.3 20.5
BL WALL	3.716E-04	BL WALL	83.5	0.2 16.3
KIDNEYS	4.675E-04	KIDNEYS	73.5	0.5 25.6
LIVER	5.480E-04	LIVER	88.8	0.2 11.0
OVARIES	1.045E-03	OVARIES	88.2	0.1 11.7
PANCREAS	6.706E-04	PANCREAS	81.8	0.2 17.9
BONE	3.338E-04	BONE	82.5	0.9 16.6
R MAR	5.278E-04	R MAR	80.2	0.4 19.4
Y MAR	4.156E-04	Y MAR	71.4	0.4 28.2
ENDOST	3.543E-04	ENDOST	74.2	0.7 25.0
SPLEEN	5.834E-04	SPLEEN	79.2	0.3 20.5
TESTES	2.857E-04	TESTES	58.3	0.5 41.2
THYMUS	7.585E-04	THYMUS	83.8	0.2 16.0
THYROID	3.705E-04	THYROID	67.8	0.4 31.8
UTERUS	6.245E-04	UTERUS	80.4	0.3 19.3

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	SB-127	TE-127M	TE-127
STOMACH	0.0	0.0	0.0
S INT	5.000E-02	0.250	0.250
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSC_E	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	8.578E-06	6.151E-06	1.952E-05	1.017E-05	1.235E-06	9.363E-06	1.087E-06	7.539E-08	1.479E-06	5.806E-05
RES LYM	8.978E-06	6.151E-06	1.952E-05	1.017E-05	1.235E-06	9.363E-06	1.087E-06	7.539E-08	1.479E-06	5.806E-05
S WALL	1.636E-03	6.274E-05	1.958E-04	1.467E-04	7.176E-07	9.829E-06	8.638E-07	2.620E-07	2.029E-06	2.055E-03
SI WALL	1.283E-05	4.052E-03	8.767E-04	7.618E-04	1.020E-06	1.082E-05	7.169E-07	2.160E-07	2.069E-06	5.718E-03
ULI WALL	1.593E-05	4.147E-04	2.503E-02	3.510E-04	9.140E-07	1.141E-05	1.128E-06	2.245E-07	1.768E-06	2.582E-02
LLI WALL	6.454E-06	1.239E-04	1.676E-04	6.965E-02	1.246E-06	1.182E-05	1.373E-07	6.888E-08	2.344E-06	6.996E-02
T BODY	1.17CE-05	6.754E-05	1.717E-04	3.106E-04	6.069E-06	3.216E-05	2.435E-06	5.647E-07	1.035E-05	6.132E-04
ADREN	1.063E-05	2.280E-05	5.812E-05	4.207E-05	2.153E-07	1.071E-05	2.196E-06	9.594E-07	1.021E-04	2.518E-04
BL WALL	2.251E-06	5.448E-05	1.081E-04	4.694E-04	7.265E-07	1.240E-05	1.294E-07	3.181E-08	5.381E-05	7.013E-04
KIDNEYS	1.624E-05	5.769E-05	1.499E-04	7.404E-05	1.254E-06	1.001E-05	1.683E-06	1.032E-04	2.462E-06	4.165E-04
LIVER	9.930E-06	3.336E-05	1.345E-04	3.031E-05	8.922E-07	7.839E-06	7.628E-05	3.074E-07	1.440E-06	2.948E-04
OVARIES	3.917E-06	1.658E-04	5.999E-04	1.396E-03	1.287E-06	1.387E-05	1.701E-07	1.015E-07	1.026E-04	2.287E-03
PANCREAS	8.482E-05	3.764E-05	1.040E-04	6.321E-05	1.182E-06	1.252E-05	2.052E-06	5.199E-07	1.062E-04	4.122E-04
BONE	3.004E-06	1.460E-05	3.939E-05	8.974E-05	5.987E-05	7.778E-06	3.342E-07	7.767E-08	9.644E-06	2.244E-04
R MAR	5.172E-06	4.622E-05	1.172E-04	2.685E-04	1.947E-05	9.661E-06	4.834E-07	1.969E-07	7.762E-05	5.446E-04
Y MAR	4.179E-06	2.020E-05	5.589E-05	1.104E-04	3.827E-06	7.845E-06	4.910E-07	9.675E-08	1.017E-04	3.047E-04
ENDOST	3.004E-06	1.460E-05	3.939E-05	8.974E-05	4.837E-05	7.778E-06	3.342E-07	7.767E-08	5.436E-05	2.577E-04
SPLEEN	4.675E-05	2.861E-05	6.995E-05	8.254E-05	1.056E-06	1.030E-05	4.712E-07	6.546E-07	1.062E-04	3.465E-04
TESTES	3.475E-07	7.588E-06	2.828E-05	1.624E-04	7.620E-07	8.657E-06	6.993E-08	1.218E-08	1.028E-04	3.109E-04
THYMUS	2.055E-06	2.647E-06	8.582E-06	5.291E-06	9.639E-07	1.172E-05	5.091E-07	2.367E-08	1.254E-04	1.572E-04
THYROID	7.778E-07	7.670E-07	2.523E-06	1.742E-06	1.162E-06	9.597E-06	8.752E-08	7.785E-09	1.019E-04	1.186E-04
UTERUS	4.510E-06	1.576E-04	2.466E-04	4.807E-04	8.587E-07	1.509E-05	1.912E-07	6.702E-08	1.334E-04	1.039E-03

PERCENT DOSE EQUIVALENT..

MUCLIDE	SB-127	TE-127M	TE-127
TARGET			
LUNGS	99.6	C.C	0.4
RES LYM	99.6	0.0	0.4
S WALL	97.2	0.8	2.8
SI WALL	92.3	C.0	7.7
ULI WALL	75.6	0.0	24.4
LLI WALL	66.5	C.0	33.5
T BODY	84.5	0.0	15.5
ADREN	73.9	C.0	26.1
BL WALL	94.9	0.0	5.1
KIDNEYS	84.2	C.2	15.6
LIVER	88.9	C.1	11.0
OVARIES	96.7	C.0	3.3
PANCREAS	83.9	C.8	16.1
BONE	86.5	C.6	12.9
R MAR	89.4	C.0	10.6
Y MAR	78.3	C.C	21.7
ENDOST	78.9	C.3	20.8
SPLEEN	80.9	C.0	19.1
TESTES	78.7	C.0	21.3
THYMUS	58.1	C.0	41.9
THYROID	45.1	0.0	54.9
UTERUS	93.3	C.0	6.7

TELLURIUM-127

RADIONUCLIDE: TE-127

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCL IDE	TE-127	0.3500		
ORGAN ABSORBED	NUCL IDE TE-127	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
			0.791	4.02
			5.500E-02	10.2
			1.000E-01	17.7
			3.400E-02	23.0
			2.000E-02	8.000E 03
EXCRET	TE-127	0.471	1.00	0.530
BONE	TE-127	2.000E-02	1.00	8.000E 03
MUSCLE	TE-127	1.000E-01	1.00	17.7
LIVER	TE-127	5.500E-02	1.00	10.2
KIDNEYS	TE-127	3.400E-02	1.00	23.0

S FACTORS (REM/MICROCURIE-DAY) FOR TE-127

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CONT	SI CONT	ILI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	OTHER
LUNGS	0.114E-01	0.114E-01	0.156E-05	0.266E-05	0.275E-06	0.836E-07	0.164E-03	0.849E-06	0.115E-05	0.209E-05	0.750E-06	0.804E-06
RES LYM	0.114E-01	0.760E-03	0.156E-05	0.266E-05	0.275E-06	0.836E-07	0.164E-03	0.849E-06	0.115E-05	0.209E-05	0.750E-06	0.804E-06
S WALL	0.159E-05	0.159E-05	0.229E-01	0.301E-05	0.315E-05	0.156E-05	0.164E-03	0.506E-06	0.121E-05	0.165E-05	0.291E-05	0.110E-05
SI WALL	0.218E-06	0.218E-06	0.227E-05	0.143E-01	0.141E-04	0.782E-05	0.165E-03	0.688E-06	0.134E-05	0.140E-05	0.241E-05	0.114E-05
ILI WALL	0.290E-06	0.290E-06	0.292E-05	0.198E-04	0.250E-01	0.365E-05	0.165E-03	0.618E-06	0.140E-05	0.219E-05	0.249E-05	0.576E-06
LLI WALL	0.770E-07	0.770E-07	0.110E-05	0.592E-05	0.258E-05	0.423E-01	0.165E-03	0.851E-06	0.146E-05	0.257E-06	0.751E-06	0.129E-05
T BODY	0.164E-03	0.164E-03	0.504E-04	0.132E-03	0.794E-04	0.982E-04	0.164E-03	0.164E-03	0.164E-03	0.164E-03	0.164E-03	0.159E-03
ADREN	0.212E-05	0.212E-05	0.192E-05	0.117E-05	0.842E-06	0.418E-06	0.165E-03	0.134E-05	0.130E-05	0.426E-05	0.100E-04	0.185E-02
BL WALL	0.571E-07	0.571E-07	0.329E-06	0.272E-05	0.172E-05	0.514E-05	0.164E-03	0.519E-06	0.153E-05	0.247E-06	0.310E-06	0.928E-03
KIDNEYS	0.858E-06	0.858E-06	0.291E-05	0.270E-05	0.235E-05	0.754E-06	0.164E-03	0.787E-06	0.123E-05	0.327E-05	0.368E-01	0.134E-05
LIVER	0.208E-05	0.208E-05	0.174E-05	0.157E-05	0.217E-05	0.281E-06	0.164E-03	0.601E-06	0.953E-06	0.636E-02	0.341E-05	0.774E-06
OVARIES	0.123E-06	0.123E-06	0.410E-06	0.805E-05	0.157E-04	0.148E-04	0.164E-03	0.826E-06	0.171E-05	0.254E-06	0.102E-05	0.185E-02
PANCREAS	0.234E-05	0.234E-05	0.152E-04	0.179E-05	0.173E-05	0.634E-06	0.164E-03	0.212E-02	0.940E-06	0.685E-06	0.902E-06	0.133E-03
BONE	0.915E-06	0.915E-06	0.562E-06	0.743E-05	0.690E-06	0.972E-06	0.164E-03	0.577E-03	0.125E-05	0.101E-05	0.231E-05	0.139E-02
R MAR	0.116E-05	0.116E-05	0.986E-06	0.239E-05	0.207E-05	0.292E-05	0.164E-03	0.263E-05	0.100E-05	0.101E-05	0.112E-05	0.185E-02
Y MAR	0.957E-06	0.957E-06	0.781E-06	0.103E-05	0.966E-06	0.120E-05	0.164E-03	0.672E-06	0.126E-05	0.846E-06	0.728E-05	0.186E-02
ENDOST	0.915E-06	0.915E-06	0.562E-06	0.743E-05	0.690E-06	0.972E-06	0.164E-03	0.170E-02	0.940E-06	0.685E-06	0.902E-06	0.962E-03
SPLEEN	0.169E-05	0.169E-05	0.835E-05	0.135E-05	0.111E-05	0.766E-06	0.164E-03	0.512E-06	0.105E-05	0.898E-07	0.120E-06	0.185E-02
TESTES	0.177E-07	0.177E-07	0.328E-07	0.310E-06	0.389E-06	0.178E-05	0.164E-03	0.576E-06	0.178E-05	0.959E-06	0.252E-06	0.187E-02
THYMUS	0.326E-05	0.326E-05	0.203E-06	0.111E-05	0.123E-06	0.446E-07	0.164E-03	0.911E-06	0.117E-05	0.171E-06	0.735E-07	0.185E-02
THYROID	0.937E-06	0.937E-06	0.122E-06	0.296E-07	0.319E-07	0.164E-03	0.164E-03	0.511E-06	0.175E-05	0.367E-06	0.794E-06	0.187E-02
UTERUS	0.833E-07	0.833E-07	0.754E-06	0.769E-05	0.394E-05	0.525E-05	0.164E-03	0.511E-06	0.175E-05	0.367E-06	0.794E-06	0.187E-02

 β^- decay (9.35 H 7)

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

TELLURIUM-127 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =9.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
TE-127	W	0.0	0.250	0.0	3.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	2.478E-03	6.137E-07	1.108E-08	4.639E-03	7.942E-09	1.605E-09	2.549E-06	9.973E-10	6.609E-09	6.503E-09	1.551E-09
RES LYM	2.478E-03	4.091E-05	1.108E-08	4.639E-03	7.942E-09	1.605E-09	2.549E-06	9.973E-10	6.609E-09	6.503E-09	1.551E-09
S WALL	3.456E-07	6.559E-11	1.627E-04	5.250E-08	9.097E-08	2.995E-08	2.549E-06	5.944E-10	6.954E-09	5.134E-09	5.715E-09
SI WALL	4.735E-08	1.173E-11	1.613E-08	2.494E-03	4.372E-07	1.501E-07	2.565E-06	8.035E-10	7.701E-09	4.356E-09	4.733E-09
ULI WALL	6.304E-08	1.561E-11	2.075E-08	3.453E-07	7.509E-04	7.007E-08	2.565E-06	7.260E-10	8.046E-09	6.814E-09	4.890E-09
LLI WALL	1.674E-08	4.145E-12	7.816E-09	1.033E-07	7.451E-08	8.121E-04	2.565E-06	9.997E-10	8.391E-09	7.997E-10	1.475E-09
T BODY	3.565E-05	8.828E-09	3.581E-07	2.302E-05	2.293E-06	1.885E-06	2.549E-06	1.927E-07	9.425E-07	5.103E-07	3.221E-07
ADREN	4.609E-07	1.141E-10	1.364E-08	2.041E-03	2.432E-08	8.025E-09	2.565E-06	1.574E-09	7.471E-09	1.326E-08	1.964E-08
BL WALL	1.241E-08	3.074E-12	2.338E-09	4.744E-09	4.968E-08	9.868E-08	2.549E-06	6.097E-10	8.793E-09	7.686E-10	6.088E-10
KIDNEYS	1.865E-07	4.619E-11	2.068E-08	4.709E-09	6.815E-08	1.448E-08	2.549E-06	9.245E-10	7.069E-09	1.018E-08	7.227E-05
LIVER	4.522E-07	1.120E-10	1.236E-08	2.738E-09	6.267E-08	5.395E-09	2.549E-06	7.060E-10	5.477E-09	1.979E-05	6.697E-09
OVARIES	2.674E-08	6.621E-12	2.913E-09	1.404E-07	3.090E-07	2.841E-07	2.549E-06	9.703E-10	9.828E-09	7.904E-10	2.003E-09
PANCREAS	5.087E-07	1.260E-10	1.080E-07	3.122E-09	4.996E-08	1.217E-08	2.549E-06	9.774E-10	8.908E-09	1.207E-08	1.104E-08
BONE	1.989E-07	4.925E-11	3.993E-09	1.296E-08	1.964E-08	1.866E-08	2.549E-06	2.490E-06	5.402E-09	2.131E-09	1.771E-09
R MAR	2.522E-07	6.244E-11	7.006E-09	4.158E-09	5.978E-08	5.606E-08	2.549E-06	6.778E-07	7.184E-09	3.143E-09	4.536E-09
Y MAR	2.080E-07	5.151E-11	5.549E-09	1.796E-09	2.790E-08	2.304E-08	2.549E-06	3.089E-09	5.747E-09	3.143E-09	2.199E-09
ENDOST	1.989E-07	4.925E-11	3.993E-09	1.296E-08	1.964E-08	1.866E-08	2.549E-06	1.997E-06	5.402E-09	2.131E-09	1.771E-09
SPLEEN	4.109E-07	1.017E-10	5.933E-08	2.355E-09	3.206E-08	1.471E-08	2.549E-06	7.894E-10	7.241E-09	2.632E-09	1.430E-08
TESTES	3.846E-09	5.528E-13	2.331E-10	5.407E-09	1.123E-08	3.417E-08	2.549E-06	6.014E-10	6.035E-09	2.794E-10	2.357E-10
THYMUS	7.087E-07	1.755E-10	1.442E-09	1.936E-09	3.552E-09	8.562E-10	2.549E-06	6.766E-10	1.023E-08	2.984E-09	5.734E-10
THYROID	2.037E-07	5.044E-11	8.669E-10	5.153E-10	9.213E-10	2.496E-10	2.549E-06	1.070E-09	6.724E-09	5.321E-10	1.451E-10
UTERUS	1.811E-08	4.484E-12	5.357E-09	1.341E-07	1.138E-07	1.008E-07	2.549E-06	6.003E-10	1.006E-08	1.142E-09	1.559E-09
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	OTHER	TOTAL									
TARGET											
LUNGS	2.156E-08	2.481E-03									
RES LYM	2.156E-08	2.522E-03									
S WALL	2.549E-08	1.658E-04									
SI WALL	3.056E-08	2.526E-04									
ULI WALL	2.617E-08	7.540E-04									
LLI WALL	3.432E-08	6.149E-04									
T BODY	4.263E-06	5.128E-05									
ADREN	4.960E-05	5.273E-05									
BL WALL	2.486E-05	2.765E-05									
KIDNEYS	3.593E-08	7.521E-05									
LIVER	2.075E-08	2.293E-05									
OVARIES	4.560E-05	5.293E-05									
PANCREAS	4.587E-05	5.316E-05									
BONE	3.566E-06	8.869E-06									
R MAR	3.727E-05	4.092E-05									
Y MAR	4.560E-05	5.245E-05									
ENDOST	2.575E-05	3.060E-05									
SPLEEN	4.587E-05	5.298E-05									
TESTES	4.560E-05	5.221E-05									
THYMUS	5.014E-05	5.342E-05									
THYROID	4.960E-05	5.236E-05									
UTERUS	5.014E-05	5.307E-05									

TELLURIUM-127 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

TE-127
 STOMACH 0.0
 S INT 0.250
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET											
LUNGS	6.052E-08	2.533E-08	4.336E-08	8.763E-09	4.650E-06	1.819E-09	1.206E-08	1.186E-08	2.830E-09	3.932E-08	4.856E-06
RES LYM	6.052E-08	2.533E-08	4.336E-08	8.763E-09	4.650E-06	1.819E-09	1.206E-08	1.186E-08	2.830E-09	3.932E-08	4.856E-06
S WALL	8.884E-04	2.666E-07	4.967E-07	1.635E-07	4.650E-06	1.084E-09	1.269E-08	9.366E-09	1.043E-08	5.380E-08	8.941E-04
SI WALL	8.806E-08	1.362E-03	2.223E-06	8.197E-07	4.679E-06	1.466E-09	1.405E-08	7.947E-09	8.634E-09	5.576E-08	1.370E-03
ULI WALL	1.133E-07	1.885E-06	4.170E-03	3.826E-07	4.679E-06	1.324E-09	1.468E-08	1.243E-08	8.921E-09	4.774E-08	4.107E-03
LLI WALL	4.267E-08	5.637E-07	4.068E-07	4.434E-03	4.679E-06	1.824E-09	1.531E-08	1.459E-09	2.691E-09	6.261E-08	4.439E-03
T BODY	1.955E-06	1.257E-05	1.252E-05	1.029E-05	4.650E-06	3.515E-07	1.719E-06	9.310E-07	5.875E-07	7.777E-06	5.335E-05
ADREN	7.448E-08	1.114E-07	1.328E-07	4.381E-03	4.679E-06	2.872E-09	1.363E-08	2.418E-08	3.583E-08	9.049E-05	9.560E-05
BL WALL	1.276E-08	2.590E-07	2.712E-07	5.388E-07	4.650E-06	1.112E-09	1.604E-08	1.402E-09	1.111E-09	4.539E-05	5.114E-05
KIDNEYS	1.129E-07	2.571E-07	3.721E-07	7.903E-08	4.650E-06	1.687E-09	1.290E-08	1.856E-08	1.318E-04	6.554E-08	1.374E-04
LIVER	6.750E-08	1.495E-07	3.422E-07	2.945E-03	4.650E-06	1.288E-09	9.992E-09	3.610E-05	1.222E-08	3.786E-08	4.140E-05
OVARIES	1.591E-08	7.666E-07	1.687E-06	1.551E-06	4.650E-06	1.770E-09	1.793E-08	1.442E-09	3.654E-09	9.049E-05	9.918E-05
PANCREAS	5.697E-07	1.705E-07	2.728E-07	6.645E-03	4.650E-06	1.783E-09	1.625E-08	2.203E-08	2.013E-08	9.097E-05	9.678E-05
BONE	2.180E-08	7.075E-08	1.072E-07	1.019E-07	4.650E-06	4.543E-06	9.856E-09	3.888E-09	3.232E-09	6.505E-06	1.602E-05
R MAR	3.825E-08	2.276E-07	3.264E-07	3.061E-07	4.650E-06	1.237E-06	1.311E-08	5.733E-09	8.276E-09	6.799E-05	7.480E-05
Y MAR	3.030E-08	9.808E-08	1.523E-07	1.258E-07	4.650E-06	5.636E-09	1.048E-08	5.733E-09	4.013E-09	9.049E-05	9.557E-05
ENDOST	2.180E-08	7.075E-08	1.072E-07	1.019E-07	4.650E-06	3.643E-06	9.856E-09	3.888E-09	3.232E-09	4.705E-05	5.566E-05
SPLEEN	3.239E-07	1.286E-07	1.750E-07	8.029E-03	4.650E-06	1.440E-09	1.321E-08	4.802E-09	2.608E-08	9.097E-05	9.638E-05
TESTES	1.272E-09	2.952E-08	6.134E-08	1.866E-07	4.650E-06	1.097E-09	1.101E-08	5.098E-10	4.299E-10	9.049E-05	9.543E-05
THYMUS	7.875E-09	1.057E-08	1.940E-08	4.675E-09	4.650E-06	1.234E-09	1.866E-08	5.444E-09	1.046E-09	9.146E-05	9.618E-05
THYROID	4.733E-09	2.819E-09	5.030E-09	1.363E-09	4.650E-06	1.952E-09	1.227E-08	9.707E-10	2.648E-10	9.049E-05	9.516E-05
UTERUS	2.925E-08	7.323E-07	6.213E-07	5.503E-07	4.650E-06	1.095E-09	1.835E-08	2.083E-09	2.845E-09	9.146E-05	9.807E-05

TELLURIUM-127m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
		G.I. UPTAKE FRACTIONS					
SOLUBILITY CLASS		STOMACH	S INT	U L INT	L L INT		
TE-127M	W	0.0	0.250	0.0	0.0		
TE-127	W	0.0	0.250	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	0.111	6.489E-03	1.462E-07	3.558E-08	9.062E-08	3.667E-08	1.174E-05	1.590E-06	3.112E-06	1.643E-06	2.712E-07
RES LYM	0.111	0.429	1.462E-07	3.558E-08	9.062E-08	3.667E-08	1.174E-05	1.590E-06	3.112E-06	1.643E-06	2.712E-07
S WALL	3.593E-05	2.234E-06	1.255E-03	7.952E-07	3.014E-06	1.463E-06	1.171E-05	6.792E-07	2.356E-06	5.746E-07	1.319E-06
SI WALL	1.681E-06	9.974E-08	1.676E-07	2.135E-03	1.900E-05	1.736E-05	1.180E-05	1.001E-06	2.375E-06	4.540E-07	1.091E-06
ULI WALL	2.283E-06	1.352E-07	2.873E-07	1.207E-05	9.785E-03	7.381E-06	1.181E-05	8.774E-07	2.703E-06	9.861E-07	1.074E-06
LLI WALL	5.608E-07	3.343E-08	6.855E-08	2.795E-06	2.508E-06	2.365E-02	1.178E-05	1.723E-06	2.551E-06	4.496E-08	2.151E-07
T BODY	1.634E-03	9.515E-05	2.877E-06	2.000E-05	3.100E-05	5.697E-05	1.171E-05	1.570E-04	1.112E-04	3.788E-05	4.733E-05
ADREN	4.024E-05	2.271E-06	1.216E-07	1.606E-07	3.589E-07	1.878E-07	1.167E-05	2.146E-06	3.475E-06	2.786E-06	1.203E-05
BL WALL	3.585E-07	2.385E-08	1.592E-08	4.964E-07	8.495E-07	6.506E-06	1.173E-05	4.495E-07	3.012E-06	4.215E-08	6.718E-08
MIDNEYS	1.010E-05	5.822E-07	2.087E-07	5.260E-07	1.206E-06	4.621E-07	1.167E-05	1.114E-06	2.793E-06	1.710E-06	1.046E-02
LIVER	6.556E-05	3.648E-06	1.175E-07	3.254E-07	1.315E-06	1.267E-07	1.173E-05	9.338E-07	1.784E-06	1.455E-03	2.153E-06
OVARIES	8.743E-07	5.223E-08	2.219E-08	2.896E-06	1.042E-05	3.892E-05	1.173E-05	1.741E-06	3.983E-06	5.534E-08	2.583E-07
PANCREAS	4.594E-05	2.589E-06	2.040E-06	2.921E-07	7.585E-07	3.613E-07	1.176E-05	1.042E-06	3.778E-06	1.852E-06	3.384E-06
BONE	4.282E-05	2.366E-06	5.400E-08	2.394E-07	6.377E-07	2.590E-06	1.201E-05	2.019E-03	1.174E-06	5.529E-07	8.935E-07
R MAR	5.032E-05	2.783E-06	7.968E-08	8.795E-07	2.340E-06	9.983E-06	1.211E-05	4.827E-04	4.315E-06	5.982E-07	2.359E-06
Y MAR	4.931E-05	2.721E-06	7.605E-08	3.332E-07	9.107E-07	3.485E-06	1.203E-05	2.717E-05	3.530E-06	8.694E-07	1.074E-06
ENDOST	4.282E-05	2.366E-06	5.400E-08	2.394E-07	6.377E-07	2.590E-06	1.201E-05	1.548E-03	1.174E-06	5.529E-07	8.935E-07
SPLEEN	5.805E-05	3.232E-06	8.547E-07	2.406E-07	4.752E-07	4.219E-07	1.174E-05	1.128E-06	2.896E-06	1.990E-07	8.098E-06
TESTES	1.224E-07	7.330E-09	1.571E-09	4.086E-08	1.232E-07	1.442E-06	1.159E-05	5.980E-07	1.821E-06	1.495E-08	2.497E-08
THYMUS	8.290E-05	4.636E-06	1.014E-08	1.414E-05	3.768E-08	1.914E-08	1.173E-05	6.651E-07	4.965E-06	1.692E-07	6.160E-08
THYROID	9.223E-06	5.375E-07	5.791E-09	3.758E-09	9.717E-09	5.560E-09	1.163E-05	1.207E-06	3.564E-06	2.856E-08	1.533E-08
UTERUS	5.953E-07	3.555E-08	3.755E-08	2.487E-06	2.386E-06	5.741E-06	1.173E-05	7.103E-07	4.764E-06	6.790E-08	1.958E-07

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	OTHER	TOTAL
TARGET		
LUNGS	2.260E-06	0.118
RES LYM	2.260E-06	0.540
S WALL	3.540E-06	1.323E-03
SI WALL	2.384E-06	2.193E-03
ULI WALL	2.166E-06	9.827E-03
LLI WALL	3.774E-06	2.367E-02
T BODY	2.149E-04	2.420E-03
ADREN	2.461E-03	2.536E-03
BL WALL	1.243E-03	1.267E-03
MIDNEYS	3.715E-06	1.050E-02
LIVER	1.682E-06	1.544E-03
OVARIES	2.463E-03	2.534E-03
PANCREAS	2.493E-03	2.567E-03
BONE	1.664E-04	2.248E-03
R MAR	1.951E-03	2.519E-03
Y MAR	2.471E-03	2.572E-03
ENDOST	1.297E-03	2.908E-03
SPLEEN	2.491E-03	2.578E-03
TESTES	2.468E-03	2.484E-03
THYMUS	2.536E-03	2.641E-03
THYROID	2.465E-03	2.491E-03
UTERUS	2.536E-03	2.565E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	TE-127M	TE-127
TARGET		
LUNGS	29.6	70.4
RES LYM	27.5	72.5
S WALL	16.5	83.5
SI WALL	16.5	83.5
ULI WALL	19.5	80.5
LLI WALL	23.8	76.2
T BODY	29.9	70.1
ADREN	26.5	73.5
BL WALL	26.3	73.7
MIDNEYS	27.7	72.3
LIVER	30.5	69.5
OVARIES	26.7	73.3
PANCREAS	26.9	73.1
BONE	29.3	70.7
R MAR	28.9	71.1
Y MAR	27.9	72.1
ENDOST	26.9	73.1
SPLEEN	27.4	72.6
TESTES	25.7	74.3
THYMUS	28.4	71.6
THYROID	25.6	74.4
UTERUS	27.1	72.9

TELLURIUM-127m CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-127M	TE-127
STOMACH	0.0	C.0
S INT	0.250	C.250
U L INT	0.0	C.0
L L INT	0.0	C.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET											
LUNGS	1.539E-07	1.162E-08	8.119E-08	5.429E-08	1.312E-05	1.774E-06	3.459E-06	1.818E-06	2.987E-07	2.425E-06	2.319E-05
RES LYM	1.539E-07	1.162E-08	8.119E-08	5.429E-08	1.312E-05	1.774E-06	3.459E-06	1.818E-06	2.987E-07	2.425E-06	2.319E-05
S WALL	4.220E-04	5.415E-07	5.008E-06	2.621E-06	1.309E-05	7.573E-07	2.613E-06	6.278E-07	1.458E-06	3.819E-06	4.529E-04
SI WALL	1.309E-07	1.083E-03	3.378E-05	3.381E-05	1.319E-05	1.117E-06	2.632E-06	4.952E-07	1.206E-06	2.522E-06	1.172E-03
ULI WALL	3.164E-07	2.030E-05	1.019E-02	1.430E-05	1.320E-05	9.784E-07	2.998E-06	1.083E-06	1.187E-06	2.299E-06	1.024E-02
LLI WALL	3.732E-08	4.392E-06	4.183E-06	3.797E-02	1.317E-05	1.923E-06	2.827E-06	4.802E-08	2.362E-07	4.058E-06	3.800E-02
T BODY	1.166E-06	1.060E-05	3.343E-05	9.244E-05	1.309E-05	1.749E-04	1.216E-04	4.090E-05	5.199E-05	2.203E-04	7.604E-04
ADREN	6.912E-08	5.557E-08	4.166E-07	2.807E-07	1.304E-05	2.394E-06	3.862E-06	3.076E-06	1.339E-05	2.520E-03	2.556E-03
BL WALL	1.701E-09	3.924E-07	1.091E-06	1.211E-05	1.310E-05	5.005E-07	3.341E-06	4.496E-08	7.337E-08	1.274E-03	1.305E-03
KIDNEYS	1.552E-07	4.580E-07	1.581E-06	7.606E-07	1.304E-05	1.243E-06	3.101E-06	1.882E-06	1.149E-02	3.984E-06	1.152E-02
LIVER	7.777E-08	3.066E-07	1.879E-06	1.895E-07	1.311E-05	1.041E-06	1.978E-06	1.571E-03	2.387E-06	1.783E-06	1.593E-03
OVARIES	6.981E-09	4.105E-06	1.739E-05	7.653E-05	1.311E-05	1.942E-06	4.424E-06	5.964E-08	2.831E-07	2.522E-03	2.639E-03
PANCREAS	2.771E-06	1.868E-07	8.994E-07	5.833E-07	1.314E-05	1.161E-06	4.197E-06	2.036E-06	3.750E-06	2.554E-03	2.583E-03
BONE	5.823E-08	3.213E-07	1.054E-06	5.095E-06	1.341E-05	2.249E-03	1.296E-06	6.118E-07	9.934E-07	1.694E-04	2.441E-03
R MAR	7.108E-08	1.259E-06	4.031E-06	1.985E-05	1.353E-05	5.375E-04	4.801E-06	6.596E-07	2.624E-06	2.007E-03	2.591E-03
Y MAR	8.300E-08	4.482E-07	1.507E-06	6.884E-06	1.344E-05	3.035E-05	3.929E-06	9.628E-07	1.194E-06	2.531E-03	2.590E-03
ENDOST	5.823E-08	3.213E-07	1.054E-06	5.095E-06	1.342E-05	1.724E-03	1.296E-06	6.118E-07	9.934E-07	1.330E-03	3.077E-03
SPLEEN	9.732E-07	1.828E-07	5.534E-07	6.746E-07	1.312E-05	1.258E-06	3.215E-06	2.150E-06	9.009E-06	2.552E-03	2.581E-03
TESTES	1.369E-10	1.228E-08	1.045E-07	2.520E-06	1.295E-05	6.665E-07	2.018E-06	1.593E-06	2.725E-08	2.528E-03	2.546E-03
THYMUS	1.719E-09	3.383E-09	3.042E-08	2.808E-08	1.311E-05	7.413E-07	5.519E-06	1.808E-07	6.723E-08	2.600E-03	2.620E-03
THYROID	4.020E-10	8.779E-10	7.778E-09	8.147E-09	1.300E-05	1.346E-06	3.963E-06	3.043E-08	1.673E-08	2.524E-03	2.542E-03
UTERUS	6.121E-09	3.345E-06	3.407E-06	1.050E-05	1.311E-05	7.920E-07	5.295E-06	7.270E-08	2.145E-07	2.601E-03	2.638E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	TE-127M	TE-127
TARGET		
LUNGS	55.5	44.5
RES LYM	55.5	44.5
S WALL	83.1	16.9
SI WALL	63.0	37.0
ULI WALL	38.5	61.5
LLI WALL	30.5	69.5
T BODY	31.0	69.0
ADREN	28.2	71.8
BL WALL	28.9	71.1
KIDNEYS	28.2	71.8
LIVER	29.3	70.7
OVARIES	30.1	69.9
PANCREAS	28.5	71.5
BONE	28.5	71.5
R MAR	29.8	70.2
Y MAR	29.1	70.9
ENDOST	27.1	72.9
SPLEEN	28.5	71.5
TESTES	28.0	72.0
THYMUS	25.3	74.7
THYROID	27.9	72.1
UTERUS	29.6	70.4

RADIONUCLIDE: TE-129

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCL IDE		TE-129		4.830E-02	
I-129		5.730E 03			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		TE-129	I-129	1.000	
ORGAN ABSORBED	NUCL IDE TE-129	BLOOD TRANSFER FRACTION F2-PRIME		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
		1.00			
	I-129	1.00		0.791	4.02
				5.500E-02	10.2
				1.000E-01	17.7
				3.400E-02	23.0
				2.000E-02	8.000E 03
				0.669	0.243
				-3.270E-02	11.3
				0.363	11.7
				1.00	0.500
				0.0	0.500
EXCRET.	TE-129	0.471		1.00	0.500
BONE	I-129	0.0		0.0	0.500
	TE-129	2.000E-02		1.00	8.000E 03
	* I-129	0.121		0.997	0.243
				-4.870E-02	11.3
MUSCLE	TE-129	1.000E-01		5.140E-02	11.7
	* I-129	0.679		1.00	17.7
				0.997	0.243
				-4.870E-02	11.3
LIVER	TE-129	5.500E-02		5.140E-02	11.7
	* I-129	4.360E-02		1.00	10.2
				0.997	0.243
				-4.870E-02	11.3
KIDNEYS	TE-129	3.400E-02		5.140E-02	11.7
	* I-129	7.520E-03		1.00	23.0
				0.997	0.243
				-4.870E-02	11.3
THYROID	* TE-129	2.570E-03		5.140E-02	11.7
	I-129	0.328		1.00	4.02
				4.900E-02	11.3
				0.951	11.7

β⁻ decay (69.6 M 2)

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

* Retention data derived from "other tissues" compartment.

TELLURIUM-129 CONTINUED

S FACTORS (REM/MICROCJRIE-DAY) FOR TE-129

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER
LUNGS	0.281E-01	0.281E-01	0.191E-04	0.319E-05	0.336E-05	0.108E-05	0.416E-03	0.101E-04	0.152E-04	0.267E-04
RES LYM	0.281E-01	0.186E-01	0.191E-04	0.319E-05	0.336E-05	0.108E-05	0.416E-03	0.101E-04	0.152E-04	0.267E-04
S WALL	0.196E-04	0.196E-04	0.584E-01	0.362E-04	0.394E-04	0.179E-04	0.418E-03	0.581E-05	0.151E-04	0.192E-04
SI WALL	0.266E-05	0.266E-05	0.264E-04	0.352E-01	0.189E-03	0.103E-03	0.420E-03	0.812E-05	0.165E-04	0.160E-04
ULI WALL	0.360E-05	0.360E-05	0.350E-04	0.291E-03	0.639E-01	0.474E-00	0.420E-03	0.726E-05	0.175E-04	0.259E-04
LLI WALL	0.831E-06	0.831E-06	0.128E-04	0.805E-04	0.331E-04	0.104E-00	0.420E-03	0.102E-04	0.180E-04	0.298E-05
T BODY	0.415E-03	0.415E-03	0.140E-03	0.345E-03	0.212E-03	0.257E-03	0.415E-03	0.415E-03	0.414E-03	0.417E-03
ADREN	0.248E-04	0.248E-04	0.219E-04	0.124E-04	0.192E-04	0.477E-05	0.421E-03	0.170E-04	0.172E-04	0.527E-04
BL WALL	0.723E-06	0.723E-06	0.419E-05	0.310E-04	0.197E-04	0.600E-04	0.419E-03	0.589E-05	0.191E-04	0.285E-05
KIDNEYS	0.101E-04	0.101E-04	0.335E-04	0.316E-04	0.275E-04	0.853E-05	0.418E-03	0.964E-05	0.158E-04	0.393E-04
LIVER	0.260E-04	0.260E-04	0.202E-04	0.185E-04	0.254E-04	0.338E-05	0.418E-03	0.717E-05	0.119E-04	0.158E-01
OVARIES	0.148E-05	0.148E-05	0.641E-05	0.102E-03	0.128E-03	0.200E-03	0.417E-03	0.105E-04	0.220E-04	0.335E-05
PANCREAS	0.273E-04	0.273E-04	0.196E-03	0.203E-04	0.191E-04	0.723E-05	0.418E-03	0.951E-05	0.200E-04	0.471E-04
BONE	0.115E-04	0.119E-04	0.654E-05	0.885E-05	0.809E-05	0.129E-04	0.417E-03	0.518E-02	0.113E-04	0.841E-05
R MAR	0.148E-04	0.148E-04	0.110E-04	0.290E-04	0.252E-04	0.414E-04	0.419E-03	0.173E-02	0.167E-04	0.117E-04
Y MAR	0.127E-04	0.127E-04	0.911E-05	0.123E-04	0.115E-04	0.163E-04	0.416E-03	0.455E-04	0.136E-04	0.125E-04
ENDOST	0.119E-04	0.119E-04	0.654E-05	0.985E-05	0.809E-05	0.129E-04	0.417E-03	0.396E-02	0.113E-04	0.841E-05
SPLEEN	0.233E-04	0.233E-04	0.102E-03	0.155E-04	0.127E-04	0.920E-05	0.418E-03	0.835E-05	0.162E-04	0.995E-05
TESTES	0.245E-06	0.245E-06	0.550E-06	0.383E-05	0.481E-05	0.198E-04	0.417E-03	0.558E-05	0.131E-04	0.130E-05
THYMUS	0.401E-04	0.401E-04	0.331E-05	0.135E-05	0.148E-05	0.572E-06	0.417E-03	0.724E-05	0.212E-04	0.111E-04
THYROID	0.115E-04	0.115E-04	0.148E-05	0.395E-05	0.423E-06	0.183E-06	0.414E-03	0.100E-04	0.159E-04	0.188E-05
UTERUS	0.102E-05	0.102E-05	0.876E-05	0.943E-04	0.464E-04	0.598E-04	0.419E-03	0.643E-05	0.235E-04	0.419E-05

S FACTORS (REM/MICROCJRIE-DAY) FOR TE-129

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	KIDNEYS	THYROID	OTHER
LUNGS	0.935E-05	0.105E-04	0.978E-05
RES LYM	0.935E-05	0.105E-04	0.978E-05
S WALL	0.337E-04	0.117E-05	0.136E-04
SI WALL	0.275E-04	0.146E-06	0.134E-04
ULI WALL	0.285E-04	0.171E-06	0.115E-04
LLI WALL	0.863E-05	0.154E-06	0.157E-04
T BODY	0.417E-03	0.413E-03	0.401E-03
ADREN	0.137E-03	0.192E-05	0.457E-02
BL WALL	0.378E-05	0.998E-07	0.231E-02
KIDNEYS	0.905E-01	0.610E-06	0.163E-04
LIVER	0.410E-04	0.157E-05	0.928E-05
OVARIES	0.121E-04	0.183E-06	0.457E-02
PANCREAS	0.680E-04	0.803E-06	0.460E-02
BONE	0.111E-04	0.794E-05	0.382E-03
R MAR	0.284E-04	0.864E-05	0.321E-02
Y MAR	0.137E-04	0.420E-05	0.457E-02
ENDOST	0.111E-04	0.794E-05	0.251E-02
SPLEEN	0.943E-04	0.138E-05	0.460E-02
TESTES	0.146E-05	0.376E-07	0.458E-02
THYMUS	0.318E-05	0.435E-04	0.475E-02
THYROID	0.925E-06	0.140E-01	0.743E-05
UTERUS	0.857E-05	0.174E-06	0.478E-02

TELLURIUM-129 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =9.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
TE-129	M	0.0	0.250	0.0	0.0		
I-129	D	0.950	0.950	0.950	0.950		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	1.060E-03	2.352E-08	1.930E-08	3.450E-09	1.350E-09	5.220E-11	7.598E-07	8.590E-10	6.446E-09	6.215E-09	1.349E-09
RES LYM	1.060E-03	1.557E-06	1.930E-08	3.450E-09	1.350E-09	5.220E-11	7.598E-07	8.590E-10	6.446E-09	6.215E-09	1.349E-09
S WALL	7.394E-07	1.640E-11	5.699E-05	3.928E-03	1.584E-08	8.652E-10	7.635E-07	4.941E-10	6.404E-09	4.469E-09	4.862E-09
SI WALL	1.011E-07	2.243E-12	2.667E-08	3.819E-05	7.596E-08	4.978E-09	7.671E-07	6.906E-10	6.997E-09	3.724E-09	4.025E-09
ULI WALL	1.358E-07	3.013E-12	3.536E-08	3.157E-07	2.563E-05	2.291E-09	7.671E-07	6.174E-10	7.421E-09	6.029E-09	4.170E-09
LLI WALL	3.136E-08	6.955E-13	1.293E-08	8.734E-03	1.330E-08	5.027E-06	7.671E-07	8.675E-10	7.633E-09	6.937E-10	1.245E-09
T BODY	1.566E-05	3.473E-10	1.415E-07	3.689E-07	8.521E-08	1.242E-08	7.580E-07	3.529E-08	1.756E-07	9.707E-08	6.016E-08
ADREN	9.358E-07	2.076E-11	2.213E-08	1.345E-09	4.100E-09	2.306E-10	7.689E-07	1.446E-09	7.294E-09	1.227E-08	1.977E-08
BL WALL	2.728E-08	6.051E-13	4.234E-09	3.363E-03	7.918E-09	2.903E-09	7.653E-07	5.009E-10	8.100E-09	6.634E-10	5.454E-10
KIDNEYS	3.811E-07	8.453E-12	3.385E-08	3.428E-03	1.105E-08	4.123E-10	7.635E-07	8.199E-10	6.700E-09	9.148E-09	1.311E-05
LIVER	9.811E-07	2.176E-11	2.041E-08	2.007E-03	1.021E-08	1.634E-10	7.635E-07	6.096E-10	5.047E-09	3.678E-06	5.915E-09
OVARIES	5.585E-08	1.239E-12	6.477E-09	1.107E-07	5.144E-08	9.667E-09	7.616E-07	8.930E-10	9.330E-09	7.798E-10	1.746E-09
PANCREAS	1.030E-06	2.285E-11	1.980E-07	2.202E-03	7.577E-09	3.495E-10	7.635E-07	8.088E-10	8.482E-09	1.096E-08	9.811E-09
BONE	4.490E-07	9.959E-12	6.608E-09	9.613E-09	3.251E-09	6.235E-10	7.616E-07	4.405E-07	4.792E-09	1.958E-09	1.601E-09
R MAR	5.585E-07	1.239E-11	1.111E-08	3.146E-03	1.313E-08	2.001E-09	7.653E-07	1.471E-07	7.082E-09	2.724E-09	4.098E-09
Y MAR	4.792E-07	1.063E-11	9.205E-09	1.335E-03	4.622E-09	7.879E-10	7.598E-07	3.870E-09	5.768E-09	2.910E-09	1.977E-09
ENDOST	4.490E-07	9.959E-12	6.608E-09	9.613E-09	3.251E-09	6.235E-10	7.616E-07	3.368E-07	4.792E-09	1.958E-09	1.601E-09
SPLEEN	8.792E-07	1.650E-11	1.031E-07	1.693E-03	5.104E-09	4.447E-10	7.635E-07	7.101E-10	6.870E-09	2.316E-09	1.361E-08
TESTES	9.245E-09	2.050E-13	5.557E-10	4.155E-09	1.933E-09	9.570E-10	7.616E-07	5.086E-10	5.555E-09	3.026E-10	2.106E-10
THYMUS	1.513E-06	3.356E-11	3.344E-09	1.476E-09	5.948E-10	7.655E-11	7.616E-07	6.157E-10	8.991E-09	2.584E-09	4.588E-10
THYROID	4.339E-07	9.625E-12	1.435E-09	4.286E-10	1.703E-10	8.845E-12	7.561E-07	8.505E-10	6.743E-09	4.376E-10	1.335E-10
UTERUS	3.849E-08	8.537E-13	8.851E-09	1.029E-07	1.565E-08	2.890E-09	7.653E-07	5.469E-10	9.966E-09	9.753E-10	1.236E-09

DOSE EQUIVALENT (REM/MICROCURIE)

PERCENT DOSE EQUIVALENT..

SOURCE	THYROID	OTHER	TOTAL	NUCLIDE	TE-129	I-129
TARGET				TARGET		
LUNGS	1.134E-10	1.454E-08	1.061E-03	LUNGS	100.0	0.0
RES LYM	1.134E-10	1.454E-08	1.063E-03	RES LYM	100.0	0.0
S WALL	1.263E-11	2.022E-08	5.858E-05	S WALL	100.0	0.0
SI WALL	1.577E-12	1.992E-08	3.920E-05	SI WALL	100.0	0.0
ULI WALL	1.847E-12	1.709E-08	2.697E-05	ULI WALL	100.0	0.0
LLI WALL	1.663E-12	2.334E-08	5.973E-06	LLI WALL	100.0	0.0
T BODY	4.460E-09	5.561E-07	1.799E-05	T BODY	100.0	0.0
ADREN	2.073E-11	6.793E-06	8.579E-06	ADREN	100.0	0.0
BL WALL	1.078E-12	3.434E-06	4.285E-06	BL WALL	100.0	0.0
KIDNEYS	6.587E-12	2.423E-08	1.438E-05	KIDNEYS	100.0	0.0
LIVER	1.695E-11	1.379E-08	5.499E-06	LIVER	100.0	0.0
OVARIES	1.976E-12	6.793E-06	7.802E-06	OVARIES	100.0	0.0
PANCREAS	8.672E-12	6.838E-06	8.889E-06	PANCREAS	100.0	0.0
BONE	8.574E-11	5.678E-07	2.248E-06	BONE	100.0	0.0
R MAR	9.230E-11	4.772E-06	6.311E-06	R MAR	100.0	0.0
Y MAR	4.536E-11	6.793E-06	8.075E-06	Y MAR	100.0	0.0
ENDOST	8.574E-11	3.731E-06	5.307E-06	ENDOST	100.0	0.0
SPLEEN	1.490E-11	6.838E-06	8.629E-06	SPLEEN	100.0	0.0
TESTES	4.060E-13	6.808E-06	7.593E-06	TESTES	100.0	0.0
THYMUS	4.698E-10	7.061E-06	9.354E-06	THYMUS	100.0	0.0
THYROID	1.112E-05	1.104E-08	1.633E-05	THYROID	100.0	0.0
UTERUS	1.879E-12	7.105E-06	8.055E-06	UTERUS	100.0	0.0

TELLURIUM-129 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-129	I-129
STOMACH	0.0	C.950
S INT	0.250	C.950
U L INT	0.0	C.950
L L INT	0.0	C.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	4.980E-07	5.904E-08	3.485E-08	1.347E-09	6.972E-07	7.882E-10	5.915E-09	5.703E-09	1.238E-09	1.040E-10	1.334E-08
RES LYM	4.580E-07	5.904E-08	3.485E-08	1.347E-09	6.972E-07	7.882E-10	5.915E-09	5.703E-09	1.238E-09	1.040E-10	1.334E-08
S WALL	1.471E-03	1.014E-06	4.087E-07	2.233E-08	7.006E-07	4.534E-10	5.876E-09	4.101E-09	4.462E-09	1.159E-11	1.855E-08
SI WALL	6.884E-07	9.856E-04	1.960E-06	1.285E-07	7.039E-07	6.337E-10	6.421E-09	3.418E-09	3.694E-09	1.447E-12	1.828E-08
ULI WALL	9.126E-07	8.148E-06	6.628E-04	5.912E-03	7.039E-07	5.666E-10	6.810E-09	5.532E-09	3.826E-09	1.694E-12	1.569E-08
LLI WALL	3.338E-07	2.254E-06	3.433E-07	1.297E-04	7.039E-07	7.960E-10	7.005E-09	6.365E-10	1.143E-09	1.526E-12	2.441E-08
T BODY	3.651E-06	9.520E-06	2.199E-06	3.206E-07	6.955E-07	3.239E-08	1.611E-07	8.907E-08	5.521E-08	4.093E-09	5.470E-07
ADREN	5.710E-07	3.472E-07	1.058E-07	5.950E-09	7.056E-07	1.327E-09	6.693E-09	1.126E-08	1.814E-08	1.903E-11	6.233E-06
BL WALL	1.093E-07	8.680E-07	2.043E-07	7.484E-08	7.022E-07	4.597E-10	7.433E-09	6.088E-10	5.004E-10	9.889E-13	3.151E-06
KIDNEYS	8.735E-07	6.848E-07	2.852E-07	1.064E-08	7.006E-07	7.523E-10	6.148E-09	8.395E-09	1.203E-05	6.045E-12	2.223E-08
LIVER	5.267E-07	5.180E-07	2.634E-07	4.216E-09	7.006E-07	5.596E-10	4.631E-09	3.375E-06	5.428E-09	1.556E-11	1.266E-08
OVARIES	1.671E-07	2.656E-06	1.328E-06	2.495E-07	6.989E-07	8.194E-10	8.561E-09	7.156E-10	1.602E-09	1.813E-12	6.233E-06
PANCREAS	5.111E-06	5.684E-07	1.981E-07	9.018E-09	7.006E-07	7.422E-10	7.783E-09	1.006E-08	9.003E-09	7.957E-12	6.274E-06
BONE	1.705E-07	2.481E-07	8.391E-08	1.609E-08	6.989E-07	4.043E-07	4.397E-09	1.796E-09	1.470E-09	7.868E-11	5.210E-07
R MAR	2.868E-07	8.120E-07	2.614E-07	5.164E-08	7.022E-07	1.350E-07	6.499E-09	2.499E-09	3.760E-09	8.562E-11	4.378E-06
Y MAR	2.375E-07	3.444E-07	1.193E-07	2.033E-08	6.972E-07	3.551E-09	5.292E-09	2.67CE-09	1.814E-09	4.162E-11	6.233E-06
ENDOST	1.705E-07	2.481E-07	8.391E-08	1.609E-08	6.989E-07	3.090E-07	4.397E-09	1.796E-09	1.470E-09	7.868E-11	3.424E-06
SPLEEN	2.66CE-06	4.368E-07	1.317E-07	1.148E-08	7.006E-07	6.516E-10	6.304E-09	2.125E-09	1.248E-08	1.367E-11	6.274E-06
TESTES	1.434E-08	1.072E-07	4.989E-08	2.470E-08	6.989E-07	4.667E-10	5.098E-09	2.777E-10	1.933E-10	3.726E-13	6.247E-06
THYMUS	8.631E-08	3.808E-08	1.535E-08	7.135E-10	6.989E-07	5.650E-10	8.250E-09	2.371E-09	4.210E-10	4.311E-10	6.479E-06
THYROID	3.659E-08	1.106E-08	4.387E-09	2.283E-10	6.939E-07	7.804E-10	6.187E-09	4.016E-10	1.225E-10	1.387E-05	1.013E-08
UTERUS	2.284E-07	2.654E-06	4.813E-07	7.459E-08	7.022E-07	5.018E-10	9.145E-09	8.95CE-10	1.135E-09	1.724E-12	6.520E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.348E-06
RES LYM	1.348E-06
S WALL	1.473E-03
SI WALL	9.891E-04
ULI WALL	6.726E-04
LLI WALL	1.334E-04
T BODY	1.727E-05
ADREN	8.00CE-06
BL WALL	5.118E-06
KIDNEYS	1.483E-05
LIVER	5.411E-06
OVARIES	1.154E-05
PANCREAS	1.285E-05
BONE	2.151E-06
R MAR	6.640E-06
Y MAR	7.66CE-06
ENDOST	4.958E-06
SPLEEN	1.024E-05
TESTES	7.14EE-06
THYMUS	7.230E-06
THYROID	1.464E-05
UTERUS	1.067E-05

PERCENT DOSE EQUIVALENT..

NUCL IDE	TE-129	I-129
TARGET		
LUNGS	100.0	C.0
RES LYM	100.0	C.0
S WALL	100.0	C.0
SI WALL	100.0	C.0
ULI WALL	100.0	C.0
LLI WALL	100.0	C.0
T BODY	100.0	C.0
ADREN	100.0	C.0
BL WALL	100.0	C.0
KIDNEYS	100.0	C.0
LIVER	100.0	C.0
OVARIES	100.0	C.0
PANCREAS	100.0	C.0
BONE	100.0	C.0
R MAR	100.0	C.0
Y MAR	100.0	C.0
ENDOST	100.0	C.0
SPLEEN	100.0	C.0
TESTES	100.0	C.0
THYMUS	100.0	C.0
THYROID	100.0	C.0
UTERUS	100.0	C.0

RADIONUCLIDE: TE-129m

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCL IDE					
TE-129M		33.60			
TE-129		4.8200E-02			
I-129		5.7300E 05			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		TE-129M	TE-129	0.6400	
		TE-129M	I-129	0.3600	
		TE-129	I-129	1.000	
ORGAN ABSORBED	NUCL IDE TE-129M	BLOOD TRANSFER FRACTION F2-PRIME 1.00		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
				0.791	4.02
				5.500E-02	10.2
				1.000E-01	17.7
				3.400E-02	23.0
				2.000E-02	8.000E 03
	TE-129	1.00		0.605	9.20
				0.104	10.2
				0.189	17.7
				6.400E-02	23.0
				3.800E-02	8.000E 03
	I-129	1.00		0.669	0.243
				-3.270E-02	11.3
EXCRET.	TE-129M	0.471		0.363	117.
	TE-129	0.0		1.00	0.500
	I-129	0.0		1.00	0.500
				0.0	0.500
BONE	TE-129M	2.000E-02		1.00	8.000E 03
	TE-129	2.000E-02		1.00	8.000E 03
	* I-129	0.121		0.997	0.243
				-4.870E-02	11.3
MUSCLE	TE-129M	1.000E-01		5.140E-02	117.
	TE-129	1.000E-01		1.00	17.7
	* I-129	0.679		1.00	17.7
				0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
LIVER	TE-129M	5.500E-02		1.00	10.2
	TE-129	5.500E-02		1.00	10.2
	* I-129	4.360E-02		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
KIDNEYS	TE-129M	3.400E-02		1.00	23.0
	TE-129	3.400E-02		1.00	23.0
	* I-129	7.520E-03		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
THYROID	* TE-129M	2.570E-03		1.00	4.02
	* TE-129	2.570E-03		1.00	4.02
	I-129	0.328		4.900E-02	11.3
				0.951	117.

IT decay (33.6 D 1) 64%
 β^- decay (33.6 D 1) 36%

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

* Retention data derived from "other tissues" compartment.

TELLURIUM-129m CONTINUED

S FACTORS (REM/MICROCRJRIE-DAY) FOR TE-129M

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER
LUNGS	0.135E-01	0.135E-01	0.120E-04	0.177E-05	0.192E-05	0.652E-06	0.209E-03	0.616E-05	0.108E-04	0.183E-04
RES LYM	0.135E-01	0.917E-00	0.120E-04	0.177E-05	0.192E-05	0.652E-06	0.209E-03	0.616E-05	0.108E-04	0.183E-04
S WALL	0.124E-04	0.124E-04	0.280E-01	0.227E-04	0.263E-04	0.103E-04	0.210E-03	0.326E-05	0.993E-05	0.112E-04
SI WALL	0.153E-05	0.153E-05	0.154E-04	0.175E-01	0.139E-03	0.751E-04	0.212E-03	0.478E-05	0.105E-04	0.906E-05
ULI WALL	0.205E-05	0.205E-05	0.217E-04	0.237E-03	0.317E-01	0.332E-04	0.212E-03	0.426E-05	0.114E-04	0.155E-04
LLI WALL	0.440E-06	0.440E-06	0.730E-05	0.503E-04	0.227E-04	0.515E-01	0.212E-03	0.638E-05	0.115E-04	0.155E-05
T BODY	0.209E-03	0.209E-03	0.733E-04	0.173E-03	0.109E-03	0.132E-03	0.208E-03	0.209E-03	0.208E-03	0.210E-03
ADREN	0.148E-04	0.148E-04	0.120E-04	0.531E-05	0.605E-05	0.254E-05	0.211E-03	0.104E-04	0.123E-04	0.343E-04
BL WALL	0.417E-06	0.417E-06	0.243E-05	0.165E-04	0.115E-04	0.365E-04	0.211E-03	0.297E-05	0.125E-04	0.143E-05
KIDNEYS	0.561E-05	0.561E-05	0.193E-04	0.184E-04	0.160E-04	0.473E-05	0.210E-03	0.591E-05	0.108E-04	0.243E-04
LIVER	0.172E-04	0.172E-04	0.115E-04	0.109E-04	0.151E-04	0.187E-05	0.210E-03	0.424E-05	0.778E-05	0.790E-02
OVARIES	0.824E-06	0.824E-06	0.478E-05	0.715E-04	0.915E-04	0.153E-03	0.209E-03	0.658E-05	0.150E-04	0.220E-05
PANCREAS	0.159E-04	0.159E-04	0.137E-03	0.112E-04	0.106E-04	0.398E-05	0.210E-03	0.532E-05	0.138E-04	0.287E-04
BONE	0.869E-05	0.869E-05	0.408E-05	0.583E-05	0.529E-05	0.990E-05	0.212E-03	0.259E-02	0.678E-05	0.573E-05
R MAR	0.106E-04	0.106E-04	0.645E-05	0.193E-04	0.174E-04	0.344E-04	0.214E-03	0.818E-03	0.127E-04	0.732E-05
Y MAR	0.959E-05	0.959E-05	0.570E-05	0.809E-05	0.753E-05	0.128E-04	0.212E-03	0.434E-04	0.104E-04	0.872E-05
ENDOST	0.869E-05	0.869E-05	0.408E-05	0.583E-05	0.529E-05	0.990E-05	0.212E-03	0.198E-02	0.678E-05	0.573E-05
SPLEEN	0.154E-04	0.154E-04	0.654E-04	0.880E-05	0.710E-05	0.528E-05	0.211E-03	0.515E-05	0.111E-04	0.569E-05
TESTES	0.150E-06	0.150E-06	0.430E-06	0.223E-05	0.278E-05	0.108E-04	0.209E-03	0.342E-05	0.838E-05	0.892E-06
THYMUS	0.257E-04	0.257E-04	0.250E-05	0.759E-06	0.827E-06	0.333E-06	0.209E-03	0.440E-05	0.143E-04	0.571E-05
THYROID	0.684E-05	0.684E-05	0.826E-06	0.236E-06	0.252E-06	0.113E-06	0.208E-03	0.505E-05	0.117E-04	0.982E-06
UTERUS	0.544E-06	0.544E-06	0.479E-05	0.527E-04	0.278E-04	0.356E-04	0.212E-03	0.411E-05	0.175E-04	0.217E-05

S FACTORS (REM/MICROCRJRIE-DAY) FOR TE-129M

TARGET
ORGANS

SOURCE ORGANS

	KIDNEYS	THYROID	OTHER
LUNGS	0.535E-05	0.604E-05	0.605E-05
RES LYM	0.535E-05	0.604E-05	0.605E-05
S WALL	0.196E-04	0.679E-06	0.870E-05
SI WALL	0.161E-04	0.108E-06	0.780E-05
ULI WALL	0.166E-04	0.127E-06	0.675E-05
LLI WALL	0.467E-05	0.962E-07	0.974E-05
T BODY	0.210E-03	0.208E-03	0.201E-03
ADREN	0.959E-04	0.106E-05	0.226E-02
BL WALL	0.214E-05	0.645E-07	0.115E-02
KIDNEYS	0.452E-01	0.406E-06	0.100E-04
LIVER	0.252E-04	0.892E-06	0.548E-05
OVARIES	0.706E-05	0.114E-06	0.227E-02
PANCREAS	0.421E-04	0.324E-06	0.229E-02
BONE	0.757E-05	0.481E-05	0.185E-03
R MAR	0.195E-04	0.509E-05	0.165E-02
Y MAR	0.927E-05	0.253E-05	0.227E-02
ENDOST	0.757E-05	0.481E-05	0.124E-02
SPLEEN	0.666E-04	0.839E-06	0.229E-02
TESTES	0.816E-06	0.256E-07	0.227E-02
THYMUS	0.141E-05	0.248E-04	0.238E-02
THYROID	0.529E-06	0.694E-00	0.457E-05
UTERUS	0.438E-05	0.109E-06	0.241E-02

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
TE-129M	M	0.0	0.250	0.0
TE-129	M	0.0	0.250	0.0
I-129	D	0.950	0.950	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	0.148	4.629E-03	4.975E-07	2.217E-07	7.393E-07	4.396E-07	3.032E-05	2.447E-06	6.901E-06	4.421E-06	1.526E-06
RES LYM	0.148	0.306	4.975E-07	2.217E-07	7.393E-07	4.396E-07	3.032E-05	2.447E-06	6.901E-06	4.421E-06	1.526E-06
S WALL	1.161E-04	3.622E-06	1.329E-03	2.667E-06	9.353E-06	7.121E-06	3.047E-05	1.353E-06	6.588E-06	2.935E-06	5.542E-06
SI WALL	1.510E-05	4.712E-07	6.653E-07	2.336E-03	4.719E-05	4.615E-05	3.068E-05	1.934E-06	7.081E-06	2.412E-06	4.571E-06
ULI WALL	2.026E-05	6.322E-07	9.062E-07	2.450E-05	1.319E-02	2.079E-05	3.068E-05	1.726E-06	7.599E-06	4.008E-06	4.725E-06
LLI WALL	4.521E-06	1.411E-07	3.194E-07	6.482E-06	7.967E-06	3.865E-02	3.068E-05	2.502E-06	7.740E-06	4.321E-07	1.372E-06
T BODY	2.207E-03	6.891E-05	3.371E-06	2.279E-05	4.445E-05	9.705E-05	3.022E-05	9.201E-05	1.591E-04	5.961E-05	6.421E-05
ADREN	1.427E-04	4.453E-06	5.373E-07	8.310E-07	2.284E-06	1.831E-06	3.065E-05	4.125E-06	7.836E-06	8.499E-06	2.524E-05
BL WALL	4.093E-06	1.277E-07	1.053E-07	2.118E-06	4.378E-06	2.451E-05	3.058E-05	1.307E-06	8.313E-06	4.067E-07	6.164E-07
MIDNEYS	5.617E-05	1.753E-06	8.397E-07	2.248E-06	6.102E-06	3.335E-06	3.047E-05	2.342E-06	7.031E-06	6.179E-06	1.392E-02
LIVER	1.575E-04	4.913E-06	5.037E-07	1.323E-06	5.695E-06	1.320E-06	3.047E-05	1.711E-06	5.177E-06	2.251E-03	6.924E-06
OVARIES	8.240E-06	2.572E-07	1.811E-07	7.944E-06	2.967E-05	9.196E-05	3.036E-05	2.578E-06	9.777E-06	5.427E-07	1.993E-06
PANCREAS	1.533E-04	4.845E-06	5.365E-06	1.409E-06	4.146E-06	2.817E-06	3.047E-05	2.211E-06	8.943E-06	7.352E-07	1.152E-05
BONE	7.593E-05	2.367E-06	1.698E-07	6.681E-07	1.901E-06	5.942E-06	3.056E-05	1.145E-03	4.712E-06	1.388E-06	1.975E-06
R MAR	9.346E-05	2.914E-06	2.778E-07	2.227E-06	6.087E-06	1.993E-05	3.078E-05	3.733E-04	7.862E-06	1.850E-06	5.071E-06
Y MAR	8.251E-05	2.572E-06	2.368E-07	9.267E-07	2.704E-06	7.603E-06	3.053E-05	1.405E-05	6.422E-06	2.089E-06	2.428E-06
ENDOST	7.593E-05	2.367E-06	1.698E-07	6.681E-07	1.901E-06	5.942E-06	3.056E-05	8.752E-04	4.712E-06	1.388E-06	1.975E-06
SPLEEN	1.411E-04	4.401E-06	2.681E-06	1.094E-06	2.766E-06	3.655E-06	3.054E-05	2.034E-06	7.218E-06	1.507E-06	1.709E-05
TESTES	1.428E-06	4.455E-08	1.591E-08	2.725E-07	1.064E-06	7.683E-06	3.036E-05	1.405E-06	5.637E-06	2.154E-07	2.356E-07
THYMUS	2.391E-04	7.458E-06	9.411E-08	9.491E-08	3.223E-07	2.288E-07	3.036E-05	1.751E-06	9.370E-06	1.602E-06	4.639E-07
THYROID	6.606E-05	2.062E-06	3.660E-08	2.844E-03	9.493E-08	7.532E-08	3.018E-05	2.220E-06	7.354E-06	2.731E-07	1.509E-07
UTERUS	5.567E-06	1.738E-07	2.147E-07	7.167E-05	1.044E-05	2.418E-05	3.064E-05	1.594E-06	1.094E-05	6.064E-07	1.328E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	THYROID	OTHER	TOTAL
TARGET			
LUNGS	3.431E-06	5.392E-06	0.153
RES LYM	3.431E-06	5.392E-06	0.454
S WALL	3.839E-09	1.328E-05	1.528E-03
SI WALL	5.412E-10	1.250E-05	2.505E-03
ULI WALL	6.352E-10	1.077E-05	1.332E-02
LLI WALL	5.235E-10	1.510E-05	3.872E-02
T BODY	1.271E-06	3.497E-04	3.200E-03
ADREN	6.155E-09	3.563E-03	4.192E-03
BL WALL	3.450E-10	2.009E-03	2.085E-03
MIDNEYS	2.140E-09	1.559E-05	1.405E-02
LIVER	5.101E-09	5.716E-06	2.476E-03
OVARIES	6.213E-10	3.970E-03	4.154E-03
PANCREAS	2.256E-09	4.000E-03	4.234E-03
BONE	2.656E-08	3.283E-04	1.599E-03
R MAR	2.656E-08	2.830E-03	3.374E-03
Y MAR	1.403E-08	3.970E-03	4.122E-03
ENDOST	2.656E-08	2.175E-03	3.176E-03
SPLEEN	4.630E-09	4.000E-03	4.214E-03
TESTES	1.335E-10	3.575E-03	4.023E-03
THYMUS	1.416E-07	4.142E-03	4.433E-03
THYROID	4.278E-03	7.116E-06	4.393E-03
UTERUS	5.924E-10	4.179E-03	4.272E-03

PERCENT DOSE EQUIVALENT..

NUCL IDE	TE-129M	TE-129	I-129
TARGET			
LUNGS	43.5	56.1	0.0
RES LYM	43.6	56.4	0.0
S WALL	40.8	59.2	0.0
SI WALL	42.7	57.3	0.0
ULI WALL	43.5	56.5	0.0
LLI WALL	43.6	56.4	0.0
T BODY	44.2	55.8	0.0
ADREN	43.2	56.8	0.0
BL WALL	43.2	56.8	0.0
KIDNEYS	43.6	56.4	0.0
LIVER	44.3	55.7	0.0
OVARIES	43.4	56.6	0.0
PANCREAS	43.3	56.7	0.0
BONE	44.1	55.9	0.0
R MAR	44.1	55.9	0.0
Y MAR	43.4	56.6	0.0
ENDOST	42.5	56.5	0.0
SPLEEN	43.4	56.6	0.0
TESTES	42.0	57.0	0.0
THYMUS	43.6	56.4	0.0
THYROID	43.4	56.6	0.0
UTERUS	43.4	56.6	0.0

TELLURIUM-129m CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-129M	TE-129	I-129
STOMACH	0.0	0.0	0.950
S INT	0.25C	C.250	C.950
U L INT	0.0	C.C	C.950
L L INT	0.0	0.0	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	6.900E-07	4.173E-07	1.609E-06	9.726E-07	3.768E-05	3.038E-06	8.556E-06	5.474E-06	1.892E-06	4.229E-08	1.157E-05
RES LYM	6.900E-07	4.173E-07	1.609E-06	9.726E-07	3.768E-05	3.038E-06	8.556E-06	5.474E-06	1.892E-06	4.229E-08	1.157E-05
S WALL	1.728E-03	5.068E-06	2.038E-05	1.575E-05	3.786E-05	1.680E-06	8.167E-06	3.633E-06	6.872E-06	4.732E-09	1.636E-05
SI WALL	9.043E-07	4.359E-03	1.029E-04	1.021E-04	3.813E-05	2.401E-06	8.778E-06	2.986E-06	5.668E-06	6.676E-10	1.540E-05
ULI WALL	1.252E-06	4.753E-05	2.867E-02	4.601E-05	3.813E-05	2.144E-06	9.420E-06	4.962E-06	5.858E-06	7.836E-10	1.327E-05
LLI WALL	4.315E-07	1.249E-05	1.736E-05	8.549E-02	3.813E-05	3.107E-06	9.595E-06	5.348E-07	1.701E-06	6.454E-10	1.860E-05
T BODY	4.447E-06	4.260E-05	9.664E-05	2.147E-04	3.755E-05	1.142E-04	1.971E-04	7.377E-05	7.960E-05	1.565E-06	4.304E-04
ADREN	7.175E-07	1.554E-06	4.972E-06	4.050E-06	3.809E-05	5.121E-06	9.715E-06	1.052E-05	3.131E-05	7.585E-09	4.877E-03
BL WALL	1.425E-07	3.574E-06	9.529E-06	5.424E-05	3.799E-05	1.622E-06	1.030E-05	5.034E-07	7.643E-07	4.254E-10	2.472E-03
KIDNEYS	1.137E-06	4.248E-06	1.328E-05	7.378E-06	3.786E-05	2.907E-06	8.716E-06	7.650E-06	1.726E-02	2.639E-09	1.921E-05
LIVER	6.602E-07	2.503E-06	1.240E-05	2.921E-06	3.786E-05	2.125E-06	6.417E-06	2.786E-03	8.586E-06	6.286E-09	1.074E-05
OVARIES	2.629E-07	1.523E-05	6.463E-05	2.035E-04	3.773E-05	3.201E-06	1.212E-05	6.720E-07	2.471E-06	7.659E-10	4.886E-03
PANCREAS	7.658E-06	2.652E-06	9.019E-06	6.233E-06	3.786E-05	2.745E-06	1.109E-05	9.103E-06	1.429E-05	2.776E-09	4.923E-03
BONE	2.351E-07	1.275E-06	4.140E-06	1.315E-05	3.798E-05	1.421E-03	5.840E-06	1.719E-06	2.449E-06	3.278E-08	4.040E-04
R MAR	3.782E-07	4.261E-06	1.327E-05	4.410E-05	3.824E-05	4.634E-04	9.748E-06	2.291E-06	6.289E-06	3.519E-08	3.484E-03
Y MAR	3.281E-07	1.768E-06	5.890E-06	1.682E-05	3.793E-05	1.745E-05	7.962E-06	2.586E-06	3.011E-06	1.729E-08	4.886E-03
ENDOST	2.351E-07	1.275E-06	4.140E-06	1.315E-05	3.798E-05	1.087E-03	5.840E-06	1.719E-06	2.449E-06	3.278E-08	2.677E-03
SPLEEN	3.740E-06	2.062E-06	6.017E-06	8.087E-06	3.795E-05	2.526E-06	8.948E-06	1.865E-06	2.119E-05	5.707E-09	4.923E-03
TESTES	2.333E-08	5.149E-07	2.315E-06	1.700E-05	3.773E-05	1.744E-06	6.987E-06	2.667E-07	2.922E-07	1.646E-10	4.892E-03
THYMUS	1.371E-07	1.787E-07	7.011E-07	5.062E-07	3.773E-05	2.174E-06	1.162E-05	1.982E-06	5.751E-07	1.744E-07	5.098E-03
THYROID	4.914E-08	5.385E-08	2.066E-07	1.666E-07	3.750E-05	2.756E-06	9.118E-06	3.380E-07	1.871E-07	5.269E-03	8.766E-06
UTERUS	2.867E-07	1.368E-05	2.273E-05	5.349E-05	3.808E-05	1.980E-06	1.356E-05	7.505E-07	1.647E-06	7.303E-10	5.144E-03

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	7.194E-05
RES LYM	7.194E-05
S WALL	1.844E-03
SI WALL	4.638E-03
ULI WALL	2.883E-02
LLI WALL	8.555E-02
T BODY	1.293E-03
ADREN	4.583E-03
BL WALL	2.591E-03
KIDNEYS	1.736E-02
LIVER	2.871E-03
OVARIES	5.224E-03
PANCREAS	5.024E-03
BONE	1.892E-03
R MAR	4.066E-03
Y MAR	4.588E-03
ENDOST	3.831E-03
SPLEEN	5.015E-03
TESTES	4.955E-03
THYMUS	5.154E-03
THYROID	5.324E-03
UTERUS	5.290E-03

PERCENT DOSE EQUIVALENT..

NUCL IOE	TE-129M	TE-129	I-129
TARGET			
LUNGS	48.3	51.7	0.0
RES LYM	48.3	51.7	0.0
S WALL	66.3	33.7	0.0
SI WALL	50.1	49.9	0.0
ULI WALL	44.3	55.7	0.0
LLI WALL	43.6	56.4	0.0
T BODY	44.4	55.6	0.0
ADREN	43.4	56.6	0.0
BL WALL	43.7	56.3	0.0
KIDNEYS	43.7	56.3	0.0
LIVER	44.0	56.0	0.0
OVARIES	44.0	56.0	0.0
PANCREAS	43.6	56.4	0.0
BONE	43.8	56.2	0.0
R MAR	44.3	55.7	0.0
Y MAR	43.6	56.4	0.0
ENDOST	43.5	56.5	0.0
SPLEEN	43.6	56.4	0.0
TESTES	43.4	56.6	0.0
THYMUS	43.6	56.4	0.0
THYROID	43.7	56.3	0.0
UTERUS	43.9	56.1	0.0

TELLURIUM-131

RADIONUCLIDE: TE-131

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCL IDE					
TE-131		1.7400E-02			
I-131		8.040			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		TE-131	I-131	1.000	
ORGAN ABSORBED	NUCL IDE TE-131	BLOOD TRANSFER FRACTION F2-PRIME		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
		1.00			
EXCRET.	I-131	1.00		0.791	4.02
				5.500E-02	10.2
				1.000E-01	17.7
				3.400E-02	23.0
				2.000E-02	8.000E 03
				0.669	0.243
				-3.270E-02	11.3
				0.363	117.
				1.00	0.530
				0.0	0.500
BONE	* I-131	2.000E-02		1.00	8.000E 03
		0.121		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
MUSCLE	* I-131	1.000E-01		1.00	17.7
		0.679		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
LIVER	* I-131	5.500E-02		1.00	10.2
		4.360E-02		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
KIDNEYS	* I-131	3.400E-02		1.00	23.0
		7.520E-03		0.997	0.243
				-4.870E-02	11.3
				5.140E-02	117.
THYROID	* I-131	2.570E-03		1.00	4.02
		0.328		4.900E-02	11.3
				0.951	117.

 β^- decay (25.0 M l)

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

* Retention data derived from "other tissues" compartment.

TELLURIUM-131 CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR TE-131

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER
LUNGS	0.378E-01	0.378E-01	0.132E-03	0.223E-03	0.256E-04	0.877E-05	0.633E-03	0.726E-04	0.981E-04	0.182E-03
RES LYM	0.378E-01	0.245E-01	0.132E-03	0.223E-03	0.256E-04	0.877E-05	0.633E-03	0.726E-04	0.981E-04	0.182E-03
S WALL	0.139E-03	0.139E-03	0.773E-01	0.265E-03	0.269E-03	0.126E-03	0.652E-03	0.418E-04	0.102E-03	0.141E-03
SI WALL	0.199E-04	0.199E-04	0.191E-03	0.482E-01	0.120E-02	0.672E-03	0.671E-03	0.589E-04	0.114E-03	0.118E-03
ULI WALL	0.258E-04	0.258E-04	0.244E-03	0.170E-02	0.867E-01	0.307E-03	0.665E-03	0.542E-04	0.120E-03	0.182E-03
LLI WALL	0.625E-05	0.625E-05	0.958E-04	0.514E-03	0.232E-03	0.140E-00	0.665E-03	0.757E-04	0.125E-03	0.209E-04
T BODY	0.633E-03	0.633E-03	0.289E-03	0.555E-03	0.393E-03	0.453E-03	0.632E-03	0.633E-03	0.630E-03	0.651E-03
ADREN	0.180E-03	0.180E-03	0.175E-03	0.884E-04	0.784E-04	0.340E-04	0.674E-03	0.118E-03	0.111E-03	0.353E-03
BL WALL	0.525E-05	0.525E-05	0.302E-04	0.204E-03	0.152E-03	0.434E-03	0.663E-03	0.403E-04	0.131E-03	0.172E-04
KIDNEYS	0.719E-04	0.719E-04	0.246E-03	0.232E-03	0.207E-03	0.654E-04	0.654E-03	0.733E-04	0.105E-03	0.279E-03
LIVER	0.178E-03	0.178E-03	0.147E-03	0.135E-03	0.185E-03	0.251E-04	0.653E-03	0.520E-04	0.820E-04	0.223E-01
OVARIES	0.107E-04	0.107E-04	0.616E-04	0.727E-03	0.769E-03	0.127E-02	0.647E-03	0.683E-04	0.147E-03	0.366E-04
PANCREAS	0.186E-03	0.186E-03	0.128E-02	0.149E-03	0.153E-03	0.542E-04	0.656E-03	0.704E-04	0.132E-03	0.322E-03
BONE	0.832E-04	0.832E-04	0.501E-04	0.675E-04	0.608E-04	0.887E-04	0.645E-03	0.701E-02	0.798E-04	0.616E-04
R MAR	0.105E-03	0.105E-03	0.866E-04	0.213E-03	0.196E-03	0.270E-03	0.661E-03	0.271E-02	0.113E-03	0.885E-04
Y MAR	0.871E-04	0.871E-04	0.697E-04	0.937E-04	0.867E-04	0.110E-03	0.637E-03	0.242E-03	0.897E-04	0.913E-04
ENDOST	0.832E-04	0.832E-04	0.501E-04	0.675E-04	0.608E-04	0.887E-04	0.645E-03	0.536E-02	0.798E-04	0.616E-04
SPLEEN	0.162E-03	0.162E-03	0.712E-03	0.115E-03	0.100E-03	0.693E-04	0.654E-03	0.573E-04	0.109E-03	0.753E-04
TESTES	0.182E-05	0.182E-05	0.649E-05	0.303E-04	0.338E-04	0.132E-03	0.643E-03	0.470E-04	0.899E-04	0.109E-04
THYMUS	0.300E-03	0.300E-03	0.339E-04	0.980E-03	0.109E-04	0.417E-05	0.644E-03	0.515E-04	0.134E-03	0.675E-04
THYROID	0.854E-04	0.854E-04	0.107E-04	0.290E-05	0.309E-05	0.137E-05	0.626E-03	0.623E-04	0.101E-03	0.139E-04
UTERUS	0.825E-05	0.825E-05	0.660E-04	0.654E-03	0.354E-03	0.446E-03	0.678E-03	0.516E-04	0.168E-03	0.310E-04

S FACTORS (REM/MICROCURIE-DAY) FOR TE-131

TARGET ORGANS	SOURCE ORGANS		
	KIDNEYS	THYROID	OTHER
LUNGS	0.690E-04	0.781E-04	0.693E-04
RES LYM	0.690E-04	0.781E-04	0.693E-04
S WALL	0.248E-03	0.813E-05	0.960E-04
SI WALL	0.207E-03	0.161E-05	0.968E-04
ULI WALL	0.212E-03	0.184E-05	0.830E-04
LLI WALL	0.625E-04	0.116E-05	0.110E-03
T BODY	0.650E-03	0.621E-03	0.602E-03
ADREN	0.881E-03	0.139E-04	0.617E-02
BL WALL	0.287E-04	0.775E-06	0.321E-02
KIDNEYS	0.124E-00	0.557E-05	0.114E-03
LIVER	0.286E-03	0.116E-04	0.661E-04
OVARIES	0.964E-04	0.138E-05	0.619E-02
PANCREAS	0.490E-03	0.674E-05	0.634E-02
BONE	0.814E-04	0.605E-04	0.635E-03
R MAR	0.208E-03	0.660E-04	0.422E-02
Y MAR	0.101E-03	0.320E-04	0.616E-02
ENDOST	0.814E-04	0.605E-04	0.351E-02
SPLEEN	0.624E-03	0.114E-04	0.634E-02
TESTES	0.106E-04	0.310E-06	0.620E-02
THYMUS	0.178E-04	0.307E-03	0.734E-02
THYROID	0.665E-05	0.187E-01	0.531E-04
UTERUS	0.663E-04	0.131E-05	0.773E-02

TELLURIUM-131 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =9.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
TE-131	W	0.0	0.250	0.0	0.0
I-131	D	0.950	0.950	0.950	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	5.535E-04	7.367E-07	3.104E-08	2.687E-33	4.352E-10	6.783E-12	3.279E-07	7.441E-09	5.495E-08	1.700E-08	3.112E-09
RES LYM	5.535E-04	4.484E-05	3.104E-08	2.687E-33	4.352E-10	6.783E-12	3.279E-07	7.441E-09	5.495E-08	1.700E-08	3.112E-09
S WALL	2.068E-06	8.642E-09	1.814E-05	3.054E-33	4.575E-09	9.771E-11	3.377E-07	4.374E-09	5.787E-08	1.321E-08	1.123E-08
SI WALL	2.956E-07	1.152E-09	4.491E-08	5.674E-36	2.041E-08	5.209E-10	3.476E-07	5.994E-09	6.395E-08	1.110E-08	9.373E-09
ULI WALL	3.833E-07	1.516E-09	5.738E-08	2.004E-37	1.473E-06	2.380E-10	3.445E-07	5.488E-09	6.706E-08	1.713E-08	9.602E-09
LLI WALL	9.322E-08	4.313E-10	2.253E-08	6.058E-33	3.945E-09	1.076E-07	3.445E-07	7.615E-09	7.005E-08	1.967E-09	2.840E-09
T BODY	9.291E-06	1.636E-08	6.789E-08	6.655E-33	6.571E-09	3.490E-10	3.274E-07	3.494E-08	1.857E-07	4.928E-08	2.696E-08
ADREN	2.679E-06	1.139E-08	4.114E-08	1.042E-33	1.333E-09	2.637E-11	3.491E-07	1.170E-08	6.215E-08	3.347E-08	3.965E-08
BL WALL	7.792E-08	3.046E-10	7.099E-09	2.405E-33	2.585E-09	3.365E-10	3.434E-07	4.288E-09	7.365E-08	1.681E-09	1.285E-09
KIDNEYS	1.070E-06	4.547E-09	5.785E-08	2.734E-33	3.520E-09	5.069E-11	3.388E-07	7.115E-09	5.875E-08	2.614E-08	5.056E-06
LIVER	2.649E-06	1.125E-08	3.457E-08	1.603E-33	3.146E-09	1.944E-11	3.382E-07	5.256E-09	4.564E-08	1.636E-06	1.297E-08
OVARIES	1.592E-07	6.591E-10	1.447E-08	8.558E-33	1.309E-08	9.847E-10	3.351E-07	6.988E-09	8.226E-08	3.073E-09	4.318E-09
PANCREAS	2.771E-06	1.234E-08	3.010E-07	1.756E-33	2.592E-09	4.200E-11	3.398E-07	7.382E-09	7.425E-08	3.018E-08	2.213E-08
BONE	1.237E-06	4.993E-09	1.178E-08	7.955E-33	1.034E-09	6.871E-11	3.341E-07	3.381E-07	4.481E-08	5.699E-09	3.664E-09
R MAR	1.561E-06	6.324E-09	2.036E-08	2.569E-33	3.163E-09	2.091E-10	3.424E-07	1.199E-07	6.136E-08	8.227E-09	9.368E-09
Y MAR	1.295E-06	5.227E-09	1.639E-08	1.104E-33	1.474E-09	8.521E-11	3.300E-07	2.375E-08	4.885E-08	8.425E-09	4.544E-09
ENDOST	1.237E-06	4.993E-09	1.178E-08	7.955E-33	1.034E-09	6.871E-11	3.341E-07	2.658E-07	4.481E-08	5.699E-09	3.664E-09
SPLEEN	2.411E-06	1.029E-08	1.674E-07	1.355E-33	1.703E-09	5.367E-11	3.388E-07	5.819E-09	6.075E-08	6.958E-09	2.829E-08
TESTES	2.497E-08	9.468E-11	1.524E-09	3.629E-33	5.747E-10	1.025E-10	3.331E-07	4.596E-09	5.018E-08	9.318E-10	4.774E-10
THYMUS	4.455E-06	1.783E-08	7.962E-09	1.155E-33	1.953E-10	3.228E-12	3.336E-07	4.985E-09	8.613E-08	6.589E-09	8.381E-10
THYROID	1.269E-06	4.953E-09	2.516E-09	3.417E-13	5.252E-11	1.059E-12	3.243E-07	7.371E-09	5.620E-08	1.333E-09	3.000E-10
UTERUS	1.224E-07	4.548E-10	1.552E-08	7.708E-33	6.019E-09	3.458E-10	3.512E-07	4.779E-09	8.854E-08	2.899E-09	3.021E-09

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	THYROID	OTHER	TOTAL
TARGET			
LUNGS	3.023E-07	4.703E-08	5.550E-04
RES LYM	3.023E-07	4.703E-08	5.991E-04
S WALL	2.775E-08	6.510E-08	2.077E-05
SI WALL	3.662E-09	6.600E-08	6.545E-06
ULI WALL	3.493E-09	5.666E-08	2.617E-06
LLI WALL	3.656E-09	7.488E-08	7.938E-07
T BODY	9.913E-07	2.985E-07	1.136E-05
ADREN	5.453E-08	2.601E-06	6.195E-06
BL WALL	2.238E-09	1.535E-06	2.074E-06
KIDNEYS	1.436E-08	7.771E-08	6.742E-06
LIVER	4.284E-08	4.493E-08	4.840E-06
OVARIES	4.328E-09	2.912E-06	3.622E-06
PANCREAS	2.495E-08	3.018E-06	6.622E-06
BONE	2.342E-07	3.109E-07	2.534E-06
R MAR	2.582E-07	2.056E-06	4.473E-06
Y MAR	1.234E-07	2.891E-06	4.759E-06
ENDOST	2.342E-07	1.635E-06	3.786E-06
SPLEEN	3.824E-08	3.015E-06	6.098E-06
TESTES	7.681E-10	2.619E-06	3.342E-06
THYMUS	1.282E-06	3.763E-06	9.963E-06
THYROID	2.268E-03	3.662E-06	2.269E-03
UTERUS	4.088E-09	3.926E-06	4.602E-06

PERCENT DOSE EQUIVALENT..

