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2020

REMOVAL SITE EVALUATION THORIUM STORAGE BUILDINGS VOLUME 2 JULY 1991

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200
RSE

[redacted]

2020

Removal Site Evaluation

Thorium Storage Buildings

Volume 2

(AIRDOS Data)

Fernald Site Office (FSO)
Fernald, Ohio

July 1991

U. S. DEPARTMENT OF ENERGY

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APPENDIX F

EPA AIRDOS Runs

Introduction

The AIRDOS-EPA code provides a model for assessing the impact of air emissions of radioactive material. Implementation of the code provides an estimate of airborne concentrations, and surface deposition rates and concentrations. The program applies this information to compute radiation doses due to inhalation, ingestion, and external exposure to contaminants outside the body. Ingestion is assessed through a number of pathways including consumption of fresh vegetables, and of meat and milk from cattle grazing on contaminated vegetation. External exposure due to immersion in a contaminated cloud and due to swimming in contaminated water is also calculated.

In the RSE, the results of the AIRDOS runs are summarized in 5.1.2 Radioactive Gas Releases, and in 5.2.6 Potential Airborne Releases. The summaries include factors specifically effecting results for the Thorium Storage Warehouses.

The core of the program is a Gaussian diffusion equation, developed by Pasquill and Gifford in 1961, which permits calculations of airborne concentrations downwind of a source. The calculations require knowledge of the:

source emission rate
mean wind speed
horizontal and vertical dispersion coefficients

The airborne concentrations are calculated at user specified locations and sectors with a user supplied source emission rate. Site specific meteorological data are input to the program to provide for wind speeds and for calculation of the horizontal and vertical dispersion coefficients.

Description of the Data Tables

The AIRDOS print-out has been condensed in this Appendix. The following is a description of the more important items as they are encountered in the print-out sequence.

A summary of some of the input data is provided on the first page of each run with the word OPTION at the top of that page. A summary of that information follows.

Airborne concentrations are calculated to a designated sector or grid. The "IDIST" or distances from the source (in meters) are:

50	200	500	750	1000	1200	1300
1400	1500	1625	1700	1800	2000	2200
2500	5000					

The height of the mixing lid is 1000 meters. This becomes important when, at some distance down wind, the vertical diffusion starts to exceed half of the lid altitude.

Annual rainfall is 102 centimeters.

Annual average temperature is 285 degrees Kelvin.

The physical number of stacks is given. Each run here is for a single source and the number of "stacks" is one.

The stack height, in these cases, are all 0.0 or a surface release.

The "RADIONUCLIDE DATA" includes:

The radionuclide (e.g. Th-232)

The solubility (ISOL) or class of clearance from the body.

D=Day or relatively soluble
W=Week or moderately soluble
Y=Year or relatively insoluble

Class Y was used for all isotopes except radium-228 which is Class W.

The Activity Median Aerodynamic Diameter (AMAD) in microns.

0.0 for radon and thoron gasses
1.0 for particulate releases (a generally accepted default value)

The annual release (REL) of the isotope in Curies.

The Agricultural Data are parameters leading to the ingestion dose calculations.

FV	50.0	50% of vegetation consumed is grown at the receptor location.
	0	No other vegetation is consumed from within the study area.
	50.0	50% of the vegetation consumed is imported from beyond the effected area.

FB is the fraction of beef consumed and has the same percentages as for vegetation.

FM is the fraction of milk consumed and has the same percentages.

The COMMENTS provide the title of each of the runs.
For example:

Accident Scenario for Building 60 with 10% Release
Dose Calculated at 750 Meters
U.S. DOE Feed Materials Production Center

The data tables starting with the heading OUTPUT OF AIRDOS-EPA COMPUTER CODE contains information which is self explanatory. Some of the data have already been described and discussed. The following comments are provided for aid in reviewing the data.

The vertical temperature gradients under the most stable atmospheric conditions are used to calculate the horizontal diffusion. AIRDOS can calculate the effect of buoyance with a heated plume but that feature is not required here. That can be noted later with the 0.00E+00 value for Rate of Heat Emission.

Related to the Plume Depletion and Deposition Parameters:

Respirable particle sizes are too small to have significant gravitational settling during plume travel until greater than 50 km from the source.

Deposition velocity has units of velocity, but it is actually a proportionality constant based upon empirical measurements of the surface deposition rate and the airborne concentration. AIRDOS contains a default value.

Scavenging represents the rate of removal of particles or gasses from the plume by rain and snow.