NUCL IDE	TE-131	I-131
TARGET		
LUNGS	99.1	0.9
RES LYM	91.8	0.2
S WALL	99.1	0.5
SI WALL	98.4	1.6
ULI WALL	95.9	4.1
LLI WALL	87.0	13.0
T BODY	88.4	11.6
ADREN	87.3	12.7
BL WALL	80.8	15.2
KIDNEYS	94.0	0.0
LIVER	91.3	0.0
OVARIES	81.5	18.5
PANCREAS	87.6	12.4
BONE	78.1	21.5
R MAR	80.3	15.7
Y MAR	83.3	16.7
ENDOST	79.8	20.2
SPLEEN	80.9	13.1
TESTES	80.9	15.1
THYMUS	75.1	24.9
THYROID	0.3	99.7
UTERUS	76.0	24.0

TELLURIUM-131 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-131	I-131
STOMACH	0.0	0.950
S INT	0.250	0.560
UL INT	0.0	0.950
LL INT	0.0	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	2.068E-06	1.793E-07	2.904E-08	4.523E-10	1.137E-07	1.035E-08	7.796E-08	1.285E-08	1.524E-09	5.156E-07	1.296E-08
RES LYM	2.068E-06	1.793E-07	2.904E-08	4.523E-10	1.137E-07	1.035E-08	7.796E-08	1.285E-08	1.524E-09	5.156E-07	1.296E-08
S WALL	1.211E-03	2.045E-06	3.052E-07	6.511E-09	1.171E-07	6.114E-09	8.231E-08	1.003E-08	5.543E-09	4.732E-08	1.794E-08
SI WALL	2.993E-06	3.789E-04	1.362E-06	3.471E-03	1.205E-07	8.328E-09	9.075E-08	8.462E-09	4.624E-09	6.242E-09	1.816E-08
ULI WALL	3.823E-06	1.337E-05	9.818E-05	1.586E-03	1.194E-07	7.617E-09	9.509E-08	1.307E-08	4.740E-09	6.295E-09	1.558E-08
LLI WALL	1.501E-06	4.043E-06	2.632E-07	7.182E-06	1.194E-07	1.055E-08	9.939E-08	1.500E-09	1.410E-09	6.234E-09	2.061E-08
T BODY	4.528E-06	4.450E-06	4.453E-07	2.329E-03	1.135E-07	3.970E-08	2.179E-07	2.774E-08	1.119E-08	1.689E-06	9.194E-08
ADREN	2.742E-06	6.954E-07	8.894E-08	1.757E-09	1.211E-07	1.616E-08	8.816E-08	2.574E-08	1.936E-08	9.299E-08	9.128E-07
BL WALL	4.732E-07	1.605E-06	1.725E-07	2.242E-03	1.191E-07	6.014E-09	1.046E-07	1.334E-09	6.212E-10	3.817E-09	4.797E-07
KIDNEYS	3.854E-06	1.825E-06	2.349E-07	3.378E-09	1.175E-07	9.789E-09	8.333E-08	1.984E-08	2.016E-06	2.448E-08	2.138E-08
LIVER	2.303E-06	1.070E-06	2.099E-07	1.296E-09	1.173E-07	7.292E-09	6.468E-08	8.670E-07	6.423E-09	7.306E-08	1.237E-08
OVARIES	9.651E-07	5.718E-06	8.730E-07	6.562E-03	1.162E-07	9.720E-09	1.167E-07	2.038E-09	2.090E-09	7.380E-09	9.160E-07
PANCREAS	2.005E-05	1.172E-06	1.736E-07	2.799E-03	1.178E-07	1.032E-08	1.054E-07	2.292E-08	1.087E-08	4.255E-08	9.449E-07
BONE	7.849E-07	5.309E-07	6.898E-08	4.580E-03	1.158E-07	3.570E-07	6.360E-08	4.266E-09	1.789E-09	3.995E-07	9.624E-08
R MAR	1.357E-06	1.715E-06	2.110E-07	1.394E-03	1.197E-07	1.198E-07	8.652E-08	6.191E-09	4.579E-09	4.404E-07	6.378E-07
Y MAR	1.092E-06	7.369E-07	9.837E-08	5.679E-03	1.144E-07	3.281E-08	6.892E-08	6.289E-09	2.217E-09	2.105E-07	9.102E-07
ENDOST	7.849E-07	5.309E-07	6.898E-08	4.580E-03	1.158E-07	2.854E-07	6.360E-08	4.266E-09	1.789E-09	3.995E-07	5.163E-07
SPLEEN	1.116E-05	5.045E-07	1.135E-07	3.577E-09	1.175E-07	8.081E-09	8.611E-08	5.201E-09	1.399E-08	6.525E-08	9.442E-07
TESTES	1.017E-07	2.422E-07	3.835E-08	6.828E-03	1.155E-07	6.331E-09	7.115E-08	6.334E-10	2.333E-10	1.309E-09	9.179E-07
THYMUS	5.311E-07	7.708E-08	1.237E-08	2.152E-10	1.157E-07	6.849E-09	1.252E-07	5.220E-09	4.410E-10	2.187E-06	1.144E-06
THYROID	1.676E-07	2.281E-08	3.505E-09	7.063E-11	1.124E-07	1.055E-08	7.964E-08	1.037E-09	1.455E-10	3.862E-03	1.004E-08
UTERUS	1.034E-06	5.144E-06	4.016E-07	2.304E-03	1.218E-07	6.499E-09	1.241E-07	2.196E-09	1.507E-09	6.971E-09	1.198E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	3.022E-06
LUNGS	3.022E-06
RES LYM	3.022E-06
S WALL	1.214E-03
SI WALL	3.836E-04
ULI WALL	1.156E-04
LLI WALL	1.325E-05
T BODY	1.164E-05
ADREN	4.804E-06
BL WALL	2.988E-06
KIDNEYS	8.209E-06
LIVER	4.732E-06
OVARIES	8.752E-06
PANCREAS	2.266E-05
BONE	2.428E-06
R MAR	4.710E-06
Y MAR	3.278E-06
ENDOST	2.776E-06
SPLEEN	1.342E-05
TESTES	1.502E-06
THYMUS	4.205E-06
THYROID	3.663E-03
UTERUS	8.064E-06

PERCENT DOSE EQUIVALENT..

NUCL IDE	TE-131	I-131
TARGET		
LUNGS	79.7	20.3
RES LYM	79.7	20.3
S WALL	100.0	0.0
SI WALL	99.9	0.1
ULI WALL	99.8	0.2
LLI WALL	98.9	1.1
T BODY	83.3	16.7
ADREN	93.2	6.8
BL WALL	94.2	5.8
KIDNEYS	94.0	6.0
LIVER	88.7	11.3
OVARIES	97.2	2.8
PANCREAS	98.7	1.3
BONE	67.9	32.1
R MAR	84.8	15.2
Y MAR	87.1	12.9
ENDOST	72.4	27.6
SPLEEN	97.9	2.1
TESTES	87.6	12.4
THYMUS	40.4	59.6
THYROID	0.1	99.9
UTERUS	95.9	4.1

RADIONUCLIDE: TE-131M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE			
NUCLIDE		(DAYS)			
TE-131M		1.250			
TE-131		1.740E-02			
I-131		8.040			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		TE-131M	TE-131	0.2220	
		TE-131M	I-131	0.7780	
		TE-131	I-131	1.000	
		BLOOD TRANSFER FRACTION F2-PRIME		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ORGAN ABSORBED	TE-131M	1.00		0.791	4.02
				5.500E-02	10.2
				1.000E-01	17.7
				3.400E-02	23.0
	TE-131	1.00		2.000E-02	8.000E 03
				0.605	9.20
				0.104	10.2
				0.189	17.7
	I-131	1.00		6.400E-02	23.0
				3.800E-02	8.000E 03
				0.669	0.243
				-3.270E-02	11.3
EXCRET.	TE-131M	0.471		0.363	117.
	TE-131	0.0		1.00	0.500
	I-131	0.0		1.00	0.500
	I-131	0.0		1.00	0.500
BONE	TE-131M	2.000E-02		1.00	8.000E 03
	TE-131	2.000E-02		1.00	8.000E 03
	* I-131	0.121		0.997	0.243
				-4.870E-02	11.3
MUSCLE	TE-131M	1.000E-01		5.140E-02	117.
	TE-131	1.000E-01		1.00	17.7
	* I-131	0.679		1.00	17.7
				0.997	0.243
LIVER	TE-131M	5.500E-02		-4.870E-02	11.3
	TE-131	5.500E-02		5.140E-02	117.
	* I-131	4.360E-02		1.00	10.2
				1.00	10.2
KIDNEYS	TE-131M	3.400E-02		0.997	0.243
	TE-131	3.400E-02		-4.870E-02	11.3
	* I-131	7.520E-03		5.140E-02	117.
				1.00	23.0
THYROID	* TE-131M	2.570E-03		1.00	23.0
	* TE-131	2.570E-03		0.997	0.243
	I-131	0.328		-4.870E-02	11.3
				5.140E-02	117.
				1.00	4.02
				4.900E-02	4.02
				0.951	11.3
					117.

 β^- decay (30 H 2) 77.8%

IT decay (30 H 2) 22.2%

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

* Retention data derived from "other tissues" compartment.

TELLURIUM-131m CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR TE-131M

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER
LUNGS	0.134E-01	0.134E-01	0.434E-03	0.835E-04	0.952E-04	0.360E-04	0.494E-03	0.243E-03	0.324E-03	0.592E-03
RES LYM	0.134E-01	0.665E-00	0.434E-03	0.835E-04	0.952E-04	0.360E-04	0.494E-03	0.243E-03	0.324E-03	0.592E-03
S WALL	0.466E-03	0.466E-03	0.323E-01	0.843E-03	0.863E-03	0.400E-03	0.554E-03	0.137E-03	0.343E-03	0.473E-03
SI WALL	0.752E-04	0.752E-04	0.619E-03	0.197E-01	0.384E-02	0.215E-02	0.616E-03	0.200E-03	0.375E-03	0.387E-03
ULI WALL	0.560E-04	0.980E-04	0.769E-03	0.550E-02	0.330E-01	0.983E-03	0.597E-03	0.185E-03	0.396E-03	0.586E-03
LLI WALL	0.216E-04	0.216E-04	0.327E-03	0.165E-02	0.764E-03	0.491E-01	0.622E-03	0.251E-03	0.410E-03	0.725E-04
T BODY	0.493E-03	0.493E-03	0.473E-03	0.585E-03	0.531E-03	0.544E-03	0.494E-03	0.494E-03	0.494E-03	0.554E-03
ADREN	0.559E-03	0.559E-03	0.563E-03	0.299E-03	0.278E-03	0.120E-03	0.639E-03	0.431E-03	0.372E-03	0.117E-02
BL WALL	0.212E-04	0.212E-04	0.112E-03	0.645E-03	0.498E-03	0.133E-02	0.614E-03	0.131E-03	0.429E-03	0.585E-04
KIDNEYS	0.243E-03	0.243E-03	0.792E-03	0.755E-03	0.679E-03	0.224E-03	0.571E-03	0.261E-03	0.351E-03	0.899E-03
LIVER	0.576E-03	0.576E-03	0.482E-03	0.449E-03	0.604E-03	0.926E-04	0.571E-03	0.177E-03	0.273E-03	0.117E-01
OVARIES	0.406E-04	0.406E-04	0.265E-03	0.232E-02	0.225E-02	0.408E-02	0.523E-03	0.238E-03	0.480E-03	0.147E-03
PANCREAS	0.583E-03	0.583E-03	0.406E-02	0.485E-03	0.494E-03	0.180E-03	0.569E-03	0.244E-03	0.432E-03	0.104E-02
BONE	0.245E-03	0.245E-03	0.147E-03	0.195E-03	0.175E-03	0.255E-03	0.505E-03	0.272E-02	0.271E-03	0.180E-03
R MAR	0.310E-03	0.310E-03	0.249E-03	0.509E-03	0.515E-03	0.763E-03	0.544E-03	0.121E-02	0.333E-03	0.257E-03
Y MAR	0.258E-03	0.258E-03	0.204E-03	0.269E-03	0.247E-03	0.315E-03	0.482E-03	0.741E-03	0.271E-03	0.267E-03
ENDOST	0.245E-03	0.245E-03	0.147E-03	0.195E-03	0.175E-03	0.255E-03	0.505E-03	0.223E-02	0.271E-03	0.180E-03
SPLEEN	0.522E-03	0.522E-03	0.228E-02	0.383E-03	0.328E-03	0.246E-03	0.565E-03	0.204E-03	0.358E-03	0.262E-03
TESTES	0.808E-05	0.808E-05	0.305E-04	0.123E-03	0.129E-03	0.420E-03	0.561E-03	0.167E-03	0.307E-03	0.472E-04
THYMUS	0.983E-03	0.983E-03	0.149E-03	0.377E-04	0.409E-04	0.171E-04	0.505E-03	0.187E-03	0.402E-03	0.227E-03
THYROID	0.305E-03	0.305E-03	0.409E-04	0.124E-04	0.132E-04	0.620E-05	0.505E-03	0.181E-03	0.334E-03	0.493E-04
UTERUS	0.319E-04	0.319E-04	0.230E-03	0.205E-02	0.114E-02	0.137E-02	0.663E-03	0.189E-03	0.575E-03	0.107E-03

S FACTORS (REM/MICROCURIE-DAY) FOR TE-131M

TARGET
ORGANS

SOURCE ORGANS

	K IDNEYS	THYROID	OTHER
LUNGS	0.237E-03	0.270E-03	0.233E-03
RES LYM	0.237E-03	0.270E-03	0.233E-03
S WALL	0.796E-03	0.329E-04	0.319E-03
SI WALL	0.674E-03	0.796E-05	0.320E-03
ULI WALL	0.665E-03	0.891E-05	0.274E-03
LLI WALL	0.217E-03	0.533E-05	0.365E-03
T BODY	0.554E-03	0.460E-03	0.445E-03
ADREN	0.295E-02	0.520E-04	0.223E-02
BL WALL	0.106E-03	0.371E-05	0.154E-02
KIDNEYS	0.454E-01	0.252E-04	0.383E-03
LIVER	0.932E-03	0.461E-04	0.225E-03
OVARIES	0.345E-03	0.632E-05	0.229E-02
PANCREAS	0.161E-02	0.263E-04	0.279E-02
BONE	0.240E-03	0.184E-03	0.499E-03
R MAR	0.605E-03	0.200E-03	0.197E-02
Y MAR	0.297E-03	0.993E-04	0.217E-02
ENDOST	0.240E-03	0.184E-03	0.133E-02
SPLEEN	0.201E-02	0.440E-04	0.281E-02
TESTES	0.405E-04	0.159E-05	0.233E-02
THYMUS	0.515E-04	0.996E-03	0.576E-02
THYROID	0.247E-04	0.613E-00	0.172E-03
UTERUS	0.213E-03	0.604E-05	0.755E-02

TELLURIUM-131m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
TE-131M	W	0.0	0.250	0.0	0.0						
TE-131	W	0.0	0.250	0.0	0.0						
I-131	D	0.950	0.950	0.950	0.950						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET LUNGS	1.076E-02	5.242E-05	5.564E-06	2.993E-06	8.528E-06	3.811E-06	2.170E-05	1.590E-06	1.028E-05	8.134E-06	2.085E-06
RES LYM	1.076E-02	3.127E-03	5.564E-06	2.993E-06	8.528E-06	3.811E-06	2.170E-05	1.590E-06	1.028E-05	8.134E-06	2.085E-06
S WALL	2.466E-04	7.463E-07	5.863E-04	3.044E-05	7.802E-05	4.301E-05	2.391E-05	9.056E-07	1.087E-05	6.481E-06	7.048E-06
SI WALL	3.930E-05	1.065E-07	7.943E-06	1.029E-03	3.472E-04	2.310E-04	2.616E-05	1.302E-06	1.192E-05	5.318E-06	5.960E-06
ULI WALL	5.120E-05	1.396E-07	9.885E-06	1.986E-04	4.438E-03	1.056E-04	2.546E-05	1.202E-06	1.256E-05	8.069E-06	6.094E-06
LLI WALL	1.137E-05	3.623E-08	4.183E-06	5.996E-05	6.895E-05	8.101E-03	2.630E-05	1.639E-06	1.304E-05	9.904E-07	1.909E-06
T BODY	3.130E-04	1.245E-06	6.434E-06	2.406E-05	5.234E-05	6.487E-05	2.169E-05	4.237E-06	2.064E-05	9.199E-06	5.869E-06
ADREN	2.963E-04	9.521E-07	7.227E-06	1.077E-05	2.497E-05	1.281E-05	2.697E-05	2.746E-06	1.176E-05	1.607E-05	2.600E-05
BL WALL	1.103E-05	2.886E-08	1.426E-06	2.333E-05	4.496E-05	1.433E-04	2.601E-05	8.712E-07	1.366E-05	8.046E-07	9.264E-07
KIDNEYS	1.280E-04	3.508E-07	1.017E-05	2.729E-05	6.430E-05	2.396E-05	2.448E-05	1.665E-06	1.110E-05	1.237E-05	6.570E-04
LIVER	3.054E-04	9.544E-07	6.180E-06	1.619E-05	5.454E-05	9.861E-06	2.447E-05	1.150E-06	8.631E-06	2.226E-04	8.243E-06
OVARIES	2.122E-05	5.556E-08	3.348E-06	8.386E-05	2.047E-04	4.383E-04	2.281E-05	1.543E-06	1.527E-05	1.958E-06	3.023E-06
PANCREAS	3.090E-04	1.019E-06	5.217E-05	1.751E-05	4.464E-05	1.929E-05	2.445E-05	1.592E-06	1.376E-05	1.431E-05	1.422E-05
BONE	1.303E-04	4.180E-07	1.898E-06	7.097E-06	1.594E-05	2.761E-05	2.217E-05	3.071E-05	8.543E-06	2.500E-06	2.139E-06
R MAR	1.649E-04	5.292E-07	3.220E-06	2.222E-05	4.705E-05	8.270E-05	2.363E-05	1.213E-05	1.081E-05	3.574E-06	5.400E-06
Y MAR	1.372E-04	4.383E-07	2.635E-06	9.794E-06	2.252E-05	3.411E-05	2.132E-05	4.905E-06	8.741E-06	3.706E-06	2.648E-06
ENDOST	1.303E-04	4.180E-07	1.898E-06	7.097E-06	1.594E-05	2.761E-05	2.217E-05	2.460E-05	8.543E-06	2.500E-06	2.139E-06
SPLEEN	2.760E-04	8.693E-07	2.928E-05	1.381E-05	2.961E-05	2.626E-05	2.429E-05	1.314E-06	1.136E-05	3.570E-06	1.779E-05
TESTES	4.180E-06	9.789E-09	3.838E-07	4.286E-06	1.154E-05	4.515E-05	2.404E-05	1.067E-06	9.649E-06	6.260E-07	3.533E-07
THYMUS	5.187E-04	1.551E-06	1.881E-06	1.348E-06	3.662E-06	1.810E-06	2.220E-05	1.187E-06	1.364E-05	3.126E-06	4.665E-07
THYROID	1.600E-04	4.480E-07	5.199E-07	4.408E-07	1.174E-06	6.530E-07	2.201E-05	1.276E-06	1.058E-05	6.735E-07	2.321E-07
UTERUS	1.664E-05	4.327E-08	2.939E-06	7.453E-05	1.030E-04	1.476E-04	2.778E-05	1.187E-06	1.780E-05	1.461E-06	1.887E-06
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	THYROID	OTHER	TOTAL	PERCENT DOSE EQUIVALENT..							
				TE-131M	TE-131	I-131					
TARGET LUNGS	1.453E-05	3.315E-05	1.092E-02	TARGET LUNGS	61.0	36.4	2.6				
RES LYM	1.453E-05	3.315E-05	1.399E-02	RES LYM	50.1	30.5	19.4				
S WALL	1.337E-06	4.548E-05	1.081E-03	S WALL	77.4	21.3	1.3				
SI WALL	1.783E-07	4.573E-05	1.751E-03	SI WALL	75.8	23.5	0.6				
ULI WALL	1.802E-07	3.518E-05	4.896E-03	ULI WALL	65.4	34.3	0.3				
LLI WALL	1.767E-07	5.210E-05	8.342E-03	LLI WALL	61.6	38.1	0.3				
T BODY	4.742E-05	8.272E-05	6.537E-04	T BODY	70.5	18.1	11.4				
ADREN	2.622E-06	5.456E-04	9.849E-04	ADREN	66.8	20.5	12.3				
BL WALL	1.084E-07	3.331E-04	5.996E-04	BL WALL	70.4	18.6	11.0				
KIDNEYS	6.560E-07	5.457E-05	1.013E-03	KIDNEYS	70.9	25.6	3.6				
LIVER	2.062E-06	3.196E-05	6.922E-04	LIVER	82.2	13.9	4.0				
OVARIES	2.092E-07	5.538E-04	1.350E-03	OVARIES	74.3	17.2	8.6				
PANCREAS	1.201E-06	6.259E-04	1.139E-03	PANCREAS	69.7	16.5	11.4				
BONE	1.124E-05	8.997E-05	3.506E-04	BONE	76.6	12.6	10.8				
R MAR	1.239E-05	4.387E-04	8.272E-04	R MAR	68.5	18.3	13.2				
Y MAR	5.527E-06	5.371E-04	7.910E-04	Y MAR	60.2	24.6	15.1				
ENDOST	1.124E-05	3.146E-04	5.691E-04	ENDOST	63.8	21.8	14.4				
SPLEEN	1.843E-06	6.276E-04	1.064E-03	SPLEEN	68.2	19.7	12.0				
TESTES	3.735E-08	5.594E-04	6.608E-04	TESTES	54.7	28.1	17.2				
THYMUS	6.155E-05	1.071E-03	1.702E-03	THYMUS	70.2	14.5	15.3				
THYROID	0.108	2.475E-05	0.108	THYROID	0.5	0.2	99.3				
UTERUS	1.976E-07	1.294E-03	1.689E-03	UTERUS	73.7	14.7	11.6				

TELLURIUM-131m CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-131M	TE-131	I-131
STOMACH	0.0	0.0	0.950
S INT	0.250	0.250	0.950
U L INT	0.0	0.0	0.950
L L INT	0.0	0.0	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	1.842E-05	1.009E-05	2.884E-05	1.289E-05	3.570E-05	2.463E-06	1.576E-05	1.321E-05	3.413E-06	1.608E-05	5.434E-05
RES LYM	1.842E-05	1.009E-05	2.884E-05	1.289E-05	3.570E-05	2.463E-06	1.576E-05	1.321E-05	3.413E-06	1.608E-05	5.434E-05
S WALL	1.752E-03	1.026E-04	2.638E-04	1.455E-04	3.933E-05	1.399E-06	1.666E-05	1.053E-05	1.153E-05	1.482E-06	7.453E-05
SI WALL	2.629E-05	3.407E-03	1.174E-03	7.814E-04	4.303E-05	2.019E-06	1.826E-05	8.636E-06	9.752E-06	1.986E-07	7.495E-05
ULI WALL	3.270E-05	6.693E-04	1.499E-02	3.572E-04	4.188E-05	1.865E-06	1.925E-05	1.310E-05	9.971E-06	2.010E-07	6.421E-05
LLI WALL	1.386E-05	2.020E-04	2.332E-04	2.740E-02	4.326E-05	2.541E-06	1.997E-05	1.609E-06	3.125E-06	1.962E-07	8.539E-05
T BODY	2.089E-05	8.053E-05	1.769E-04	2.194E-04	3.568E-05	6.401E-06	3.081E-05	1.480E-05	9.541E-06	5.240E-05	1.344E-04
ADREN	2.392E-05	3.629E-05	8.445E-05	4.334E-05	4.436E-05	4.278E-06	1.803E-05	2.610E-05	4.256E-05	2.903E-06	8.804E-04
BL WALL	4.732E-06	7.860E-05	1.520E-04	4.848E-04	4.278E-05	1.344E-06	2.091E-05	1.306E-06	1.517E-06	1.205E-07	5.390E-04
KIDNEYS	3.364E-05	9.195E-05	2.073E-04	8.105E-05	4.028E-05	2.594E-06	1.702E-05	2.009E-05	1.061E-03	7.737E-07	8.944E-05
LIVER	2.046E-05	5.457E-05	1.844E-04	3.335E-05	4.026E-05	1.784E-06	1.324E-05	3.561E-04	1.349E-05	2.285E-06	5.238E-05
OVARIES	1.114E-05	2.825E-04	6.923E-04	1.482E-03	3.753E-05	2.394E-06	2.339E-05	3.195E-06	4.949E-06	2.322E-07	8.939E-04
PANCREAS	1.726E-04	5.900E-05	1.510E-04	6.526E-05	4.022E-05	2.467E-06	2.107E-05	2.323E-05	2.327E-05	1.331E-06	1.012E-03
BONE	6.270E-06	5.390E-05	5.390E-05	9.337E-05	3.647E-05	4.546E-05	1.311E-05	4.056E-06	3.499E-06	1.244E-05	1.462E-04
R MAR	1.063E-05	7.482E-05	1.591E-04	2.797E-04	3.886E-05	1.827E-05	1.649E-05	5.798E-06	8.833E-06	1.371E-05	7.099E-04
Y MAR	8.702E-06	3.299E-05	7.614E-05	1.154E-04	3.508E-05	7.585E-06	1.336E-05	6.015E-06	4.331E-06	6.558E-06	8.664E-04
ENDOST	6.270E-06	2.390E-05	5.390E-05	9.337E-05	3.647E-05	3.641E-05	1.311E-05	4.056E-06	3.499E-06	1.244E-05	5.078E-04
SPLEEN	9.688E-05	4.652E-05	1.001E-04	8.881E-05	3.995E-05	2.042E-06	1.741E-05	5.805E-06	2.911E-05	2.043E-06	1.015E-03
TESTES	1.275E-06	1.445E-05	3.902E-05	1.527E-04	3.955E-05	1.662E-06	1.482E-05	1.022E-06	5.786E-07	4.159E-08	9.030E-04
THYMUS	6.260E-06	4.543E-06	1.238E-05	6.123E-06	3.652E-05	1.851E-06	2.058E-05	5.072E-06	7.622E-07	6.809E-05	1.741E-03
THYROID	1.726E-06	1.486E-06	3.969E-06	2.209E-06	3.620E-05	1.942E-06	1.622E-05	1.094E-06	3.801E-07	0.120	4.056E-05
UTERUS	9.740E-06	2.511E-04	3.484E-04	4.993E-04	4.570E-05	1.856E-06	2.745E-05	2.375E-06	3.088E-06	2.194E-07	2.108E-03

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL	NUCLIDE	TE-131M	TE-131	I-131
TARGET		TARGET			
LUNGS	2.112E-04	LUNGS	79.8	7.7	12.5
RES LYM	2.112E-04	RES LYM	79.8	7.7	12.5
S WALL	2.419E-03	S WALL	79.4	20.0	0.6
SI WALL	5.545E-03	SI WALL	76.3	23.4	0.3
ULI WALL	1.620E-02	ULI WALL	65.1	34.8	0.2
LLI WALL	2.800E-02	LLI WALL	61.4	36.3	0.3
T BODY	7.818E-04	T BODY	73.9	15.4	10.7
ADREN	1.207E-03	ADREN	55.9	24.5	15.6
BL WALL	1.327E-03	BL WALL	77.0	14.5	8.0
KIDNEYS	1.645E-03	KIDNEYS	72.0	25.0	3.0
LIVER	7.724E-04	LIVER	79.0	17.0	4.0
OVARIES	3.434E-03	OVARIES	81.5	13.0	5.5
PANCREAS	1.571E-03	PANCREAS	67.0	20.1	13.0
BONE	4.387E-04	BONE	74.9	14.2	10.9
R MAR	1.336E-03	R MAR	69.7	17.9	12.5
Y MAR	1.173E-03	Y MAR	58.6	25.3	16.1
ENDOST	7.913E-04	ENDOST	61.2	23.5	15.3
SPLEEN	1.444E-03	SPLEEN	64.6	21.4	14.0
TESTES	1.168E-03	TESTES	58.9	25.2	15.9
THYMUS	1.503E-03	THYMUS	62.4	17.5	20.1
THYROID	0.120	THYROID	0.5	0.3	95.2
UTERUS	3.257E-03	UTERUS	77.4	12.6	9.7

TELLURIUM-132

RADIONUCLIDE: TE-132

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		TE-132		3.260	
I-132		9.5600E-02			
BRANCHING RATIOS:		FROM TE-132	TO I-132	FRACTION 1.000	
ORGAN ABSORBED	NUCLIDE TE-132	BLOOD TRANSFER FRACTION F2-PRIME 1.00		COMPARTMENT DEPOSITION FRACTION 0.791	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 4.02
				5.500E-02	10.2
				1.000E-01	17.7
				3.400E-02	23.0
				2.000E-02	9.000E 03
				0.669	0.243
				-3.270E-02	11.3
				0.363	117.
EXCRET.	TE-132	0.471		1.00	0.500
				0.0	0.500
BONE	TE-132	2.000E-02		1.00	8.000E 03
				0.997	0.243
	* I-132	0.121		-4.870E-02	11.3
				5.140E-02	117.
MUSCLE	TE-132	1.000E-01		1.00	17.7
				0.997	0.243
	* I-132	0.679		-4.870E-02	11.3
				5.140E-02	117.
LIVER	TE-132	5.500E-02		1.00	10.2
				0.997	0.243
	* I-132	4.360E-02		-4.870E-02	11.3
				5.140E-02	117.
KIDNEYS	TE-132	3.400E-02		1.00	23.0
				0.997	0.243
	* I-132	7.520E-03		-4.870E-02	11.3
				5.140E-02	117.
THYROID	* TE-132	2.570E-03		1.00	4.02
				4.900E-02	11.3
	I-132	0.328		0.951	117.

β⁻ decay (78.2 H 8)

The first term of the retention function for absorbed material represents a combination of the terms for material uniformly distributed in the body and that which is promptly excreted.

* Retention data derived from "other tissues" compartment.

TELLURIUM-132 CONTINUED

S FACTORS (REM/MICROCJRIE-DAY) FOR TE-132

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	
LUNGS	0.597E-02	0.596E-02	0.746E-04	0.995E-35	3.108E-04	0.338E-05	0.142E-03	0.414E-04	0.615E-04	0.114E-03	
RES LYM	0.596E-02	0.343E-00	0.746E-04	0.995E-35	0.108E-04	0.338E-05	0.142E-03	0.414E-04	0.615E-04	0.114E-03	
S WALL	0.806E-04	0.806E-04	0.130E-01	0.157E-33	3.168E-03	0.744E-04	0.159E-03	0.234E-04	0.622E-04	0.800E-04	
SI WALL	0.752E-05	0.792E-05	0.109E-03	0.802E-32	0.808E-03	0.446E-03	0.164E-03	0.315E-04	0.679E-04	0.679E-04	
ULI WALL	0.972E-05	0.972E-05	0.154E-03	0.122E-32	0.139E-01	0.198E-03	0.158E-03	0.302E-04	0.714E-04	0.104E-03	
LLI WALL	0.412E-05	0.412E-05	0.521E-04	0.345E-33	3.135E-03	0.217E-01	0.154E-03	0.446E-04	0.740E-04	0.940E-05	
T BODY	0.143E-03	0.143E-03	0.105E-03	0.151E-33	3.124E-03	0.133E-03	0.141E-03	0.143E-03	0.137E-03	0.153E-03	
ADREN	0.103E-03	0.103E-03	0.968E-04	0.501E-34	3.359E-04	0.178E-04	0.156E-03	0.540E-04	0.685E-04	0.223E-03	
BL WALL	0.200E-05	0.200E-05	0.938E-05	0.109E-33	0.852E-04	0.281E-03	0.154E-03	0.192E-04	0.790E-04	0.662E-05	
KIDNEYS	0.358E-04	0.358E-04	0.145E-03	0.125E-33	0.113E-03	0.376E-04	0.152E-03	0.373E-04	0.635E-04	0.165E-03	
LIVER	0.111E-03	0.111E-03	0.807E-04	0.757E-34	3.109E-03	0.111E-04	0.151E-03	0.276E-04	0.477E-04	0.416E-02	
OVARIES	0.479E-05	0.479E-05	0.175E-04	0.475E-33	3.530E-03	0.952E-03	0.157E-03	0.320E-04	0.902E-04	0.185E-04	
PANCREAS	0.106E-03	0.108E-03	0.845E-03	0.821E-04	0.949E-04	0.276E-04	0.169E-03	0.427E-04	0.823E-04	0.170E-03	
BONE	0.572E-04	0.572E-04	0.319E-04	0.443E-34	3.405E-04	0.644E-04	0.160E-03	0.122E-02	0.438E-04	0.416E-04	
R MAR	0.715E-04	0.715E-04	0.550E-04	0.152E-33	3.132E-03	0.210E-03	0.173E-03	0.306E-03	0.798E-04	0.573E-04	
Y MAR	0.606E-04	0.606E-04	0.446E-04	0.527E-34	3.579E-04	0.814E-04	0.156E-03	0.200E-03	0.626E-04	0.624E-04	
ENDOST	0.572E-04	0.572E-04	0.319E-04	0.449E-34	0.405E-04	0.644E-04	0.160E-03	0.808E-03	0.438E-04	0.416E-04	
SPLEEN	0.102E-03	0.102E-03	0.444E-03	0.527E-34	0.558E-04	0.313E-04	0.155E-03	0.279E-04	0.664E-04	0.372E-04	
TESTES	0.520E-06	0.520E-06	0.239E-05	0.136E-34	0.129E-04	0.833E-04	0.128E-03	0.247E-04	0.513E-04	0.329E-05	
THYMUS	0.173E-03	0.173E-03	0.994E-05	0.417E-35	3.466E-05	0.151E-05	0.175E-03	0.199E-04	0.123E-03	0.269E-04	
THYROID	0.341E-04	0.341E-04	0.465E-05	0.923E-35	3.101E-05	0.362E-06	0.132E-03	0.381E-04	0.636E-04	0.842E-05	
UTERUS	0.375E-05	0.375E-05	0.320E-04	0.423E-33	0.200E-03	0.295E-03	0.168E-03	0.251E-04	0.105E-03	0.153E-04	

S FACTORS (REM/MICROCJRIE-DAY) FOR TE-132

TARGET ORGANS	SOURCE ORGANS		
	KIDNEYS	THYROID	OTHER
LUNGS	0.341E-04	0.385E-04	0.393E-04
RES LYM	0.341E-04	0.385E-04	0.393E-04
S WALL	0.140E-03	0.190E-05	0.558E-04
SI WALL	0.118E-03	0.571E-06	0.532E-04
ULI WALL	0.118E-03	0.422E-06	0.464E-04
LLI WALL	0.332E-04	0.296E-06	0.623E-04
T BODY	0.152E-03	0.134E-03	0.128E-03
ADREN	0.495E-03	0.625E-05	0.964E-03
BL WALL	0.121E-04	0.159E-06	0.566E-03
KIDNEYS	0.204E-01	0.151E-05	0.639E-04
LIVER	0.166E-03	0.467E-05	0.351E-04
OVARIES	0.480E-04	0.344E-06	0.970E-03
PANCREAS	0.275E-03	0.402E-05	0.109E-02
BONE	0.535E-04	0.364E-04	0.123E-03
R MAR	0.140E-03	0.393E-04	0.943E-03
Y MAR	0.657E-04	0.189E-04	0.981E-03
ENDOST	0.535E-04	0.364E-04	0.584E-03
SPLEEN	0.410E-03	0.462E-05	0.109E-02
TESTES	0.453E-05	0.444E-07	0.989E-03
THYMUS	0.814E-05	0.179E-03	0.200E-02
THYROID	0.261E-05	0.283E-00	0.339E-04
UTERUS	0.410E-04	0.321E-06	0.191E-02

TELLURIUM-132 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =9.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
TE-132	W	0.0	0.250	0.0	0.0						
I-132	D	0.950	0.950	0.950	0.950						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS
TARGET											
LUNGS	2.669E-02	7.543E-04	2.030E-06	8.071E-07	4.583E-06	3.531E-06	6.732E-06	2.311E-05	1.649E-04	4.079E-05	8.023E-06
RES LYM	2.669E-02	4.152E-02	2.030E-06	8.071E-07	4.583E-06	3.531E-06	6.732E-06	2.311E-05	1.649E-04	4.079E-05	8.023E-06
S WALL	5.749E-04	1.767E-05	2.877E-04	1.054E-05	5.073E-05	4.891E-05	7.537E-06	1.326E-05	1.746E-04	3.232E-05	2.746E-05
SI WALL	8.800E-05	2.836E-06	2.928E-06	4.720E-04	2.340E-04	2.683E-04	7.774E-06	1.910E-05	1.909E-04	2.661E-05	2.314E-05
UL I WALL	1.161E-04	3.763E-06	3.914E-06	7.734E-05	3.373E-03	1.221E-04	7.490E-06	1.739E-05	2.018E-04	4.091E-05	2.390E-05
LL I WALL	2.650E-05	8.024E-07	1.455E-06	2.232E-05	4.288E-05	1.035E-02	7.300E-06	2.356E-05	2.088E-04	5.070E-06	7.390E-06
T BODY	7.598E-04	2.227E-05	2.610E-06	9.482E-05	3.529E-05	7.624E-05	6.684E-06	5.606E-05	2.985E-04	4.540E-05	2.295E-05
ADREN	7.111E-04	2.176E-05	2.598E-06	3.933E-06	1.405E-05	1.374E-05	7.395E-06	4.157E-05	1.894E-04	8.142E-05	1.021E-04
BL WALL	2.449E-05	7.952E-07	3.815E-07	7.802E-05	2.757E-05	1.665E-04	7.300E-06	1.325E-05	2.188E-04	4.346E-06	3.488E-06
KIDNEYS	3.025E-04	5.493E-06	3.817E-06	8.850E-05	3.751E-05	2.579E-05	7.206E-06	2.439E-05	1.782E-04	6.209E-05	2.565E-03
LIVER	7.255E-04	2.202E-05	2.219E-06	5.317E-06	3.439E-05	9.983E-06	7.158E-06	1.688E-05	1.390E-04	1.086E-03	3.245E-05
OVARIES	4.823E-05	1.541E-06	7.637E-07	3.073E-05	1.499E-04	5.212E-04	7.443E-06	2.349E-05	2.446E-04	8.579E-06	1.128E-05
PANCREAS	7.544E-04	2.312E-05	2.114E-05	5.746E-05	2.828E-05	2.065E-05	8.011E-06	2.278E-05	2.203E-04	7.378E-05	5.539E-05
BONE	3.126E-04	9.211E-06	7.784E-07	2.800E-05	1.099E-05	3.356E-05	7.585E-06	3.705E-04	1.385E-04	1.245E-05	8.383E-06
R MAR	3.938E-04	1.162E-05	1.335E-06	9.257E-05	3.394E-05	1.032E-04	8.201E-06	1.681E-04	1.670E-04	1.784E-05	2.124E-05
Y MAR	3.293E-04	5.694E-06	1.085E-06	3.894E-06	1.565E-05	4.171E-05	7.395E-06	7.017E-05	1.365E-04	1.844E-05	1.040E-05
ENDOST	3.126E-04	9.211E-06	7.784E-07	2.800E-05	1.099E-05	3.356E-05	7.585E-06	3.024E-04	1.385E-04	1.245E-05	8.383E-06
SPLEEN	6.540E-04	1.980E-05	1.139E-05	4.426E-06	1.807E-05	2.695E-05	7.348E-06	1.969E-05	1.824E-04	1.764E-05	7.030E-05
TESTES	8.548E-06	2.968E-07	8.884E-08	1.096E-05	6.111E-06	5.310E-05	6.068E-06	1.515E-05	1.555E-04	2.928E-06	1.333E-06
THYMUS	1.159E-03	3.670E-05	4.264E-07	3.473E-07	1.983E-06	1.725E-06	8.296E-06	1.809E-05	2.007E-04	1.696E-05	2.117E-06
THYROID	3.651E-04	1.173E-05	1.544E-07	9.359E-03	5.688E-07	5.770E-07	6.257E-06	1.959E-05	1.704E-04	3.329E-06	8.665E-07
UTERUS	3.649E-05	1.162E-06	9.581E-07	2.741E-05	6.379E-05	1.718E-04	7.964E-06	1.720E-05	2.783E-04	7.285E-06	7.336E-06
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	THYROID	OTHER	TOTAL	PERCENT DOSE EQUIVALENT..							
				NUCLIDE	TE-132	I-132					
TARGET				TARGET							
LUNGS	7.772E-05	8.826E-05	2.787E-02	LUNGS	20.5	79.5					
RES LYM	7.772E-05	8.826E-05	6.863E-02	RES LYM	10.0	90.0					
S WALL	9.771E-06	1.215E-04	1.377E-03	S WALL	25.3	74.7					
SI WALL	1.925E-06	1.220E-04	1.460E-03	SI WALL	40.0	60.0					
UL I WALL	2.235E-06	1.044E-04	4.094E-03	UL I WALL	46.7	53.3					
LL I WALL	1.469E-06	1.390E-04	1.083E-02	LL I WALL	39.7	60.3					
T BODY	1.573E-04	2.119E-04	1.705E-03	T BODY	14.6	85.4					
ADREN	1.495E-05	1.342E-03	2.546E-03	ADREN	16.2	83.8					
BL WALL	1.009E-06	8.355E-04	1.311E-03	BL WALL	18.7	81.3					
KIDNEYS	6.634E-06	1.461E-04	3.378E-03	KIDNEYS	16.5	83.5					
LIVER	1.298E-05	8.520E-05	2.179E-03	LIVER	12.9	87.1					
OVARIES	1.747E-06	1.367E-03	2.415E-03	OVARIES	23.5	76.5					
PANCREAS	6.561E-06	1.569E-03	2.810E-03	PANCREAS	16.7	83.3					
BONE	5.231E-05	2.358E-04	1.195E-03	BONE	11.8	88.2					
R MAR	5.718E-05	1.094E-03	2.087E-03	R MAR	20.2	79.8					
Y MAR	2.614E-05	1.326E-03	1.998E-03	Y MAR	19.0	81.0					
ENDOST	5.231E-05	7.926E-04	1.684E-03	ENDOST	15.7	84.3					
SPLEEN	1.213E-05	1.572E-03	2.616E-03	SPLEEN	17.2	82.8					
TESTES	4.200E-07	1.385E-03	1.636E-03	TESTES	18.8	81.2					
THYMUS	2.504E-04	2.775E-03	4.552E-03	THYMUS	16.4	83.6					
THYROID	0.265	6.567E-05	0.266	THYROID	0.1	99.9					
UTERUS	1.666E-06	3.292E-03	3.914E-03	UTERUS	16.9	83.1					

TELLURIUM-132 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	TE-132	I-132
STOMACH	0.0	0.950
S INT	0.250	0.950
U L INT	0.0	0.950
L L INT	0.0	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
TARGET											
LUNGS	3.510E-06	2.143E-06	1.259E-05	9.707E-06	1.310E-05	3.454E-05	2.464E-04	6.108E-05	1.203E-05	1.161E-04	1.326E-04
RES LYM	3.510E-06	2.143E-06	1.259E-05	9.707E-06	1.310E-05	3.454E-05	2.464E-04	6.108E-05	1.203E-05	1.161E-04	1.326E-04
S WALL	5.805E-04	2.823E-05	1.394E-04	1.345E-04	1.131E-03	1.982E-05	2.610E-04	4.839E-05	4.117E-05	1.459E-05	1.825E-04
SI WALL	5.110E-06	1.273E-03	6.427E-04	7.379E-04	1.166E-05	2.855E-05	2.853E-04	3.984E-05	3.469E-05	2.881E-06	1.833E-04
ULI WALL	7.115E-06	2.78E-04	9.265E-03	3.356E-04	1.123E-05	2.599E-05	3.016E-04	6.126E-05	3.583E-05	3.338E-06	1.569E-04
LLI WALL	2.465E-06	5.991E-05	1.178E-04	2.844E-02	1.095E-05	3.522E-05	3.121E-04	7.591E-06	1.108E-05	2.194E-06	2.087E-04
T BODY	4.824E-06	2.548E-05	9.693E-05	2.095E-04	1.003E-05	6.379E-05	4.461E-04	6.798E-05	3.440E-05	2.349E-04	3.183E-04
ADREN	4.537E-06	1.055E-05	3.858E-05	3.776E-05	1.109E-05	6.213E-05	2.831E-04	1.219E-04	1.530E-04	2.232E-05	2.015E-03
BL WALL	5.09E-07	2.083E-05	7.572E-05	4.576E-04	1.095E-05	1.981E-05	3.270E-04	6.507E-06	5.229E-06	1.507E-06	1.255E-03
KIDNEYS	6.761E-06	2.365E-05	1.030E-04	7.088E-05	1.081E-05	3.645E-05	2.662E-04	9.297E-05	3.846E-03	9.907E-06	2.194E-04
LIVER	3.808E-06	1.422E-05	9.446E-05	2.744E-05	1.074E-05	2.523E-05	2.077E-04	1.626E-03	4.865E-05	1.939E-05	1.280E-04
OVARIES	9.589E-07	8.245E-05	4.090E-04	1.433E-03	1.115E-05	3.511E-05	3.655E-04	1.285E-05	1.691E-05	2.609E-06	2.052E-03
PANCREAS	3.888E-05	1.536E-05	7.767E-05	5.675E-05	1.202E-05	3.404E-05	3.292E-04	1.105E-04	8.303E-05	1.040E-05	2.357E-03
BONE	1.459E-06	7.527E-06	3.018E-05	9.225E-05	1.138E-05	5.539E-04	2.069E-04	1.864E-05	1.257E-05	7.811E-05	1.643E-03
R MAR	2.511E-06	2.492E-05	9.324E-05	2.836E-04	1.230E-05	2.513E-04	2.496E-04	2.671E-05	3.184E-05	8.538E-05	1.991E-03
Y MAR	2.038E-06	1.047E-05	4.298E-05	1.147E-04	1.109E-05	1.049E-04	2.040E-04	2.761E-05	1.559E-05	4.202E-05	1.190E-03
ENDOST	1.459E-06	7.527E-06	3.018E-05	9.225E-05	1.138E-05	4.520E-04	2.069E-04	1.864E-05	1.257E-05	7.811E-05	1.190E-03
SPLEEN	2.056E-05	1.182E-05	4.962E-05	7.409E-05	1.102E-05	2.943E-05	2.726E-04	2.641E-05	1.054E-04	1.812E-05	2.360E-03
TESTES	1.237E-07	2.912E-06	1.678E-05	1.460E-04	9.102E-06	2.264E-05	2.324E-04	4.384E-06	1.998E-06	6.272E-07	2.079E-03
THYMUS	5.412E-07	9.213E-07	5.447E-06	4.742E-05	1.244E-05	2.698E-05	3.000E-04	2.539E-05	3.173E-06	4.336E-04	4.168E-03
THYROID	2.319E-07	2.464E-07	1.562E-06	1.586E-05	9.386E-06	2.923E-05	2.546E-04	4.984E-06	1.299E-06	0.396	9.864E-05
UTERUS	1.547E-06	7.351E-05	1.752E-04	4.724E-04	1.195E-05	2.570E-05	4.159E-04	1.091E-05	1.100E-05	2.487E-06	4.944E-03

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	6.407E-04
RES LYM	6.407E-04
S WALL	1.461E-03
SI WALL	3.245E-03
ULI WALL	1.441E-02
LLI WALL	2.521E-02
T BODY	1.532E-03
ADREN	2.760E-03
BL WALL	2.180E-03
KIDNEYS	4.686E-03
LIVER	2.206E-03
OVARIES	4.422E-03
PANCREAS	3.125E-03
BONE	1.367E-03
R MAR	2.704E-03
Y MAR	2.567E-03
ENDOST	2.101E-03
SPLEEN	2.975E-03
TESTES	2.516E-03
THYMUS	4.581E-03
THYROID	0.397
UTERUS	6.145E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	TE-132	I-132
TARGET		
LUNGS	7.8	92.2
RES LYM	7.8	92.2
S WALL	48.2	51.6
SI WALL	47.6	52.4
ULI WALL	49.9	50.1
LLI WALL	40.3	59.7
T BODY	15.0	85.0
ADREN	17.7	82.3
BL WALL	20.8	79.2
KIDNEYS	17.6	82.4
LIVER	13.2	86.8
OVARIES	26.9	73.1
PANCREAS	19.0	81.0
BONE	11.3	88.7
R MAR	22.7	77.3
Y MAR	20.1	79.9
ENDOST	16.2	83.8
SPLEEN	18.7	81.3
TESTES	19.2	80.8
THYMUS	17.6	82.4
THYROID	0.1	99.9
UTERUS	18.1	81.9

IODINE-129

RADIONUCLIDE: I-129

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

ORGAN ABSORBED	NUCL IDE I-129	RADIOACTIVE HALF-LIFE (DAYS) 5.7300E 05	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
BONE	*I-129	0.121	0.669	0.243	11.3
MUSCLE	*I-129	0.679	0.363	0.243	11.3
LIVER	*I-129	4.360E-02	0.997	0.243	11.3
KIDNEYS	*I-129	7.520E-03	0.997	0.243	11.3
THYROID	I-129	0.328	0.997	0.243	11.3

S FACTORS (REM/MICROCJRIE-DAY) FOR I-129

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
LUNGS	0.303E-02	0.302E-02	0.991E-05	0.122E-05	0.149E-06	0.164E-07	0.545E-04	0.406E-05	0.122E-04	0.201E-04	0.166E-05	0.180E-05	0.441E-05
RES LYM	0.302E-02	0.183E 00	0.991E-05	0.122E-06	0.149E-06	0.164E-07	0.545E-04	0.406E-05	0.122E-04	0.201E-04	0.166E-05	0.180E-05	0.441E-05
S WALL	0.101E-04	0.101E-04	0.629E-02	0.180E-04	0.272E-04	0.649E-05	0.532E-04	0.138E-05	0.939E-05	0.555E-05	0.107E-04	0.237E-07	0.713E-05
SI WALL	0.926E-07	0.926E-07	0.885E-05	0.387E-02	0.181E-03	0.942E-04	0.555E-04	0.224E-05	0.905E-05	0.401E-05	0.866E-05	0.403E-09	0.392E-05
ULI WALL	0.142E-06	0.142E-06	0.203E-04	0.333E-03	0.589E-02	0.374E-04	0.557E-04	0.184E-05	0.102E-04	0.108E-04	0.824E-05	0.487E-09	0.367E-05
LLI WALL	0.175E-07	0.175E-07	0.258E-05	0.769E-04	0.221E-04	0.110E-01	0.547E-04	0.435E-05	0.980E-05	0.674E-07	0.940E-06	0.763E-10	0.735E-05
T BODY	0.545E-04	0.545E-04	0.278E-04	0.481E-04	0.353E-04	0.400E-04	0.532E-04	0.547E-04	0.513E-04	0.550E-04	0.542E-04	0.523E-04	0.474E-03
ADREN	0.928E-05	0.928E-05	0.518E-05	0.793E-06	0.171E-05	0.131E-06	0.514E-04	0.424E-05	0.131E-04	0.325E-04	0.114E-03	0.111E-07	0.263E-03
BL WALL	0.625E-06	0.625E-08	0.918E-07	0.764E-03	0.512E-05	0.338E-04	0.530E-04	0.499E-06	0.119E-04	0.380E-07	0.655E-07	0.184E-10	0.284E-05
KIDNEYS	0.171E-05	0.171E-05	0.109E-04	0.913E-05	0.780E-05	0.128E-05	0.522E-04	0.239E-05	0.107E-04	0.197E-04	0.101E-01	0.246E-08	0.705E-05
LIVER	0.172E-04	0.172E-04	0.537E-05	0.393E-05	0.951E-05	0.883E-07	0.541E-04	0.213E-05	0.680E-05	0.189E-02	0.194E-04	0.233E-07	0.284E-05
OVARIES	0.297E-07	0.297E-07	0.588E-06	0.779E-04	0.900E-04	0.212E-03	0.541E-04	0.465E-05	0.151E-04	0.352E-06	0.953E-06	0.683E-10	0.477E-03
PANCREAS	0.114E-04	0.114E-04	0.169E-03	0.361E-03	0.391E-05	0.821E-06	0.546E-04	0.193E-05	0.149E-04	0.210E-04	0.307E-04	0.403E-05	0.402E-04
BONE	0.129E-04	0.129E-04	0.401E-05	0.577E-05	0.626E-05	0.161E-04	0.637E-04	0.624E-03	0.386E-05	0.736E-05	0.957E-05	0.377E-05	0.500E-03
R MAR	0.151E-04	0.151E-04	0.503E-05	0.257E-04	0.245E-04	0.639E-04	0.672E-04	0.102E-03	0.196E-04	0.740E-05	0.255E-04	0.377E-05	0.500E-03
Y MAR	0.149E-04	0.149E-04	0.577E-05	0.949E-05	0.900E-05	0.219E-04	0.641E-04	0.765E-04	0.158E-04	0.118E-04	0.114E-04	0.199E-05	0.503E-03
ENDOST	0.129E-04	0.129E-04	0.401E-05	0.577E-05	0.626E-05	0.161E-04	0.638E-04	0.312E-03	0.386E-05	0.736E-05	0.957E-05	0.403E-05	0.313E-03
SPLEEN	0.155E-04	0.155E-04	0.644E-04	0.353E-05	0.243E-05	0.997E-06	0.544E-04	0.252E-05	0.115E-04	0.123E-05	0.810E-04	0.137E-07	0.520E-03
TESTES	0.579E-05	0.579E-09	0.684E-08	0.109E-05	0.111E-06	0.585E-05	0.500E-04	0.111E-05	0.701E-05	0.420E-08	0.646E-06	0.191E-11	0.491E-03
THYMUS	0.221E-04	0.221E-04	0.218E-06	0.587E-03	0.718E-08	0.122E-08	0.526E-04	0.108E-05	0.167E-04	0.323E-06	0.466E-07	0.151E-04	0.600E-05
THYROID	0.116E-05	0.116E-05	0.727E-08	0.402E-03	0.491E-09	0.984E-10	0.501E-04	0.248E-05	0.140E-04	0.114E-07	0.246E-06	0.147E 00	0.368E-05
UTERUS	0.235E-07	0.235E-07	0.375E-06	0.579E-04	0.186E-04	0.291E-04	0.543E-04	0.155E-05	0.177E-04	0.196E-06	0.576E-06	0.604E-10	0.619E-03

β^- decay (1.57E 7 Y 4)

Refer to Chapter 3 for explanation of the retention functions for iodine.

* Retention data derived from "other tissues" compartment.

IODINE-129 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
I-129	D	0.950	0.950	0.950	0.950						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSCLE	LIVER	KIDNEYS	THYROID
TARGET											
LUNGS	5.649E-04	1.086E-04	3.282E-09	8.082E-12	1.604E-12	1.630E-14	2.585E-06	4.358E-05	4.611E-06	6.647E-08	6.087E-05
RES LYM	5.631E-04	6.578E-03	3.282E-09	8.082E-12	1.604E-12	1.630E-14	2.585E-06	4.358E-05	4.611E-06	6.647E-08	6.087E-05
S WALL	1.883E-06	3.630E-07	2.083E-06	1.192E-09	2.928E-10	6.449E-12	8.785E-07	3.354E-05	1.273E-06	4.233E-07	8.015E-07
SI WALL	1.726E-08	3.328E-09	2.931E-09	2.564E-07	1.948E-09	9.360E-11	1.426E-06	3.233E-05	9.198E-07	3.402E-07	1.363E-08
ULI WALL	2.666E-08	5.140E-09	6.724E-09	2.206E-09	7.417E-08	3.716E-11	1.171E-06	3.644E-05	2.477E-06	3.260E-07	1.647E-08
LLI WALL	3.263E-09	6.290E-10	8.546E-10	5.094E-09	2.379E-10	1.093E-08	2.769E-06	3.501E-05	1.546E-08	3.719E-08	2.580E-09
T BODY	1.016E-05	1.959E-06	9.208E-09	3.186E-09	3.800E-10	3.975E-11	3.482E-05	1.833E-04	1.262E-05	2.144E-06	1.769E-03
ADREN	1.730E-06	3.336E-07	1.716E-09	5.253E-11	1.841E-11	1.302E-13	2.699E-06	4.680E-05	7.455E-06	4.510E-06	3.754E-07
BL WALL	1.165E-09	2.247E-10	3.041E-11	5.061E-13	5.512E-11	3.359E-11	3.177E-07	4.251E-05	8.717E-09	2.603E-09	6.223E-10
KIDNEYS	3.188E-07	6.147E-08	3.610E-09	6.048E-10	8.397E-11	1.272E-12	1.521E-06	3.822E-05	4.519E-06	3.996E-04	8.319E-08
LIVER	3.207E-06	6.182E-07	1.779E-09	3.961E-10	1.035E-10	8.774E-14	1.356E-06	2.429E-05	4.335E-04	7.675E-07	7.880E-07
OVARIES	5.537E-09	1.068E-09	1.948E-10	5.160E-09	9.688E-10	2.107E-10	2.960E-06	5.394E-05	8.074E-08	3.770E-08	2.310E-09
PANCREAS	2.125E-06	4.098E-07	5.598E-08	2.391E-10	4.209E-11	8.158E-13	1.229E-06	5.287E-05	4.817E-06	1.215E-06	3.368E-07
BONE	2.404E-06	4.637E-07	1.328E-09	4.485E-10	6.739E-11	1.600E-11	3.972E-04	1.379E-05	1.688E-06	3.786E-07	1.363E-04
R MAR	2.815E-06	5.428E-07	1.666E-09	1.769E-09	2.637E-10	6.350E-11	6.493E-05	7.002E-05	1.697E-06	1.009E-06	1.275E-04
Y MAR	2.778E-06	5.356E-07	1.911E-09	6.280E-13	9.688E-11	2.176E-11	5.061E-05	5.644E-05	2.707E-06	4.510E-07	6.730E-05
ENDOST	2.405E-06	4.637E-07	1.328E-09	4.485E-10	6.739E-11	1.600E-11	1.986E-04	1.379E-05	1.688E-06	3.786E-07	1.363E-04
SPLEEN	2.890E-06	5.571E-07	2.133E-08	2.338E-10	2.616E-11	9.907E-13	1.604E-06	4.108E-05	2.821E-07	3.205E-06	4.633E-07
TESTES	1.080E-10	2.081E-11	2.266E-12	7.221E-12	1.195E-12	5.813E-12	7.066E-07	2.504E-05	9.634E-10	2.556E-10	6.459E-11
THYMUS	4.120E-06	7.644E-07	7.221E-11	3.889E-13	7.729E-14	1.212E-15	6.875E-07	5.966E-05	7.409E-08	1.852E-09	5.107E-04
THYROID	2.163E-07	4.170E-08	2.408E-12	2.653E-14	5.178E-15	9.778E-17	1.579E-06	5.001E-05	2.615E-09	9.733E-11	4.97
UTERUS	4.381E-09	8.447E-10	1.242E-10	4.491E-09	2.002E-10	2.892E-11	9.867E-07	6.323E-05	4.496E-08	2.255E-08	2.043E-09
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	OTHER	TOTAL									
TARGET											
LUNGS	2.971E-06	7.882E-04									
RES LYM	2.971E-06	7.256E-03									
S WALL	4.803E-06	4.605E-05									
SI WALL	2.641E-06	3.795E-05									
ULI WALL	2.472E-06	4.304E-05									
LLI WALL	4.951E-06	4.280E-05									
T BODY	3.375E-05	2.647E-03									
ADREN	3.193E-04	3.832E-04									
BL WALL	1.772E-04	2.200E-04									
KIDNEYS	4.745E-06	4.491E-04									
LIVER	1.913E-06	4.665E-04									
OVARIES	3.213E-04	3.784E-04									
PANCREAS	3.494E-04	4.127E-04									
BONE	2.702E-05	5.793E-04									
R MAR	3.368E-04	6.053E-04									
Y MAR	3.388E-04	5.197E-04									
ENDOST	2.108E-04	5.645E-04									
SPLEEN	3.503E-04	4.004E-04									
TESTES	3.308E-04	3.565E-04									
THYMUS	4.042E-04	9.802E-04									
THYROID	2.479E-06	4.97									
UTERUS	4.170E-04	4.813E-04									

IODINE-129 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

I-129
STOMACH 0.950
S INT 0.950
U L INT 0.950
L L INT 0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSC.E	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET											
LUNGS	2.065E-08	5.083E-11	1.009E-11	1.025E-13	4.044E-06	6.819E-05	7.214E-06	1.040E-07	9.524E-05	4.648E-06	1.795E-04
RES LYM	2.065E-08	5.083E-11	1.009E-11	1.025E-13	4.044E-06	6.819E-05	7.214E-06	1.040E-07	9.524E-05	4.648E-06	1.795E-04
S WALL	1.310E-05	7.500E-09	1.842E-09	4.056E-11	1.375E-06	5.248E-05	1.992E-06	6.623E-07	1.254E-06	7.515E-06	7.839E-05
SI WALL	1.844E-08	1.613E-06	1.226E-08	5.888E-10	2.231E-06	5.058E-05	1.439E-06	5.324E-07	2.132E-08	4.132E-06	6.058E-05
ULI WALL	4.225E-08	1.388E-07	4.665E-07	2.338E-10	1.833E-06	5.701E-05	3.876E-06	5.101E-07	2.577E-08	3.868E-06	6.777E-05
LLI WALL	5.375E-09	3.204E-08	1.496E-09	6.875E-03	4.333E-06	5.477E-05	2.419E-08	5.819E-08	4.037E-09	7.747E-06	6.705E-05
T BODY	5.792E-08	2.004E-08	2.390E-09	2.500E-10	5.448E-05	2.867E-04	1.974E-05	3.355E-06	2.767E-03	5.280E-05	3.185E-03
ADREN	1.075E-08	3.304E-10	1.158E-10	8.188E-13	4.223E-06	7.322E-05	1.166E-05	7.057E-06	5.873E-07	4.996E-04	5.964E-04
BL WALL	1.913E-10	3.183E-09	3.467E-10	2.113E-10	4.970E-07	6.651E-05	1.364E-08	4.073E-09	9.736E-10	2.772E-04	3.442E-04
KIDNEYS	2.271E-08	3.804E-09	5.281E-10	8.000E-12	2.381E-06	5.981E-05	7.070E-06	6.252E-04	1.302E-07	7.431E-06	7.021E-04
LIVER	1.119E-08	2.492E-09	6.507E-10	5.519E-13	2.122E-06	3.801E-05	6.783E-04	1.201E-06	1.233E-06	2.993E-06	7.239E-04
OVARIES	1.225E-09	3.246E-08	6.094E-09	1.325E-09	4.632E-06	8.440E-05	1.263E-07	5.899E-08	3.614E-09	5.028E-04	5.920E-04
PANCREAS	3.521E-07	1.504E-09	2.647E-10	5.131E-12	1.922E-06	8.272E-05	7.537E-06	1.900E-06	5.270E-07	5.470E-04	6.420E-04
BONE	8.354E-09	2.821E-09	4.239E-10	1.006E-10	6.215E-04	2.157E-05	2.641E-06	5.924E-07	2.132E-04	4.237E-05	9.020E-04
R MAR	1.048E-08	1.113E-08	1.659E-09	3.994E-10	1.016E-04	1.095E-04	2.656E-06	1.578E-06	1.995E-04	5.270E-04	9.419E-04
Y MAR	1.202E-08	3.950E-09	6.094E-10	1.359E-10	7.918E-05	8.831E-05	4.235E-06	7.057E-07	1.053E-04	5.302E-04	8.079E-04
ENDOST	8.354E-09	2.821E-09	4.239E-10	1.006E-10	3.108E-04	2.157E-05	2.641E-06	5.924E-07	2.132E-04	3.299E-04	8.787E-04
SPLEEN	1.342E-07	1.471E-09	1.645E-10	6.231E-12	2.510E-06	6.428E-05	4.414E-07	5.014E-06	7.249E-07	5.481E-04	6.212E-04
TESTES	1.425E-11	4.542E-11	7.516E-12	3.656E-11	1.106E-06	3.918E-05	1.507E-09	3.999E-10	1.011E-10	5.175E-04	5.578E-04
THYMUS	4.542E-10	2.446E-12	4.862E-13	7.625E-15	1.076E-06	9.334E-05	1.159E-07	2.897E-09	7.990E-04	6.324E-04	1.526E-03
THYROID	1.515E-11	1.675E-13	3.257E-14	6.150E-15	2.470E-06	7.825E-05	4.091E-09	1.523E-10	7.78	3.879E-06	7.78
UTERUS	7.813E-10	2.825E-08	1.259E-09	1.819E-10	1.544E-06	9.893E-05	7.034E-08	3.526E-08	3.196E-09	6.524E-04	7.530E-04

IODINE-131

RADIONUCLIDE: I-131

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

ORGAN ABSORBED	NUCL IDE I-131	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
			0.669	0.243
			-3.270E-02	11.3
			0.363	117.
BONE	*I-131	0.121	0.997	0.243
			-4.870E-02	11.3
			5.140E-02	117.
MUSCLE	*I-131	0.679	0.997	0.243
			-4.870E-02	11.3
			5.140E-02	117.
LIVER	*I-131	4.360E-02	0.997	0.243
			-4.870E-02	11.3
			5.140E-02	117.
KIDNEYS	*I-131	7.520E-03	0.997	0.243
			-4.870E-02	11.3
			5.140E-02	117.
THYROID	I-131	0.328	4.900E-02	11.3
			0.951	117.

S FACTORS (REM/MICROCURIE-DAY) FOR I-131

TARGET ORGANS	SOURCE ORGANS													
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER	
LUNGS	0.107E-01	0.107E-01	0.121E-03	0.205E-03	0.215E-04	0.670E-05	0.241E-03	0.668E-04	0.902E-04	0.166E-03	0.616E-04	0.693E-04	0.632E-04	0.632E-04
RES LYM	0.107E-01	0.651E-03	0.121E-03	0.205E-03	0.215E-04	0.670E-05	0.241E-03	0.668E-04	0.902E-04	0.166E-03	0.616E-04	0.693E-04	0.632E-04	0.632E-04
S WALL	0.126E-03	0.126E-03	0.230E-01	0.239E-03	0.249E-03	0.121E-03	0.263E-03	0.395E-04	0.953E-04	0.130E-03	0.228E-03	0.636E-05	0.874E-04	0.874E-04
SI WALL	0.168E-04	0.168E-04	0.178E-03	0.143E-01	0.112E-02	0.620E-03	0.274E-03	0.537E-04	0.105E-03	0.110E-03	0.150E-03	0.839E-06	0.892E-04	0.892E-04
ULI WALL	0.221E-04	0.221E-04	0.230E-03	0.157E-02	0.250E-01	0.287E-03	0.267E-03	0.491E-04	0.110E-03	0.170E-03	0.195E-03	0.846E-06	0.767E-04	0.767E-04
LLI WALL	0.629E-05	0.629E-05	0.871E-04	0.470E-03	0.204E-03	0.395E-01	0.266E-03	0.680E-04	0.115E-03	0.195E-04	0.588E-04	0.838E-06	0.101E-03	0.101E-03
T BODY	0.238E-03	0.238E-03	0.162E-03	0.245E-03	0.196E-03	0.212E-03	0.236E-03	0.237E-03	0.235E-03	0.254E-03	0.254E-03	0.227E-03	0.218E-03	0.218E-03
ADREN	0.166E-03	0.166E-03	0.151E-03	0.935E-04	0.665E-04	0.327E-04	0.281E-03	0.104E-03	0.102E-03	0.337E-03	0.777E-03	0.125E-04	0.176E-02	0.176E-02
BL WALL	0.444E-05	0.444E-05	0.247E-04	0.205E-03	0.135E-03	0.407E-03	0.261E-03	0.389E-04	0.121E-03	0.179E-04	0.242E-04	0.513E-06	0.993E-03	0.993E-03
KIDNEYS	0.663E-04	0.663E-04	0.230E-03	0.211E-03	0.186E-03	0.602E-04	0.258E-03	0.629E-04	0.964E-04	0.257E-03	0.363E-01	0.329E-05	0.105E-03	0.105E-03
LIVER	0.164E-03	0.164E-03	0.136E-03	0.124E-03	0.171E-03	0.219E-04	0.255E-03	0.470E-04	0.748E-04	0.715E-02	0.266E-03	0.882E-05	0.605E-04	0.605E-04
OVARIES	0.961E-05	0.961E-05	0.351E-04	0.549E-03	0.816E-03	0.120E-02	0.257E-03	0.627E-04	0.135E-03	0.232E-04	0.992E-06	0.177E-02	0.177E-02	0.177E-02
PANCREAS	0.180E-03	0.180E-03	0.120E-02	0.140E-03	0.140E-03	0.493E-04	0.268E-03	0.667E-04	0.122E-03	0.297E-03	0.442E-03	0.572E-05	0.192E-02	0.192E-02
BONE	0.728E-04	0.728E-04	0.446E-04	0.593E-04	0.541E-04	0.778E-04	0.246E-03	0.206E-02	0.736E-04	0.546E-04	0.717E-04	0.537E-04	0.218E-03	0.218E-03
R MAR	0.922E-04	0.922E-04	0.782E-04	0.192E-03	0.155E-03	0.235E-03	0.258E-03	0.672E-03	0.999E-04	0.796E-04	0.184E-03	0.592E-04	0.142E-02	0.142E-02
Y MAR	0.762E-04	0.762E-04	0.619E-04	0.825E-04	0.759E-04	0.961E-04	0.238E-03	0.211E-03	0.796E-04	0.803E-04	0.687E-04	0.283E-04	0.174E-02	0.174E-02
ENDOST	0.728E-04	0.728E-04	0.446E-04	0.593E-04	0.541E-04	0.778E-04	0.246E-03	0.166E-02	0.736E-04	0.546E-04	0.717E-04	0.537E-04	0.954E-03	0.954E-03
SPL EN	0.150E-03	0.150E-03	0.660E-03	0.105E-03	0.894E-04	0.596E-04	0.260E-03	0.521E-04	0.996E-04	0.665E-04	0.576E-03	0.877E-05	0.191E-02	0.191E-02
TESTES	0.138E-05	0.138E-05	0.326E-05	0.243E-04	0.298E-04	0.136E-03	0.245E-03	0.407E-04	0.823E-04	0.740E-05	0.937E-05	0.176E-06	0.178E-02	0.178E-02
THYMUS	0.260E-03	0.260E-03	0.181E-04	0.867E-05	0.955E-05	0.346E-05	0.265E-03	0.440E-04	0.146E-03	0.700E-04	0.266E-04	0.294E-03	0.303E-02	0.303E-02
THYROID	0.722E-04	0.722E-04	0.954E-05	0.230E-05	0.247E-05	0.101E-05	0.232E-03	0.687E-04	0.921E-04	0.137E-04	0.574E-04	0.519E-00	0.502E-04	0.502E-04
UTERUS	0.663E-05	0.663E-05	0.590E-04	0.608E-03	0.311E-03	0.420E-03	0.270E-03	0.416E-04	0.143E-03	0.284E-04	0.635E-04	0.637E-06	0.308E-02	0.308E-02

β^- decay (8.04 D 1)

^{131}Xe daughter excluded from calculation (branching ratio = 0.011).

Refer to Chapter 3 for explanation of the retention functions for iodine.

* Retention data derived from "other tissues" compartment.

IODINE-131 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =9.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
I-131	D	0.950	0.950	0.950	0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	JLI CONT	LLI CONT	BONE	MUSCLE	LIVER	KIDNEYS	THYROID
TARGET											
LUNGS	1.682E-03	3.409E-04	4.000E-08	1.354E-09	2.333E-10	6.596E-12	2.847E-06	2.157E-05	2.550E-06	1.632E-07	1.504E-04
RES LYM	1.682E-03	2.074E-02	4.000E-08	1.354E-09	2.333E-10	6.596E-12	2.847E-06	2.157E-05	2.550E-06	1.632E-07	1.504E-04
S WALL	2.214E-05	4.014E-06	7.673E-06	1.572E-03	2.667E-09	1.191E-10	1.684E-06	2.279E-05	1.997E-06	6.040E-07	1.381E-05
SI WALL	2.955E-06	5.352E-07	5.884E-08	9.447E-07	1.200E-08	6.103E-10	2.289E-06	2.511E-05	1.689E-06	5.033E-07	1.821E-06
UL I WALL	3.687E-06	7.041E-07	7.603E-08	1.037E-07	2.679E-07	2.825E-10	2.093E-06	2.631E-05	2.611E-06	5.166E-07	1.836E-06
LL I WALL	1.106E-06	2.004E-07	2.879E-08	3.105E-03	2.185E-09	3.888E-08	2.898E-06	2.751E-05	2.995E-07	1.558E-07	1.819E-06
T BODY	4.186E-05	7.582E-06	5.355E-08	1.619E-03	2.099E-09	2.087E-10	1.010E-05	5.621E-05	3.901E-06	6.728E-07	4.927E-04
ADREN	2.920E-05	5.289E-06	4.991E-08	6.184E-09	7.123E-10	3.219E-11	4.432E-06	2.440E-05	5.176E-06	2.056E-06	2.713E-05
BL WALL	7.805E-07	1.415E-07	8.165E-09	1.354E-03	1.457E-09	4.007E-10	1.658E-06	2.894E-05	2.749E-07	6.437E-08	1.114E-06
KIDNEYS	1.166E-05	2.112E-06	7.603E-08	1.394E-03	1.992E-09	5.926E-11	2.681E-06	2.306E-05	3.947E-06	9.616E-05	7.141E-06
LIVER	2.685E-05	5.225E-06	4.496E-08	8.192E-09	1.832E-09	2.156E-11	2.003E-06	1.789E-05	1.098E-04	7.046E-07	2.132E-05
OVARIES	1.690E-06	3.062E-07	1.160E-08	4.238E-03	8.740E-09	1.181E-09	2.673E-06	3.229E-05	3.563E-07	2.172E-07	2.153E-06
PANCREAS	3.166E-05	5.735E-06	3.967E-07	9.249E-09	1.499E-09	4.853E-11	2.843E-06	2.918E-05	4.562E-06	1.171E-06	1.242E-05
BONE	1.280E-05	2.319E-06	1.474E-08	3.918E-09	5.794E-10	7.659E-11	8.780E-05	1.760E-05	8.386E-07	1.899E-07	1.166E-04
R MAR	1.622E-05	2.937E-06	2.585E-08	1.268E-09	1.767E-09	2.313E-10	2.864E-05	1.904E-05	1.233E-06	2.350E-07	6.143E-05
Y MAR	1.340E-05	2.428E-06	2.046E-08	5.450E-09	8.237E-10	9.460E-11	2.864E-05	2.389E-05	1.223E-06	4.874E-07	1.285E-04
ENDOST	1.280E-05	2.319E-06	1.474E-08	3.918E-09	5.794E-10	7.659E-11	8.780E-05	1.904E-05	1.233E-06	2.350E-07	6.143E-05
SPLEEN	2.638E-05	4.779E-06	2.182E-07	7.003E-09	9.468E-10	5.867E-11	2.221E-06	2.382E-05	1.021E-06	1.899E-07	1.166E-04
TESTES	2.427E-07	4.397E-08	1.078E-09	1.645E-09	3.192E-10	1.359E-10	1.735E-06	1.968E-05	1.137E-07	1.531E-06	1.904E-05
THYMUS	4.673E-05	8.283E-06	5.983E-09	5.728E-10	1.023E-10	3.406E-12	1.875E-06	3.492E-05	1.075E-06	2.482E-08	3.820E-07
THYROID	1.270E-05	2.300E-06	3.154E-09	1.519E-10	2.646E-11	9.943E-13	2.928E-06	2.203E-05	2.104E-07	1.521E-08	1.13
UTERUS	1.166E-06	2.112E-07	1.950E-08	4.017E-03	3.331E-09	4.135E-10	1.773E-06	3.420E-05	4.362E-07	1.682E-07	2.034E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	OTHER	TOTAL
TARGET		
LUNGS	0.0	2.401E-03
RES LYM	0.0	2.280E-02
S WALL	0.0	7.468E-05
SI WALL	0.0	3.592E-05
UL I WALL	0.0	3.641E-05
LL I WALL	0.0	3.409E-05
T BODY	0.0	6.131E-04
ADREN	0.0	5.774E-05
BL WALL	0.0	3.300E-05
KIDNEYS	0.0	1.469E-04
LIVER	0.0	1.859E-04
OVARIES	0.0	3.975E-05
PANCREAS	0.0	6.797E-05
BONE	0.0	2.381E-04
R MAR	0.0	2.019E-04
Y MAR	0.0	1.068E-04
ENDOST	0.0	2.211E-04
SPLEEN	0.0	7.502E-05
TESTES	0.0	2.223E-05
THYMUS	0.0	7.301E-04
THYROID	0.0	1.13
UTERUS	0.0	4.006E-05

IODINE-131 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

I-131
STOMACH 0.950
S INT 0.950
U L INT 0.950
L L INT 0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MJSC.E	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET											
LUNGS	2.520E-07	8.534E-09	1.451E-09	4.156E-11	4.583E-06	3.472E-05	4.103E-06	2.626E-07	2.421E-04	0.0	2.860E-04
RES LYN	2.520E-07	8.534E-09	1.451E-09	4.156E-11	4.583E-06	3.472E-05	4.103E-06	2.626E-07	2.421E-04	0.0	2.860E-04
S WALL	4.791E-05	9.508E-08	1.681E-08	7.506E-10	2.710E-06	3.669E-05	3.214E-06	9.721E-07	2.222E-05	0.0	1.138E-04
SI WALL	3.708E-07	5.953E-06	7.559E-08	3.846E-09	3.684E-06	4.042E-05	2.719E-06	8.101E-07	2.931E-06	0.0	5.697E-05
ULI WALL	4.791E-07	6.536E-07	1.687E-06	1.780E-09	3.358E-06	4.235E-05	4.202E-06	8.314E-07	2.956E-06	0.0	5.653E-05
LLI WALL	1.814E-07	1.557E-07	1.377E-08	2.450E-07	4.665E-06	4.427E-05	4.820E-07	2.507E-07	2.928E-06	0.0	5.323E-05
T BODY	3.374E-07	1.020E-07	1.323E-08	1.315E-09	1.625E-05	9.047E-05	6.279E-06	1.083E-06	7.931E-04	0.0	9.076E-04
ADREN	3.14E-07	3.897E-08	4.488E-09	2.028E-10	7.135E-06	3.927E-05	8.330E-06	3.308E-06	4.367E-05	0.0	1.021E-04
BL WALL	5.145E-08	8.534E-08	9.179E-09	2.525E-09	2.669E-06	4.658E-05	4.425E-07	1.036E-07	1.792E-06	0.0	5.174E-05
KIDNEYS	4.791E-07	8.784E-08	1.255E-08	3.734E-10	4.315E-06	3.711E-05	6.353E-06	1.548E-04	1.149E-05	0.0	2.146E-04
LIVER	2.833E-07	5.162E-08	1.154E-08	1.358E-10	3.224E-06	2.880E-05	1.767E-04	1.134E-06	3.431E-05	0.0	2.446E-04
OVARIES	7.311E-08	2.702E-07	5.507E-08	7.444E-09	4.301E-06	5.197E-05	5.735E-07	3.496E-07	3.466E-06	0.0	6.107E-05
PANCREAS	2.500E-06	5.828E-08	9.449E-09	3.058E-10	4.576E-06	4.697E-05	7.342E-06	1.884E-06	1.958E-05	0.0	8.332E-05
BONE	9.290E-08	2.469E-08	3.651E-09	4.826E-10	1.413E-04	2.833E-05	1.350E-06	3.057E-07	1.876E-04	0.0	3.590E-04
R MAR	1.629E-07	7.993E-08	1.114E-08	1.458E-09	4.510E-05	3.846E-05	1.968E-06	7.845E-07	2.068E-04	0.0	2.944E-04
Y MAR	1.289E-07	3.434E-08	5.190E-09	5.951E-10	1.447E-05	3.064E-05	1.985E-06	3.782E-07	9.887E-05	0.0	1.465E-04
ENDOST	9.290E-08	2.469E-08	3.651E-09	4.826E-10	1.139E-04	2.833E-05	1.350E-06	3.057E-07	1.876E-04	0.0	3.316E-04
SPLEEN	1.37E-06	4.413E-08	5.966E-09	3.697E-10	3.574E-06	3.834E-05	1.644E-06	2.464E-06	3.064E-05	0.0	7.809E-05
TESTES	6.790E-09	1.037E-08	2.011E-09	8.550E-10	2.792E-06	3.168E-05	1.829E-07	3.995E-08	6.149E-07	0.0	3.533E-05
THYMUS	3.77E-08	3.609E-09	6.445E-10	2.145E-11	3.018E-06	5.620E-05	1.730E-06	8.868E-08	1.027E-03	0.0	1.088E-03
THYROID	1.987E-08	9.575E-10	1.667E-10	6.265E-12	4.713E-06	3.546E-05	3.387E-07	2.447E-08	1.81	0.0	1.81
UTERUS	1.229E-07	2.531E-07	2.099E-08	2.605E-09	2.854E-06	5.505E-05	7.020E-07	2.707E-07	3.274E-06	0.0	6.255E-05

RADIONUCLIDE: I-132

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
I-132	5.5800E-02	1.00	0.669 -3.270E-02 0.363 0.997	0.243 11.3 117. 0.243
BONE	* I-132	0.121	-4.870E-02 5.140E-02 0.997	11.3 117. 0.243
MUSCLE	* I-132	0.679	-4.870E-02 5.140E-02 0.997	11.3 117. 0.243
LIVER	* I-132	4.360E-02	-4.870E-02 5.140E-02 0.997	11.3 117. 0.243
KIDNEYS	* I-132	7.520E-03	-4.870E-02 5.140E-02 0.997	11.3 117. 0.243
THYROID	I-132	0.328	-4.870E-02 5.140E-02 4.900E-02 0.951	11.3 117. 11.3 117.

S FACTORS (REM/MICROCURIE-DAY) FOR I-132

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CONT	SI CONT	ILI CONT	LLI CONT	EXCRET.	BONE	MUSCLE	LIVER	KIDNEYS	THYROID	OTHER
LUNGS	0.311E-01	0.311E-01	0.699E-03	0.135E-03	0.150E-03	0.540E-04	0.935E-03	0.385E-03	0.515E-03	0.935E-03	0.375E-03	0.431E-03	0.370E-03
RES LYM	0.311E-01	0.171E-01	0.699E-03	0.135E-03	0.150E-03	0.540E-04	0.935E-03	0.385E-03	0.515E-03	0.935E-03	0.375E-03	0.431E-03	0.370E-03
SI WALL	0.737E-03	0.737E-03	0.710E-01	0.133E-02	0.137E-02	0.647E-03	0.103E-02	0.221E-03	0.546E-03	0.749E-03	0.127E-02	0.542E-04	0.507E-03
ILI WALL	0.119E-03	0.119E-03	0.992E-03	0.437E-03	0.612E-02	0.341E-02	0.112E-02	0.319E-03	0.597E-03	0.615E-03	0.107E-02	0.107E-04	0.513E-03
LLI WALL	0.334E-04	0.334E-04	0.517E-03	0.867E-02	0.747E-01	0.157E-02	0.110E-02	0.290E-03	0.631E-03	0.946E-03	0.111E-02	0.124E-04	0.438E-03
T BODY	0.923E-03	0.923E-03	0.794E-03	0.104E-02	0.313E-03	0.946E-03	0.926E-03	0.923E-03	0.923E-03	0.102E-02	0.102E-02	0.872E-03	0.843E-03
ADREN	0.907E-03	0.907E-03	0.879E-03	0.472E-03	0.437E-03	0.193E-03	0.110E-02	0.658E-03	0.592E-03	0.187E-02	0.475E-02	0.829E-04	0.513E-02
BL WALL	0.334E-04	0.334E-04	0.185E-03	0.110E-02	0.775E-03	0.210E-02	0.111E-02	0.222E-03	0.684E-03	0.104E-03	0.168E-03	0.560E-05	0.324E-02
KIDNEYS	0.357E-03	0.357E-03	0.126E-02	0.121E-02	0.108E-02	0.347E-03	0.105E-02	0.408E-03	0.557E-03	0.143E-02	0.110E-02	0.368E-04	0.614E-03
LIVER	0.917E-03	0.917E-03	0.774E-03	0.711E-03	0.958E-03	0.147E-03	0.105E-02	0.282E-03	0.435E-03	0.240E-01	0.150E-02	0.720E-04	0.361E-03
OVARIES	0.646E-04	0.646E-04	0.385E-03	0.360E-02	0.383E-02	0.631E-02	0.973E-03	0.394E-03	0.764E-03	0.201E-03	0.533E-03	0.969E-05	0.524E-02
PANCREAS	0.964E-03	0.964E-03	0.649E-02	0.781E-03	0.756E-03	0.287E-03	0.103E-02	0.379E-03	0.698E-03	0.172E-02	0.257E-02	0.386E-04	0.605E-02
BONE	0.382E-03	0.382E-03	0.230E-03	0.302E-03	0.272E-03	0.395E-03	0.934E-03	0.497E-02	0.434E-03	0.280E-03	0.375E-03	0.290E-03	0.301E-02
R MAR	0.482E-03	0.482E-03	0.391E-03	0.942E-03	0.799E-03	0.117E-02	0.991E-03	0.280E-02	0.518E-03	0.403E-03	0.945E-03	0.317E-03	0.397E-02
Y MAR	0.402E-03	0.402E-03	0.319E-03	0.416E-03	0.386E-03	0.486E-03	0.897E-03	0.115E-02	0.424E-03	0.414E-03	0.466E-03	0.156E-03	0.503E-02
ENDOST	0.382E-03	0.382E-03	0.230E-03	0.302E-03	0.272E-03	0.395E-03	0.934E-03	0.497E-02	0.434E-03	0.280E-03	0.375E-03	0.290E-03	0.301E-02
SPLEEN	0.824E-03	0.824E-03	0.363E-02	0.610E-03	0.512E-03	0.392E-03	0.104E-02	0.330E-03	0.570E-03	0.414E-03	0.319E-02	0.673E-04	0.606E-02
TESTES	0.125E-04	0.125E-04	0.407E-04	0.182E-03	0.209E-03	0.693E-03	0.106E-02	0.253E-03	0.487E-03	0.710E-04	0.642E-04	0.233E-05	0.530E-02
THYMUS	0.153E-02	0.153E-02	0.213E-03	0.599E-04	0.650E-04	0.269E-04	0.929E-03	0.304E-03	0.617E-03	0.405E-03	0.101E-03	0.161E-02	0.106E-01
THYROID	0.452E-03	0.452E-03	0.650E-04	0.194E-04	0.206E-04	0.952E-05	0.946E-03	0.325E-03	0.532E-03	0.770E-04	0.422E-04	0.147E-01	0.269E-03
UTERUS	0.467E-04	0.467E-04	0.367E-03	0.327E-02	0.179E-02	0.215E-02	0.116E-02	0.288E-03	0.869E-03	0.171E-03	0.335E-03	0.424E-05	0.132E-01

 β^- decay (2.30 H 3)

Refer to Chapter 3 for explanation of the retention functions for iodine.