Radioactive decay of airborne contaminants will reduce the concentration. The isotopes of concern here are all long half-lived in comparison to transport times. There is essentially no decay and no reduction in the airborne concentration. The term "effective" is used because there may be daughter isotopes present with shorter half-lives. Only the principle, or parent, decay constant is used. Attention to these conditions must be exercised in preparing the dose conversion factors used and also for risk assessment via HEAST.

Site specific meteorological data are provided by weather stations. Those data are converted to two arrays of information:

Frequency of Atmospheric Stability Classes
Frequency of Wind Speeds for the Stability Classes

Both are arranged for the 16 compass directions from the source (22.5 degree radials), and both are indicated by 1 for true north. Subsequent numbers for the Frequency of Atmospheric Stability classes are represented by clockwise movement around the compass points; however, because the frequency of wind speeds are reported as "Wind Toward," the subsequent numbers represent a counter-clockwise movement around the compass points.

Stability Classes are from A to G. Class A is most unstable which results in greatest mixing and diffusion in the downwind cloud. Class G is most stable with the least mixing and diffusion; winds are calm.

Stability Class Frequencies are distributed across each sector; the sum of all the fractions across each sector is 1.0000.

The equations used for the calculations are complex and use a great deal of computer time. A mathematical conversion to Reciprocal-Averaged Wind Speeds, from True Average Wind Speeds, permits a much simpler and rapid calculational method with minimum effect upon the results.

The Estimated Radiological Concentrations computed by AIRDOS are tabulated by sector and distance. The first values in this Table are for Sector 1 (true north) at increasing distances from the source. The next sets of data are for Sector 2 (north-northwest), Sector 3 (northwest), Sector 4 (west-northwest), Sector 5 (west), and the tabulation continues in that fashion. For the most part, the Table headings are self explanatory. The Effective Release Rate represents the fraction of the total source term that is contributing to that sector. The calculation is made, so that the fraction is a quantity in picoCuries per second.

The CHI/Q Tables represent the dilution of the source term at the indicated distances and directions. The units of seconds per cubic meter are not immediately clear. CHI is the downwind airborne concentration at a specific point and has units of Ci/m3 (or pCi/m3). Q is the source emission rate and has units of Ci/sec (or pCi/sec). Before reduction, the units are:

Ci/m3 per Ci/sec which becomes sec/m3

The usefulness of these tables is that one can select an alternate emission rate and multiply that rate times the tabulated value to calculate the alternate resultant airborne concentration.

The parameters that follow are self explanatory and are those used to perform the dose calculations. In this case, the Dose Conversion Factors for most isotopes include the dose contribution from radioactive daughters. Those for thorium-230 and for uranium-233 do not include the daughters because extensive time (centuries) must pass before their in-growth becomes significant.

The concentrations and intake rates are listed by sector and by distance from the source within that sector.

ALL THE FOLLOWING TABLES REPRESENT THE RADIATION DOSE TO THE SPECIFIC NEAREST RECEPTOR TO THE RESPECTIVE THORIUM WAREHOUSE. These locations were input for these computer runs. The normal AIRDOS output is much more extensive. For this analysis, the dose to the nearest residences was felt to be sufficient to qualify the extent of the potential threat.

The percentage of the dose through each pathway is provided along with the percentage of the dose relative to all nuclides. The organ sequence is:

W BODY	whole body
R MAR	red bone marrow
ENDOST	endosteal bone tissue
THYROID	thyroid gland
BREAST	breast
PUL	lung
S WALL	stomach wall
INT WALL	intestinal wall
	and liver, pancreas, and kidney.

The next table repeats the same dose information. The analysis for this RSE was performed through use of each source term isotope separately. If several isotopes were input as the source term, then this section would show the combined dose contribution per exposure pathway. For the same reason, the following table shows that 100% of the dose was contributed from one isotope; only one was used.

The final table in each run is a summary of organ doses. The location corresponds to that of the nearest receptor which was specified in the input for that run.