* Retention data derived from "other tissues" compartment.

IODINE-132 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =9.000E-02		D5 =0.249					
		G.I. UPTAKE FRACTIONS									
SOLUBILITY CLASS		STOMACH	S INT	U L INT	L L INT						
I-132	D	0.950	0.950	0.950	0.950						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSCLE	LIVER	KIDNEYS	THYROID
TARGET											
LUNGS	1.067E-03	2.890E-05	2.032E-07	7.402E-03	1.118E-09	2.727E-11	1.764E-06	1.324E-05	1.544E-06	1.079E-07	7.446E-06
RES LYM	1.067E-03	1.589E-03	2.032E-07	7.402E-03	1.118E-09	2.727E-11	1.764E-06	1.324E-05	1.544E-06	1.079E-07	7.446E-06
S WALL	2.629E-05	6.849E-07	2.064E-05	7.293E-03	1.021E-08	3.267E-10	1.013E-06	1.404E-05	1.237E-06	3.617E-07	9.364E-07
SI WALL	4.683E-06	1.106E-07	2.884E-07	2.395E-05	4.560E-08	1.722E-09	1.462E-06	1.535E-05	1.016E-06	3.047E-07	1.849E-07
UL I WALL	5.422E-06	1.468E-07	3.575E-07	4.754E-07	5.565E-07	7.929E-10	1.329E-06	1.623E-05	1.562E-06	3.161E-07	2.142E-07
LL I WALL	1.146E-06	3.104E-08	1.503E-07	1.426E-07	8.940E-09	5.808E-08	1.796E-06	1.679E-05	1.982E-07	9.883E-08	1.408E-07
T BODY	3.167E-05	6.578E-07	2.308E-07	5.703E-03	6.780E-09	4.777E-10	4.230E-06	2.384E-05	1.684E-06	2.905E-07	1.507E-05
ADREN	3.112E-05	6.429E-07	2.555E-07	2.588E-03	3.256E-09	9.747E-11	3.199E-06	1.522E-05	3.088E-06	1.353E-06	1.432E-06
BL WALL	1.146E-06	3.104E-08	5.378E-08	6.032E-03	5.774E-09	1.061E-09	1.017E-06	1.759E-05	1.717E-07	4.785E-08	9.675E-08
KIDNEYS	1.362E-05	3.689E-07	3.663E-07	6.635E-03	9.046E-09	1.752E-10	1.870E-06	1.432E-05	2.361E-06	3.133E-05	6.358E-07
LIVER	3.147E-05	6.522E-07	2.250E-07	3.899E-03	7.137E-09	7.424E-11	1.292E-06	1.119E-05	3.963E-05	4.272E-07	1.244E-06
OVARIES	2.617E-06	6.003E-08	1.119E-07	1.974E-07	2.931E-08	3.187E-09	1.806E-06	1.965E-05	3.319E-07	1.518E-07	1.674E-07
PANCREAS	3.306E-05	8.959E-07	1.887E-06	4.282E-03	5.632E-09	1.449E-10	1.737E-06	1.769E-05	2.840E-06	7.319E-07	6.669E-07
BONE	1.311E-05	3.550E-07	6.686E-08	1.656E-03	2.026E-09	1.995E-10	2.763E-05	1.116E-05	4.624E-07	1.068E-07	5.010E-06
R MAR	1.654E-05	4.479E-07	1.137E-07	5.165E-03	5.953E-09	5.909E-10	1.283E-05	1.332E-05	6.655E-07	2.691E-07	5.477E-06
Y MAR	1.379E-05	3.736E-07	9.273E-08	2.281E-03	2.876E-09	2.454E-10	5.270E-06	1.090E-05	6.836E-07	1.327E-07	2.695E-06
ENDOST	1.311E-05	3.550E-07	6.686E-08	1.656E-03	2.026E-09	1.995E-10	2.278E-05	1.116E-05	4.624E-07	1.068E-07	5.010E-06
SPLEEN	2.827E-05	7.658E-07	1.055E-06	3.345E-03	3.815E-09	1.980E-10	1.512E-06	1.466E-05	6.836E-07	9.085E-07	1.163E-06
TESTES	4.285E-07	1.162E-08	1.183E-08	9.979E-03	1.557E-09	3.500E-10	1.159E-06	1.252E-05	1.172E-07	1.831E-08	4.026E-08
THYMUS	5.250E-05	1.422E-06	6.192E-08	3.284E-03	4.843E-10	1.358E-11	1.393E-06	1.587E-05	6.688E-07	2.877E-08	2.782E-05
THYROID	1.686E-05	4.572E-07	1.889E-08	1.054E-03	1.535E-10	4.808E-12	1.489E-06	1.368E-05	1.271E-07	1.202E-08	2.540E-02
UTERUS	1.671E-06	4.526E-08	1.067E-07	1.793E-07	1.334E-08	1.086E-09	1.320E-06	2.235E-05	2.824E-07	9.541E-08	1.596E-07
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	OTHER	TOTAL									
TARGET											
LUNGS	0.0	1.120E-03									
RES LYM	0.0	2.681E-03									
S WALL	0.0	6.429E-05									
SI WALL	0.0	2.525E-05									
UL I WALL	0.0	2.661E-05									
LL I WALL	0.0	2.056E-05									
T BODY	0.0	7.793E-05									
ADREN	0.0	5.655E-05									
BL WALL	0.0	2.022E-05									
KIDNEYS	0.0	6.495E-05									
LIVER	0.0	8.637E-05									
OVARIES	0.0	2.472E-05									
PANCREAS	0.0	5.558E-05									
BONE	0.0	5.792E-05									
R MAR	0.0	4.572E-05									
Y MAR	0.0	3.397E-05									
ENDOST	0.0	5.306E-05									
SPLEEN	0.0	4.506E-05									
TESTES	0.0	1.432E-05									
THYMUS	0.0	9.976E-05									
THYROID	0.0	2.543E-02									
UTERUS	0.0	2.622E-05									

IODINE-132 CONTINUED

CASE 2. . INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

I-132
STOMACH 0.950
S INT 0.950
U L INT 0.950
L L INT 0.950

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	MUSC_E	LIVER	KIDNEYS	THYROID	OTHER	TOTAL
TARGET											
LUNGS	1.435E-06	5.226E-08	7.890E-09	1.925E-10	4.540E-06	3.408E-05	3.973E-06	2.778E-07	1.916E-05	0.0	6.353E-05
RES LYM	1.435E-06	5.226E-08	7.890E-09	1.925E-10	4.540E-06	3.408E-05	3.973E-06	2.778E-07	1.916E-05	0.0	6.353E-05
S WALL	1.457E-06	5.149E-07	7.207E-08	2.307E-09	2.606E-06	3.613E-05	3.183E-06	9.308E-07	2.410E-06	0.0	1.916E-04
SI WALL	2.036E-06	1.692E-05	3.219E-07	1.216E-08	3.762E-06	3.951E-05	2.613E-06	7.842E-07	4.757E-07	0.0	6.643E-05
ULI WALL	2.524E-06	3.356E-06	3.929E-06	5.598E-09	3.420E-06	4.176E-05	4.020E-06	8.135E-07	5.513E-07	0.0	6.038E-05
LLI WALL	1.061E-06	1.007E-06	6.312E-08	4.100E-07	4.623E-06	4.321E-05	5.099E-07	2.543E-07	3.624E-07	0.0	5.150E-05
T BODY	1.630E-06	4.026E-07	4.787E-08	3.373E-09	1.088E-05	6.135E-05	4.334E-06	7.476E-07	3.877E-05	0.0	1.182E-04
ADREN	1.804E-06	1.827E-07	2.299E-08	6.882E-10	8.232E-06	3.918E-05	7.946E-06	3.481E-06	3.686E-06	0.0	6.453E-05
BL WALL	3.797E-07	4.259E-07	4.077E-08	7.488E-09	2.618E-06	4.527E-05	4.419E-07	1.231E-07	2.490E-07	0.0	4.955E-05
KIDNEYS	2.586E-06	4.684E-07	5.681E-08	1.237E-09	4.812E-06	3.686E-05	6.077E-06	8.062E-05	1.636E-06	0.0	1.331E-04
LIVER	1.585E-06	2.753E-07	5.039E-08	5.241E-10	3.326E-06	2.879E-05	1.020E-04	1.099E-06	3.201E-06	0.0	1.403E-04
OVARIES	7.902E-07	1.394E-06	1.999E-07	2.250E-08	4.646E-06	5.056E-05	8.541E-07	3.906E-07	4.308E-07	0.0	5.929E-05
PANCREAS	1.332E-05	3.024E-07	3.977E-08	1.023E-09	4.470E-06	4.553E-05	7.309E-06	1.884E-06	1.716E-06	0.0	7.457E-05
BONE	4.721E-07	1.169E-07	1.431E-08	1.408E-09	7.111E-05	2.872E-05	1.190E-06	2.748E-07	1.289E-05	0.0	1.148E-04
R MAR	8.025E-07	3.647E-07	4.203E-08	4.172E-09	3.302E-05	3.428E-05	1.713E-06	6.926E-07	1.409E-05	0.0	8.501E-05
Y MAR	6.547E-07	1.610E-07	2.030E-08	1.733E-09	1.356E-05	2.806E-05	1.759E-06	3.415E-07	6.936E-06	0.0	5.150E-05
ENDOST	4.721E-07	1.169E-07	1.431E-08	1.408E-09	5.861E-05	2.872E-05	1.190E-06	2.748E-07	1.289E-05	0.0	1.023E-04
SPLEEN	7.450E-06	2.362E-07	2.693E-08	1.398E-09	3.892E-06	3.772E-05	1.759E-06	2.338E-06	2.992E-06	0.0	5.642E-05
TESTES	8.353E-08	7.046E-08	1.099E-08	2.471E-09	2.984E-06	3.223E-05	3.017E-07	4.713E-08	1.036E-07	0.0	3.583E-05
THYMUS	4.372E-07	2.319E-08	3.419E-09	9.592E-11	3.585E-06	4.083E-05	1.721E-06	7.403E-08	7.158E-05	0.0	1.183E-04
THYROID	1.334E-07	7.510E-09	1.084E-09	3.394E-11	3.833E-06	3.521E-05	3.272E-07	3.093E-08	6.536E-02	0.0	6.540E-02
UTERUS	7.532E-07	1.266E-06	9.416E-08	7.656E-09	3.396E-06	5.751E-05	7.266E-07	2.455E-07	4.108E-07	0.0	6.441E-05

RADIONUCLIDE: I-133

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE			
NUCLIDE		(DAYS)	
I-133		0.8670	
XE-133M		2.190	
XE-133		5.240	
BRANCHING RATIOS:			
FROM		TO	
I-133		XE-133M	
I-133		XE-133	
XE-133M		XE-133	
		FRACTION	
		2.9000E-02	
		0.9710	
		1.000	
		BLOOD	
		TRANSFER	
		FRACTION	
		F2-PRIME	
ORGAN		COMPARTMENT	
ABSORBED		DEPOSITION	
I-133		FRACTION	
		0.669	
		-3.270E-02	
		0.363	
		117.	
		1.00	
		8.330E-02	
		1.00	
		8.330E-02	
THYROID		4.900E-02	
		11.3	
		117.	
		0.951	
		1.00	
		8.330E-02	
		1.00	
		8.330E-02	

S FACTORS (REM/MICROCURIE-DAY) FOR I-133

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.225E-01	0.225E-01	0.195E-03	0.360E-04	0.380E-04	0.122E-04	0.115E-03	0.136E-03
RES LYM	0.225E-01	0.140E-01	0.195E-03	0.360E-04	0.380E-04	0.122E-04	0.115E-03	0.136E-03
S WALL	0.197E-03	0.197E-03	0.474E-01	0.360E-03	0.379E-03	0.185E-03	0.142E-04	0.140E-03
SI WALL	0.306E-04	0.306E-04	0.276E-03	0.295E-01	0.171E-02	0.939E-03	0.161E-05	0.152E-03
ULI WALL	0.416E-04	0.416E-04	0.345E-03	0.239E-02	0.521E-01	0.441E-03	0.202E-05	0.158E-03
LLI WALL	0.860E-05	0.860E-05	0.137E-03	0.712E-03	0.321E-03	0.830E-01	0.184E-05	0.160E-03
T BODY	0.453E-03	0.453E-03	0.277E-03	0.446E-03	0.345E-03	0.378E-03	0.438E-03	0.449E-03
ADREN	0.255E-03	0.255E-03	0.232E-03	0.130E-03	0.111E-03	0.526E-04	0.216E-04	0.710E-03
BL WALL	0.833E-05	0.833E-05	0.493E-04	0.339E-03	0.204E-03	0.589E-03	0.121E-05	0.438E-03
KIDNEYS	0.111E-03	0.111E-03	0.347E-03	0.334E-03	0.290E-03	0.900E-04	0.717E-05	0.724E-03
LIVER	0.251E-03	0.251E-03	0.214E-03	0.192E-03	0.261E-03	0.381E-04	0.179E-04	0.733E-03
OVARIES	0.168E-04	0.168E-04	0.728E-04	0.946E-03	0.122E-02	0.169E-02	0.219E-05	0.711E-03
PANCREAS	0.284E-03	0.284E-03	0.182E-02	0.217E-03	0.195E-03	0.787E-04	0.888E-05	0.754E-03
BONE	0.106E-03	0.106E-03	0.636E-04	0.828E-04	0.758E-04	0.109E-03	0.798E-04	0.662E-03
R MAR	0.133E-03	0.133E-03	0.109E-03	0.261E-03	0.225E-03	0.327E-03	0.880E-04	0.698E-03
Y MAR	0.111E-03	0.111E-03	0.884E-04	0.114E-03	0.108E-03	0.135E-03	0.426E-04	0.667E-03
ENDOST	0.106E-03	0.106E-03	0.636E-04	0.828E-04	0.758E-04	0.109E-03	0.798E-04	0.800E-03
SPLEEN	0.225E-03	0.225E-03	0.100E-02	0.167E-03	0.134E-03	0.102E-03	0.155E-04	0.713E-03
TESTES	0.290E-05	0.290E-05	0.588E-05	0.426E-04	0.553E-04	0.207E-03	0.465E-06	0.652E-03
THYMUS	0.399E-03	0.399E-03	0.376E-04	0.154E-04	0.168E-04	0.662E-05	0.456E-03	0.777E-03
THYROID	0.130E-03	0.130E-03	0.168E-04	0.464E-05	0.495E-05	0.218E-05	0.110E-01	0.124E-03
UTERUS	0.115E-04	0.115E-04	0.970E-04	0.910E-03	0.478E-03	0.589E-03	0.208E-05	0.840E-03

β⁻ decay (20.8 H I)

Refer to Chapter 3 for explanation of the retention functions for iodine and xenon daughter.

IODINE-133 CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR XE-133M

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.100E-01	0.999E-02	0.143E-04	0.121E-05	0.131E-05	0.397E-06	0.534E-05	0.128E-04
RES LYM	0.999E-02	0.644E-00	0.143E-04	0.121E-05	0.131E-05	0.397E-06	0.534E-05	0.128E-04
S WALL	0.151E-04	0.151E-04	0.203E-01	0.284E-04	0.354E-04	0.122E-04	0.226E-06	0.113E-04
SI WALL	0.960E-06	0.960E-06	0.173E-04	0.126E-01	0.202E-03	0.108E-03	0.668E-07	0.113E-04
ULI WALL	0.120E-05	0.120E-05	0.295E-04	0.343E-03	0.228E-01	0.452E-04	0.491E-07	0.122E-04
LLI WALL	0.488E-06	0.488E-06	0.735E-05	0.861E-04	0.287E-04	0.368E-01	0.355E-07	0.124E-04
T BODY	0.156E-03	0.156E-03	0.608E-04	0.132E-03	0.865E-04	0.103E-03	0.154E-03	0.153E-03
ADREN	0.171E-04	0.171E-04	0.135E-04	0.733E-05	0.515E-05	0.212E-05	0.736E-06	0.255E-03
BL WALL	0.237E-06	0.237E-06	0.112E-05	0.169E-04	0.127E-04	0.517E-04	0.192E-07	0.135E-03
KIDNEYS	0.504E-05	0.504E-05	0.226E-04	0.195E-04	0.172E-04	0.499E-05	0.177E-06	0.258E-03
LIVER	0.229E-04	0.229E-04	0.122E-04	0.122E-04	0.179E-04	0.132E-05	0.550E-06	0.260E-03
OVARIES	0.564E-06	0.564E-06	0.222E-05	0.999E-04	0.115E-03	0.238E-03	0.413E-07	0.255E-03
PANCREAS	0.189E-04	0.189E-04	0.198E-03	0.112E-04	0.129E-04	0.360E-05	0.470E-06	0.262E-03
BONE	0.140E-04	0.140E-04	0.582E-05	0.886E-05	0.810E-05	0.167E-04	0.628E-05	0.255E-03
R MAR	0.168E-04	0.168E-04	0.887E-05	0.321E-04	0.288E-04	0.616E-04	0.644E-05	0.269E-03
Y MAR	0.156E-04	0.156E-04	0.820E-05	0.124E-04	0.116E-04	0.221E-04	0.321E-05	0.264E-03
ENDOST	0.140E-04	0.140E-04	0.582E-05	0.886E-05	0.810E-05	0.167E-04	0.628E-05	0.314E-03
SPLEEN	0.209E-04	0.209E-04	0.883E-04	0.918E-05	0.754E-05	0.403E-05	0.541E-06	0.258E-03
TESTES	0.621E-07	0.621E-07	0.277E-06	0.162E-05	0.155E-05	0.128E-04	0.543E-08	0.250E-03
THYMUS	0.327E-04	0.327E-04	0.116E-05	0.492E-06	0.548E-06	0.179E-06	0.288E-04	0.269E-03
THYROID	0.455E-05	0.455E-05	0.549E-06	0.110E-06	0.120E-06	0.434E-07	0.495E-00	0.124E-04
UTERUS	0.438E-06	0.438E-06	0.386E-05	0.878E-04	0.329E-04	0.500E-04	0.386E-07	0.269E-03

S FACTORS (REM/MICROCURIE-DAY) FOR XE-133

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.721E-02	0.720E-02	0.186E-04	0.111E-05	0.141E-05	0.354E-06	0.695E-05	0.149E-04
RES LYM	0.720E-02	0.462E-00	0.186E-04	0.111E-05	0.141E-05	0.354E-06	0.695E-05	0.149E-04
S WALL	0.188E-04	0.188E-04	0.147E-01	0.357E-04	0.436E-04	0.155E-04	0.315E-06	0.132E-04
SI WALL	0.953E-06	0.953E-06	0.232E-04	0.916E-02	0.238E-03	0.126E-03	0.214E-07	0.137E-04
ULI WALL	0.119E-05	0.119E-05	0.374E-04	0.375E-03	0.165E-01	0.519E-04	0.446E-07	0.146E-04
LLI WALL	0.232E-06	0.232E-06	0.870E-05	0.101E-03	0.354E-04	0.265E-01	0.101E-07	0.150E-04
T BODY	0.119E-03	0.119E-03	0.521E-04	0.104E-03	0.712E-04	0.829E-04	0.116E-03	0.116E-03
ADREN	0.230E-04	0.230E-04	0.215E-04	0.470E-05	0.643E-05	0.159E-05	0.448E-06	0.189E-03
BL WALL	0.136E-06	0.136E-06	0.150E-05	0.207E-04	0.162E-04	0.681E-04	0.412E-08	0.104E-03
KIDNEYS	0.596E-05	0.596E-05	0.298E-04	0.259E-04	0.233E-04	0.534E-05	0.129E-06	0.193E-03
LIVER	0.276E-04	0.276E-04	0.160E-04	0.152E-04	0.227E-04	0.119E-05	0.421E-06	0.165E-03
OVARIES	0.444E-06	0.444E-06	0.380E-05	0.128E-03	0.133E-03	0.256E-03	0.110E-07	0.190E-03
PANCREAS	0.248E-04	0.248E-04	0.241E-03	0.147E-04	0.159E-04	0.444E-05	0.237E-06	0.157E-03
BONE	0.215E-04	0.215E-04	0.963E-05	0.145E-04	0.132E-04	0.248E-04	0.106E-04	0.152E-03
R MAR	0.262E-04	0.262E-04	0.150E-04	0.533E-04	0.469E-04	0.900E-04	0.109E-04	0.212E-03
Y MAR	0.236E-04	0.236E-04	0.138E-04	0.205E-04	0.191E-04	0.327E-04	0.528E-05	0.205E-03
ENDOST	0.215E-04	0.215E-04	0.963E-05	0.145E-04	0.132E-04	0.248E-04	0.106E-04	0.223E-03
SPLEEN	0.250E-04	0.250E-04	0.114E-03	0.110E-04	0.107E-04	0.560E-05	0.437E-06	0.163E-03
TESTES	0.219E-07	0.219E-07	0.189E-06	0.141E-05	0.126E-05	0.148E-04	0.783E-09	0.183E-03
THYMUS	0.436E-04	0.436E-04	0.209E-05	0.274E-06	0.376E-06	0.802E-07	0.388E-04	0.201E-03
THYROID	0.578E-05	0.578E-05	0.288E-06	0.395E-07	0.443E-07	0.128E-07	0.355E-00	0.138E-04
UTERUS	0.393E-06	0.393E-06	0.387E-05	0.114E-03	0.602E-04	0.668E-04	0.101E-07	0.207E-03

IODINE-133 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
I-133	D	0.950	0.950	0.950	0.950				
XE-133M	GAS	0.0	0.0	0.0	0.0				
XE-133	GAS	0.0	0.0	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER	TOTAL
TARGET									
LUNGS	2.786E-03	3.488E-04	6.373E-08	2.395E-09	6.472E-10	1.170E-10	2.481E-05	1.374E-05	3.173E-03
RES LYM	2.786E-03	2.175E-02	6.373E-08	2.395E-09	6.472E-10	1.170E-10	2.481E-05	1.374E-05	2.457E-02
S WALL	2.392E-05	2.908E-06	1.565E-05	2.539E-08	1.177E-08	4.726E-09	3.062E-06	1.414E-05	5.572E-05 *
SI WALL	3.695E-06	4.455E-07	9.016E-08	2.471E-06	6.067E-08	3.803E-08	3.471E-07	1.535E-05	2.250E-05 *
ULI WALL	5.022E-06	6.053E-07	1.128E-07	1.769E-07	3.617E-06	1.573E-08	4.356E-07	1.596E-05	2.594E-05 *
LLI WALL	1.038E-06	1.251E-07	4.471E-08	5.205E-08	9.695E-09	8.107E-06	3.967E-07	1.616E-05	2.593E-05 *
T BODY	5.581E-05	6.936E-06	9.094E-08	3.519E-08	1.672E-08	2.529E-08	9.483E-05	4.548E-05	2.032E-04
ADREN	3.094E-05	3.759E-06	7.582E-08	8.698E-09	2.302E-09	5.285E-10	4.658E-06	7.192E-05	1.114E-04
BL WALL	1.005E-06	1.209E-07	1.607E-08	2.315E-08	5.019E-09	2.053E-08	2.608E-07	4.435E-05	4.580E-05
KIDNEYS	1.343E-05	1.624E-06	1.134E-07	2.313E-08	7.173E-09	1.664E-09	1.546E-06	7.334E-05	9.009E-05
LIVER	3.051E-05	3.716E-06	6.988E-08	1.332E-08	6.779E-09	3.904E-10	3.860E-06	7.425E-05	1.124E-04
OVARIES	2.028E-06	2.443E-07	2.375E-08	6.875E-08	3.664E-08	7.736E-08	4.721E-07	7.203E-05	7.498E-05
PANCREAS	3.445E-05	4.184E-06	5.959E-07	1.490E-08	4.877E-09	1.379E-09	1.915E-06	7.637E-05	1.175E-04
BONE	1.298E-05	1.600E-06	2.084E-08	6.203E-09	3.136E-09	7.348E-09	1.724E-05	6.705E-05	9.894E-05
R MAR	1.628E-05	2.005E-06	3.569E-08	2.003E-08	1.069E-08	2.662E-08	1.901E-05	7.075E-05	1.081E-04
Y MAR	1.361E-05	1.679E-06	2.897E-08	8.571E-09	4.519E-09	9.682E-09	9.201E-05	6.761E-05	9.215E-05
ENDOST	1.298E-05	1.600E-06	2.084E-08	6.203E-09	3.136E-09	7.348E-09	1.724E-05	8.106E-05	1.129E-04
SPLEEN	2.735E-05	3.332E-06	3.271E-07	1.145E-08	3.298E-09	1.734E-09	3.343E-06	7.223E-05	1.066E-04
TESTES	3.495E-07	4.201E-08	1.916E-09	2.840E-09	8.020E-10	4.558E-09	1.002E-07	6.606E-05	6.657E-05
THYMUS	4.849E-05	5.906E-06	1.227E-08	1.013E-09	2.433E-10	3.137E-11	9.843E-05	7.870E-05	2.315E-04
THYROID	1.571E-05	1.898E-06	5.472E-09	3.027E-10	5.981E-11	6.255E-12	0.238	1.253E-05	0.238
UTERUS	1.389E-06	1.675E-07	3.163E-08	6.559E-08	1.390E-08	2.014E-08	4.484E-07	8.506E-05	8.720E-05
PERCENT DOSE EQUIVALENT..									
NUCLIDE	I-133	XE-133M	XE-133						
TARGET									
LUNGS	96.9	0.3	2.9						
RES LYM	93.6	0.5	5.9						
S WALL	99.1	0.1	0.8						
SI WALL	97.0	0.2	2.8						
ULI WALL	87.8	1.0	11.2						
LLI WALL	68.9	2.1	29.0						
T BODY	98.9	0.1	1.0						
ADREN	99.4	0.0	0.5						
BL WALL	99.6	0.0	0.4						
KIDNEYS	99.5	0.0	0.4						
LIVER	99.4	0.0	0.6						
OVARIES	99.4	0.0	0.5						
PANCREAS	99.4	0.0	0.5						
BONE	99.3	0.0	0.6						
R MAR	99.3	0.0	0.7						
Y MAR	99.3	0.0	0.7						
ENDOST	99.4	0.0	0.6						
SPLEEN	99.4	0.0	0.6						
TESTES	99.5	0.0	0.4						
THYMUS	99.5	0.0	0.4						
THYROID	99.5	0.0	0.5						
UTERUS	99.6	0.0	0.4						

* The following corrected total doses to the GI segments should substituted for those in the table:

S WALL	5.930E-05
SI WALL	2.216E-05
ULI WALL	2.477E-05
LLI WALL	2.287E-05

The entries in the percent dose table for these segments should be replaced by their counterparts from the ingestion case. The substitutions remove the spurious components of ^{133m}Xe and ¹³³Xe that migrate from the respiratory tract to the GI tract.

* The following corrected total doses to the GI segments should be substituted for those in the table:

S WALL	5.930E-05
SI WALL	2.216E-05
ULI WALL	2.477E-05
LLI WALL	2.287E-05

The entries in the percent dose table for these segments should be replaced by their counterparts from the ingestion case. These substitutions remove the spurious components of ¹³³MXe and ¹³³Xe that migrate from the respiratory tract to the GI tract.

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	I-133	XE-133M	XE-133
STOMACH	0.950	0.0	0.0
S INT	0.950	0.0	0.0
U L INT	0.950	0.0	0.0
L L INT	0.950	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CCNT	LLI CONT	THYROID	OTHER	TOTAL
TARGET							
LUNGS	4.058E-07	1.464E-08	2.741E-09	1.717E-10	4.664E-05	2.582E-05	7.288E-05
RES LYM	4.058E-07	1.464E-08	2.741E-09	1.717E-10	4.664E-05	2.582E-05	7.288E-05
S WALL	9.876E-05	1.507E-07	3.237E-08	5.407E-09	5.755E-06	2.658E-05	1.313E-04
SI WALL	5.743E-07	1.271E-05	1.532E-07	4.079E-08	6.524E-07	2.885E-05	4.299E-05
ULI WALL	7.180E-07	1.008E-06	6.345E-06	1.713E-08	8.187E-07	2.999E-05	3.890E-05
LLI WALL	2.850E-07	2.558E-07	2.716E-08	8.113E-06	7.455E-07	3.037E-05	3.984E-05
T BODY	5.767E-07	1.902E-07	3.516E-08	2.590E-08	1.782E-04	8.548E-05	2.645E-04
ADREN	4.828E-07	5.399E-08	8.356E-09	7.633E-10	8.754E-06	1.352E-04	1.445E-04
BL WALL	1.026E-07	1.412E-07	1.618E-08	2.242E-08	4.902E-07	8.335E-05	8.412E-05
KIDNEYS	7.221E-07	1.354E-07	2.303E-08	2.027E-09	2.906E-06	1.378E-04	1.416E-04
LIVER	4.453E-07	8.017E-08	2.103E-08	5.600E-10	7.255E-06	1.396E-04	1.474E-04
OVARIES	1.515E-07	3.679E-07	1.030E-07	8.186E-08	8.873E-07	1.354E-04	1.370E-04
PANCREAS	3.798E-06	9.047E-08	1.554E-08	1.700E-09	3.599E-06	1.435E-04	1.510E-04
BONE	1.324E-07	3.500E-08	7.215E-09	7.520E-09	3.240E-05	1.261E-04	1.587E-04
R MAR	2.269E-07	1.107E-07	2.272E-08	2.690E-08	3.572E-05	1.330E-04	1.691E-04
Y MAR	1.840E-07	4.822E-08	1.033E-08	9.866E-09	1.729E-05	1.271E-04	1.446E-04
ENDOST	1.324E-07	3.500E-08	7.215E-09	7.520E-09	3.240E-05	1.523E-04	1.849E-04
SPLEEN	2.081E-06	6.961E-08	1.063E-08	2.153E-09	6.282E-06	1.358E-04	1.442E-04
TESTES	1.223E-06	1.768E-08	3.856E-09	5.357E-09	1.884E-07	1.242E-04	1.244E-04
THYMUS	7.823E-08	6.380E-09	1.171E-09	6.268E-11	1.850E-04	1.479E-04	3.330E-04
THYROID	3.495E-08	1.920E-09	3.338E-10	1.677E-11	0.448	2.355E-05	0.448
UTERUS	2.018E-07	3.823E-07	3.953E-08	2.205E-08	8.428E-07	1.599E-04	1.614E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	I-133	XE-133M	XE-133
TARGET			
LUNGS	99.9	0.0	0.1
RES LYM	99.9	0.0	0.1
S WALL	95.8	0.0	0.2
SI WALL	98.5	0.1	1.4
ULI WALL	92.3	0.6	7.1
LLI WALL	80.7	1.3	18.0
T BODY	99.6	0.0	0.4
ADREN	99.6	0.0	0.4
BL WALL	99.6	0.0	0.4
KIDNEYS	99.6	0.0	0.4
LIVER	99.6	0.0	0.4
OVARIES	99.5	0.0	0.5
PANCREAS	99.6	0.0	0.4
BONE	99.6	0.0	0.4
R MAR	99.5	0.0	0.4
Y MAR	99.5	0.0	0.4
ENDOST	99.6	0.0	0.4
SPLEEN	99.6	0.0	0.4
TESTES	99.5	0.0	0.4
THYMUS	99.7	0.0	0.2
THYROID	99.5	0.0	0.5
UTERUS	99.6	0.0	0.4

IODINE-134

RADIONUCLIDE: I-134

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE I-134	RADIOACTIVE HALF-LIFE (DAYS) 3.6500E-02	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 0.669 -3.270E-02 0.363 4.900E-02 0.951	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.243 11.3 117. 11.3 117.
ORGAN ABSORBED	NUCLIDE I-134			
THYROID	I-134	0.328		

S FACTORS (REM/MICROCURIE-DAY) FOR I-134

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.374E-01	0.374E-01	0.785E-03	0.155E-03	0.178E-03	0.679E-04	0.497E-03	0.562E-03
RES LYM	0.374E-01	0.209E-01	0.785E-03	0.155E-03	0.178E-03	0.679E-04	0.497E-03	0.562E-03
S WALL	0.849E-03	0.849E-03	0.847E-01	0.152E-02	0.155E-02	0.716E-03	0.628E-04	0.586E-03
SI WALL	0.140E-03	0.140E-03	0.112E-02	0.521E-01	0.687E-02	0.385E-02	0.155E-04	0.630E-03
ULI WALL	0.183E-03	0.183E-03	0.138E-02	0.979E-02	0.895E-01	0.176E-02	0.174E-04	0.656E-03
LLI WALL	0.392E-04	0.392E-04	0.598E-03	0.296E-02	0.138E-02	0.137E-00	0.102E-04	0.665E-03
T BODY	0.108E-02	0.108E-02	0.909E-03	0.121E-02	0.105E-02	0.109E-02	0.102E-02	0.107E-02
ADREN	0.101E-02	0.101E-02	0.102E-02	0.536E-03	0.515E-03	0.220E-03	0.966E-04	0.161E-02
BL WALL	0.399E-04	0.399E-04	0.211E-03	0.116E-02	0.901E-03	0.236E-02	0.717E-05	0.113E-02
KIDNEYS	0.445E-03	0.445E-03	0.143E-02	0.137E-02	0.123E-02	0.407E-03	0.489E-04	0.165E-02
LIVER	0.104E-02	0.104E-02	0.873E-03	0.814E-03	0.109E-02	0.172E-03	0.863E-04	0.168E-02
OVARIES	0.755E-04	0.755E-04	0.512E-03	0.418E-02	0.388E-02	0.725E-02	0.121E-04	0.159E-02
PANCREAS	0.104E-02	0.104E-02	0.725E-02	0.877E-03	0.890E-03	0.326E-03	0.489E-04	0.175E-02
BONE	0.432E-03	0.432E-03	0.260E-03	0.343E-03	0.307E-03	0.446E-03	0.328E-03	0.140E-02
R MAR	0.547E-03	0.547E-03	0.438E-03	0.106E-02	0.896E-03	0.132E-02	0.357E-03	0.153E-02
Y MAR	0.454E-03	0.454E-03	0.360E-03	0.472E-03	0.434E-03	0.548E-03	0.178E-03	0.141E-02
ENDOST	0.432E-03	0.432E-03	0.260E-03	0.343E-03	0.307E-03	0.446E-03	0.328E-03	0.161E-02
SPLEEN	0.938E-03	0.938E-03	0.410E-02	0.695E-03	0.596E-03	0.456E-03	0.831E-04	0.161E-02
TESTES	0.154E-04	0.154E-04	0.592E-04	0.224E-03	0.241E-03	0.746E-03	0.309E-05	0.137E-02
THYMUS	0.178E-02	0.178E-02	0.291E-03	0.703E-04	0.761E-04	0.323E-04	0.179E-02	0.184E-02
THYROID	0.567E-03	0.567E-03	0.762E-04	0.236E-04	0.250E-04	0.119E-04	0.177E-01	0.497E-03
UTERUS	0.599E-04	0.599E-04	0.423E-03	0.367E-02	0.205E-02	0.244E-02	0.116E-04	0.236E-02

β^- decay (52.6 M 5)

IODINE-134 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249			
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
I-134	D	0.950	0.950	0.950	0.950				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	THYROID	OTHER	TOTAL
TARGET									
LUNGS	6.274E-04	6.222E-06	1.924E-07	6.558E-09	8.082E-10	1.460E-11	2.676E-06	5.390E-06	6.419E-04
RES LYM	6.274E-04	3.477E-04	1.924E-07	6.558E-09	8.082E-10	1.460E-11	2.676E-06	5.390E-06	9.834E-04
S WALL	1.424E-05	1.413E-07	2.076E-05	6.432E-08	7.038E-09	1.539E-10	3.381E-07	5.620E-06	4.117E-05
SI WALL	2.349E-06	2.329E-08	2.745E-07	2.204E-06	3.119E-08	8.277E-10	8.344E-08	6.042E-06	1.101E-05
ULI WALL	3.070E-06	3.045E-08	3.382E-07	4.142E-07	4.064E-07	3.784E-10	9.367E-08	6.292E-06	1.064E-05
LLI WALL	6.576E-07	6.522E-09	1.465E-07	1.252E-07	6.266E-09	2.945E-08	5.491E-08	6.378E-06	7.404E-06
T BODY	1.812E-05	1.757E-07	2.227E-07	5.120E-08	4.768E-09	2.343E-10	5.491E-06	1.020E-05	3.433E-05
ADREN	1.694E-05	1.680E-07	2.459E-07	2.268E-08	2.338E-09	4.730E-11	5.200E-07	1.544E-05	3.335E-05
BL WALL	6.694E-07	6.638E-09	5.170E-08	4.908E-08	4.091E-09	5.074E-10	3.860E-08	1.084E-05	1.166E-05
KIDNEYS	7.465E-06	7.404E-08	3.504E-07	5.797E-08	5.585E-09	8.750E-11	2.633E-07	1.582E-05	2.404E-05
LIVER	1.745E-05	1.730E-07	2.139E-07	3.444E-08	4.949E-09	3.698E-11	4.646E-07	1.611E-05	3.445E-05
OVARIES	1.267E-06	1.256E-08	1.255E-07	1.769E-07	1.762E-08	1.559E-09	6.514E-08	1.525E-05	1.692E-05
PANCREAS	1.745E-05	1.730E-07	1.777E-06	3.711E-08	4.041E-09	7.009E-11	2.633E-07	1.678E-05	3.649E-05
BONE	7.247E-06	7.187E-08	6.371E-08	1.451E-08	1.394E-09	9.589E-11	1.766E-06	1.343E-05	2.259E-05
R MAR	9.177E-06	9.101E-08	1.073E-07	4.485E-08	4.068E-09	2.838E-10	1.922E-06	1.467E-05	2.602E-05
Y MAR	7.616E-06	7.553E-08	8.822E-08	1.997E-08	1.971E-09	1.178E-10	9.583E-07	1.352E-05	2.228E-05
ENDOST	7.247E-06	7.187E-08	6.371E-08	1.451E-08	1.394E-09	9.589E-11	1.766E-06	1.544E-05	2.461E-05
SPLEEN	1.574E-05	1.561E-07	1.005E-06	2.941E-08	2.706E-09	9.804E-11	4.474E-07	1.544E-05	3.282E-05
TESTES	2.584E-07	2.562E-09	1.451E-08	9.478E-09	1.094E-09	1.604E-10	1.663E-08	1.314E-05	1.344E-05
THYMUS	2.986E-05	2.961E-07	7.131E-08	2.975E-09	3.455E-10	6.944E-12	9.636E-06	1.765E-05	5.752E-05
THYROID	9.512E-06	9.433E-08	1.867E-08	9.986E-10	1.135E-10	2.558E-12	9.529E-03	4.767E-06	9.543E-03
UTERUS	1.005E-06	9.966E-09	1.037E-07	1.553E-07	9.308E-09	5.246E-10	6.245E-08	2.263E-05	2.398E-05

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

I-134							
STOMACH	C.950						
S INT	C.950						
U L INT	C.950						
L L INT	C.950						
DOSE EQUIVALENT (REM/MICROCURIE)							
SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	THYROID	OTHER	TOTAL
TARGET							
LUNGS	1.573E-06	5.364E-08	6.610E-09	1.194E-10	8.191E-06	1.650E-05	2.633E-05
RES LYM	1.573E-06	5.364E-08	6.610E-09	1.194E-10	8.191E-06	1.650E-05	2.633E-05
S WALL	1.697E-04	5.260E-07	5.756E-08	1.259E-09	1.035E-06	1.721E-05	1.886E-04
SI WALL	2.245E-06	1.803E-05	2.551E-07	6.769E-09	2.555E-07	1.850E-05	3.929E-05
ULI WALL	2.766E-06	3.388E-06	3.324E-06	3.095E-09	2.868E-07	1.926E-05	2.903E-05
LLI WALL	1.198E-06	1.024E-06	5.125E-08	2.409E-07	1.681E-07	1.953E-05	2.221E-05
T BODY	1.822E-06	4.187E-07	3.859E-08	1.916E-09	1.681E-05	3.142E-05	5.051E-05
ADREN	2.044E-06	1.855E-07	1.912E-08	3.868E-10	1.592E-06	4.727E-05	5.111E-05
BL WALL	4.229E-07	4.014E-07	3.346E-08	4.149E-09	1.182E-07	3.318E-05	3.416E-05
KIDNEYS	2.866E-06	4.741E-07	4.568E-08	7.156E-10	8.059E-07	4.845E-05	5.264E-05
LIVER	1.750E-06	2.817E-07	4.048E-08	3.024E-10	1.422E-06	4.933E-05	5.282E-05
OVARIES	1.026E-06	1.446E-06	1.441E-07	1.275E-08	1.994E-07	4.668E-05	4.951E-05
PANCREAS	1.453E-05	3.035E-07	3.305E-08	5.732E-10	8.059E-07	5.138E-05	6.705E-05
BONE	5.211E-07	1.187E-07	1.140E-08	7.842E-10	5.406E-06	4.111E-05	4.716E-05
R MAR	8.778E-07	3.668E-07	3.327E-08	2.321E-09	5.884E-06	4.492E-05	5.209E-05
Y MAR	7.215E-07	1.633E-07	1.612E-08	9.635E-10	2.934E-06	4.140E-05	4.523E-05
ENDOST	5.211E-07	1.187E-07	1.140E-08	7.842E-10	5.406E-06	4.727E-05	5.333E-05
SPLEEN	8.217E-06	2.405E-07	2.213E-08	8.018E-10	1.370E-06	4.727E-05	5.712E-05
TESTES	1.186E-07	7.751E-08	8.949E-09	1.312E-09	5.093E-08	4.022E-05	4.048E-05
THYMUS	5.832E-07	2.433E-08	2.826E-09	5.679E-11	2.950E-05	5.402E-05	8.414E-05
THYROID	1.527E-07	8.167E-05	9.284E-10	2.092E-11	2.917E-02	1.459E-05	2.919E-02
UTERUS	8.477E-07	1.270E-06	7.613E-08	4.290E-09	1.912E-07	6.929E-05	7.168E-05

IODINE-135

RADIONUCL IDE: I-135

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)	
NUCL IDE	
I-135	0.2750
XE-135M	1.0600E-02
XE-135	0.3790
CS-135	8.4000E 08

BRANCHING RATIOS:			FROM	TO	FRACTION
			I-135	XE-135M	0.1660
			I-135	XE-135	0.8340
			XE-135M	XE-135	1.000
			XE-135	CS-135	1.000

ORGAN ABSORBED	NUCL IDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT		COMPARTMENT
			DEPOSITION FRACTION	BIOLOGICAL HALF-TIME (DAYS)	
	I-135	1.00	0.669	0.243	
			-3.270E-02	11.3	
			0.363	117.	
	XE-135M	0.0	1.00	8.330E-02	
	XE-135	0.0	1.00	8.330E-02	
	CS-135	1.00	0.130	1.40	
			0.870	135.	
	THYROID	I-135	0.328	4.900E-02	11.3
			0.951	117.	
	XE-135M	0.0	1.00	8.330E-02	
	XE-135	0.0	1.00	8.330E-02	
	CS-135	4.850E-04	0.130	1.40	
			0.870	135.	

S FACTORS (REM/MICROCURIE-DAY) FOR I-135

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.223E-01	0.223E-01	0.447E-03	0.905E-04	0.111E-03	0.459E-04	0.284E-03	0.323E-03
RES LYM	0.223E-01	0.126E 01	0.447E-03	0.905E-04	0.111E-03	0.459E-04	0.284E-03	0.323E-03
S WALL	0.505E-03	0.505E-03	0.501E-01	0.882E-03	0.850E-03	0.405E-03	0.418E-04	0.339E-03
SI WALL	0.859E-04	0.859E-04	0.630E-03	0.309E-01	0.383E-02	0.220E-02	0.130E-04	0.362E-03
ULI WALL	0.113E-03	0.113E-03	0.838E-03	0.556E-02	0.532E-01	0.103E-02	0.147E-04	0.377E-03
LLI WALL	0.211E-04	0.211E-04	0.357E-03	0.170E-02	0.764E-03	0.822E-01	0.733E-05	0.384E-03
T BODY	0.629E-03	0.629E-03	0.525E-03	0.702E-03	0.605E-03	0.634E-03	0.599E-03	0.630E-03
ADREN	0.514E-03	0.514E-03	0.726E-03	0.314E-03	0.296E-03	0.128E-03	0.591E-04	0.947E-03
BL WALL	0.257E-04	0.257E-04	0.119E-03	0.715E-03	0.495E-03	0.146E-02	0.536E-05	0.666E-03
KIDNEYS	0.263E-03	0.263E-03	0.813E-03	0.758E-03	0.725E-03	0.250E-03	0.383E-04	0.971E-03
LIVER	0.593E-03	0.593E-03	0.506E-03	0.470E-03	0.631E-03	0.110E-03	0.572E-04	0.986E-03
OVARIES	0.466E-04	0.466E-04	0.297E-03	0.221E-02	0.194E-02	0.418E-02	0.868E-05	0.940E-03
PANCREAS	0.584E-03	0.584E-03	0.410E-02	0.472E-03	0.535E-03	0.182E-03	0.653E-04	0.103E-02
BONE	0.245E-03	0.245E-03	0.148E-03	0.196E-03	0.175E-03	0.253E-03	0.190E-03	0.824E-03
R MAR	0.311E-03	0.311E-03	0.245E-03	0.598E-03	0.505E-03	0.742E-03	0.207E-03	0.894E-03
Y MAR	0.254E-03	0.254E-03	0.208E-03	0.268E-03	0.248E-03	0.313E-03	0.106E-03	0.823E-03
ENDOST	0.245E-03	0.245E-03	0.148E-03	0.196E-03	0.175E-03	0.253E-03	0.190E-03	0.952E-03
SPLEEN	0.506E-03	0.506E-03	0.232E-02	0.416E-03	0.361E-03	0.263E-03	0.504E-04	0.940E-03
TESTES	0.107E-04	0.107E-04	0.447E-04	0.150E-03	0.131E-03	0.416E-03	0.249E-05	0.815E-03
THYMUS	0.107E-02	0.107E-02	0.186E-03	0.438E-04	0.471E-04	0.212E-04	0.106E-02	0.116E-02
THYROID	0.288E-03	0.288E-03	0.472E-04	0.160E-04	0.168E-04	0.843E-05	0.106E 01	0.288E-03
UTERUS	0.516E-04	0.516E-04	0.253E-03	0.204E-02	0.123E-02	0.142E-02	0.833E-05	0.133E-02

β^- decay (6.66 H 1)

Refer to Chapter 3 for explanation of the retention functions for iodine and xenon daughter.

IODINE-135 CONTINUED

S FACTORS (REM/MICROCURIE-DAY) FOR XE-135M

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.606E-02	0.606E-02	0.141E-03	0.253E-04	0.259E-04	0.787E-05	0.807E-04	0.979E-04
RES LYM	0.606E-02	0.329E-00	0.141E-03	0.253E-04	0.259E-04	0.787E-05	0.807E-04	0.979E-04
S WALL	0.140E-03	0.140E-03	0.139E-01	0.257E-03	0.275E-03	0.136E-03	0.973E-05	0.101E-03
SI WALL	0.211E-04	0.211E-04	0.199E-03	0.855E-02	0.125E-02	0.685E-03	0.672E-06	0.109E-03
ULI WALL	0.290E-04	0.290E-04	0.249E-03	0.176E-02	0.145E-01	0.322E-03	0.928E-06	0.114E-03
LLI WALL	0.594E-05	0.594E-05	0.559E-04	0.519E-03	0.229E-03	0.222E-01	0.117E-05	0.115E-03
T BODY	0.182E-03	0.182E-03	0.157E-03	0.206E-03	0.180E-03	0.187E-03	0.171E-03	0.179E-03
ADREN	0.184E-03	0.184E-03	0.160E-03	0.928E-04	0.766E-04	0.372E-04	0.150E-04	0.265E-03
BL WALL	0.563E-05	0.563E-05	0.346E-04	0.253E-03	0.144E-03	0.425E-03	0.749E-06	0.193E-03
KIDNEYS	0.789E-04	0.789E-04	0.248E-03	0.239E-03	0.205E-03	0.625E-04	0.398E-05	0.275E-03
LIVER	0.181E-03	0.181E-03	0.154E-03	0.136E-03	0.186E-03	0.262E-04	0.121E-04	0.283E-03
OVARIES	0.116E-04	0.116E-04	0.412E-04	0.673E-03	0.951E-03	0.122E-02	0.140E-05	0.266E-03
PANCREAS	0.210E-03	0.210E-03	0.134E-02	0.157E-03	0.135E-03	0.563E-04	0.506E-05	0.298E-03
BONE	0.773E-04	0.773E-04	0.460E-04	0.599E-04	0.553E-04	0.809E-04	0.574E-04	0.232E-03
R MAR	0.972E-04	0.972E-04	0.752E-04	0.191E-03	0.166E-03	0.245E-03	0.634E-04	0.261E-03
Y MAR	0.818E-04	0.818E-04	0.640E-04	0.830E-04	0.784E-04	0.100E-03	0.305E-04	0.238E-03
ENDOST	0.773E-04	0.773E-04	0.460E-04	0.599E-04	0.553E-04	0.809E-04	0.574E-04	0.266E-03
SPLEEN	0.163E-03	0.163E-03	0.722E-03	0.118E-03	0.929E-04	0.714E-04	0.994E-05	0.268E-03
TESTES	0.189E-05	0.189E-05	0.234E-05	0.278E-04	0.390E-04	0.154E-03	0.270E-06	0.223E-03
THYMUS	0.280E-03	0.280E-03	0.155E-04	0.106E-04	0.116E-04	0.445E-05	0.332E-03	0.315E-03
THYROID	0.916E-04	0.916E-04	0.116E-04	0.307E-05	0.328E-05	0.142E-05	0.284E-00	0.905E-04
UTERUS	0.728E-05	0.728E-05	0.676E-04	0.662E-03	0.339E-03	0.421E-03	0.133E-05	0.349E-03

S FACTORS (REM/MICROCURIE-DAY) FOR XE-135

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.169E-01	0.169E-01	0.770E-04	0.121E-04	0.130E-04	0.411E-05	0.436E-04	0.566E-04
RES LYM	0.169E-01	0.108E-01	0.770E-04	0.121E-04	0.130E-04	0.411E-05	0.436E-04	0.566E-04
S WALL	0.831E-04	0.831E-04	0.347E-01	0.162E-03	0.166E-03	0.797E-04	0.271E-05	0.552E-04
SI WALL	0.974E-05	0.974E-05	0.117E-03	0.217E-01	0.745E-03	0.416E-03	0.657E-06	0.642E-04
ULI WALL	0.122E-04	0.122E-04	0.156E-03	0.105E-02	0.387E-01	0.190E-03	0.522E-06	0.665E-04
LLI WALL	0.471E-05	0.471E-05	0.579E-04	0.316E-03	0.134E-03	0.623E-01	0.411E-06	0.677E-04
T BODY	0.297E-03	0.297E-03	0.148E-03	0.274E-03	0.196E-03	0.223E-03	0.288E-03	0.252E-03
ADREN	0.110E-03	0.110E-03	0.104E-03	0.682E-04	0.420E-04	0.211E-04	0.768E-05	0.476E-03
BL WALL	0.253E-05	0.253E-05	0.123E-04	0.124E-03	0.937E-04	0.285E-03	0.232E-06	0.273E-03
KIDNEYS	0.410E-04	0.410E-04	0.156E-03	0.137E-03	0.123E-03	0.420E-04	0.190E-05	0.482E-03
LIVER	0.110E-03	0.110E-03	0.885E-04	0.827E-04	0.115E-03	0.134E-04	0.577E-05	0.466E-03
OVARIES	0.583E-05	0.583E-05	0.205E-04	0.456E-03	0.526E-03	0.862E-03	0.481E-06	0.477E-03
PANCREAS	0.115E-03	0.115E-03	0.802E-03	0.917E-04	0.103E-03	0.317E-04	0.452E-06	0.455E-03
BONE	0.504E-04	0.504E-04	0.313E-04	0.425E-04	0.384E-04	0.550E-04	0.366E-04	0.459E-03
R MAR	0.641E-04	0.641E-04	0.557E-04	0.139E-03	0.120E-03	0.167E-03	0.402E-04	0.482E-03
Y MAR	0.523E-04	0.523E-04	0.435E-04	0.593E-04	0.547E-04	0.677E-04	0.192E-04	0.466E-03
ENDOST	0.504E-04	0.504E-04	0.313E-04	0.425E-04	0.384E-04	0.550E-04	0.366E-04	0.459E-03
SPLEEN	0.102E-03	0.102E-03	0.444E-03	0.697E-04	0.610E-04	0.363E-04	0.557E-05	0.478E-03
TESTES	0.703E-06	0.703E-06	0.267E-05	0.161E-04	0.164E-04	0.910E-04	0.712E-07	0.452E-03
THYMUS	0.176E-03	0.176E-03	0.114E-04	0.519E-05	0.575E-05	0.194E-05	0.192E-03	0.560E-03
THYROID	0.411E-04	0.411E-04	0.576E-05	0.122E-05	0.132E-05	0.500E-06	0.831E-00	0.513E-04
UTERUS	0.439E-05	0.439E-05	0.378E-04	0.411E-03	0.209E-03	0.302E-03	0.451E-06	0.548E-03

IODINE-135 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
I-135	D	0.950	0.950	0.950	0.950
XE-135M	GAS	0.0	0.0	0.0	0.0
XE-135	GAS	0.0	0.0	0.0	0.0
CS-135	D	0.0	0.950	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER	TOTAL
TARGET									
LUNGS	2.236E-03	2.021E-04	1.783E-07	1.396E-08	1.303E-08	2.474E-09	1.775E-05	1.971E-05	2.476E-03
RES LYM	2.236E-03	1.212E-02	1.783E-07	1.396E-08	1.303E-08	2.474E-09	1.775E-05	1.971E-05	1.440E-02
S WALL	3.979E-05	2.669E-06	2.410E-05	1.611E-07	1.607E-07	4.760E-08	2.555E-06	2.067E-05	9.036E-05 *
SI WALL	6.580E-06	4.608E-07	2.528E-07	1.444E-05	7.213E-07	2.485E-07	7.726E-07	2.209E-05	4.557E-05 *
ULI WALL	8.647E-06	6.036E-07	3.336E-07	1.041E-06	3.572E-05	1.135E-07	8.728E-07	2.300E-05	7.034E-05 *
LLI WALL	1.709E-06	1.270E-07	1.389E-07	3.141E-07	1.305E-07	3.700E-05	4.428E-07	2.342E-05	6.328E-05 *
T BODY	5.668E-05	4.684E-06	2.177E-07	2.082E-07	1.849E-07	1.327E-07	3.947E-05	4.016E-05	1.417E-04
ADREN	4.188E-05	3.097E-06	2.740E-07	6.322E-08	4.146E-08	1.262E-08	3.664E-06	6.07CE-05	1.097E-04
BL WALL	1.947E-06	1.351E-07	4.556E-08	1.295E-07	9.075E-08	1.702E-07	3.222E-07	4.213E-05	4.497E-05
KIDNEYS	2.071E-05	1.486E-06	3.255E-07	1.384E-07	1.198E-07	2.511E-08	2.293E-06	6.221E-05	8.730E-05
LIVER	4.736E-05	3.453E-06	2.011E-07	8.376E-08	1.117E-07	8.036E-09	3.508E-06	6.317E-05	1.179E-04
OVARIES	3.591E-06	2.532E-07	1.041E-07	4.331E-07	5.026E-07	5.146E-07	5.245E-07	6.033E-05	6.625E-05
PANCREAS	4.723E-05	3.463E-06	1.660E-06	9.026E-08	9.949E-08	1.895E-08	3.908E-06	6.588E-05	1.223E-04
BONE	1.977E-05	1.457E-06	5.991E-08	3.956E-08	3.690E-08	3.282E-08	1.198E-05	5.328E-05	8.666E-05
R MAR	2.510E-05	1.849E-06	1.004E-07	1.264E-07	1.149E-07	9.964E-08	1.306E-05	5.773E-05	9.817E-05
Y MAR	2.052E-05	1.512E-06	8.400E-08	5.482E-08	5.255E-08	4.040E-08	6.658E-06	5.335E-05	8.227E-05
ENDOST	1.977E-05	1.457E-06	5.991E-08	3.956E-08	3.690E-08	3.282E-08	1.198E-05	6.186E-05	9.526E-05
SPLEEN	4.080E-05	2.999E-06	9.313E-07	7.205E-08	5.943E-08	2.174E-08	3.090E-06	6.035E-05	1.083E-04
TESTES	7.931E-07	5.391E-08	1.493E-08	2.000E-08	1.640E-08	5.431E-08	1.486E-07	5.263E-05	5.373E-05
THYMUS	8.413E-05	6.065E-06	6.387E-08	6.273E-09	5.747E-09	1.168E-09	6.681E-05	7.405E-05	2.311E-04
THYROID	2.259E-05	1.609E-06	1.785E-08	1.867E-09	1.380E-09	3.033E-10	7.300E-02	1.761E-05	7.304E-02
UTERUS	3.841E-06	2.643E-07	9.781E-08	3.971E-07	2.037E-07	1.802E-07	5.031E-07	8.385E-05	8.934E-05

PERCENT DOSE EQUIVALENT..

NUCLIDE	I-135	XE-135M	XE-135	CS-135
TARGET				
LUNGS	68.4	2.9	28.7	0.0
RES LYM	50.7	2.2	47.1	0.0
S WALL	83.1	5.5	11.4	0.0
SI WALL	65.4	3.9	30.6	0.0
ULI WALL	45.1	2.2	52.6	0.0
LLI WALL	38.0	1.7	60.2	0.0
T BODY	83.1	3.6	13.3	0.0
ADREN	87.1	4.1	8.7	0.0
BL WALL	89.1	3.8	7.1	0.0
KIDNEYS	88.4	3.8	7.8	0.0
LIVER	87.8	3.9	8.3	0.0
OVARIES	86.9	3.7	9.5	0.0
PANCREAS	87.4	4.3	8.3	0.0
BONE	87.8	3.9	8.3	0.0
R MAR	87.7	4.0	8.4	0.0
Y MAR	87.3	3.9	8.8	0.0
ENDOST	87.5	3.8	8.7	0.0
SPLEEN	87.4	4.0	8.6	0.0
TESTES	87.8	3.5	8.6	0.0
THYMUS	89.7	3.8	6.5	0.0
THYROID	84.9	3.3	11.8	0.0
UTERUS	89.5	3.4	7.0	0.0

* The following corrected total doses to the GI segments should be substituted for those in the table:

S WALL	8.178E-05
SI WALL	4.001E-05
ULI WALL	6.134E-05
LLI WALL	5.271E-05

The entries in the percent dose table for these segments should be replaced by their counterparts from the ingestion case. These substitutions remove the spurious components of ^{135m}Xe and ¹³⁵Xe that migrate from the respiratory tract to the GI tract.

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	I-135	XE-135M	XE-135	CS-135
STOMACH	0.950	0.0	0.0	0.0
S INT	0.950	0.0	0.0	0.950
U L INT	0.950	0.0	0.0	0.0
L L INT	0.950	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CONT	LLI CONT	THYROID	OTHER	TOTAL
TARGET							
LUNGS	9.727E-07	4.701E-08	1.946E-08	2.737E-09	3.912E-05	4.344E-05	8.360E-05
RES LYM	9.727E-07	4.701E-08	1.946E-08	2.737E-09	3.912E-05	4.344E-05	8.360E-05
S WALL	1.122E-04	4.836E-07	2.122E-07	5.059E-08	5.633E-06	4.555E-05	1.641E-04
SI WALL	1.372E-06	2.558E-05	9.535E-07	2.645E-07	1.703E-06	4.869E-05	7.856E-05
ULI WALL	1.821E-06	3.085E-06	3.937E-05	1.209E-07	1.924E-06	5.070E-05	9.702E-05
LLI WALL	7.721E-07	9.377E-07	1.762E-07	3.824E-05	9.761E-07	5.162E-05	9.272E-05
T BODY	1.148E-06	4.639E-07	2.226E-07	1.387E-07	8.699E-05	8.852E-05	1.775E-04
ADREN	1.559E-06	1.781E-07	5.884E-08	1.350E-08	8.075E-06	1.338E-04	1.437E-04
BL WALL	2.571E-07	3.546E-07	1.204E-07	1.809E-07	7.102E-07	9.286E-05	9.452E-05
KIDNEYS	1.769E-06	4.171E-07	1.619E-07	2.683E-08	5.054E-06	1.371E-04	1.445E-04
LIVER	1.100E-06	2.556E-07	1.455E-07	8.723E-09	7.732E-06	1.392E-04	1.485E-04
OVARIES	6.288E-07	1.243E-06	6.276E-07	5.458E-07	1.156E-06	1.330E-04	1.372E-04
PANCREAS	8.947E-06	2.644E-07	1.313E-07	2.023E-08	8.613E-06	1.452E-04	1.632E-04
BONE	3.227E-07	1.114E-07	4.755E-08	3.476E-08	2.641E-05	1.174E-04	1.444E-04
R MAR	5.355E-07	3.462E-07	1.459E-07	1.054E-07	2.879E-05	1.272E-04	1.572E-04
Y MAR	4.533E-07	1.531E-07	6.765E-08	4.279E-08	1.467E-05	1.176E-04	1.330E-04
ENDOST	3.227E-07	1.114E-07	4.755E-08	3.476E-08	2.641E-05	1.364E-04	1.633E-04
SPLEEN	5.052E-06	2.240E-07	8.078E-08	2.345E-08	6.810E-06	1.330E-04	1.452E-04
TESTES	9.360E-08	7.371E-08	2.414E-08	5.753E-08	3.276E-07	1.160E-04	1.166E-04
THYMUS	3.920E-07	2.215E-08	8.487E-09	1.291E-09	1.473E-04	1.632E-04	3.109E-04
THYROID	1.015E-07	7.607E-09	2.332E-09	3.480E-10	0.161	3.881E-05	0.161
UTERUS	5.466E-07	1.148E-06	2.768E-07	1.910E-07	1.109E-06	1.848E-04	1.881E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	I-135	XE-135M	XE-135	CS-135
TARGET				
LUNGS	93.2	4.0	2.7	0.0
RES LYM	93.2	4.0	2.7	0.0
S WALL	92.6	2.4	4.0	0.0
SI WALL	77.7	4.3	18.0	0.0
ULI WALL	58.0	2.9	39.1	0.0
LLI WALL	54.8	2.5	42.7	0.0
T BODY	88.7	2.7	7.6	0.0
ADREN	88.9	2.6	7.5	0.0
BL WALL	89.4	2.8	6.7	0.0
KIDNEYS	88.8	2.6	7.6	0.0
LIVER	88.9	2.7	7.4	0.0
OVARIES	87.7	2.7	8.6	0.0
PANCREAS	89.4	2.6	6.9	0.0
BONE	88.6	2.7	7.7	0.0
R MAR	88.6	2.9	7.6	0.0
Y MAR	88.1	2.8	8.2	0.0
ENDOST	88.1	2.7	8.2	0.0
SPLEEN	88.8	2.7	7.5	0.0
TESTES	87.8	2.5	8.6	0.0
THYMUS	90.7	2.9	5.4	0.0
THYROID	84.9	2.3	11.8	0.0
UTERUS	89.7	2.5	6.8	0.0

CESIUM-134

RADIONUCLIDE: CS-134

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
CS-134	753.0			
ORGAN ABSORBED	NUCLIDE	F2-PRIME	FRACTION	HALF-TIME (DAYS)
	CS-134	1.00	0.130 0.870	1.40 135.

S FACTORS (REM/MICROCURIE-DAY) FOR CS-134

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.121E-01	0.121E-01	0.486E-03	0.922E-04	0.100E-03	0.345E-04	0.342E-03
RES LYM	0.121E-01	0.556E-00	0.486E-03	0.922E-04	0.100E-03	0.345E-04	0.342E-03
S WALL	0.503E-03	0.503E-03	0.303E-01	0.916E-03	0.956E-03	0.453E-03	0.355E-03
SI WALL	0.802E-04	0.802E-04	0.690E-03	0.185E-01	0.426E-02	0.236E-02	0.383E-03
ULI WALL	0.107E-03	0.107E-03	0.848E-03	0.601E-02	0.302E-01	0.109E-02	0.399E-03
LLI WALL	0.229E-04	0.229E-04	0.352E-03	0.180E-02	0.832E-03	0.442E-01	0.404E-03
T BODY	0.504E-03	0.504E-03	0.508E-03	0.614E-03	0.565E-03	0.574E-03	0.500E-03
ADREN	0.642E-03	0.642E-03	0.579E-03	0.325E-03	0.297E-03	0.133E-03	0.715E-03
BL WALL	0.221E-04	0.221E-04	0.128E-03	0.776E-03	0.533E-03	0.144E-02	0.562E-03
KIDNEYS	0.275E-03	0.275E-03	0.874E-03	0.844E-03	0.743E-03	0.234E-03	0.745E-03
LIVER	0.634E-03	0.634E-03	0.535E-03	0.489E-03	0.660E-03	0.987E-04	0.768E-03
OVARIES	0.435E-04	0.435E-04	0.245E-03	0.249E-02	0.278E-02	0.433E-02	0.710E-03
PANCREAS	0.682E-03	0.682E-03	0.452E-02	0.547E-03	0.510E-03	0.199E-03	0.815E-03
BONE	0.265E-03	0.265E-03	0.159E-03	0.209E-03	0.189E-03	0.274E-03	0.589E-03
R MAR	0.334E-03	0.334E-03	0.272E-03	0.654E-03	0.557E-03	0.817E-03	0.677E-03
Y MAR	0.279E-03	0.279E-03	0.221E-03	0.288E-03	0.268E-03	0.337E-03	0.600E-03
ENDOST	0.265E-03	0.265E-03	0.159E-03	0.209E-03	0.189E-03	0.274E-03	0.648E-03
SPLEEN	0.574E-03	0.574E-03	0.252E-02	0.419E-03	0.347E-03	0.267E-03	0.719E-03
TESTES	0.800E-05	0.800E-05	0.230E-04	0.118E-03	0.145E-03	0.491E-03	0.565E-03
THYMUS	0.104E-02	0.104E-02	0.131E-03	0.402E-04	0.437E-04	0.177E-04	0.848E-03
THYROID	0.344E-03	0.344E-03	0.437E-04	0.126E-04	0.134E-04	0.605E-05	0.571E-03
UTERUS	0.297E-04	0.297E-04	0.250E-03	0.228E-02	0.122E-02	0.148E-02	0.111E-02

β^- decay (2.062 Y 5)

CESIUM-134 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS								
	STOMACH	S INT	U L INT	L L INT					
CS-134	D	C.0	0.550	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL	
TARGET									
LUNGS	2.255E-03	4.344E-04	3.215E-06	1.221E-07	4.304E-07	2.738E-07	3.106E-02	3.376E-02	
RES LYM	2.255E-03	1.996E-02	3.215E-06	1.221E-07	4.304E-07	2.738E-07	3.106E-02	5.328E-02	
S WALL	9.372E-06	1.806E-05	2.007E-04	1.214E-06	4.114E-06	3.596E-06	3.224E-02	3.256E-02	
SI WALL	1.494E-05	2.879E-06	4.571E-06	2.451E-05	1.833E-05	1.873E-05	3.479E-02	3.487E-02	
ULI WALL	1.994E-05	3.841E-06	5.617E-06	7.962E-06	1.300E-04	8.652E-06	3.624E-02	3.642E-02	
LLI WALL	4.267E-06	8.220E-07	2.332E-06	2.385E-06	3.581E-06	3.508E-04	3.669E-02	3.706E-02	
T BODY	9.391E-05	1.809E-05	3.365E-06	8.134E-07	2.432E-06	4.356E-06	4.541E-02	4.554E-02	
ADREN	1.196E-04	2.305E-05	3.835E-06	4.306E-07	1.278E-06	1.056E-06	6.494E-02	6.509E-02	
BL WALL	4.118E-06	7.933E-07	8.479E-07	1.028E-06	2.294E-06	1.143E-05	5.104E-02	5.106E-02	
KIDNEYS	5.124E-05	9.872E-06	5.789E-06	1.118E-06	3.198E-06	1.857E-06	6.766E-02	6.774E-02	
LIVER	1.181E-04	2.276E-05	3.544E-06	6.478E-07	2.840E-06	7.834E-07	6.975E-02	6.990E-02	
OVARIES	8.105E-06	1.562E-06	1.623E-06	3.299E-06	1.196E-05	3.437E-05	6.449E-02	6.455E-02	
PANCREAS	1.271E-04	2.448E-05	2.954E-05	7.247E-07	2.195E-06	1.580E-06	7.402E-02	7.421E-02	
BONE	4.938E-05	9.513E-06	1.053E-06	2.769E-07	8.134E-07	2.175E-06	5.350E-02	5.356E-02	
R MAR	6.223E-05	1.159E-05	1.802E-06	8.664E-07	2.397E-06	6.485E-06	6.145E-02	6.157E-02	
Y MAR	5.199E-05	1.002E-05	1.464E-06	3.815E-07	1.153E-06	2.675E-06	5.450E-02	5.456E-02	
ENDOST	4.938E-05	9.513E-06	1.053E-06	2.769E-07	8.134E-07	2.175E-06	5.885E-02	5.892E-02	
SPLEEN	1.070E-04	2.060E-05	1.669E-05	5.551E-07	1.493E-06	2.119E-06	6.530E-02	6.545E-02	
TESTES	1.491E-06	2.872E-07	1.524E-07	1.563E-07	6.240E-07	3.897E-06	5.132E-02	5.132E-02	
THYMUS	1.938E-04	3.733E-05	8.678E-07	5.326E-08	1.881E-07	1.405E-07	7.702E-02	7.725E-02	
THYROID	6.410E-05	1.235E-05	2.865E-07	1.669E-08	5.767E-08	4.802E-08	5.186E-02	5.194E-02	
UTERUS	5.534E-06	1.066E-06	1.656E-06	3.021E-06	5.250E-06	1.175E-05	0.101	0.101	

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CS-134								
STOMACH	0.0							
S INT	0.550							
U L INT	0.0							
L L INT	0.0							
DOSE EQUIVALENT (REM/MICROCURIE)								
SOURCE	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL		
TARGET								
LUNGS	2.025E-05	7.683E-07	2.707E-06	1.722E-06	4.677E-02	4.679E-02		
RES LYM	2.025E-05	7.683E-07	2.707E-06	1.722E-06	4.677E-02	4.679E-02		
S WALL	1.262E-03	7.633E-06	2.588E-05	2.262E-05	4.854E-02	4.986E-02		
SI WALL	2.875E-05	1.542E-04	1.153E-04	1.178E-04	5.237E-02	5.279E-02		
ULI WALL	3.533E-05	5.008E-05	8.175E-04	5.442E-05	5.456E-02	5.750E-02		
LLI WALL	1.467E-05	1.500E-05	2.252E-05	2.207E-03	5.524E-02	6.344E-02		
T BODY	2.117E-05	5.116E-06	1.529E-05	2.866E-05	6.837E-02	7.811E-02		
ADREN	2.412E-05	2.708E-06	8.039E-06	6.640E-06	9.777E-02	9.781E-02		
BL WALL	5.333E-06	6.466E-06	1.443E-05	7.189E-05	7.685E-02	7.695E-02		
KIDNEYS	3.642E-05	7.033E-06	2.011E-05	1.168E-05	0.102	0.102		
LIVER	2.229E-05	4.075E-06	1.787E-05	4.928E-06	0.105	0.105		
OVARIES	1.021E-05	2.075E-05	7.525E-05	2.162E-04	9.709E-02	9.741E-02		
PANCREAS	1.983E-04	4.558E-06	1.381E-05	9.935E-06	0.111	0.112		
BONE	6.625E-06	1.742E-06	5.116E-06	1.368E-05	8.054E-02	8.057E-02		
R MAR	1.133E-05	5.450E-06	1.508E-05	4.079E-05	9.257E-02	9.265E-02		
Y MAR	9.208E-06	2.400E-06	7.254E-06	1.683E-05	8.205E-02	8.208E-02		
ENDOST	6.625E-06	1.742E-06	5.116E-06	1.368E-05	8.861E-02	8.864E-02		
SPLEEN	1.050E-04	3.492E-06	9.363E-06	1.333E-05	9.832E-02	9.845E-02		
TESTES	9.583E-07	9.833E-07	3.925E-06	2.451E-05	7.726E-02	7.729E-02		
THYMUS	5.458E-06	3.350E-07	1.183E-06	9.837E-07	0.116	0.116		
THYROID	1.821E-06	1.050E-07	3.627E-07	3.021E-07	7.808E-02	7.808E-02		
UTERUS	1.042E-05	1.900E-05	3.302E-05	7.389E-05	0.152	0.152		

CESIUM-135

RADIONUCLIDE: CS-135

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
CS-135	8.4000E 08			
ORGAN ABSORBED	NUCLIDE CS-135	1.00	0.130 0.870	1.40 135.
THYROID	* CS-135	4.850E-04	0.130 0.870	1.40 135.

S FACTORS (REM/MICROCURIE-DAY) FOR CS-135

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER
LUNGS	0.288E-02	0.288E-02	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	0.288E-02	0.192E 00	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.576E-02	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.360E-02	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.655E-02	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.107E-01	0.0	0.0
T BODY	0.411E-04	0.411E-04	0.123E-04	0.329E-04	0.196E-04	0.244E-04	0.411E-04	0.410E-04
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.349E-04
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.805E-04
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.144E 00	0.0
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.658E-04

β^- decay (2.3E 6 Y 3)

* Retention data derived from "other tissues" compartment.

CESIUM-135 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON)..		1.00	D3 =0.310	D4 =8.000E-02	D5 =0.249				
SOLUBILITY CLASS		G.I. LPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
CS-135	D	0.0	0.950	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER	TOTAL
TARGET									
LUNGS	5.370E-04	1.035E-04	0.0	0.0	0.0	0.0	0.0	0.0	6.405E-04
RES LYM	5.370E-04	6.901E-03	0.0	0.0	0.0	0.0	0.0	0.0	7.438E-03
S WALL	0.0	0.0	3.816E-05	0.0	0.0	0.0	0.0	0.0	3.816E-05
SI WALL	0.0	0.0	0.0	4.770E-06	0.0	0.0	0.0	0.0	4.770E-06
ULI WALL	0.0	0.0	0.0	0.0	2.820E-05	0.0	0.0	0.0	2.820E-05
LLI WALL	0.0	0.0	0.0	0.0	0.0	8.506E-05	0.0	0.0	8.506E-05
T BODY	7.663E-06	1.477E-06	8.148E-08	4.359E-08	8.440E-08	1.940E-07	2.135E-06	4.390E-03	4.401E-03
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.737E-03	3.737E-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.619E-03	8.619E-03
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	7.481E-03	0.0	7.481E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.473E-03	7.473E-03

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CS-135								
STOMACH	C.O							
S INT	C.950							
U L INT	0.0							
L L INT	0.0							
DOSE EQUIVALENT (REM/MICROCURIE)								
SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	THYROID	OTHER	TOTAL	
TARGET								
LUNGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
RES LYM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
S WALL	2.400E-04	0.0	0.0	0.0	0.0	0.0	2.400E-04	
SI WALL	0.0	3.000E-05	0.0	0.0	0.0	0.0	3.000E-05	
ULI WALL	0.0	0.0	1.774E-04	0.0	0.0	0.0	1.774E-04	
LLI WALL	0.0	0.0	0.0	5.350E-04	0.0	0.0	5.350E-04	
T BODY	5.125E-07	2.742E-07	5.308E-07	1.220E-06	3.214E-06	6.607E-03	6.613E-03	
ADREN	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
BL WALL	0.0	0.0	0.0	0.0	0.0	5.624E-03	5.624E-03	
KIDNEYS	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
LIVER	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
OVARIES	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
PANCREAS	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
BONE	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
R MAR	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
Y MAR	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
ENDOST	0.0	0.0	0.0	0.0	0.0	1.297E-02	1.297E-02	
SPLEEN	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
TESTES	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
THYMUS	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	
THYROID	0.0	0.0	0.0	0.0	1.126E-02	0.0	1.126E-02	
UTERUS	0.0	0.0	0.0	0.0	0.0	1.125E-02	1.125E-02	

CESIUM-136

RADIONUCLIDE: CS-136

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCLIDE		13.10		
CS-136				
			COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
ORGAN	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME		
ABSORBED	CS-136	1.00	0.130 0.870	1.40 135.

S FACTORS (REM/MICROCURIE-DAY) FOR CS-136

TARGET ORGANS	SOURCE ORGANS						
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	OTHER
LUNGS	0.120E-01	0.120E-01	0.650E-03	0.125E-03	0.146E-03	0.545E-04	0.468E-03
RES LYM	0.120E-01	0.459E-00	0.650E-03	0.125E-03	0.146E-03	0.545E-04	0.468E-03
S WALL	0.704E-03	0.704E-03	0.323E-01	0.128E-02	0.130E-02	0.587E-03	0.487E-03
SI WALL	0.113E-03	0.113E-03	0.925E-03	0.195E-01	0.577E-02	0.324E-02	0.524E-03
ULI WALL	0.147E-03	0.147E-03	0.115E-02	0.822E-02	0.311E-01	0.147E-02	0.546E-03
LLI WALL	0.337E-04	0.337E-04	0.498E-03	0.248E-02	0.117E-02	0.436E-01	0.553E-03
T BODY	0.624E-03	0.624E-03	0.676E-03	0.788E-03	0.742E-03	0.748E-03	0.621E-03
ADREN	0.863E-03	0.863E-03	0.843E-03	0.445E-03	0.432E-03	0.181E-03	0.874E-03
BL WALL	0.320E-04	0.320E-04	0.172E-03	0.912E-03	0.755E-03	0.197E-02	0.710E-03
KIDNEYS	0.367E-03	0.367E-03	0.120E-02	0.114E-02	0.104E-02	0.337E-03	0.910E-03
LIVER	0.872E-03	0.872E-03	0.720E-03	0.678E-03	0.912E-03	0.140E-03	0.937E-03
OVARIES	0.612E-04	0.612E-04	0.444E-03	0.362E-02	0.310E-02	0.620E-02	0.859E-03
PANCREAS	0.860E-03	0.860E-03	0.608E-02	0.729E-03	0.753E-03	0.268E-03	0.954E-03
BONE	0.369E-03	0.369E-03	0.221E-03	0.295E-03	0.262E-03	0.384E-03	0.701E-03
R MAR	0.467E-03	0.467E-03	0.375E-03	0.922E-03	0.774E-03	0.115E-02	0.826E-03
Y MAR	0.388E-03	0.388E-03	0.307E-03	0.406E-03	0.372E-03	0.472E-03	0.718E-03
ENDOST	0.369E-03	0.369E-03	0.221E-03	0.295E-03	0.262E-03	0.384E-03	0.749E-03
SPLEEN	0.791E-03	0.791E-03	0.345E-02	0.572E-03	0.503E-03	0.375E-03	0.874E-03
TESTES	0.122E-04	0.122E-04	0.506E-04	0.183E-03	0.195E-03	0.603E-03	0.666E-03
THYMUS	0.150E-02	0.150E-02	0.253E-03	0.568E-04	0.616E-04	0.259E-04	0.663E-03
THYROID	0.471E-03	0.471E-03	0.616E-04	0.188E-04	0.199E-04	0.933E-05	0.662E-03
UTERUS	0.478E-04	0.478E-04	0.350E-03	0.310E-02	0.172E-02	0.208E-02	0.958E-03

β⁻ decay (13.1 D 1)

CESIUM-136 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOURCE	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS				LLI CONT	OTHER	TOTAL
		STOMACH	S INT	U L INT	L L INT			
CS-136	D	0.0	0.550	0.0	0.0			
DOSE EQUIVALENT (REM/MICROCURIE)								
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	OTHER	TOTAL
TARGET								
LUNGS	2.158E-03	4.002E-04	4.252E-06	1.650E-07	6.089E-07	3.985E-07	4.414E-03	6.978E-03
RES LYM	2.158E-03	1.531E-02	4.252E-06	1.650E-07	6.089E-07	3.985E-07	4.414E-03	2.189E-02
S WALL	1.266E-04	2.348E-05	2.133E-04	1.690E-06	5.421E-06	4.292E-06	4.593E-03	4.968E-03
SI WALL	2.032E-05	3.769E-06	6.107E-06	2.574E-05	2.406E-05	2.369E-05	4.942E-03	5.046E-03
ULI WALL	2.643E-05	4.903E-06	7.593E-06	1.085E-05	1.297E-04	1.075E-05	5.150E-03	5.340E-03
LLI WALL	6.060E-06	1.124E-06	3.288E-06	3.273E-06	4.879E-06	3.188E-04	5.216E-03	5.553E-03
T BODY	1.122E-04	2.081E-05	4.463E-06	1.040E-06	3.094E-06	5.469E-06	5.857E-03	6.004E-03
ADREN	1.552E-04	2.878E-05	5.566E-06	5.874E-07	1.802E-06	1.323E-06	8.244E-03	8.437E-03
BL WALL	5.754E-06	1.067E-06	1.136E-06	1.204E-06	3.149E-06	1.440E-05	6.697E-03	6.724E-03
KIDNEYS	6.595E-05	1.224E-05	7.923E-06	1.505E-06	4.337E-06	2.464E-06	8.583E-03	8.678E-03
LIVER	1.568E-04	2.908E-05	4.754E-06	8.949E-07	3.803E-06	1.024E-06	8.838E-03	9.034E-03
OVARIES	1.100E-05	2.041E-06	2.922E-06	4.778E-06	1.293E-05	4.533E-05	8.102E-03	8.181E-03
PANCREAS	1.546E-04	2.868E-05	4.014E-05	9.622E-07	3.140E-06	1.960E-06	9.376E-03	9.605E-03
BONE	6.535E-05	1.231E-05	1.459E-06	3.894E-07	1.093E-06	2.808E-06	6.612E-03	6.696E-03
R MAR	8.397E-05	1.557E-05	2.476E-06	1.217E-06	3.228E-06	8.409E-06	7.791E-03	7.906E-03
Y MAR	6.977E-05	1.254E-05	2.027E-06	5.359E-07	1.551E-06	3.451E-06	6.772E-03	6.863E-03
ENDOST	6.635E-05	1.231E-05	1.459E-06	3.894E-07	1.093E-06	2.808E-06	7.065E-03	7.149E-03
SPLEEN	1.422E-04	2.638E-05	2.278E-05	7.550E-07	2.098E-06	2.742E-06	8.244E-03	8.441E-03
TESTES	2.194E-06	4.069E-07	3.341E-07	2.415E-07	8.132E-07	4.409E-06	6.282E-03	6.290E-03
THYMUS	2.697E-04	5.003E-05	1.670E-06	7.497E-08	2.569E-07	1.894E-07	6.254E-03	6.575E-03
THYROID	8.469E-05	1.571E-05	4.067E-07	2.481E-08	8.299E-08	6.822E-08	6.244E-03	6.345E-03
UTERUS	8.595E-06	1.594E-06	2.311E-06	4.092E-06	7.173E-06	1.521E-05	9.036E-03	9.075E-03

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CS-136								
STOMACH	0.0							
S INT	0.950							
U L INT	0.0							
L L INT	0.0							
DOSE EQUIVALENT (REM/MICROCURIE)								
SOURCE	S CNT	SI CNT	LLI CNT	LLI CNT	OTHER	TOTAL		
TARGET								
LUNGS	2.702E-05	1.039E-06	3.834E-06	2.509E-06	6.751E-03	6.786E-03		
RES LYM	2.702E-05	1.039E-06	3.834E-06	2.509E-06	6.751E-03	6.786E-03		
S WALL	1.343E-03	1.064E-05	3.414E-05	2.703E-05	7.025E-03	8.440E-03		
SI WALL	3.846E-05	1.621E-04	1.515E-04	1.492E-04	7.559E-03	8.060E-03		
ULI WALL	4.781E-05	6.832E-05	8.167E-04	6.768E-05	7.876E-03	8.377E-03		
LLI WALL	2.070E-05	2.061E-05	3.072E-05	2.007E-03	7.977E-03	1.006E-02		
T BODY	2.810E-05	6.549E-06	1.948E-05	3.444E-05	8.958E-03	9.047E-03		
ADREN	3.505E-05	3.699E-06	1.134E-05	8.334E-06	1.261E-02	1.267E-02		
BL WALL	7.151E-06	7.580E-06	1.983E-05	9.070E-05	1.024E-02	1.037E-02		
KIDNEYS	4.989E-05	9.475E-06	2.731E-05	1.552E-05	1.313E-02	1.323E-02		
LIVER	2.993E-05	5.635E-06	2.355E-05	6.446E-06	1.352E-02	1.358E-02		
OVARIES	1.846E-05	3.009E-05	8.140E-05	2.855E-04	1.239E-02	1.281E-02		
PANCREAS	2.528E-04	6.059E-06	1.977E-05	1.234E-05	1.434E-02	1.463E-02		
BONE	9.188E-06	2.452E-06	6.880E-06	1.768E-05	1.011E-02	1.015E-02		
R MAR	1.559E-05	7.663E-06	2.032E-05	5.295E-05	1.192E-02	1.201E-02		
Y MAR	1.276E-05	3.374E-06	9.769E-06	2.173E-05	1.036E-02	1.041E-02		
ENDOST	9.188E-06	2.452E-06	6.880E-06	1.768E-05	1.080E-02	1.084E-02		
SPLEEN	1.434E-04	4.754E-06	1.321E-05	1.727E-05	1.261E-02	1.279E-02		
TESTES	2.104E-06	1.521E-06	5.121E-06	2.776E-05	9.608E-03	9.644E-03		
THYMUS	1.052E-05	4.721E-07	1.618E-06	1.192E-06	9.564E-03	9.578E-03		
THYROID	2.561E-06	1.563E-07	5.226E-07	4.296E-07	9.550E-03	9.554E-03		
UTERUS	1.455E-05	2.577E-05	4.517E-05	9.577E-05	1.382E-02	1.400E-02		

CESIUM-137

RADIONUCLIDE: CS-137

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

NUCLIDE	RADIOACTIVE HALF-LIFE (DAYS)
CS-137	1.1000E 04
BA-137M	1.7700E-03

BRANCHING RATIOS:	FROM CS-137	TO BA-137M	FRACTION 0.9460

ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
	CS-137	1.00	0.130	1.40
	BA-137M	1.00	0.870	135.
			-0.555	0.960
			1.48	1.24
			4.600E-02	433.
			2.510E-02	3.850E 03
BONE	CS-137	0.121	0.130	1.40
	BA-137M	7.200E-02	0.870	135.
			0.650	433.
			0.350	3.850E 03

S FACTORS (REM/MICROCURIE-DAY) FOR CS-137

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CONT	SI CONT	ULI CGNT	LLI CONT	BONE	OTHER
LUNGS	0.873E-02	0.873E-02	0.0	0.0	0.0	0.0	0.0	0.0
RES LYM	0.873E-02	0.582E 00	0.0	0.0	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.175E-01	0.0	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.109E-01	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.199E-01	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.323E-01	0.0	0.0
T BODY	0.125E-03	0.125E-03	0.374E-04	0.998E-04	0.596E-04	0.739E-04	0.125E-03	0.124E-03
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12CE-03
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.164E-02	0.145E-04
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.372E-03	0.190E-03
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.125E-02	0.125E-03
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.241E-03

β⁻ decay (30.17 Y 3)

CESIUM-137 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
CS-137	D	0.0	0.950	0.0	0.0
BA-137M	D	0.0	1.000E-01	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CCNT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	2.462E-03	4.756E-04	1.173E-06	5.686E-08	1.542E-07	9.474E-08	1.236E-03	1.199E-02	1.616E-02
RES LYM	2.460E-03	2.836E-02	1.173E-06	5.686E-08	1.542E-07	9.474E-08	1.236E-03	1.199E-02	4.405E-02
S WALL	3.352E-05	6.596E-06	1.898E-04	5.686E-07	1.521E-06	1.338E-06	7.171E-04	1.295E-02	1.390E-02
SI WALL	5.315E-06	1.034E-06	1.663E-06	2.610E-05	6.811E-06	6.933E-06	1.027E-03	1.374E-02	1.481E-02
ULI WALL	7.133E-06	1.387E-06	2.048E-06	3.791E-06	1.342E-04	3.203E-06	9.146E-04	1.452E-02	1.559E-02
LLI WALL	1.523E-06	2.961E-07	8.377E-07	1.126E-06	1.309E-06	3.876E-04	1.236E-03	1.435E-02	1.598E-02
T BODY	5.775E-05	1.119E-05	1.476E-06	5.161E-07	1.154E-06	2.272E-06	3.975E-03	2.859E-02	3.264E-02
ADREN	4.371E-05	8.500E-06	1.365E-06	2.024E-07	4.568E-07	3.857E-07	2.205E-03	4.788E-02	5.013E-02
BL WALL	1.449E-06	2.819E-07	3.028E-07	4.980E-07	8.361E-07	4.226E-06	7.353E-04	3.225E-02	3.299E-02
KIDNEYS	1.853E-05	3.604E-06	2.097E-06	5.253E-07	1.162E-06	6.692E-07	1.260E-03	5.006E-02	5.135E-02
LIVER	4.301E-05	8.364E-06	1.291E-06	3.036E-07	1.040E-06	2.805E-07	8.988E-04	5.138E-02	5.233E-02
OVARIES	2.885E-06	5.610E-07	5.287E-07	1.540E-06	4.650E-06	1.263E-05	1.320E-03	4.866E-02	5.001E-02
PANCREAS	4.720E-05	9.180E-06	1.098E-05	3.421E-07	7.913E-07	5.797E-07	1.173E-03	5.304E-02	5.428E-02
BONE	1.818E-05	3.536E-06	3.847E-07	1.304E-07	3.010E-07	8.121E-07	3.261E-02	1.272E-02	4.536E-02
R MAR	2.290E-05	4.454E-06	6.578E-07	4.112E-07	8.932E-07	2.429E-06	1.132E-02	3.771E-02	4.906E-02
Y MAR	1.906E-05	3.706E-06	5.337E-07	1.799E-07	4.283E-07	1.000E-06	3.804E-03	4.210E-02	4.593E-02
ENDOST	1.818E-05	3.536E-06	3.847E-07	1.304E-07	3.010E-07	8.121E-07	2.599E-02	2.711E-02	5.312E-02
SPLEEN	3.899E-05	7.582E-06	6.075E-06	2.602E-07	5.384E-07	7.670E-07	1.081E-03	4.928E-02	5.041E-02
TESTES	5.122E-07	9.962E-08	4.524E-08	6.955E-08	2.264E-07	1.474E-06	7.619E-04	4.359E-02	4.435E-02
THYMUS	6.923E-05	1.346E-05	2.755E-07	2.442E-08	6.771E-08	4.970E-08	9.994E-04	5.549E-02	5.657E-02
THYROID	2.308E-05	4.488E-06	1.030E-07	7.485E-09	2.027E-08	1.662E-08	1.158E-03	4.350E-02	4.469E-02
UTERUS	1.888E-06	3.672E-07	5.908E-07	1.430E-06	1.913E-06	4.316E-06	8.710E-04	6.459E-02	6.547E-02

PERCENT DOSE EQUIVALENT..

NUCLIDE CS-137 BA-137M

TARGET		
LUNGS	12.0	88.0
RES LYM	51.2	48.8
S WALL	0.8	99.2
SI WALL	0.1	99.9
ULI WALL	0.5	99.5
LLI WALL	1.6	98.4
T BODY	40.3	59.7
ADREN	44.7	55.3
BL WALL	33.8	66.2
KIDNEYS	43.7	56.3
LIVER	42.8	57.2
OVARIES	44.8	55.2
PANCREAS	41.3	58.7
BONE	49.3	50.7
R MAR	45.7	54.3
Y MAR	48.8	51.2
ENDOST	52.0	48.0
SPLEEN	44.5	55.5
TESTES	50.5	49.5
THYMUS	39.6	60.4
THYROID	50.2	49.8
UTERUS	34.2	65.8

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	CS-137	BA-137M
STOMACH	0.0	0.0
S INT	0.550	1.000E-01
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET							
LUNGS	7.020E-06	3.536E-07	9.697E-07	5.959E-07	1.860E-03	1.804E-02	1.991E-02
RES LYM	7.020E-06	3.536E-07	9.697E-07	5.959E-07	1.860E-03	1.804E-02	1.991E-02
S WALL	1.171E-03	3.536E-06	9.568E-06	8.419E-06	1.079E-03	1.949E-02	2.176E-02
SI WALL	9.954E-06	1.634E-04	4.284E-05	4.361E-05	1.546E-03	2.067E-02	2.248E-02
ULI WALL	1.226E-05	2.358E-05	8.442E-04	2.015E-05	1.376E-03	2.186E-02	2.414E-02
LLI WALL	5.014E-06	7.003E-06	8.234E-06	2.438E-03	1.860E-03	2.160E-02	2.591E-02
T BODY	8.912E-06	3.219E-06	7.258E-06	1.429E-05	5.982E-03	4.304E-02	4.905E-02
ADREN	8.171E-06	1.259E-06	2.873E-06	2.426E-06	3.318E-03	7.206E-02	7.539E-02
BL WALL	1.812E-06	3.097E-06	5.259E-06	2.658E-05	1.107E-03	4.854E-02	4.968E-02
KIDNEYS	1.255E-05	3.267E-06	7.311E-06	4.209E-06	1.896E-03	7.535E-02	7.728E-02
LIVER	7.725E-06	1.888E-06	6.541E-06	1.764E-06	1.353E-03	7.733E-02	7.870E-02
OVARIES	3.164E-06	9.580E-06	2.924E-05	7.946E-05	1.987E-03	7.325E-02	7.535E-02
PANCREAS	6.574E-05	2.128E-06	4.977E-06	3.646E-06	1.765E-03	7.983E-02	8.167E-02
BONE	2.303E-06	8.111E-07	1.893E-06	5.108E-06	4.909E-02	1.915E-02	6.825E-02
R MAR	3.937E-06	2.557E-06	5.618E-06	1.528E-05	1.703E-02	5.676E-02	7.382E-02
Y MAR	3.194E-06	1.119E-06	2.693E-06	6.290E-06	5.724E-03	6.337E-02	6.911E-02
ENDOST	2.303E-06	8.111E-07	1.893E-06	5.108E-06	3.911E-02	4.081E-02	7.993E-02
SPLEEN	3.636E-05	1.618E-06	3.386E-06	4.824E-06	1.626E-03	7.417E-02	7.584E-02
TESTES	2.708E-07	4.325E-07	1.424E-06	9.270E-06	1.147E-03	6.561E-02	6.677E-02
THYMUS	1.649E-06	1.518E-07	4.258E-07	3.126E-07	1.504E-03	8.352E-02	8.502E-02
THYROID	6.165E-07	4.655E-08	1.275E-07	1.045E-07	1.743E-03	6.548E-02	6.722E-02
UTERUS	3.536E-06	8.891E-06	1.203E-05	2.715E-05	1.311E-03	9.721E-02	9.857E-02

PERCENT DOSE EQUIVALENT..

NUCLIDE	CS-137	BA-137M

TARGET		
LUNGS	0.0	100.0
RES LYM	0.0	100.0
S WALL	3.4	96.6
SI WALL	0.4	99.6
ULI WALL	2.2	97.8
LLI WALL	6.2	93.8
T BODY	40.3	59.7
ADREN	44.8	55.2
BL WALL	33.8	66.2
KIDNEYS	42.7	56.3
LIVER	42.9	57.1
OVARIES	44.8	55.2
PANCREAS	41.3	58.7
BONE	49.3	50.7
R MAR	45.7	54.3
Y MAR	48.8	51.2
ENDOST	52.0	48.0
SPLEEN	44.5	55.5
TESTES	50.5	49.5
THYMUS	39.7	60.3
THYROID	50.2	49.8
UTERUS	34.2	65.8

RADIONUCLIDE: BA-137M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

ORGAN ABSORBED	NUCL IDE BA-137M	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
			-0.555	0.960
			1.48	1.24
			4.600E-02	433.
			2.510E-02	3.850E 03
BONE	BA-137M	1.00	-0.555	0.960
			0.500	1.24
			3.000E-02	433.
			2.500E-02	3.850E 03

S FACTORS (REM/MICROCURIE-DAY) FOR BA-137M

TARGET ORGANS	SOURCE ORGANS							
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER
LUNGS	0.477E-02	0.476E-02	0.189E-03	0.354E-04	0.378E-04	0.126E-04	0.102E-03	0.137E-03
RES LYM	0.476E-02	0.219E 00	0.189E-03	0.354E-04	0.378E-04	0.126E-04	0.102E-03	0.137E-03
S WALL	0.194E-03	0.194E-03	0.119E-01	0.354E-03	0.373E-03	0.178E-03	0.592E-04	0.148E-03
ST WALL	0.304E-04	0.304E-04	0.268E-03	0.726E-02	0.167E-02	0.922E-03	0.848E-04	0.157E-03
ULI WALL	0.406E-04	0.408E-04	0.330E-03	0.236E-02	0.119E-01	0.426E-03	0.755E-04	0.166E-03
LLI WALL	0.871E-05	0.871E-05	0.135E-03	0.701E-03	0.321E-03	0.174E-01	0.102E-03	0.164E-03
T BODY	0.197E-03	0.197E-03	0.198E-03	0.239E-03	0.220E-03	0.224E-03	0.196E-03	0.195E-03
ADREN	0.250E-03	0.250E-03	0.220E-03	0.126E-03	0.112E-03	0.513E-04	0.182E-03	0.291E-03
BL WALL	0.829E-05	0.829E-05	0.488E-04	0.310E-03	0.205E-03	0.562E-03	0.607E-04	0.241E-03
KIDNEYS	0.106E-03	0.106E-03	0.338E-03	0.327E-03	0.285E-03	0.890E-04	0.104E-03	0.316E-03
LIVER	0.246E-03	0.246E-03	0.208E-03	0.189E-03	0.255E-03	0.373E-04	0.742E-04	0.331E-03
OVARIES	0.165E-04	0.165E-04	0.852E-04	0.959E-03	0.114E-02	0.168E-02	0.109E-03	0.300E-03
PANCREAS	0.270E-03	0.270E-03	0.177E-02	0.213E-04	0.194E-03	0.771E-04	0.968E-04	0.350E-03
BONE	0.104E-03	0.104E-03	0.620E-04	0.812E-04	0.738E-04	0.108E-03	0.959E-03	0.130E-03
R MAR	0.131E-03	0.131E-03	0.106E-03	0.256E-03	0.219E-03	0.323E-03	0.541E-03	0.229E-03
Y MAR	0.109E-03	0.109E-03	0.860E-04	0.112E-03	0.105E-03	0.133E-03	0.314E-03	0.225E-03
ENDOST	0.104E-03	0.104E-03	0.620E-04	0.812E-04	0.738E-04	0.108E-03	0.824E-03	0.177E-03
SPLEEN	0.223E-03	0.223E-03	0.979E-03	0.162E-03	0.132E-03	0.102E-03	0.892E-04	0.307E-03
TESTES	0.293E-05	0.293E-05	0.729E-05	0.433E-04	0.555E-04	0.196E-03	0.629E-04	0.242E-03
THYMUS	0.396E-03	0.396E-03	0.444E-04	0.152E-04	0.166E-04	0.661E-05	0.825E-04	0.378E-03
THYROID	0.132E-03	0.132E-03	0.166E-04	0.466E-05	0.497E-05	0.221E-05	0.956E-04	0.241E-03
UTERUS	0.108E-04	0.108E-04	0.952E-04	0.890E-03	0.469E-03	0.574E-03	0.719E-04	0.482E-03

IT decay (2.552 M 2)

BARIUM-137m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =9.000E-02 D5 =0.249

SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS							
		STOMACH	S INT	U L INT	L L INT				
BA-137M	D	0.0	1.000E-01	0.0	0.0				
DOSE EQUIVALENT (REM/MICROCURIE)									
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET									
LUNGS	7.067E-06	2.129E-09	1.062E-08	1.198E-10	1.951E-12	3.058E-15	2.850E-12	1.233E-08	7.092E-06
RES LYM	7.052E-06	5.795E-08	1.062E-08	1.198E-10	1.951E-12	3.058E-15	2.850E-12	1.233E-08	7.173E-06
S WALL	2.674E-07	8.677E-11	6.684E-07	1.198E-09	1.925E-11	4.320E-14	1.654E-12	1.332E-08	9.704E-07
SI WALL	4.504E-08	1.360E-11	1.505E-08	2.457E-03	8.619E-11	2.238E-13	2.369E-12	1.413E-08	9.890E-08
ULI WALL	6.045E-08	1.825E-11	1.853E-08	7.987E-09	6.142E-10	1.034E-13	2.109E-12	1.494E-08	1.025E-07
LLI WALL	1.290E-08	3.896E-12	7.582E-09	2.373E-09	1.657E-11	4.223E-12	2.850E-12	1.476E-08	3.765E-08
T BODY	2.919E-07	8.811E-11	1.112E-08	8.089E-10	1.135E-11	5.436E-14	5.476E-12	1.755E-08	3.214E-07
ADREN	3.704E-07	1.118E-10	1.236E-08	4.264E-10	5.781E-12	1.245E-14	5.085E-12	2.620E-08	4.095E-07
BL WALL	1.222E-08	3.708E-12	2.741E-09	1.049E-09	1.058E-11	1.364E-13	1.696E-12	2.170E-08	3.778E-08
KIDNEYS	1.570E-07	4.741E-11	1.898E-08	1.107E-09	1.471E-11	2.160E-14	2.906E-12	2.845E-08	2.056E-07
LIVER	3.644E-07	1.100E-10	1.168E-08	6.397E-10	1.316E-11	9.052E-15	2.073E-12	2.980E-08	4.067E-07
OVARIES	2.444E-08	7.380E-12	4.785E-09	3.246E-09	5.884E-11	4.077E-13	3.045E-12	2.701E-08	5.955E-08
PANCREAS	4.000E-07	1.208E-10	9.941E-08	7.209E-10	1.001E-11	1.871E-14	2.705E-12	3.151E-08	5.318E-07
BONE	1.541E-07	4.652E-11	3.482E-09	2.748E-10	3.809E-12	2.621E-14	2.679E-11	1.170E-08	1.696E-07
R MAR	1.941E-07	5.859E-11	5.953E-09	8.664E-10	1.130E-11	7.839E-14	1.512E-11	2.062E-08	2.216E-07
Y MAR	1.615E-07	4.875E-11	4.830E-09	3.791E-10	5.419E-12	3.228E-14	8.773E-12	2.026E-08	1.870E-07
ENDOST	1.541E-07	4.652E-11	3.482E-09	2.748E-10	3.809E-12	2.621E-14	2.302E-11	1.593E-08	1.738E-07
SPLEEN	3.304E-07	9.574E-11	5.499E-08	5.483E-10	6.813E-12	2.475E-14	2.492E-12	2.764E-08	4.137E-07
TESTES	4.341E-09	1.311E-12	4.094E-10	1.465E-10	2.864E-12	4.757E-14	1.757E-12	2.179E-08	2.669E-08
THYMUS	5.867E-07	1.771E-10	2.494E-09	5.144E-11	8.568E-13	1.604E-15	2.305E-12	3.403E-08	6.234E-07
THYROID	1.955E-07	5.904E-11	9.323E-10	1.577E-11	2.565E-13	5.363E-16	2.671E-12	2.170E-08	2.183E-07
UTERUS	1.600E-08	4.831E-12	5.347E-09	3.012E-09	2.421E-11	1.393E-13	2.009E-12	4.339E-08	6.778E-08

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

BA-137m
STOMACH 0.0
S INT 1.000E-01
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	OTHER	TOTAL
TARGET							
LUNGS	4.548E-07	5.133E-09	8.358E-11	1.310E-13	7.768E-15	3.364E-11	4.600E-07
RES LYM	4.548E-07	5.133E-09	8.358E-11	1.310E-13	7.768E-15	3.364E-11	4.600E-07
S WALL	2.663E-05	5.133E-08	8.247E-10	1.851E-12	4.508E-15	3.634E-11	2.868E-05
SI WALL	6.448E-07	1.053E-06	3.692E-09	9.586E-12	6.458E-15	3.855E-11	1.701E-06
ULI WALL	7.940E-07	3.422E-07	2.631E-08	4.429E-12	5.750E-15	4.076E-11	1.163E-06
LLI WALL	3.248E-07	1.016E-07	7.098E-10	1.809E-10	7.768E-15	4.027E-11	4.274E-07
T BODY	4.764E-07	3.465E-08	4.864E-10	2.329E-12	1.493E-14	4.788E-11	5.116E-07
ADREN	5.293E-07	1.827E-08	2.476E-10	5.334E-13	1.386E-14	7.145E-11	5.479E-07
BL WALL	1.174E-07	4.495E-08	4.533E-10	5.843E-12	4.623E-15	5.917E-11	1.629E-07
KIDNEYS	8.133E-07	4.741E-08	6.302E-10	9.253E-13	7.920E-15	7.759E-11	8.614E-07
LIVER	5.005E-07	2.740E-08	5.638E-10	3.878E-13	5.651E-15	8.127E-11	5.285E-07
OVARIES	2.050E-07	1.390E-07	2.521E-09	1.747E-11	8.301E-15	7.366E-11	3.467E-07
PANCREAS	4.255E-06	3.088E-08	4.289E-10	8.016E-13	7.372E-15	8.593E-11	4.290E-06
BONE	1.492E-07	1.177E-08	1.632E-10	1.123E-12	7.303E-14	3.192E-11	1.611E-07
R MAR	2.550E-07	3.712E-08	4.842E-10	3.358E-12	4.120E-14	5.622E-11	2.927E-07
Y MAR	2.069E-07	1.624E-08	2.322E-10	1.383E-12	2.391E-14	5.524E-11	2.235E-07
ENDOST	1.492E-07	1.177E-08	1.632E-10	1.123E-12	6.275E-14	4.346E-11	1.612E-07
SPLEEN	2.356E-06	2.349E-08	2.919E-10	1.060E-12	6.793E-15	7.538E-11	2.379E-06
TESTES	1.754E-08	6.278E-09	1.227E-10	2.038E-12	4.790E-15	5.942E-11	2.400E-08
THYMUS	1.068E-07	2.204E-09	3.670E-11	6.872E-14	6.283E-15	9.281E-11	1.092E-07
THYROID	3.694E-08	6.757E-10	1.099E-11	2.298E-14	7.280E-15	5.917E-11	4.069E-08
UTERUS	2.291E-07	1.290E-07	1.037E-09	5.968E-12	5.476E-15	1.183E-10	3.593E-07

BARIUM-140

RADIONUCLIDE: BA-140

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE					
BA-140		12.80			
LA-140		1.620			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		BA-140	LA-140	1.000	
ORGAN ABSORBED	NUCLIDE BA-140	BLOOD TRANSFER FRACTION F2-PRIME 1.00		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
				-0.555	0.960
BONE	LA-140 BA-140	1.00 1.00		1.48	1.24
				4.600E-02	433.
				2.510E-02	3.850E 03
				1.00	5.000E 03
				-0.555	0.960
LIVER	LA-140 * BA-140	0.400 4.960E-02		0.500	1.24
				3.000E-02	433.
				2.500E-02	3.850E 03
				1.00	5.000E 03
				0.300	1.24
KIDNEYS	LA-140 * BA-140	0.400 8.550E-03		1.600E-02	433.
				1.000E-04	3.850E 03
				1.00	5.000E 03
				0.300	1.24
				1.600E-02	433.
	LA-140	5.000E-02		1.000E-04	3.850E 03
				1.00	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR BA-140

TARGET
ORGANS

SOURCE ORGANS

	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.169E-01	0.169E-01	0.487E-04	0.828E-05	0.856E-05	0.262E-05	0.259E-04	0.655E-04	0.243E-04	0.344E-04
RES LYM	0.169E-01	0.109E 01	0.487E-04	0.829E-05	0.856E-05	0.262E-05	0.259E-04	0.655E-04	0.243E-04	0.344E-04
S WALL	0.490E-04	0.490E-04	0.343E-01	0.911E-04	0.980E-04	0.470E-04	0.152E-04	0.495E-04	0.879E-04	0.369E-04
SI WALL	0.687E-05	0.687E-05	0.688E-04	0.214E-01	0.453E-03	0.248E-03	0.209E-04	0.415E-04	0.721E-04	0.401E-04
ULI WALL	0.930E-05	0.930E-05	0.885E-04	0.658E-03	0.385E-01	0.115E-03	0.184E-04	0.671E-04	0.749E-04	0.411E-04
LLI WALL	0.211E-05	0.211E-05	0.329E-04	0.190E-03	0.814E-04	0.622E-01	0.256E-04	0.792E-05	0.224E-04	0.442E-04
T BODY	0.275E-03	0.275E-03	0.119E-03	0.241E-03	0.164E-03	0.191E-03	0.274E-03	0.281E-03	0.281E-03	0.272E-03
ADREN	0.643E-04	0.643E-04	0.564E-04	0.324E-04	0.260E-04	0.124E-04	0.425E-04	0.131E-03	0.332E-03	0.527E-03
BL WALL	0.181E-05	0.181E-05	0.109E-04	0.839E-04	0.508E-04	0.153E-03	0.160E-04	0.799E-05	0.962E-05	0.294E-03
KIDNEYS	0.264E-04	0.264E-04	0.868E-04	0.823E-04	0.711E-04	0.219E-04	0.240E-04	0.100E-03	0.551E-01	0.391E-04
LIVER	0.644E-04	0.644E-04	0.527E-04	0.474E-04	0.651E-04	0.865E-05	0.184E-04	0.986E-02	0.105E-03	0.287E-04
OVARIES	0.380E-05	0.380E-05	0.139E-04	0.247E-03	0.332E-03	0.461E-03	0.271E-04	0.678E-05	0.304E-04	0.539E-03
PANCREAS	0.718E-04	0.718E-04	0.480E-03	0.536E-04	0.489E-04	0.191E-04	0.240E-04	0.123E-03	0.173E-03	0.547E-03
BONE	0.290E-04	0.290E-04	0.169E-04	0.224E-04	0.206E-04	0.310E-04	0.317E-02	0.210E-04	0.279E-04	0.645E-04
R MAR	0.364E-04	0.364E-04	0.289E-04	0.727E-04	0.632E-04	0.964E-04	0.893E-03	0.301E-04	0.712E-04	0.414E-03
Y MAR	0.302E-04	0.308E-04	0.235E-04	0.311E-04	0.292E-04	0.387E-04	0.955E-04	0.310E-04	0.345E-04	0.520E-03
ENDOST	0.290E-04	0.290E-04	0.169E-04	0.224E-04	0.206E-04	0.310E-04	0.236E-02	0.210E-04	0.279E-04	0.293E-03
SPLEEN	0.581E-04	0.581E-04	0.257E-03	0.407E-04	0.326E-04	0.238E-04	0.213E-04	0.257E-04	0.229E-03	0.539E-03
TESTES	0.592E-06	0.592E-06	0.947E-06	0.941E-05	0.125E-04	0.528E-04	0.152E-04	0.298E-05	0.372E-05	0.523E-03
THYMUS	0.100E-03	0.100E-03	0.678E-05	0.346E-05	0.380E-05	0.143E-05	0.188E-04	0.310E-04	0.923E-05	0.570E-03
THYROID	0.300E-04	0.300E-04	0.378E-05	0.971E-06	0.104E-05	0.439E-06	0.274E-04	0.481E-05	0.233E-05	0.524E-03
UTERUS	0.247E-05	0.247E-05	0.227E-04	0.237E-03	0.119E-03	0.153E-03	0.156E-04	0.110E-04	0.222E-04	0.583E-03

 β^- decay (12.789 D 6)* Retention data derived from the "soft tissues" retention function given
for barium in Chapter 3.

BARIUM-140 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =9.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
BA-140	D	0.0	1.000E-01	0.0	0.0
LA-140	W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET											
LUNGS	7.418E-03	1.641E-03	8.876E-07	8.120E-07	4.766E-06	5.000E-06	2.080E-04	1.923E-05	1.274E-06	4.395E-04	9.739E-03
RES LYM	7.418E-03	9.736E-02	8.876E-07	8.120E-07	4.766E-06	5.000E-06	2.080E-04	1.923E-05	1.274E-06	4.395E-04	0.105
S WALL	1.044E-04	2.515E-05	2.912E-04	8.220E-06	3.885E-05	4.959E-05	1.244E-04	1.533E-05	4.054E-06	4.873E-04	1.148E-03
SI WALL	1.734E-05	4.192E-06	1.246E-06	7.240E-04	1.784E-04	2.613E-04	1.648E-04	1.269E-05	3.731E-06	5.223E-04	1.890E-03
ULI WALL	2.318E-05	5.604E-06	1.683E-06	5.381E-05	4.941E-03	1.258E-04	1.570E-04	1.789E-05	3.808E-06	5.366E-04	5.868E-03
LLI WALL	4.088E-06	5.830E-07	6.630E-07	1.619E-05	3.393E-05	1.695E-02	2.052E-04	2.800E-06	1.332E-06	5.777E-04	1.779E-02
T BODY	1.710E-04	3.907E-05	1.449E-06	1.056E-05	3.530E-05	9.169E-05	6.399E-04	2.555E-05	4.371E-06	1.059E-03	2.077E-03
ADREN	1.057E-04	2.530E-05	1.349E-06	2.958E-05	1.259E-05	1.495E-05	3.833E-04	3.700E-05	1.554E-05	1.756E-03	2.354E-03
BL WALL	5.182E-06	1.256E-06	2.168E-07	7.524E-06	2.151E-05	1.808E-04	1.483E-04	2.199E-06	5.847E-07	1.271E-03	1.639E-03
KIDNEYS	5.608E-05	1.351E-05	1.594E-06	7.056E-06	3.156E-05	2.872E-05	2.064E-04	2.919E-05	5.716E-04	5.151E-04	1.461E-03
LIVER	1.240E-04	2.982E-05	9.899E-07	4.330E-06	2.870E-05	1.272E-05	1.565E-04	6.766E-04	5.026E-06	3.809E-04	1.420E-03
OVARIES	9.512E-06	2.300E-06	3.945E-07	1.998E-05	1.041E-04	4.904E-04	1.980E-04	6.355E-06	1.661E-06	1.909E-03	2.742E-03
PANCREAS	1.289E-04	3.094E-05	8.385E-06	4.448E-05	2.363E-05	2.118E-05	2.315E-04	3.163E-05	8.303E-06	1.970E-03	2.459E-03
BONE	5.167E-05	1.240E-05	3.000E-07	1.881E-06	8.266E-06	3.063E-05	5.091E-03	5.797E-06	1.292E-06	5.146E-04	5.718E-03
R MAR	6.580E-05	1.580E-05	5.013E-07	5.840E-06	2.416E-05	9.008E-05	2.012E-03	8.378E-06	3.232E-06	1.387E-03	3.613E-03
Y MAR	5.357E-05	1.285E-05	4.203E-07	2.574E-06	1.167E-05	3.801E-05	6.057E-04	8.596E-06	1.589E-06	1.607E-03	2.342E-03
ENDOST	5.167E-05	1.240E-05	3.000E-07	1.881E-06	8.266E-06	3.063E-05	4.047E-03	5.797E-06	1.292E-06	1.075E-03	5.233E-03
SPLEEN	1.032E-04	2.477E-05	4.593E-06	3.866E-06	1.608E-05	2.962E-05	1.527E-04	7.854E-06	1.056E-05	1.891E-03	2.245E-03
TESTES	2.139E-06	5.199E-07	5.746E-08	1.235E-05	5.559E-06	5.274E-05	1.660E-04	1.225E-06	2.403E-07	1.716E-03	1.946E-03
THYMUS	2.186E-04	5.270E-05	2.445E-07	3.818E-07	2.058E-06	2.382E-06	1.279E-04	6.868E-06	4.102E-07	2.437E-03	2.848E-03
THYROID	5.475E-05	1.315E-05	8.401E-08	1.324E-07	7.112E-07	9.411E-07	1.981E-04	1.683E-06	1.634E-07	1.699E-03	1.969E-03
UTERUS	1.131E-05	2.756E-06	4.674E-07	1.960E-05	5.567E-05	1.692E-04	1.353E-04	4.505E-06	1.325E-06	2.475E-03	2.875E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	BA-140	LA-140
TARGET		
LUNGS	37.4	62.6
RES LYM	37.3	62.7
S WALL	25.7	74.3
SI WALL	32.8	67.2
ULI WALL	50.2	49.8
LLI WALL	45.9	54.1
T BODY	23.9	76.1
ADREN	21.9	78.1
BL WALL	18.1	81.9
KIDNEYS	16.7	83.3
LIVER	17.0	83.0
OVARIES	21.4	78.6
PANCREAS	21.5	78.5
BONE	30.7	69.3
R MAR	24.2	75.8
Y MAR	22.6	77.4
ENDOST	29.2	70.8
SPLEEN	22.9	77.1
TESTES	24.8	75.2
THYMUS	19.0	81.0
THYROID	24.8	75.2
UTERUS	19.6	80.4

BARIUM-140 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	BA-140	LA-140
STOMACH	0.0	0.0
S INT	1.000E-01	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET									
LUNGS	2.481E-06	2.800E-06	2.253E-05	2.748E-05	4.238E-05	3.678E-06	2.460E-07	8.973E-05	1.913E-04
RES LYM	2.481E-06	2.800E-06	2.253E-05	2.748E-05	4.238E-05	3.678E-06	2.460E-07	8.973E-05	1.913E-04
S WALL	1.478E-03	2.899E-05	1.875E-04	2.750E-04	2.535E-05	2.932E-06	7.895E-07	9.948E-05	2.098E-03
SI WALL	3.496E-06	3.736E-03	8.612E-04	1.448E-03	3.358E-05	2.427E-06	7.263E-07	1.066E-04	6.193E-03
ULI WALL	4.564E-06	1.952E-04	2.735E-02	6.972E-04	3.200E-05	3.424E-06	7.414E-07	1.095E-04	2.840E-02
LLI WALL	1.727E-06	5.805E-05	1.632E-04	9.912E-02	4.181E-05	5.352E-07	2.593E-07	1.179E-04	9.951E-02
T BODY	5.481E-06	4.820E-05	1.805E-04	5.200E-04	1.305E-04	4.937E-06	8.573E-07	2.161E-04	1.107E-03
ADREN	3.132E-06	1.040E-05	5.997E-05	8.267E-05	7.811E-05	7.080E-06	3.026E-06	3.585E-04	6.029E-04
BL WALL	5.658E-07	2.658E-05	1.033E-04	1.000E-03	3.022E-05	4.207E-07	1.138E-07	2.595E-04	1.421E-03
KIDNEYS	4.421E-06	2.525E-05	1.512E-04	1.586E-04	4.207E-05	5.585E-06	1.127E-04	1.052E-04	6.050E-04
LIVER	2.708E-06	1.522E-05	1.375E-04	7.013E-05	3.189E-05	1.314E-04	9.787E-07	7.776E-05	4.676E-04
OVARIES	8.217E-07	7.272E-05	5.119E-04	2.719E-03	4.034E-05	1.212E-06	3.232E-07	3.898E-04	3.736E-03
PANCREAS	2.416E-05	1.607E-05	1.126E-04	1.173E-04	4.718E-05	6.055E-06	1.617E-06	4.022E-04	7.272E-04
BONE	8.543E-07	6.772E-06	3.986E-05	1.700E-04	1.038E-03	1.109E-06	2.517E-07	1.051E-04	1.362E-03
R MAR	1.452E-06	2.130E-05	1.169E-04	5.007E-04	4.102E-04	1.603E-06	6.295E-07	2.832E-04	1.336E-03
Y MAR	1.191E-06	5.306E-06	5.628E-05	2.110E-04	1.234E-04	1.645E-06	3.094E-07	3.281E-04	7.312E-04
ENDOST	8.543E-07	6.772E-06	3.986E-05	1.700E-04	8.251E-04	1.109E-06	2.517E-07	2.194E-04	1.263E-03
SPLEEN	1.302E-05	1.345E-05	7.651E-05	1.637E-04	3.112E-05	1.502E-06	2.056E-06	3.862E-04	6.876E-04
TESTES	8.061E-08	3.979E-06	2.662E-05	2.927E-04	3.383E-05	2.340E-07	4.674E-08	3.505E-04	7.080E-04
THYMUS	4.428E-07	1.279E-06	9.745E-06	1.311E-05	2.607E-05	1.316E-06	7.990E-08	4.975E-04	5.496E-04
THYROID	2.047E-07	4.231E-07	3.331E-06	5.157E-06	4.037E-05	3.217E-07	3.179E-08	3.470E-04	3.969E-04
UTERUS	1.199E-06	7.087E-05	2.658E-04	9.371E-04	2.757E-05	8.607E-07	2.578E-07	5.054E-04	1.809E-03

PERCENT DOSE EQUIVALENT..

NUCL IDE	BA-140	LA-140
TARGET		
LUNGS	9.8	90.2
RES LYM	9.8	90.2
S WALL	73.0	27.0
SI WALL	58.2	41.8
ULI WALL	64.3	35.7
LLI WALL	51.4	48.6
T BODY	32.1	67.9
ADREN	21.7	78.3
BL WALL	15.3	84.7
KIDNEYS	18.8	81.2
LIVER	19.6	80.4
OVARIES	18.0	82.0
PANCREAS	23.3	76.7
BONE	29.0	71.0
R MAR	22.0	78.0
Y MAR	21.4	78.6
ENDOST	27.6	72.4
SPLEEN	22.2	77.8
TESTES	20.9	79.1
THYMUS	20.0	80.0
THYROID	25.1	74.9
UTERUS	18.0	82.0

LANTHANUM-140

RADIONUCLIDE: LA-140

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)		
NUCL IDE LA-140		1.680		
ORGAN ABSORBED	NUCLIDE LA-140	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 5.000E-02 0.950	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500 5.000E 03
		EXCRET. BONE LIVER KIDNEYS	LA-140 LA-140 LA-140 LA-140	5.000E-02 0.400 0.400 5.000E-02

S FACTORS (REM/MICROCURIE-DAY) FOR LA-140

TARGET ORGANS	SOURCE ORGANS											
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	
LUNGS	0.332E-01	0.332E-01	0.649E-03	0.129E-03	0.157E-03	0.643E-04	0.902E-03	0.364E-03	0.896E-03	0.352E-03	0.458E-03	
RES LYM	0.332E-01	0.188E-01	0.649E-03	0.129E-03	0.157E-03	0.643E-04	0.902E-03	0.364E-03	0.896E-03	0.352E-03	0.458E-03	
S WALL	0.724E-03	0.724E-03	0.742E-01	0.127E-02	0.120E-02	0.600E-03	0.949E-03	0.218E-03	0.717E-03	0.111E-02	0.509E-03	
SI WALL	0.122E-03	0.122E-03	0.908E-03	0.459E-01	0.550E-02	0.316E-02	0.110E-02	0.288E-03	0.593E-03	0.133E-02	0.545E-03	
ULI WALL	0.163E-03	0.163E-03	0.126E-02	0.801E-02	0.789E-01	0.153E-02	0.106E-02	0.276E-03	0.828E-03	0.105E-02	0.560E-03	
LLI WALL	0.281E-04	0.281E-04	0.511E-03	0.245E-02	0.106E-02	0.122E-00	0.113E-02	0.359E-03	0.132E-03	0.371E-03	0.603E-03	
T BODY	0.921E-03	0.921E-03	0.760E-03	0.102E-02	0.878E-03	0.922E-03	0.924E-03	0.926E-03	0.101E-02	0.102E-02	0.914E-03	
ADREN	0.713E-03	0.713E-03	0.112E-02	0.459E-03	0.405E-03	0.184E-03	0.137E-02	0.676E-03	0.172E-02	0.426E-02	0.144E-02	
BL WALL	0.368E-04	0.368E-04	0.166E-03	0.116E-02	0.674E-03	0.222E-02	0.107E-02	0.262E-03	0.102E-03	0.163E-03	0.113E-02	
KIDNEYS	0.389E-03	0.389E-03	0.117E-02	0.107E-02	0.999E-03	0.357E-03	0.100E-02	0.363E-03	0.136E-02	0.116E-00	0.538E-03	
LIVER	0.852E-03	0.852E-03	0.736E-03	0.672E-03	0.907E-03	0.160E-03	0.101E-02	0.275E-03	0.245E-01	0.138E-02	0.398E-03	
OVARIES	0.669E-04	0.669E-04	0.347E-03	0.296E-02	0.302E-02	0.594E-02	0.112E-02	0.344E-03	0.310E-03	0.460E-03	0.160E-02	
PANCREAS	0.879E-03	0.879E-03	0.598E-02	0.666E-03	0.760E-03	0.258E-03	0.107E-02	0.410E-03	0.146E-02	0.228E-02	0.166E-02	
BONE	0.352E-03	0.352E-03	0.216E-03	0.283E-03	0.256E-03	0.367E-03	0.926E-03	0.638E-02	0.269E-03	0.354E-03	0.512E-03	
R MAR	0.449E-03	0.449E-03	0.356E-03	0.863E-03	0.740E-03	0.107E-02	0.976E-03	0.288E-02	0.389E-03	0.884E-03	0.114E-02	
Y MAR	0.364E-03	0.364E-03	0.304E-03	0.385E-03	0.361E-03	0.455E-03	0.886E-03	0.104E-02	0.399E-03	0.435E-03	0.128E-02	
ENDOST	0.352E-03	0.352E-03	0.216E-03	0.283E-03	0.256E-03	0.367E-03	0.926E-03	0.523E-02	0.269E-03	0.354E-03	0.911E-03	
SPLEEN	0.703E-03	0.703E-03	0.332E-02	0.608E-03	0.519E-03	0.366E-03	0.979E-03	0.265E-03	0.367E-03	0.289E-02	0.158E-02	
TESTES	0.154E-04	0.154E-04	0.587E-04	0.212E-03	0.176E-03	0.633E-03	0.100E-02	0.266E-03	0.582E-04	0.672E-04	0.140E-02	
THYMUS	0.152E-02	0.152E-02	0.229E-03	0.623E-04	0.675E-04	0.303E-04	0.106E-02	0.221E-03	0.313E-03	0.112E-03	0.210E-02	
THYROID	0.374E-03	0.374E-03	0.677E-04	0.229E-04	0.241E-04	0.122E-04	0.906E-03	0.344E-03	0.793E-04	0.459E-04	0.138E-02	
UTERUS	0.823E-04	0.823E-04	0.364E-03	0.293E-02	0.178E-02	0.206E-02	0.107E-02	0.238E-03	0.214E-03	0.369E-03	0.219E-02	

β^- decay (40.22 H 2)

LANTHANUM-140 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
LA-140 W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.989E-02	3.153E-05	8.502E-06	6.324E-06	2.044E-05	1.094E-05	1.801E-06	2.534E-05	6.238E-05	3.063E-06	7.971E-06
RES LYM	1.989E-02	1.785E-03	8.502E-06	6.324E-06	2.044E-05	1.094E-05	1.801E-06	2.534E-05	6.238E-05	3.063E-06	7.971E-06
S WALL	4.337E-04	6.875E-07	9.720E-04	6.226E-05	1.563E-04	1.021E-04	1.895E-06	1.516E-05	4.952E-05	9.660E-06	8.959E-06
SI WALL	7.308E-05	1.159E-07	1.189E-05	2.250E-03	7.162E-04	5.378E-04	2.196E-06	2.005E-05	4.128E-05	8.964E-06	9.486E-06
ULI WALL	9.763E-05	1.548E-07	1.651E-05	3.927E-04	1.027E-02	2.604E-04	2.116E-06	1.922E-05	5.765E-05	9.138E-06	9.747E-06
LLI WALL	1.683E-05	2.668E-08	6.694E-06	1.201E-04	1.380E-04	2.076E-02	2.256E-06	2.499E-05	9.190E-06	3.229E-06	1.350E-05
T BODY	5.517E-04	8.746E-07	9.956E-06	5.000E-05	1.143E-04	1.569E-04	1.845E-06	6.447E-05	7.032E-05	8.877E-06	1.591E-05
ADREN	4.271E-04	6.771E-07	1.467E-05	2.250E-05	5.274E-05	3.131E-05	2.735E-06	4.706E-05	1.197E-04	3.707E-05	2.506E-05
BL WALL	2.204E-05	3.495E-08	2.175E-06	5.687E-05	8.777E-05	3.778E-04	2.136E-06	1.824E-05	7.101E-06	1.419E-06	1.967E-05
KIDNEYS	2.330E-04	3.694E-07	1.533E-05	5.245E-05	1.301E-04	6.076E-05	1.997E-06	2.527E-05	9.468E-05	1.009E-03	9.364E-06
LIVER	5.103E-04	8.091E-07	9.641E-06	3.294E-05	1.181E-04	2.723E-05	2.017E-06	1.915E-05	1.706E-03	1.201E-05	6.927E-06
OVARIES	4.007E-05	6.353E-08	4.546E-06	1.451E-04	3.933E-04	1.011E-03	2.236E-06	2.395E-05	2.158E-05	4.003E-06	2.785E-05
PANCREAS	5.265E-04	8.347E-07	7.834E-05	3.265E-05	9.897E-05	4.391E-05	2.136E-06	2.854E-05	1.016E-04	1.984E-05	2.889E-05
BONE	2.108E-04	3.343E-07	2.830E-06	1.387E-05	3.334E-05	6.246E-05	1.849E-06	4.442E-04	1.873E-05	3.081E-06	8.911E-06
R MAR	2.689E-04	4.264E-07	4.663E-06	4.231E-05	9.636E-05	1.821E-04	1.949E-06	2.005E-04	2.708E-05	7.693E-06	1.984E-05
Y MAR	2.180E-04	3.457E-07	3.982E-06	1.887E-05	4.701E-05	7.744E-05	1.769E-06	7.240E-05	2.778E-05	3.786E-06	2.228E-05
ENDOST	2.108E-04	3.343E-07	2.830E-06	1.387E-05	3.334E-05	6.246E-05	1.849E-06	3.641E-04	1.873E-05	3.081E-06	1.586E-05
SPLEEN	4.211E-04	6.676E-07	4.349E-05	2.981E-05	6.759E-05	6.229E-05	1.955E-06	1.845E-05	2.555E-05	2.515E-05	2.750E-05
TESTES	9.224E-06	1.462E-08	7.689E-07	1.039E-05	2.292E-05	1.077E-04	1.997E-06	2.061E-05	4.052E-06	5.848E-07	2.437E-05
THYMUS	9.105E-04	1.443E-06	3.000E-06	3.079E-06	8.790E-06	5.157E-06	2.116E-06	1.539E-05	2.179E-05	9.747E-07	3.759E-05
THYROID	2.240E-04	3.552E-07	8.868E-07	1.123E-06	3.138E-06	2.076E-06	1.809E-06	2.395E-05	5.521E-06	3.994E-07	2.402E-05
UTERUS	4.930E-05	7.815E-08	4.768E-06	1.436E-04	2.318E-04	3.506E-04	2.136E-06	1.657E-05	1.490E-05	3.211E-06	3.312E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.306E-02
RES LYM	2.182E-02
S WALL	1.812E-03
SI WALL	3.671E-03
ULI WALL	1.114E-02
LLI WALL	2.109E-02
T BODY	1.045E-03
ADREN	7.807E-04
BL WALL	5.953E-04
KIDNEYS	1.633E-03
LIVER	2.445E-03
OVARIES	1.674E-03
PANCREAS	9.623E-04
BONE	8.004E-04
R MAR	8.519E-04
Y MAR	4.937E-04
ENDOST	7.273E-04
SPLEEN	7.235E-04
TESTES	2.027E-04
THYMUS	1.010E-03
THYROID	2.873E-04
UTERUS	8.551E-04

LANTHANUM-140 CONTINUED

CASE 2.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

LA-140
STOMACH 0.0
S INT 1.000E-04
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	LLI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	2.658E-05	1.977E-05	6.353E-05	3.422E-05	2.306E-09	3.245E-08	7.988E-08	3.923E-09	1.021E-08	1.446E-04
RES LYM	2.658E-05	1.977E-05	6.353E-05	3.422E-05	2.306E-09	3.245E-08	7.988E-08	3.923E-09	1.021E-08	1.446E-04
S WALL	3.039E-03	1.947E-04	4.886E-04	3.193E-04	2.426E-09	1.943E-08	6.392E-08	1.237E-08	1.134E-08	4.042E-03
SI WALL	3.719E-05	7.036E-03	2.240E-03	1.682E-03	2.812E-09	2.567E-08	5.287E-08	1.148E-08	1.215E-08	1.099E-02
ULI WALL	5.161E-05	1.228E-03	3.213E-02	9.142E-04	2.710E-09	2.461E-08	7.382E-08	1.170E-08	1.248E-08	3.422E-02
LLI WALL	2.093E-05	3.756E-04	4.316E-04	6.493E-02	2.889E-09	3.200E-08	1.177E-08	4.134E-09	1.344E-08	6.575E-02
T BODY	3.113E-05	1.564E-04	3.575E-04	4.907E-04	2.362E-09	8.255E-08	9.004E-08	1.137E-08	2.037E-08	1.036E-03
ADREN	4.588E-05	7.036E-05	1.649E-04	9.792E-05	3.573E-09	6.026E-08	1.533E-07	4.747E-08	3.209E-08	3.794E-04
BL WALL	6.300E-06	1.778E-04	2.745E-04	1.181E-03	2.736E-09	2.336E-08	9.093E-09	1.816E-09	2.518E-08	1.641E-03
KIDNEYS	4.793E-05	1.640E-04	4.068E-04	1.900E-04	2.557E-09	2.236E-08	1.212E-07	1.293E-06	1.199E-08	8.102E-04
LIVER	3.015E-05	1.030E-04	3.653E-04	8.515E-05	2.582E-09	2.452E-08	2.184E-06	1.538E-08	8.870E-09	5.899E-04
OVARIES	1.421E-05	4.537E-04	1.230E-03	3.161E-03	2.864E-09	3.067E-08	2.764E-08	5.126E-09	3.566E-08	4.859E-03
PANCREAS	2.450E-04	1.021E-04	3.055E-04	1.373E-04	2.736E-09	3.655E-08	1.302E-07	2.541E-08	3.700E-08	7.941E-04
BONE	8.848E-06	4.338E-05	1.042E-04	1.953E-04	2.368E-09	5.688E-07	2.398E-08	3.945E-09	1.141E-08	3.524E-04
R MAR	1.458E-05	1.323E-04	3.013E-04	5.694E-04	2.495E-09	2.567E-07	3.468E-08	9.851E-09	2.541E-08	1.018E-03
Y MAR	1.245E-05	5.502E-05	1.470E-04	2.421E-04	2.265E-09	9.271E-08	3.557E-08	4.847E-09	2.853E-08	4.608E-04
ENDOST	8.848E-06	4.338E-05	1.042E-04	1.953E-04	2.368E-09	4.662E-07	2.398E-08	3.945E-09	2.010E-08	3.523E-04
SPLEEN	1.360E-04	9.320E-05	2.113E-04	1.948E-04	2.503E-09	2.362E-08	3.272E-08	3.221E-09	3.521E-08	6.354E-04
TESTES	2.404E-06	3.250E-05	7.167E-05	3.369E-04	2.557E-09	2.639E-08	5.188E-09	7.48E-10	3.120E-08	4.435E-04
THYMUS	9.380E-06	9.627E-06	2.749E-05	1.613E-05	2.710E-09	1.970E-08	2.790E-08	1.24E-09	4.814E-08	6.272E-05
THYROID	2.773E-06	3.510E-06	9.814E-06	6.493E-06	2.316E-09	3.067E-08	7.069E-09	5.11E-10	3.076E-08	2.266E-05
UTERUS	1.491E-05	4.491E-04	7.248E-04	1.096E-03	2.736E-09	2.122E-08	1.908E-08	4.112E-09	4.881E-08	2.285E-03

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

S FACTORS (REM/MICROCURIE-DAY) FOR CE-141

TARGET ORGANS		SOURCE ORGANS											
		LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	
LUNGS	0.894E-02	0.893E-02	0.259E-04	0.307E-05	0.362E-05	0.108E-05	0.146E-03	0.139E-04	0.387E-04	0.120E-04	0.186E-04		
RES LYM	0.893E-02	0.58CE-00	0.259E-04	0.307E-05	0.362E-05	0.108E-05	0.146E-03	0.139E-04	0.387E-04	0.120E-04	0.186E-04		
S WALL	0.275E-04	0.275E-04	0.182E-01	0.544E-04	0.574E-04	0.258E-04	0.150E-03	0.1789E-05	0.269E-04	0.515E-04	0.193E-04		
SI WALL	0.259E-05	0.259E-05	0.389E-04	0.114E-01	0.265E-03	0.147E-03	0.154E-03	0.1166E-04	0.234E-04	0.417E-04	0.221E-04		
ULI WALL	0.309E-05	0.309E-05	0.531E-04	0.377E-03	0.204E-01	0.647E-04	0.13E-03	0.951E-05	0.369E-04	0.413E-04	0.224E-04		
LLI WALL	0.101E-05	0.101E-05	0.171E-04	0.114E-03	0.481E-04	0.330E-01	0.151E-03	0.145E-04	0.313E-05	0.101E-04	0.243E-04		
T BODY	0.147E-03	0.147E-03	0.646E-04	0.130E-03	0.892E-04	0.103E-03	0.14E-03	0.147E-04	0.160E-04	0.150E-03	0.143E-03		
ADREN	0.383E-04	0.383E-04	0.384E-04	0.150E-04	0.130E-04	0.500E-05	0.150E-03	0.147E-04	0.687E-04	0.115E-03	0.279E-03		
BL WALL	0.507E-06	0.507E-06	0.364E-05	0.373E-04	0.315E-04	0.102E-03	0.150E-03	0.709E-05	0.213E-05	0.389E-05	0.157E-04		
KIDNEYS	0.120E-04	0.120E-04	0.506E-04	0.458E-04	0.408E-04	0.122E-04	0.149E-03	0.119E-04	0.584E-04	0.292E-01	0.201E-04		
LIVER	0.372E-04	0.372E-04	0.288E-04	0.266E-04	0.375E-04	0.346E-05	0.149E-03	0.945E-05	0.523E-02	0.573E-04	0.151E-04		
OVARIES	0.133E-05	0.133E-05	0.656E-05	0.164E-03	0.177E-03	0.286E-03	0.152E-03	0.1166E-04	0.628E-02	0.158E-04	0.287E-04		
PANCREAS	0.381E-04	0.381E-04	0.283E-03	0.291E-04	0.332E-04	0.103E-04	0.153E-03	0.124E-04	0.624E-04	0.969E-04	0.240E-04		
BONE	0.229E-04	0.229E-04	0.132E-04	0.187E-04	0.169E-04	0.256E-04	0.156E-03	0.172E-02	0.168E-04	0.218E-04	0.314E-04		
R MAR	0.289E-04	0.289E-04	0.231E-04	0.640E-04	0.555E-04	0.827E-04	0.162E-03	0.352E-03	0.237E-04	0.573E-04	0.244E-03		
Y MAR	0.240E-04	0.240E-04	0.186E-04	0.262E-04	0.243E-04	0.322E-04	0.154E-03	0.659E-04	0.252E-04	0.266E-04	0.283E-04		
ENDOST	0.229E-04	0.229E-04	0.132E-04	0.187E-04	0.169E-04	0.256E-04	0.156E-03	0.130E-02	0.168E-04	0.218E-04	0.151E-04		
SPLEEN	0.348E-04	0.348E-04	0.152E-03	0.217E-04	0.205E-04	0.112E-04	0.150E-03	0.856E-05	0.129E-04	0.135E-03	0.286E-04		
TESTES	0.113E-06	0.113E-06	0.706E-06	0.428E-05	0.375E-05	0.259E-04	0.142E-03	0.903E-05	0.866E-06	0.123E-05	0.276E-06		
THYMUS	0.640E-04	0.64CE-04	0.772E-05	0.113E-05	0.139E-05	0.374E-06	0.152E-03	0.732E-05	0.876E-05	0.273E-05	0.311E-03		
THYROID	0.127E-04	0.127E-04	0.122E-05	0.213E-06	0.232E-06	0.764E-07	0.140E-03	0.115E-04	0.209E-05	0.667E-06	0.277E-06		
UTERUS	0.114E-05	0.114E-05	0.107E-04	0.146E-03	0.776E-04	0.104E-03	0.156E-03	0.818E-05	0.534E-05	0.131E-04			

 β^- decay (32.5 D 7)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides);
Case 3 represents sulfides, sulfates, and nitrates.

CERIUM-141 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
CE-141 Y	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCUPIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	6.212E-02	5.280E-04	5.219E-07	2.465E-07	9.340E-07	5.037E-07	1.237E-08	1.236E-06	4.301E-06	6.669E-08	2.067E-07
RES LYM	6.205E-02	6.027E-02	5.219E-07	2.465E-07	9.340E-07	5.037E-07	1.237E-08	1.236E-06	4.301E-06	6.669E-08	2.067E-07
S WALL	1.911E-04	2.858E-06	3.667E-04	4.368E-06	1.481E-05	1.203E-05	1.271E-08	7.015E-07	2.950E-06	2.862E-07	2.145E-07
SI WALL	1.800E-05	2.691E-07	7.838E-07	9.154E-04	6.837E-05	6.856E-05	1.305E-08	9.425E-07	2.601E-06	2.317E-07	2.456E-07
ULI WALL	2.147E-05	3.211E-07	1.070E-06	3.027E-05	5.263E-03	3.017E-05	1.297E-08	8.811E-07	4.101E-06	2.295E-07	2.490E-07
LLI WALL	7.018E-06	1.050E-07	3.445E-07	9.154E-06	1.241E-05	1.539E-02	1.280E-08	1.343E-06	3.479E-07	5.613E-08	2.701E-07
T BODY	1.021E-03	1.528E-05	1.302E-06	1.044E-05	2.301E-05	4.804E-05	1.237E-08	1.307E-05	1.667E-05	8.336E-07	1.599E-06
ADREN	2.661E-04	3.580E-06	7.737E-07	1.205E-06	3.354E-06	2.332E-06	1.271E-08	1.423E-06	7.636E-06	9.503E-07	3.101E-06
BL WALL	3.523E-06	5.269E-08	7.334E-08	2.995E-06	8.127E-06	4.757E-05	1.271E-08	6.304E-07	2.367E-07	2.162E-08	1.745E-06
KIDNEYS	8.338E-05	1.247E-06	1.020E-06	3.678E-06	1.053E-05	5.690E-06	1.263E-08	1.056E-06	6.451E-06	1.623E-04	2.301E-07
LIVER	2.585E-04	3.866E-06	5.803E-07	2.136E-06	9.675E-06	1.614E-06	1.263E-08	8.402E-07	5.813E-04	3.184E-07	1.578E-07
OVARIES	9.241E-06	1.382E-07	1.402E-07	1.317E-05	4.567E-05	1.334E-04	1.288E-08	9.425E-07	6.980E-07	8.780E-08	3.190E-06
PANCREAS	2.647E-04	3.559E-06	5.702E-06	2.337E-06	8.566E-06	4.904E-06	1.297E-08	1.103E-06	6.935E-06	5.385E-07	3.223E-06
BONE	1.591E-04	2.380E-06	2.660E-07	1.502E-06	4.360E-06	1.194E-05	1.322E-08	1.525E-04	1.867E-06	1.211E-07	3.490E-07
R MAR	2.008E-04	3.003E-06	4.654E-07	5.139E-06	1.432E-05	3.857E-05	1.373E-08	3.485E-06	2.634E-06	3.194E-07	2.712E-06
Y MAR	1.568E-04	2.494E-06	3.748E-07	2.104E-06	6.269E-06	1.502E-05	1.305E-08	5.860E-06	2.801E-06	1.478E-07	3.145E-06
ENDOST	1.591E-04	2.380E-06	2.660E-07	1.502E-06	4.360E-06	1.194E-05	1.322E-08	1.156E-04	1.867E-06	1.211E-07	1.578E-06
SPLEEN	2.418E-04	3.616E-06	3.063E-06	1.743E-06	5.289E-06	5.223E-06	1.271E-08	7.611E-07	1.434E-06	7.502E-07	3.179E-06
TESTES	7.851E-07	1.174E-08	1.423E-08	3.437E-07	9.675E-07	1.208E-05	1.203E-08	8.025E-07	9.658E-08	6.835E-09	3.058E-06
THYMUS	4.447E-04	6.651E-06	7.495E-08	9.074E-08	3.586E-07	1.744E-07	1.288E-08	6.505E-07	9.736E-07	1.517E-08	3.457E-06
THYROID	8.824E-05	1.320E-06	2.458E-08	1.686E-08	5.986E-08	3.563E-08	1.186E-08	1.023E-06	2.323E-07	3.707E-09	3.079E-06
UTERUS	7.921E-06	1.185E-07	2.156E-07	1.172E-05	2.002E-05	4.850E-05	1.322E-08	7.273E-07	5.935E-07	7.280E-08	3.545E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	6.305E-02
RES LYM	0.122
S WALL	5.961E-04
SI WALL	1.075E-03
ULI WALL	5.352E-03
LLI WALL	1.542E-02
T BODY	1.152E-03
ADREN	2.909E-04
BL WALL	6.439E-05
KIDNEYS	2.756E-04
LIVER	8.590E-04
OVARIES	2.067E-04
PANCREAS	3.019E-04
BONE	3.348E-04
R MAR	3.028E-04
Y MAR	2.050E-04
ENDOST	2.988E-04
SPLEEN	2.669E-04
TESTES	1.319E-05
THYMUS	4.571E-04
THYROID	9.405E-05
UTERUS	5.345E-05

CERIUM-141 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
CE-141 W	C.O	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	4.111E-02	1.245E-03	4.857E-07	2.294E-07	8.692E-07	4.688E-07	2.273E-07	2.271E-05	7.903E-05	1.225E-06	3.798E-06
RES LYM	4.106E-02	3.088E-02	4.857E-07	2.294E-07	8.692E-07	4.688E-07	2.273E-07	2.271E-05	7.903E-05	1.225E-06	3.798E-06
S WALL	1.264E-04	3.835E-06	3.413E-04	4.066E-06	1.378E-05	1.120E-05	2.336E-07	1.289E-05	5.493E-05	5.259E-06	3.941E-06
SI WALL	1.191E-05	3.612E-07	7.295E-07	8.520E-04	6.363E-05	6.380E-05	2.398E-07	1.732E-05	4.779E-05	4.258E-06	4.513E-06
ULI WALL	1.421E-05	4.309E-07	9.957E-07	2.818E-05	4.898E-03	2.808E-05	2.382E-07	1.615E-05	7.536E-05	4.217E-06	4.574E-06
LLI WALL	4.644E-06	1.408E-07	3.217E-07	3.520E-06	1.155E-05	1.432E-02	2.351E-07	2.467E-05	6.392E-05	1.031E-06	4.962E-06
T BODY	6.759E-04	2.050E-05	1.211E-06	9.716E-06	2.142E-05	4.471E-05	2.273E-07	2.402E-04	3.063E-04	1.532E-05	2.920E-05
ADREN	1.761E-04	5.341E-06	7.201E-07	1.121E-06	3.122E-06	2.170E-06	2.336E-07	2.614E-05	1.403E-04	1.746E-05	5.598E-05
BL WALL	2.331E-06	7.070E-08	6.826E-08	2.788E-06	7.564E-06	4.427E-05	2.336E-07	1.158E-05	4.350E-06	3.972E-07	3.206E-05
KIDNEYS	5.518E-05	1.673E-06	5.489E-07	3.423E-06	9.797E-06	5.295E-06	2.320E-07	1.944E-05	1.193E-04	2.982E-03	4.227E-06
LIVER	1.710E-04	5.188E-06	5.401E-07	1.988E-06	9.005E-06	1.502E-06	2.320E-07	1.544E-05	1.068E-02	5.851E-06	3.094E-06
OVARIES	6.115E-06	1.855E-07	1.305E-07	1.226E-05	4.250E-05	1.241E-04	2.367E-07	1.732E-05	1.282E-05	1.613E-06	5.861E-05
PANCREAS	1.752E-04	5.313E-06	5.307E-06	2.175E-06	7.972E-06	4.471E-06	2.382E-07	2.026E-05	1.274E-04	9.894E-06	5.922E-05
BONE	1.953E-04	3.154E-06	2.475E-07	1.398E-06	4.058E-06	1.111E-05	2.429E-07	2.810E-03	3.431E-05	2.226E-06	6.412E-06
R MAR	1.329E-04	4.030E-06	4.332E-07	4.783E-06	1.333E-05	3.590E-05	2.523E-07	6.404E-04	4.840E-05	5.851E-06	4.983E-05
Y MAR	1.104E-04	3.347E-06	3.488E-07	1.958E-06	5.835E-06	1.398E-05	2.398E-07	1.077E-04	5.146E-05	2.716E-06	5.779E-05
ENDOST	1.053E-04	3.154E-06	2.475E-07	1.398E-06	4.058E-06	1.111E-05	2.429E-07	2.124E-03	3.431E-05	2.226E-06	3.094E-05
SPLEEN	1.600E-04	4.853E-06	2.850E-06	1.622E-06	4.922E-06	4.861E-06	2.336E-07	1.398E-05	2.634E-05	1.378E-05	5.841E-05
TESTES	5.196E-07	1.576E-08	1.324E-08	3.199E-07	9.005E-07	1.124E-05	2.211E-07	1.475E-05	1.775E-06	1.254E-07	5.536E-05
THYMUS	2.943E-04	8.925E-06	6.976E-08	8.445E-08	3.338E-07	1.623E-07	2.367E-07	1.196E-05	1.789E-05	2.788E-07	6.351E-05
THYROID	5.839E-05	1.771E-06	2.288E-08	1.569E-08	5.571E-08	3.316E-08	2.180E-07	1.879E-05	4.268E-06	6.811E-08	5.657E-05
UTERUS	5.242E-06	1.590E-07	2.007E-07	1.091E-05	1.863E-05	4.514E-05	2.429E-07	1.336E-05	1.091E-05	1.338E-06	6.515E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	4.246E-02
RES LYM	0.122
S WALL	5.779E-04
SI WALL	1.067E-03
ULI WALL	5.071E-03
LLI WALL	1.439E-02
T BODY	1.365E-03
ADREN	4.297E-04
BL WALL	1.057E-04
KIDNEYS	3.201E-03
LIVER	1.089E-02
OVARIES	2.759E-04
PANCREAS	4.175E-04
BONE	2.979E-03
R MAR	9.361E-04
Y MAR	3.557E-04
ENDOST	2.317E-03
SPLEEN	2.919E-04
TESTES	8.625E-05
THYMUS	3.977E-04
THYROID	1.402E-04
UTERUS	1.713E-04

CERIUM-141 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

G.I. UPTAKE FRACTIONS

SOLUBILITY CLASS	STOMACH	S INT	U L INT	L L INT
CE-141 D	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.642E-03	3.113E-04	1.713E-07	8.094E-08	3.067E-07	1.654E-07	1.233E-06	1.232E-04	4.287E-04	6.646E-06	2.060E-05
RES LYM	1.641E-03	2.022E-02	1.713E-07	8.094E-08	3.067E-07	1.654E-07	1.233E-06	1.232E-04	4.287E-04	6.646E-06	2.060E-05
S WALL	5.052E-06	9.588E-07	1.204E-04	1.434E-06	4.862E-06	3.951E-06	1.267E-06	6.992E-05	2.980E-04	2.852E-05	2.138E-05
SI WALL	4.758E-07	9.030E-08	2.573E-07	3.006E-04	2.245E-05	2.251E-05	1.301E-06	9.393E-05	2.592E-04	2.310E-05	2.448E-05
ULI WALL	5.677E-07	1.077E-07	3.513E-07	9.940E-06	1.728E-03	9.907E-06	1.292E-06	8.782E-05	4.087E-04	2.287E-05	2.481E-05
LLI WALL	1.856E-07	3.521E-08	1.131E-07	3.006E-06	4.075E-06	5.053E-03	1.275E-06	1.338E-04	3.467E-05	5.594E-06	2.692E-05
T BODY	2.701E-05	5.125E-06	4.274E-07	3.428E-06	7.556E-06	1.577E-05	1.233E-06	1.303E-03	1.662E-03	8.308E-05	1.584E-04
ADREN	7.036E-06	1.335E-06	2.540E-07	3.955E-07	1.101E-06	7.656E-07	1.267E-06	1.418E-04	7.610E-04	9.471E-05	3.090E-04
BL WALL	9.314E-08	1.768E-08	2.408E-08	9.835E-07	2.668E-06	1.562E-05	1.267E-06	6.283E-05	2.359E-05	2.154E-06	1.739E-04
KIDNEYS	2.205E-06	4.184E-07	3.348E-07	1.208E-06	3.456E-06	1.868E-06	1.258E-06	1.055E-04	6.469E-04	1.617E-02	2.293E-05
LIVER	6.834E-06	1.297E-06	1.905E-07	7.013E-07	3.177E-06	5.298E-07	1.258E-06	8.374E-05	5.793E-02	3.174E-05	1.673E-05
OVARIES	2.443E-07	4.637E-08	4.604E-08	4.324E-06	1.499E-05	4.379E-05	1.284E-06	9.393E-05	6.956E-05	8.751E-06	3.179E-04
PANCREAS	7.000E-06	1.328E-06	1.872E-06	7.673E-07	2.812E-06	1.577E-06	1.292E-06	1.099E-04	6.912E-04	5.367E-05	3.212E-04
BONE	4.207E-06	7.984E-07	8.733E-08	4.930E-07	1.432E-06	3.920E-06	1.318E-06	1.524E-02	1.861E-04	1.207E-05	3.478E-05
F MAR	5.309E-06	1.008E-06	1.528E-07	1.687E-06	4.702E-06	1.266E-05	1.368E-06	3.474E-03	2.625E-04	3.174E-05	2.703E-04
Y MAR	4.409E-06	8.367E-07	1.231E-07	6.908E-07	2.059E-06	4.931E-06	1.301E-06	5.840E-04	2.791E-04	1.473E-05	3.135E-04
ENDOST	4.207E-06	7.984E-07	8.733E-08	4.930E-07	1.432E-06	3.920E-06	1.318E-06	1.152E-02	1.861E-04	1.207E-05	1.673E-04
SPLEEN	6.393E-06	1.213E-06	1.006E-06	5.721E-07	1.737E-06	1.715E-06	1.267E-06	7.586E-05	1.429E-04	7.477E-05	3.168E-04
TESTES	2.076E-08	3.940E-09	4.671E-09	1.128E-07	3.177E-07	3.966E-06	1.199E-06	8.002E-05	9.626E-06	6.812E-07	3.057E-04
THYMUS	1.176E-05	2.231E-06	2.461E-08	2.979E-08	1.178E-07	5.727E-08	1.284E-06	6.487E-05	9.703E-05	1.512E-06	3.445E-04
THYROID	2.333E-06	4.428E-07	8.071E-09	5.537E-09	1.965E-08	1.170E-08	1.182E-06	1.019E-04	2.315E-05	3.694E-07	3.068E-04
UTERUS	2.094E-07	3.974E-08	7.079E-08	3.849E-06	6.574E-06	1.592E-05	1.318E-06	7.249E-05	5.915E-05	7.255E-06	3.534E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.535E-03
RES LYM	2.244E-02
S WALL	5.557E-04
SI WALL	7.484E-04
ULI WALL	2.295E-03
LLI WALL	5.263E-03
T BODY	3.266E-03
ADREN	1.319E-03
BL WALL	2.832E-04
KIDNEYS	1.656E-02
LIVER	5.808E-02
OVARIES	5.549E-04
PANCREAS	1.193E-03
BONE	1.549E-02
F MAR	4.065E-03
Y MAR	1.206E-03
ENDOST	1.190E-02
SPLEEN	6.242E-04
TESTES	4.017E-04
THYMUS	5.234E-04
THYROID	4.363E-04
UTERUS	5.202E-04

CERIUM-141 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

CE-141
 STOMACH 0.C
 S INT 1.C00E-C4
 U L INT 0.C
 L L INT 0.C

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	1.078E-06	5.094E-07	1.930E-06	1.041E-06	2.582E-10	2.579E-08	8.974E-08	1.391E-09	4.313E-09	4.679E-06
RES LYM	1.078E-06	5.094E-07	1.930E-06	1.041E-06	2.582E-10	2.579E-08	8.974E-08	1.391E-09	4.313E-09	4.679E-06
S WALL	7.577E-04	9.026E-06	3.060E-05	2.486E-05	2.652E-10	1.464E-08	6.238E-08	5.971E-09	4.475E-09	8.222E-04
SI WALL	1.619E-06	1.891E-03	1.413E-04	1.416E-04	2.723E-10	1.966E-08	5.426E-08	4.835E-09	5.125E-09	2.176E-03
ULI WALL	2.211E-06	6.255E-05	1.087E-02	6.234E-05	2.705E-10	1.833E-08	6.557E-08	4.789E-09	5.194E-09	1.100E-02
LLI WALL	7.119E-07	1.891E-05	2.564E-05	3.180E-02	2.670E-10	2.801E-08	7.258E-09	1.171E-09	5.635E-09	3.184E-02
T BODY	2.689E-06	2.157E-05	4.755E-05	9.925E-05	2.582E-10	2.727E-07	3.478E-07	1.739E-08	3.316E-08	1.717E-04
ADREN	1.599E-06	2.489E-06	6.930E-06	4.818E-06	2.652E-10	2.968E-08	1.593E-07	1.983E-08	6.470E-08	1.611E-05
BL WALL	1.515E-07	6.189E-06	1.679E-05	9.828E-05	2.652E-10	1.315E-08	4.939E-09	4.510E-10	3.641E-08	1.215E-04
KIDNEYS	2.106E-06	7.599E-06	2.175E-05	1.176E-05	2.635E-10	2.208E-08	1.354E-07	3.386E-06	4.800E-09	4.676E-05
LIVER	1.199E-06	4.413E-06	1.999E-05	3.334E-06	2.635E-10	1.753E-08	1.213E-05	6.644E-09	3.502E-09	4.109E-05
OVARIES	2.897E-07	2.721E-05	9.435E-05	2.756E-04	2.688E-10	1.966E-08	1.456E-08	1.832E-09	6.655E-08	3.975E-04
PANCREAS	1.178E-05	4.828E-06	1.770E-05	9.925E-06	2.705E-10	2.303E-08	1.447E-07	1.124E-08	6.725E-08	4.448E-05
BONE	5.495E-07	3.103E-06	9.009E-06	2.467E-05	2.758E-10	3.191E-06	3.896E-08	2.528E-09	7.281E-09	4.057E-05
R MAR	9.616E-07	1.062E-05	2.958E-05	7.969E-05	2.864E-10	7.272E-07	5.496E-08	6.644E-09	5.658E-08	1.217E-04
Y MAR	7.743E-07	4.347E-06	1.295E-05	3.103E-05	2.723E-10	1.223E-07	5.844E-08	3.084E-09	6.562E-08	4.935E-05
ENDOST	5.495E-07	3.103E-06	9.009E-06	2.467E-05	2.758E-10	2.412E-06	3.896E-08	2.528E-09	3.502E-09	3.982E-05
SPLEEN	6.328E-06	3.600E-06	1.093E-05	1.079E-05	2.652E-10	1.588E-08	2.991E-08	1.565E-08	6.632E-08	3.178E-05
TESTES	2.939E-08	7.101E-07	1.999E-06	2.496E-05	2.511E-10	1.675E-08	2.015E-09	1.426E-10	6.400E-08	2.778E-05
THYMUS	1.549E-07	1.875E-07	7.410E-07	3.604E-07	2.688E-10	1.358E-08	2.031E-08	3.165E-10	7.212E-08	1.550E-06
THYROID	5.079E-08	3.484E-08	1.237E-07	7.362E-08	2.475E-10	2.133E-08	4.847E-09	7.734E-11	6.423E-08	3.737E-07
UTERUS	4.454E-07	2.422E-05	4.137E-05	1.002E-04	2.758E-10	1.518E-08	1.238E-08	1.519E-09	7.397E-08	1.663E-04

RADIONUCLIDE: CE-143

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCL IDE					
CE-143		1.380			
PR-143		13.60			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		CE-143	PR-143	1.000	
ORGAN ABSORBED	NUCL IDE	BLOOD TRANSFER FRACTION F2-PRIME		COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
		CE-143			
EXCRET.	PR-143	1.00		0.975	5.000E 03
	CE-143	2.500E-02		1.00	5.000E 03
	PR-143	0.0		1.00	0.500
BONE	CE-143	0.400		1.00	5.000E 03
	PR-143	0.400		1.00	5.000E 03
LIVER	CE-143	0.500		1.00	5.000E 03
	PR-143	0.500		1.00	5.000E 03
KIDNEYS	CE-143	2.500E-02		1.00	5.000E 03
	PR-143	2.500E-02		1.00	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR CE-143

TARGET
ORGANS

SOURCE ORGANS

TARGET ORGANS	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.227E-01	0.227E-01	0.921E-04	0.141E-04	0.152E-04	0.487E-05	0.393E-03	0.497E-04	0.132E-03	0.442E-04	0.674E-04
RES LYM	0.227E-01	0.146E-01	0.921E-04	0.141E-04	0.152E-04	0.487E-05	0.393E-03	0.497E-04	0.132E-03	0.442E-04	0.674E-04
S WALL	0.961E-04	0.961E-04	0.467E-01	0.181E-03	0.195E-03	0.880E-04	0.408E-03	0.279E-04	0.957E-04	0.167E-03	0.724E-04
SI WALL	0.117E-04	0.117E-04	0.130E-03	0.291E-01	0.916E-03	0.503E-03	0.417E-03	0.392E-04	0.795E-04	0.139E-03	0.773E-04
ULI WALL	0.153E-04	0.153E-04	0.175E-03	0.134E-02	0.521E-01	0.225E-03	0.413E-03	0.358E-04	0.126E-03	0.142E-03	0.792E-04
LLI WALL	0.434E-05	0.434E-05	0.630E-04	0.386E-03	0.160E-03	0.839E-01	0.412E-03	0.512E-04	0.129E-04	0.407E-04	0.853E-04
T BODY	0.393E-03	0.393E-03	0.190E-03	0.356E-03	0.252E-03	0.288E-03	0.391E-03	0.392E-03	0.404E-03	0.403E-03	0.384E-03
ADREN	0.123E-03	0.123E-03	0.111E-03	0.640E-04	0.485E-04	0.223E-04	0.415E-03	0.761E-04	0.257E-03	0.625E-03	0.426E-03
BL WALL	0.309E-05	0.309E-05	0.170E-04	0.141E-03	0.997E-04	0.309E-03	0.409E-03	0.259E-04	0.111E-03	0.169E-04	0.426E-03
KIDNEYS	0.466E-04	0.466E-04	0.169E-03	0.154E-03	0.137E-03	0.430E-04	0.404E-03	0.469E-04	0.195E-03	0.747E-01	0.755E-04
LIVER	0.128E-03	0.128E-03	0.982E-04	0.912E-04	0.127E-03	0.151E-04	0.404E-03	0.342E-04	0.136E-01	0.200E-03	0.548E-04
OVARIES	0.666E-05	0.666E-05	0.304E-04	0.528E-03	0.604E-03	0.100E-02	0.433E-03	0.459E-04	0.195E-04	0.598E-04	0.753E-03
PANCREAS	0.132E-03	0.132E-03	0.966E-03	0.996E-04	0.102E-03	0.343E-04	0.414E-03	0.480E-04	0.221E-03	0.334E-03	0.769E-03
BONE	0.637E-04	0.637E-04	0.354E-04	0.487E-04	0.441E-04	0.696E-04	0.408E-03	0.428E-02	0.455E-04	0.598E-04	0.111E-03
R MAR	0.795E-04	0.795E-04	0.599E-04	0.162E-03	0.140E-03	0.224E-03	0.420E-03	0.144E-02	0.627E-04	0.154E-03	0.570E-03
Y MAR	0.678E-04	0.678E-04	0.495E-04	0.678E-04	0.630E-04	0.879E-04	0.403E-03	0.212E-03	0.682E-04	0.736E-04	0.725E-03
ENDOST	0.637E-04	0.637E-04	0.354E-04	0.487E-04	0.441E-04	0.696E-04	0.408E-03	0.334E-02	0.455E-04	0.598E-04	0.412E-03
SPLEEN	0.116E-03	0.116E-03	0.515E-03	0.757E-04	0.648E-04	0.429E-04	0.407E-03	0.381E-04	0.475E-04	0.467E-03	0.754E-03
TESTES	0.984E-06	0.984E-06	0.298E-05	0.179E-04	0.205E-04	0.974E-04	0.392E-03	0.293E-04	0.570E-05	0.639E-05	0.721E-03
THYMUS	0.202E-03	0.202E-03	0.164E-04	0.592E-05	0.651E-05	0.240E-05	0.409E-03	0.314E-04	0.447E-04	0.124E-04	0.839E-03
THYROID	0.511E-04	0.511E-04	0.651E-05	0.161E-05	0.173E-05	0.724E-06	0.386E-03	0.458E-04	0.931E-05	0.395E-05	0.724E-03
UTERUS	0.470E-05	0.470E-05	0.408E-04	0.479E-03	0.237E-03	0.319E-03	0.418E-03	0.316E-04	0.193E-04	0.438E-04	0.857E-03

 β^- decay (33.0 H 2)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides);
Case 3 represents sulfides, sulfates, and nitrates.