All Buildings

Continuous Radon-220 Releases

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='RN-222',REL=0.15 &END
1
 &MODI ISOL='*',LAMSUR=4.53E-2,SC=0,VD=0 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR THORIUM STORAGE FACILITIES
CONTINUOUS RADON-222 RELEASE FROM ALL BUILDINGS!
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION–

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

1 RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RN-222	0.150E+00

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RN-222	0.000	0.00000	0.341E-05	0.181E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.82	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.10	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

ESTIMATED RADIONUCLIDE CONCENTRATIONS

AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1625	RN-222	9.17E-09	0.00E+00	9.98E-11	9.98E-11	2.74E+02
1	1700	RN-222	8.51E-09	0.00E+00	9.53E-11	9.53E-11	2.74E+02
1	1800	RN-222	7.74E-09	0.00E+00	9.00E-11	9.00E-11	2.74E+02
1	2000	RN-222	6.51E-09	0.00E+00	8.09E-11	8.09E-11	2.74E+02
1	2200	RN-222	5.56E-09	0.00E+00	7.35E-11	7.35E-11	2.74E+02
1	2500	RN-222	4.50E-09	0.00E+00	6.46E-11	6.46E-11	2.73E+02
1	5000	RN-222	1.60E-09	0.00E+00	3.20E-11	3.20E-11	2.71E+02
2	1625	RN-222	6.08E-09	0.00E+00	6.68E-11	6.68E-11	1.35E+02
2	1700	RN-222	5.64E-09	0.00E+00	6.39E-11	6.39E-11	1.35E+02
2	1800	RN-222	5.13E-09	0.00E+00	6.03E-11	6.03E-11	1.35E+02
2	2000	RN-222	4.31E-09	0.00E+00	5.42E-11	5.42E-11	1.35E+02
2	2200	RN-222	3.68E-09	0.00E+00	4.92E-11	4.92E-11	1.35E+02
2	2500	RN-222	2.98E-09	0.00E+00	4.32E-11	4.32E-11	1.35E+02
2	5000	RN-222	1.06E-09	0.00E+00	2.13E-11	2.13E-11	1.33E+02
3	1625	RN-222	4.86E-09	0.00E+00	4.54E-11	4.54E-11	7.44E+01
3	1700	RN-222	4.51E-09	0.00E+00	4.34E-11	4.34E-11	7.44E+01
3	1800	RN-222	4.10E-09	0.00E+00	4.09E-11	4.09E-11	7.43E+01
3	2000	RN-222	3.44E-09	0.00E+00	3.68E-11	3.68E-11	7.42E+01
3	2200	RN-222	2.94E-09	0.00E+00	3.34E-11	3.34E-11	7.42E+01
3	2500	RN-222	2.37E-09	0.00E+00	2.93E-11	2.93E-11	7.40E+01
3	5000	RN-222	8.42E-10	0.00E+00	1.44E-11	1.44E-11	7.29E+01
4	1625	RN-222	7.53E-09	0.00E+00	6.15E-11	6.15E-11	9.41E+01
4	1700	RN-222	6.99E-09	0.00E+00	5.87E-11	5.87E-11	9.41E+01
4	1800	RN-222	6.36E-09	0.00E+00	5.54E-11	5.54E-11	9.40E+01
4	2000	RN-222	5.33E-09	0.00E+00	4.98E-11	4.98E-11	9.39E+01
4	2200	RN-222	4.55E-09	0.00E+00	4.52E-11	4.52E-11	9.38E+01
4	2500	RN-222	3.68E-09	0.00E+00	3.97E-11	3.97E-11	9.36E+01
4	5000	RN-222	1.31E-09	0.00E+00	1.95E-11	1.95E-11	9.21E+01
5	1625	RN-222	1.54E-08	0.00E+00	1.15E-10	1.15E-10	1.93E+02
5	1700	RN-222	1.43E-08	0.00E+00	1.10E-10	1.10E-10	1.93E+02
5	1800	RN-222	1.30E-08	0.00E+00	1.04E-10	1.04E-10	1.92E+02
5	2000	RN-222	1.09E-08	0.00E+00	9.34E-11	9.34E-11	1.92E+02
5	2200	RN-222	9.33E-09	0.00E+00	8.48E-11	8.48E-11	1.92E+02
5	2500	RN-222	7.54E-09	0.00E+00	7.45E-11	7.45E-11	1.92E+02
5	5000	RN-222	2.69E-09	0.00E+00	3.67E-11	3.67E-11	1.89E+02
6	1625	RN-222	1.10E-08	0.00E+00	1.27E-10	1.27E-10	2.84E+02
6	1700	RN-222	1.02E-08	0.00E+00	1.22E-10	1.22E-10	2.84E+02
6	1800	RN-222	9.26E-09	0.00E+00	1.15E-10	1.15E-10	2.84E+02
6	2000	RN-222	7.77E-09	0.00E+00	1.03E-10	1.03E-10	2.84E+02
6	2200	RN-222	6.63E-09	0.00E+00	9.39E-11	9.39E-11	2.83E+02
6	2500	RN-222	5.36E-09	0.00E+00	8.25E-11	8.25E-11	2.83E+02
6	5000	RN-222	1.89E-09	0.00E+00	4.07E-11	4.07E-11	2.80E+02
7	1625	RN-222	6.01E-09	0.00E+00	6.96E-11	6.96E-11	1.56E+02
7	1700	RN-222	5.58E-09	0.00E+00	6.65E-11	6.65E-11	1.56E+02
7	1800	RN-222	5.07E-09	0.00E+00	6.28E-11	6.28E-11	1.56E+02
7	2000	RN-222	4.25E-09	0.00E+00	5.65E-11	5.65E-11	1.56E+02
7	2200	RN-222	3.63E-09	0.00E+00	5.13E-11	5.13E-11	1.55E+02
7	2500	RN-222	2.93E-09	0.00E+00	4.51E-11	4.51E-11	1.55E+02
7	5000	RN-222	1.03E-09	0.00E+00	2.23E-11	2.23E-11	1.53E+02