CERIUM-143 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
CE-143	Y	0.0	1.000E-04	0.0	0.0
PR-143	Y	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.638E-02	3.191E-05	1.345E-06	7.599E-07	2.093E-06	8.241E-07	2.091E-08	1.558E-07	5.174E-07	8.662E-09	2.642E-08
RES LYM	1.638E-02	2.111E-03	1.345E-06	7.599E-07	2.093E-06	8.241E-07	2.091E-08	1.558E-07	5.174E-07	8.662E-09	2.642E-08
S WALL	5.306E-05	1.966E-08	7.041E-04	9.755E-06	2.685E-05	1.489E-05	2.170E-08	8.748E-08	3.751E-07	3.273E-08	2.838E-08
SI WALL	6.460E-06	2.393E-09	1.898E-06	1.632E-03	1.261E-04	8.511E-05	2.217E-08	1.229E-07	3.116E-07	2.724E-08	3.030E-08
ULI WALL	8.447E-06	3.129E-09	2.555E-06	7.222E-05	7.677E-03	3.807E-05	2.196E-08	1.123E-07	4.939E-07	2.783E-08	3.104E-08
LLI WALL	2.396E-06	8.877E-10	9.200E-07	2.080E-05	2.203E-05	1.613E-02	2.190E-08	1.605E-07	5.056E-08	7.976E-09	3.343E-08
T BODY	2.719E-04	4.700E-07	2.822E-06	1.977E-05	3.621E-05	5.313E-05	2.081E-08	2.144E-06	2.727E-06	1.362E-07	2.880E-07
ADREN	6.791E-05	2.516E-08	1.621E-06	3.449E-06	6.678E-06	3.773E-06	2.206E-08	2.386E-07	1.007E-06	1.225E-07	5.690E-07
BL WALL	1.706E-06	6.320E-10	2.482E-07	7.599E-06	1.373E-05	5.229E-05	2.175E-08	8.121E-08	4.351E-08	3.312E-09	3.087E-07
KIDNEYS	2.573E-05	9.531E-09	2.468E-06	8.300E-06	1.886E-05	7.276E-06	2.149E-08	1.471E-07	7.643E-07	2.754E-05	2.959E-08
LIVER	7.067E-05	2.618E-08	1.434E-06	4.915E-06	1.749E-05	2.555E-06	2.149E-08	1.072E-07	9.781E-05	3.919E-08	2.148E-08
OVARIES	3.677E-06	1.362E-09	4.439E-07	2.846E-05	8.317E-05	1.692E-04	2.144E-08	1.439E-07	7.643E-08	1.172E-08	5.780E-07
PANCREAS	7.288E-05	2.700E-08	1.411E-05	5.368E-06	1.404E-05	5.804E-06	2.201E-08	1.505E-07	8.662E-07	6.546E-08	5.843E-07
BONE	3.517E-05	1.303E-08	5.169E-07	2.625E-06	6.072E-06	1.178E-05	2.170E-08	2.528E-05	1.783E-07	1.172E-08	6.459E-08
R MAR	4.389E-05	1.626E-08	8.747E-07	6.731E-06	1.928E-05	3.790E-05	2.232E-08	7.980E-06	2.458E-07	3.018E-08	4.300E-07
Y MAR	3.743E-05	1.387E-08	7.228E-07	3.654E-06	8.675E-06	1.487E-05	2.144E-08	6.647E-07	2.673E-07	1.442E-08	5.670E-07
ENDOST	3.517E-05	1.303E-08	5.169E-07	2.625E-06	6.072E-06	1.178E-05	2.170E-08	1.994E-05	1.783E-07	1.172E-08	3.104E-07
SPLEEN	6.404E-05	2.373E-08	7.520E-06	4.080E-06	8.923E-06	1.259E-06	2.164E-08	1.195E-07	1.862E-07	9.152E-08	5.784E-07
TESTES	5.433E-07	2.013E-10	4.352E-08	9.647E-07	2.823E-06	1.648E-05	2.086E-08	9.187E-08	2.234E-08	1.252E-09	5.655E-07
THYMUS	1.115E-04	4.132E-08	2.395E-07	3.191E-07	8.964E-07	4.061E-07	2.175E-08	9.846E-08	1.752E-07	2.430E-09	6.117E-07
THYROID	2.821E-05	1.045E-08	9.506E-08	8.677E-08	2.382E-07	1.225E-07	2.055E-08	1.436E-07	3.649E-08	7.741E-10	5.667E-07
UTERUS	2.595E-06	9.613E-10	5.958E-07	2.582E-05	3.263E-05	5.398E-05	2.222E-08	9.908E-08	7.565E-08	8.584E-09	6.188E-07

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.642E-02
RES LYM	1.856E-02
S WALL	8.092E-04
SI WALL	1.852E-03
ULI WALL	7.799E-03
LLI WALL	1.617E-02
T BODY	3.897E-04
ADREN	8.542E-05
BL WALL	7.603E-05
KIDNEYS	9.115E-05
LIVER	1.951E-04
OVARIES	2.858E-04
PANCREAS	1.139E-04
BONE	8.172E-05
R MAR	1.194E-04
Y MAR	6.691E-05
ENDOST	7.664E-05
SPLEEN	9.285E-05
TESTES	2.156E-05
THYMUS	1.143E-04
THYROID	2.953E-05
UTERUS	1.164E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-143	PR-143
TARGET		
LUNGS	76.4	23.6
RES LYM	69.4	30.6
S WALL	97.3	2.7
SI WALL	96.6	3.4
ULI WALL	93.5	6.5
LLI WALL	88.1	11.9
T BODY	83.5	16.5
ADREN	99.7	0.3
BL WALL	99.8	0.2
KIDNEYS	85.8	14.2
LIVER	77.2	22.8
OVARIES	99.9	0.1
PANCREAS	99.8	0.2
BONE	85.5	14.5
R MAR	96.9	3.1
Y MAR	99.6	0.4
ENDOST	87.5	12.5
SPLEEN	99.7	0.3
TESTES	98.7	1.3
THYMUS	99.8	0.2
THYROID	99.0	1.0
UTERUS	99.8	0.2

CERIUM-143 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
CE-143	W	0.0	1.000E-04	0.0
PR-143	W	0.0	1.000E-04	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.499E-02	7.340E-05	1.143E-06	6.457E-07	1.778E-06	7.002E-07	3.798E-07	2.830E-06	9.396E-06	1.573E-07	4.798E-07
RES LYM	1.499E-02	4.846E-03	1.143E-06	6.457E-07	1.778E-06	7.002E-07	3.798E-07	2.830E-06	9.396E-06	1.573E-07	4.798E-07
S WALL	5.037E-05	6.230E-02	6.007E-04	8.289E-06	2.282E-05	1.265E-05	3.940E-07	1.589E-06	6.812E-06	5.944E-07	5.153E-07
SI WALL	6.132E-06	7.584E-05	1.613E-06	1.393E-03	1.072E-04	7.232E-05	4.026E-07	2.232E-06	5.659E-06	4.947E-07	5.502E-07
ULI WALL	8.019E-06	9.918E-05	2.171E-06	6.137E-05	6.558E-03	3.235E-05	3.988E-07	2.039E-06	8.969E-06	5.054E-07	5.637E-07
LLI WALL	2.275E-06	2.813E-09	7.817E-07	1.768E-05	1.872E-05	1.380E-02	3.978E-07	2.916E-06	9.183E-07	1.449E-07	6.072E-07
T BODY	2.502E-04	1.093E-06	2.403E-06	1.685E-05	3.087E-05	4.537E-05	3.779E-07	3.821E-05	4.862E-05	2.427E-06	5.096E-06
ADREN	6.447E-05	7.973E-08	1.377E-06	2.931E-06	5.675E-06	3.206E-06	4.007E-07	4.334E-06	1.829E-05	2.224E-06	1.005E-05
BL WALL	1.620E-06	2.003E-09	2.109E-07	6.457E-06	1.167E-05	4.443E-05	3.950E-07	1.475E-06	7.901E-07	6.015E-08	5.467E-06
KIDNEYS	2.443E-05	3.021E-08	2.097E-06	7.052E-06	1.603E-05	6.183E-06	3.902E-07	2.671E-06	1.388E-05	4.900E-04	5.374E-07
LIVER	6.709E-05	8.297E-08	1.219E-06	4.177E-06	1.486E-05	2.171E-06	3.902E-07	1.948E-06	1.741E-03	7.118E-07	3.901E-07
OVARIES	3.491E-06	4.317E-05	3.772E-07	2.418E-05	7.067E-05	1.438E-04	3.893E-07	2.614E-06	1.388E-06	2.128E-07	1.022E-05
PANCREAS	6.919E-05	8.557E-08	1.199E-05	4.561E-06	1.193E-05	4.932E-06	3.997E-07	2.733E-06	1.573E-05	1.189E-06	1.033E-05
BONE	3.339E-05	4.129E-08	4.393E-07	2.230E-06	5.160E-06	1.001E-05	3.940E-07	4.496E-04	2.239E-06	2.128E-07	1.152E-06
R MAR	4.167E-05	5.154E-08	7.433E-07	7.419E-06	1.638E-05	3.221E-05	4.054E-07	1.422E-04	4.463E-06	5.481E-07	7.606E-06
Y MAR	3.554E-05	4.395E-08	6.142E-07	3.105E-06	7.371E-06	1.264E-05	3.893E-07	1.207E-05	4.855E-06	2.620E-07	1.002E-05
ENDOST	3.339E-05	4.129E-08	4.393E-07	2.230E-06	5.160E-06	1.001E-05	3.940E-07	3.546E-04	3.239E-06	2.128E-07	5.491E-06
SPLEEN	6.080E-05	7.520E-08	6.390E-06	3.467E-06	7.582E-06	6.168E-06	3.931E-07	2.170E-06	3.381E-06	1.662E-06	1.023E-05
TESTES	5.158E-07	6.379E-10	3.698E-08	8.197E-07	2.399E-06	1.400E-05	3.789E-07	1.669E-06	4.057E-07	2.274E-08	9.991E-06
THYMUS	1.059E-04	1.309E-07	2.035E-07	2.711E-07	7.617E-07	3.451E-07	3.950E-07	1.788E-06	3.182E-06	4.413E-08	1.083E-05
THYROID	2.678E-05	3.313E-08	8.078E-08	7.373E-08	2.024E-07	1.041E-07	3.732E-07	2.608E-06	6.627E-07	1.406E-08	1.001E-05
UTERUS	2.463E-06	3.047E-09	5.063E-07	2.194E-05	2.773E-05	4.587E-05	4.035E-07	1.799E-06	1.374E-06	1.559E-07	1.096E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.508E-02
RES LYM	1.986E-02
S WALL	7.048E-04
SI WALL	1.589E-03
ULI WALL	6.674E-03
LLI WALL	1.384E-02
T BODY	4.415E-04
ADREN	1.130E-04
BL WALL	7.257E-05
KIDNEYS	5.633E-04
LIVER	1.834E-03
OVARIES	2.573E-04
PANCREAS	1.331E-04
BONE	5.059E-04
R MAR	2.537E-04
Y MAR	8.691E-05
ENDOST	4.152E-04
SPLEEN	1.023E-04
TESTES	3.024E-05
THYMUS	1.238E-04
THYROID	4.095E-05
UTERUS	1.132E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-143	PR-143
TARGET		
LUNGS	79.1	20.9
RES LYM	64.8	35.2
S WALL	97.0	3.0
SI WALL	56.2	3.8
ULI WALL	53.1	6.9
LLI WALL	87.5	12.5
T BODY	75.6	20.4
ADREN	95.7	4.3
BL WALL	56.6	3.4
KIDNEYS	60.2	39.8
LIVER	57.9	42.1
OVARIES	98.1	1.9
PANCREAS	56.3	3.7
BONE	59.2	40.8
R MAR	74.9	25.1
Y MAR	94.4	5.6
ENDOST	59.8	40.2
SPLEEN	55.2	4.8
TESTES	23.9	16.1
THYMUS	56.1	3.9
THYROID	82.1	11.9
UTERUS	95.7	4.3

CERIUM-143 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
CE-143	D	0.0	1.000E-04	0.0	0.0						
PR-143	D	0.0	1.000E-04	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	3.218E-03	4.652E-04	5.915E-07	3.342E-07	9.205E-07	3.624E-07	2.137E-06	1.593E-05	5.287E-05	8.852E-07	2.700E-06
RES LYM	3.218E-03	2.998E-02	5.915E-07	3.342E-07	9.205E-07	3.624E-07	2.137E-06	1.593E-05	5.287E-05	8.852E-07	2.700E-06
S WALL	1.331E-05	1.861E-06	3.005E-04	4.290E-06	1.181E-05	6.549E-06	2.217E-06	8.941E-06	3.833E-05	3.345E-06	2.900E-06
SI WALL	1.620E-06	2.266E-07	8.349E-07	6.953E-04	5.547E-05	3.743E-05	2.265E-06	1.256E-05	3.184E-05	2.784E-06	3.096E-06
ULI WALL	2.118E-06	2.963E-07	1.124E-06	3.176E-05	3.246E-03	1.674E-05	2.244E-06	1.147E-05	5.047E-05	2.844E-06	3.172E-06
LLI WALL	6.009E-07	8.405E-08	4.046E-07	9.149E-06	9.690E-06	6.720E-03	2.239E-06	1.641E-05	5.167E-06	8.151E-07	3.417E-06
T BODY	5.549E-05	7.977E-06	1.222E-06	8.489E-06	1.554E-05	2.252E-05	2.127E-06	2.128E-04	2.708E-04	1.352E-05	2.826E-05
ADREN	1.703E-05	2.382E-06	7.129E-07	1.517E-06	2.937E-06	1.663E-06	2.255E-06	2.439E-05	1.029E-04	1.252E-05	5.573E-05
BL WALL	4.278E-07	5.985E-08	1.092E-07	3.342E-06	6.038E-06	2.300E-05	2.223E-06	8.300E-06	4.446E-06	3.385E-07	3.034E-05
KIDNEYS	6.452E-06	9.025E-07	1.085E-06	3.650E-06	8.297E-06	3.200E-06	2.196E-06	1.503E-05	7.811E-05	2.726E-03	3.024E-06
LIVER	1.772E-05	2.479E-06	6.307E-07	2.162E-06	7.691E-06	1.124E-06	2.196E-06	1.096E-05	9.689E-03	4.006E-06	2.195E-06
OVARIES	9.222E-07	1.290E-07	1.952E-07	1.252E-05	3.658E-05	7.442E-05	2.191E-06	1.471E-05	7.811E-06	1.198E-06	5.665E-05
PANCREAS	1.828E-05	2.557E-06	6.204E-06	2.361E-06	6.177E-06	2.553E-06	2.249E-06	1.538E-05	8.852E-05	6.689E-06	5.729E-05
BONE	8.820E-06	1.234E-06	2.274E-07	1.154E-06	2.671E-06	5.180E-06	2.217E-06	2.501E-03	1.823E-05	1.198E-06	6.420E-06
R MAR	1.101E-05	1.540E-06	3.847E-07	3.840E-06	8.478E-06	1.667E-05	2.281E-06	7.917E-04	2.512E-05	3.084E-06	4.218E-05
Y MAR	9.388E-06	1.313E-06	3.179E-07	1.607E-06	3.815E-06	6.542E-06	2.191E-06	6.794E-05	2.732E-05	1.474E-06	5.553E-05
ENDOST	8.820E-06	1.234E-06	2.274E-07	1.154E-06	2.671E-06	5.180E-06	2.217E-06	1.973E-03	1.823E-05	1.198E-06	3.045E-05
SPLEEN	1.606E-05	2.247E-06	3.308E-06	1.794E-06	3.924E-06	5.193E-06	2.212E-06	1.221E-05	1.903E-05	9.353E-06	5.669E-05
TESTES	1.362E-07	1.906E-08	1.914E-08	4.243E-07	1.241E-06	7.249E-06	2.132E-06	9.389E-06	2.283E-06	1.280E-07	5.537E-05
THYMUS	2.797E-05	3.912E-06	1.053E-07	1.403E-07	3.942E-07	1.786E-07	2.223E-06	1.006E-05	1.791E-05	2.483E-07	6.009E-05
THYROID	7.075E-06	9.897E-07	4.181E-08	3.816E-08	1.048E-07	5.388E-08	2.105E-06	1.468E-05	3.729E-06	7.911E-08	5.549E-05
UTERUS	6.508E-07	9.103E-08	2.620E-07	1.135E-05	1.435E-05	2.374E-05	2.271E-06	1.013E-05	7.731E-06	8.772E-07	6.081E-05
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	TOTAL	PERCENT DOSE EQUIVALENT..									
		NUCLIDE	CE-143	PR-143							
TARGET		TARGET									
LUNGS	3.760E-03	LUNGS	97.3	2.7							
RES LYM	3.327E-02	RES LYM	94.7	5.3							
S WALL	3.941E-04	S WALL	95.8	0.2							
SI WALL	8.434E-04	SI WALL	99.3	0.7							
ULI WALL	3.369E-03	ULI WALL	97.3	2.7							
LLI WALL	6.768E-03	LLI WALL	93.0	7.0							
T BODY	6.388E-04	T BODY	66.0	34.0							
ADREN	2.241E-04	ADREN	88.2	11.8							
BL WALL	7.862E-05	BL WALL	83.1	16.9							
KIDNEYS	2.848E-03	KIDNEYS	56.8	43.2							
LIVER	9.740E-03	LIVER	56.5	43.5							
OVARIES	2.073E-04	OVARIES	87.2	12.8							
PANCREAS	2.083E-04	PANCREAS	87.3	12.7							
BONE	2.549E-03	BONE	55.6	44.4							
R MAR	9.062E-04	R MAR	61.4	38.6							
Y MAR	1.774E-04	Y MAR	85.0	15.0							
ENDOST	2.044E-03	ENDOST	55.2	44.8							
SPLEEN	1.300E-04	SPLEEN	79.6	20.4							
TESTES	7.839E-05	TESTES	66.2	33.8							
THYMUS	1.232E-04	THYMUS	78.5	21.5							
THYROID	8.438E-05	THYROID	68.6	31.4							
UTERUS	1.323E-04	UTERUS	79.9	20.1							

CERIUM-143 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	CE-143	PR-143
STOMACH	0.0	0.0
S INT	1.000E-04	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	3.759E-06	2.124E-06	5.850E-06	2.303E-06	4.800E-10	3.576E-09	1.187E-08	1.988E-10	6.063E-10	1.405E-05
RES LYM	3.759E-06	2.124E-06	5.850E-06	2.303E-06	4.800E-10	3.576E-09	1.187E-08	1.988E-10	6.063E-10	1.405E-05
S WALL	1.909E-03	2.726E-05	7.504E-05	4.162E-05	4.979E-10	2.008E-09	8.608E-09	7.511E-10	6.512E-10	2.053E-03
SI WALL	5.306E-06	4.416E-03	3.525E-04	2.379E-04	5.087E-10	2.821E-09	7.151E-09	6.251E-10	6.953E-10	5.011E-03
ULI WALL	7.142E-06	2.018E-04	2.061E-02	1.064E-04	5.039E-10	2.576E-09	1.133E-08	6.386E-10	7.124E-10	2.093E-02
LLI WALL	2.571E-06	5.814E-05	6.157E-05	4.266E-02	5.027E-10	3.684E-09	1.160E-09	1.830E-10	7.673E-10	4.278E-02
T BODY	7.760E-06	5.392E-05	9.868E-05	1.430E-04	4.776E-10	4.645E-08	5.915E-08	2.953E-09	6.097E-09	3.035E-04
ADREN	4.530E-06	9.640E-06	1.866E-05	1.055E-05	5.063E-10	5.476E-09	2.312E-08	2.811E-09	1.200E-08	4.342E-05
BL WALL	6.938E-07	2.124E-05	3.837E-05	1.461E-04	4.931E-10	1.864E-09	9.984E-10	7.601E-11	6.555E-09	2.064E-04
KIDNEYS	6.897E-06	2.320E-05	5.272E-05	2.034E-05	4.931E-10	3.375E-09	1.754E-08	5.933E-07	6.791E-10	1.038E-04
LIVER	4.008E-06	1.374E-05	4.887E-05	7.141E-06	4.931E-10	2.461E-09	2.111E-06	8.995E-10	4.925E-10	7.588E-05
OVARIES	1.241E-06	7.953E-05	2.324E-04	4.729E-04	4.919E-10	3.303E-09	1.754E-09	2.689E-10	1.221E-08	7.861E-04
PANCREAS	3.942E-05	1.500E-05	3.925E-05	1.622E-05	5.051E-10	3.454E-09	1.988E-08	1.502E-09	1.235E-08	1.099E-04
BONE	1.445E-06	7.335E-06	1.697E-05	3.292E-05	4.979E-10	5.444E-07	4.093E-09	2.689E-10	1.404E-05	5.922E-05
R MAR	2.445E-06	2.440E-05	5.388E-05	1.059E-04	5.123E-10	1.727E-07	5.640E-09	6.926E-10	9.097E-09	1.868E-04
Y MAR	2.020E-06	1.021E-05	2.424E-05	4.157E-05	4.919E-10	1.526E-08	6.135E-09	3.310E-10	1.196E-08	7.808E-05
ENDOST	1.445E-06	7.335E-06	1.697E-05	3.292E-05	4.979E-10	4.292E-07	4.093E-09	2.689E-10	6.568E-09	5.911E-05
SPLEEN	2.102E-05	1.140E-05	2.494E-05	2.029E-05	4.967E-10	2.742E-09	4.273E-09	2.100E-09	1.222E-08	7.767E-05
TESTES	1.216E-07	2.696E-06	7.889E-06	4.606E-05	4.788E-10	2.108E-09	5.127E-10	2.874E-11	1.192E-08	5.678E-05
THYMUS	6.693E-07	8.917E-07	2.505E-06	1.135E-06	4.991E-10	2.260E-09	4.021E-09	5.577E-11	1.298E-08	5.221E-06
THYROID	2.657E-07	2.425E-07	6.658E-07	3.424E-07	4.716E-10	3.296E-09	8.374E-10	1.776E-11	1.195E-08	1.533E-06
UTERUS	1.665E-06	7.215E-05	9.121E-05	1.509E-04	5.099E-10	2.274E-09	1.736E-09	1.970E-10	1.314E-08	3.159E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-143	PR-143
TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
S WALL	99.9	0.1
SI WALL	99.4	0.6
ULI WALL	97.3	2.7
LLI WALL	93.0	7.0
T BODY	97.1	2.9
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	99.8	0.2
LIVER	98.8	1.2
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	99.6	0.4
R MAR	100.0	0.0
Y MAR	100.0	0.0
ENDOST	99.7	0.3
SPLEEN	100.0	0.0
TESTES	100.0	0.0
THYMUS	99.9	0.1
THYROID	99.6	0.4
UTERUS	100.0	0.0

CERIUM-144

RADIONUCLIDE: CE-144

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE					
CE-144		284.0			
PR-144M		5.0000E-03			
PR-144		1.2000E-02			
BRANCHING RATIOS:		FROM	TO	FRACTION	
		CE-144	PR-144M	1.2000E-02	
		CE-144	PR-144	0.9880	
		PR-144M	PR-144	1.000	
ORGAN ABSORBED	NUCLIDE	BLOOD TRANSFER FRACTION	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
		F2-PRIME			
	CE-144	1.00	2.500E-02	0.500	
			0.975	5.000E 03	
	PR-144M	1.00	1.00	5.000E 03	
	PR-144	1.00	1.00	5.000E 03	
EXCRET.	CE-144	2.500E-02	1.00	0.500	
	PR-144M	0.0	1.00	0.500	
	PR-144	0.0	1.00	0.500	
			1.00	0.500	
BONE	CE-144	0.400	1.00	5.000E 03	
	PR-144M	0.400	1.00	5.000E 03	
	PR-144	0.400	1.00	5.000E 03	
			1.00	5.000E 03	
LIVER	CE-144	0.500	1.00	5.000E 03	
	PR-144M	0.500	1.00	5.000E 03	
	PR-144	0.500	1.00	5.000E 03	
			1.00	5.000E 03	
KIDNEYS	CE-144	2.500E-02	1.00	5.000E 03	
	PR-144M	2.500E-02	1.00	5.000E 03	
	PR-144	2.500E-02	1.00	5.000E 03	
			1.00	5.000E 03	

S FACTORS (REM/MICROCURIE-DAY) FOR CE-144

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.476E-02	0.476E-02	0.741E-05	0.724E-06	0.875E-06	0.251E-06	0.737E-04	0.378E-05	0.114E-04	0.313E-05	0.551E-05
RES LYM	0.476E-02	0.312E-05	0.741E-05	0.724E-06	0.875E-06	0.251E-06	0.737E-04	0.378E-05	0.114E-04	0.313E-05	0.551E-05
S WALL	0.772E-05	0.772E-05	0.963E-02	0.151E-04	0.167E-04	0.697E-05	0.742E-04	0.202E-05	0.716E-05	0.139E-04	0.552E-05
SI WALL	0.618E-06	0.618E-06	0.105E-04	0.601E-02	0.815E-04	0.446E-04	0.756E-04	0.280E-05	0.609E-05	0.111E-04	0.616E-05
ULI WALL	0.743E-06	0.743E-06	0.151E-04	0.121E-03	0.108E-01	0.191E-04	0.754E-04	0.255E-05	0.102E-04	0.109E-04	0.630E-05
LLI WALL	0.209E-06	0.209E-06	0.439E-05	0.349E-04	0.139E-04	0.176E-01	0.748E-04	0.406E-05	0.740E-06	0.243E-05	0.683E-05
T BODY	0.739E-04	0.739E-04	0.282E-04	0.625E-04	0.408E-04	0.485E-04	0.735E-04	0.740E-04	0.747E-04	0.745E-04	0.724E-04
ADREN	0.104E-04	0.104E-04	0.103E-04	0.328E-05	0.333E-05	0.113E-05	0.740E-04	0.429E-05	0.193E-04	0.528E-04	0.144E-03
BL WALL	0.110E-06	0.110E-06	0.912E-06	0.985E-05	0.818E-05	0.286E-04	0.745E-04	0.180E-05	0.506E-06	0.896E-06	0.774E-04
KIDNEYS	0.307E-05	0.307E-05	0.136E-04	0.122E-04	0.109E-04	0.300E-05	0.740E-04	0.308E-05	0.164E-04	0.155E-01	0.594E-05
LIVER	0.107E-04	0.107E-04	0.764E-05	0.707E-05	0.101E-04	0.805E-06	0.743E-04	0.249E-05	0.273E-02	0.160E-04	0.426E-05
OVARIES	0.303E-06	0.303E-06	0.186E-05	0.480E-04	0.511E-04	0.870E-04	0.749E-04	0.302E-05	0.154E-05	0.386E-05	0.146E-03
PANCREAS	0.106E-04	0.106E-04	0.857E-04	0.752E-05	0.842E-05	0.257E-05	0.753E-04	0.305E-05	0.178E-04	0.270E-04	0.148E-03
BONE	0.731E-05	0.731E-05	0.387E-05	0.558E-05	0.505E-05	0.827E-05	0.773E-04	0.930E-03	0.513E-05	0.668E-05	0.994E-05
R MAR	0.910E-05	0.910E-05	0.652E-05	0.196E-04	0.171E-04	0.280E-04	0.792E-04	0.136E-03	0.688E-05	0.176E-04	0.133E-03
Y MAR	0.778E-05	0.778E-05	0.547E-05	0.784E-05	0.728E-05	0.106E-04	0.769E-04	0.239E-04	0.779E-05	0.813E-05	0.146E-03
ENDOST	0.731E-05	0.731E-05	0.387E-05	0.558E-05	0.505E-05	0.827E-05	0.774E-04	0.646E-03	0.513E-05	0.668E-05	0.774E-04
SPLEEN	0.992E-05	0.992E-05	0.441E-04	0.559E-05	0.535E-05	0.290E-05	0.744E-04	0.229E-05	0.324E-05	0.406E-04	0.147E-03
TESTES	0.227E-07	0.227E-07	0.154E-06	0.988E-06	0.866E-06	0.680E-05	0.721E-04	0.229E-05	0.185E-06	0.264E-06	0.143E-03
THYMUS	0.181E-04	0.181E-04	0.994E-06	0.242E-06	0.309E-06	0.778E-07	0.744E-04	0.193E-05	0.215E-05	0.659E-06	0.152E-03
THYROID	0.324E-05	0.324E-05	0.258E-06	0.423E-07	0.469E-07	0.150E-07	0.716E-04	0.292E-05	0.425E-06	0.140E-06	0.144E-03
UTERUS	0.264E-06	0.264E-06	0.253E-05	0.429E-04	0.217E-04	0.287E-04	0.759E-04	0.207E-05	0.130E-05	0.306E-05	0.155E-03

 β^- decay (284.3 D 3)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides);
Case 3 represents sulfides, sulfates, and nitrates.

CERIUM-144 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
CE-144	Y	0.0	1.000E-04	0.0	0.0		
PR-144M	Y	0.0	1.000E-04	0.0	0.0		
PR-144	Y	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	2.62	0.297	4.146E-07	2.302E-07	8.388E-07	6.541E-07	1.891E-07	1.538E-05	5.081E-05	8.648E-07	2.556E-06
RES LYM	2.62	19.8	4.146E-07	2.302E-07	8.388E-07	6.541E-07	1.891E-07	1.538E-05	5.081E-05	8.648E-07	2.556E-06
S WALL	7.038E-04	8.023E-05	3.792E-03	2.840E-06	9.593E-06	8.231E-06	1.894E-07	8.574E-06	3.739E-05	3.293E-06	2.702E-06
SI WALL	9.443E-05	1.074E-05	6.018E-07	7.440E-03	4.432E-05	4.584E-05	1.898E-07	1.185E-05	3.051E-05	2.708E-06	2.952E-06
ULI WALL	1.183E-04	1.345E-05	7.810E-07	2.039E-05	4.252E-02	2.022E-05	1.898E-07	1.105E-05	4.791E-05	2.643E-06	3.028E-06
LLI WALL	2.437E-05	2.775E-06	2.905E-07	6.122E-06	8.035E-06	0.128	1.901E-07	1.543E-05	5.254E-06	7.885E-07	3.284E-06
T BODY	3.792E-02	4.303E-03	8.502E-06	6.942E-05	1.328E-04	3.012E-04	1.890E-07	1.666E-03	2.086E-03	1.043E-04	2.068E-04
ADREN	7.550E-04	8.619E-05	6.000E-07	8.829E-07	2.500E-06	1.909E-06	1.897E-07	2.111E-05	9.698E-05	1.195E-05	4.247E-04
BL WALL	2.480E-05	2.818E-06	8.106E-08	2.147E-06	5.357E-06	2.956E-05	1.896E-07	8.705E-06	4.315E-06	3.282E-07	2.144E-04
KIDNEYS	3.068E-04	3.495E-05	7.533E-07	2.397E-06	6.806E-06	4.273E-06	1.893E-07	1.346E-05	7.589E-05	2.330E-02	2.886E-06
LIVER	8.776E-04	1.001E-04	4.642E-07	1.444E-06	6.357E-06	1.492E-06	1.894E-07	1.116E-05	8.029E-02	3.795E-06	2.113E-06
OVARIES	4.887E-05	5.558E-06	1.786E-07	7.889E-06	2.893E-05	8.710E-05	1.897E-07	1.367E-05	1.073E-05	1.082E-06	4.252E-04
PANCREAS	8.688E-04	9.910E-05	4.174E-06	1.532E-06	5.480E-06	3.343E-06	1.902E-07	1.469E-05	8.089E-05	6.125E-06	4.256E-04
BONE	4.852E-04	5.542E-05	1.704E-07	8.350E-07	2.420E-06	6.965E-06	1.898E-07	2.116E-02	1.918E-05	1.247E-06	3.588E-05
R MAR	6.078E-04	6.942E-05	2.839E-07	2.771E-06	7.704E-06	2.233E-05	1.904E-07	7.931E-03	2.649E-05	3.204E-06	2.819E-04
Y MAR	5.136E-04	5.866E-05	2.398E-07	1.159E-06	3.447E-06	8.791E-06	1.895E-07	6.656E-05	2.870E-05	1.524E-06	4.230E-04
ENDOST	4.852E-04	5.542E-05	1.704E-07	8.350E-07	2.420E-06	6.965E-06	1.898E-07	1.390E-02	1.918E-05	1.247E-06	2.568E-04
SPLEEN	8.032E-04	9.162E-05	2.248E-06	1.225E-06	3.370E-06	4.206E-06	1.894E-07	1.063E-05	1.835E-05	8.659E-06	4.254E-04
TESTES	9.710E-06	1.102E-06	2.634E-08	3.533E-07	1.025E-06	8.495E-06	1.889E-07	1.239E-05	2.209E-06	1.301E-07	4.224E-04
THYMUS	1.505E-03	1.716E-04	1.025E-07	9.982E-08	3.540E-07	2.639E-07	1.894E-07	9.765E-06	1.529E-05	2.021E-07	4.265E-04
THYROID	3.460E-04	3.941E-05	3.298E-08	3.301E-08	1.107E-07	1.001E-07	1.886E-07	9.813E-06	3.296E-06	8.516E-08	4.226E-04
UTERUS	4.634E-05	5.269E-06	1.922E-07	7.316E-06	1.291E-05	2.898E-05	1.901E-07	9.024E-06	8.780E-06	7.851E-07	4.293E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.92
RES LYM	22.4
S WALL	4.649E-03
SI WALL	7.684E-03
ULI WALL	4.276E-02
LLI WALL	0.128
T BODY	4.679E-02
ADREN	1.402E-03
BL WALL	2.927E-04
KIDNEYS	2.375E-02
LIVER	8.129E-02
OVARIES	6.294E-04
PANCREAS	1.510E-03
BONE	2.176E-02
R MAR	8.953E-03
Y MAR	1.106E-03
ENDOST	1.473E-02
SPLEEN	1.369E-03
TESTES	4.580E-04
THYMUS	2.129E-03
THYROID	8.216E-04
UTERUS	5.491E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE	CE-144	PR-144M	PR-144
TARGET			
LUNGS	7.2	0.0	92.8
RES LYM	7.1	0.0	92.8
S WALL	12.5	0.1	87.5
SI WALL	8.0	0.1	91.9
ULI WALL	7.3	0.0	92.7
LLI WALL	7.2	0.0	92.8
T BODY	7.7	0.0	92.3
ADREN	38.8	0.2	60.9
BL WALL	15.0	0.1	84.9
KIDNEYS	7.8	0.0	92.1
LIVER	7.8	0.1	92.1
OVARIES	18.7	0.2	81.2
PANCREAS	36.4	0.2	63.3
BONE	9.0	0.1	91.0
R MAR	7.8	0.1	92.1
Y MAR	39.8	0.4	59.7
ENDOST	10.0	0.1	89.9
SPLEEN	35.6	0.3	64.1
TESTES	8.8	0.0	91.2
THYMUS	39.2	0.3	60.5
THYROID	21.8	0.1	78.1
UTERUS	13.9	0.1	86.0

CERIUM-144 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
CE-144	W	0.0	1.000E-04	0.0
PR-144M	W	0.0	1.000E-04	0.0
PR-144	W	0.0	1.000E-04	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	0.634	4.326E-02	3.526E-07	2.183E-07	8.088E-07	6.310E-07	1.897E-06	1.543E-04	5.096E-04	8.675E-06	2.564E-05
RES LYM	0.634	2.88	3.526E-07	2.183E-07	8.088E-07	6.310E-07	1.897E-06	1.543E-04	5.096E-04	8.675E-06	2.564E-05
S WALL	1.704E-04	1.162E-05	2.987E-03	2.705E-06	9.251E-06	7.941E-06	1.900E-06	8.600E-05	3.750E-04	3.303E-05	2.710E-05
SI WALL	2.286E-05	1.559E-06	5.108E-07	7.020E-03	4.274E-05	4.422E-05	1.905E-06	1.189E-04	3.061E-04	2.716E-05	2.961E-05
ULI WALL	2.863E-05	1.952E-06	6.689E-07	1.945E-05	4.099E-02	1.951E-05	1.904E-06	1.109E-04	4.806E-04	2.651E-05	3.037E-05
LLI WALL	5.902E-06	4.023E-07	2.437E-07	5.836E-06	7.748E-06	0.123	1.907E-06	1.548E-04	5.270E-05	7.910E-06	3.294E-05
T BODY	9.179E-03	6.259E-04	6.725E-06	6.552E-05	1.280E-04	2.906E-04	1.896E-06	1.671E-02	2.092E-02	1.046E-03	2.074E-03
ADREN	1.828E-04	1.246E-05	5.085E-07	8.382E-07	2.411E-06	1.842E-06	1.903E-06	2.117E-04	9.728E-04	1.199E-04	4.260E-03
BL WALL	6.004E-06	4.094E-07	6.673E-08	2.042E-06	5.166E-06	2.852E-05	1.902E-06	8.732E-05	4.328E-05	3.292E-06	2.150E-03
KIDNEYS	7.428E-05	5.063E-06	6.411E-07	2.282E-06	6.563E-06	4.123E-06	1.899E-06	1.350E-04	7.613E-04	0.234	2.895E-05
LIVER	2.125E-04	1.449E-05	3.920E-07	1.375E-06	6.130E-06	1.439E-06	1.900E-06	1.119E-04	0.805	3.806E-05	2.119E-05
OVARIES	1.183E-05	8.067E-07	1.464E-07	7.526E-06	2.790E-05	8.403E-05	1.903E-06	1.371E-04	1.076E-04	1.085E-05	4.264E-03
PANCREAS	2.104E-04	1.434E-05	3.596E-06	1.458E-06	5.285E-06	3.225E-06	1.908E-06	1.473E-04	8.114E-04	6.145E-05	4.269E-03
BONE	1.175E-04	8.008E-06	1.483E-07	7.977E-07	2.334E-06	6.719E-06	1.904E-06	0.212	1.924E-04	1.251E-05	3.599E-04
R MAR	1.472E-04	1.003E-05	2.473E-07	2.649E-06	7.431E-06	2.154E-05	1.910E-06	7.955E-02	2.657E-04	3.215E-05	2.827E-03
Y MAR	1.244E-04	8.476E-06	2.088E-07	1.107E-06	3.325E-06	8.481E-06	1.901E-06	6.677E-04	2.879E-04	1.528E-05	4.242E-03
ENDOST	1.175E-04	8.008E-06	1.483E-07	7.977E-07	2.334E-06	6.719E-06	1.904E-06	0.139	1.924E-04	1.251E-05	2.575E-03
SPLEEN	1.945E-04	1.326E-05	1.928E-06	1.165E-06	3.250E-06	4.059E-06	1.900E-06	1.066E-04	1.841E-04	8.686E-05	4.266E-03
TESTES	2.351E-06	1.603E-07	2.110E-08	3.348E-07	9.883E-07	8.195E-06	1.896E-06	1.243E-04	2.216E-05	1.305E-06	4.236E-03
THYMUS	3.644E-04	2.484E-05	8.377E-08	9.451E-08	3.413E-07	2.546E-07	1.900E-06	9.795E-05	1.534E-04	2.027E-06	4.277E-03
THYROID	8.377E-05	5.710E-06	2.669E-08	3.118E-08	1.068E-07	9.656E-08	1.893E-06	9.844E-05	3.306E-05	8.542E-07	4.238E-03
UTERUS	1.122E-05	7.650E-07	1.597E-07	6.977E-06	1.245E-05	2.796E-05	1.907E-06	9.052E-05	8.807E-05	7.876E-06	4.305E-03

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	0.678
RES LYM	3.52
S WALL	3.712E-03
SI WALL	7.616E-03
ULI WALL	4.171E-02
LLI WALL	0.124
T BODY	5.105E-02
ADREN	5.767E-03
BL WALL	2.328E-03
KIDNEYS	0.235
LIVER	0.806
OVARIES	4.654E-03
PANCREAS	5.529E-03
BONE	0.213
R MAR	8.286E-02
Y MAR	5.361E-03
ENDOST	0.142
SPLEEN	4.864E-03
TESTES	4.398E-03
THYMUS	4.923E-03
THYROID	4.462E-03
UTERUS	4.553E-03

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-144	PR-144M	PR-144
TARGET			
LUNGS	7.2	0.0	92.8
RES LYM	7.1	0.0	92.9
S WALL	13.7	0.1	86.3
SI WALL	10.0	0.1	90.0
ULI WALL	7.8	0.0	92.2
LLI WALL	7.2	0.0	92.7
T BODY	7.7	0.0	92.2
ADREN	16.8	0.1	83.0
BL WALL	9.9	0.1	90.1
KIDNEYS	7.4	0.0	92.6
LIVER	7.4	0.0	92.6
OVARIES	10.1	0.1	89.8
PANCREAS	16.3	0.1	83.6
BONE	7.7	0.0	92.3
R MAR	3.5	0.0	96.4
Y MAR	18.6	0.2	81.2
ENDOST	8.1	0.0	91.8
SPLEEN	11.9	0.1	88.0
TESTES	8.1	0.0	91.8
THYMUS	12.1	0.1	87.8
THYROID	9.1	0.1	90.9
UTERUS	9.4	0.1	90.5

CERIUM-144 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
CE-144	D	0.0	1.000E-04	0.0	0.0		
PR-144M	D	0.0	1.000E-04	0.0	0.0		
PR-144	D	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.191E-02	2.384E-03	9.786E-08	6.796E-08	2.558E-07	1.996E-07	8.135E-06	6.616E-04	2.186E-03	3.721E-05	1.100E-04
RES LYM	1.191E-02	0.159	9.786E-08	6.796E-08	2.558E-07	1.996E-07	8.135E-06	6.616E-04	2.186E-03	3.721E-05	1.100E-04
S WALL	3.248E-06	6.402E-07	7.510E-04	8.459E-07	2.926E-06	2.512E-06	8.148E-06	3.689E-04	1.609E-03	1.417E-04	1.162E-04
SI WALL	4.326E-07	8.590E-08	1.414E-07	2.176E-03	1.352E-05	1.399E-05	8.169E-06	5.099E-04	1.313E-03	1.165E-04	1.270E-04
ULI WALL	5.415E-07	1.076E-07	1.872E-07	6.090E-06	1.296E-02	6.172E-06	8.167E-06	4.755E-04	2.061E-03	1.137E-04	1.303E-04
LLI WALL	1.120E-07	2.217E-08	6.652E-08	1.826E-06	2.451E-06	3.905E-02	8.179E-06	6.639E-04	2.260E-04	3.392E-05	1.413E-04
T BODY	1.723E-04	3.449E-05	1.700E-06	2.031E-05	4.047E-05	9.194E-05	8.134E-06	7.167E-02	8.974E-02	4.486E-03	8.897E-03
ADREN	3.501E-06	6.868E-07	1.405E-07	2.612E-07	7.624E-07	5.828E-07	8.163E-06	9.081E-04	4.172E-03	5.141E-04	1.827E-02
EL WALL	1.132E-07	2.256E-08	1.779E-08	6.376E-07	1.634E-06	9.023E-06	8.159E-06	3.745E-04	1.856E-04	1.412E-05	9.223E-03
KIDNEYS	1.413E-06	2.790E-07	1.781E-07	7.132E-07	2.076E-06	1.304E-06	8.146E-06	5.791E-04	3.265E-03	1.00	1.242E-04
LIVER	4.059E-06	7.983E-07	1.079E-07	4.294E-07	1.939E-06	4.553E-07	8.149E-06	4.800E-04	3.45	1.633E-04	9.088E-05
OVARIES	2.237E-07	4.445E-08	3.884E-08	2.357E-06	8.823E-06	2.659E-05	8.163E-06	5.880E-04	4.616E-04	4.654E-05	1.829E-02
PANCREAS	4.018E-06	7.904E-07	1.013E-06	4.554E-07	1.671E-06	1.020E-06	8.183E-06	6.318E-04	3.480E-03	2.635E-04	1.831E-02
BONE	2.255E-06	4.414E-07	4.225E-08	2.501E-07	7.382E-07	2.126E-06	8.167E-06	0.910	8.252E-04	5.364E-05	1.544E-03
R MAR	2.824E-06	5.529E-07	7.056E-08	8.311E-07	2.350E-06	6.814E-06	8.192E-06	0.341	1.140E-03	1.379E-04	1.212E-02
Y MAR	2.387E-06	4.672E-07	5.952E-08	3.472E-07	1.052E-06	2.683E-06	8.155E-06	2.864E-03	1.235E-03	6.555E-05	1.820E-02
ENDOST	2.255E-06	4.414E-07	4.225E-08	2.501E-07	7.382E-07	2.126E-06	8.168E-06	0.598	8.252E-04	5.364E-05	1.105E-02
SPLEEN	3.716E-06	7.307E-07	5.404E-07	3.638E-07	1.028E-06	1.284E-06	8.150E-06	4.571E-04	7.894E-04	3.725E-04	1.830E-02
TESTES	4.416E-08	8.833E-09	5.430E-09	1.042E-07	3.125E-07	2.593E-06	8.130E-06	5.332E-04	9.503E-05	5.598E-06	1.817E-02
THYMUS	6.958E-06	1.369E-06	2.212E-08	2.938E-08	1.079E-07	8.054E-08	8.150E-06	4.201E-04	6.578E-04	8.693E-06	1.835E-02
THYROID	1.592E-06	3.147E-07	6.961E-09	9.672E-09	3.376E-08	3.055E-08	8.117E-06	4.222E-04	1.418E-04	3.664E-06	1.818E-02
UTERUS	2.120E-07	4.216E-08	4.309E-08	2.184E-06	3.938E-06	8.847E-06	8.180E-06	3.882E-04	3.777E-04	3.378E-05	1.847E-02

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.730E-02
RES LYM	0.174
S WALL	3.005E-03
SI WALL	4.278E-03
ULI WALL	1.576E-02
LLI WALL	4.013E-02
T BODY	0.175
ADREN	2.388E-02
EL WALL	5.817E-03
KIDNEYS	1.01
LIVER	3.45
OVARIES	1.943E-02
PANCREAS	2.270E-02
BONE	0.913
R MAR	0.355
Y MAR	2.238E-02
ENDOST	0.610
SPLEEN	1.993E-02
TESTES	1.881E-02
THYMUS	1.945E-02
THYROID	1.875E-02
UTERUS	1.929E-02

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-144	PR-144M	PR-144
TARGET			
LUNGS	14.2	0.1	85.6
RES LYM	7.8	0.0	92.2
S WALL	33.3	0.2	66.5
SI WALL	24.7	0.1	75.2
ULI WALL	13.8	0.1	86.1
LLI WALL	8.1	0.0	91.9
T BODY	7.7	0.0	92.2
ADREN	15.5	0.1	84.4
EL WALL	9.3	0.1	90.7
KIDNEYS	7.3	0.0	92.6
LIVER	7.4	0.0	92.6
OVARIES	9.1	0.1	90.9
PANCREAS	14.9	0.1	85.0
BONE	7.6	0.0	92.3
R MAR	3.4	0.0	96.6
Y MAR	17.4	0.2	82.4
ENDOST	8.1	0.0	91.9
SPLEEN	10.2	0.1	89.7
TESTES	8.1	0.0	91.9
THYMUS	9.1	0.1	90.9
THYROID	8.5	0.1	91.4
UTERUS	9.0	0.1	90.9

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	CE-144	PR-144M	PR-144
STOMACH	0.0	0.0	0.0
S INT	1.000E-04	1.000E-04	1.000E-04
U L INT	0.0	0.0	0.0
L L INT	0.0	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	5.676E-07	4.236E-07	1.608E-06	1.256E-06	1.695E-09	1.379E-07	4.555E-07	7.754E-09	2.292E-08	4.481E-06
RES LYM	5.676E-07	4.236E-07	1.608E-06	1.256E-06	1.695E-09	1.379E-07	4.555E-07	7.754E-09	2.292E-08	4.481E-06
S WALL	4.047E-03	5.286E-06	1.840E-05	1.580E-05	1.698E-09	7.687E-08	3.352E-07	2.952E-08	2.422E-08	4.086E-03
SI WALL	8.186E-07	1.352E-02	8.502E-05	8.800E-05	1.702E-09	1.063E-07	2.736E-07	2.428E-08	2.646E-08	1.370E-02
ULI WALL	1.092E-06	3.808E-05	8.150E-02	3.883E-05	1.702E-09	9.909E-08	4.295E-07	2.369E-08	2.715E-08	8.158E-02
LLI WALL	3.815E-07	1.142E-05	1.541E-05	0.246	1.704E-09	1.384E-07	4.710E-08	7.070E-09	2.944E-08	0.246
T BODY	9.203E-06	1.263E-04	2.545E-04	5.783E-04	1.695E-09	1.493E-05	1.870E-05	9.349E-07	1.854E-06	1.005E-03
ADREN	8.127E-07	1.629E-06	4.795E-06	3.666E-06	1.701E-09	1.892E-07	8.695E-07	1.071E-07	3.807E-06	1.588E-05
BL WALL	1.003E-07	3.981E-06	1.028E-05	5.676E-05	1.700E-09	7.805E-08	3.869E-08	2.942E-09	1.922E-06	7.316E-05
KIDNEYS	1.034E-06	4.455E-06	1.305E-05	8.205E-06	1.698E-09	1.207E-07	6.804E-07	2.089E-04	2.587E-08	2.364E-04
LIVER	6.223E-07	2.682E-06	1.219E-05	2.864E-06	1.698E-09	1.007E-07	7.198E-04	3.402E-08	1.894E-08	7.383E-04
OVARIES	2.182E-07	1.474E-05	5.549E-05	1.672E-04	1.701E-09	1.225E-07	9.619E-08	9.699E-09	3.811E-06	2.417E-04
PANCREAS	5.935E-06	2.845E-06	1.051E-05	6.419E-06	1.705E-09	1.317E-07	7.252E-07	5.492E-08	3.815E-06	3.044E-05
BONE	2.495E-07	1.565E-06	4.642E-06	1.337E-05	1.702E-09	1.897E-04	1.720E-07	1.118E-08	3.217E-07	2.100E-04
R MAR	4.169E-07	5.203E-06	1.478E-05	4.286E-05	1.707E-09	7.110E-05	2.375E-07	2.873E-08	2.527E-06	1.372E-04
Y MAR	3.515E-07	2.173E-06	6.614E-06	1.688E-05	1.699E-09	5.968E-07	2.573E-07	1.366E-08	3.792E-06	3.068E-05
ENDOST	2.495E-07	1.565E-06	4.642E-06	1.337E-05	1.702E-09	1.246E-04	1.720E-07	1.118E-08	2.302E-06	1.469E-04
SPLEEN	3.155E-06	2.271E-06	6.464E-06	8.075E-06	1.698E-09	9.526E-08	1.645E-07	7.763E-08	3.813E-06	2.412E-05
TESTES	2.981E-08	6.490E-07	1.965E-06	1.631E-05	1.694E-09	1.111E-07	1.980E-08	1.167E-09	3.786E-06	2.287E-05
THYMUS	1.238E-07	1.830E-07	6.787E-07	5.066E-07	1.698E-09	8.755E-08	1.371E-07	1.812E-09	3.823E-06	5.543E-06
THYROID	3.861E-08	6.016E-08	2.123E-07	1.922E-07	1.692E-09	8.798E-08	2.955E-08	7.635E-10	3.788E-06	4.411E-06
UTERUS	2.451E-07	1.365E-05	2.477E-05	5.565E-05	1.705E-09	8.091E-08	7.872E-08	7.039E-09	3.848E-06	9.833E-05

PERCENT DOSE EQUIVALENT..

NUCLIDE	CE-144	PR-144M	PR-144
TARGET			
LUNGS	32.3	0.1	67.6
RES LYM	32.3	0.1	67.6
S WALL	10.3	0.1	89.7
SI WALL	8.0	0.1	92.0
ULI WALL	7.2	0.0	92.7
LLI WALL	7.1	0.0	92.8
T BODY	8.4	0.1	91.5
ADREN	29.4	0.1	70.5
BL WALL	47.5	0.3	52.2
KIDNEYS	11.4	0.1	88.6
LIVER	8.2	0.1	91.7
OVARIES	50.8	0.6	48.7
PANCREAS	41.5	0.2	58.3
BONE	12.7	0.1	87.2
R MAR	31.5	0.3	68.2
Y MAR	54.9	0.6	44.6
ENDOST	15.2	0.1	84.7
SPLEEN	37.2	0.2	62.6
TESTES	33.8	0.2	66.0
THYMUS	12.5	0.0	87.5
THYROID	8.9	0.0	91.1
UTERUS	48.7	0.3	50.9

PRASEODYMIUM-143

RADIONUCLIDE: PR-143

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)				
NUCL IDE PR-143	13.60			
ORGAN ABSORBED	NUCL IDE PR-143	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 0.975	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)
			2.500E-02	0.500
			0.975	5.000E 03
EXCRET .	PR-143	2.500E-02	1.00	0.500
BONE	PR-143	0.400	1.00	5.000E 03
LIVER	PR-143	0.500	1.00	5.000E 03
KIDNEYS	PR-143	2.500E-02	1.00	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR PR-143

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.161E-01	0.161E-01	0.277E-11	0.530E-12	0.580E-12	0.203E-12	0.230E-03	0.152E-11	0.368E-11	0.150E-11	0.193E-11
RES LYM	0.161E-01	0.107E-01	0.277E-11	0.530E-12	0.580E-12	0.203E-12	0.230E-03	0.152E-11	0.368E-11	0.150E-11	0.193E-11
S WALL	0.288E-11	0.288E-11	0.322E-01	0.524E-11	0.547E-11	0.256E-11	0.230E-03	0.865E-12	0.295E-11	0.508E-11	0.212E-11
SI WALL	0.464E-12	0.464E-12	0.393E-11	0.201E-01	0.243E-10	0.135E-10	0.230E-03	0.127E-11	0.242E-11	0.420E-11	0.230E-11
ULI WALL	0.614E-12	0.614E-12	0.478E-11	0.343E-10	0.366E-01	0.618E-11	0.230E-03	0.114E-11	0.378E-11	0.435E-11	0.235E-11
LLI WALL	0.134E-12	0.134E-12	0.202E-11	0.103E-10	0.480E-11	0.596E-01	0.230E-03	0.155E-11	0.459E-12	0.134E-11	0.253E-11
T BODY	0.230E-03	0.230E-03	0.690E-04	0.184E-03	0.110E-03	0.136E-03	0.230E-03	0.230E-03	0.230E-03	0.230E-03	0.229E-03
ADREN	0.368E-11	0.368E-11	0.326E-11	0.185E-11	0.173E-11	0.761E-12	0.230E-03	0.274E-11	0.739E-11	0.189E-10	0.471E-11
BL WALL	0.128E-12	0.128E-12	0.736E-12	0.426E-11	0.309E-11	0.812E-11	0.230E-03	0.840E-12	0.411E-12	0.660E-12	0.236E-11
KIDNEYS	0.156E-11	0.156E-11	0.499E-11	0.483E-11	0.426E-11	0.135E-11	0.230E-03	0.162E-11	0.565E-11	0.519E-01	0.223E-11
LIVER	0.363E-11	0.363E-11	0.305E-11	0.280E-11	0.377E-11	0.566E-12	0.230E-03	0.110E-11	0.495E-02	0.594E-11	0.166E-11
OVARIES	0.250E-12	0.250E-12	0.152E-11	0.145E-10	0.154E-10	0.249E-10	0.230E-03	0.158E-11	0.702E-12	0.213E-11	0.471E-11
PANCREAS	0.383E-11	0.383E-11	0.257E-10	0.313E-11	0.295E-11	0.114E-11	0.230E-03	0.146E-11	0.688E-11	0.102E-10	0.471E-11
BONE	0.151E-11	0.151E-11	0.905E-12	0.119E-11	0.107E-11	0.156E-11	0.230E-03	0.298E-02	0.110E-11	0.148E-11	0.351E-11
R MAR	0.191E-11	0.191E-11	0.155E-11	0.373E-11	0.316E-11	0.465E-11	0.230E-03	0.871E-03	0.158E-11	0.373E-11	0.344E-11
Y MAR	0.159E-11	0.159E-11	0.126E-11	0.165E-11	0.152E-11	0.192E-11	0.230E-03	0.454E-11	0.163E-11	0.184E-11	0.471E-11
ENDOST	0.151E-11	0.151E-11	0.906E-12	0.119E-11	0.107E-11	0.156E-11	0.230E-03	0.238E-02	0.110E-11	0.148E-11	0.248E-11
SPLEEN	0.330E-11	0.330E-11	0.144E-10	0.238E-11	0.199E-11	0.154E-11	0.230E-03	0.133E-11	0.165E-11	0.126E-10	0.471E-11
TESTES	0.466E-13	0.466E-13	0.145E-12	0.687E-12	0.840E-12	0.275E-11	0.230E-03	0.958E-12	0.285E-12	0.249E-12	0.471E-11
THYMUS	0.597E-11	0.597E-11	0.816E-12	0.232E-12	0.252E-12	0.103E-12	0.230E-03	0.125E-11	0.165E-11	0.392E-12	0.471E-11
THYROID	0.200E-11	0.200E-11	0.252E-12	0.731E-13	0.778E-13	0.353E-13	0.230E-03	0.126E-11	0.299E-12	0.162E-12	0.471E-11
UTERUS	0.166E-12	0.166E-12	0.143E-11	0.130E-10	0.697E-11	0.845E-11	0.230E-03	0.116E-11	0.639E-12	0.129E-11	0.471E-11

β^- decay (13.56 D 2)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

PRASEODYMIUM-143 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. LPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PR-143 Y	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	5.170E-02	3.088E-04	5.416E-14	4.110E-14	1.422E-13	8.745E-14	1.714E-08	5.098E-14	1.543E-13	3.144E-15	8.091E-15
RES LYM	5.170E-02	2.053E-02	5.416E-14	4.110E-14	1.422E-13	8.745E-14	1.714E-08	5.098E-14	1.543E-13	3.144E-15	8.091E-15
S WALL	9.248E-12	5.525E-14	6.256E-04	4.063E-13	1.341E-12	1.103E-12	1.714E-08	2.901E-14	1.237E-13	1.065E-14	8.888E-15
SI WALL	1.490E-12	8.901E-15	7.684E-14	1.559E-03	5.959E-12	5.816E-12	1.714E-08	4.260E-14	1.015E-13	8.804E-15	9.643E-15
ULI WALL	1.972E-12	1.178E-14	9.346E-14	2.660E-12	8.976E-03	2.662E-12	1.714E-08	3.824E-14	1.585E-13	9.119E-15	9.952E-15
LLI WALL	4.303E-13	2.570E-15	3.950E-14	7.987E-13	1.177E-12	2.568E-02	1.714E-08	5.195E-14	1.924E-14	2.809E-15	1.061E-14
T BODY	7.386E-04	4.412E-06	1.349E-06	1.427E-05	2.698E-05	5.859E-05	1.714E-08	7.714E-06	9.643E-06	4.821E-07	9.601E-07
ADREN	1.182E-11	7.059E-14	6.374E-14	1.435E-13	4.243E-13	3.278E-13	1.714E-08	9.190E-14	3.098E-13	3.962E-14	1.975E-06
BL WALL	4.110E-13	2.455E-15	1.439E-14	3.303E-13	7.578E-13	3.498E-12	1.714E-08	2.817E-14	1.723E-14	1.384E-15	9.894E-07
KIDNEYS	5.009E-12	2.992E-14	9.757E-14	3.745E-13	1.045E-12	5.816E-13	1.714E-08	5.434E-14	2.369E-13	1.088E-04	9.349E-15
LIVER	1.166E-11	6.963E-14	5.963E-14	2.171E-13	9.246E-13	2.438E-13	1.714E-08	3.689E-14	3.752E-04	1.245E-14	6.959E-15
OVARIES	8.028E-13	4.796E-15	2.972E-14	1.124E-12	3.777E-12	1.073E-11	1.714E-08	5.299E-14	2.943E-14	4.465E-15	1.975E-06
PANCREAS	1.230E-11	7.347E-14	5.025E-13	2.427E-13	7.235E-13	4.911E-13	1.714E-08	4.897E-14	2.884E-13	2.138E-14	1.975E-06
BONE	4.849E-12	2.897E-14	1.771E-14	9.226E-14	2.624E-13	6.720E-13	1.714E-08	9.995E-05	4.612E-14	3.102E-15	1.472E-07
R MAR	6.133E-12	3.664E-14	3.031E-14	2.892E-13	7.750E-13	2.003E-12	1.714E-08	2.921E-05	6.624E-14	7.819E-15	1.442E-06
Y MAR	5.106E-12	3.050E-14	2.464E-14	1.279E-13	3.728E-13	8.271E-13	1.714E-08	1.523E-13	6.834E-14	3.857E-15	1.975E-06
ENDOST	4.849E-12	2.897E-14	1.771E-14	9.228E-14	2.624E-13	6.720E-13	1.714E-08	7.983E-05	4.612E-14	3.102E-15	1.040E-06
SPLEEN	1.060E-11	6.330E-14	2.816E-13	1.846E-13	4.880E-13	6.634E-13	1.714E-08	4.461E-14	6.918E-14	2.641E-14	1.975E-06
TESTES	1.496E-13	8.939E-16	2.835E-15	5.327E-14	2.060E-13	1.185E-12	1.714E-08	3.213E-14	1.195E-14	5.220E-16	1.975E-06
THYMUS	1.917E-11	1.145E-13	1.595E-14	1.799E-14	6.180E-14	4.437E-14	1.714E-08	4.193E-14	6.918E-14	8.217E-16	1.975E-06
THYROID	6.422E-12	3.836E-14	4.927E-15	5.668E-15	1.908E-14	1.521E-14	1.714E-08	4.226E-14	1.254E-14	3.396E-16	1.975E-06
UTERUS	5.330E-13	3.184E-15	2.796E-14	1.008E-12	1.709E-12	3.640E-12	1.714E-08	3.891E-14	2.679E-14	2.704E-15	1.975E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	5.201E-02
RES LYM	7.222E-02
S WALL	6.296E-04
SI WALL	1.559E-03
ULI WALL	8.976E-03
LLI WALL	2.568E-02
T BODY	8.630E-04
ADREN	1.992E-06
BL WALL	1.007E-06
KIDNEYS	1.088E-04
LIVER	3.753E-04
OVARIES	1.992E-06
PANCREAS	1.992E-06
BONE	1.001E-04
R MAR	3.067E-05
Y MAR	1.992E-06
ENDOST	8.088E-05
SPLEEN	1.992E-06
TESTES	1.992E-06
THYMUS	1.992E-06
THYROID	1.992E-06
UTERUS	1.992E-06

PRASEODYMIUM-143 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PR-143 W	C.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	4.252E-02	6.616E-04	4.871E-14	3.696E-14	1.279E-13	7.865E-14	3.182E-07	9.464E-13	2.864E-12	5.837E-14	1.532E-13
RES LYM	4.252E-02	4.397E-02	4.871E-14	3.696E-14	1.279E-13	7.865E-14	3.182E-07	9.464E-13	2.864E-12	5.837E-14	1.532E-13
S WALL	7.606E-12	1.183E-13	5.662E-04	3.654E-13	1.206E-12	9.918E-13	3.182E-07	5.386E-13	2.256E-12	1.577E-13	1.550E-13
SI WALL	1.225E-12	1.907E-14	6.911E-14	1.402E-03	5.360E-12	5.230E-12	3.182E-07	7.907E-13	1.883E-12	1.634E-13	1.793E-13
ULI WALL	1.622E-12	2.523E-14	8.405E-14	2.392E-12	8.073E-03	2.394E-12	3.182E-07	7.098E-13	2.542E-12	1.693E-13	1.929E-13
LLI WALL	3.539E-13	5.506E-15	3.552E-14	7.183E-13	1.059E-12	2.309E-02	3.182E-07	9.651E-13	3.572E-13	5.214E-14	1.969E-13
T BODY	6.074E-04	9.451E-06	1.213E-06	1.283E-05	2.426E-05	5.269E-05	3.182E-07	1.432E-04	1.790E-04	8.950E-06	1.792E-05
ADREN	9.719E-12	1.512E-13	5.732E-14	1.290E-13	3.816E-13	2.948E-13	3.182E-07	1.706E-12	5.751E-12	7.355E-13	3.565E-05
BL WALL	3.381E-13	5.260E-15	1.254E-14	2.971E-13	6.815E-13	3.146E-12	3.182E-07	5.230E-13	3.199E-13	2.568E-14	1.837E-05
KIDNEYS	4.120E-12	6.410E-14	8.775E-14	3.368E-13	9.396E-13	5.230E-13	3.182E-07	1.005E-12	4.357E-12	2.020E-03	1.735E-13
LIVER	9.587E-12	1.492E-13	5.363E-14	1.953E-13	8.315E-13	2.193E-13	3.182E-07	6.845E-13	6.966E-03	2.311E-13	1.292E-13
OVARIES	6.603E-13	1.027E-14	2.673E-14	1.011E-12	3.397E-12	9.647E-12	3.182E-07	9.837E-13	5.464E-13	8.289E-14	3.565E-05
PANCREAS	1.012E-11	1.574E-13	4.519E-13	2.183E-13	6.507E-13	4.417E-13	3.182E-07	9.090E-13	5.355E-12	3.969E-13	3.655E-05
BONE	3.988E-12	6.205E-14	1.553E-14	8.299E-14	2.360E-13	6.044E-13	3.182E-07	1.855E-03	8.561E-13	5.759E-14	2.732E-06
R MAR	5.044E-12	7.848E-14	2.726E-14	2.601E-13	6.970E-13	1.802E-12	3.182E-07	5.423E-04	1.230E-12	1.451E-13	2.577E-05
Y MAR	4.199E-12	6.533E-14	2.216E-14	1.151E-13	3.353E-13	7.439E-13	3.182E-07	2.827E-12	1.269E-12	7.160E-14	3.665E-05
ENDOST	3.988E-12	6.205E-14	1.553E-14	8.299E-14	2.360E-13	6.044E-13	3.182E-07	1.482E-03	8.561E-13	5.759E-14	1.930E-05
SPLEEN	8.716E-12	1.356E-13	2.532E-13	1.660E-13	4.389E-13	5.967E-13	3.182E-07	8.281E-13	1.284E-12	4.903E-13	3.555E-05
TESTES	1.231E-13	1.915E-15	2.550E-15	4.791E-14	1.853E-13	1.065E-12	3.182E-07	5.965E-13	2.218E-13	9.690E-15	3.665E-05
THYMUS	1.577E-11	2.453E-13	1.435E-14	1.618E-14	5.558E-14	3.991E-14	3.182E-07	7.783E-13	1.284E-12	1.525E-14	3.665E-05
THYROID	5.282E-12	8.218E-14	4.421E-15	5.098E-15	1.716E-14	1.368E-14	3.182E-07	7.845E-13	2.327E-13	6.304E-15	3.665E-05
UTERUS	4.384E-13	6.821E-15	2.515E-14	9.066E-13	1.537E-12	3.274E-12	3.182E-07	7.222E-13	4.973E-13	5.020E-14	3.665E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	4.318E-02
RES LYM	8.649E-02
S WALL	5.665E-04
SI WALL	1.432E-03
ULI WALL	8.073E-03
LLI WALL	2.309E-02
T BODY	1.057E-03
ADREN	3.697E-05
BL WALL	1.968E-05
KIDNEYS	2.020E-03
LIVER	6.966E-03
OVARIES	3.697E-05
PANCREAS	3.697E-05
BONE	1.858E-03
R MAR	5.694E-04
Y MAR	3.697E-05
ENDOST	1.501E-03
SPLEEN	3.697E-05
TESTES	3.697E-05
THYMUS	3.697E-05
THYROID	3.697E-05
UTERUS	3.697E-05

PRASEODYMIUM-143 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =C.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS												
	STOMACH	S INT	U L INT	L L INT									
PR-143	D	0.0	1.000E-04	0.0	0.0								
DOSE EQUIVALENT (REM/MICROCURIE)													
SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER		
TARGET													
LUNGS	2.899E-03	5.384E-04	1.829E-14	1.388E-14	4.804E-14	2.954E-14	1.878E-06	5.585E-12	1.690E-11	3.445E-13	8.864E-13		
RES LYM	2.899E-03	3.578E-02	1.829E-14	1.388E-14	4.804E-14	2.954E-14	1.878E-06	5.585E-12	1.690E-11	3.445E-13	8.864E-13		
S WALL	5.186E-13	9.631E-14	2.126E-04	1.372E-13	4.531E-13	3.725E-13	1.878E-06	3.178E-12	1.355E-11	1.167E-12	9.737E-13		
SI WALL	8.354E-14	1.552E-14	2.595E-14	5.264E-04	2.013E-12	1.964E-12	1.878E-06	4.666E-12	1.111E-11	9.645E-13	1.556E-12		
ULI WALL	1.106E-13	2.053E-14	3.156E-14	8.983E-13	3.031E-03	8.991E-13	1.878E-06	4.189E-12	1.736E-11	9.990E-13	1.079E-12		
LLI WALL	2.413E-14	4.481E-15	1.334E-14	2.697E-13	3.976E-13	8.671E-03	1.878E-06	5.695E-12	2.108E-12	3.077E-13	1.162E-12		
T BODY	4.141E-05	7.691E-06	4.556E-07	4.819E-06	9.111E-06	1.979E-05	1.878E-06	8.451E-04	1.056E-03	5.282E-05	1.052E-04		
ADREN	6.626E-13	1.231E-13	2.153E-14	4.845E-14	1.433E-13	1.107E-13	1.878E-06	1.007E-11	3.394E-11	4.340E-12	2.163E-04		
BL WALL	2.305E-14	4.280E-15	4.860E-15	1.116E-13	2.559E-13	1.181E-12	1.878E-06	3.086E-12	1.888E-12	1.516E-13	1.084E-04		
KIDNEYS	2.809E-13	5.217E-14	3.295E-14	1.265E-13	3.528E-13	1.964E-13	1.878E-06	5.952E-12	2.595E-11	1.192E-02	1.024E-12		
LIVER	6.536E-13	1.214E-13	2.014E-14	7.333E-14	3.123E-13	8.235E-14	1.878E-06	4.042E-12	4.111E-02	1.364E-12	7.524E-13		
OVARIES	4.501E-14	8.360E-15	1.004E-14	3.797E-13	1.276E-12	3.623E-12	1.878E-06	5.805E-12	3.224E-12	4.891E-13	2.163E-04		
PANCREAS	6.896E-13	1.281E-13	1.697E-13	8.197E-14	2.443E-13	1.659E-13	1.878E-06	5.365E-12	3.160E-11	2.342E-12	2.163E-04		
BONE	2.719E-13	5.050E-14	5.683E-15	3.116E-14	8.862E-14	2.270E-13	1.878E-06	1.095E-02	5.052E-12	3.399E-13	1.512E-05		
R MAR	3.439E-13	6.387E-14	1.024E-14	9.768E-14	2.617E-13	6.765E-13	1.878E-06	3.200E-03	7.257E-12	8.566E-13	1.580E-04		
Y MAR	2.863E-13	5.317E-14	8.320E-15	4.321E-14	1.259E-13	2.793E-13	1.878E-06	1.668E-11	7.486E-12	4.225E-13	2.163E-04		
ENDOST	2.719E-13	5.050E-14	5.983E-15	3.116E-14	8.862E-14	2.270E-13	1.878E-06	8.745E-03	5.052E-12	3.399E-13	1.139E-04		
SPLEEN	5.942E-13	1.104E-13	9.509E-14	6.233E-14	1.648E-13	2.241E-13	1.878E-06	4.887E-12	7.578E-12	2.894E-12	2.163E-04		
TESTES	8.390E-15	1.558E-15	9.575E-16	1.799E-14	6.957E-14	4.001E-13	1.878E-06	3.520E-12	1.309E-12	5.718E-14	2.163E-04		
THYMUS	1.075E-12	1.956E-13	5.388E-15	6.076E-15	2.087E-14	1.499E-14	1.878E-06	4.593E-12	7.578E-12	9.002E-14	2.163E-04		
THYROID	3.601E-13	6.688E-14	1.664E-15	1.914E-15	6.444E-15	5.136E-15	1.878E-06	4.630E-12	1.373E-12	3.720E-14	2.163E-04		
UTERUS	2.989E-14	5.551E-15	9.443E-15	3.404E-13	5.773E-13	1.229E-12	1.878E-06	4.262E-12	2.935E-12	2.962E-13	2.163E-04		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	3.439E-03
RES LYM	3.868E-02
S WALL	2.145E-04
SI WALL	5.283E-04
ULI WALL	3.033E-03
LLI WALL	8.673E-03
T BODY	2.145E-03
ADREN	2.182E-04
BL WALL	1.103E-04
KIDNEYS	1.192E-02
LIVER	4.111E-02
OVARIES	2.182E-04
PANCREAS	2.182E-04
BONE	1.097E-02
R MAR	3.360E-03
Y MAR	2.182E-04
ENDOST	8.361E-03
SPLEEN	2.182E-04
TESTES	2.182E-04
THYMUS	2.182E-04
THYROID	2.182E-04
UTERUS	2.182E-04

PRASEODYMIUM-143 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

PR-143
 STOMACH 0.0
 S INT 1.000E-04
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CCNT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	1.152E-13	8.739E-14	3.025E-13	1.860E-13	3.959E-10	1.177E-15	3.563E-15	7.261E-17	1.868E-16	3.966E-10
RES LYM	1.152E-13	8.739E-14	3.025E-13	1.860E-13	3.959E-10	1.177E-15	3.563E-15	7.261E-17	1.868E-16	3.966E-10
S WALL	1.339E-03	8.641E-13	2.853E-12	2.345E-12	3.959E-10	6.699E-16	2.856E-15	2.459E-16	2.052E-16	1.339E-03
SI WALL	1.634E-13	3.314E-03	1.267E-11	1.237E-11	3.959E-10	9.836E-16	2.343E-15	2.033E-16	2.227E-16	3.314E-03
ULI WALL	1.987E-13	5.656E-12	1.909E-02	5.662E-12	3.959E-10	8.829E-16	3.659E-15	2.106E-16	2.275E-16	1.909E-02
LLI WALL	8.399E-14	1.698E-12	2.503E-12	5.460E-02	3.959E-10	1.200E-15	4.443E-16	6.486E-17	2.449E-16	5.460E-02
T BODY	2.869E-06	3.034E-05	5.737E-05	1.246E-04	3.959E-10	1.781E-07	2.227E-07	1.113E-08	2.217E-08	2.156E-04
ADREN	1.355E-13	3.051E-13	9.022E-13	6.972E-13	3.959E-10	2.122E-15	7.154E-15	9.148E-16	4.560E-08	4.599E-08
BL WALL	3.060E-14	7.025E-13	1.611E-12	7.439E-12	3.959E-10	6.505E-16	3.979E-16	3.195E-17	2.285E-08	2.325E-08
KIDNEYS	2.075E-13	7.564E-13	2.222E-12	1.237E-12	3.959E-10	1.255E-15	5.470E-15	2.512E-06	2.159E-16	2.513E-06
LIVER	1.268E-13	4.617E-13	1.966E-12	5.185E-13	3.959E-10	8.519E-16	8.664E-06	2.875E-16	1.607E-16	8.665E-06
OVARIES	6.320E-14	2.391E-12	8.031E-12	2.281E-11	3.959E-10	1.224E-15	6.796E-16	1.031E-16	4.560E-08	4.603E-08
PANCREAS	1.069E-12	5.161E-13	1.538E-12	1.044E-12	3.959E-10	1.131E-15	6.660E-15	4.937E-16	4.560E-08	4.600E-08
BONE	3.767E-14	1.962E-13	5.580E-13	1.429E-12	3.959E-10	2.308E-06	1.065E-15	7.164E-17	3.398E-09	2.312E-06
R MAR	6.445E-14	6.151E-13	1.648E-12	4.260E-12	3.959E-10	6.746E-07	1.530E-15	1.805E-16	3.330E-08	7.083E-07
Y MAR	5.239E-14	2.721E-13	7.927E-13	1.759E-12	3.959E-10	3.516E-15	1.578E-15	8.906E-17	4.560E-08	4.600E-08
ENDOST	3.767E-14	1.962E-13	5.580E-13	1.429E-12	3.959E-10	1.843E-06	1.065E-15	7.164E-17	2.401E-08	1.868E-06
SPLEEN	5.987E-13	3.925E-13	1.038E-12	1.411E-12	3.959E-10	1.030E-15	1.597E-15	6.095E-16	4.560E-08	4.600E-08
TESTES	6.329E-15	1.133E-13	4.381E-13	2.519E-12	3.959E-10	7.419E-16	2.759E-16	1.205E-17	4.560E-08	4.600E-08
THYMUS	3.393E-14	3.826E-14	1.314E-13	9.436E-14	3.959E-10	9.681E-16	1.597E-15	1.897E-17	4.560E-08	4.599E-08
THYROID	1.048E-14	1.205E-14	4.057E-14	3.234E-14	3.959E-10	9.758E-16	2.895E-16	7.841E-18	4.560E-08	4.599E-08
UTERUS	5.946E-14	2.144E-12	3.635E-12	7.741E-12	3.959E-10	8.984E-16	6.186E-16	6.244E-17	4.560E-08	4.601E-08

PRASEODYMIUM-144

RADIONUCL IDE: PR-144

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)	
NUCL IDE PR-144	1.2000E-02
BLOOD TRANSFER FRACTION F2-PRIME	
ORGAN ABSORBED	NUCLIDE PR-144
	1.00
COMPARTMENT DEPOSITION FRACTION	
	2.500E-02
	0.975
COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
EXCRET .	PR-144
BONE	PR-144
LIVER	PR-144
KIDNEYS	PR-144
	2.500E-02
	1.00
	1.00
	1.00
	1.00
	5.000E 03
	0.500
	5.000E 03
	5.000E 03
	5.000E 03
	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR PR-144

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.618E-01	0.618E-01	0.874E-05	0.187E-05	0.210E-05	0.101E-05	0.889E-03	0.509E-05	0.120E-04	0.486E-05	0.626E-05
RES LYM	0.618E-01	0.412E-01	0.874E-05	0.187E-05	0.210E-05	0.101E-05	0.889E-03	0.509E-05	0.120E-04	0.486E-05	0.626E-05
S WALL	0.101E-04	0.101E-04	0.124E-00	0.170E-04	0.172E-04	0.886E-05	0.890E-03	0.253E-05	0.101E-04	0.165E-04	0.693E-05
SI WALL	0.178E-05	0.178E-05	0.129E-04	0.773E-01	0.749E-04	0.433E-04	0.891E-03	0.404E-05	0.800E-05	0.139E-04	0.745E-05
ULI WALL	0.226E-05	0.226E-05	0.156E-04	0.109E-03	0.140E-00	0.197E-04	0.891E-03	0.383E-05	0.119E-04	0.135E-04	0.766E-05
LLI WALL	0.410E-06	0.410E-06	0.675E-05	0.342E-04	0.145E-04	0.229E-00	0.893E-03	0.484E-05	0.169E-05	0.486E-05	0.831E-05
T BODY	0.889E-03	0.889E-03	0.273E-03	0.715E-03	0.430E-03	0.532E-03	0.889E-03	0.889E-03	0.890E-03	0.890E-03	0.884E-03
ADREN	0.872E-05	0.872E-05	0.130E-04	0.668E-05	0.553E-05	0.255E-05	0.892E-03	0.789E-05	0.254E-04	0.572E-04	0.182E-02
BL WALL	0.520E-06	0.520E-06	0.212E-05	0.144E-04	0.108E-04	0.282E-04	0.891E-03	0.323E-05	0.149E-05	0.214E-05	0.914E-03
KIDNEYS	0.471E-05	0.471E-05	0.158E-04	0.149E-04	0.132E-04	0.523E-05	0.890E-03	0.469E-05	0.186E-04	0.200E-00	0.736E-05
LIVER	0.115E-04	0.115E-04	0.103E-04	0.925E-05	0.124E-04	0.207E-05	0.890E-03	0.355E-05	0.344E-01	0.190E-04	0.548E-05
OVARIES	0.938E-06	0.938E-06	0.478E-05	0.412E-04	0.511E-04	0.799E-04	0.891E-03	0.486E-05	0.342E-05	0.614E-05	0.182E-02
PANCREAS	0.114E-04	0.114E-04	0.794E-04	0.980E-05	0.110E-04	0.387E-05	0.893E-03	0.543E-05	0.195E-04	0.295E-04	0.182E-02
BONE	0.494E-05	0.494E-05	0.297E-05	0.388E-05	0.350E-05	0.507E-05	0.889E-03	0.113E-01	0.370E-05	0.480E-05	0.156E-03
R MAR	0.625E-05	0.625E-05	0.490E-05	0.118E-04	0.101E-04	0.147E-04	0.890E-03	0.445E-02	0.533E-05	0.119E-04	0.117E-02
Y MAR	0.518E-05	0.518E-05	0.416E-05	0.529E-05	0.490E-05	0.623E-05	0.888E-03	0.142E-04	0.542E-05	0.590E-05	0.181E-02
ENDOST	0.494E-05	0.494E-05	0.297E-05	0.388E-05	0.350E-05	0.507E-05	0.889E-03	0.739E-02	0.370E-05	0.480E-05	0.111E-02
SPLEEN	0.104E-04	0.104E-04	0.444E-04	0.825E-05	0.659E-05	0.520E-05	0.890E-03	0.384E-05	0.524E-05	0.391E-04	0.182E-02
TESTES	0.224E-06	0.224E-06	0.796E-06	0.299E-05	0.277E-05	0.954E-05	0.890E-03	0.487E-05	0.837E-06	0.940E-06	0.181E-02
THYMUS	0.200E-04	0.200E-04	0.280E-05	0.881E-06	0.947E-06	0.431E-06	0.890E-03	0.371E-05	0.492E-05	0.121E-05	0.182E-02
THYROID	0.554E-05	0.554E-05	0.948E-06	0.328E-06	0.346E-06	0.178E-06	0.889E-03	0.274E-05	0.110E-05	0.648E-06	0.181E-02
UTERUS	0.913E-06	0.913E-06	0.475E-05	0.398E-04	0.240E-04	0.270E-04	0.892E-03	0.314E-05	0.276E-05	0.420E-05	0.183E-02

β^- decay (17.28 M 3)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

PRASEODYMIUM-144 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS				EXCRET.	BONE	LIVER	KIDNEYS	OTHER		
	STOMACH	S INT	U L INT	L L INT							
PR-144	Y	0.0	1.000E-04	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	6.671E-04	9.596E-10	1.442E-09	1.161E-10	1.313E-11	1.983E-13	7.994E-10	7.499E-11	2.210E-10	4.475E-12	1.153E-11
RES LYM	6.671E-04	6.397E-08	1.442E-09	1.161E-10	1.313E-11	1.983E-13	7.994E-10	7.499E-11	2.210E-10	4.475E-12	1.153E-11
S WALL	1.090E-07	1.568E-13	2.046E-05	1.056E-09	1.075E-10	1.740E-12	8.003E-10	4.317E-11	1.860E-10	1.519E-11	1.276E-11
SI WALL	1.921E-08	2.764E-14	2.128E-09	4.800E-06	4.681E-10	8.502E-12	8.012E-10	5.952E-11	1.473E-10	1.280E-11	1.372E-11
ULI WALL	2.440E-08	3.509E-14	2.574E-09	6.768E-09	8.750E-07	3.868E-12	8.012E-10	5.643E-11	2.191E-10	1.243E-11	1.411E-11
LLI WALL	4.426E-09	6.366E-15	1.114E-09	2.124E-09	9.063E-11	4.497E-08	8.030E-10	7.131E-11	3.112E-11	4.475E-12	1.530E-11
T BODY	9.596E-06	1.380E-11	4.504E-08	4.440E-08	2.688E-09	1.045E-10	7.994E-10	1.310E-08	1.639E-08	8.195E-10	1.528E-09
ADREN	9.413E-08	1.354E-13	2.145E-09	4.148E-10	3.456E-11	5.007E-13	8.021E-10	1.162E-10	4.678E-10	5.267E-11	3.352E-09
BL WALL	5.613E-09	8.074E-15	3.497E-10	8.941E-10	6.750E-11	5.537E-12	8.012E-10	4.759E-11	2.744E-11	1.970E-12	1.583E-09
KIDNEYS	5.084E-08	7.313E-14	2.606E-09	9.252E-10	8.250E-11	1.027E-12	8.003E-10	6.910E-11	3.425E-10	1.842E-07	1.355E-11
LIVER	1.241E-07	1.786E-13	1.699E-09	5.744E-10	7.750E-11	4.065E-13	8.003E-10	5.819E-11	6.335E-07	1.749E-11	1.009E-11
OVARIES	1.013E-08	1.456E-14	7.885E-10	2.558E-09	3.194E-10	1.569E-11	8.012E-10	7.160E-11	6.298E-11	5.654E-12	3.352E-09
PANCREAS	1.231E-07	1.770E-13	1.310E-08	6.085E-10	6.875E-11	7.599E-13	8.030E-10	8.000E-11	3.591E-10	2.716E-11	3.352E-09
BONE	5.332E-08	7.671E-14	4.900E-10	2.409E-10	2.188E-11	9.955E-13	7.994E-10	1.665E-07	6.814E-11	4.420E-12	2.873E-10
R MAR	6.746E-08	9.705E-14	8.083E-10	7.327E-10	6.313E-11	2.886E-12	8.003E-10	6.556E-08	9.816E-11	1.096E-11	2.155E-09
Y MAR	5.591E-08	8.043E-14	6.863E-10	3.285E-10	3.063E-11	1.223E-12	7.985E-10	2.092E-10	9.981E-11	5.433E-12	3.333E-09
ENDOST	5.332E-08	7.671E-14	4.900E-10	2.409E-10	2.188E-11	9.955E-13	7.994E-10	1.089E-07	6.814E-11	4.420E-12	2.044E-09
SPLEEN	1.123E-07	1.615E-13	7.325E-09	5.123E-10	4.119E-11	1.021E-12	8.003E-10	5.657E-11	9.650E-11	3.600E-11	3.352E-09
TESTES	2.418E-09	3.478E-15	1.313E-10	1.857E-10	1.731E-11	1.873E-12	8.003E-10	7.175E-11	1.541E-11	8.655E-13	3.333E-09
THYMUS	2.159E-07	3.106E-13	4.619E-10	5.470E-11	5.919E-12	8.463E-14	8.003E-10	5.466E-11	9.061E-11	1.114E-12	3.352E-09
THYROID	5.980E-08	8.602E-14	1.564E-10	2.037E-11	2.163E-12	3.495E-14	7.994E-10	4.037E-11	2.026E-11	5.967E-13	3.333E-09
UTERUS	9.855E-09	1.418E-14	7.836E-10	2.471E-09	1.500E-10	5.302E-12	8.021E-10	4.626E-11	5.083E-11	3.867E-12	3.370E-09

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	6.671E-04
RES LYM	6.672E-04
S WALL	2.057E-05
SI WALL	4.823E-06
ULI WALL	9.099E-07
LLI WALL	5.365E-08
T BODY	9.721E-06
ADREN	1.015E-07
BL WALL	9.491E-09
KIDNEYS	2.398E-07
LIVER	7.609E-07
OVARIES	1.810E-08
PANCREAS	1.415E-07
BONE	2.217E-07
R MAR	1.377E-07
Y MAR	6.141E-08
ENDOST	1.659E-07
SPLEEN	1.245E-07
TESTES	6.976E-09
THYMUS	2.207E-07
THYROID	6.417E-08
UTERUS	1.754E-08

PRASEODYMIUM-144 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PR-144 W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	6.312E-04	3.157E-09	1.118E-09	9.003E-11	1.018E-11	1.538E-13	1.455E-08	1.365E-09	4.024E-09	8.148E-11	2.399E-10
RES LYM	6.312E-04	2.132E-07	1.118E-09	9.003E-11	1.018E-11	1.538E-13	1.455E-08	1.365E-09	4.024E-09	8.148E-11	2.399E-10
S WALL	1.032E-07	5.225E-13	1.586E-05	8.184E-10	8.335E-11	1.349E-12	1.457E-08	7.855E-10	3.386E-09	2.766E-10	2.324E-10
SI WALL	1.818E-08	5.209E-14	1.650E-09	3.721E-06	3.630E-10	6.592E-12	1.459E-08	1.084E-09	2.682E-09	2.330E-10	2.498E-10
ULI WALL	2.308E-08	1.169E-13	1.995E-09	5.248E-09	6.784E-07	2.999E-12	1.459E-08	1.027E-09	3.990E-09	2.263E-10	2.568E-10
LLI WALL	4.187E-09	2.121E-14	8.634E-10	1.647E-09	7.027E-11	3.486E-08	1.462E-08	1.298E-09	5.666E-10	6.148E-11	2.786E-10
T BODY	9.079E-06	4.599E-11	3.492E-08	3.442E-08	2.084E-09	8.099E-11	1.455E-08	2.385E-07	2.984E-07	1.492E-08	2.964E-08
ADREN	8.906E-08	4.511E-13	1.663E-09	3.216E-10	2.680E-11	3.882E-13	1.460E-08	2.116E-09	8.516E-09	5.589E-10	6.102E-08
BL WALL	5.311E-09	2.690E-14	2.712E-10	6.933E-10	5.234E-11	4.293E-12	1.459E-08	8.664E-10	4.996E-10	3.588E-11	3.065E-08
KIDNEYS	4.810E-08	2.437E-13	2.021E-09	7.173E-10	6.397E-11	7.962E-13	1.457E-08	1.258E-09	6.236E-09	3.353E-06	2.468E-10
LIVER	1.175E-07	5.950E-13	1.317E-09	4.453E-10	6.009E-11	3.151E-13	1.457E-08	1.060E-09	1.153E-05	3.185E-10	1.337E-10
OVARIES	9.580E-09	4.853E-14	6.114E-10	1.984E-09	2.476E-10	1.216E-11	1.459E-08	1.304E-09	1.147E-09	1.029E-10	6.102E-08
PANCREAS	1.164E-07	5.898E-13	1.016E-08	4.718E-10	5.331E-11	5.892E-13	1.462E-08	1.457E-09	6.538E-09	4.946E-10	6.102E-08
BONE	5.045E-08	2.556E-13	3.799E-10	1.868E-10	1.696E-11	7.719E-13	1.455E-08	3.031E-06	1.241E-09	8.047E-11	5.231E-09
R MAR	6.383E-08	3.233E-13	6.267E-10	5.681E-10	4.894E-11	2.238E-12	1.457E-08	1.194E-06	1.787E-09	1.995E-10	3.923E-08
Y MAR	5.290E-08	2.680E-13	5.321E-10	2.547E-10	2.375E-11	9.485E-13	1.454E-08	3.805E-09	1.817E-09	9.891E-11	6.059E-08
ENDOST	5.045E-08	2.556E-13	3.799E-10	1.868E-10	1.696E-11	7.719E-13	1.455E-08	1.982E-06	1.241E-09	8.047E-11	3.722E-08
SPLEEN	1.062E-07	5.381E-13	5.679E-09	3.972E-10	3.194E-11	7.917E-13	1.457E-08	1.030E-09	1.757E-09	6.555E-10	6.102E-08
TESTES	2.288E-09	1.159E-14	1.018E-10	1.439E-10	1.342E-11	1.452E-12	1.457E-08	1.306E-09	2.806E-10	1.576E-11	6.059E-08
THYMUS	2.043E-07	1.035E-12	3.581E-10	4.241E-11	4.589E-12	6.562E-14	1.457E-08	9.952E-10	1.650E-09	2.029E-11	6.102E-08
THYROID	5.658E-08	2.866E-13	1.213E-10	1.579E-11	1.677E-12	2.710E-14	1.455E-08	7.350E-10	3.688E-10	1.086E-11	6.059E-08
UTERUS	9.325E-06	4.723E-14	6.076E-10	1.916E-09	1.163E-10	4.111E-12	1.460E-08	8.423E-10	9.254E-10	7.041E-11	6.136E-08

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	6.312E-04
RES LYM	6.314E-04
S WALL	1.598E-05
SI WALL	3.761E-06
ULI WALL	7.289E-07
LLI WALL	5.848E-08
T BODY	9.747E-06
ADREN	1.783E-07
BL WALL	5.297E-08
KIDNEYS	3.426E-06
LIVER	1.167E-05
OVARIES	9.060E-08
PANCREAS	2.112E-07
BONE	3.103E-06
R MAR	1.315E-06
Y MAR	1.347E-07
ENDOST	2.086E-06
SPLEEN	1.914E-07
TESTES	7.941E-08
THYMUS	2.829E-07
THYROID	1.331E-07
UTERUS	8.977E-08

PRASEODYMIUM-144 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PR-144 D	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CGNT	SI CGNT	ULI CGNT	LLI CGNT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	4.521E-04	1.220E-06	5.061E-09	7.297E-10	8.248E-11	1.246E-12	4.911E-08	4.607E-09	1.358E-08	2.749E-10	7.032E-10
RES LYM	4.521E-04	8.135E-05	9.061E-09	7.297E-10	8.248E-11	1.246E-12	4.911E-08	4.607E-09	1.358E-08	2.749E-10	7.032E-10
S WALL	7.388E-08	1.994E-10	1.286E-04	6.634E-09	6.756E-10	1.093E-11	4.916E-08	2.652E-09	1.143E-08	9.333E-10	7.840E-10
SI WALL	1.302E-08	3.515E-11	1.337E-08	3.016E-05	2.942E-09	5.343E-11	4.922E-08	3.656E-09	9.050E-09	7.862E-10	8.428E-10
ULI WALL	1.653E-08	4.462E-11	1.617E-08	4.253E-08	5.499E-06	2.431E-11	4.922E-08	3.466E-09	1.346E-08	7.636E-10	8.666E-10
LLI WALL	2.999E-09	8.095E-12	6.958E-09	1.335E-08	5.695E-10	2.826E-07	4.933E-08	4.380E-09	1.912E-09	2.749E-10	9.401E-10
T BODY	6.503E-06	1.755E-08	2.830E-07	2.790E-07	1.689E-08	6.565E-10	4.911E-08	8.046E-07	1.007E-06	5.034E-08	1.000E-07
ADREN	6.379E-08	1.722E-10	1.348E-08	2.607E-09	2.172E-10	3.147E-12	4.927E-08	7.141E-09	2.873E-08	3.236E-09	2.059E-07
BL WALL	3.804E-09	1.027E-11	2.158E-09	5.619E-09	4.242E-10	3.480E-11	4.922E-08	2.923E-09	1.686E-09	1.210E-10	1.034E-07
KIDNEYS	3.445E-08	9.300E-11	1.638E-08	5.814E-09	5.185E-10	6.454E-12	4.916E-08	4.245E-09	2.104E-08	1.131E-05	8.326E-10
LIVER	8.412E-08	2.271E-10	1.068E-08	3.610E-09	4.871E-10	2.554E-12	4.916E-08	3.575E-09	3.892E-05	1.075E-09	6.199E-10
OVARIES	6.861E-09	1.852E-11	4.556E-09	1.608E-08	2.007E-09	9.860E-11	4.922E-08	4.398E-09	3.869E-09	3.473E-10	2.059E-07
PANCREAS	8.339E-08	2.251E-10	8.232E-08	3.824E-09	4.321E-10	4.776E-12	4.933E-08	4.914E-09	2.206E-08	1.669E-09	2.059E-07
BONE	3.614E-08	9.754E-11	3.079E-09	1.514E-09	1.375E-10	6.256E-12	4.911E-08	1.023E-05	4.186E-09	2.715E-10	1.765E-08
R MAR	4.572E-08	1.234E-10	5.080E-09	4.605E-09	3.967E-10	1.814E-11	4.916E-08	4.027E-06	6.030E-09	6.731E-10	1.324E-07
Y MAR	3.789E-08	1.023E-10	4.313E-09	2.064E-09	1.925E-10	7.688E-12	4.905E-08	1.285E-06	6.132E-09	3.337E-10	2.048E-07
ENDOST	3.614E-08	9.754E-11	3.079E-09	1.514E-09	1.375E-10	6.256E-12	4.911E-08	6.68E-06	4.186E-09	2.715E-10	1.256E-07
SPLEEN	7.608E-08	2.053E-10	4.603E-08	3.219E-09	2.588E-10	6.417E-12	4.916E-08	3.475E-09	5.928E-09	2.212E-09	2.059E-07
TESTES	1.639E-09	4.423E-12	8.252E-10	1.167E-09	1.088E-10	1.177E-11	4.916E-08	4.40E-09	9.469E-10	5.317E-11	2.048E-07
THYMUS	1.463E-07	3.949E-10	2.903E-09	3.438E-10	3.720E-11	5.319E-13	4.916E-08	3.35E-09	5.566E-09	6.844E-11	2.059E-07
THYROID	4.052E-08	1.094E-10	9.828E-10	1.280E-10	1.359E-11	2.197E-13	4.911E-08	2.480E-09	1.244E-09	3.665E-11	2.048E-07
UTERUS	6.679E-09	1.803E-11	4.924E-09	1.553E-08	9.427E-10	3.332E-11	4.927E-08	2.842E-09	3.122E-09	2.376E-10	2.070E-07

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	4.534E-04
RES LYM	5.335E-04
S WALL	1.287E-04
SI WALL	3.026E-05
ULI WALL	5.642E-06
LLI WALL	3.633E-07
T BODY	9.111E-06
ADREN	3.745E-07
BL WALL	1.694E-07
KIDNEYS	1.145E-05
LIVER	3.907E-05
OVARIES	2.937E-07
PANCREAS	4.541E-07
BONE	1.034E-05
R MAR	4.272E-06
Y MAR	3.177E-07
ENDOST	6.908E-06
SPLEEN	3.925E-07
TESTES	2.631E-07
THYMUS	4.140E-07
THYROID	2.994E-07
UTERUS	2.906E-07

PRASEODYMIUM-144 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TC BLOOD)

PR-144
STOMACH 0.0
S INT 1.000E-04
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	1.069E-07	8.609E-09	9.731E-10	1.470E-11	1.038E-12	9.737E-14	2.869E-13	5.811E-15	1.497E-14	1.165E-07
RES LYM	1.069E-07	8.609E-09	9.731E-10	1.470E-11	1.038E-12	9.737E-14	2.869E-13	5.811E-15	1.497E-14	1.165E-07
S WALL	1.517E-03	7.826E-08	7.970E-09	1.290E-10	1.039E-12	5.605E-14	2.415E-13	1.973E-14	1.657E-14	1.517E-03
SI WALL	1.578E-07	3.559E-04	3.471E-08	6.304E-10	1.040E-12	7.728E-14	1.913E-13	1.662E-14	1.781E-14	3.560E-04
ULI WALL	1.908E-07	5.018E-07	6.487E-05	2.868E-10	1.040E-12	7.327E-14	2.845E-13	1.614E-14	1.832E-14	6.557E-05
LLI WALL	8.256E-08	1.574E-07	6.719E-09	3.334E-06	1.043E-12	9.259E-14	4.041E-14	5.811E-15	1.987E-14	3.580E-06
T BODY	3.339E-06	3.292E-06	1.993E-07	7.745E-09	1.038E-12	1.701E-11	2.128E-11	1.064E-12	2.114E-12	6.837E-06
ADREN	1.590E-07	3.075E-08	2.562E-09	3.712E-11	1.041E-12	1.509E-13	6.074E-13	6.839E-14	4.352E-12	1.924E-07
BL WALL	2.593E-08	6.629E-08	5.004E-09	4.105E-10	1.040E-12	6.179E-14	3.563E-14	2.559E-15	2.186E-12	9.764E-08
KIDNEYS	1.932E-07	6.859E-08	6.117E-09	7.614E-11	1.039E-12	8.972E-14	4.448E-13	2.391E-10	1.760E-14	2.683E-07
LIVER	1.260E-07	4.258E-08	5.746E-09	3.013E-11	1.039E-12	7.556E-14	8.226E-10	2.272E-14	1.310E-14	1.752E-07
OVARIES	5.846E-08	1.897E-07	2.368E-08	1.163E-09	1.040E-12	9.297E-14	8.178E-14	7.341E-15	4.352E-12	2.730E-07
PANCREAS	9.711E-07	4.511E-08	5.097E-09	5.634E-11	1.043E-12	1.039E-13	4.663E-13	3.527E-14	4.352E-12	1.021E-06
BONE	3.632E-08	1.786E-08	1.622E-09	7.381E-11	1.038E-12	2.162E-10	8.847E-14	5.739E-15	3.730E-13	5.610E-08
R MAR	5.993E-08	5.432E-08	4.680E-09	2.140E-10	1.039E-12	8.513E-11	1.274E-13	1.423E-14	2.798E-12	1.192E-07
Y MAR	5.088E-08	2.435E-08	2.271E-09	9.070E-11	1.037E-12	2.716E-13	1.296E-13	7.054E-15	4.328E-12	7.760E-08
ENDOST	3.632E-08	1.786E-08	1.622E-09	7.381E-11	1.038E-12	1.414E-10	8.847E-14	5.739E-15	2.654E-12	5.603E-08
SPLEEN	5.430E-07	3.798E-08	3.054E-09	7.570E-11	1.039E-12	7.346E-14	1.253E-13	4.675E-14	4.352E-12	5.842E-07
TESTES	9.736E-09	1.376E-08	1.284E-09	1.389E-10	1.039E-12	9.316E-14	2.001E-14	1.124E-15	4.328E-12	2.493E-08
THYMUS	3.425E-08	4.056E-09	4.388E-10	6.274E-12	1.039E-12	7.097E-14	1.176E-13	1.447E-15	4.352E-12	3.875E-08
THYROID	1.159E-08	1.510E-09	1.603E-10	2.591E-12	1.038E-12	5.241E-14	2.630E-14	7.747E-16	4.328E-12	1.327E-08
UTERUS	5.810E-08	1.832E-07	1.112E-08	3.931E-10	1.041E-12	6.007E-14	6.600E-14	5.021E-15	4.376E-12	2.528E-07

PRASEODYMIUM-144m

RADIONUCLIDE: PR-144M

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)	
NUCLIDE		5.0000E-03	
PR-144M		1.2000E-02	
PR-144			
BRANCHING RATIOS:		FROM PR-144M	TO PR-144
		FRACTION 1.000	
		BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 2.500E-02 0.975
ORGAN ABSORBED		NUCLIDE PR-144M	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500
		PR-144	5.000E 03
		PR-144M	5.000E 03
		PR-144	0.500
EXCRET.		PR-144	0.500
		PR-144M	5.000E 03
		PR-144	5.000E 03
BONE		PR-144M	5.000E 03
		PR-144	5.000E 03
LIVER		PR-144M	5.000E 03
		PR-144	5.000E 03
KIDNEYS		PR-144M	5.000E 03
		PR-144	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR PR-144M

TARGET ORGANS	SOURCE ORGANS									
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS
LUNGS	0.243E-02	0.242E-02	0.492E-05	0.117E-06	0.151E-06	0.244E-07	0.395E-04	0.210E-05	0.911E-05	0.111E-05
RES LYM	0.242E-02	0.154E 00	0.492E-05	0.117E-06	0.151E-06	0.244E-07	0.395E-04	0.210E-05	0.911E-05	0.111E-05
S WALL	0.494E-05	0.494E-05	0.493E-02	0.893E-05	0.125E-04	0.350E-05	0.391E-04	0.751E-06	0.334E-05	0.621E-05
SI WALL	0.903E-07	0.903E-07	0.499E-05	0.306E-02	0.776E-04	0.404E-04	0.401E-04	0.126E-05	0.240E-05	0.493E-05
ULI WALL	0.132E-06	0.132E-06	0.995E-05	0.138E-03	0.549E-02	0.162E-04	0.401E-04	0.104E-05	0.562E-05	0.471E-05
LLI WALL	0.196E-07	0.196E-07	0.165E-05	0.329E-04	0.993E-05	0.885E-02	0.399E-04	0.214E-05	0.776E-07	0.616E-06
T BODY	0.396E-04	0.396E-04	0.169E-04	0.338E-04	0.231E-04	0.270E-04	0.392E-04	0.397E-04	0.398E-04	0.395E-04
ADREN	0.500E-05	0.500E-05	0.373E-05	0.712E-06	0.110E-05	0.160E-06	0.380E-04	0.237E-05	0.145E-04	0.483E-04
BL WALL	0.106E-07	0.106E-07	0.118E-06	0.427E-05	0.295E-05	0.169E-04	0.392E-04	0.416E-06	0.463E-07	0.737E-07
KIDNEYS	0.107E-05	0.107E-05	0.642E-05	0.519E-05	0.469E-05	0.858E-06	0.387E-04	0.134E-05	0.987E-05	0.798E-02
LIVER	0.788E-05	0.788E-05	0.317E-05	0.328E-05	0.518E-05	0.105E-06	0.395E-04	0.111E-05	0.144E-02	0.975E-05
OVARIES	0.475E-07	0.475E-07	0.584E-06	0.369E-04	0.395E-04	0.885E-04	0.394E-04	0.210E-05	0.365E-06	0.928E-06
PANCREAS	0.596E-05	0.596E-05	0.753E-04	0.252E-05	0.265E-05	0.555E-06	0.399E-04	0.118E-05	0.107E-04	0.157E-04
BONE	0.632E-05	0.632E-05	0.226E-05	0.364E-05	0.332E-05	0.755E-05	0.438E-04	0.487E-03	0.376E-05	0.493E-05
R MAR	0.748E-05	0.748E-05	0.310E-05	0.140E-04	0.126E-04	0.292E-04	0.455E-04	0.603E-04	0.402E-05	0.131E-04
Y MAR	0.715E-05	0.715E-05	0.328E-05	0.512E-05	0.481E-05	0.102E-04	0.440E-04	0.333E-04	0.599E-05	0.592E-05
ENDOST	0.632E-05	0.632E-05	0.226E-05	0.364E-05	0.332E-05	0.755E-05	0.439E-04	0.273E-03	0.376E-05	0.493E-05
SPLEEN	0.703E-05	0.703E-05	0.316E-04	0.204E-05	0.182E-05	0.860E-06	0.395E-04	0.130E-05	0.895E-06	0.360E-04
TESTES	0.102E-08	0.102E-08	0.113E-07	0.117E-06	0.121E-06	0.339E-05	0.377E-04	0.662E-06	0.706E-08	0.108E-07
THYMUS	0.109E-04	0.109E-04	0.330E-06	0.984E-08	0.120E-07	0.212E-08	0.391E-04	0.669E-06	0.382E-06	0.731E-07
THYROID	0.769E-06	0.769E-06	0.120E-07	0.718E-09	0.856E-09	0.178E-09	0.379E-04	0.132E-05	0.183E-07	0.425E-08
UTERUS	0.384E-07	0.384E-07	0.364E-06	0.323E-04	0.109E-04	0.158E-04	0.398E-04	0.792E-06	0.215E-06	0.495E-06

IT decay (7.2 M 3)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

PRASEODYMIUM-144m CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249					
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
PR-144M	Y	0.0	1.000E-04	0.0	0.0						
PR-144	Y	0.0	1.000E-04	0.0	0.0						
DOSE EQUIVALENT (REM/MICROCURIE)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	2.860E-04	5.721E-10	9.814E-10	7.566E-11	9.021E-12	1.391E-13	2.107E-10	5.765E-11	1.894E-10	3.231E-12	1.225E-11
RES LYM	2.860E-04	3.812E-08	9.814E-10	7.566E-11	9.021E-12	1.391E-13	2.107E-10	5.765E-11	1.894E-10	3.231E-12	1.225E-11
S WALL	6.746E-08	1.058E-13	1.164E-05	7.338E-10	7.670E-11	1.231E-12	2.108E-10	3.147E-11	1.391E-10	1.154E-11	1.308E-11
SI WALL	8.331E-09	1.653E-14	1.368E-09	3.117E-06	3.398E-10	6.093E-12	2.113E-10	4.423E-11	1.090E-10	9.652E-12	1.378E-11
ULI WALL	1.066E-08	2.104E-14	1.793E-09	5.177E-09	6.003E-07	2.765E-12	2.113E-10	4.136E-11	1.718E-10	9.356E-12	1.427E-11
LLI WALL	1.913E-09	3.805E-15	6.821E-10	1.564E-09	6.451E-11	3.155E-08	2.117E-10	5.536E-11	2.102E-11	3.115E-12	1.542E-11
T BODY	4.136E-06	8.243E-12	2.583E-08	2.886E-08	1.845E-09	7.331E-11	2.106E-10	8.843E-09	1.107E-08	5.532E-10	1.436E-09
ADREN	6.159E-08	9.329E-14	1.333E-09	2.720E-10	2.393E-11	3.515E-13	2.110E-10	8.605E-11	3.785E-10	4.628E-11	2.955E-09
BL WALL	2.362E-09	4.788E-15	2.001E-10	6.023E-10	4.694E-11	3.937E-12	2.111E-10	3.315E-11	1.843E-11	1.325E-12	1.486E-09
KIDNEYS	2.583E-08	4.599E-14	1.687E-09	6.277E-10	5.764E-11	7.227E-13	2.107E-10	5.089E-11	2.736E-10	1.241E-07	1.391E-11
LIVER	8.709E-08	1.265E-13	1.064E-09	3.900E-10	5.434E-11	2.853E-13	2.109E-10	4.279E-11	4.273E-07	1.390E-11	1.013E-11
OVARIES	4.390E-09	8.713E-15	4.625E-10	1.868E-09	2.285E-10	1.129E-11	2.111E-10	5.540E-11	4.352E-11	3.970E-12	2.956E-09
PANCREAS	7.789E-08	1.204E-13	9.994E-09	4.077E-10	4.772E-11	5.345E-13	2.117E-10	5.753E-11	2.885E-10	2.171E-11	2.957E-09
BONE	5.079E-08	6.225E-14	3.542E-10	1.769E-10	1.580E-11	7.228E-13	2.117E-10	1.123E-07	6.286E-11	4.090E-12	2.529E-10
R MAR	6.191E-08	7.737E-14	5.622E-10	5.550E-10	4.635E-11	2.120E-12	2.123E-10	4.374E-08	8.400E-11	1.034E-11	1.913E-09
Y MAR	5.565E-08	6.668E-14	5.002E-10	2.420E-10	2.216E-11	8.912E-13	2.115E-10	2.638E-10	9.434E-11	4.994E-12	2.941E-09
ENDOST	5.079E-08	6.225E-14	3.542E-10	1.769E-10	1.580E-11	7.228E-13	2.117E-10	7.329E-08	6.286E-11	4.090E-12	1.801E-09
SPLEEN	7.832E-08	1.141E-13	5.218E-09	3.427E-10	2.864E-11	7.186E-13	2.109E-10	4.243E-11	6.825E-11	3.234E-11	2.957E-09
TESTES	1.001E-09	2.053E-15	7.398E-11	1.206E-10	1.188E-11	1.324E-12	2.105E-10	5.011E-11	1.026E-11	5.771E-13	2.939E-09
THYMUS	1.387E-07	2.124E-13	2.705E-10	3.538E-11	4.054E-12	5.933E-14	2.108E-10	3.879E-11	6.193E-11	7.567E-13	2.958E-09
THYROID	2.815E-08	5.278E-14	8.806E-11	1.315E-11	1.480E-12	2.450E-14	2.103E-10	3.175E-11	1.353E-11	3.971E-13	2.940E-09
UTERUS	4.237E-09	8.460E-15	4.519E-10	1.785E-09	1.054E-10	3.768E-12	2.114E-10	3.368E-11	3.475E-11	2.683E-12	2.975E-09

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.860E-04
RES LYM	2.860E-04
S WALL	1.171E-05
SI WALL	3.128E-06
ULI WALL	6.183E-07
LLI WALL	3.608E-08
T BODY	4.214E-06
ADREN	6.690E-08
BL WALL	4.965E-09
KIDNEYS	1.529E-07
LIVER	5.161E-07
OVARIES	1.023E-08
PANCREAS	9.188E-08
BONE	1.642E-07
R MAR	1.090E-07
Y MAR	5.993E-08
ENDOST	1.267E-07
SPLEEN	8.722E-08
TESTES	4.419E-09
THYMUS	1.423E-07
THYROID	3.145E-08
UTERUS	9.840E-09

PERCENT DOSE EQUIVALENT..

NUCLIDE	PR-144M	PR-144
TARGET		
LUNGS	3.9	96.1
RES LYM	3.9	96.1
S WALL	1.7	98.3
SI WALL	0.6	99.4
ULI WALL	0.5	99.5
LLI WALL	1.1	98.9
T BODY	4.3	95.7
ADREN	34.5	65.5
BL WALL	2.2	97.8
KIDNEYS	4.6	95.4
LIVER	8.3	91.7
OVARIES	5.1	94.9
PANCREAS	32.6	67.4
BONE	18.7	81.3
R MAR	31.7	68.3
Y MAR	55.0	45.0
ENDOST	23.7	76.3
SPLEEN	38.1	61.9
TESTES	1.2	98.8
THYMUS	35.0	65.0
THYROID	11.3	88.7
UTERUS	4.4	95.6

PRASEODYMIUM-144m CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PR-144M	W	0.0	1.000E-04	0.0
PR-144	W	0.0	1.000E-04	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	2.636E-04	1.906E-09	7.353E-10	5.661E-11	6.761E-12	1.043E-13	3.836E-09	9.916E-10	3.277E-09	5.535E-11	2.096E-10
RES LYM	2.635E-04	1.270E-07	7.353E-10	5.661E-11	6.761E-12	1.043E-13	3.836E-09	9.916E-10	3.277E-09	5.535E-11	2.096E-10
S WALL	6.310E-08	3.524E-13	8.664E-06	5.502E-10	5.755E-11	9.235E-13	3.838E-09	5.395E-10	2.389E-09	1.983E-10	2.233E-10
SI WALL	7.681E-09	5.509E-14	1.023E-09	2.332E-06	2.551E-10	4.573E-12	3.847E-09	7.592E-10	1.871E-09	1.658E-10	2.349E-10
ULI WALL	9.829E-09	7.010E-14	1.344E-09	3.893E-09	4.498E-07	2.075E-12	3.847E-09	7.092E-10	2.958E-09	1.607E-10	2.434E-10
LLI WALL	1.764E-09	1.268E-14	5.093E-10	1.174E-09	4.840E-11	2.366E-08	3.854E-09	9.527E-10	3.586E-10	5.324E-11	2.630E-10
T BODY	3.812E-06	2.746E-11	1.924E-08	2.159E-08	1.383E-09	5.498E-11	3.835E-09	1.508E-07	1.888E-07	8.019E-10	4.991E-08
ADREN	5.772E-08	3.108E-13	9.959E-10	2.035E-10	1.794E-11	2.636E-13	3.842E-09	1.477E-09	6.528E-09	9.438E-09	2.426E-08
BL WALL	2.174E-09	1.595E-14	1.490E-10	4.511E-10	3.519E-11	2.954E-12	3.843E-09	5.666E-10	3.143E-10	2.260E-11	2.510E-08
KIDNEYS	2.399E-08	1.532E-13	1.262E-09	4.703E-10	4.322E-11	5.420E-13	3.837E-09	8.730E-10	4.717E-09	2.117E-06	2.375E-10
LIVER	8.178E-08	4.215E-13	7.949E-10	2.922E-10	1.075E-11	2.139E-13	3.840E-09	7.340E-10	7.288E-06	2.395E-10	1.727E-10
OVARIES	4.047E-09	2.903E-14	3.447E-10	1.402E-09	1.714E-10	8.473E-12	3.844E-09	9.533E-10	7.435E-10	6.791E-11	4.992E-08
PANCREAS	7.291E-08	4.012E-13	7.514E-09	3.053E-10	3.577E-11	4.400E-13	3.854E-09	9.854E-10	4.975E-09	3.742E-10	4.994E-08
BONE	4.807E-08	2.074E-13	2.559E-10	1.328E-10	1.186E-11	5.426E-13	3.854E-09	1.916E-06	1.092E-09	7.103E-11	4.270E-09
R MAR	5.854E-08	2.578E-13	4.215E-10	4.172E-10	3.481E-11	1.592E-12	3.865E-09	7.456E-07	1.453E-09	1.799E-10	3.233E-08
Y MAR	5.271E-08	2.222E-13	3.755E-10	1.818E-10	1.664E-11	6.691E-13	3.851E-09	4.640E-09	1.640E-09	8.672E-11	4.967E-08
ENDOST	4.807E-08	2.074E-13	2.559E-10	1.328E-10	1.186E-11	5.426E-13	3.855E-09	1.250E-06	1.092E-09	7.103E-11	3.042E-08
SPLEEN	7.354E-08	3.803E-13	3.915E-09	2.566E-10	2.148E-11	5.389E-13	3.843E-09	7.287E-10	1.168E-09	5.609E-10	4.993E-08
TESTES	9.210E-10	6.840E-15	5.506E-11	9.019E-11	8.903E-12	9.934E-13	3.833E-09	8.567E-10	1.749E-10	9.836E-12	4.963E-08
THYMUS	1.299E-07	7.078E-13	2.016E-10	2.646E-11	3.038E-12	4.449E-14	3.838E-09	6.639E-10	1.057E-09	1.291E-11	4.996E-08
THYROID	2.606E-08	1.758E-13	6.554E-11	9.839E-12	1.109E-12	1.837E-14	3.829E-09	5.467E-10	2.307E-10	6.767E-12	4.964E-08
UTERUS	3.905E-09	2.819E-14	3.367E-10	1.340E-09	7.904E-11	2.827E-12	3.850E-09	5.773E-10	5.932E-10	4.585E-11	5.024E-08

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	2.636E-04
RES LYM	2.637E-04
S WALL	8.735E-06
SI WALL	2.348E-06
ULI WALL	4.728E-07
LLI WALL	3.264E-08
T BODY	4.231E-06
ADREN	1.215E-07
BL WALL	3.266E-08
KIDNEYS	2.152E-06
LIVER	7.376E-06
OVARIES	6.150E-08
PANCREAS	1.409E-07
BONE	1.974E-06
R MAR	8.429E-07
Y MAR	1.132E-07
ENDOST	1.334E-06
SPLEEN	1.340E-07
TESTES	5.558E-08
THYMUS	1.856E-07
THYROID	8.039E-08
UTERUS	6.097E-08

PERCENT DOSE EQUIVALENT..

NUCLIDE	PR-144M	PR-144
TARGET		
LUNGS	4.1	95.9
RES LYM	4.0	96.0
S WALL	1.8	98.2
SI WALL	0.6	99.4
ULI WALL	0.7	99.3
LLI WALL	2.0	98.0
T BODY	4.3	95.7
ADREN	20.2	79.8
BL WALL	1.9	98.1
KIDNEYS	1.9	98.1
LIVER	2.1	97.9
OVARIES	2.3	97.7
PANCREAS	21.5	78.5
BONE	3.1	96.9
R MAR	4.6	95.4
Y MAR	31.2	68.8
ENDOST	3.6	96.4
SPLEEN	24.6	75.4
TESTES	1.5	98.5
THYMUS	26.4	73.6
THYROID	5.3	94.7
UTERUS	2.1	97.9

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
PR-144M	D	0.0	1.000E-04	0.0	0.0
PR-144	D	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	1.698E-04	7.246E-07	6.048E-09	4.566E-10	5.585E-11	8.690E-13	1.280E-08	2.950E-09	9.878E-09	1.633E-10	6.167E-10
RES LYM	1.698E-04	4.828E-05	6.048E-09	4.566E-10	5.585E-11	8.690E-13	1.280E-08	2.950E-09	9.878E-09	1.633E-10	6.167E-10
S WALL	4.440E-08	1.344E-10	6.516E-05	4.566E-09	4.828E-10	7.721E-12	1.281E-08	1.594E-09	7.081E-09	5.892E-10	6.535E-10
SI WALL	4.966E-09	2.094E-11	8.204E-09	1.878E-05	2.155E-09	3.843E-11	1.283E-08	2.249E-09	5.539E-09	4.920E-10	6.854E-10
ULI WALL	6.368E-09	2.665E-11	1.117E-08	3.354E-08	3.713E-06	1.742E-11	1.283E-08	2.097E-09	8.823E-09	4.768E-10	7.110E-10
LLI WALL	1.139E-09	4.820E-12	3.987E-09	9.975E-09	4.057E-10	1.971E-07	1.286E-08	2.838E-09	1.048E-09	1.563E-10	7.677E-10
T BODY	2.460E-06	1.044E-08	1.454E-07	1.740E-07	1.142E-08	4.582E-10	1.279E-08	4.407E-07	5.515E-07	2.757E-08	6.926E-08
ADREN	4.102E-08	1.187E-10	7.854E-09	1.647E-09	1.486E-10	2.197E-12	1.282E-08	4.371E-09	1.955E-08	2.424E-09	1.425E-07
BL WALL	1.393E-09	6.062E-12	1.125E-09	3.694E-09	2.921E-10	2.475E-11	1.282E-08	1.663E-09	9.175E-10	6.599E-11	7.166E-08
KIDNEYS	1.618E-08	5.834E-11	1.015E-08	3.863E-09	3.595E-10	4.522E-12	1.287E-08	2.583E-09	1.410E-08	6.183E-06	6.953E-10
LIVER	5.881E-08	1.610E-10	6.291E-09	2.401E-09	3.394E-10	1.783E-12	1.281E-08	2.171E-09	2.129E-05	7.154E-10	5.038E-10
OVARIES	2.616E-09	1.104E-11	2.637E-09	1.187E-08	1.440E-09	7.133E-11	1.283E-08	2.838E-09	2.180E-09	1.995E-10	1.425E-07
PANCREAS	5.152E-08	1.531E-10	6.469E-08	2.494E-09	2.967E-10	3.344E-12	1.286E-08	2.905E-09	1.488E-08	1.119E-09	1.426E-07
BONE	3.602E-08	7.951E-11	2.242E-09	1.127E-09	1.000E-10	4.584E-12	1.286E-08	5.598E-06	3.317E-09	2.159E-10	1.219E-08
R MAR	4.368E-08	9.877E-11	3.500E-09	3.582E-09	2.954E-10	1.351E-11	1.290E-08	2.174E-06	4.380E-09	5.477E-10	9.243E-08
Y MAR	3.968E-08	8.521E-11	3.177E-09	1.545E-09	1.404E-10	5.660E-12	1.285E-08	1.448E-08	4.996E-09	2.634E-10	1.418E-07
ENDOST	3.602E-08	7.951E-11	2.242E-09	1.127E-09	1.000E-10	4.584E-12	1.286E-08	3.650E-06	3.317E-09	2.159E-10	8.685E-08
SPLEEN	5.284E-08	1.453E-10	3.283E-08	2.095E-09	1.783E-10	4.496E-12	1.281E-08	2.161E-09	3.435E-09	1.699E-09	1.426E-07
TESTES	5.870E-10	2.599E-12	4.118E-10	7.264E-10	7.349E-11	8.303E-12	1.279E-08	2.515E-09	5.100E-10	2.868E-11	1.417E-07
THYMUS	9.201E-08	2.701E-10	1.541E-09	2.127E-10	2.506E-11	3.706E-13	1.281E-08	1.954E-09	3.095E-09	3.776E-11	1.427E-07
THYROID	1.724E-08	6.690E-11	4.900E-10	7.904E-11	9.147E-12	1.530E-13	1.278E-08	1.631E-09	6.728E-10	1.972E-11	1.417E-07
UTERUS	2.518E-09	1.071E-11	2.552E-09	1.129E-08	6.589E-10	2.368E-11	1.284E-08	1.705E-09	1.736E-09	1.345E-10	1.435E-07

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	1.706E-04
RES LYM	2.181E-04
S WALL	6.523E-05
SI WALL	1.882E-05
ULI WALL	3.789E-06
LLI WALL	2.303E-07
T BODY	3.903E-06
ADREN	2.324E-07
BL WALL	9.367E-08
KIDNEYS	6.244E-06
LIVER	2.137E-05
OVARIES	1.792E-07
PANCREAS	2.935E-07
BONE	5.666E-06
R MAR	2.336E-06
Y MAR	2.190E-07
ENDOST	3.793E-06
SPLEEN	2.508E-07
TESTES	1.593E-07
THYMUS	2.546E-07
THYROID	1.747E-07
UTERUS	1.769E-07

PERCENT DOSE EQUIVALENT..

NUCLIDE	PR-144M	PR-144
TARGET		
LUNGS	5.2	94.8
RES LYM	4.3	95.7
S WALL	2.4	97.6
SI WALL	0.9	99.1
ULI WALL	0.7	99.3
LLI WALL	1.7	98.3
T BODY	4.5	95.5
ADREN	11.9	88.1
BL WALL	2.3	97.7
KIDNEYS	2.0	98.0
LIVER	2.1	97.9
OVARIES	3.2	96.8
PANCREAS	17.8	82.2
BONE	2.4	97.6
R MAR	2.0	98.0
Y MAR	18.2	81.8
ENDOST	2.4	97.6
SPLEEN	15.9	84.1
TESTES	1.8	98.2
THYMUS	17.0	83.0
THYROID	3.3	96.7
UTERUS	2.9	97.1

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	PR-144M	PR-144
STOMACH	0.0	0.0
S INT	1.000E-04	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	6.822E-08	4.905E-09	6.363E-10	1.010E-11	9.923E-14	6.684E-14	2.061E-13	3.890E-15	1.492E-14	7.377E-08
RES LYM	6.822E-08	4.905E-09	6.363E-10	1.010E-11	9.923E-14	6.684E-14	2.061E-13	3.890E-15	1.492E-14	7.377E-08
S WALL	5.690E-04	5.262E-08	5.702E-09	9.050E-11	9.929E-14	3.766E-14	1.639E-13	1.348E-14	1.629E-14	5.690E-04
SI WALL	8.672E-08	2.010E-04	2.584E-08	4.557E-10	9.951E-14	5.233E-14	1.293E-13	1.132E-14	1.738E-14	2.011E-04
ULI WALL	1.289E-07	4.198E-07	4.222E-05	2.061E-10	9.951E-14	4.934E-14	1.969E-13	1.098E-14	1.792E-14	4.277E-05
LLI WALL	3.947E-08	1.211E-07	4.781E-09	2.292E-06	9.970E-14	6.381E-14	2.637E-14	3.835E-15	1.941E-14	2.457E-06
T BODY	1.290E-06	1.864E-06	1.299E-07	5.329E-09	9.920E-14	1.110E-11	1.388E-11	6.942E-13	1.969E-12	3.290E-06
ADREN	7.941E-08	1.782E-08	1.706E-09	2.556E-11	9.938E-14	1.020E-13	4.258E-13	4.967E-14	4.052E-12	9.897E-08
BL WALL	9.935E-09	4.121E-08	3.367E-09	2.914E-10	9.941E-14	4.079E-14	2.320E-14	1.667E-15	2.036E-12	5.481E-08
KIDNEYS	1.081E-07	4.343E-08	4.162E-09	5.273E-11	9.925E-14	6.053E-14	3.101E-13	1.559E-10	1.731E-14	1.559E-07
LIVER	6.424E-08	2.702E-09	3.944E-09	2.073E-11	9.934E-14	5.095E-14	5.365E-10	1.580E-14	1.278E-14	9.576E-08
OVARIES	2.436E-08	1.431E-07	1.704E-08	8.489E-10	9.943E-14	6.398E-14	5.382E-14	4.862E-15	4.053E-12	1.854E-07
PANCREAS	8.079E-07	2.765E-08	3.414E-09	3.897E-11	9.970E-14	6.943E-14	3.259E-13	2.460E-14	4.053E-12	8.390E-07
BONE	2.680E-08	1.364E-08	1.194E-09	5.498E-11	9.970E-14	1.410E-10	6.566E-14	4.265E-15	3.471E-13	4.183E-08
R MAR	4.035E-08	4.449E-08	3.578E-09	1.636E-10	9.999E-14	5.529E-11	9.150E-14	1.067E-14	2.611E-12	8.863E-08
Y MAR	3.824E-08	1.876E-08	1.679E-09	6.810E-11	9.961E-14	2.349E-13	9.725E-14	5.227E-15	4.031E-12	5.875E-08
ENDOST	2.680E-08	1.364E-08	1.194E-09	5.498E-11	9.971E-14	9.213E-11	6.566E-14	4.265E-15	2.471E-12	4.179E-08
SPLEEN	3.872E-07	2.320E-08	2.055E-09	5.243E-11	9.934E-14	4.992E-14	8.321E-14	3.428E-14	4.053E-12	4.125E-07
TESTES	3.527E-09	7.772E-09	6.359E-10	9.723E-11	9.914E-14	6.157E-14	1.299E-14	7.298E-16	4.030E-12	1.224E-08
THYMUS	1.419E-08	2.265E-09	2.845E-10	4.306E-12	9.929E-14	4.719E-14	7.712E-14	9.460E-16	4.054E-12	1.675E-08
THYROID	4.192E-09	8.402E-10	1.038E-10	1.778E-12	9.905E-14	3.631E-14	1.709E-14	5.027E-16	4.030E-12	5.142E-09
UTERUS	2.287E-08	1.348E-07	7.672E-09	2.788E-10	9.958E-14	4.034E-14	4.326E-14	3.310E-15	4.076E-12	1.656E-07

PERCENT DOSE EQUIVALENT..

NUCLIDE	PR-144M	PR-144
TARGET		
LUNGS	41.2	58.8
RES LYM	41.2	58.8
S WALL	5.3	94.7
SI WALL	1.6	98.4
ULI WALL	1.0	99.0
LLI WALL	2.0	98.0
T BODY	4.2	95.8
ADREN	24.0	76.0
BL WALL	9.5	90.5
KIDNEYS	28.8	71.2
LIVER	24.1	75.9
OVARIES	23.2	76.8
PANCREAS	55.5	44.5
BONE	42.5	57.5
R MAR	38.3	61.7
Y MAR	43.6	56.4
ENDOST	42.5	57.5
SPLEEN	47.6	52.4
TESTES	1.6	98.4
THYMUS	12.2	87.8
THYROID	1.5	98.5
UTERUS	21.5	78.5

RADIONUCLIDE: ND-147

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		ND-147		11.10	
PM-147		958.0			
BRANCHING RATIOS:		FROM ND-147	TO PM-147	FRACTION 1.000	
ORGAN ABSORBED	NUCLIDE ND-147	BLOOD TRANSFER FRACTION F2-PRIME 1.00		COMPARTMENT DEPOSITION FRACTION 2.500E-02 0.975	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500 5.000E 03
EXCRET.	ND-147	1.00		1.00	5.000E 03
		2.500E-02			
BONE	PM-147	0.0		1.00	0.500
		0.400			
LIVER	ND-147	0.400		1.00	5.000E 03
		0.500			
KIDNEYS	PM-147	0.500		1.00	5.000E 03
		2.500E-02			
	ND-147	2.500E-02		1.00	5.000E 03
	PM-147			1.00	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR ND-147

TARGET ORGANS	SOURCE ORGANS													
	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER			
LUNGS	0.142E-01	0.142E-01	0.488E-04	0.678E-05	0.728E-05	0.216E-05	0.239E-03	0.251E-04	0.689E-04	0.224E-04	0.350E-04			
RES LYM	0.142E-01	0.915E-00	0.488E-04	0.678E-05	0.728E-05	0.216E-05	0.239E-03	0.251E-04	0.689E-04	0.224E-04	0.350E-04			
S WALL	0.491E-04	0.491E-04	0.290E-01	0.921E-04	0.102E-03	0.455E-04	0.244E-03	0.138E-04	0.477E-04	0.871E-04	0.366E-04			
SI WALL	0.568E-05	0.568E-05	0.675E-04	0.181E-01	0.486E-03	0.264E-03	0.251E-03	0.195E-04	0.395E-04	0.703E-04	0.396E-04			
ULI WALL	0.760E-05	0.760E-05	0.912E-04	0.709E-03	0.325E-01	0.118E-03	0.250E-03	0.172E-04	0.660E-04	0.717E-04	0.406E-04			
LLI WALL	0.165E-05	0.165E-05	0.305E-04	0.204E-03	0.838E-04	0.524E-01	0.249E-03	0.250E-04	0.651E-05	0.191E-04	0.439E-04			
T BODY	0.239E-03	0.239E-03	0.109E-03	0.212E-03	0.148E-03	0.170E-03	0.237E-03	0.239E-03	0.244E-03	0.243E-03	0.233E-03			
ADREN	0.641E-04	0.641E-04	0.585E-04	0.264E-04	0.238E-04	0.101E-04	0.249E-03	0.379E-04	0.127E-03	0.342E-03	0.448E-03			
BL WALL	0.139E-05	0.139E-05	0.909E-05	0.758E-04	0.493E-04	0.161E-03	0.246E-03	0.141E-04	0.624E-05	0.783E-05	0.256E-03			
KIDNEYS	0.235E-04	0.235E-04	0.857E-04	0.794E-04	0.696E-04	0.199E-04	0.243E-03	0.220E-04	0.101E-03	0.465E-01	0.387E-04			
LIVER	0.660E-04	0.660E-04	0.505E-04	0.457E-04	0.641E-04	0.712E-05	0.244E-03	0.171E-04	0.840E-02	0.104E-03	0.281E-04			
OVARIES	0.306E-05	0.306E-05	0.135E-04	0.271E-03	0.329E-03	0.497E-03	0.243E-03	0.247E-04	0.720E-05	0.274E-04	0.461E-03			
PANCREAS	0.703E-04	0.703E-04	0.513E-03	0.504E-04	0.479E-04	0.173E-04	0.246E-03	0.215E-04	0.121E-03	0.173E-03	0.469E-03			
BONE	0.372E-04	0.372E-04	0.199E-04	0.277E-04	0.252E-04	0.407E-04	0.251E-03	0.270E-02	0.260E-04	0.343E-04	0.588E-04			
R MAR	0.462E-04	0.462E-04	0.332E-04	0.944E-04	0.821E-04	0.135E-03	0.259E-03	0.754E-03	0.352E-04	0.892E-04	0.373E-03			
Y MAR	0.398E-04	0.398E-04	0.281E-04	0.387E-04	0.362E-04	0.520E-04	0.249E-03	0.124E-03	0.391E-04	0.421E-04	0.451E-03			
ENDOST	0.372E-04	0.372E-04	0.199E-04	0.277E-04	0.252E-04	0.407E-04	0.251E-03	0.210E-02	0.260E-04	0.343E-04	0.247E-03			
SPLEEN	0.595E-04	0.595E-04	0.269E-03	0.377E-04	0.323E-04	0.218E-04	0.244E-03	0.191E-04	0.232E-04	0.244E-03	0.461E-03			
TESTES	0.435E-06	0.435E-06	0.844E-06	0.785E-05	0.988E-05	0.490E-04	0.239E-03	0.143E-04	0.228E-05	0.286E-05	0.443E-03			
THYMUS	0.105E-03	0.105E-03	0.685E-05	0.265E-05	0.299E-05	0.107E-05	0.240E-03	0.166E-04	0.250E-04	0.735E-05	0.493E-03			
THYROID	0.262E-04	0.262E-04	0.288E-05	0.714E-06	0.767E-06	0.319E-06	0.233E-03	0.238E-04	0.368E-05	0.176E-05	0.446E-03			
UTERUS	0.208E-05	0.208E-05	0.193E-04	0.254E-03	0.126E-03	0.162E-03	0.248E-03	0.142E-04	0.961E-05	0.195E-04	0.509E-03			

β⁻ decay (11.06 D 3)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

NEODYMIUM-147 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00		D3 =0.310		D4 =8.000E-02		D5 =0.249	
SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS					
		STOMACH	S INT	U L INT	L L INT		
ND-147	Y	0.0	1.000E-04	0.0	0.0		
PM-147	Y	0.0	1.000E-04	0.0	0.0		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	3.987E-02	6.485E-04	9.449E-07	5.197E-07	1.754E-06	9.044E-07	1.741E-08	6.772E-07	2.324E-06	3.777E-08	1.180E-07
RES LYM	3.987E-02	4.278E-02	9.449E-07	5.197E-07	1.754E-06	9.044E-07	1.741E-08	6.772E-07	2.324E-06	3.777E-08	1.180E-07
S WALL	1.323E-04	6.321E-07	5.619E-04	7.059E-06	2.458E-05	1.905E-05	1.777E-08	3.723E-07	1.609E-06	1.469E-07	1.234E-07
SI WALL	1.530E-05	7.311E-08	1.307E-06	1.388E-03	1.171E-04	1.105E-04	1.828E-08	5.261E-07	1.332E-06	1.185E-07	1.336E-07
ULI WALL	2.047E-05	9.783E-08	1.766E-06	5.434E-05	7.837E-03	4.941E-05	1.821E-08	4.640E-07	2.226E-06	1.209E-07	1.369E-07
LLI WALL	4.445E-06	2.124E-08	5.906E-07	1.564E-05	2.019E-05	2.196E-02	1.814E-08	6.745E-07	2.195E-07	3.221E-08	1.481E-07
T BODY	6.669E-04	9.732E-06	2.111E-06	1.626E-05	3.568E-05	7.123E-05	1.726E-09	1.046E-05	1.324E-05	6.603E-07	1.473E-06
ADREN	1.727E-04	8.252E-07	1.133E-06	2.024E-06	5.735E-06	4.229E-06	1.814E-08	1.022E-06	4.283E-06	5.767E-07	2.925E-06
BL WALL	3.744E-06	1.789E-08	1.760E-07	5.810E-06	1.188E-05	6.741E-05	1.792E-08	3.804E-07	2.104E-07	1.320E-08	1.571E-06
KIDNEYS	6.330E-05	3.025E-07	1.659E-06	6.086E-06	1.677E-05	8.332E-06	1.770E-08	5.935E-07	3.406E-06	1.348E-04	1.305E-07
LIVER	1.779E-04	8.496E-07	9.779E-07	3.503E-06	1.545E-05	2.981E-06	1.777E-08	4.613E-07	4.780E-04	1.754E-07	9.477E-08
OVARIES	8.243E-06	3.939E-08	2.614E-07	2.077E-05	7.928E-05	2.081E-04	1.770E-08	6.664E-07	2.428E-07	4.620E-08	2.969E-06
PANCREAS	1.894E-04	9.050E-07	9.933E-06	3.863E-06	1.154E-05	7.243E-06	1.792E-08	5.800E-07	4.081E-06	2.917E-07	2.996E-06
BONE	1.002E-04	4.789E-07	3.853E-07	2.123E-06	6.072E-06	1.704E-05	1.828E-08	1.275E-04	8.768E-07	5.784E-08	2.339E-07
R MAR	1.245E-04	5.947E-07	6.429E-07	7.236E-06	1.978E-05	5.652E-05	1.887E-08	2.519E-05	1.187E-06	1.504E-07	2.550E-06
Y MAR	1.072E-04	5.123E-07	5.441E-07	2.966E-06	8.723E-06	2.177E-05	1.814E-08	3.345E-06	1.319E-06	7.099E-08	2.935E-06
ENDOST	1.002E-04	4.789E-07	3.853E-07	2.123E-06	6.072E-06	1.704E-05	1.828E-08	9.215E-05	8.768E-07	5.784E-08	1.586E-06
SPLEEN	1.603E-04	7.659E-07	5.209E-06	2.890E-06	7.783E-06	9.128E-06	1.777E-08	5.153E-07	7.824E-07	4.114E-07	2.969E-06
TESTES	1.172E-06	5.599E-09	1.634E-08	6.017E-07	2.381E-06	2.052E-05	1.741E-08	3.858E-07	7.689E-08	4.822E-09	2.908E-06
THYMUS	2.828E-04	1.352E-06	1.326E-07	2.031E-07	7.205E-07	4.480E-07	1.748E-08	4.478E-07	8.431E-07	1.239E-08	3.077E-06
THYROID	7.058E-05	3.373E-07	5.577E-08	5.473E-08	1.848E-07	1.336E-07	1.697E-08	6.421E-07	1.241E-07	2.968E-09	2.919E-06
UTERUS	5.603E-06	2.678E-08	3.737E-07	1.947E-05	3.036E-05	6.783E-05	1.807E-08	3.831E-07	3.241E-07	3.288E-08	3.131E-06

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	4.052E-02
RES LYM	8.265E-02
S WALL	7.478E-04
SI WALL	1.635E-03
ULI WALL	7.966E-03
LLI WALL	2.200E-02
T BODY	8.278E-04
ADREN	1.954E-04
BL WALL	9.123E-05
KIDNEYS	2.354E-04
LIVER	6.803E-04
OVARIES	3.206E-04
PANCREAS	2.308E-04
BONE	2.550E-04
R MAR	2.383E-04
Y MAR	1.494E-04
ENDOST	2.210E-04
SPLEEN	1.908E-04
TESTES	2.809E-05
THYMUS	2.901E-04
THYROID	7.505E-05
UTERUS	1.276E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	ND-147	PM-147
TARGET		
LUNGS	54.9	5.1
RES LYM	60.5	39.5
S WALL	100.0	0.0
SI WALL	99.9	0.1
ULI WALL	99.9	0.1
LLI WALL	99.9	0.1
T BODY	95.2	4.8
ADREN	99.3	0.7
BL WALL	95.2	0.8
KIDNEYS	76.0	24.0
LIVER	71.4	28.6
OVARIES	99.6	0.4
PANCREAS	99.4	0.6
BONE	78.5	21.5
R MAR	97.4	2.6
Y MAR	99.1	0.9
ENDOST	83.6	16.4
SPLEEN	99.3	0.7
TESTES	55.0	5.0
THYMUS	99.5	0.5
THYROID	98.1	1.9
UTERUS	68.9	1.1

NEODYMIUM-147 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
ND-147	W	0.0	1.000E-04	0.0
PM-147	W	0.0	1.000E-04	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	3.271E-02	4.414E-04	8.440E-07	4.642E-07	1.567E-06	8.078E-07	3.224E-07	1.254E-05	4.303E-05	6.995E-07	2.186E-06
RES LYM	3.271E-02	2.849E-02	8.440E-07	4.642E-07	1.567E-06	8.078E-07	3.224E-07	1.254E-05	4.303E-05	6.995E-07	2.186E-06
S WALL	1.124E-04	1.456E-06	5.019E-04	6.305E-06	2.195E-05	1.702E-05	3.292E-07	6.895E-06	2.979E-05	2.720E-06	2.286E-06
SI WALL	1.301E-05	1.685E-07	1.167E-06	1.240E-03	1.046E-04	9.873E-05	3.386E-07	9.743E-06	2.467E-05	2.195E-06	2.473E-06
ULI WALL	1.740E-05	2.254E-07	1.577E-06	4.854E-05	7.001E-03	4.413E-05	3.373E-07	8.594E-06	4.122E-05	2.239E-06	2.536E-06
LLI WALL	3.778E-06	4.893E-08	5.275E-07	1.397E-05	1.804E-05	1.962E-02	3.359E-07	1.249E-05	4.066E-06	5.965E-07	2.742E-06
T BODY	5.501E-04	7.378E-06	1.886E-06	1.452E-05	3.187E-05	6.362E-05	3.197E-07	1.451E-04	1.845E-04	9.196E-06	1.822E-05
ADREN	1.468E-04	1.901E-06	1.012E-06	1.807E-06	5.122E-06	3.777E-06	3.359E-07	1.894E-05	7.932E-05	1.068E-05	3.553E-05
BL WALL	3.183E-06	4.122E-08	1.572E-07	5.189E-06	1.061E-05	6.021E-05	3.319E-07	7.045E-06	3.897E-06	2.445E-07	1.976E-05
KIDNEYS	5.381E-05	6.969E-07	1.482E-06	5.436E-06	1.498E-05	7.442E-06	3.278E-07	1.099E-05	6.308E-05	1.814E-03	2.417E-06
LIVFR	1.511E-04	1.957E-06	8.734E-07	3.129E-06	1.380E-05	2.663E-06	3.292E-07	8.544E-06	6.496E-03	3.248E-06	1.755E-06
OVARIES	7.006E-06	9.075E-08	2.335E-07	1.855E-05	7.081E-05	1.859E-04	3.278E-07	1.234E-05	4.497E-06	8.557E-07	3.634E-05
PANCREAS	1.610E-04	2.085E-06	8.872E-06	3.450E-06	1.031E-05	6.470E-06	3.319E-07	1.074E-05	7.557E-05	5.403E-06	3.684E-05
BONE	8.518E-05	1.103E-06	3.442E-07	1.896E-06	5.423E-06	1.522E-05	3.386E-07	1.700E-03	1.624E-05	1.071E-06	3.863E-06
R MAR	1.058E-04	1.370E-06	5.742E-07	6.463E-06	1.767E-05	5.049E-05	3.494E-07	4.079E-04	2.199E-05	2.786E-06	3.020E-05
Y MAR	9.113E-05	1.180E-06	4.860E-07	2.649E-06	7.791E-06	1.945E-05	3.359E-07	6.196E-05	2.442E-05	1.315E-06	3.572E-05
ENDOST	8.518E-05	1.103E-06	3.442E-07	1.896E-06	5.423E-06	1.522E-05	3.386E-07	1.277E-03	1.624E-05	1.071E-06	1.945E-05
SPLEEN	1.362E-04	1.765E-06	4.652E-06	2.581E-06	6.952E-06	8.153E-06	3.292E-07	9.543E-06	1.449E-05	7.620E-06	3.634E-05
TESTES	9.960E-07	1.290E-08	1.460E-08	5.374E-07	2.126E-06	1.832E-05	3.224E-07	7.145E-06	1.424E-06	8.931E-08	3.522E-05
THYMUS	2.404E-04	3.114E-06	1.185E-07	1.814E-07	6.435E-07	4.001E-07	3.238E-07	8.294E-06	1.561E-05	2.295E-07	3.834E-05
THYROID	5.999E-05	7.770E-07	4.981E-08	4.888E-08	1.651E-07	1.193E-07	3.144E-07	1.189E-05	2.298E-06	5.496E-08	3.541E-05
UTERUS	4.763E-06	6.169E-08	3.338E-07	1.739E-05	2.712E-05	6.058E-05	3.346E-07	7.095E-06	6.002E-06	6.090E-07	3.934E-05

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	3.322E-02
RES LYM	6.126E-02
S WALL	7.031E-04
SI WALL	1.497E-03
ULI WALL	7.167E-03
LLI WALL	1.967E-02
T BODY	1.027E-03
ADREN	3.052E-04
BL WALL	1.107E-04
KIDNEYS	1.975E-03
LIVER	6.683E-03
OVARIES	3.369E-04
PANCREAS	3.210E-04
BONE	1.831E-03
R MAR	6.455E-04
Y MAR	2.464E-04
ENDOST	1.423E-03
SPLEEN	2.287E-04
TESTES	6.621E-05
THYMUS	3.077E-04
THYROID	1.111E-04
UTERUS	1.636E-04

PERCENT DOSE EQUIVALENT..

NUCLIDE	ND-147	PM-147
TARGET		
LUNGS	99.3	0.7
RES LYM	97.5	2.5
S WALL	100.0	0.0
SI WALL	99.9	0.1
ULI WALL	99.9	0.1
LLI WALL	99.9	0.1
T BODY	93.5	6.5
ADREN	97.5	2.5
BL WALL	96.6	3.4
KIDNEYS	81.7	18.3
LIVER	81.3	18.7
OVARIES	97.8	2.2
PANCREAS	97.6	2.4
BONE	80.8	19.2
R MAR	94.1	5.9
Y MAR	96.9	3.1
ENDOST	83.7	16.3
SPLEEN	96.7	3.3
TESTES	88.6	11.4
THYMUS	97.5	2.5
THYROID	93.2	6.8
UTERUS	95.4	4.6

NEODYMIUM-147 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
ND-147	D	0.0	1.000E-04	0.0	0.0
PM-147	D	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	2.537E-03	4.675E-04	3.220E-07	1.771E-07	5.978E-07	3.082E-07	1.927E-06	7.494E-05	2.572E-04	4.180E-06	1.306E-05
RES LYM	2.537E-03	3.012E-02	3.220E-07	1.771E-07	5.978E-07	3.082E-07	1.927E-06	7.494E-05	2.572E-04	4.180E-06	1.306E-05
S WALL	8.773E-06	1.616E-06	1.914E-04	2.406E-06	8.375E-06	6.492E-06	1.967E-06	4.120E-05	1.780E-04	1.625E-05	1.366E-05
SI WALL	1.015E-06	1.869E-07	4.454E-07	4.728E-04	3.991E-05	3.767E-05	2.024E-06	5.822E-05	1.474E-04	1.312E-05	1.478E-05
ULI WALL	1.358E-06	2.501E-07	6.018E-07	1.852E-05	2.669E-03	1.684E-05	2.016E-06	5.136E-05	2.463E-04	1.338E-05	1.515E-05
LLI WALL	2.948E-07	5.431E-08	2.013E-07	5.328E-06	6.881E-06	7.479E-03	2.007E-06	7.465E-05	2.430E-05	3.564E-06	1.638E-05
T BODY	4.271E-05	7.868E-06	7.192E-07	5.538E-06	1.215E-05	2.426E-05	1.911E-06	8.303E-04	1.057E-03	5.264E-05	1.028E-04
ADREN	1.145E-05	2.110E-06	3.860E-07	6.896E-07	1.954E-06	1.441E-06	2.007E-06	1.132E-04	4.740E-04	6.382E-05	1.981E-04
BL WALL	2.484E-07	4.575E-08	5.998E-08	1.980E-06	4.048E-06	2.297E-05	1.983E-06	4.210E-05	2.329E-05	1.461E-06	1.110E-04
KIDNEYS	4.199E-06	7.734E-07	5.655E-07	2.074E-06	5.715E-06	2.839E-06	1.959E-06	6.569E-05	3.770E-04	1.032E-02	1.444E-05
LIVER	1.179E-05	2.172E-06	3.332E-07	1.194E-06	5.263E-06	1.016E-06	1.967E-06	5.106E-05	3.702E-02	1.941E-05	1.049E-05
OVARIES	5.467E-07	1.007E-07	8.908E-08	7.078E-06	2.701E-05	7.091E-05	1.959E-06	7.375E-05	2.687E-05	5.113E-06	2.030E-04
PANCREAS	1.256E-05	2.314E-06	3.385E-06	1.316E-06	3.933E-06	2.468E-06	1.983E-06	6.419E-05	4.516E-04	3.228E-05	2.060E-04
BONE	6.647E-06	1.224E-06	1.313E-07	7.235E-07	2.069E-06	5.807E-06	2.024E-06	9.653E-03	9.704E-05	6.401E-06	2.272E-05
R MAR	8.255E-06	1.521E-06	2.191E-07	2.466E-06	6.741E-06	1.926E-05	2.088E-06	2.392E-03	1.314E-04	1.665E-05	1.675E-04
Y MAR	7.111E-06	1.310E-06	1.854E-07	1.011E-06	2.972E-06	7.419E-06	2.007E-06	3.702E-04	1.459E-04	7.856E-06	1.992E-04
ENDOST	6.647E-06	1.224E-06	1.313E-07	7.235E-07	2.069E-06	5.807E-06	2.024E-06	7.303E-03	9.704E-05	6.401E-06	1.086E-04
SPLEEN	1.063E-05	1.958E-06	1.775E-06	9.847E-07	2.652E-06	3.110E-06	1.967E-06	5.703E-05	8.659E-05	4.553E-05	2.030E-04
TESTES	7.772E-08	1.432E-08	5.569E-09	2.050E-07	8.113E-07	6.991E-06	1.927E-06	4.270E-05	8.509E-06	5.337E-07	1.963E-04
THYMUS	1.876E-05	3.456E-06	4.520E-08	6.922E-08	2.455E-07	1.527E-07	1.935E-06	4.956E-05	9.331E-05	1.372E-06	2.149E-04
THYROID	4.681E-06	8.623E-07	1.900E-08	1.865E-08	6.298E-08	4.551E-08	1.878E-06	7.106E-05	1.373E-05	3.284E-07	1.974E-04
UTERUS	3.716E-07	6.846E-08	1.274E-07	6.634E-06	1.035E-05	2.311E-05	1.999E-06	4.240E-05	3.587E-05	3.639E-06	2.209E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE TOTAL

TARGET	
LUNGS	3.358E-03
RES LYM	3.301E-02
S WALL	4.701E-04
SI WALL	7.876E-04
ULI WALL	3.035E-03
LLI WALL	7.612E-03
T BODY	2.137E-03
ADREN	8.691E-04
BL WALL	2.092E-04
KIDNEYS	1.079E-02
LIVER	3.712E-02
OVARIES	4.164E-04
PANCREAS	7.820E-04
BONE	9.798E-03
R MAR	2.748E-03
Y MAR	7.453E-04
ENDOST	7.534E-03
SPLEEN	4.152E-04
TESTES	2.580E-04
THYMUS	3.838E-04
THYROID	2.901E-04
UTERUS	3.455E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE ND-147 PM-147

TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
S WALL	100.0	0.0
SI WALL	100.0	0.0
ULI WALL	100.0	0.0
LLI WALL	100.0	0.0
T BODY	86.7	13.3
ADREN	96.4	3.6
BL WALL	92.6	7.4
KIDNEYS	84.8	15.2
LIVER	84.7	15.3
OVARIES	92.6	7.4
PANCREAS	96.0	4.0
BONE	83.7	16.3
R MAR	53.8	6.2
Y MAR	55.9	4.1
ENDOST	86.1	13.9
SPLEEN	92.6	7.4
TESTES	88.0	12.0
THYMUS	91.9	8.1
THYROID	89.3	10.7
UTERUS	91.1	8.9

NEODYMIUM-147 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

	ND-147	PM-147
STOMACH	0.0	0.0
S INT	1.000E-04	1.000E-04
U L INT	0.0	0.0
L L INT	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	2.028E-06	1.115E-06	3.765E-06	1.941E-06	4.072E-10	1.584E-08	5.434E-08	8.833E-10	2.760E-09	8.924E-06
RES LYM	2.028E-06	1.115E-06	3.765E-06	1.941E-06	4.072E-10	1.584E-08	5.434E-08	8.833E-10	2.760E-09	8.924E-06
S WALL	1.205E-03	1.515E-05	5.275E-05	4.089E-05	4.157E-10	8.707E-09	3.762E-08	3.435E-09	2.886E-05	1.314E-03
SI WALL	2.805E-06	2.978E-03	2.513E-04	2.372E-04	4.276E-10	1.230E-08	3.115E-08	2.772E-09	3.123E-09	3.469E-03
ULI WALL	3.790E-06	1.166E-04	1.681E-02	1.060E-04	4.256E-10	1.085E-08	5.205E-08	2.827E-09	3.202E-09	1.704E-02
LLI WALL	1.268E-06	3.356E-05	4.334E-05	4.710E-02	4.242E-10	1.577E-08	5.134E-09	7.532E-10	3.462E-09	4.718E-02
T BODY	4.530E-06	3.488E-05	7.655E-05	1.528E-04	4.038E-10	1.751E-07	2.228E-07	1.110E-08	2.148E-08	2.692E-04
ADREN	2.431E-06	4.343E-06	1.231E-05	9.076E-06	4.242E-10	2.391E-08	1.002E-07	1.349E-08	4.173E-08	2.834E-05
BL WALL	3.778E-07	1.247E-05	2.550E-05	1.447E-04	4.191E-10	8.896E-09	4.921E-09	3.088E-10	2.339E-08	1.831E-04
KIDNEYS	3.562E-06	1.376E-05	3.599E-05	1.788E-05	4.140E-10	1.388E-08	7.965E-08	2.176E-06	3.052E-09	7.277E-05
LIVER	2.099E-06	7.518E-06	3.315E-05	6.398E-06	4.157E-10	1.079E-08	7.805E-06	4.101E-09	2.216E-09	5.699E-05
OVARIES	5.610E-07	4.458E-05	1.701E-04	4.466E-04	4.140E-10	1.558E-08	5.678E-09	1.080E-09	4.275E-08	6.620E-04
PANCREAS	2.132E-05	8.291E-06	2.477E-05	1.555E-05	4.191E-10	1.356E-08	9.543E-08	6.822E-09	4.338E-08	7.009E-05
BONE	8.270E-07	4.557E-06	1.303E-05	3.657E-05	4.276E-10	2.035E-06	2.051E-08	1.353E-09	4.798E-09	5.705E-05
R MAR	1.380E-06	1.553E-05	4.246E-05	1.213E-04	4.412E-10	5.051E-07	2.776E-08	3.517E-09	3.526E-08	1.813E-04
Y MAR	1.168E-06	6.366E-06	1.872E-05	4.673E-05	4.242E-10	7.823E-08	3.084E-08	1.660E-09	4.196E-08	7.314E-05
ENDOST	8.270E-07	4.557E-06	1.303E-05	3.657E-05	4.276E-10	1.540E-06	2.051E-08	1.353E-09	2.288E-08	5.658E-05
SPLEEN	1.118E-05	6.202E-06	1.670E-05	1.959E-05	4.157E-10	1.205E-08	1.830E-08	9.622E-09	4.275E-08	5.376E-05
TESTES	3.508E-08	1.291E-06	5.110E-06	4.403E-05	4.072E-10	9.022E-09	1.798E-09	1.128E-10	4.133E-08	5.052E-05
THYMUS	2.847E-07	4.359E-07	1.546E-06	9.615E-07	4.089E-10	1.047E-08	1.972E-08	2.898E-10	4.528E-08	3.305E-06
THYROID	1.197E-07	1.175E-07	3.967E-07	2.867E-07	3.969E-10	1.502E-08	2.902E-09	6.940E-11	4.157E-08	9.804E-07
UTERUS	8.021E-07	4.178E-05	6.516E-05	1.456E-04	4.225E-10	8.959E-09	7.579E-09	7.689E-10	4.654E-08	2.534E-04

PERCENT DOSE EQUIVALENT..

NUCL IDE ND-147 PM-147

TARGET		
LUNGS	100.0	0.0
RES LYM	100.0	0.0
S WALL	100.0	0.0
SI WALL	100.0	0.0
ULI WALL	100.0	0.0
LLI WALL	100.0	0.0
T BODY	100.0	0.0
ADREN	100.0	0.0
BL WALL	100.0	0.0
KIDNEYS	99.5	0.5
LIVER	57.9	2.1
OVARIES	100.0	0.0
PANCREAS	100.0	0.0
BONE	99.4	0.6
R MAR	100.0	0.0
Y MAR	100.0	0.0
ENDOST	99.6	0.4
SPLEEN	100.0	0.0
TESTES	100.0	0.0
THYMUS	99.8	0.2
THYROID	99.3	0.7
UTERUS	100.0	0.0

PROMETHIUM-147

RADIONUCLIDE: PM-147

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

		RADIOACTIVE HALF-LIFE (DAYS)			
NUCLIDE		PM-147		958.0	
ORGAN ABSORBED	NUCLIDE PM-147	BLOOD TRANSFER FRACTION F2-PRIME	COMPARTMENT DEPOSITION FRACTION	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS)	
		1.00		0.500	5.000E 03
EXCRET.	PM-147	2.500E-02	1.00	0.500	5.000E 03
BONE	PM-147	0.400	1.00	5.000E 03	5.000E 03
LIVER	PM-147	0.500	1.00	5.000E 03	5.000E 03
KIDNEYS	PM-147	2.500E-02	1.00	5.000E 03	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR PM-147

TARGET ORGANS		SOURCE ORGANS										
		LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.317E-02	0.317E-02	0.119E-08	0.144E-09	0.176E-09	0.518E-10	0.453E-04	0.637E-09	0.171E-08	0.581E-09	0.804E-05	0.804E-05
RES LYM	0.317E-02	0.211E-00	0.119E-08	0.144E-09	0.176E-09	0.518E-10	0.453E-04	0.637E-09	0.171E-08	0.581E-09	0.804E-05	0.804E-05
S WALL	0.125E-08	0.125E-08	0.634E-02	0.250E-08	0.257E-08	0.121E-08	0.453E-04	0.371E-09	0.125E-08	0.249E-08	0.830E-05	0.830E-05
SI WALL	0.126E-09	0.126E-09	0.186E-08	0.396E-02	0.112E-07	0.633E-08	0.453E-04	0.494E-09	0.110E-08	0.198E-08	0.100E-08	0.100E-08
ULI WALL	0.148E-09	0.148E-09	0.242E-08	0.151E-07	0.721E-02	0.281E-08	0.453E-04	0.457E-09	0.173E-08	0.196E-08	0.101E-08	0.101E-08
LLI WALL	0.400E-10	0.400E-10	0.792E-09	0.487E-08	0.221E-08	0.117E-01	0.453E-04	0.656E-09	0.154E-09	0.462E-09	0.110E-08	0.110E-08
T BODY	0.453E-04	0.453E-04	0.136E-04	0.362E-04	0.216E-04	0.268E-04	0.453E-04	0.453E-04	0.453E-04	0.453E-04	0.451E-04	0.451E-04
ADREN	0.185E-08	0.185E-08	0.193E-08	0.591E-09	0.626E-09	0.220E-09	0.453E-04	0.699E-09	0.291E-08	0.758E-08	0.928E-04	0.928E-04
BL WALL	0.215E-10	0.215E-10	0.193E-09	0.177E-08	0.153E-08	0.478E-08	0.453E-04	0.359E-09	0.107E-09	0.187E-09	0.464E-04	0.464E-04
KIDNEYS	0.571E-09	0.571E-09	0.237E-08	0.222E-08	0.196E-08	0.565E-09	0.453E-04	0.542E-09	0.272E-08	0.102E-01	0.912E-05	0.912E-05
LIVER	0.166E-08	0.166E-08	0.138E-08	0.125E-08	0.175E-08	0.163E-09	0.453E-04	0.444E-09	0.176E-02	0.264E-08	0.682E-05	0.682E-05
OVARIES	0.586E-10	0.586E-10	0.355E-09	0.729E-08	0.784E-08	0.114E-07	0.453E-04	0.484E-09	0.294E-09	0.741E-09	0.928E-04	0.928E-04
PANCREAS	0.178E-08	0.178E-08	0.123E-07	0.141E-08	0.158E-08	0.518E-09	0.453E-04	0.534E-09	0.298E-08	0.452E-08	0.928E-04	0.928E-04
BONE	0.107E-08	0.107E-08	0.654E-09	0.913E-09	0.826E-09	0.118E-08	0.453E-04	0.618E-03	0.805E-09	0.104E-08	0.234E-05	0.234E-05
R MAR	0.136E-08	0.136E-08	0.116E-08	0.311E-08	0.269E-08	0.369E-08	0.453E-04	0.548E-04	0.117E-08	0.274E-08	0.848E-04	0.848E-04
Y MAR	0.110E-08	0.110E-08	0.917E-09	0.128E-08	0.119E-08	0.146E-08	0.453E-04	0.255E-08	0.120E-08	0.128E-08	0.928E-04	0.928E-04
ENDOST	0.107E-08	0.107E-08	0.654E-09	0.913E-09	0.826E-09	0.118E-08	0.453E-04	0.401E-03	0.805E-09	0.104E-08	0.494E-04	0.494E-04
SPLEEN	0.157E-08	0.157E-08	0.684E-08	0.104E-08	0.997E-09	0.552E-09	0.453E-04	0.378E-09	0.622E-09	0.576E-08	0.928E-04	0.928E-04
TESTES	0.441E-11	0.441E-11	0.311E-10	0.201E-09	0.173E-09	0.114E-08	0.453E-04	0.444E-09	0.379E-10	0.542E-10	0.928E-04	0.928E-04
THYMUS	0.302E-08	0.302E-08	0.183E-09	0.496E-10	0.651E-10	0.158E-10	0.453E-04	0.367E-09	0.433E-09	0.138E-09	0.928E-04	0.928E-04
THYROID	0.647E-09	0.647E-09	0.523E-10	0.846E-11	0.939E-11	0.295E-11	0.453E-04	0.508E-09	0.837E-10	0.286E-10	0.928E-04	0.928E-04
UTERUS	0.522E-10	0.522E-10	0.514E-09	0.657E-08	0.379E-08	0.483E-08	0.453E-04	0.377E-09	0.263E-09	0.608E-09	0.928E-04	0.928E-04

β^- decay (2.6234 Y 2)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

The daughter Sm-147 has been excluded from the calculation because its activity which forms in the body from the decay of Pm-147 contributes negligibly to the dose conversion factor.

PROMETHIUM-147 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PM-147 Y	C.0	1.C00E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	0.226	6.159E-02	2.731E-11	1.322E-11	5.248E-11	2.850E-11	1.873E-08	6.77E-09	2.274E-08	3.864E-10	1.069E-09
RES LYM	0.226	4.10	2.731E-11	1.322E-11	5.248E-11	2.850E-11	1.873E-08	6.77E-09	2.274E-08	3.864E-10	1.069E-09
S WALL	8.998E-08	2.429E-08	1.455E-04	2.295E-10	7.664E-10	6.657E-10	1.873E-08	3.94E-09	1.663E-08	1.656E-09	1.104E-09
SI WALL	8.969E-09	2.448E-09	4.269E-11	3.635E-04	3.340E-09	3.482E-09	1.873E-08	5.256E-09	1.463E-08	1.317E-09	1.330E-09
ULI WALL	1.053E-08	2.875E-09	5.555E-11	1.386E-09	2.150E-03	1.546E-09	1.873E-08	4.863E-09	2.301E-08	1.303E-09	1.343E-09
LLI WALL	2.847E-09	7.772E-10	1.818E-11	4.470E-10	6.590E-10	6.436E-03	1.873E-08	7.40E-09	2.048E-09	3.072E-10	1.463E-09
T BODY	3.224E-03	8.801E-04	3.122E-07	3.323E-06	6.441E-06	1.474E-05	1.873E-08	4.82E-04	6.025E-04	3.013E-05	5.998E-05
ADREN	1.317E-07	3.594E-08	4.430E-11	5.425E-11	1.867E-10	1.210E-10	1.873E-08	7.43E-09	3.871E-08	5.041E-09	1.234E-04
BL WALL	1.530E-09	4.177E-10	4.430E-12	1.625E-10	4.563E-10	2.630E-09	1.873E-08	3.82E-09	1.423E-09	1.244E-10	6.171E-05
KIDNEYS	4.064E-08	1.109E-08	5.440E-11	2.038E-10	5.845E-10	3.108E-10	1.873E-08	5.767E-09	3.618E-08	6.783E-03	1.213E-09
LIVER	1.182E-07	3.225E-08	3.167E-11	1.147E-10	5.219E-10	8.967E-11	1.873E-08	4.724E-09	2.341E-02	1.756E-09	9.071E-10
OVARIES	4.171E-09	1.135E-09	8.148E-12	6.691E-10	2.338E-09	6.271E-09	1.873E-08	5.15E-09	3.910E-09	4.928E-10	1.234E-04
PANCREAS	1.267E-07	3.458E-08	2.823E-10	1.294E-10	4.712E-10	2.850E-10	1.873E-08	5.68E-09	3.964E-08	3.096E-09	1.234E-04
BONE	7.616E-08	2.079E-08	1.501E-11	8.380E-11	2.463E-10	6.491E-10	1.873E-08	6.57E-03	1.071E-08	6.916E-10	3.112E-06
R MAR	9.581E-08	2.642E-08	2.662E-11	2.855E-10	8.022E-10	2.030E-09	1.873E-08	5.831E-04	1.556E-08	1.822E-09	1.128E-04
Y MAR	7.830E-08	2.137E-08	2.105E-11	1.175E-10	3.549E-10	8.032E-10	1.873E-08	2.713E-08	1.596E-08	8.512E-10	1.234E-04
ENDOST	7.616E-08	2.079E-08	1.501E-11	8.380E-11	2.463E-10	6.491E-10	1.873E-08	4.267E-03	1.071E-08	6.916E-10	6.370E-05
SPLEEN	1.118E-07	3.050E-08	1.570E-10	9.546E-11	2.973E-10	3.037E-10	1.873E-08	4.02E-09	8.273E-09	3.831E-09	1.234E-04
TESTES	3.139E-10	8.568E-11	7.138E-13	1.845E-11	5.159E-11	6.271E-10	1.873E-08	4.724E-09	5.041E-10	3.605E-11	1.234E-04
THYMUS	2.150E-07	5.868E-08	4.200E-12	4.553E-12	1.941E-11	8.692E-12	1.873E-08	3.905E-09	5.759E-09	9.178E-11	1.234E-04
THYROID	4.605E-08	1.257E-08	1.203E-12	7.765E-13	2.800E-12	1.623E-12	1.873E-08	5.40E-09	1.113E-09	1.902E-11	1.234E-04
UTERUS	3.716E-09	1.014E-09	1.180E-11	6.031E-10	1.130E-09	2.657E-09	1.873E-08	4.012E-09	3.498E-09	4.043E-10	1.234E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	0.287
RES LYM	4.33
S WALL	1.457E-04
SI WALL	3.635E-04
ULI WALL	2.150E-03
LLI WALL	6.436E-03
T BODY	5.304E-03
ADREN	1.237E-04
BL WALL	6.174E-05
KIDNEYS	6.784E-03
LIVER	2.341E-02
OVARIES	1.235E-04
PANCREAS	1.237E-04
BONE	6.579E-03
R MAR	6.961E-04
Y MAR	1.236E-04
ENDOST	4.333E-03
SPLEEN	1.236E-04
TESTES	1.234E-04
THYMUS	1.237E-04
THYROID	1.235E-04
UTERUS	1.235E-04

PROMETHIUM-147 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
	STOMACH	S INT	U L INT	L L INT
PM-147 W	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	LUNGS	RES LYM	S CCNT	SI CCNT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	3.367E-02	2.573E-03	2.544E-11	1.231E-11	4.888E-11	2.654E-11	9.620E-08	3.482E-08	1.168E-07	1.985E-09	5.493E-09
RES LYM	3.367E-02	0.171	2.544E-11	1.231E-11	4.888E-11	2.654E-11	9.620E-08	3.482E-08	1.168E-07	1.985E-09	5.493E-09
S WALL	1.328E-08	1.015E-09	1.355E-04	2.137E-10	7.138E-10	6.200E-10	9.620E-08	2.026E-08	8.541E-08	8.507E-09	5.671E-09
SI WALL	1.338E-09	1.023E-10	3.976E-11	3.386E-04	3.111E-09	3.243E-09	9.620E-08	2.700E-08	7.516E-08	6.764E-09	6.333E-09
ULI WALL	1.572E-09	1.201E-10	5.173E-11	1.291E-09	2.003E-03	1.440E-09	9.620E-08	2.498E-08	1.182E-07	6.696E-09	6.901E-09
LLI WALL	4.249E-10	3.247E-11	1.693E-11	4.164E-10	6.138E-10	5.995E-03	9.620E-08	3.804E-08	1.052E-08	1.578E-09	7.516E-09
T BODY	4.812E-04	3.677E-05	2.907E-07	3.095E-06	5.999E-06	1.373E-05	9.620E-08	2.476E-03	3.095E-03	1.548E-04	3.082E-04
ADREN	1.965E-08	1.502E-09	4.126E-11	5.053E-11	1.739E-10	1.127E-10	9.620E-08	3.821E-08	1.988E-07	2.590E-08	6.341E-04
BL WALL	2.284E-10	1.745E-11	4.126E-12	1.513E-10	4.250E-10	2.449E-09	9.620E-08	1.962E-08	7.311E-09	6.389E-10	3.170E-04
KIDNEYS	6.065E-09	4.635E-10	5.067E-11	1.898E-10	5.444E-10	2.895E-10	9.620E-08	2.963E-08	1.859E-07	3.485E-02	6.231E-09
LIVER	1.763E-08	1.347E-09	2.950E-11	1.069E-10	4.861E-10	8.352E-11	9.620E-08	2.427E-08	0.120	9.019E-09	4.560E-09
OVARIES	6.224E-10	4.756E-11	7.589E-12	6.232E-10	2.178E-09	5.841E-09	9.620E-08	2.646E-08	2.009E-08	2.532E-09	6.341E-04
PANCREAS	1.891E-08	1.445E-09	2.629E-10	1.205E-10	4.388E-10	2.654E-10	9.620E-08	2.919E-08	2.036E-07	1.544E-08	6.341E-04
BONE	1.137E-08	8.685E-10	1.398E-11	7.806E-11	2.294E-10	6.046E-10	9.620E-08	3.378E-02	5.500E-08	3.553E-09	1.599E-05
R MAR	1.445E-08	1.104E-09	2.480E-11	2.659E-10	7.471E-10	1.891E-09	9.620E-08	2.995E-03	7.994E-08	9.361E-09	5.794E-04
Y MAR	1.168E-08	8.929E-10	1.960E-11	1.094E-10	3.305E-10	7.481E-10	9.620E-08	1.394E-07	8.199E-08	4.373E-09	6.341E-04
ENDOST	1.137E-08	8.685E-10	1.358E-11	7.806E-11	2.294E-10	6.046E-10	9.620E-08	2.192E-02	5.500E-08	3.553E-09	3.375E-04
SPLEEN	1.668E-08	1.274E-09	1.462E-10	8.891E-11	2.769E-10	2.828E-10	9.620E-08	2.066E-08	4.250E-08	1.968E-08	6.341E-04
TESTES	4.684E-11	3.580E-12	6.649E-13	1.718E-11	4.805E-11	5.841E-10	9.620E-08	2.427E-08	2.590E-09	1.852E-10	6.341E-04
THYMUS	3.208E-08	2.451E-09	3.912E-12	4.240E-12	1.808E-11	8.096E-12	9.620E-08	2.006E-08	2.959E-08	4.715E-10	6.341E-04
THYROID	6.872E-09	5.252E-10	1.118E-12	7.233E-13	2.608E-12	1.512E-12	9.620E-08	2.777E-08	5.719E-09	9.771E-11	6.341E-04
UTERUS	5.545E-10	4.237E-11	1.099E-11	5.617E-10	1.053E-09	2.475E-09	9.620E-08	2.061E-08	1.797E-08	2.077E-09	6.341E-04

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	3.624E-02
RES LYM	0.205
S WALL	1.358E-04
SI WALL	3.388E-04
ULI WALL	2.003E-03
LLI WALL	5.995E-03
T BODY	6.575E-03
ADREN	6.345E-04
BL WALL	3.172E-04
KIDNEYS	3.485E-02
LIVER	0.120
OVARIES	6.342E-04
PANCREAS	6.344E-04
BONE	3.380E-02
R MAR	3.575E-03
Y MAR	6.344E-04
ENDOST	2.226E-02
SPLEEN	6.343E-04
TESTES	6.342E-04
THYMUS	6.343E-04
THYROID	6.342E-04
UTERUS	6.342E-04

PROMETHIUM-147 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

PM-147	SOLUBILITY CLASS	G.I. LPTAKE FRACTIONS											
		STOMACH	S INT	U L INT	L L INT								
	D	0.0	1.000E-04	0.0	0.0								
DOSE EQUIVALENT (REM/MICROCURIE)													
SOURCE	LUNGS	RES LYM	S CNT	SI CNT	ULI CNT	LLI CNT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER		
TARGET													
LUNGS	5.907E-04	1.138E-04	7.883E-12	3.815E-12	1.515E-11	8.224E-12	3.919E-07	1.419E-07	4.760E-07	8.087E-09	2.238E-08		
RES LYM	5.907E-04	7.576E-03	7.883E-12	3.815E-12	1.515E-11	8.224E-12	3.919E-07	1.419E-07	4.760E-07	8.087E-09	2.239E-08		
S WALL	2.329E-10	4.488E-11	4.200E-05	6.623E-11	2.212E-10	1.921E-10	3.919E-07	8.262E-08	3.480E-07	3.466E-08	2.310E-08		
SI WALL	2.348E-11	4.524E-12	1.232E-11	1.049E-04	9.639E-10	1.005E-09	3.919E-07	1.100E-07	3.062E-07	2.756E-08	2.784E-08		
ULI WALL	2.758E-11	5.314E-12	1.603E-11	4.000E-10	6.205E-04	4.461E-10	3.919E-07	1.018E-07	4.816E-07	2.728E-08	2.311E-08		
LLI WALL	7.454E-12	1.436E-12	5.246E-12	1.290E-10	1.902E-10	1.858E-03	3.919E-07	1.550E-07	4.287E-08	6.430E-09	3.362E-08		
T BODY	8.442E-06	1.627E-06	9.009E-08	9.590E-07	1.859E-06	4.255E-06	3.919E-07	1.009E-02	1.261E-02	6.305E-04	1.255E-03		
ADREN	3.448E-10	6.643E-11	1.278E-11	1.566E-11	5.388E-11	3.493E-11	3.919E-07	1.557E-07	8.100E-07	1.055E-07	2.583E-03		
BL WALL	4.007E-12	7.720E-13	1.278E-12	4.689E-11	1.317E-10	7.589E-10	3.919E-07	7.995E-08	2.979E-08	2.603E-09	1.292E-03		
KIDNEYS	1.064E-10	2.050E-11	1.570E-11	5.881E-11	1.687E-10	8.970E-11	3.919E-07	1.207E-07	7.572E-07	0.142	2.539E-08		
LIVER	3.093E-10	5.961E-11	9.141E-12	3.311E-11	1.506E-10	2.588E-11	3.919E-07	9.888E-08	0.490	3.674E-08	1.998E-08		
OVARIES	1.092E-11	2.104E-12	2.352E-12	1.931E-10	6.747E-10	1.810E-09	3.919E-07	1.078E-07	8.184E-08	1.031E-08	2.583E-03		
PANCREAS	3.317E-10	6.392E-11	8.148E-11	3.735E-11	1.360E-10	8.224E-11	3.919E-07	1.189E-07	8.295E-07	6.291E-08	2.583E-03		
BONE	1.994E-10	3.842E-11	4.332E-12	2.419E-11	7.109E-11	1.873E-10	3.919E-07	0.13E	2.241E-07	1.448E-08	6.514E-05		
R MAR	2.534E-10	4.883E-11	7.684E-12	8.239E-11	2.315E-10	5.859E-10	3.919E-07	1.220E-02	3.257E-07	3.814E-08	2.361E-03		
Y MAR	2.050E-10	3.950E-11	6.074E-12	3.391E-11	1.024E-10	2.318E-10	3.919E-07	5.679E-07	3.340E-07	1.782E-08	2.583E-03		
ENDOST	1.994E-10	3.842E-11	4.332E-12	2.419E-11	7.109E-11	1.873E-10	3.919E-07	8.930E-02	2.241E-07	1.448E-08	1.375E-03		
SPL EEN	2.926E-10	5.637E-11	4.531E-11	2.755E-11	8.580E-11	8.764E-11	3.919E-07	8.418E-08	1.731E-07	8.017E-08	2.583E-03		
TESTES	8.218E-13	1.584E-13	2.060E-13	5.325E-12	1.489E-11	1.810E-10	3.919E-07	9.888E-08	1.055E-08	7.544E-10	2.583E-03		
THYMUS	5.628E-10	1.084E-10	1.212E-12	1.314E-12	5.603E-12	2.509E-12	3.919E-07	8.173E-08	1.205E-07	1.921E-09	2.583E-03		
THYROID	1.206E-10	2.323E-11	3.464E-13	2.241E-13	8.081E-13	4.684E-13	3.919E-07	1.131E-07	2.330E-08	3.981E-10	2.583E-03		
UTERUS	9.728E-12	1.874E-12	3.405E-12	1.740E-10	3.262E-10	7.669E-10	3.919E-07	8.396E-08	7.321E-08	8.462E-09	2.583E-03		

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	TOTAL
TARGET	
LUNGS	7.056E-04
RES LYM	8.168E-03
S WALL	4.288E-05
SI WALL	1.058E-04
ULI WALL	6.215E-04
LLI WALL	1.858E-03
T BODY	2.460E-02
ADREN	2.585E-03
BL WALL	1.292E-03
KIDNEYS	0.142
LIVER	0.490
OVARIES	2.584E-03
PANCREAS	2.585E-03
BONE	0.138
R MAR	1.456E-02
Y MAR	2.585E-03
ENDOST	9.068E-02
SPLEEN	2.584E-03
TESTES	2.584E-03
THYMUS	2.584E-03
THYROID	2.584E-03
UTERUS	2.584E-03

PROMETHIUM-147 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

PM-147
STOMACH 0.0
S INT 1.000E-04
U L INT 0.0
L L INT 0.0

DOSE EQUIVALENT (REM/MICROCURIE)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	4.958E-11	2.399E-11	9.527E-11	5.173E-11	8.164E-11	2.955E-11	9.915E-11	1.684E-12	4.662E-12	4.373E-10
RES LYM	4.958E-11	2.399E-11	9.527E-11	5.173E-11	8.164E-11	2.955E-11	9.915E-11	1.684E-12	4.662E-12	4.373E-10
S WALL	2.642E-04	4.166E-10	1.391E-09	1.208E-09	8.164E-11	1.721E-11	7.248E-11	7.219E-12	4.812E-12	2.642E-04
SI WALL	7.750E-11	6.558E-04	6.063E-09	6.321E-09	8.164E-11	2.292E-11	6.378E-11	5.740E-12	5.798E-12	6.598E-04
ULI WALL	1.008E-10	2.516E-09	3.903E-03	2.806E-09	8.164E-11	2.120E-11	1.003E-10	5.683E-12	5.856E-12	3.903E-03
LLI WALL	3.300E-11	8.115E-10	1.156E-09	1.168E-02	8.164E-11	3.229E-11	8.930E-12	1.339E-12	6.378E-12	1.168E-02
T BODY	5.666E-07	6.032E-06	1.169E-05	2.676E-05	8.164E-11	2.101E-06	2.627E-06	1.313E-07	2.615E-07	5.018E-05
ADREN	8.041E-11	9.848E-11	3.389E-10	2.197E-10	8.164E-11	3.243E-11	1.687E-10	2.198E-11	5.381E-07	5.391E-07
BL WALL	8.041E-12	2.549E-10	8.282E-10	4.773E-09	8.164E-11	1.665E-11	6.204E-12	5.422E-13	2.690E-07	2.750E-07
KIDNEYS	9.875E-11	3.699E-10	1.061E-09	5.642E-10	8.164E-11	2.514E-11	1.577E-10	2.957E-05	5.288E-12	2.957E-05
LIVER	5.750E-11	2.083E-10	9.473E-10	1.628E-10	8.164E-11	2.060E-11	1.021E-04	7.654E-12	3.954E-12	1.021E-04
OVARIES	1.479E-11	1.215E-09	4.244E-09	1.138E-08	8.164E-11	2.245E-11	1.705E-11	2.148E-12	5.381E-07	5.550E-07
PANCREAS	5.125E-10	2.349E-10	8.553E-10	5.173E-10	8.164E-11	2.477E-11	1.728E-10	1.310E-11	5.381E-07	5.405E-07
BONE	2.725E-11	1.521E-10	4.471E-10	1.178E-09	8.164E-11	2.867E-05	4.668E-11	3.015E-12	1.357E-08	2.868E-05
R MAR	4.833E-11	5.182E-10	1.456E-09	3.685E-09	8.164E-11	2.542E-06	6.784E-11	7.944E-12	4.917E-07	3.040E-06
Y MAR	3.821E-11	2.133E-10	6.442E-10	1.458E-09	8.164E-11	1.183E-10	6.958E-11	3.711E-12	5.381E-07	5.407E-07
ENDOST	2.725E-11	1.521E-10	4.471E-10	1.178E-09	8.164E-11	1.860E-05	4.668E-11	3.015E-12	2.864E-07	1.889E-05
SPLEEN	2.850E-10	1.733E-10	5.357E-10	5.512E-10	8.164E-11	1.753E-11	3.607E-11	1.670E-11	5.381E-07	5.398E-07
TESTES	1.296E-12	3.349E-11	9.365E-11	1.138E-09	8.164E-11	2.060E-11	2.198E-12	1.571E-13	5.381E-07	5.394E-07
THYMUS	7.625E-12	8.265E-12	3.524E-11	1.578E-11	8.164E-11	1.702E-11	2.511E-11	4.001E-13	5.381E-07	5.383E-07
THYROID	2.179E-12	1.410E-12	5.083E-12	2.946E-12	8.164E-11	2.356E-11	4.853E-12	8.292E-14	5.381E-07	5.382E-07
UTERUS	2.142E-11	1.095E-09	2.052E-09	4.823E-09	8.164E-11	1.749E-11	1.525E-11	1.763E-12	5.381E-07	5.462E-07

SAMARIUM-147

RADIONUCLIDE: SM-147

PHYSICAL AND METABOLIC PARAMETERS FOR DOSIMETRICALLY SIGNIFICANT PROGENY:

RADIOACTIVE HALF-LIFE (DAYS)				
NUCLIDE SM-147	3.9100E 13			
ORGAN ABSORBED	NUCLIDE SM-147	BLOOD TRANSFER FRACTION F2-PRIME 1.00	COMPARTMENT DEPOSITION FRACTION 2.500E-02 0.975	COMPARTMENT BIOLOGICAL HALF-TIME (DAYS) 0.500 5.000E 03
EXCRET.	SM-147	2.500E-02	1.00	0.500
BONE	SM-147	0.400	1.00	5.000E 03
LIVER	SM-147	0.500	1.00	5.000E 03
KIDNEYS	SM-147	2.500E-02	1.00	5.000E 03

S FACTORS (REM/MICROCURIE-DAY) FOR SM-147

TARGET ORGANS	SOURCE ORGANS										
	LUNGS	RES LYM	S CCNT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
LUNGS	0.121E 01	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.0
RES LYM	0.0	0.809E 02	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.230E-01	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.144E-01	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.261E-01	0.0	0.173E-01	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	0.426E-01	0.173E-01	0.0	0.0	0.0	0.0
T BODY	0.173E-01	0.173E-01	0.493E-04	0.131E-03	0.784E-04	0.973E-04	0.223E-01	0.867E-01	0.173E-01	0.173E-01	0.172E-01
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.178E-01
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.391E 01	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.674E 00	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
BONE	0.0	0.0	0.0	0.0	0.0	0.0	0.867E-01	0.121E 01	0.0	0.0	0.0
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.464E-02 *	0.0	0.0	0.0
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.145E 00 *	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	0.173E-01	0.0	0.0	0.0	0.355E-01

α decay (1.07E 11 Y 1)

Case 1 represents inhalation of oxides, hydroxides, carbides, and fluorides;
Case 2 represents carbonates, phosphates, and halides (except fluorides); and
Case 3 represents sulfides, sulfates, and nitrates.