8	1625	RN-222	6.00E-09	0.00E+00	5.86E-11	5.86E-11	1.43E+02
8	1700	RN-222	5.67E-09	0.00E+00	5.60E-11	5.60E-11	1.43E+02
8	1800	RN-222	5.06E-09	0.00E+00	5.29E-11	5.29E-11	1.43E+02
8	2000	RN-222	4.26E-09	0.00E+00	4.78E-11	4.78E-11	1.42E+02
8	2200	RN-222	3.63E-09	0.00E+00	4.32E-11	4.32E-11	1.42E+02
8	2500	RN-222	2.93E-09	0.00E+00	3.79E-11	3.79E-11	1.42E+02
8	5000	RN-222	1.04E-09	0.00E+00	1.88E-11	1.88E-11	1.41E+02
9	1625	RN-222	5.05E-09	0.00E+00	5.95E-11	5.95E-11	1.77E+02
9	1700	RN-222	4.69E-09	0.00E+00	5.68E-11	5.68E-11	1.77E+02
9	1800	RN-222	4.26E-09	0.00E+00	5.36E-11	5.36E-11	1.77E+02
9	2000	RN-222	3.58E-09	0.00E+00	4.82E-11	4.82E-11	1.77E+02
9	2200	RN-222	3.06E-09	0.00E+00	4.38E-11	4.38E-11	1.77E+02
9	2500	RN-222	2.47E-09	0.00E+00	3.85E-11	3.85E-11	1.77E+02
9	5000	RN-222	8.75E-10	0.00E+00	1.91E-11	1.91E-11	1.75E+02
10	1625	RN-222	1.10E-08	0.00E+00	1.06E-10	1.06E-10	2.64E+02
10	1700	RN-222	1.02E-08	0.00E+00	1.01E-10	1.01E-10	2.64E+02
10	1800	RN-222	9.29E-09	0.00E+00	9.56E-11	9.56E-11	2.63E+02
10	2000	RN-222	7.80E-09	0.00E+00	8.60E-11	8.60E-11	2.63E+02
10	2200	RN-222	6.65E-09	0.00E+00	7.81E-11	7.81E-11	2.63E+02
10	2500	RN-222	5.38E-09	0.00E+00	6.86E-11	6.86E-11	2.63E+02
10	5000	RN-222	1.91E-09	0.00E+00	3.39E-11	3.39E-11	2.60E+02
11	1625	RN-222	2.74E-08	0.00E+00	1.72E-10	1.72E-10	3.70E+02
11	1700	RN-222	2.54E-08	0.00E+00	1.64E-10	1.64E-10	3.69E+02
11	1800	RN-222	2.31E-08	0.00E+00	1.55E-10	1.55E-10	3.69E+02
11	2000	RN-222	1.94E-08	0.00E+00	1.39E-10	1.39E-10	3.69E+02
11	2200	RN-222	1.65E-08	0.00E+00	1.26E-10	1.26E-10	3.68E+02
11	2500	RN-222	1.33E-08	0.00E+00	1.11E-10	1.11E-10	3.68E+02
11	5000	RN-222	4.77E-09	0.00E+00	5.47E-11	5.47E-11	3.64E+02
12	1625	RN-222	3.53E-08	0.00E+00	2.13E-10	2.13E-10	4.43E+02
12	1700	RN-222	3.28E-08	0.00E+00	2.03E-10	2.03E-10	4.42E+02
12	1800	RN-222	2.98E-08	0.00E+00	1.92E-10	1.92E-10	4.42E+02
12	2000	RN-222	2.50E-08	0.00E+00	1.73E-10	1.73E-10	4.42E+02
12	2200	RN-222	2.14E-08	0.00E+00	1.57E-10	1.57E-10	4.41E+02
12	2500	RN-222	1.73E-08	0.00E+00	1.38E-10	1.38E-10	4.41E+02
12	5000	RN-222	6.19E-09	0.00E+00	6.79E-11	6.79E-11	4.35E+02
13	1625	RN-222	3.10E-08	0.00E+00	2.32E-10	2.32E-10	5.10E+02
13	1700	RN-222	2.88E-08	0.00E+00	2.22E-10	2.22E-10	5.10E+02
13	1800	RN-222	2.62E-08	0.00E+00	2.09E-10	2.09E-10	5.09E+02
13	2000	RN-222	2.20E-08	0.00E+00	1.88E-10	1.88E-10	5.09E+02
13	2200	RN-222	1.88E-08	0.00E+00	1.71E-10	1.71E-10	5.08E+02
13	2500	RN-222	1.52E-08	0.00E+00	1.50E-10	1.50E-10	5.08E+02
13	5000	RN-222	5.43E-09	0.00E+00	7.41E-11	7.41E-11	5.02E+02
14	1625	RN-222	3.23E-08	0.00E+00	2.52E-10	2.52E-10	4.84E+02
14	1700	RN-222	3.00E-08	0.00E+00	2.41E-10	2.41E-10	4.84E+02
14	1800	RN-222	2.73E-08	0.00E+00	2.27E-10	2.27E-10	4.83E+02
14	2000	RN-222	2.29E-08	0.00E+00	2.04E-10	2.04E-10	4.83E+02
14	2200	RN-222	1.95E-08	0.00E+00	1.85E-10	1.85E-10	4.82E+02
14	2500	RN-222	1.58E-08	0.00E+00	1.63E-10	1.63E-10	4.81E+02
14	5000	RN-222	5.66E-09	0.00E+00	8.03E-11	8.03E-11	4.75E+02
15	1625	RN-222	2.54E-08	0.00E+00	2.55E-10	2.55E-10	5.68E+02
15	1700	RN-222	2.35E-08	0.00E+00	2.43E-10	2.43E-10	5.68E+02
15	1800	RN-222	2.14E-08	0.00E+00	2.30E-10	2.30E-10	5.68E+02
15	2000	RN-222	1.80E-08	0.00E+00	2.07E-10	2.07E-10	5.67E+02
15	2200	RN-222	1.54E-08	0.00E+00	1.88E-10	1.88E-10	5.66E+02
15	2500	RN-222	1.24E-08	0.00E+00	1.65E-10	1.65E-10	5.66E+02
15	5000	RN-222	4.43E-09	0.00E+00	8.14E-11	8.14E-11	5.59E+02
16	1625	RN-222	1.75E-08	0.00E+00	1.87E-10	1.87E-10	5.53E+02
16	1700	RN-222	1.63E-08	0.00E+00	1.79E-10	1.79E-10	5.53E+02
16	1800	RN-222	1.48E-08	0.00E+00	1.69E-10	1.69E-10	5.53E+02
16	2000	RN-222	1.24E-08	0.00E+00	1.52E-10	1.52E-10	5.52E+02
16	2200	RN-222	1.06E-08	0.00E+00	1.38E-10	1.38E-10	5.52E+02
16	2500	RN-222	8.58E-09	0.00E+00	1.21E-10	1.21E-10	5.51E+02
16	5000	RN-222	3.06E-09	0.00E+00	5.99E-11	5.99E-11	5.46E+02