* Alpha contribution to red marrow and endosteal cells based on absorbed fractions given by M. C. Thorne, "Aspects of the Dosimetry of Alpha-emitting Radionuclides in Bone with Particular Emphasis on ²²⁶Ra and ²³⁹Pu," *Phys. Med. Biol.* 22, 36 (1977). Further details will be given in Volume II of this tabulation.

SAMARIUM-147 CONTINUED

CASE 1.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SM-147	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
Y		0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM)

SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CCNT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	131.	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.0
RES LYM	0.0	9.379E 03	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	5.609E-04	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	1.405E-03	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	8.274E-03	0.0	1.560E-05	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	2.493E-02	1.560E-05	0.0	0.0	0.0	0.0
T BODY	1.87	2.01	1.202E-06	1.278E-05	2.485E-05	5.694E-05	2.011E-05	11.4	2.84	0.142	0.283
ADREN	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
BL WALL	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.292
KIDNEYS	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	32.1	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	111.	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
PANCREAS	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
BONE	0.0	0.0	0.0	0.0	0.0	0.0	7.818E-05	159.	0.0	0.0	0.0
R MAR	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.610	0.0	0.0	0.0
Y MAR	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
ENDOST	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	19.1	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
TESTES	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
THYMUS	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
THYROID	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583
UTERUS	0.0	0.0	0.0	0.0	0.0	0.0	1.560E-05	0.0	0.0	0.0	0.583

DOSE EQUIVALENT (REM)

SOURCE	TOTAL
TARGET	
LUNGS	131.
RES LYM	9.379E 03
S WALL	5.765E-04
SI WALL	1.420E-03
ULI WALL	8.289E-03
LLI WALL	2.495E-02
T BODY	18.5
ADREN	0.583
BL WALL	0.292
KIDNEYS	32.1
LIVER	111.
OVARIES	0.583
PANCREAS	0.583
BONE	159.
R MAR	0.610
Y MAR	0.583
ENDOST	19.1
SPLEEN	0.583
TESTES	0.583
THYMUS	0.583
THYROID	0.583
UTERUS	0.583

SAMARIUM-147 CONTINUED

CASE 2.. INHALATION

AMAD (MICRON).. 1.00

D3 =0.310

D4 =8.000E-02

D5 =0.249

SM-147	SOLUBILITY CLASS	G.I. UPTAKE FRACTIONS			
		STOMACH	S INT	U L INT	L L INT
	M	0.0	1.000E-04	0.0	0.0

DOSE EQUIVALENT (REM)

SOURCE	LUNGS	RES LYM	S CONT	SI CCNT	ULI CCNT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET	13.5	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	0.0
LUNGS	0.0	72.7	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	0.0
RES LYM	0.0	0.0	4.967E-04	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	0.0	1.244E-03	0.0	J.0	3.771E-05	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	0.0	7.327E-03	J.0	3.771E-05	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	0.0	2.238E-02	3.771E-05	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	3.043E-05	4.861E-05	27.8	6.94	0.347	0.690
T BODY	0.193	1.555E-02	1.065E-06	1.132E-05	2.201E-05	J.0	3.771E-05	0.0	0.0	0.0	0.0
ADREN	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
BL WALL	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	0.714
KIDNEYS	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	78.4	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	270.	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
PANCREAS	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
BONE	0.0	0.0	0.0	0.0	0.0	J.0	1.890E-04	388.	0.0	0.0	0.0
R MAR	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	1.49	0.0	0.0	0.0
Y MAR	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
ENDOST	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	46.5	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
TESTES	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
THYMUS	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
THYROID	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42
UTERUS	0.0	0.0	0.0	0.0	0.0	J.0	3.771E-05	0.0	0.0	0.0	1.42

DOSE EQUIVALENT (REM)

SOURCE	TOTAL
TARGET	13.5
LUNGS	72.7
RES LYM	5.344E-04
S WALL	1.282E-03
SI WALL	7.365E-03
ULI WALL	2.212E-02
LLI WALL	36.0
T BODY	1.42
ADREN	0.714
BL WALL	78.4
KIDNEYS	270.
LIVER	1.42
OVARIES	1.42
PANCREAS	1.42
BONE	388.
R MAR	1.49
Y MAR	1.42
ENDOST	46.5
SPLEEN	1.42
TESTES	1.42
THYMUS	1.42
THYROID	1.42
UTERUS	1.42

SAMARIUM-147 CONTINUED

CASE 3.. INHALATION

AMAD (MICRON).. 1.00 D3 =0.310 D4 =8.000E-02 D5 =0.249

SOLUBILITY CLASS		G.I. UPTAKE FRACTIONS									
		STOMACH	S INT	U L INT	L L INT						
SM-147	D	0.0	1.000E-04	0.0	0.0						
DOSE EQUIVALENT (REM)											
SOURCE	LUNGS	RES LYM	S CONT	SI CONT	ULI CNT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER
TARGET											
LUNGS	0.226	0.0	0.0	0.0	0.0	J.J	1.498E-04	0.0	0.0	0.0	0.0
RES LYM	0.0	2.91	0.0	0.0	0.0	J.J	1.498E-04	0.0	0.0	0.0	0.0
S WALL	0.0	0.0	1.524E-04	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	0.0
SI WALL	0.0	0.0	0.0	3.815E-04	0.0	J.U	1.498E-04	0.0	0.0	0.0	0.0
ULI WALL	0.0	0.0	0.0	0.0	2.247E-03	J.J	1.498E-04	0.0	0.0	0.0	0.0
LLI WALL	0.0	0.0	0.0	0.0	0.0	5.772E-03	1.498E-04	0.0	0.0	0.0	0.0
T BODY	3.226E-03	6.218E-04	3.266E-07	3.471E-06	6.751E-06	1.547E-05	1.931E-04	111.	27.6	1.38	2.74
ADREN	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
BL WALL	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	2.84
KIDNEYS	0.0	0.0	0.0	0.0	0.0	J.J	1.498E-04	0.0	0.0	312.	0.0
LIVER	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	1.074E 03	0.0	0.0
OVARIES	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
PANCREAS	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
BONE	0.0	0.0	0.0	0.0	0.0	J.U	7.507E-04	1.543E 03	0.0	0.0	0.0
R MAR	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	5.92	0.0	0.0	0.0
Y MAR	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
ENDOST	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	185.	0.0	0.0	0.0
SPLEEN	0.0	0.0	0.0	0.0	0.0	J.J	1.498E-04	0.0	0.0	0.0	5.66
TESTES	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
THYMUS	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
THYROID	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66
UTERUS	0.0	0.0	0.0	0.0	0.0	J.U	1.498E-04	0.0	0.0	0.0	5.66

DOSE EQUIVALENT (REM)

SOURCE	TOTAL
TARGET	
LUNGS	0.226
RES LYM	2.91
S WALL	2.022E-04
SI WALL	2.315E-04
ULI WALL	2.357E-03
LLI WALL	6.922E-03
T BODY	142.
ADREN	5.66
BL WALL	2.84
KIDNEYS	312.
LIVER	1.074E 03
OVARIES	5.66
PANCREAS	5.66
BONE	1.543E 03
R MAR	5.92
Y MAR	5.66
ENDOST	185.
SPLEEN	5.66
TESTES	5.66
THYMUS	5.66
THYROID	5.66
UTERUS	5.66

SAMARIUM-147 CONTINUED

CASE 4.. INGESTION

INGESTION TRANSFER FRACTIONS (G. I. TRACT TO BLOOD)

SM-147
 STOMACH 0.0
 S INT 1.000E-04
 U L INT 0.0
 L L INT 0.0

DOSE EQUIVALENT (REM)

SOURCE	S CONT	SI CONT	ULI CONT	LLI CONT	EXCRET.	BONE	LIVER	KIDNEYS	OTHER	TOTAL
TARGET										
LUNGS	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	0.0	3.120E-08
RES LYM	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	0.0	3.120E-08
S WALL	5.583E-04	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	0.0	9.584E-04
SI WALL	0.0	2.400E-03	0.0	0.0	3.120E-08	J.0	0.0	0.0	0.0	2.400E-03
ULI WALL	0.0	0.0	1.414E-02	0.0	3.120E-08	J.0	0.0	0.0	0.0	1.414E-02
LLI WALL	0.0	0.0	0.0	4.260E-02	3.120E-08	J.0	0.0	0.0	0.0	4.260E-02
T BODY	2.054E-06	2.183E-05	4.246E-05	9.729E-05	4.022E-08	2.302E-02	5.743E-03	2.871E-04	5.710E-04	2.979E-02
ADREN	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
BL WALL	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	5.909E-04	5.909E-04
KIDNEYS	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	6.489E-02	0.0	6.489E-02
LIVER	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.224	0.0	0.0	0.224
OVARIES	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
PANCREAS	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
BONE	0.0	0.0	0.0	0.0	1.564E-07	J.321	0.0	0.0	0.0	0.321
R MAR	0.0	0.0	0.0	0.0	3.120E-08	1.232E-03	0.0	0.0	0.0	1.232E-03
Y MAR	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
ENDOST	0.0	0.0	0.0	0.0	3.120E-08	J.851E-02	0.0	0.0	0.0	3.851E-02
SPLEEN	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
TESTES	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
THYMUS	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
THYROID	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03
UTERUS	0.0	0.0	0.0	0.0	3.120E-08	J.0	0.0	0.0	1.178E-03	1.178E-03

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	ANAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
H-3	*	0.95	***	1.25E-04	2.48E-04	1.25E-04	1.30E-04	1.37E-04	1.33E-04	1.25E-04	1.34E-04	1.23E-04	1.29E-04	1.24E-04
C-14	*	0.95	***	6.18E-06	1.32E-05	7.35E-06	7.06E-07	6.90E-06	7.22E-06	1.41E-05	1.76E-05	6.75E-06	7.92E-06	8.88E-06
NA-22	D	0.95	0.3	1.15E-02	5.21E-02	5.84E-03	6.20E-03	6.41E-03	6.85E-03	8.78E-03	1.04E-02	7.75E-03	9.44E-03	9.08E-03
P-32	D	0.80	0.3	1.29E-02	0.15	1.72E-04	1.01E-04	4.36E-04	1.20E-03	3.49E-03	2.89E-03	1.46E-03	2.88E-03	2.89E-03
	W	0.80	0.3	0.16	0.34	9.44E-04	4.79E-04	2.68E-03	7.68E-03	4.17E-03	1.58E-03	8.00E-04	1.58E-03	1.58E-03
MN-54	D	1.00E-01	0.3	4.97E-03	5.89E-03	3.46E-03	3.72E-03	4.28E-03	3.50E-03	4.57E-03	7.53E-03	2.70E-03	5.97E-03	1.91E-02
	W	1.00E-01	0.3	4.14E-02	5.80E-02	6.15E-03	3.12E-03	4.06E-03	4.43E-03	5.17E-03	8.27E-03	1.38E-03	4.45E-03	1.17E-02
FE-55	W	1.00E-01	0.3	5.47E-03	2.71E-02	9.68E-06	2.44E-05	1.34E-04	3.24E-04	6.81E-04	1.09E-03	4.30E-04	1.13E-03	2.15E-03
	Y	1.00E-01	0.3	4.34E-02	0.59	1.29E-05	2.20E-05	1.20E-04	3.21E-04	8.62E-04	5.10E-04	1.97E-04	5.19E-04	9.85E-04
FE-59	W	1.00E-01	0.3	8.53E-02	0.22	6.34E-03	4.54E-03	7.42E-03	1.28E-02	6.49E-03	8.35E-03	3.59E-03	6.39E-03	1.09E-02
	Y	1.00E-01	0.3	0.14	0.27	7.33E-03	3.41E-03	6.20E-03	1.08E-02	6.92E-03	8.29E-03	1.67E-03	4.82E-03	9.50E-03
CO-57	W	5.00E-02	0.3	2.54E-02	9.73E-02	1.01E-03	5.80E-04	1.08E-03	2.18E-03	1.17E-03	1.50E-03	3.77E-04	7.77E-04	1.60E-03
	Y	5.00E-02	0.3	0.11	0.58	3.32E-03	6.58E-04	1.15E-03	1.94E-03	3.78E-03	4.81E-03	2.00E-04	1.58E-03	4.38E-03
CO-58	W	5.00E-02	0.3	4.99E-02	0.11	4.64E-03	2.59E-03	3.98E-03	6.22E-03	3.87E-03	5.50E-03	1.15E-03	2.86E-03	5.83E-03
	Y	5.00E-02	0.3	0.10	0.19	8.17E-03	2.72E-03	4.19E-03	5.55E-03	6.75E-03	9.93E-03	8.38E-04	4.42E-03	9.94E-03
CO-60	W	5.00E-02	0.3	0.22	0.70	2.53E-02	1.55E-02	2.05E-02	2.66E-02	2.31E-02	3.14E-02	1.28E-02	2.32E-02	3.82E-02
	Y	5.00E-02	0.3	2.2	21.	0.17	3.67E-02	5.00E-02	2.89E-02	0.14	0.19	1.49E-02	9.81E-02	0.21
ZN-65	D	0.50	0.3	1.24E-02	1.39E-02	1.17E-02	1.28E-02	1.33E-02	1.39E-02	1.44E-02	1.96E-02	1.50E-02	1.93E-02	1.91E-02
	W	0.50	0.3	3.76E-02	6.30E-02	1.01E-02	8.44E-03	9.10E-03	9.53E-03	1.08E-02	1.51E-02	9.00E-03	1.29E-02	1.50E-02
	Y	0.50	0.3	0.13	0.27	1.71E-02	7.25E-03	8.28E-03	6.86E-03	1.50E-02	2.20E-02	6.21E-03	1.38E-02	2.23E-02
RB-86	D	0.95	0.3	1.29E-02	0.15	4.01E-04	2.90E-04	3.85E-04	5.73E-04	6.35E-03	1.04E-02	5.34E-03	1.04E-02	1.04E-02
SR-89	D	0.20	0.3	1.11E-02	0.13	1.19E-04	2.38E-04	1.39E-03	4.15E-03	4.27E-03	2.39E-03	1.19E-03	2.39E-03	2.39E-03
	Y	1.00E-02	0.3	0.54	1.3	8.71E-04	2.15E-03	1.26E-02	3.75E-02	7.86E-03	3.28E-05	1.60E-05	3.22E-05	3.28E-05
SR-90	D	0.20	0.3	1.70E-02	0.25	1.36E-04	3.26E-04	2.02E-03	6.51E-03	0.26	1.68E-02	8.43E-03	1.68E-02	1.61E-02
	Y	1.00E-02	0.3	15.	4.75E 02	4.90E-02	0.12	0.61	1.5	0.26	6.02E-03	3.01E-03	6.02E-03	3.25E-02
SR-91	D	0.20	0.3	7.08E-03	4.92E-02	2.33E-04	3.05E-04	7.72E-04	8.93E-04	3.47E-04	3.96E-04	2.01E-04	3.70E-04	3.95E-04
	Y	1.00E-02	0.3	1.18E-02	1.74E-02	5.06E-04	8.66E-04	2.38E-03	2.69E-03	2.82E-04	1.34E-04	4.41E-05	8.68E-05	2.16E-04
Y-90	W	1.00E-04	0.3	5.82E-02	7.07E-02	9.13E-04	2.18E-03	1.12E-02	2.68E-02	1.06E-03	6.48E-05	3.51E-05	6.48E-05	1.89E-04
Y-91M	W	1.00E-04	0.3	2.70E-04	8.04E-04	7.79E-06	3.77E-05	1.05E-05	2.48E-05	9.84E-06	8.34E-06	1.31E-06	4.79E-06	2.09E-05
Y-91	W	1.00E-04	0.3	0.34	1.3	1.00E-03	2.45E-03	1.43E-02	4.25E-02	7.48E-03	7.04E-04	3.49E-04	6.95E-04	1.94E-02
ZR-95	W	2.00E-03	0.3	0.12	0.39	5.70E-03	3.51E-03	6.74E-03	1.36E-02	6.51E-03	7.52E-03	1.55E-03	3.85E-03	6.90E-03
	Y	2.00E-03	0.3	0.22	0.59	9.25E-03	3.49E-03	7.03E-03	1.32E-02	9.20E-03	1.11E-02	9.13E-04	4.93E-03	1.10E-02
ZR-97	W	2.00E-03	0.3	2.65E-02	2.77E-02	1.04E-03	1.94E-03	6.38E-03	9.26E-03	6.75E-04	3.62E-04	1.49E-04	2.15E-04	3.79E-04
	Y	2.00E-03	0.3	2.74E-02	2.77E-02	1.22E-03	2.37E-03	7.90E-03	1.15E-02	6.60E-04	3.03E-04	1.26E-04	1.91E-04	3.21E-04

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
T-3	*	0.95	***	1.24E-04	1.21E-04	5.57E-05	1.24E-04	1.41E-04	9.85E-05	1.24E-04	1.25E-04	1.12E-04	1.24E-04	1.25E-04
C-14	*	0.95	***	5.29E-06	7.84E-06	8.46E-07	2.42E-05	3.78E-05	5.08E-05	6.77E-06	5.42E-06	7.11E-06	6.48E-06	6.97E-06
NA-22	D	0.95	0.3	9.62E-03	1.06E-02	1.59E-02	1.24E-02	9.74E-03	1.52E-02	9.09E-03	7.07E-03	1.40E-02	7.78E-03	1.55E-02
P-32	D	0.80	0.3	2.89E-03	2.89E-03	2.33E-02	1.06E-02	2.89E-03	1.94E-02	2.89E-03	2.88E-03	2.89E-03	2.89E-03	2.89E-03
	W	0.80	0.3	1.58E-03	1.58E-03	1.28E-02	5.83E-03	1.58E-03	1.07E-02	1.58E-03	1.58E-03	1.58E-03	1.58E-03	1.58E-03
MN-54	D	1.00E-01	0.3	3.87E-03	6.52E-03	6.86E-03	6.64E-03	6.18E-03	6.57E-03	4.08E-03	2.49E-03	4.52E-03	2.60E-03	5.58E-03
	W	1.00E-01	0.3	2.82E-03	8.05E-03	4.56E-03	5.31E-03	4.52E-03	4.47E-03	6.75E-03	9.33E-04	1.14E-02	4.15E-03	2.45E-03
FE-55	W	1.00E-01	0.3	1.16E-03	1.23E-03	9.26E-04	1.13E-03	1.10E-03	7.68E-04	3.49E-03	1.09E-03	9.81E-04	1.11E-03	1.01E-03
	Y	1.00E-01	0.3	5.30E-04	5.62E-04	4.25E-04	5.17E-04	5.04E-04	3.52E-04	1.61E-03	5.00E-04	4.51E-04	5.09E-04	4.62E-04
FE-59	W	1.00E-01	0.3	5.51E-03	9.08E-03	5.03E-03	6.10E-03	5.14E-03	5.31E-03	1.16E-02	3.21E-03	1.27E-02	5.27E-03	7.22E-03
	Y	1.00E-01	0.3	3.07E-03	8.75E-03	4.09E-03	5.19E-03	4.23E-03	4.17E-03	8.91E-03	1.20E-03	1.48E-02	4.78E-03	3.14E-03
CO-57	W	5.00E-02	0.3	6.73E-04	1.55E-03	9.98E-04	1.37E-03	1.10E-03	9.94E-04	1.35E-03	3.23E-04	2.29E-03	6.97E-04	7.33E-04
	Y	5.00E-02	0.3	4.71E-04	4.67E-03	2.79E-03	3.61E-03	2.90E-03	2.79E-03	4.10E-03	1.01E-04	7.75E-03	1.72E-03	3.79E-04
CO-58	W	5.00E-02	0.3	2.39E-03	5.83E-03	2.52E-03	3.31E-03	2.66E-03	2.54E-03	5.04E-03	6.57E-04	8.62E-03	3.08E-03	1.98E-03
	Y	5.00E-02	0.3	2.10E-03	1.03E-02	4.18E-03	5.41E-03	4.42E-03	4.18E-03	9.03E-03	3.39E-04	1.61E-02	5.43E-03	1.22E-03
CO-60	W	5.00E-02	0.3	1.81E-02	3.45E-02	1.81E-02	2.23E-02	1.84E-02	1.87E-02	2.92E-02	1.03E-02	5.27E-02	1.90E-02	2.50E-02
	Y	5.00E-02	0.3	2.54E-02	0.20	8.54E-02	0.11	8.82E-02	8.56E-02	0.17	8.37E-03	0.37	0.10	2.98E-02
ZN-65	D	0.50	0.3	1.78E-02	2.08E-02	1.87E-02	1.97E-02	1.72E-02	1.82E-02	1.79E-02	1.31E-02	2.24E-02	1.29E-02	3.41E-02
	W	0.50	0.3	1.11E-02	1.58E-02	1.24E-02	1.35E-02	1.17E-02	1.22E-02	1.39E-02	7.72E-03	1.98E-02	9.62E-03	2.03E-02
	Y	0.50	0.3	8.04E-03	2.23E-02	1.31E-02	1.52E-02	1.29E-02	1.29E-02	2.02E-02	5.07E-03	3.56E-02	1.32E-02	1.37E-02
RB-86	D	0.95	0.3	1.04E-02	1.05E-02	1.03E-02	1.04E-02	1.03E-02	1.30E-02	1.04E-02	1.03E-02	1.05E-02	1.03E-02	1.08E-02
SR-89	D	0.20	0.3	2.39E-03	2.39E-03	3.70E-02	1.46E-02	2.39E-03	3.00E-02	2.39E-03	2.39E-03	2.39E-03	2.39E-03	2.39E-03
	Y	1.00E-02	0.3	3.20E-05	3.27E-05	4.93E-04	1.95E-04	3.22E-05	4.00E-04	3.27E-05	3.18E-05	3.35E-05	3.23E-05	3.19E-05
SR-90	D	0.20	0.3	1.68E-02	1.68E-02	3.3	1.2	1.68E-02	2.4	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02
	Y	1.00E-02	0.3	6.02E-03	6.02E-03	0.49	0.18	6.02E-03	0.36	6.02E-03	6.02E-03	6.02E-03	6.02E-03	6.02E-03
SR-91	D	0.20	0.3	3.72E-04	4.16E-04	3.29E-04	3.60E-04	3.48E-04	4.05E-04	3.95E-04	3.20E-04	4.45E-04	3.51E-04	3.95E-04
	Y	1.00E-02	0.3	1.40E-04	1.56E-04	1.51E-04	1.26E-04	7.29E-05	1.36E-04	1.32E-04	2.41E-05	1.96E-04	7.33E-05	8.04E-05
Y-90	W	1.00E-04	0.3	6.48E-05	6.48E-05	8.82E-04	3.80E-04	6.48E-05	6.66E-04	6.48E-05	6.48E-05	6.48E-05	6.48E-05	6.48E-05
Y-91M	W	1.00E-04	0.3	2.59E-06	9.44E-06	1.84E-05	1.03E-05	4.76E-06	1.58E-05	7.60E-06	1.89E-06	1.13E-05	4.96E-06	2.39E-06
Y-91	W	1.00E-04	0.3	6.91E-04	7.03E-04	2.14E-02	8.09E-03	6.96E-04	1.70E-02	6.99E-04	6.85E-04	7.13E-04	6.92E-04	6.89E-04
ZR-95	W	2.00E-03	0.3	3.19E-03	7.41E-03	9.78E-03	6.49E-03	4.99E-03	8.46E-03	6.32E-03	1.08E-03	1.03E-02	4.16E-03	2.27E-03
	Y	2.00E-03	0.3	2.42E-03	1.16E-02	5.05E-03	6.18E-03	5.03E-03	4.96E-03	1.01E-02	3.67E-04	1.79E-02	6.04E-03	1.23E-03
ZR-97	W	2.00E-03	0.3	4.22E-04	4.20E-04	3.23E-04	3.26E-04	2.18E-04	3.09E-04	3.20E-04	6.88E-05	4.79E-04	2.11E-04	2.25E-04
	Y	2.00E-03	0.3	4.28E-04	3.66E-04	1.48E-04	2.29E-04	1.58E-04	1.48E-04	2.99E-04	3.90E-05	4.41E-04	1.47E-04	2.03E-04

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
NB-95	Y	1.00E-02	0.3	5.26E-02	8.33E-02	3.56E-03	1.68E-03	2.97E-03	5.16E-03	3.03E-03	4.17E-03	4.64E-04	1.92E-03	4.13E-03
NB-97M	Y	1.00E-02	0.3	1.60E-05	1.61E-05	8.11E-07	4.58E-07	3.66E-07	7.92E-08	4.14E-07	3.43E-07	1.82E-08	1.54E-07	3.39E-07
NB-97	Y	1.00E-02	0.3	1.05E-03	1.05E-03	4.76E-05	3.10E-05	2.39E-05	5.17E-06	2.16E-05	1.17E-05	8.46E-07	5.65E-06	1.16E-05
MO-99	D	0.95	0.3	6.71E-03	6.71E-02	2.69E-04	1.42E-04	2.27E-04	1.91E-04	7.53E-04	5.85E-04	1.73E-04	7.48E-03	1.26E-02
	Y	5.00E-02	0.3	2.78E-02	2.97E-02	6.50E-04	1.24E-03	5.68E-03	1.35E-02	5.81E-04	1.88E-04	7.77E-05	3.02E-04	5.30E-04
TC-99M	D	0.80	0.3	1.35E-04	4.99E-04	1.75E-05	6.47E-06	9.08E-06	6.74E-06	9.48E-06	1.25E-05	4.47E-06	9.43E-06	1.62E-05
	W	0.80	0.3	2.03E-04	2.03E-04	1.85E-05	6.78E-06	1.08E-05	7.23E-06	1.00E-05	1.34E-05	2.08E-06	6.52E-06	1.40E-05
TC-99	D	0.80	0.3	1.64E-03	1.93E-02	4.36E-04	8.63E-06	5.10E-05	1.53E-04	1.73E-04	2.34E-04	1.17E-04	3.38E-04	4.64E-04
	W	0.80	0.3	8.96E-02	0.53	5.27E-04	8.38E-05	4.96E-04	1.49E-03	1.41E-03	2.01E-04	1.00E-04	2.91E-04	3.98E-04
PU-103	Y	4.00E-02	0.3	9.95E-02	0.20	2.62E-03	1.43E-03	3.68E-03	8.43E-03	3.09E-03	3.04E-03	3.69E-04	1.44E-03	3.00E-03
RU-105	Y	4.00E-02	0.3	4.04E-03	4.07E-03	2.07E-04	2.86E-04	6.56E-04	7.28E-04	9.53E-05	5.42E-05	1.12E-05	3.00E-05	5.56E-05
RU-106	Y	4.00E-02	0.3	6.7	60.	8.77E-03	7.44E-03	3.73E-02	0.11	0.10	1.47E-02	3.92E-03	1.03E-02	1.46E-02
RH-103M	Y	4.00E-02	0.3	6.30E-05	6.30E-05	2.02E-06	1.26E-06	7.12E-07	1.14E-07	9.40E-07	1.17E-08	2.00E-09	4.47E-09	2.48E-08
RH-105M	Y	4.00E-02	0.3	4.51E-06	4.59E-06	7.23E-08	1.34E-07	5.72E-07	1.15E-06	8.21E-08	1.87E-08	5.73E-09	9.31E-09	1.96E-08
RH-105	Y	4.00E-02	0.3	6.30E-03	6.51E-03	1.83E-04	3.78E-04	1.61E-03	3.23E-03	1.27E-04	3.33E-05	1.59E-05	2.06E-05	3.49E-05
RH-106	Y	4.00E-02	0.3	2.18E-05	2.18E-05	3.51E-08	3.21E-09	4.21E-09	8.78E-10	3.23E-07	2.56E-08	8.73E-10	1.11E-08	2.53E-08
SB-127	W	5.00E-02	0.3	4.40E-02	6.05E-02	1.13E-03	1.87E-03	7.69E-03	1.88E-02	1.10E-03	6.83E-04	2.73E-04	4.55E-04	6.43E-04
TE-127M	W	0.25	0.3	0.20	0.93	1.93E-03	3.04E-03	1.19E-02	2.38E-02	3.64E-03	2.48E-03	1.22E-03	9.75E-03	1.50E-03
TE-127	W	0.25	0.3	2.91E-03	2.98E-03	8.96E-05	1.36E-04	4.05E-04	4.38E-04	5.12E-05	3.40E-05	1.77E-05	4.82E-05	1.49E-05
TE-129M	W	0.25	0.3	0.26	0.78	1.52E-03	2.12E-03	1.06E-02	3.04E-02	4.61E-03	3.60E-03	1.73E-03	1.17E-02	2.19E-03
TE-129	W	0.25	0.3	1.06E-03	1.06E-03	2.76E-05	1.83E-05	1.27E-05	2.95E-06	1.71E-05	6.12E-06	2.91E-06	9.88E-06	4.04E-06
TE-131M	W	0.25	0.3	1.50E-02	2.03E-02	8.55E-04	1.11E-03	3.04E-03	5.11E-03	6.71E-04	8.54E-04	3.91E-04	7.55E-04	6.73E-04
TE-131	W	0.25	0.3	5.42E-04	6.19E-04	1.06E-05	3.24E-06	1.52E-06	5.46E-07	1.08E-05	5.04E-06	1.43E-06	5.00E-06	4.20E-06
TE-132	W	0.25	0.3	4.60E-02	0.12	1.53E-03	1.09E-03	2.88E-03	7.28E-03	1.99E-03	2.47E-03	5.23E-04	2.69E-03	2.30E-03
I-129	D	0.95	0.3	1.25E-03	1.25E-02	4.36E-05	3.55E-05	4.04E-05	4.02E-05	1.93E-03	3.61E-04	2.07E-04	4.22E-04	4.41E-04
I-131	D	0.95	0.3	3.93E-03	3.93E-02	8.42E-05	3.50E-05	3.85E-05	3.22E-05	6.01E-04	1.16E-04	3.10E-05	1.45E-04	1.97E-04
I-132	D	0.95	0.3	1.70E-03	4.41E-03	5.55E-05	1.72E-05	1.96E-05	1.22E-05	7.46E-05	6.25E-05	1.21E-05	4.90E-05	7.90E-05
I-133	D	0.95	0.3	5.29E-03	4.24E-02	6.33E-05	2.01E-05	2.36E-05	1.76E-05	2.16E-04	1.15E-04	3.71E-05	8.44E-05	1.19E-04
I-134	D	0.95	0.3	8.85E-04	1.48E-03	2.89E-05	6.99E-06	7.74E-06	4.14E-06	3.32E-05	3.16E-05	6.25E-06	1.84E-05	3.26E-05
I-135	D	0.95	0.3	4.08E-03	2.48E-02	8.70E-05	3.02E-05	3.56E-05	2.83E-05	1.54E-04	1.16E-04	3.12E-05	7.87E-05	1.27E-04
CS-134	D	0.95	0.3	3.40E-02	6.79E-02	3.08E-02	3.30E-02	3.44E-02	3.49E-02	4.32E-02	6.17E-02	4.83E-02	6.42E-02	6.63E-02
CS-135	D	0.95	0.3	1.09E-03	1.29E-02	1.15E-05	1.44E-06	8.49E-06	2.56E-05	4.17E-03	7.08E-03	3.54E-03	7.08E-03	7.08E-03
CS-136	D	0.95	0.3	8.47E-03	3.43E-02	4.61E-03	4.68E-03	4.91E-03	4.98E-03	5.70E-03	8.01E-03	6.27E-03	8.15E-03	8.57E-03
CS-137	D	0.95	0.3	1.75E-02	6.59E-02	1.31E-02	1.40E-02	1.47E-02	1.49E-02	3.10E-02	4.75E-02	3.12E-02	4.86E-02	4.96E-02

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
NB-95	Y	1.00E-02	0.3	1.32E-03	4.35E-03	1.83E-03	2.36E-03	1.91E-03	1.81E-03	3.83E-03	2.04E-04	6.68E-03	2.26E-03	6.27E-04
NB-97M	Y	1.00E-02	0.3	4.42E-08	3.82E-07	1.44E-07	1.82E-07	1.50E-07	1.44E-07	3.17E-07	6.84E-09	5.43E-07	1.82E-07	3.14E-08
NB-97	Y	1.00E-02	0.3	2.27E-06	1.40E-05	5.05E-06	6.40E-06	5.20E-06	5.03E-06	1.12E-05	3.20E-07	1.80E-05	6.02E-06	1.65E-06
MO-99	D	0.95	0.3	3.14E-04	5.56E-04	1.14E-03	5.47E-04	3.89E-04	1.03E-03	3.97E-04	2.74E-04	3.99E-04	3.67E-04	3.48E-04
	Y	5.00E-02	0.3	2.33E-04	2.07E-04	1.29E-04	1.72E-04	1.17E-04	1.26E-04	1.75E-04	3.04E-05	2.72E-04	1.69E-04	1.14E-04
TC-99M	D	0.80	0.3	6.61E-05	1.44E-05	9.29E-05	1.24E-05	1.01E-05	9.56E-06	1.21E-05	4.07E-06	1.99E-05	9.24E-05	9.47E-06
	W	0.80	0.3	4.06E-06	1.46E-05	8.24E-06	1.10E-05	8.74E-06	8.33E-06	1.24E-05	1.53E-06	2.11E-05	3.55E-05	4.43E-06
TC-99	D	0.90	0.3	2.34E-04	2.34E-04	2.66E-04	2.37E-04	2.34E-04	3.03E-04	2.34E-04	2.34E-04	2.34E-04	1.04E-02	2.34E-04
	W	0.80	0.3	2.01E-04	2.01E-04	2.29E-04	2.04E-04	2.01E-04	2.60E-04	2.01E-04	2.01E-04	2.01E-04	8.96E-03	2.01E-04
RU-103	Y	4.00E-02	0.3	9.55E-04	3.51E-03	1.34E-03	1.74E-03	1.42E-03	1.35E-03	2.71E-03	1.97E-04	4.48E-03	1.53E-03	5.27E-04
RU-105	Y	4.00E-02	0.3	3.74E-05	6.52E-05	2.45E-05	3.50E-05	2.65E-05	2.47E-05	5.28E-05	3.87E-06	8.01E-05	2.62E-05	2.09E-05
RU-106	Y	4.00E-02	0.3	7.77E-03	1.56E-02	1.01E-02	1.10E-02	1.03E-02	1.13E-02	1.38E-02	6.97E-03	1.66E-02	1.08E-02	4.91E-03
RH-103M	Y	4.00E-02	0.3	6.79E-09	1.37E-08	1.50E-08	1.69E-08	1.78E-08	1.51E-08	1.88E-08	3.86E-09	1.61E-08	4.15E-09	4.94E-09
RH-105M	Y	4.00E-02	0.3	1.87E-08	2.03E-08	1.10E-08	1.57E-08	1.18E-08	1.13E-08	1.81E-08	2.66E-09	2.71E-08	7.27E-09	8.44E-09
RH-105	Y	4.00E-02	0.3	5.20E-05	3.33E-05	1.87E-05	2.88E-05	2.03E-05	1.95E-05	3.29E-05	7.40E-06	4.51E-05	1.42E-05	2.33E-05
RH-106	Y	4.00E-02	0.3	1.75E-09	2.84E-08	1.06E-08	1.34E-08	1.12E-08	1.06E-08	2.27E-08	3.47E-10	4.05E-08	1.32E-08	1.20E-09
SB-127	W	5.00E-02	0.3	7.51E-04	7.55E-04	3.46E-04	5.18E-04	4.25E-04	3.97E-04	6.57E-04	2.21E-04	9.61E-04	4.11E-04	4.61E-04
TE-127M	W	0.25	0.3	2.44E-03	2.51E-03	2.11E-03	2.44E-03	2.52E-03	2.77E-03	2.53E-03	2.40E-03	2.61E-03	2.41E-03	2.48E-03
TE-127	W	0.25	0.3	3.38E-05	3.43E-05	5.77E-06	2.63E-05	3.37E-05	1.97E-05	3.41E-05	3.34E-05	3.46E-05	3.36E-05	3.39E-05
TE-129M	W	0.25	0.3	3.44E-03	3.64E-03	1.39E-03	2.87E-03	3.48E-03	2.70E-03	3.61E-03	3.33E-03	3.88E-03	3.69E-03	3.54E-03
TE-129	W	0.25	0.3	5.28E-06	6.32E-06	1.67E-06	4.46E-06	5.63E-06	3.75E-06	6.12E-06	5.16E-06	6.84E-06	1.12E-05	5.46E-06
TE-131M	W	0.25	0.3	8.67E-04	9.50E-04	3.30E-04	6.59E-04	6.14E-04	4.71E-04	8.88E-04	4.32E-04	1.51E-03	0.12	1.10E-03
TE-131	W	0.25	0.3	2.48E-06	5.29E-06	2.22E-06	3.59E-06	3.65E-06	3.05E-06	4.85E-06	2.26E-06	8.45E-06	2.12E-03	3.10E-06
TE-132	W	0.25	0.3	1.69E-03	2.69E-03	1.18E-03	1.84E-03	1.70E-03	1.50E-03	2.45E-03	1.11E-03	4.34E-03	0.21	2.66E-03
I-129	D	0.95	0.3	3.55E-04	3.89E-04	5.46E-04	5.71E-04	4.90E-04	5.32E-04	3.79E-04	3.35E-04	9.24E-04	4.7	4.52E-04
I-131	D	0.95	0.3	3.80E-05	1.10E-04	2.30E-04	2.00E-04	1.10E-04	2.15E-04	9.66E-05	2.06E-05	7.12E-04	1.0	3.78E-05
I-132	D	0.95	0.3	1.56E-05	6.57E-05	4.48E-05	4.39E-05	3.25E-05	4.22E-05	5.53E-05	8.19E-06	1.08E-04	1.38E-02	1.58E-05
I-133	D	0.95	0.3	5.11E-05	1.27E-04	9.11E-05	1.02E-04	8.63E-05	1.02E-04	1.11E-04	5.29E-05	2.31E-04	0.19	7.02E-05
I-134	D	0.95	0.3	9.31E-06	3.33E-05	1.76E-05	2.10E-05	1.78E-05	1.86E-05	3.01E-05	6.76E-06	5.52E-05	4.64E-03	1.25E-05
I-135	D	0.35	0.3	4.64E-05	1.23E-04	7.75E-05	9.06E-05	7.54E-05	8.31E-05	1.14E-04	3.58E-05	2.40E-04	4.76E-02	6.19E-05
CS-134	D	0.95	0.3	6.11E-02	7.04E-02	5.08E-02	5.93E-02	5.17E-02	5.58E-02	6.21E-02	4.86E-02	7.33E-02	4.92E-02	9.55E-02
CS-135	D	0.95	0.3	7.08E-03	7.09E-03	7.08E-03	7.08E-03	7.08E-03	8.16E-03	7.08E-03	7.08E-03	7.08E-03	7.09E-03	7.08E-03
CS-136	D	0.95	0.3	7.61E-03	9.08E-03	6.31E-03	7.45E-03	6.47E-03	6.73E-03	7.99E-03	5.87E-03	6.38E-03	6.00E-03	8.46E-03
CS-137	D	0.95	0.3	4.73E-02	5.14E-02	4.30E-02	4.65E-02	4.35E-02	5.03E-02	4.78E-02	4.20E-02	5.36E-02	4.23E-02	6.20E-02

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
BA-137M	D	1.00E-01	0.3	7.00E-06	7.16E-06	4.82E-07	6.35E-08	7.57E-08	2.36E-08	3.02E-07	3.84E-07	2.50E-08	1.77E-07	3.80E-07
BA-140	D	1.00E-01	0.3	1.63E-02	0.18	1.14E-03	1.44E-03	3.22E-03	7.60E-03	2.35E-03	2.68E-03	1.69E-03	1.63E-03	1.65E-03
LA-140	M	1.00E-04	0.3	2.81E-02	3.12E-02	1.49E-03	2.38E-03	7.10E-03	1.33E-02	1.10E-03	8.41E-04	3.96E-04	1.30E-03	2.07E-03
CE-141	Y	1.00E-04	0.3	0.11	0.21	6.13E-04	7.77E-04	3.80E-03	1.09E-02	1.84E-03	4.73E-04	4.93E-05	2.70E-04	8.39E-04
	M	1.00E-04	0.3	7.15E-02	0.21	5.79E-04	8.53E-04	3.99E-03	1.13E-02	1.76E-03	5.25E-04	8.99E-05	2.88E-03	9.79E-03
	D	1.00E-04	0.3	3.98E-03	3.85E-02	5.29E-04	5.65E-04	1.15E-03	1.75E-03	3.73E-03	1.51E-03	3.08E-04	1.94E-02	6.65E-02
CE-143	Y	1.00E-04	0.3	2.35E-02	2.71E-02	5.55E-04	1.19E-03	5.03E-03	1.05E-02	4.62E-04	1.02E-04	4.89E-05	7.12E-05	1.58E-04
	M	1.00E-04	0.3	2.18E-02	3.01E-02	4.86E-04	1.02E-03	4.30E-03	9.03E-03	4.90E-04	1.22E-04	4.69E-05	4.22E-04	1.37E-03
	D	1.00E-04	0.3	6.29E-03	5.75E-02	1.80E-04	2.94E-04	1.06E-03	2.04E-03	6.94E-04	2.44E-04	5.98E-05	3.09E-03	1.06E-02
CE-144	Y	1.00E-04	0.3	5.0	39.	5.25E-03	6.25E-03	3.31E-02	9.85E-02	7.86E-02	2.17E-03	3.67E-04	3.04E-02	0.10
	M	1.00E-04	0.3	1.2	5.1	3.65E-03	6.79E-03	3.65E-02	0.11	6.08E-02	6.29E-03	2.49E-03	0.25	0.86
	D	1.00E-04	0.3	2.80E-02	0.30	2.81E-03	3.05E-03	7.11E-03	1.30E-02	0.20	2.75E-02	1.13E-02	1.2	4.0
PR-143	Y	1.00E-04	0.3	8.50E-02	0.12	4.36E-04	1.08E-03	6.22E-03	1.78E-02	1.31E-03	1.07E-06	5.41E-07	5.84E-05	2.02E-04
	M	1.00E-04	0.3	7.11E-02	0.15	4.17E-04	1.03E-03	5.94E-03	1.70E-02	1.36E-03	2.96E-05	1.49E-05	1.62E-03	5.57E-03
	D	1.00E-04	0.3	5.84E-03	6.70E-02	6.61E-05	1.60E-04	9.14E-04	2.61E-03	2.44E-03	2.48E-04	1.25E-04	1.36E-02	4.68E-02
PR-144M	Y	1.00E-04	0.3	2.73E-04	2.73E-04	6.22E-06	1.66E-06	3.31E-07	1.99E-08	3.98E-06	6.10E-08	3.46E-09	7.94E-08	2.67E-07
	M	1.00E-04	0.3	2.58E-04	2.58E-04	3.86E-06	1.03E-06	2.15E-07	1.66E-08	4.00E-06	9.84E-08	2.24E-08	1.45E-06	4.98E-06
	D	1.00E-04	0.3	2.21E-04	3.03E-04	1.86E-05	5.37E-06	1.09E-06	7.14E-08	3.91E-06	1.53E-07	5.28E-08	3.56E-06	1.22E-05
PR-144	Y	1.00E-04	0.3	6.34E-04	6.34E-04	1.09E-05	2.56E-06	4.91E-07	3.01E-08	9.18E-06	9.28E-08	7.13E-09	1.30E-07	3.92E-07
	M	1.00E-04	0.3	6.09E-04	6.09E-04	7.21E-06	1.70E-06	3.43E-07	3.24E-08	9.20E-06	1.47E-07	3.76E-08	2.37E-06	8.05E-06
	D	1.00E-04	0.3	5.38E-04	6.77E-04	3.67E-05	8.65E-06	1.64E-06	1.22E-07	9.03E-06	2.46E-07	9.54E-08	6.45E-06	2.20E-05
ND-147	Y	1.00E-04	0.3	6.66E-02	0.14	6.41E-04	1.14E-03	5.52E-03	1.52E-02	1.22E-03	2.99E-04	6.68E-05	2.49E-04	7.31E-04
	M	1.00E-04	0.3	5.43E-02	0.10	6.17E-04	1.10E-03	5.23E-03	1.43E-02	1.29E-03	3.67E-04	8.62E-05	1.68E-03	5.66E-03
	D	1.00E-04	0.3	5.50E-03	5.70E-02	3.65E-04	4.35E-04	1.19E-03	2.39E-03	2.42E-03	9.91E-04	2.14E-04	1.23E-02	4.22E-02
PM-147	Y	1.00E-04	0.3	0.50	7.5	1.20E-04	2.99E-04	1.77E-03	5.28E-03	8.91E-03	1.87E-04	9.33E-05	1.03E-02	3.54E-02
	M	1.00E-04	0.3	6.21E-02	0.35	1.21E-04	3.01E-04	1.78E-03	5.33E-03	7.57E-03	7.00E-04	3.50E-04	3.84E-02	0.13
	D	1.00E-04	0.3	1.20E-03	1.42E-02	1.37E-05	3.26E-05	1.88E-04	5.60E-04	2.83E-02	2.97E-03	1.49E-03	0.16	0.56
SM-147	Y	1.00E-04	0.3	2.27E 02	1.63E 04	5.16E-04	1.25E-03	7.26E-03	2.18E-02	31.	0.95	0.48	52.	1.81E 02
	M	1.00E-04	0.3	23.	1.26E 02	4.88E-04	1.16E-03	6.61E-03	1.98E-02	40.	1.6	0.80	88.	3.03E 02
	D	1.00E-04	0.3	0.38	5.0	2.18E-04	2.87E-04	8.49E-04	2.21E-03	1.64E 02	6.5	3.3	3.58E 02	1.24E 03

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMLS	THYROID	UTERUS
BA-137M	D	1.00E-C1	0.3	4.12E-08	4.42E-07	1.60E-07	2.05E-07	1.72E-07	1.62E-07	3.58E-07	1.63E-08	6.00E-07	2.06E-07	4.18E-08
BA-140	D	1.00E-C1	0.3	2.67E-03	2.80E-03	6.36E-03	3.99E-03	2.61E-03	5.82E-03	2.54E-03	2.12E-03	3.33E-03	2.23E-03	3.06E-03
LA-140	W	1.00E-C4	0.3	1.09E-03	1.03E-03	7.04E-04	7.65E-04	4.90E-04	6.52E-04	7.91E-04	1.39E-04	1.35E-03	3.59E-04	5.83E-04
CE-141	Y	1.00E-C4	0.3	1.55E-04	4.79E-04	3.89E-04	4.14E-04	3.12E-04	3.65E-04	4.31E-04	1.34E-05	7.70E-04	1.55E-04	7.37E-05
	W	1.00E-C4	0.3	2.31E-04	5.12E-04	2.72E-03	9.33E-04	4.04E-04	2.14E-03	3.89E-04	7.56E-05	5.95E-04	1.72E-04	1.48E-04
	D	1.00E-C4	0.3	5.82E-04	1.36E-03	1.77E-02	4.64E-03	1.38E-03	1.36E-02	7.15E-04	4.56E-04	6.07E-04	5.01E-04	5.73E-04
CE-143	Y	1.00E-C4	0.3	1.82E-04	1.24E-04	7.26E-05	1.05E-04	6.87E-05	7.02E-05	1.04E-04	1.38E-05	1.52E-04	3.87E-05	7.48E-05
	W	1.00E-C4	0.3	1.63E-04	1.37E-04	3.88E-04	2.05E-04	8.33E-05	3.22E-04	1.11E-04	2.05E-05	1.58E-04	4.71E-05	7.34E-05
	D	1.00E-C4	0.3	1.28E-04	2.21E-04	2.77E-03	9.68E-04	1.86E-04	2.23E-03	1.42E-04	7.86E-05	1.52E-04	9.64E-05	1.05E-04
CE-144	Y	1.00E-04	0.3	7.64E-04	2.36E-03	2.80E-02	1.17E-02	1.66E-03	1.90E-02	2.15E-03	5.84E-04	3.48E-03	1.22E-03	6.98E-04
	W	1.00E-C4	0.3	4.96E-03	6.06E-03	0.23	8.87E-02	5.82E-03	0.15	5.33E-03	4.70E-03	5.52E-03	4.83E-03	4.87E-03
	D	1.00E-C4	0.3	2.23E-02	2.61E-02	1.0	0.41	2.57E-02	0.70	2.29E-02	2.16E-02	2.24E-02	2.16E-02	2.22E-02
PR-143	Y	1.00E-C4	0.3	1.07E-06	1.07E-06	5.38E-05	1.65E-05	1.07E-06	4.34E-05	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06
	W	1.00E-C4	0.3	2.96E-05	2.96E-05	1.49E-03	4.55E-04	2.96E-05	1.20E-03	2.96E-05	2.96E-05	2.96E-05	2.96E-05	2.96E-05
	D	1.00E-C4	0.3	2.48E-04	2.48E-04	1.25E-02	3.82E-03	2.48E-04	1.01E-02	2.48E-04	2.48E-04	2.48E-04	2.48E-04	2.48E-04
PR-144M	Y	1.00E-C4	0.3	6.95E-09	8.11E-08	9.69E-08	7.91E-08	5.47E-08	8.08E-08	7.88E-08	2.44E-09	1.33E-07	2.83E-08	6.68E-09
	W	1.00E-C4	0.3	4.20E-08	1.14E-07	1.34E-06	5.83E-07	9.12E-08	9.10E-07	1.11E-07	3.75E-08	1.63E-07	6.18E-08	4.17E-08
	D	1.00E-C4	0.3	9.95E-08	1.81E-07	3.24E-06	1.35E-06	1.46E-07	2.18E-06	1.66E-07	9.09E-08	2.03E-07	1.11E-07	9.85E-08
PR-144	Y	1.00E-C4	0.3	1.34E-08	1.26E-07	1.23E-07	9.44E-08	5.56E-08	9.91E-08	1.13E-07	4.25E-09	2.07E-07	5.87E-08	1.30E-08
	W	1.00E-C4	0.3	6.42E-08	1.75E-07	2.15E-06	9.21E-07	1.07E-07	1.45E-06	1.59E-07	5.51E-08	2.51E-07	1.07E-07	6.36E-08
	D	1.00E-C4	0.3	1.63E-07	2.84E-07	5.84E-06	2.43E-06	2.01E-07	3.91E-06	2.55E-07	1.48E-07	3.23E-07	1.93E-07	1.62E-07
ND-147	Y	1.00E-C4	0.3	2.30E-04	3.40E-04	2.98E-04	2.84E-04	2.05E-04	2.64E-04	2.85E-04	2.13E-05	4.70E-04	1.20E-04	9.40E-05
	W	1.00E-C4	0.3	2.57E-04	3.91E-04	1.59E-03	6.02E-04	2.72E-04	1.24E-03	2.98E-04	5.38E-05	4.51E-04	1.41E-04	1.29E-04
	D	1.00E-C4	0.3	3.86E-04	8.87E-04	1.11E-02	3.10E-03	8.41E-04	8.56E-03	4.72E-04	2.87E-04	4.48E-04	3.33E-04	3.59E-04
PM-147	Y	1.00E-C4	0.3	1.87E-04	1.87E-04	9.94E-03	1.05E-03	1.87E-04	6.55E-03	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04
	W	1.00E-C4	0.3	7.00E-04	7.00E-04	3.73E-02	3.94E-03	7.00E-04	2.46E-02	7.00E-04	7.00E-04	7.00E-04	7.00E-04	7.00E-04
	D	1.00E-C4	0.3	2.97E-03	2.97E-03	0.16	1.68E-02	2.97E-03	0.10	2.97E-03	2.97E-03	2.97E-03	2.97E-03	2.97E-03
SM-147	Y	1.00E-C4	0.3	0.95	0.95	2.59E 02	0.99	0.95	31.	0.95	0.95	0.95	0.95	0.95
	W	1.00E-C4	0.3	1.6	1.6	4.35E 02	1.7	1.6	52.	1.6	1.6	1.6	1.6	1.6
	D	1.00E-C4	0.3	6.5	6.5	1.77E 03	6.8	6.5	2.13E 02	6.5	6.5	6.5	6.5	6.5

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
H-3	*	0.95	***	1.25E-04	2.48E-04	1.25E-04	1.30E-04	1.37E-04	1.33E-04	1.25E-04	1.34E-04	1.23E-04	1.29E-04	1.24E-04
C-14	*	0.95	***	6.18E-06	1.32E-05	7.35E-06	7.06E-07	6.90E-06	7.22E-06	1.41E-05	1.76E-05	6.75E-06	7.92E-06	8.88E-06
NA-22	D	0.95	1.0	9.43E-03	3.28E-02	6.22E-03	6.59E-03	6.87E-03	7.53E-03	9.16E-03	1.08E-02	8.20E-03	9.91E-03	9.45E-03
P-32	D	0.80	1.0	7.63E-03	8.60E-02	5.01E-04	2.66E-04	1.38E-03	3.91E-03	3.56E-03	3.01E-03	1.52E-03	3.00E-03	3.01E-03
	W	0.80	1.0	9.87E-02	0.20	1.28E-03	6.48E-04	3.63E-03	1.04E-02	3.87E-03	2.11E-03	1.07E-03	2.11E-03	2.11E-03
MN-54	D	1.00E-01	1.0	4.18E-03	4.71E-03	3.15E-03	3.65E-03	4.29E-03	3.98E-03	4.10E-03	6.69E-03	2.50E-03	5.35E-03	1.70E-02
	W	1.00E-01	1.0	2.47E-02	3.43E-02	4.20E-03	2.56E-03	3.89E-03	4.79E-03	3.66E-03	5.76E-03	1.34E-03	3.40E-03	9.17E-03
FE-55	W	1.00E-01	1.0	3.20E-03	1.57E-02	1.04E-05	2.68E-05	1.47E-04	3.64E-04	6.29E-04	1.05E-03	4.14E-04	1.09E-03	2.07E-03
	Y	1.00E-01	1.0	2.51E-02	0.34	1.28E-05	2.63E-05	1.43E-04	3.91E-04	6.09E-04	4.92E-04	1.52E-04	5.05E-04	9.58E-04
FE-59	W	1.00E-01	1.0	5.15E-02	0.13	5.28E-03	5.03E-03	3.49E-03	1.56E-02	5.51E-03	7.27E-03	4.03E-03	6.22E-03	1.00E-02
	Y	1.00E-01	1.0	8.29E-02	0.16	5.29E-03	3.94E-03	7.59E-03	1.50E-02	4.96E-03	6.01E-03	2.09E-03	4.07E-03	7.32E-03
CO-57	W	5.00E-02	1.0	1.49E-02	5.63E-02	7.08E-04	5.90E-04	1.15E-03	2.45E-03	8.04E-04	1.03E-03	3.75E-04	6.26E-04	1.17E-03
	Y	5.00E-02	1.0	6.17E-02	0.34	2.01E-03	6.14E-04	1.21E-03	2.45E-03	2.25E-03	2.84E-03	2.06E-04	9.86E-04	2.62E-03
CO-58	W	5.00E-02	1.0	2.96E-02	6.48E-02	3.22E-03	2.70E-03	4.26E-03	7.38E-03	2.65E-03	3.60E-03	1.20E-03	2.12E-03	3.99E-03
	Y	5.00E-02	1.0	5.92E-02	0.11	5.16E-03	2.77E-03	4.48E-03	7.40E-03	4.17E-03	5.95E-03	8.80E-04	2.81E-03	6.04E-03
CO-60	W	5.00E-02	1.0	0.13	0.41	1.82E-02	1.43E-02	1.94E-02	2.78E-02	1.71E-02	2.32E-02	1.19E-02	1.87E-02	2.90E-02
	Y	5.00E-02	1.0	1.3	12.	1.00E-01	2.48E-02	3.49E-02	2.85E-02	8.20E-02	0.11	1.06E-02	5.85E-02	0.12
ZN-65	D	0.50	1.0	1.18E-02	1.27E-02	1.14E-02	1.26E-02	1.31E-02	1.39E-02	1.40E-02	1.91E-02	1.46E-02	1.87E-02	1.86E-02
	W	0.50	1.0	2.53E-02	4.00E-02	9.32E-03	8.87E-03	9.51E-03	1.03E-02	1.05E-02	1.45E-02	9.63E-03	1.31E-02	1.42E-02
	Y	0.50	1.0	7.65E-02	0.16	1.30E-02	7.78E-03	8.65E-03	8.41E-03	1.24E-02	1.77E-02	7.52E-03	1.29E-02	1.78E-02
FB-86	D	0.95	1.0	7.68E-03	8.43E-02	7.33E-04	3.49E-04	6.34E-04	1.26E-03	6.69E-03	1.11E-02	5.69E-03	1.11E-02	1.11E-02
SR-89	D	0.20	1.0	6.55E-03	7.56E-02	3.95E-04	7.89E-04	4.62E-03	1.38E-02	3.89E-03	2.18E-03	1.09E-03	2.18E-03	2.18E-03
	Y	1.00E-02	1.0	0.31	0.78	1.22E-03	3.01E-03	1.76E-02	5.26E-02	4.76E-03	4.38E-05	2.17E-05	4.35E-05	4.38E-05
SR-90	D	0.20	1.0	9.89E-03	0.14	1.97E-04	4.72E-04	3.56E-03	1.41E-02	0.24	1.53E-02	7.68E-03	1.53E-02	1.46E-02
	Y	1.00E-02	1.0	8.5	2.74E 02	2.86E-02	6.87E-02	0.36	0.89	0.15	3.65E-03	1.83E-03	3.65E-03	1.90E-02
SR-91	D	0.20	1.0	4.27E-03	2.86E-02	5.56E-04	9.01E-04	2.38E-03	2.61E-03	3.52E-04	4.36E-04	2.55E-04	4.35E-04	4.13E-04
	Y	1.00E-02	1.0	9.76E-03	1.30E-02	8.02E-04	1.49E-03	4.07E-03	4.51E-03	2.75E-04	1.31E-04	7.02E-05	1.04E-04	2.19E-04
Y-90	W	1.00E-04	1.0	3.93E-02	4.66E-02	1.39E-03	3.32E-03	1.71E-02	4.09E-02	8.90E-04	9.07E-05	4.92E-05	9.07E-05	2.64E-04
Y-91M	W	1.00E-04	1.0	1.91E-04	4.98E-04	1.08E-05	5.86E-05	1.37E-05	3.00E-05	9.43E-06	9.00E-06	1.68E-06	5.46E-06	2.39E-05
Y-91	W	1.00E-04	1.0	0.20	0.73	1.22E-03	3.01E-03	1.76E-02	5.23E-02	5.67E-03	7.35E-04	3.67E-04	7.29E-04	2.04E-02
ZR-95	W	2.00E-03	1.0	6.85E-02	0.23	3.98E-03	3.49E-03	7.12E-03	1.55E-02	4.74E-03	5.28E-03	1.56E-03	2.93E-03	4.68E-03
	Y	2.00E-03	1.0	0.13	0.34	5.77E-03	3.25E-03	7.35E-03	1.59E-02	5.55E-03	6.58E-03	8.21E-04	3.02E-03	6.51E-03
ZR-97	W	2.00E-03	1.0	2.08E-02	2.15E-02	1.59E-03	3.32E-03	1.11E-02	1.61E-02	6.67E-04	3.60E-04	2.37E-04	2.55E-04	3.90E-04
	Y	2.00E-03	1.0	2.20E-02	2.22E-02	1.84E-03	3.93E-03	1.32E-02	1.92E-02	6.46E-04	2.76E-04	2.04E-04	2.22E-04	3.09E-04

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	FI	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
H-3	*	0.95	***	1.24E-04	1.21E-04	5.57E-05	1.24E-04	1.41E-04	9.85E-05	1.24E-04	1.25E-04	1.12E-04	1.24E-04	1.25E-04
C-14	*	0.95	***	5.29E-06	7.84E-06	8.46E-07	2.42E-05	3.98E-05	5.08E-05	6.77E-06	5.42E-06	7.11E-06	6.48E-06	6.97E-06
NA-22	D	0.95	1.0	1.02E-02	1.11E-02	1.67E-02	1.30E-02	1.02E-02	1.60E-02	9.49E-03	7.46E-03	1.45E-02	8.14E-03	1.63E-02
P-32	D	0.80	1.0	3.01E-03	3.01E-03	2.42E-02	1.11E-02	3.01E-03	2.02E-02	3.01E-03	3.00E-03	3.01E-03	3.01E-03	3.01E-03
	W	0.80	1.0	2.11E-03	2.11E-03	1.70E-02	7.76E-03	2.11E-03	1.42E-02	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03
MN-54	D	1.00E-01	1.0	3.79E-03	5.82E-03	6.12E-03	5.96E-03	5.52E-03	5.86E-03	3.63E-03	2.25E-03	3.67E-03	2.30E-03	5.11E-03
	W	1.00E-01	1.0	2.81E-03	5.56E-03	3.53E-03	4.03E-03	3.44E-03	3.44E-03	4.49E-03	9.07E-04	7.15E-03	2.73E-03	2.39E-03
FE-55	W	1.00E-01	1.0	1.11E-03	1.18E-03	8.92E-04	1.08E-03	1.06E-03	7.40E-04	3.36E-03	1.05E-03	9.44E-04	1.07E-03	9.71E-04
	Y	1.00E-01	1.0	5.16E-04	5.47E-04	4.13E-04	5.03E-04	4.90E-04	3.43E-04	1.56E-03	4.86E-04	4.39E-04	4.95E-04	4.50E-04
FE-59	W	1.00E-01	1.0	6.23E-03	8.03E-03	4.75E-03	5.72E-03	4.85E-03	5.07E-03	1.12E-02	3.62E-03	1.01E-02	4.74E-03	8.08E-03
	Y	1.00E-01	1.0	3.85E-03	6.48E-03	3.28E-03	4.18E-03	3.39E-03	3.41E-03	7.33E-03	1.57E-03	9.94E-03	3.58E-03	3.93E-03
CO-57	W	5.00E-02	1.0	6.83E-04	1.10E-03	7.28E-04	1.03E-03	8.18E-04	7.24E-04	9.46E-04	3.16E-04	1.53E-03	5.26E-04	7.19E-04
	Y	5.00E-02	1.0	4.85E-04	2.78E-03	1.67E-03	2.20E-03	1.75E-03	1.67E-03	2.43E-03	1.08E-04	4.54E-03	1.03E-03	3.67E-04
CO-58	W	5.00E-02	1.0	2.60E-03	3.90E-03	1.76E-03	2.39E-03	1.87E-03	1.78E-03	3.34E-03	6.89E-04	5.47E-03	2.04E-03	2.09E-03
	Y	5.00E-02	1.0	2.36E-03	6.27E-03	2.57E-03	3.44E-03	2.74E-03	2.58E-03	5.46E-03	3.64E-04	9.53E-03	3.24E-03	1.31E-03
CO-60	W	5.00E-02	1.0	1.70E-02	2.56E-02	1.42E-02	1.75E-02	1.45E-02	1.47E-02	2.17E-02	9.51E-03	3.69E-02	1.44E-02	2.30E-02
	Y	5.00E-02	1.0	1.85E-02	0.12	5.06E-02	6.45E-02	5.22E-02	5.08E-02	0.10	6.12E-03	0.21	6.01E-02	2.07E-02
ZN-65	D	0.50	1.0	1.74E-02	2.02E-02	1.81E-02	1.92E-02	1.67E-02	1.77E-02	1.74E-02	1.27E-02	2.17E-02	1.25E-02	3.32E-02
	W	0.50	1.0	1.18E-02	1.52E-02	1.26E-02	1.36E-02	1.17E-02	1.23E-02	1.33E-02	8.30E-03	1.80E-02	9.32E-03	2.18E-02
	Y	0.50	1.0	9.50E-03	1.83E-02	1.24E-02	1.39E-02	1.19E-02	1.21E-02	1.63E-02	6.31E-03	2.63E-02	1.09E-02	1.68E-02
RB-86	D	0.95	1.0	1.11E-02	1.12E-02	1.10E-02	1.10E-02	1.10E-02	1.38E-02	1.11E-02	1.10E-02	1.12E-02	1.10E-02	1.15E-02
SR-89	D	0.20	1.0	2.18E-03	2.18E-03	3.38E-02	1.33E-02	2.18E-03	2.74E-02	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
	Y	1.00E-02	1.0	4.35E-05	4.38E-05	6.70E-04	2.64E-04	4.35E-05	5.44E-04	4.37E-05	4.32E-05	4.42E-05	4.35E-05	4.33E-05
SR-90	D	0.20	1.0	1.53E-02	1.53E-02	3.0	1.1	1.53E-02	2.2	1.53E-02	1.53E-02	1.53E-02	1.53E-02	1.53E-02
	Y	1.00E-02	1.0	3.65E-03	3.65E-03	0.32	0.12	3.65E-03	0.23	3.65E-03	3.65E-03	3.65E-03	3.65E-03	3.65E-03
SR-91	D	0.20	1.0	5.11E-04	4.70E-04	3.46E-04	4.09E-04	3.99E-04	4.41E-04	4.44E-04	3.79E-04	4.63E-04	3.91E-04	5.00E-04
	Y	1.00E-02	1.0	2.32E-04	1.67E-04	1.54E-04	1.41E-04	7.87E-05	1.40E-04	1.38E-04	3.39E-05	1.76E-04	6.89E-05	1.29E-04
Y-90	W	1.00E-04	1.0	9.07E-05	9.07E-05	1.23E-03	5.32E-04	9.07E-05	9.32E-04	9.07E-05	9.07E-05	9.07E-05	9.07E-05	9.07E-05
Y-91M	W	1.00E-04	1.0	3.38E-06	1.06E-05	2.14E-05	1.18E-05	5.32E-06	1.83E-05	8.41E-06	2.27E-06	1.18E-05	5.37E-06	3.10E-06
Y-91	W	1.00E-04	1.0	7.28E-04	7.33E-04	2.25E-02	8.51E-03	7.29E-04	1.79E-02	7.29E-04	7.21E-04	7.38E-04	7.25E-04	7.25E-04
ZR-95	W	2.00E-03	1.0	3.24E-03	5.08E-03	9.15E-03	5.46E-03	4.10E-03	7.77E-03	4.28E-03	1.10E-03	6.59E-03	2.94E-03	2.29E-03
	Y	2.00E-03	1.0	2.32E-03	6.90E-03	3.26E-03	3.88E-03	3.09E-03	3.17E-03	5.98E-03	3.27E-04	1.04E-02	3.55E-03	1.12E-03
ZR-97	W	2.00E-03	1.0	6.95E-04	4.42E-04	4.03E-04	4.01E-04	2.49E-04	3.83E-04	3.23E-04	1.06E-04	4.15E-04	2.13E-04	3.61E-04
	Y	2.00E-03	1.0	7.02E-04	3.66E-04	1.56E-04	2.65E-04	1.64E-04	1.55E-04	2.92E-04	6.36E-05	3.62E-04	1.24E-04	3.30E-04

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
NB-95	Y	1.00E-02	1.0	3.10E-02	4.87E-02	2.39E-03	1.35E-03	3.64E-03	7.17E-03	1.94E-03	2.54E-03	5.38E-04	1.30E-03	2.53E-03
NB-97M	Y	1.00E-02	1.0	1.65E-05	1.65E-05	1.30E-06	8.25E-07	6.39E-07	1.39E-07	4.39E-07	3.64E-07	2.49E-08	1.71E-07	3.60E-07
NB-97	Y	1.00E-02	1.0	1.07E-03	1.07E-03	8.18E-05	5.70E-05	4.32E-05	9.36E-06	2.29E-05	1.24E-05	1.28E-06	6.53E-06	1.23E-05
MO-99	D	0.95	1.0	4.04E-03	3.33E-02	4.50E-04	1.83E-04	3.73E-04	5.01E-04	7.88E-04	6.42E-04	1.94E-04	8.40E-03	1.41E-02
	Y	5.00E-02	1.0	1.89E-02	2.00E-02	8.83E-04	1.87E-03	8.64E-03	2.05E-02	4.85E-04	1.53E-04	1.14E-04	4.26E-04	7.07E-04
TC-99M	D	0.80	1.0	8.54E-05	2.95E-04	3.09E-05	1.49E-05	2.32E-05	1.67E-05	9.81E-06	1.30E-05	7.03E-06	1.25E-05	1.83E-05
	M	0.80	1.0	1.82E-04	1.82E-04	2.72E-05	1.21E-05	1.98E-05	1.35E-05	1.05E-05	1.38E-05	3.53E-06	8.36E-06	1.55E-05
TC-99	D	0.80	1.0	9.63E-04	1.12E-02	4.90E-04	2.87E-05	1.69E-04	5.09E-04	1.69E-04	2.40E-04	1.20E-04	3.48E-04	4.77E-04
	M	0.80	1.0	5.22E-02	0.31	5.70E-04	9.35E-05	5.53E-04	1.66E-03	8.87E-04	2.12E-04	1.06E-04	3.07E-04	4.21E-04
RU-103	Y	4.00E-02	1.0	5.84E-02	0.11	1.85E-03	1.71E-03	4.80E-03	1.18E-02	1.98E-03	1.91E-03	4.49E-04	1.02E-03	1.92E-03
RU-105	Y	4.00E-02	1.0	3.54E-03	3.55E-03	3.35E-04	5.00E-04	1.12E-03	1.19E-03	9.72E-05	5.48E-05	1.85E-05	3.61E-05	5.79E-05
RU-106	Y	4.00E-02	1.0	3.8	34.	6.96E-03	8.82E-03	4.69E-02	0.14	6.18E-02	1.15E-02	3.85E-03	8.95E-03	1.15E-02
RH-103M	Y	4.00E-02	1.0	6.50E-05	6.50E-05	3.79E-06	2.36E-06	1.34E-06	2.15E-07	9.39E-07	1.69E-08	4.55E-09	9.61E-09	3.06E-08
RH-105M	Y	4.00E-02	1.0	4.07E-05	4.11E-06	1.07E-07	2.12E-07	9.07E-07	1.82E-06	7.98E-08	1.81E-08	8.95E-09	1.08E-08	1.95E-08
RH-105	Y	4.00E-02	1.0	4.64E-03	4.76E-03	2.73E-04	5.97E-04	2.56E-03	5.13E-03	1.14E-04	3.04E-05	2.49E-05	2.42E-05	3.32E-05
RH-106	Y	4.00E-02	1.0	2.32E-05	2.32E-05	5.01E-08	3.52E-09	4.49E-09	9.41E-10	3.44E-07	2.74E-08	9.63E-10	1.19E-08	2.70E-08
SB-127	M	5.00E-02	1.0	2.82E-02	3.77E-02	1.24E-03	2.51E-03	1.07E-02	2.72E-02	8.79E-04	5.81E-04	3.72E-04	4.68E-04	5.48E-04
TE-127M	M	0.25	1.0	0.12	0.54	1.32E-03	2.19E-03	9.83E-03	2.37E-02	2.42E-03	2.54E-03	1.27E-03	1.05E-02	1.54E-03
TE-127	M	0.25	1.0	2.48E-03	2.52E-03	1.66E-04	2.53E-04	7.54E-04	8.15E-04	5.13E-05	5.27E-05	2.77E-05	7.52E-05	2.29E-05
TE-129M	M	0.25	1.0	0.15	0.45	1.53E-03	2.50E-03	1.33E-02	3.87E-02	3.20E-03	4.19E-03	2.09E-03	1.41E-02	2.48E-03
TE-129	M	0.25	1.0	1.06E-03	1.06E-03	5.86E-05	3.92E-05	2.70E-05	5.97E-06	1.80E-05	8.58E-06	4.28E-06	1.44E-05	5.50E-06
TE-131M	M	0.25	1.0	1.09E-02	1.40E-02	1.08E-03	1.75E-03	4.90E-03	8.34E-03	6.54E-04	9.85E-04	6.00E-04	1.01E-03	6.92E-04
TE-131	M	0.25	1.0	5.55E-04	5.99E-04	2.08E-05	5.55E-06	2.62E-06	7.99E-07	1.14E-05	6.15E-06	2.05E-06	6.75E-06	4.85E-06
TE-132	M	0.25	1.0	2.79E-02	5.95E-02	1.38E-03	1.46E-03	4.09E-03	1.08E-02	1.70E-03	2.55E-03	1.31E-03	3.38E-03	2.18E-03
I-129	D	0.95	1.0	7.88E-04	7.26E-03	4.61E-05	3.80E-05	4.30E-05	4.28E-05	2.05E-03	3.83E-04	2.20E-04	4.49E-04	4.66E-04
I-131	D	0.95	1.0	2.40E-03	2.28E-02	7.47E-05	3.59E-05	3.84E-05	3.41E-05	6.13E-04	9.77E-05	3.30E-05	1.47E-04	1.86E-04
I-132	D	0.95	1.0	1.12E-03	2.53E-03	6.43E-05	2.52E-05	2.66E-05	2.06E-05	7.79E-05	5.65E-05	2.02E-05	6.50E-05	8.64E-05
I-133	D	0.95	1.0	3.17E-03	2.46E-02	5.93E-05	2.22E-05	2.48E-05	2.29E-05	2.03E-04	1.11E-04	4.58E-05	9.01E-05	1.12E-04
I-134	D	0.95	1.0	6.42E-04	9.83E-04	4.12E-05	1.10E-05	1.06E-05	7.40E-06	3.43E-05	3.33E-05	1.17E-05	2.40E-05	3.45E-05
I-135	D	0.95	1.0	2.43E-03	1.44E-02	8.18E-05	4.00E-05	6.13E-05	5.27E-05	1.42E-04	1.10E-04	4.50E-05	8.73E-05	1.18E-04
CS-134	D	0.95	1.0	3.38E-02	5.33E-02	3.26E-02	3.49E-02	3.64E-02	3.71E-02	4.55E-02	6.51E-02	5.11E-02	6.77E-02	6.99E-02
CS-135	D	0.95	1.0	5.40E-04	7.44E-03	3.82E-05	4.77E-06	2.82E-05	8.51E-05	4.40E-03	7.47E-03	3.74E-03	7.47E-03	7.47E-03
CS-136	D	0.95	1.0	6.98E-03	2.19E-02	4.97E-03	5.05E-03	5.34E-03	5.55E-03	6.00E-03	8.44E-03	6.72E-03	8.68E-03	9.03E-03
CS-137	D	0.95	1.0	1.62E-02	4.40E-02	1.39E-02	1.48E-02	1.56E-02	1.60E-02	3.26E-02	5.01E-02	3.30E-02	5.13E-02	5.23E-02

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
NB-95	Y	1.00E-02	1.0	1.64E-03	2.70E-03	1.22E-03	1.61E-03	1.24E-03	1.19E-03	2.40E-03	2.46E-04	3.96E-03	1.35E-03	7.32E-04
NB-97M	Y	1.00E-02	1.0	6.45E-08	4.21E-07	1.56E-07	1.98E-07	1.61E-07	1.56E-07	3.45E-07	1.01E-08	5.69E-07	1.92E-07	4.68E-08
NB-97	Y	1.00E-02	1.0	3.64E-06	1.58E-05	5.59E-06	7.06E-06	5.58E-06	5.53E-06	1.24E-05	5.35E-07	1.85E-05	6.25E-06	2.69E-06
MO-99	D	0.95	1.0	3.54E-04	6.07E-04	1.27E-03	7.15E-04	4.27E-04	1.15E-03	4.30E-04	3.07E-04	4.17E-04	3.69E-04	3.89E-04
	Y	5.00E-02	1.0	3.46E-04	1.78E-04	1.33E-04	1.79E-04	1.10E-04	1.28E-04	1.47E-04	4.50E-05	1.96E-04	1.78E-04	1.66E-04
TC-99M	D	0.80	1.0	1.16E-05	1.66E-05	1.04E-05	1.45E-05	1.15E-05	1.08E-05	1.33E-05	6.03E-06	1.89E-05	1.33E-04	1.49E-05
	W	0.80	1.0	7.04E-05	1.54E-05	9.05E-06	1.25E-05	9.77E-06	9.21E-06	1.35E-05	2.59E-06	2.11E-05	5.72E-05	7.52E-06
TC-99	D	0.80	1.0	2.40E-04	2.40E-04	2.74E-04	2.44E-04	2.40E-04	3.11E-04	2.40E-04	2.40E-04	2.40E-04	1.07E-02	2.40E-04
	W	0.80	1.0	2.12E-04	2.12E-04	2.42E-04	2.15E-04	2.12E-04	2.75E-04	2.12E-04	2.12E-04	2.12E-04	9.46E-03	2.12E-04
RU-103	Y	4.00E-02	1.0	1.20E-03	2.24E-03	9.12E-04	1.23E-03	9.72E-04	9.25E-04	1.74E-03	2.55E-04	2.75E-03	9.89E-04	6.51E-04
RU-105	Y	4.00E-02	1.0	6.33E-05	7.21E-05	2.60E-05	4.01E-05	2.87E-05	2.65E-05	5.68E-05	6.49E-06	7.59E-05	2.57E-05	3.54E-05
RU-106	Y	4.00E-02	1.0	7.67E-03	1.20E-02	8.76E-03	9.37E-03	8.86E-03	1.00E-02	1.10E-02	6.97E-03	1.15E-02	9.19E-03	4.82E-03
RH-103M	Y	4.00E-02	1.0	1.43E-08	1.87E-08	2.05E-08	2.28E-08	2.35E-08	2.07E-08	2.48E-08	8.82E-09	2.16E-08	9.14E-09	1.09E-08
RH-105M	Y	4.00E-02	1.0	2.92E-08	2.05E-08	1.18E-08	1.76E-08	1.28E-08	1.22E-08	1.82E-08	4.31E-09	2.46E-08	7.32E-09	1.31E-08
RH-105	Y	4.00E-02	1.0	8.17E-05	3.85E-05	2.00E-05	3.32E-05	2.20E-05	2.13E-05	3.19E-05	1.20E-05	3.58E-05	1.39E-05	3.63E-05
RH-106	Y	4.00E-02	1.0	1.93E-09	3.03E-08	1.14E-08	1.43E-08	1.20E-08	1.14E-08	2.43E-08	4.34E-10	4.31E-08	1.41E-08	1.32E-09
SB-127	W	5.00E-02	1.0	1.05E-03	6.71E-04	3.34E-04	5.28E-04	4.20E-04	3.94E-04	5.83E-04	2.86E-04	7.59E-04	3.70E-04	6.24E-04
TE-127M	W	0.25	1.0	2.53E-03	2.57E-03	2.25E-03	2.52E-03	2.57E-03	2.91E-03	2.58E-03	2.48E-03	2.64E-03	2.49E-03	2.57E-03
TE-127	W	0.25	1.0	5.29E-05	5.32E-05	8.87E-06	4.09E-05	5.24E-05	3.06E-05	5.30E-05	5.22E-05	5.34E-05	5.24E-05	5.31E-05
TE-129M	W	0.25	1.0	4.15E-03	4.23E-03	1.60E-03	3.37E-03	4.12E-03	3.18E-03	4.21E-03	4.02E-03	4.43E-03	4.39E-03	4.27E-03
TE-129	W	0.25	1.0	7.80E-06	8.89E-06	2.25E-06	6.31E-06	8.07E-06	5.31E-06	8.63E-06	7.59E-06	9.35E-06	1.63E-05	8.05E-06
TE-131M	W	0.25	1.0	1.35E-03	1.14E-03	3.51E-04	8.27E-04	7.91E-04	5.69E-04	1.06E-03	6.61E-04	1.70E-03	0.11	1.69E-03
TE-131	W	0.25	1.0	3.58E-06	6.57E-06	2.53E-06	4.44E-06	4.71E-06	3.76E-06	6.05E-06	3.30E-06	9.88E-06	2.27E-03	4.52E-06
TE-132	W	0.25	1.0	2.42E-03	2.81E-03	1.20E-03	2.09E-03	2.00E-03	1.68E-03	2.62E-03	1.64E-03	4.55E-03	0.27	3.91E-03
I-129	D	0.95	1.0	3.78E-04	4.13E-04	5.79E-04	6.05E-04	5.20E-04	5.64E-04	4.00E-04	3.57E-04	9.80E-04	5.0	4.81E-04
I-131	D	0.95	1.0	3.98E-05	8.80E-05	2.38E-04	2.02E-04	1.07E-04	2.21E-04	7.90E-05	2.22E-05	7.30E-04	1.1	4.01E-05
I-132	D	0.95	1.0	2.47E-05	5.96E-05	5.79E-05	4.97E-05	3.40E-05	5.31E-05	4.91E-05	1.43E-05	9.98E-05	2.54E-02	2.62E-05
I-133	D	0.95	1.0	7.50E-05	1.19E-04	9.89E-05	1.08E-04	9.21E-05	1.13E-04	1.07E-04	6.66E-05	2.32E-04	0.24	8.72E-05
I-134	D	0.95	1.0	1.69E-05	3.65E-05	2.26E-05	2.60E-05	2.23E-05	2.46E-05	3.28E-05	1.34E-05	5.75E-05	9.54E-03	2.40E-05
I-135	D	0.95	1.0	6.62E-05	1.22E-04	8.67E-05	9.82E-05	8.23E-05	9.53E-05	1.08E-04	5.37E-05	2.31E-04	7.30E-02	8.93E-05
CS-134	D	0.95	1.0	6.45E-02	7.42E-02	5.36E-02	6.16E-02	5.46E-02	5.89E-02	6.55E-02	5.13E-02	7.73E-02	5.19E-02	0.10
CS-135	D	0.95	1.0	7.47E-03	7.47E-03	7.47E-03	7.47E-03	7.47E-03	8.62E-03	7.47E-03	7.47E-03	7.47E-03	7.48E-03	7.47E-03
CS-136	D	0.95	1.0	8.13E-03	9.61E-03	6.70E-03	7.91E-03	6.86E-03	7.15E-03	8.44E-03	6.29E-03	6.58E-03	6.35E-03	9.07E-03
CS-137	D	0.95	1.0	5.00E-02	5.43E-02	4.54E-02	4.91E-02	4.59E-02	5.31E-02	5.04E-02	4.44E-02	5.66E-02	4.47E-02	6.55E-02

TOTAL INHALATION DOSES (REM/MICROCURIE)															
NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER	
BA-137M	D	1.00E-01	1.0	7.09E-06	7.17E-06	9.70E-07	9.89E-08	1.03E-07	3.77E-08	3.21E-07	4.09E-07	3.78E-08	2.06E-07	4.07E-07	
BA-140	D	1.00E-01	1.0	9.74E-03	0.10	1.15E-03	1.89E-03	5.87E-03	1.78E-02	2.08E-03	2.35E-03	1.64E-03	1.46E-03	1.42E-03	
LA-140	W	1.00E-04	1.0	2.01E-02	2.18E-02	1.81E-03	3.67E-03	1.11E-02	2.11E-02	1.05E-03	7.81E-04	5.55E-04	1.63E-03	2.44E-03	
CE-141	Y	1.00E-04	1.0	6.31E-02	0.12	5.96E-04	1.08E-03	5.35E-03	1.54E-02	1.15E-03	2.91E-04	6.50E-05	2.76E-04	8.59E-04	
	W	1.00E-04	1.0	4.25E-02	0.12	5.78E-04	1.07E-03	5.07E-03	1.44E-02	1.36E-03	4.30E-04	1.06E-04	3.20E-03	1.09E-02	
	D	1.00E-04	1.0	2.53E-03	2.24E-02	5.56E-04	7.48E-04	2.29E-03	5.26E-03	3.27E-03	1.32E-03	2.83E-04	1.70E-02	5.81E-02	
CE-143	Y	1.00E-04	1.0	1.64E-02	1.85E-02	8.09E-04	1.85E-03	7.80E-03	1.62E-02	3.90E-04	8.54E-05	7.60E-05	9.12E-05	1.95E-04	
	W	1.00E-04	1.0	1.51E-02	1.99E-02	7.05E-04	1.59E-03	6.67E-03	1.38E-02	4.42E-04	1.13E-04	7.26E-05	5.63E-04	1.83E-03	
	D	1.00E-04	1.0	3.76E-03	3.33E-02	3.94E-04	8.43E-04	3.37E-03	6.77E-03	6.39E-04	2.24E-04	7.86E-05	2.85E-03	9.74E-03	
CE-144	Y	1.00E-04	1.0	2.9	22.	4.65E-03	7.68E-03	4.28E-02	0.13	4.68E-02	1.40E-03	2.93E-04	2.37E-02	8.13E-02	
	W	1.00E-04	1.0	0.68	3.5	3.65E-03	7.60E-03	4.17E-02	0.12	5.11E-02	5.77E-03	2.33E-03	0.23	0.81	
	D	1.00E-04	1.0	1.73E-02	0.17	3.00E-03	4.28E-03	1.58E-02	4.01E-02	0.17	2.39E-02	9.82E-03	1.0	3.4	
PR-143	Y	1.00E-04	1.0	5.20E-02	7.22E-02	6.30E-04	1.56E-03	8.98E-03	2.57E-02	8.63E-04	1.99E-06	1.01E-06	1.09E-04	3.75E-04	
	W	1.00E-04	1.0	4.32E-02	8.65E-02	5.67E-04	1.40E-03	8.07E-03	2.31E-02	1.06E-03	3.70E-05	1.87E-05	2.02E-03	6.97E-03	
	D	1.00E-04	1.0	3.44E-03	7.87E-02	2.15E-04	5.28E-04	3.03E-03	8.67E-03	2.14E-03	2.18E-04	1.10E-04	1.19E-02	4.11E-02	
PR-144M	Y	1.00E-04	1.0	2.86E-04	2.86E-04	1.17E-05	3.13E-06	6.18E-07	3.61E-08	4.21E-06	6.69E-08	4.96E-09	1.53E-07	5.16E-07	
	W	1.00E-04	1.0	2.64E-04	2.64E-04	8.73E-06	2.35E-06	4.73E-07	3.26E-08	4.23E-06	1.21E-07	3.27E-08	2.15E-06	7.38E-06	
	D	1.00E-04	1.0	1.71E-04	2.18E-04	6.52E-05	1.88E-05	3.79E-06	2.30E-07	3.90E-06	2.32E-07	9.37E-08	6.24E-06	2.14E-05	
PR-144	Y	1.00E-04	1.0	6.67E-04	6.67E-04	2.06E-05	4.82E-06	9.10E-07	5.36E-08	9.72E-06	1.02E-07	5.49E-09	2.40E-07	7.61E-07	
	W	1.00E-04	1.0	6.31E-04	6.31E-04	1.60E-05	3.76E-06	7.29E-07	5.85E-08	9.75E-06	1.78E-07	5.30E-08	3.43E-06	1.17E-05	
	D	1.00E-04	1.0	4.53E-04	5.33E-04	1.29E-04	3.03E-05	5.64E-06	3.63E-07	9.11E-06	3.75E-07	1.69E-07	1.14E-05	3.91E-05	
ND-147	Y	1.00E-04	1.0	4.05E-02	8.27E-02	7.48E-04	1.63E-03	7.97E-03	2.20E-02	8.28E-04	1.99E-04	9.12E-05	2.35E-04	6.80E-04	
	W	1.00E-04	1.0	3.32E-02	6.13E-02	7.03E-04	1.50E-03	7.17E-03	1.97E-02	1.03E-03	3.05E-04	1.11E-04	1.97E-03	6.68E-03	
	D	1.00E-04	1.0	3.36E-03	3.30E-02	4.70E-04	7.88E-04	3.03E-03	7.61E-03	2.14E-03	8.69E-04	2.09E-04	1.08E-02	3.71E-02	
PM-147	Y	1.00E-04	1.0	0.29	4.3	1.46E-04	3.64E-04	2.15E-03	6.44E-03	5.30E-03	1.24E-04	6.17E-05	6.78E-03	2.34E-02	
	W	1.00E-04	1.0	3.62E-02	0.20	1.36E-04	3.39E-04	2.00E-03	6.00E-03	6.58E-03	6.34E-04	3.17E-04	3.48E-02	0.12	
	D	1.00E-04	1.0	7.06E-04	8.17E-03	4.29E-05	1.06E-04	6.22E-04	1.86E-03	2.46E-02	2.68E-03	1.29E-03	0.14	0.49	
SM-147	Y	1.00E-04	1.0	1.31E-02	9.38E-03	5.77E-04	1.42E-03	8.29E-03	2.49E-02	19.	0.58	0.29	32.	1.11E-02	
	W	1.00E-04	1.0	14.	73.	5.34E-04	1.28E-03	7.36E-03	2.21E-02	36.	1.4	0.71	78.	2.70E-02	
	D	1.00E-04	1.0	0.23	2.9	3.02E-04	5.31E-04	2.40E-03	6.92E-03	1.42E-02	5.7	2.8	3.12E-02	1.07E-03	

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMLS	THYROID	UTERUS
BA-137M	D	1.00E-01	1.0	5.56E-08	5.32E-07	1.70E-07	2.22E-07	1.87E-07	1.74E-07	4.14E-07	2.67E-08	6.23E-07	2.18E-07	6.78E-08
BA-140	D	1.00E-01	1.0	2.74E-03	2.46E-03	5.72E-03	3.61E-03	2.34E-03	5.23E-03	2.24E-03	1.95E-03	2.85E-03	1.97E-03	2.88E-03
LA-140	W	1.00E-04	1.0	1.67E-03	9.62E-04	8.00E-04	8.52E-04	4.94E-04	7.27E-04	7.24E-04	2.03E-04	1.01E-03	2.87E-04	8.55E-04
CE-141	Y	1.00E-04	1.0	2.07E-04	3.02E-04	3.35E-04	3.03E-04	2.05E-04	2.99E-04	2.67E-04	1.82E-05	4.57E-04	9.40E-05	9.35E-05
	W	1.00E-04	1.0	2.76E-04	4.17E-04	2.98E-03	9.36E-04	3.56E-04	2.32E-03	2.92E-04	8.62E-05	3.98E-04	1.40E-04	1.71E-04
	D	1.00E-04	1.0	5.55E-04	1.19E-03	1.55E-02	4.07E-03	1.21E-03	1.19E-02	6.24E-04	4.02E-04	5.23E-04	4.36E-04	5.20E-04
CE-143	Y	1.00E-04	1.0	2.86E-04	1.14E-04	8.17E-05	1.19E-04	6.69E-05	7.66E-05	9.28E-05	2.16E-05	1.14E-04	2.95E-05	1.16E-04
	W	1.00E-04	1.0	2.57E-04	1.33E-04	5.06E-04	2.54E-04	8.69E-05	4.15E-04	1.02E-04	3.02E-05	1.24E-04	4.09E-05	1.13E-04
	D	1.00E-04	1.0	2.07E-04	2.08E-04	2.55E-03	9.06E-04	1.77E-04	2.04E-03	1.30E-04	7.84E-05	1.23E-04	8.44E-05	1.32E-04
CE-144	Y	1.00E-04	1.0	6.29E-04	1.51E-03	2.18E-02	8.95E-03	1.11E-03	1.47E-02	1.37E-03	4.58E-04	2.13E-03	8.22E-04	5.49E-04
	W	1.00E-04	1.0	4.66E-03	5.53E-03	0.21	8.29E-02	5.36E-03	0.14	4.87E-03	4.40E-03	4.92E-03	4.46E-03	4.55E-03
	D	1.00E-04	1.0	1.94E-02	2.27E-02	0.91	0.35	2.24E-02	0.61	1.99E-02	1.88E-02	1.94E-02	1.88E-02	1.93E-02
PR-143	Y	1.00E-04	1.0	1.55E-06	1.99E-06	1.00E-04	3.07E-05	1.99E-06	8.09E-05	1.99E-06	1.55E-06	1.59E-06	1.99E-06	1.99E-06
	W	1.00E-04	1.0	3.70E-05	3.70E-05	1.86E-03	5.69E-04	3.70E-05	1.50E-03	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05
	D	1.00E-04	1.0	2.18E-04	2.18E-04	1.10E-02	3.36E-03	2.18E-04	8.86E-03	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04
PR-144M	Y	1.00E-04	1.0	1.02E-08	9.19E-08	1.64E-07	1.09E-07	5.99E-08	1.27E-07	8.72E-08	4.42E-09	1.42E-07	3.15E-08	9.84E-09
	W	1.00E-04	1.0	6.15E-08	1.41E-07	1.97E-06	8.43E-07	1.13E-07	1.33E-06	1.34E-07	5.56E-08	1.86E-07	8.04E-08	6.10E-08
	D	1.00E-04	1.0	1.79E-07	2.94E-07	5.67E-06	2.34E-06	2.19E-07	3.79E-06	2.51E-07	1.55E-07	2.55E-07	1.75E-07	1.77E-07
PR-144	Y	1.00E-04	1.0	1.81E-08	1.41E-07	2.22E-07	1.38E-07	6.14E-08	1.66E-07	1.24E-07	6.98E-09	2.21E-07	6.42E-08	1.75E-08
	W	1.00E-04	1.0	9.06E-08	2.11E-07	3.10E-06	1.31E-06	1.35E-07	2.09E-06	1.91E-07	7.94E-08	2.83E-07	1.33E-07	8.98E-08
	D	1.00E-04	1.0	2.94E-07	4.54E-07	1.03E-05	4.27E-06	3.18E-07	6.91E-06	3.92E-07	2.63E-07	4.14E-07	2.99E-07	2.91E-07
ND-147	Y	1.00E-04	1.0	3.21E-04	2.31E-04	2.55E-04	2.38E-04	1.49E-04	2.21E-04	1.91E-04	2.81E-05	2.90E-04	7.50E-05	1.28E-04
	W	1.00E-04	1.0	3.37E-04	3.21E-04	1.83E-03	6.46E-04	2.46E-04	1.42E-03	2.29E-04	6.62E-05	3.08E-04	1.11E-04	1.64E-04
	D	1.00E-04	1.0	4.16E-04	7.82E-04	9.80E-03	2.75E-03	7.45E-04	7.53E-03	4.15E-04	2.58E-04	3.84E-04	2.90E-04	3.45E-04
PM-147	Y	1.00E-04	1.0	1.23E-04	1.24E-04	6.58E-03	6.96E-04	1.24E-04	4.33E-03	1.24E-04	1.23E-04	1.24E-04	1.24E-04	1.23E-04
	W	1.00E-04	1.0	6.34E-04	6.34E-04	3.38E-02	3.58E-03	6.34E-04	2.23E-02	6.34E-04	6.34E-04	6.34E-04	6.34E-04	6.34E-04
	D	1.00E-04	1.0	2.58E-03	2.58E-03	0.14	1.46E-02	2.58E-03	9.07E-02	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
SM-147	Y	1.00E-04	1.0	0.58	0.58	1.59E-02	0.61	0.58	12.	0.58	0.58	0.58	0.58	0.58
	W	1.00E-04	1.0	1.4	1.4	3.88E-02	1.5	1.4	47.	1.4	1.4	1.4	1.4	1.4
	D	1.00E-04	1.0	5.7	5.7	1.54E-03	5.9	5.7	1.85E-02	5.7	5.7	5.7	5.7	5.7

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
H-3	*	0.95	***	1.25E-04	2.48E-04	1.25E-04	1.30E-04	1.37E-04	1.33E-04	1.25E-04	1.34E-04	1.23E-04	1.29E-04	1.24E-04
C-14	*	0.95	***	6.18E-06	1.32E-05	7.35E-06	7.06E-07	6.90E-06	7.22E-06	1.41E-05	1.76E-05	6.75E-06	7.92E-06	8.88E-06
NA-22	D	0.95	5.0	9.92E-03	1.82E-02	8.90E-03	9.38E-03	9.87E-03	1.11E-02	1.28E-02	1.51E-02	1.16E-02	1.40E-02	1.32E-02
P-32	D	0.80	5.0	3.10E-03	3.08E-02	1.15E-03	5.98E-04	3.24E-03	9.23E-03	4.88E-03	4.19E-03	2.12E-03	4.19E-03	4.19E-03
	W	0.80	5.0	4.66E-02	8.32E-02	2.20E-03	1.11E-03	6.25E-03	1.79E-02	4.78E-03	3.53E-03	1.78E-03	3.52E-03	3.53E-03
MN-54	D	1.00E-01	5.0	4.47E-03	4.65E-03	3.76E-03	4.77E-03	5.75E-03	6.03E-03	4.79E-03	7.71E-03	3.05E-03	6.24E-03	1.97E-02
	W	1.00E-01	5.0	1.06E-02	1.40E-02	2.96E-03	3.74E-03	4.96E-03	6.66E-03	2.81E-03	4.23E-03	1.70E-03	3.06E-03	8.59E-03
FE-55	W	1.00E-01	5.0	1.24E-03	5.63E-03	1.52E-05	3.94E-05	2.16E-04	5.52E-04	7.41E-04	1.30E-03	5.10E-04	1.35E-03	2.55E-03
	Y	1.00E-01	5.0	8.96E-03	0.12	1.70E-05	4.11E-05	2.24E-04	6.19E-04	4.78E-04	6.38E-04	2.50E-04	6.60E-04	1.25E-03
FE-59	W	1.00E-01	5.0	2.36E-02	5.15E-02	5.53E-03	7.29E-03	1.28E-02	2.50E-02	5.87E-03	7.98E-03	5.78E-03	7.78E-03	1.18E-02
	Y	1.00E-01	5.0	3.38E-02	6.02E-02	4.37E-03	6.01E-03	1.21E-02	2.58E-02	4.03E-03	5.01E-03	3.37E-03	4.47E-03	6.92E-03
CO-57	W	5.00E-02	5.0	5.89E-03	2.05E-02	5.35E-04	8.01E-04	1.66E-03	3.71E-03	5.75E-04	7.16E-04	4.84E-04	6.10E-04	9.54E-04
	Y	5.00E-02	5.0	2.24E-02	0.12	9.26E-04	7.66E-04	1.72E-03	3.97E-03	9.50E-04	1.15E-03	2.85E-04	5.19E-04	1.15E-03
CO-58	W	5.00E-02	5.0	1.23E-02	2.48E-02	2.39E-03	3.77E-03	6.13E-03	1.16E-02	1.88E-03	2.23E-03	1.65E-03	1.78E-03	2.79E-03
	Y	5.00E-02	5.0	2.27E-02	4.06E-02	2.88E-03	3.78E-03	6.42E-03	1.24E-02	2.12E-03	2.64E-03	1.24E-03	1.62E-03	2.86E-03
CO-60	W	5.00E-02	5.0	5.61E-02	0.15	1.44E-02	1.71E-02	2.41E-02	3.88E-02	1.43E-02	1.92E-02	1.41E-02	1.81E-02	2.53E-02
	Y	5.00E-02	5.0	0.46	4.4	3.97E-02	1.74E-02	2.66E-02	3.78E-02	3.26E-02	4.31E-02	8.47E-03	2.53E-02	4.89E-02
ZN-65	D	0.50	5.0	1.50E-02	1.53E-02	1.47E-02	1.65E-02	1.72E-02	1.85E-02	1.81E-02	2.46E-02	1.89E-02	2.42E-02	2.40E-02
	W	0.50	5.0	1.75E-02	2.27E-02	1.14E-02	1.24E-02	1.32E-02	1.48E-02	1.35E-02	1.84E-02	1.37E-02	1.77E-02	1.80E-02
	Y	0.50	5.0	3.48E-02	6.49E-02	1.19E-02	1.12E-02	1.21E-02	1.34E-02	1.32E-02	1.82E-02	1.19E-02	1.63E-02	1.79E-02
RB-86	D	0.95	5.0	3.35E-03	3.04E-02	1.47E-03	5.52E-04	1.21E-03	2.69E-03	9.43E-03	1.58E-02	8.12E-03	1.59E-02	1.59E-02
SR-89	D	0.20	5.0	2.63E-03	2.70E-02	9.35E-04	1.86E-03	1.09E-02	3.26E-02	4.65E-03	2.61E-03	1.31E-03	2.61E-03	2.61E-03
	Y	1.00E-02	5.0	0.12	0.29	2.11E-03	5.20E-03	3.05E-02	9.09E-02	2.22E-03	7.37E-05	3.68E-05	7.36E-05	7.37E-05
SR-90	D	0.20	5.0	3.65E-03	5.02E-02	3.58E-04	8.56E-04	7.07E-03	3.01E-02	0.29	1.83E-02	9.16E-03	1.83E-02	1.75E-02
	Y	1.00E-02	5.0	3.0	97.	1.10E-02	2.67E-02	0.15	0.39	6.04E-02	1.72E-03	8.61E-04	1.72E-03	7.27E-03
SR-91	D	0.20	5.0	1.94E-03	1.05E-02	1.22E-03	2.08E-03	5.56E-03	6.01E-03	4.77E-04	6.28E-04	4.13E-04	6.62E-04	5.71E-04
	Y	1.00E-02	5.0	1.04E-02	1.15E-02	1.47E-03	2.81E-03	7.67E-03	8.43E-03	3.61E-04	1.73E-04	1.28E-04	1.61E-04	2.93E-04
Y-90	W	1.00E-04	5.0	2.79E-02	3.05E-02	2.55E-03	6.08E-03	3.14E-02	7.49E-02	9.62E-04	1.43E-04	7.76E-05	1.43E-04	4.17E-04
Y-91M	W	1.00E-04	5.0	1.50E-04	2.59E-04	1.87E-05	1.07E-05	2.29E-05	4.82E-05	1.18E-05	1.28E-05	2.60E-06	8.01E-06	3.45E-05
Y-91	W	1.00E-04	5.0	8.03E-02	0.27	1.96E-03	4.87E-03	2.85E-02	8.47E-02	4.89E-03	9.45E-04	4.76E-04	9.41E-04	2.64E-02
ZR-95	W	2.00E-03	5.0	2.78E-02	8.37E-02	2.96E-03	4.60E-03	1.01E-02	2.35E-02	3.78E-03	3.86E-03	2.00E-03	2.57E-03	3.14E-03
	Y	2.00E-03	5.0	4.93E-02	0.13	3.08E-03	4.04E-03	1.03E-02	2.51E-02	2.56E-03	2.73E-03	9.80E-04	1.50E-03	2.71E-03
ZR-97	W	2.00E-03	5.0	2.06E-02	2.09E-02	2.91E-03	6.39E-03	2.14E-02	3.13E-02	8.84E-04	4.68E-04	4.29E-04	3.91E-04	5.28E-04
	Y	2.00E-03	5.0	2.26E-02	2.26E-02	3.30E-03	7.34E-03	2.47E-02	3.61E-02	8.52E-04	3.37E-04	3.77E-04	3.38E-04	4.00E-04

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
H-3	*	0.95	***	1.24E-04	1.21E-04	5.57E-05	1.24E-04	1.41E-04	9.85E-05	1.24E-04	1.25E-04	1.12E-04	1.24E-04	1.25E-04
C-14	*	0.95	***	5.29E-06	7.84E-06	8.46E-07	2.42E-05	3.98E-05	5.08E-05	6.77E-06	5.42E-06	7.11E-06	6.48E-06	6.97E-06
HA-22	D	0.95	5.0	1.45E-02	1.55E-02	2.35E-02	1.84E-02	1.44E-02	2.26E-02	1.33E-02	1.06E-02	2.03E-02	1.14E-02	2.31E-02
P-32	D	0.80	5.0	4.19E-03	4.19E-03	3.38E-02	1.54E-02	4.19E-03	2.82E-02	4.19E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03
	W	0.80	5.0	3.53E-03	3.53E-03	2.84E-02	1.30E-02	3.53E-03	2.37E-02	3.53E-03	3.52E-03	3.53E-03	3.53E-03	3.53E-03
MN-54	D	1.00E-01	5.0	4.94E-03	6.74E-03	7.10E-03	6.98E-03	6.41E-03	6.79E-03	4.21E-03	2.65E-03	4.50E-03	2.63E-03	6.14E-03
	W	1.00E-01	5.0	3.75E-03	4.01E-03	3.23E-03	3.58E-03	3.05E-03	3.12E-03	2.93E-03	1.14E-03	3.89E-03	1.71E-03	3.05E-03
FE-55	W	1.00E-01	5.0	1.37E-03	1.46E-03	1.10E-03	1.34E-03	1.30E-03	9.13E-04	4.15E-03	1.29E-03	1.17E-03	1.32E-03	1.20E-03
	Y	1.00E-01	5.0	6.75E-04	7.15E-04	5.40E-04	6.57E-04	6.40E-04	4.48E-04	2.04E-03	6.35E-04	5.72E-04	6.47E-04	5.88E-04
FE-59	W	1.00E-01	5.0	9.09E-03	9.01E-03	5.76E-03	6.91E-03	5.87E-03	6.22E-03	1.38E-02	5.17E-03	9.78E-03	5.42E-03	1.15E-02
	Y	1.00E-01	5.0	6.22E-03	5.65E-03	3.33E-03	4.25E-03	3.44E-03	3.55E-03	7.75E-03	2.63E-03	6.79E-03	3.19E-03	6.35E-03
CO-57	W	5.00E-02	5.0	9.09E-04	8.35E-04	5.91E-04	9.02E-04	6.95E-04	5.86E-04	7.05E-04	3.92E-04	9.94E-04	4.55E-04	9.06E-04
	Y	5.00E-02	5.0	6.69E-04	1.18E-03	7.42E-04	1.06E-03	8.02E-04	7.41E-04	1.03E-03	1.54E-04	1.79E-03	4.62E-04	4.78E-04
CO-58	W	5.00E-02	5.0	3.76E-03	2.57E-03	1.32E-03	1.93E-03	1.41E-03	1.34E-03	2.17E-03	9.30E-04	3.03E-03	1.30E-03	2.86E-03
	Y	5.00E-02	5.0	3.53E-03	2.94E-03	1.30E-03	1.98E-03	1.42E-03	1.31E-03	2.53E-03	5.23E-04	3.93E-03	1.40E-03	1.89E-03
CO-60	W	5.00E-02	5.0	2.08E-02	2.16E-02	1.32E-02	1.62E-02	1.34E-02	1.38E-02	1.83E-02	1.11E-02	2.71E-02	1.26E-02	2.69E-02
	Y	5.00E-02	5.0	1.56E-02	4.70E-02	2.10E-02	2.71E-02	2.17E-02	2.12E-02	3.99E-02	5.18E-03	8.14E-02	2.39E-02	1.55E-02
ZN-65	D	0.50	5.0	2.27E-02	2.62E-02	2.35E-02	2.48E-02	2.16E-02	2.29E-02	2.25E-02	1.65E-02	2.80E-02	1.62E-02	4.30E-02
	W	0.50	5.0	1.67E-02	1.95E-02	1.71E-02	1.82E-02	1.58E-02	1.66E-02	1.68E-02	1.18E-02	2.15E-02	1.20E-02	3.09E-02
	Y	0.50	5.0	1.47E-02	1.91E-02	1.57E-02	1.69E-02	1.46E-02	1.53E-02	1.66E-02	1.02E-02	2.28E-02	1.16E-02	2.67E-02
RB-86	D	0.95	5.0	1.58E-02	1.59E-02	1.57E-02	1.58E-02	1.57E-02	1.98E-02	1.58E-02	1.57E-02	1.60E-02	1.57E-02	1.64E-02
SR-89	D	0.20	5.0	2.61E-03	2.61E-03	4.05E-02	1.60E-02	2.61E-03	3.29E-02	2.61E-03	2.61E-03	2.61E-03	2.61E-03	2.61E-03
	Y	1.00E-02	5.0	7.39E-05	7.37E-05	1.14E-03	4.49E-04	7.36E-05	9.24E-04	7.37E-05	7.35E-05	7.39E-05	7.36E-05	7.37E-05
SR-90	D	0.20	5.0	1.83E-02	1.83E-02	3.6	1.3	1.83E-02	2.6	1.83E-02	1.83E-02	1.83E-02	1.83E-02	1.83E-02
	Y	1.00E-02	5.0	1.72E-03	1.72E-03	0.19	7.10E-02	1.72E-03	0.14	1.72E-03	1.72E-03	1.72E-03	1.72E-03	1.72E-03
SR-91	D	0.20	5.0	8.71E-04	6.96E-04	4.79E-04	6.07E-04	5.95E-04	6.30E-04	6.53E-04	5.80E-04	6.35E-04	5.69E-04	8.06E-04
	Y	1.00E-02	5.0	4.29E-04	2.38E-04	2.06E-04	2.07E-04	1.13E-04	1.89E-04	1.93E-04	5.78E-05	2.12E-04	8.66E-05	2.36E-04
Y-90	W	1.00E-04	5.0	1.43E-04	1.43E-04	1.95E-03	8.39E-04	1.43E-04	1.47E-03	1.43E-04	1.43E-04	1.43E-04	1.43E-04	1.43E-04
Y-91M	W	1.00E-04	5.0	5.34E-06	1.56E-05	3.08E-05	1.70E-05	7.64E-06	2.64E-05	1.22E-05	3.32E-06	1.64E-05	7.58E-06	4.88E-06
Y-91	W	1.00E-04	5.0	9.44E-04	9.43E-04	2.91E-02	1.10E-02	9.42E-04	2.32E-02	9.38E-04	9.34E-04	9.41E-04	9.35E-04	9.39E-04
ZR-95	W	2.00E-03	5.0	4.30E-03	3.51E-03	1.06E-02	5.56E-03	4.02E-03	8.81E-03	2.89E-03	1.40E-03	3.69E-03	2.17E-03	2.94E-03
	Y	2.00E-03	5.0	2.99E-03	2.93E-03	1.99E-03	2.13E-03	1.53E-03	1.84E-03	2.52E-03	3.85E-04	3.99E-03	1.42E-03	1.35E-03
ZR-97	W	2.00E-03	5.0	1.30E-03	6.12E-04	6.09E-04	6.18E-04	3.63E-04	5.77E-04	4.32E-04	1.84E-04	4.65E-04	2.77E-04	6.61E-04
	Y	2.00E-03	5.0	1.30E-03	4.94E-04	2.22E-04	4.04E-04	2.29E-04	2.19E-04	3.85E-04	1.18E-04	3.83E-04	1.37E-04	6.10E-04

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
NB-95	Y	1.00E-02	5.0	1.26E-02	1.88E-02	1.65E-03	2.99E-03	5.79E-03	1.24E-02	1.14E-03	1.23E-03	8.24E-04	9.20E-04	1.26E-03
NB-97M	Y	1.00E-02	5.0	2.28E-05	2.28E-05	2.37E-06	1.57E-06	1.20E-06	2.60E-07	6.23E-07	5.17E-07	4.19E-08	2.52E-07	5.14E-07
NB-97	Y	1.00E-02	5.0	1.48E-03	1.48E-03	1.53E-04	1.09E-04	8.22E-05	1.78E-05	3.24E-05	1.75E-05	2.27E-06	9.93E-06	1.75E-05
MO-99	D	0.95	5.0	1.84E-03	1.41E-02	1.06E-03	3.05E-04	7.13E-04	1.12E-03	1.11E-03	9.35E-04	2.89E-04	1.25E-02	2.11E-02
	Y	5.00E-02	5.0	1.36E-02	1.40E-02	1.49E-03	3.36E-03	1.56E-02	3.71E-02	5.24E-04	1.58E-04	2.02E-04	7.40E-04	1.19E-03
TC-99M	D	0.80	5.0	4.77E-05	1.22E-04	6.10E-05	3.23E-05	5.18E-05	3.69E-05	1.36E-05	1.75E-05	1.29E-05	2.09E-05	2.74E-05
	W	0.80	5.0	2.21E-04	2.19E-04	4.85E-05	2.35E-05	3.90E-05	2.67E-05	1.48E-05	1.51E-05	6.58E-06	1.36E-05	2.27E-05
TC-99	D	0.80	5.0	3.86E-04	3.99E-03	7.28E-04	6.78E-05	4.01E-04	1.20E-03	2.21E-04	3.31E-04	1.65E-04	4.79E-04	6.57E-04
	W	0.80	5.0	1.99E-02	0.11	8.17E-04	1.41E-04	8.31E-04	2.50E-03	4.85E-04	2.59E-04	1.49E-04	4.33E-04	5.94E-04
RU-103	Y	4.00E-02	5.0	2.33E-02	4.32E-02	1.46E-03	2.69E-03	7.96E-03	2.04E-02	1.16E-03	1.06E-03	7.12E-04	7.99E-04	1.12E-03
RU-105	Y	4.00E-02	5.0	4.39E-03	4.40E-03	6.16E-04	9.46E-04	2.11E-03	2.21E-03	1.34E-04	7.47E-05	3.43E-05	5.66E-05	8.10E-05
RU-106	Y	4.00E-02	5.0	1.4	12.	6.91E-03	1.37E-02	7.58E-02	0.22	2.71E-02	1.10E-02	5.09E-03	1.02E-02	1.11E-02
RH-103M	Y	4.00E-02	5.0	9.02E-05	9.02E-05	7.29E-06	4.55E-06	2.53E-06	4.14E-07	1.40E-06	2.56E-08	9.53E-09	1.98E-08	4.90E-08
RH-105M	Y	4.00E-02	5.0	4.85E-06	4.91E-06	1.89E-07	3.89E-07	1.66E-06	3.34E-06	1.04E-07	2.36E-08	1.63E-08	1.64E-08	2.61E-08
RH-105	Y	4.00E-02	5.0	4.04E-03	4.08E-03	4.87E-04	1.09E-03	4.69E-03	9.41E-03	1.36E-04	3.71E-05	4.55E-05	3.75E-05	4.24E-05
RH-106	Y	4.00E-02	5.0	3.31E-05	3.31E-05	8.58E-08	5.14E-09	6.42E-09	1.35E-09	4.91E-07	3.51E-08	1.42E-09	1.71E-08	3.86E-08
SR-127	W	5.00E-02	5.0	1.68E-02	2.02E-02	1.83E-03	4.31E-03	1.87E-02	4.85E-02	8.87E-04	6.32E-04	6.30E-04	6.33E-04	5.97E-04
TE-127M	W	0.25	5.0	4.48E-02	0.19	9.76E-04	1.83E-03	1.06E-02	3.21E-02	1.59E-03	3.40E-03	1.72E-03	1.47E-02	2.08E-03
TE-127	W	0.25	5.0	2.86E-03	2.82E-03	3.28E-04	5.01E-04	1.50E-03	1.62E-03	6.91E-05	9.11E-05	4.79E-05	1.30E-04	3.95E-05
TE-129M	W	0.25	5.0	6.36E-02	0.17	2.10E-03	3.94E-03	2.19E-02	6.42E-02	2.38E-03	6.27E-03	3.20E-03	2.15E-02	3.62E-03
TE-129	W	0.25	5.0	1.44E-03	1.44E-03	1.20E-04	8.07E-05	5.54E-05	1.20E-05	2.54E-05	1.37E-05	6.98E-06	2.33E-05	8.71E-06
TE-131M	W	0.25	5.0	9.38E-03	1.05E-02	1.77E-03	3.25E-03	9.19E-03	1.58E-02	8.56E-04	1.46E-03	1.07E-03	1.66E-03	9.44E-04
TE-131	W	0.25	5.0	7.70E-04	7.85E-04	4.15E-05	1.32E-05	4.94E-06	1.35E-06	1.61E-05	9.28E-06	3.30E-06	1.06E-05	7.14E-06
TE-132	W	0.25	5.0	1.31E-02	2.75E-02	1.66E-03	2.48E-03	7.22E-03	1.96E-02	1.91E-03	3.42E-03	2.23E-03	5.34E-03	2.74E-03
I-129	D	0.95	5.0	4.34E-04	2.72E-03	6.54E-05	5.44E-05	6.15E-05	6.11E-05	2.91E-03	5.45E-04	3.14E-04	6.40E-04	6.62E-04
I-131	D	0.95	5.0	1.16E-03	8.36E-03	8.81E-05	4.96E-05	5.15E-05	4.83E-05	8.41E-04	1.06E-04	4.71E-05	1.99E-04	2.35E-04
I-132	D	0.95	5.0	7.20E-04	1.27E-03	9.99E-05	4.51E-05	4.53E-05	3.89E-05	1.09E-04	6.80E-05	3.82E-05	1.09E-04	1.26E-04
I-133	D	0.95	5.0	1.40E-03	8.96E-03	7.59E-05	3.26E-05	3.37E-05	3.46E-05	2.56E-04	1.40E-04	7.33E-05	1.29E-04	1.42E-04
I-134	D	0.95	5.0	5.34E-04	6.55E-04	7.37E-05	2.04E-05	1.83E-05	1.44E-05	4.77E-05	4.72E-05	2.30E-05	3.99E-05	4.88E-05
I-135	D	0.95	5.0	1.16E-03	5.37E-03	1.03E-04	6.07E-05	8.16E-05	7.62E-05	1.74E-04	1.35E-04	7.91E-05	1.29E-04	1.46E-04
CS-134	D	0.95	5.0	4.50E-02	5.19E-02	4.62E-02	4.94E-02	5.17E-02	5.28E-02	6.43E-02	9.20E-02	7.23E-02	9.58E-02	9.88E-02
CS-135	D	0.95	5.0	2.57E-04	2.66E-03	9.02E-05	1.13E-05	6.67E-05	2.01E-04	6.22E-03	1.06E-02	5.29E-03	1.06E-02	1.06E-02
CS-136	D	0.95	5.0	7.37E-03	1.26E-02	7.17E-03	7.28E-03	7.77E-03	8.26E-03	8.49E-03	1.15E-02	5.64E-03	1.24E-02	1.28E-02
CS-137	D	0.95	5.0	1.99E-02	2.97E-02	1.98E-02	2.10E-02	2.22E-02	2.30E-02	4.61E-02	7.05E-02	4.67E-02	7.26E-02	7.40E-02

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
NB-95	Y	1.00E-02	5.0	2.63E-03	1.40E-03	8.22E-04	1.14E-03	7.72E-04	7.73E-04	1.30E-03	3.89E-04	1.66E-03	6.01E-04	1.13E-03
NB-97M	Y	1.00E-02	5.0	1.12E-07	6.16E-07	2.26E-07	2.86E-07	2.30E-07	2.25E-07	5.01E-07	1.78E-08	8.01E-07	2.71E-07	8.23E-08
NB-97	Y	1.00E-02	5.0	6.60E-06	2.35E-05	8.25E-06	1.04E-05	8.02E-06	8.13E-06	1.84E-05	1.00E-06	2.56E-05	8.72E-06	4.93E-06
MO-99	D	0.95	5.0	5.32E-04	8.85E-04	1.89E-03	1.05E-03	6.24E-04	1.70E-03	6.22E-04	4.57E-04	5.83E-04	4.99E-04	5.78E-04
	Y	5.00E-02	5.0	5.15E-04	2.01E-04	1.84E-04	2.50E-04	1.38E-04	1.75E-04	1.60E-04	7.99E-05	1.61E-04	2.52E-04	2.92E-04
TC-99M	D	0.80	5.0	2.26E-05	2.56E-05	1.55E-05	2.24E-05	1.75E-05	1.61E-05	1.96E-05	1.07E-05	2.40E-05	2.31E-04	2.74E-05
	W	0.80	5.0	1.34E-05	2.44E-05	1.32E-05	1.87E-05	1.44E-05	1.35E-05	1.96E-05	4.78E-06	2.84E-05	1.03E-04	1.40E-05
TC-99	D	0.80	5.0	3.31E-04	3.31E-04	3.77E-04	3.36E-04	3.31E-04	4.29E-04	3.31E-04	3.31E-04	3.31E-04	1.48E-02	3.31E-04
	W	0.80	5.0	2.99E-04	2.99E-04	3.41E-04	3.04E-04	2.99E-04	3.87E-04	2.99E-04	2.99E-04	2.99E-04	1.34E-02	2.99E-04
RU-103	Y	4.00E-02	5.0	1.94E-03	1.30E-03	6.49E-04	9.59E-04	7.01E-04	6.70E-04	1.05E-03	4.20E-04	1.38E-03	5.99E-04	1.04E-03
RU-105	Y	4.00E-02	5.0	1.19E-04	1.06E-04	3.72E-05	6.05E-05	4.16E-05	3.80E-05	8.16E-05	1.21E-05	9.70E-05	3.41E-05	6.63E-05
RU-106	Y	4.00E-02	5.0	1.02E-02	1.13E-02	1.00E-02	1.04E-02	1.00E-02	1.17E-02	1.09E-02	9.37E-03	8.46E-03	1.01E-02	6.36E-03
RH-103M	Y	4.00E-02	5.0	2.91E-08	3.57E-08	3.49E-08	3.86E-08	3.92E-08	3.53E-08	4.14E-08	1.85E-08	3.65E-08	1.90E-08	2.25E-08
RH-105M	Y	4.00E-02	5.0	5.33E-08	2.78E-08	1.68E-08	2.63E-08	1.85E-08	1.77E-08	2.45E-08	7.98E-09	2.97E-08	9.92E-09	2.38E-08
RH-105	Y	4.00E-02	5.0	1.49E-04	5.06E-05	2.85E-05	5.05E-05	3.20E-05	3.10E-05	4.15E-05	2.22E-05	3.59E-05	1.83E-05	6.61E-05
RH-106	Y	4.00E-02	5.0	2.93E-09	4.34E-08	1.63E-08	2.05E-08	1.72E-08	1.63E-08	3.47E-08	6.99E-10	6.15E-08	2.03E-08	1.94E-09
SB-127	W	5.00E-02	5.0	1.82E-03	7.65E-04	4.19E-04	7.14E-04	5.46E-04	5.12E-04	6.75E-04	4.61E-04	7.33E-04	4.32E-04	1.05E-03
TE-127M	W	0.25	5.0	3.45E-03	3.44E-03	3.12E-03	3.40E-03	3.45E-03	4.00E-03	3.44E-03	3.37E-03	3.50E-03	3.37E-03	3.49E-03
TE-127	W	0.25	5.0	9.19E-05	9.18E-05	1.53E-05	7.08E-05	9.08E-05	5.29E-05	9.16E-05	9.05E-05	9.21E-05	9.06E-05	9.20E-05
TE-129M	W	0.25	5.0	6.39E-03	6.32E-03	2.36E-03	5.08E-03	6.24E-03	4.79E-03	6.31E-03	6.18E-03	6.53E-03	6.67E-03	6.56E-03
TE-129	W	0.25	5.0	1.28E-05	1.43E-05	3.55E-06	1.01E-05	1.30E-05	8.52E-06	1.39E-05	1.24E-05	1.48E-05	2.64E-05	1.32E-05
TE-131M	W	0.25	5.0	2.44E-03	1.73E-03	4.93E-04	1.31E-03	1.27E-03	8.77E-04	1.63E-03	1.16E-03	2.48E-03	0.13	2.98E-03
TE-131	W	0.25	5.0	5.78E-06	1.01E-05	3.72E-06	6.75E-06	7.28E-06	5.72E-06	9.24E-06	5.32E-06	1.46E-05	3.28E-03	7.31E-06
TE-132	W	0.25	5.0	4.14E-03	3.92E-03	1.61E-03	3.06E-03	3.00E-03	2.46E-03	3.63E-03	2.80E-03	6.21E-03	0.44	6.70E-03
I-129	D	0.95	5.0	5.40E-04	5.86E-04	8.24E-04	8.60E-04	7.38E-04	8.02E-04	5.68E-04	5.09E-04	1.39E-03	7.1	6.87E-04
I-131	D	0.95	5.0	5.58E-05	8.31E-05	3.31E-04	2.74E-04	1.39E-04	3.06E-04	8.25E-05	3.21E-05	1.01E-03	1.6	5.69E-05
I-132	D	0.95	5.0	4.56E-05	7.19E-05	9.56E-05	7.48E-05	4.76E-05	8.61E-05	5.76E-05	2.75E-05	1.23E-04	4.99E-02	4.93E-05
I-133	D	0.95	5.0	1.20E-04	1.46E-04	1.44E-04	1.54E-04	1.32E-04	1.66E-04	1.37E-04	1.08E-04	3.12E-04	0.39	1.40E-04
I-134	D	0.95	5.0	3.30E-05	5.35E-05	3.71E-05	4.18E-05	3.61E-05	4.12E-05	4.79E-05	2.71E-05	8.04E-05	1.94E-02	4.77E-05
I-135	D	0.95	5.0	1.16E-04	1.55E-04	1.29E-04	1.42E-04	1.20E-04	1.44E-04	1.38E-04	9.64E-05	2.99E-04	0.13	1.57E-04
CS-134	D	0.95	5.0	9.14E-02	0.10	7.57E-02	8.71E-02	7.72E-02	8.33E-02	9.25E-02	7.26E-02	0.11	7.34E-02	0.14
CS-135	D	0.95	5.0	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.22E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02
CS-136	D	0.95	5.0	1.18E-02	1.36E-02	9.52E-03	1.12E-02	9.75E-03	1.02E-02	1.19E-02	9.01E-03	9.09E-03	8.99E-03	1.30E-02
CS-137	D	0.95	5.0	7.08E-02	7.57E-02	6.42E-02	6.94E-02	6.50E-02	7.51E-02	7.13E-02	6.28E-02	8.00E-02	6.32E-02	9.26E-02

TOTAL INHALATION DOSES
(REM/MICROCURIE)

NUCLIDE	SOL	F1	AMAD	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
BA-137M	D	1.00E-01	5.0	9.65E-06	9.66E-06	2.02E-06	1.83E-07	1.76E-07	6.96E-08	4.39E-07	5.84E-07	6.72E-08	3.16E-07	5.82E-07
BA-140	D	1.00E-01	5.0	4.24E-03	3.80E-02	1.57E-03	3.21E-03	1.18E-02	3.89E-02	2.40E-03	2.68E-03	2.11E-03	1.70E-03	1.57E-03
LA-140	M	1.00E-04	5.0	1.64E-02	1.70E-02	2.90E-03	6.76E-03	2.07E-02	3.94E-02	1.32E-03	9.41E-04	1.07E-03	2.49E-03	3.54E-03
CE-141	Y	1.00E-04	5.0	2.56E-02	4.65E-02	7.79E-04	1.85E-03	9.28E-03	2.68E-02	6.23E-04	1.47E-04	1.08E-04	3.78E-04	1.18E-03
	M	1.00E-04	5.0	1.81E-02	4.62E-02	7.77E-04	1.74E-03	8.38E-03	2.39E-02	1.23E-03	4.20E-04	1.59E-04	4.34E-03	1.48E-02
	D	1.00E-04	5.0	1.44E-03	8.47E-03	7.82E-04	1.27E-03	4.75E-03	1.22E-02	3.68E-03	1.48E-03	3.42E-04	1.91E-02	6.52E-02
CE-143	Y	1.00E-04	5.0	1.26E-02	1.33E-02	1.43E-03	3.37E-03	1.42E-02	2.92E-02	4.28E-04	9.28E-05	1.38E-04	1.49E-04	3.13E-04
	M	1.00E-04	5.0	1.14E-02	1.31E-02	1.26E-03	2.95E-03	1.23E-02	2.54E-02	5.20E-04	1.36E-04	1.32E-04	8.77E-04	2.84E-03
	D	1.00E-04	5.0	1.64E-03	1.21E-02	8.42E-04	1.94E-03	7.90E-03	1.60E-02	7.73E-04	2.68E-04	1.32E-04	3.42E-03	1.17E-02
CE-144	Y	1.00E-04	5.0	1.0	7.9	5.44E-03	1.23E-02	7.05E-02	0.21	2.01E-02	8.55E-04	2.94E-04	2.30E-02	7.87E-02
	M	1.00E-04	5.0	0.26	1.3	4.93E-03	1.14E-02	6.39E-02	0.19	5.15E-02	6.50E-03	2.69E-03	0.27	0.93
	D	1.00E-04	5.0	8.75E-03	6.40E-02	4.30E-03	7.53E-03	3.38E-02	9.35E-02	0.20	2.67E-02	1.10E-02	1.1	3.9
PR-143	Y	1.00E-04	5.0	2.43E-02	3.14E-02	1.11E-03	2.74E-03	1.58E-02	4.51E-02	5.62E-04	3.92E-06	1.98E-06	2.14E-04	7.39E-04
	M	1.00E-04	5.0	2.05E-02	3.58E-02	9.77E-04	2.42E-03	1.39E-02	3.98E-02	9.66E-04	5.46E-05	2.76E-05	2.98E-03	1.03E-02
	D	1.00E-04	5.0	1.39E-03	1.38E-02	5.05E-04	1.25E-03	7.17E-03	2.05E-02	2.44E-03	2.47E-04	1.25E-04	1.35E-02	4.66E-02
PR-144M	Y	1.00E-04	5.0	4.03E-04	4.03E-04	2.25E-05	6.01E-06	1.18E-06	6.85E-08	5.98E-06	9.79E-08	8.67E-09	3.05E-07	1.03E-06
	M	1.00E-04	5.0	3.66E-04	3.66E-04	1.83E-05	4.93E-06	9.83E-07	6.47E-08	6.00E-06	1.86E-07	5.33E-08	3.53E-06	1.21E-05
	D	1.00E-04	5.0	1.62E-04	1.78E-04	1.56E-04	4.51E-05	9.06E-06	5.41E-07	5.20E-06	4.07E-07	1.77E-07	1.17E-05	4.00E-05
PR-144	Y	1.00E-04	5.0	9.43E-04	9.43E-04	3.95E-05	9.27E-06	1.74E-06	1.01E-07	1.38E-05	1.48E-07	1.59E-08	4.70E-07	1.52E-06
	M	1.00E-04	5.0	8.85E-04	8.95E-04	3.32E-05	7.81E-06	1.49E-06	1.11E-07	1.38E-05	2.70E-07	8.47E-08	5.51E-06	1.88E-05
	D	1.00E-04	5.0	4.95E-04	5.24E-04	3.08E-04	7.24E-05	1.35E-05	8.37E-07	1.23E-05	6.63E-07	3.20E-07	2.15E-05	7.35E-05
ND-147	Y	1.00E-04	5.0	1.95E-02	3.44E-02	1.15E-03	2.86E-03	1.40E-02	3.87E-02	5.86E-04	1.23E-04	1.56E-04	2.98E-04	8.47E-04
	M	1.00E-04	5.0	1.64E-02	2.63E-02	1.07E-03	2.58E-03	1.24E-02	3.42E-02	9.86E-04	3.08E-04	1.79E-04	2.80E-03	9.50E-03
	D	1.00E-04	5.0	1.61E-03	1.21E-02	7.83E-04	1.57E-03	6.77E-03	1.79E-02	2.44E-03	9.83E-04	2.73E-04	1.22E-02	4.21E-02
PM-147	Y	1.00E-04	5.0	0.10	1.5	2.31E-04	5.76E-04	3.41E-03	1.02E-02	2.28E-03	8.10E-05	4.05E-05	4.44E-03	1.53E-02
	M	1.00E-04	5.0	1.39E-02	7.34E-02	2.06E-04	5.13E-04	3.04E-03	9.09E-03	6.94E-03	7.05E-04	3.53E-04	3.87E-02	0.13
	D	1.00E-04	5.0	2.84E-04	2.92E-03	1.00E-04	2.49E-04	1.47E-03	4.39E-03	2.75E-02	2.89E-03	1.44E-03	0.16	0.55
SM-147	Y	1.00E-04	5.0	47.	3.31E 03	8.57E-04	2.13E-03	1.25E-02	3.77E-02	8.6	0.29	0.14	16.	55.
	M	1.00E-04	5.0	5.2	26.	7.89E-04	1.91E-03	1.11E-02	3.33E-02	39.	1.6	0.78	86.	2.95E 02
	D	1.00E-04	5.0	9.27E-02	1.0	5.27E-04	1.07E-03	5.48E-03	1.62E-02	1.59E 02	6.3	3.2	3.48E 02	1.20E 03

TOTAL INHALATION DOSES (REM/MICROCURIE)														
NUCLIDE	SOL	F1	AMAD	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMS	THYROID	UTERUS
BA-137M	D	1.00E-01	5.0	1.04E-07	8.44E-07	2.41E-07	3.19E-07	2.71E-07	2.49E-07	6.35E-07	4.88E-08	8.68E-07	3.09E-07	1.25E-07
BA-140	D	1.00E-01	5.0	3.77E-03	2.80E-03	6.69E-03	4.28E-03	2.74E-03	6.13E-03	2.57E-03	2.34E-03	3.13E-03	2.26E-03	3.58E-03
LA-140	W	1.00E-04	5.0	3.06E-03	1.19E-03	1.14E-03	1.23E-03	6.55E-04	1.02E-03	8.78E-04	3.54E-04	9.00E-04	2.84E-04	1.52E-03
CE-141	Y	1.00E-04	5.0	3.47E-04	1.68E-04	3.77E-04	2.58E-04	1.32E-04	3.12E-04	1.37E-04	3.08E-05	1.94E-04	4.44E-05	1.52E-04
	W	1.00E-04	5.0	4.25E-04	4.07E-04	3.99E-03	1.17E-03	3.87E-04	3.08E-03	2.48E-04	1.21E-04	2.58E-04	1.35E-04	2.52E-04
	D	1.00E-04	5.0	7.01E-04	1.34E-03	1.74E-02	4.59E-03	1.36E-03	1.34E-02	7.02E-04	4.57E-04	5.78E-04	4.88E-04	6.17E-04
CE-143	Y	1.00E-04	5.0	5.22E-04	1.40E-04	1.22E-04	1.80E-04	8.77E-05	1.12E-04	1.10E-04	3.53E-05	1.04E-04	2.76E-05	2.12E-04
	W	1.00E-04	5.0	4.76E-04	1.70E-04	7.76E-04	3.86E-04	1.19E-04	6.33E-04	1.25E-04	5.25E-05	1.19E-04	4.52E-05	2.06E-04
	D	1.00E-04	5.0	3.93E-04	2.59E-04	3.05E-03	1.11E-03	2.23E-04	2.45E-03	1.57E-04	1.04E-04	1.25E-04	9.50E-05	2.16E-04
CE-144	Y	1.00E-04	5.0	6.65E-04	8.88E-04	2.09E-02	8.34E-03	7.36E-04	1.40E-02	7.93E-04	4.47E-04	1.05E-03	5.65E-04	5.37E-04
	W	1.00E-04	5.0	5.40E-03	6.21E-03	0.24	9.54E-02	6.08E-03	0.16	5.45E-03	5.07E-03	5.38E-03	5.08E-03	5.26E-03
	D	1.00E-04	5.0	2.18E-02	2.54E-02	1.0	0.40	2.50E-02	0.68	2.23E-02	2.10E-02	2.17E-02	2.09E-02	2.16E-02
PR-143	Y	1.00E-04	5.0	3.92E-06	3.92E-06	1.97E-04	6.04E-05	3.92E-06	1.59E-04	3.92E-06	3.92E-06	3.92E-06	3.92E-06	3.92E-06
	W	1.00E-04	5.0	5.46E-05	5.46E-05	2.74E-03	8.40E-04	5.46E-05	2.22E-03	5.46E-05	5.46E-05	5.46E-05	5.46E-05	5.46E-05
	D	1.00E-04	5.0	2.47E-04	2.47E-04	1.24E-02	3.81E-03	2.47E-04	1.00E-02	2.47E-04	2.47E-04	2.47E-04	2.47E-04	2.47E-04
PR-144M	Y	1.00E-04	5.0	1.60E-08	1.38E-07	3.12E-07	1.87E-07	8.77E-08	2.32E-07	1.28E-07	8.60E-09	2.03E-07	4.66E-08	1.74E-08
	W	1.00E-04	5.0	1.01E-07	2.17E-07	3.23E-06	1.37E-06	1.74E-07	2.18E-06	2.04E-07	9.12E-08	2.73E-07	1.26E-07	1.00E-07
	D	1.00E-04	5.0	3.41E-07	5.43E-07	1.06E-05	4.35E-06	3.84E-07	7.08E-06	4.46E-07	2.58E-07	4.03E-07	3.12E-07	3.36E-07
PR-144	Y	1.00E-04	5.0	3.05E-08	2.10E-07	4.31E-07	2.43E-07	9.04E-08	7.13E-07	1.83E-07	1.30E-08	3.15E-07	9.37E-08	2.95E-08
	W	1.00E-04	5.0	1.45E-07	3.21E-07	4.99E-06	2.10E-06	2.06E-07	3.35E-06	2.89E-07	1.28E-07	4.13E-07	2.03E-07	1.44E-07
	D	1.00E-04	5.0	5.59E-07	8.33E-07	1.94E-05	8.01E-06	5.71E-07	1.30E-05	7.04E-07	4.95E-07	6.65E-07	5.32E-07	5.53E-07
ND-147	Y	1.00E-04	5.0	5.53E-04	1.64E-04	2.85E-04	2.60E-04	1.26E-04	2.39E-04	1.30E-04	4.65E-05	1.48E-04	4.09E-05	2.17E-04
	W	1.00E-04	5.0	5.61E-04	3.21E-04	2.56E-03	8.65E-04	2.81E-04	1.98E-03	2.06E-04	1.00E-04	2.14E-04	1.03E-04	2.63E-04
	D	1.00E-04	5.0	6.01E-04	8.91E-04	1.11E-02	3.15E-03	8.54E-04	8.55E-03	4.72E-04	3.02E-04	4.20E-04	3.25E-04	4.41E-04
PM-147	Y	1.00E-04	5.0	8.09E-05	8.10E-05	4.31E-03	4.56E-04	8.09E-05	2.84E-03	8.09E-05	8.09E-05	8.10E-05	8.09E-05	8.09E-05
	W	1.00E-04	5.0	7.05E-04	7.05E-04	3.76E-02	3.97E-03	7.05E-04	2.47E-02	7.05E-04	7.05E-04	7.05E-04	7.05E-04	7.05E-04
	D	1.00E-04	5.0	2.88E-03	2.89E-03	0.15	1.63E-02	2.89E-03	0.10	2.88E-03	2.88E-03	2.88E-03	2.88E-03	2.88E-03
SM-147	Y	1.00E-04	5.0	0.29	0.29	78.	0.30	0.29	9.4	0.29	0.29	0.29	0.29	0.29
	W	1.00E-04	5.0	1.6	1.6	4.24E 02	1.6	1.6	51.	1.6	1.6	1.6	1.6	1.6
	D	1.00E-04	5.0	6.3	6.3	1.72E 03	6.6	6.3	2.06E 02	6.3	6.3	6.3	6.3	6.3

TOTAL INGESTION DOSES
(REM/MICROCURIE)

NUCLIDE	F1	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
H-3	0.95	8.36E-05	1.66E-04	1.09E-04	8.97E-05	1.09E-04	1.43E-04	8.30E-05	8.92E-03	8.18E-05	8.56E-05	8.28E-05
C-14	0.95	8.49E-04	1.80E-03	1.21E-03	1.01E-03	1.11E-03	1.46E-03	1.92E-03	2.35E-03	9.00E-04	1.06E-03	1.23E-03
NA-22	0.95	9.13E-03	9.13E-03	1.04E-02	1.03E-02	1.12E-02	1.35E-02	1.36E-02	1.61E-02	1.24E-02	1.49E-02	1.40E-02
P-32	0.80	4.23E-05	4.23E-05	3.00E-03	1.52E-03	8.54E-03	2.45E-02	4.70E-03	4.02E-03	2.03E-03	4.01E-03	4.02E-03
MN-54	1.00E-01	8.03E-04	8.03E-04	1.44E-03	3.54E-03	4.90E-03	7.99E-03	1.23E-03	1.51E-03	1.34E-03	1.46E-03	3.68E-03
FE-55	1.00E-01	1.23E-05	1.23E-05	1.84E-05	4.66E-05	2.54E-04	7.08E-04	3.50E-04	6.20E-04	2.45E-04	6.44E-04	1.22E-03
FE-59	1.00E-01	1.72E-03	1.72E-03	3.33E-03	6.64E-03	1.37E-02	3.02E-02	2.94E-03	3.69E-03	3.65E-03	4.04E-03	5.65E-03
CO-57	5.00E-02	6.65E-05	6.65E-05	2.85E-04	7.94E-04	1.88E-03	4.56E-03	1.84E-04	1.58E-04	2.92E-04	2.12E-04	2.53E-04
CO-58	5.00E-02	2.64E-04	2.64E-04	1.35E-03	4.09E-03	7.08E-03	1.45E-02	7.65E-04	5.14E-04	1.32E-03	7.74E-04	7.73E-04
CO-60	5.00E-02	2.68E-03	2.68E-03	5.30E-03	1.21E-02	2.03E-02	4.02E-02	4.37E-03	4.94E-03	6.24E-03	5.67E-03	6.83E-03
ZN-65	0.50	1.02E-02	1.02E-02	1.05E-02	1.22E-02	1.31E-02	1.51E-02	1.26E-02	1.71E-02	1.33E-02	1.69E-02	1.67E-02
RB-86	0.95	3.93E-04	3.93E-04	3.29E-03	8.12E-04	2.54E-03	6.46E-03	1.00E-02	1.69E-02	8.67E-03	1.69E-02	1.69E-02
SR-89	0.20	9.64E-08	9.64E-08	2.49E-03	4.96E-03	2.91E-02	8.67E-02	1.80E-03	8.55E-04	4.27E-04	8.55E-04	8.55E-04
	1.00E-02	1.58E-08	1.58E-08	2.49E-03	6.14E-03	3.60E-02	0.11	4.87E-04	4.28E-05	2.15E-05	4.28E-05	4.28E-05
SR-90	0.20	5.94E-09	5.94E-09	8.76E-04	2.10E-03	1.79E-02	7.78E-02	9.45E-02	5.99E-03	3.00E-03	5.99E-03	5.71E-03
	1.00E-02	2.97E-10	2.97E-10	8.76E-04	2.57E-03	2.20E-02	9.60E-02	5.02E-03	3.00E-04	1.50E-04	3.00E-04	2.86E-04
SR-91	0.20	4.86E-05	4.86E-05	3.13E-03	5.50E-03	1.50E-02	1.62E-02	3.54E-04	2.43E-04	3.10E-04	3.41E-04	2.63E-04
	1.00E-02	3.44E-05	3.44E-05	3.14E-03	6.48E-03	1.77E-02	1.91E-02	3.03E-04	9.58E-05	2.57E-04	2.07E-04	1.49E-04
Y-90	1.00E-04	9.80E-09	9.80E-09	3.93E-03	9.40E-03	4.86E-02	0.12	5.07E-04	1.18E-07	6.42E-08	1.18E-07	3.45E-07
Y-91M	1.00E-04	4.75E-06	4.75E-06	1.81E-04	1.14E-04	1.14E-04	8.82E-05	9.40E-06	7.42E-06	8.60E-06	1.45E-05	9.10E-06
Y-91	1.00E-04	3.30E-07	3.30E-07	2.57E-03	6.41E-03	3.76E-02	0.11	4.37E-04	1.62E-06	4.50E-06	2.59E-06	2.27E-05
ZR-95	2.00E-03	8.13E-05	8.13E-05	1.31E-03	4.13E-03	1.12E-02	2.86E-02	5.45E-04	2.19E-04	9.04E-04	4.18E-04	2.95E-04
ZR-97	2.00E-03	6.41E-05	6.41E-05	4.49E-03	1.25E-02	4.47E-02	6.63E-02	7.22E-04	1.82E-04	6.50E-04	4.09E-04	2.96E-04
NB-95	1.00E-02	9.79E-05	9.79E-05	1.03E-03	3.36E-03	6.64E-03	1.46E-02	5.04E-04	2.52E-04	9.00E-04	4.99E-04	3.17E-04
NB-97M	1.00E-02	3.21E-07	3.21E-07	2.71E-05	1.57E-05	1.18E-05	2.64E-06	6.28E-07	4.35E-07	2.91E-07	7.59E-07	4.73E-07
NB-97	1.00E-02	7.26E-06	7.26E-06	1.43E-03	1.09E-03	8.10E-04	1.75E-04	2.90E-05	1.25E-05	1.60E-05	2.54E-05	1.62E-05
MO-99	0.95	2.79E-04	2.79E-04	2.00E-03	4.79E-04	1.46E-03	2.84E-03	1.18E-03	1.00E-03	3.19E-04	1.35E-02	2.27E-02
	5.00E-02	3.00E-05	3.00E-05	1.90E-03	4.49E-03	2.09E-02	5.00E-02	3.76E-04	9.69E-05	2.57E-04	7.88E-04	1.23E-03
TC-99M	0.80	8.45E-06	8.45E-06	1.30E-04	7.56E-05	1.29E-04	8.84E-05	1.54E-05	1.72E-05	1.67E-05	2.45E-05	2.76E-05
TC-99	0.80	0.0	0.0	9.30E-04	1.80E-04	1.07E-03	3.20E-03	2.14E-04	3.17E-04	1.58E-04	4.58E-04	6.28E-04
RU-103	4.00E-02	1.36E-04	1.36E-04	1.01E-03	3.00E-03	9.24E-03	2.41E-02	5.29E-04	3.90E-04	7.66E-04	5.28E-04	4.67E-04
RU-105	4.00E-02	1.96E-05	1.96E-05	1.94E-03	3.09E-03	6.23E-03	5.18E-03	1.25E-04	4.90E-05	1.00E-04	1.02E-04	7.33E-05
RU-106	4.00E-02	2.17E-04	2.17E-04	6.41E-03	1.56E-02	8.73E-02	0.26	5.94E-03	8.20E-03	4.44E-03	8.25E-03	8.27E-03

TOTAL INGESTION DOSES
(REM/MICROCURIE)

NUCLIDE	F1	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
H-3	0.95	8.29E-05	8.06E-05	3.71E-05	8.26E-05	9.43E-05	6.56E-05	8.28E-05	8.30E-05	7.45E-05	8.28E-05	8.34E-05
C-14	0.95	7.36E-04	1.09E-03	1.17E-03	3.38E-03	5.41E-03	7.05E-03	9.45E-04	7.23E-04	9.78E-04	8.89E-04	9.51E-04
NA-22	0.95	1.57E-02	1.66E-02	2.50E-02	1.95E-02	1.53E-02	2.40E-02	1.42E-02	1.13E-02	2.14E-02	1.21E-02	2.47E-02
P-32	0.80	4.02E-03	4.02E-03	3.24E-02	1.48E-02	4.02E-03	2.70E-02	4.02E-03	4.01E-03	4.02E-03	4.02E-03	4.02E-03
MN-54	1.00E-01	3.61E-03	1.52E-03	1.42E-03	1.76E-03	1.35E-03	1.36E-03	1.02E-03	7.10E-04	8.02E-04	4.64E-04	2.20E-03
FE-55	1.00E-01	6.59E-04	6.98E-04	5.27E-04	6.41E-04	6.25E-04	4.37E-04	1.99E-03	6.20E-04	5.58E-04	6.32E-04	5.74E-04
FE-59	1.00E-01	6.88E-03	4.36E-03	2.85E-03	3.69E-03	2.95E-03	3.09E-03	6.79E-03	2.82E-03	4.01E-03	2.47E-03	6.82E-03
CO-57	5.00E-02	7.05E-04	2.32E-04	1.73E-04	3.57E-04	2.22E-04	1.78E-04	1.87E-04	1.49E-04	1.77E-04	1.10E-04	4.70E-04
CO-58	5.00E-02	3.92E-03	7.83E-04	4.50E-04	9.67E-04	5.25E-04	4.58E-04	6.44E-04	5.39E-04	3.95E-04	2.20E-04	2.00E-03
CO-50	5.00E-02	1.24E-02	5.94E-03	3.81E-03	5.42E-03	3.98E-03	3.99E-03	5.06E-03	3.82E-03	5.75E-03	3.10E-03	1.06E-02
ZN-65	0.50	1.65E-02	1.82E-02	1.63E-02	1.73E-02	1.50E-02	1.58E-02	1.56E-02	1.15E-02	1.94E-02	1.12E-02	3.01E-02
RB-86	0.95	1.69E-02	1.70E-02	1.67E-02	1.68E-02	1.67E-02	2.11E-02	1.69E-02	1.67E-02	1.70E-02	1.67E-02	1.75E-02
SR-89	0.20	8.56E-04	8.55E-04	1.33E-02	5.23E-03	8.55E-04	1.08E-02	8.55E-04	8.55E-04	8.55E-04	8.55E-04	8.55E-04
	1.00E-02	4.32E-05	4.28E-05	6.62E-04	2.61E-04	4.28E-05	5.38E-04	4.28E-05	4.28E-05	4.27E-05	4.27E-05	4.30E-05
SR-90	0.20	5.99E-03	5.99E-03	1.2	0.43	5.99E-03	0.86	5.99E-03	5.99E-03	5.99E-03	5.99E-03	5.99E-03
	1.00E-02	3.00E-04	3.00E-04	5.85E-02	2.15E-02	3.00E-04	4.30E-02	3.00E-04	2.99E-04	3.00E-04	3.00E-04	3.00E-04
SR-91	0.20	9.44E-04	3.71E-04	1.81E-04	3.19E-04	2.37E-04	2.26E-04	3.05E-04	2.19E-04	1.84E-04	1.63E-04	5.82E-04
	1.00E-02	9.24E-04	2.25E-04	7.30E-05	2.04E-04	9.75E-05	7.51E-05	1.61E-04	7.83E-05	2.23E-05	1.20E-05	4.72E-04
Y-90	1.00E-04	1.25E-07	1.18E-07	1.61E-06	6.94E-07	1.19E-07	1.22E-06	1.18E-07	1.18E-07	1.18E-07	1.18E-07	1.18E-07
Y-91M	1.00E-04	2.57E-05	4.15E-05	3.23E-06	8.28E-06	4.47E-06	3.22E-06	2.37E-05	1.20E-06	9.91E-07	4.34E-07	2.13E-05
Y-91	1.00E-04	1.34E-05	2.41E-06	2.45E-05	1.15E-05	1.90E-06	1.97E-05	2.21E-06	1.86E-06	9.01E-07	8.07E-07	6.35E-06
ZR-95	2.00E-03	3.02E-03	3.92E-04	3.53E-04	6.62E-04	3.10E-04	3.30E-04	3.27E-04	2.98E-04	5.22E-05	3.22E-05	1.24E-03
ZR-97	2.00E-03	2.30E-03	3.98E-04	1.67E-04	4.77E-04	2.14E-04	1.67E-04	2.97E-04	1.93E-04	2.84E-05	1.10E-05	1.05E-03
NB-95	1.00E-02	2.99E-03	4.25E-04	3.51E-04	6.74E-04	3.36E-04	3.22E-04	4.09E-04	3.58E-04	6.23E-05	4.71E-05	1.24E-03
NB-97M	1.00E-02	9.03E-07	2.89E-06	1.59E-07	3.48E-07	2.16E-07	1.58E-07	1.64E-06	5.42E-08	9.48E-08	3.12E-08	7.14E-07
NB-97	1.00E-02	5.37E-05	6.13E-05	6.03E-05	1.56E-05	8.07E-06	6.04E-06	3.61E-05	2.95E-06	2.10E-06	7.85E-07	4.10E-05
MO-99	0.95	5.99E-04	9.60E-04	2.04E-03	1.14E-03	6.72E-04	1.84E-03	6.72E-04	4.94E-04	6.15E-04	5.25E-04	6.34E-04
	5.00E-02	7.98E-04	1.46E-04	1.70E-04	2.51E-04	1.19E-04	1.60E-04	1.10E-04	9.38E-05	4.58E-05	1.36E-04	3.62E-04
TC-99M	0.80	3.79E-05	3.54E-05	1.57E-05	2.61E-05	1.84E-05	1.63E-05	2.44E-05	1.10E-05	1.95E-05	2.19E-04	3.56E-05
TC-99	0.80	3.17E-04	3.17E-04	3.61E-04	3.22E-04	3.17E-04	4.10E-04	3.17E-04	3.17E-04	3.17E-04	1.41E-02	3.17E-04
RU-103	4.00E-02	2.17E-03	5.43E-04	3.75E-04	6.52E-04	4.18E-04	3.96E-04	4.67E-04	4.27E-04	3.56E-04	2.53E-04	1.11E-03
RU-105	4.00E-02	3.67E-04	1.46E-04	3.44E-05	9.00E-05	4.51E-05	3.56E-05	9.48E-05	2.89E-05	1.05E-05	7.55E-06	2.08E-04
RU-106	4.00E-02	8.96E-03	8.29E-03	8.12E-03	8.31E-03	8.13E-03	9.57E-03	8.23E-03	8.14E-03	5.13E-03	8.06E-03	5.54E-03

TOTAL INGESTION DOSES
(REM/MICROCURIE)

NUCLIDE	F1	LUNGS	RES LYM	S WALL	SI WALL	ULI WALL	LLI WALL	T BODY	ADREN	BL WALL	KIDNEYS	LIVER
RH-103M	4.00E-02	6.21E-09	6.21E-09	9.27E-05	5.80E-05	3.28E-05	5.26E-06	8.96E-07	1.69E-08	1.00E-08	2.13E-08	2.21E-08
RH-105M	4.00E-02	9.33E-09	9.33E-09	7.79E-05	6.76E-07	2.51E-06	5.01E-06	6.34E-08	1.99E-08	2.44E-08	2.88E-08	2.00E-08
RH-105	4.00E-02	4.83E-06	4.83E-06	7.10E-04	1.64E-03	7.03E-03	1.41E-02	1.02E-04	2.55E-05	6.52E-05	4.19E-05	3.35E-05
RH-106	4.00E-02	3.22E-08	3.22E-08	7.20E-05	5.85E-07	6.44E-08	2.42E-08	1.89E-07	3.85E-08	8.85E-09	5.79E-08	3.57E-08
SB-127	5.00E-02	5.81E-05	5.81E-05	2.06E-03	5.72E-03	2.58E-02	7.00E-02	6.13E-04	2.52E-04	7.01E-04	4.16E-04	2.95E-04
TE-127M	0.25	2.32E-05	2.32E-05	4.53E-04	1.17E-03	1.02E-02	3.80E-02	7.60E-04	2.56E-03	1.30E-03	1.15E-02	1.59E-03
TE-127	0.25	4.86E-06	4.86E-06	8.94E-04	1.37E-03	4.11E-03	4.44E-03	5.34E-05	9.56E-05	5.11E-05	1.37E-04	4.14E-05
TE-129M	0.25	7.19E-05	7.19E-05	1.84E-03	4.64E-03	2.88E-02	8.56E-02	1.29E-03	4.98E-03	2.59E-03	1.74E-02	2.87E-03
TE-129	0.25	1.35E-06	1.35E-06	1.47E-03	9.89E-04	6.73E-04	1.33E-04	1.73E-05	8.01E-06	5.12E-06	1.48E-05	5.41E-06
TE-131M	0.25	2.11E-04	2.11E-04	2.42E-03	5.55E-03	1.62E-02	2.80E-02	7.82E-04	1.21E-03	1.33E-03	1.64E-03	7.72E-04
TE-131	0.25	3.02E-06	3.02E-06	1.21E-03	3.84E-04	1.16E-04	1.32E-05	1.16E-05	4.79E-06	2.98E-06	8.21E-06	4.73E-06
TE-132	0.25	6.41E-04	6.41E-04	1.46E-03	3.24E-03	1.04E-02	2.92E-02	1.53E-03	2.76E-03	2.18E-03	4.69E-03	2.21E-03
I-129	0.95	1.79E-04	1.79E-04	7.84E-05	6.06E-05	6.78E-05	6.70E-05	3.18E-03	5.96E-04	3.44E-04	7.02E-04	7.24E-04
I-131	0.95	2.86E-04	2.86E-04	1.14E-04	5.70E-05	5.65E-05	5.32E-05	9.08E-04	1.02E-04	5.17E-05	2.15E-04	2.45E-04
I-132	0.95	6.35E-05	6.35E-05	1.92E-04	6.64E-05	6.04E-05	5.15E-05	1.18E-04	6.45E-05	4.96E-05	1.33E-04	1.40E-04
I-133	0.95	7.29E-05	7.29E-05	1.31E-04	4.30E-05	3.89E-05	3.98E-05	2.65E-04	1.44E-04	8.41E-05	1.42E-04	1.47E-04
I-134	0.95	2.63E-05	2.63E-05	1.89E-04	3.93E-05	2.90E-05	2.22E-05	5.05E-05	5.11E-05	3.42E-05	5.26E-05	5.28E-05
I-135	0.95	8.36E-05	8.36E-05	1.64E-04	7.86E-05	9.70E-05	9.27E-05	1.77E-04	1.44E-04	9.45E-05	1.45E-04	1.48E-04
CS-134	0.95	4.68E-02	4.68E-02	4.99E-02	5.28E-02	5.55E-02	5.75E-02	6.84E-02	9.78E-02	7.69E-02	0.10	0.10
CS-135	0.95	0.0	0.0	2.40E-04	3.00E-05	1.77E-04	5.35E-04	6.61E-03	1.12E-02	5.62E-03	1.12E-02	1.12E-02
CS-136	0.95	6.79E-03	6.79E-03	8.44E-03	8.06E-03	8.88E-03	1.01E-02	9.05E-03	1.27E-02	1.04E-02	1.32E-02	1.36E-02
CS-137	0.95	1.99E-02	1.99E-02	2.18E-02	2.25E-02	2.41E-02	2.59E-02	4.91E-02	7.54E-02	4.97E-02	7.73E-02	7.87E-02
BA-137M	1.00E-01	4.60E-07	4.60E-07	2.87E-05	1.70E-06	1.16E-06	4.27E-07	5.12E-07	5.48E-07	1.63E-07	8.61E-07	5.29E-07
BA-140	1.00E-01	1.91E-04	1.91E-04	2.10E-03	6.19E-03	2.84E-02	9.95E-02	1.11E-03	6.03E-04	1.42E-03	6.05E-04	4.68E-04
LA-140	1.00E-04	1.45E-04	1.45E-04	4.04E-03	1.10E-02	3.42E-02	6.58E-02	1.04E-03	3.79E-04	1.64E-03	8.10E-04	5.90E-04
CE-141	1.00E-04	4.68E-06	4.68E-06	8.22E-04	2.18E-03	1.10E-02	3.18E-02	1.72E-04	1.61E-05	1.21E-04	4.68E-05	4.11E-05
CE-143	1.00E-04	1.41E-05	1.41E-05	2.05E-03	5.01E-03	2.09E-02	4.28E-02	3.03E-04	4.34E-05	2.06E-04	1.04E-04	7.59E-05
CE-144	1.00E-04	4.48E-06	4.48E-06	4.03E-03	1.37E-02	8.16E-02	0.25	1.00E-03	1.59E-05	7.32E-05	2.36E-04	7.38E-04
PR-143	1.00E-04	3.97E-10	3.97E-10	1.34E-03	3.31E-03	1.91E-02	5.46E-02	2.16E-04	4.60E-08	2.33E-08	2.51E-06	8.66E-06
PR-144M	1.00E-04	7.38E-08	7.38E-08	5.69E-04	2.01E-04	4.28E-05	2.46E-06	3.29E-06	9.90E-08	5.48E-08	1.56E-07	9.58E-08
PR-144	1.00E-04	1.16E-07	1.16E-07	1.52E-03	3.56E-04	6.56E-05	3.58E-06	6.84E-06	1.92E-07	9.76E-08	2.68E-07	1.75E-07
ND-147	1.00E-04	8.92E-06	8.92E-06	1.31E-03	3.47E-03	1.70E-02	4.72E-02	2.69E-04	2.83E-05	1.83E-04	7.28E-05	5.70E-05
PM-147	1.00E-04	4.37E-10	4.37E-10	2.64E-04	6.60E-04	3.90E-03	1.17E-02	5.02E-05	5.39E-07	2.75E-07	2.96E-05	1.02E-04
SM-147	1.00E-04	3.12E-08	3.12E-08	9.53E-04	2.40E-03	1.41E-02	4.26E-02	2.98E-02	1.18E-03	5.91E-04	6.49E-02	0.22

TOTAL INGESTION DOSES
(REM/MICROCURIE)

NUCLIDE	FI	OVARIES	PANCREAS	BONE	R MAR	Y MAR	ENDOST	SPLEEN	TESTES	THYMUS	THYROID	UTERUS
RH-103M	4.00E-02	1.45E-07	1.65E-07	2.30E-08	4.05E-08	2.60E-08	2.33E-08	4.42E-08	1.58E-08	1.63E-08	1.58E-08	6.22E-08
RH-105M	4.00E-02	8.03E-08	1.09E-07	1.35E-08	2.72E-08	1.68E-08	1.45E-08	5.51E-08	1.05E-08	4.68E-09	4.91E-09	3.74E-08
RH-105	4.00E-02	2.18E-04	4.40E-05	2.71E-05	5.68E-05	3.17E-05	2.98E-05	3.43E-05	2.89E-05	1.03E-05	1.30E-05	9.51E-05
RH-106	4.00E-02	1.46E-08	3.01E-07	1.07E-08	1.86E-08	1.48E-08	1.07E-08	1.66E-07	1.15E-09	6.64E-09	2.80E-09	1.79E-08
SB-127	5.00E-02	2.25E-03	4.12E-04	2.24E-04	5.45E-04	3.05E-04	2.58E-04	3.47E-04	3.11E-04	1.57E-04	1.19E-04	1.04E-03
TE-127M	0.25	2.64E-03	2.58E-03	2.44E-03	2.59E-03	2.59E-03	3.08E-03	2.58E-03	2.55E-03	2.62E-03	2.54E-03	2.64E-03
TE-127	0.25	9.92E-05	9.68E-05	1.60E-05	7.48E-05	9.56E-05	5.57E-05	9.64E-05	9.54E-05	9.62E-05	9.52E-05	9.81E-05
TE-129M	0.25	5.23E-03	5.02E-03	1.89E-03	4.07E-03	4.98E-03	3.83E-03	5.02E-03	4.96E-03	5.15E-03	5.33E-03	5.29E-03
TE-129	0.25	1.15E-05	1.29E-05	2.15E-06	6.64E-06	7.67E-06	4.96E-06	1.02E-05	7.15E-06	7.33E-06	1.46E-05	1.07E-05
TE-131M	0.25	3.43E-03	1.57E-03	4.39E-04	1.34E-03	1.17E-03	7.91E-04	1.44E-03	1.17E-03	1.90E-03	0.12	3.30E-03
TE-131	0.25	8.78E-06	2.26E-05	2.43E-06	4.70E-06	3.26E-06	2.77E-06	1.34E-05	1.49E-06	4.18E-06	3.86E-03	8.03E-06
TE-132	0.25	4.44E-03	3.12E-03	1.37E-03	2.70E-03	2.57E-03	2.10E-03	2.98E-03	2.52E-03	4.58E-03	0.40	6.15E-03
I-129	0.95	5.92E-04	6.42E-04	9.02E-04	9.42E-04	8.08E-04	8.79E-04	6.21E-04	5.58E-04	1.53E-03	7.8	7.53E-04
I-131	0.95	6.11E-05	8.33E-05	3.59E-04	2.94E-04	1.47E-04	3.32E-04	7.81E-05	3.53E-05	1.09E-03	1.8	6.25E-05
I-132	0.95	5.93E-05	7.46E-05	1.15E-04	8.50E-05	5.15E-05	1.02E-04	5.64E-05	3.58E-05	1.18E-04	6.54E-02	6.44E-05
I-133	0.95	1.37E-04	1.51E-04	1.59E-04	1.69E-04	1.45E-04	1.85E-04	1.44E-04	1.24E-04	3.33E-04	0.45	1.61E-04
I-134	0.95	4.95E-05	6.71E-05	4.72E-05	5.21E-05	4.52E-05	5.33E-05	5.71E-05	4.05E-05	8.41E-05	2.92E-02	7.17E-05
I-135	0.95	1.37E-04	1.63E-04	1.44E-04	1.57E-04	1.33E-04	1.63E-04	1.45E-04	1.17E-04	3.11E-04	0.16	1.88E-04
CS-134	0.95	5.74E-02	0.11	8.06E-02	9.26E-02	8.21E-02	8.86E-02	9.84E-02	7.73E-02	0.12	7.81E-02	0.15
CS-135	0.95	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.30E-02	1.12E-02	1.12E-02	1.12E-02	1.13E-02	1.12E-02
CS-136	0.95	1.28E-02	1.46E-02	1.01E-02	1.20E-02	1.04E-02	1.08E-02	1.28E-02	9.64E-03	9.58E-03	9.55E-03	1.40E-02
CS-137	0.95	7.54E-02	8.17E-02	6.82E-02	7.38E-02	6.91E-02	7.99E-02	7.58E-02	6.68E-02	8.50E-02	6.72E-02	9.86E-02
BA-137M	1.00E-01	2.47E-07	4.29E-06	1.61E-07	2.93E-07	2.23E-07	1.61E-07	2.38E-06	2.40E-08	1.09E-07	4.07E-08	3.59E-07
BA-140	1.00E-01	3.74E-03	7.27E-04	1.36E-03	1.34E-03	7.31E-04	1.26E-03	6.88E-04	7.08E-04	5.50E-04	3.97E-04	1.81E-03
LA-140	1.00E-04	4.86E-03	7.94E-04	3.52E-04	1.02E-03	4.61E-04	3.52E-04	6.35E-04	4.44E-04	6.27E-05	2.27E-05	2.29E-03
CE-141	1.00E-04	3.98E-04	4.45E-05	4.06E-05	1.22E-04	4.94E-05	3.98E-05	3.18E-05	2.78E-05	1.55E-06	3.74E-07	1.66E-04
CE-143	1.00E-04	7.86E-04	1.10E-04	5.92E-05	1.87E-04	7.81E-05	5.91E-05	7.77E-05	5.68E-05	5.22E-06	1.53E-06	3.16E-04
CE-144	1.00E-04	2.42E-04	3.04E-05	2.10E-04	1.37E-04	3.07E-05	1.47E-04	2.41E-05	2.29E-05	5.54E-06	4.41E-06	9.83E-05
PR-143	1.00E-04	4.66E-08	4.60E-08	2.31E-06	7.08E-07	4.60E-08	1.87E-06	4.60E-08	4.60E-08	4.60E-08	4.60E-08	4.60E-08
PR-144M	1.00E-04	1.85E-07	8.35E-07	4.19E-08	8.86E-08	5.88E-08	4.18E-08	4.12E-07	1.22E-08	1.68E-08	5.14E-09	1.66E-07
PR-144	1.00E-04	2.73E-07	1.02E-06	5.61E-08	1.19E-07	7.76E-08	5.60E-08	5.84E-07	2.49E-08	3.88E-08	1.33E-08	2.53E-07
ND-147	1.00E-04	6.62E-04	7.01E-05	5.71E-05	1.81E-04	7.31E-05	5.66E-05	5.38E-05	5.05E-05	3.30E-06	9.80E-07	2.53E-04
PM-147	1.00E-04	5.55E-07	5.40E-07	2.87E-05	3.04E-06	5.41E-07	1.89E-05	5.40E-07	5.39E-07	5.38E-07	5.38E-07	5.46E-07
SM-147	1.00E-04	1.18E-03	1.18E-03	0.32	1.23E-03	1.18E-03	3.85E-02	1.18E-03	1.18E-03	1.18E-03	1.18E-03	1.18E-03

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