GROUND-LEVEL CHI/Q VALUES FOR RN-222 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

DISTANCE (METERS)	CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)							
	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.193E-05	0.128E-05	0.102E-05	0.158E-05	0.325E-05	0.231E-05	0.126E-05	0.126E-05
1700	0.179E-05	0.119E-05	0.948E-06	0.147E-05	0.301E-05	0.214E-05	0.117E-05	0.117E-05
1800	0.163E-05	0.108E-05	0.862E-06	0.134E-05	0.274E-05	0.195E-05	0.107E-05	0.106E-05
2000	0.137E-05	0.906E-06	0.724E-06	0.112E-05	0.230E-05	0.163E-05	0.894E-06	0.894E-06
2200	0.117E-05	0.774E-06	0.618E-06	0.957E-06	0.196E-05	0.139E-05	0.763E-06	0.762E-06
2500	0.945E-06	0.626E-06	0.499E-06	0.773E-06	0.159E-05	0.113E-05	0.616E-06	0.616E-06
5000	0.337E-06	0.223E-06	0.177E-06	0.275E-06	0.565E-06	0.398E-06	0.217E-06	0.218E-06

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.106E-05	0.232E-05	0.575E-05	0.743E-05	0.653E-05	0.679E-05	0.533E-05	0.368E-05
1700	0.986E-06	0.215E-05	0.533E-05	0.689E-05	0.606E-05	0.630E-05	0.495E-05	0.342E-05
1800	0.896E-06	0.195E-05	0.485E-05	0.627E-05	0.551E-05	0.573E-05	0.450E-05	0.311E-05
2000	0.753E-06	0.164E-05	0.407E-05	0.526E-05	0.462E-05	0.481E-05	0.378E-05	0.261E-05
2200	0.642E-06	0.140E-05	0.347E-05	0.449E-05	0.395E-05	0.411E-05	0.323E-05	0.223E-05
2500	0.519E-06	0.113E-05	0.281E-05	0.363E-05	0.319E-05	0.332E-05	0.261E-05	0.180E-05
5000	0.184E-06	0.401E-06	0.100E-05	0.130E-05	0.114E-05	0.119E-05	0.931E-06	0.643E-06

OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

SUMMARY OF AREA SURROUNDING PLANT

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0

14	12	200	294	0.646E+06	0	111280.0
14	13	572	840	0.185E+07	0	307446.0
14	14	801	1177	0.258E+07	0	100048.0
14	15	1030	1513	0.332E+07	0	65577.0
14	16	4464	6555	0.144E+08	0	223841.0
15	1	0	0	0.000E+00	0	0.0
15	2	0	1	0.144E+04	0	1840.0
15	3	0	1	0.133E+04	0	0.0
15	4	1	2	0.461E+04	0	3627.0
15	5	2	3	0.646E+04	0	2035.0
15	6	6	8	0.185E+05	0	8153.0
15	7	8	12	0.258E+05	0	26356.0
15	8	10	15	0.332E+05	0	27602.0
15	9	45	66	0.144E+06	0	70259.0
15	10	41	61	0.133E+06	0	85241.0
15	11	143	210	0.461E+06	0	418387.0
15	12	200	294	0.646E+06	0	791902.0
15	13	572	840	0.185E+07	0	918201.0
15	14	801	1177	0.258E+07	0	267427.0
15	15	1030	1513	0.332E+07	0	150615.0
15	16	4464	6555	0.144E+08	0	335855.0
16	1	0	0	0.000E+00	0	0.0
16	2	0	1	0.144E+04	0	3690.0
16	3	0	1	0.133E+04	0	2510.0
16	4	1	2	0.461E+04	0	1377.0
16	5	2	3	0.646E+04	0	2957.0
16	6	6	8	0.185E+05	0	6748.0
16	7	8	12	0.258E+05	0	7840.0
16	8	10	15	0.332E+05	0	4114.0
16	9	45	66	0.144E+06	0	24534.0
16	10	41	61	0.133E+06	0	15826.0
16	11	143	210	0.461E+06	0	88929.0
16	12	200	294	0.646E+06	0	104866.0
16	13	572	840	0.185E+07	0	189226.0
16	14	801	1177	0.258E+07	0	106049.0
16	15	1030	1513	0.332E+07	0	83869.0
16	16	4464	6555	0.144E+08	0	189930.0

FOR WATER AREAS--0= NONE OR MINIMAL AND 1= MAJOR WATER AREA PRESENT

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1                    LIST OF INPUT VALUES FOR RADIONUCLIDE-INDEPENDENT VARIABLES
0          NUMBER OF NUCLIDES CONSIDERED                                                          1
0          TIME DELAY--INGESTION OF PASTURE GRASS BY ANIMALS (HR)                            0.0000E+00
0          TIME DELAY--INGESTION OF STORED FEED BY ANIMALS (HR)                              0.2160E+04
0          TIME DELAY--INGESTION OF LEAFY VEGETABLES BY MAN (HR)                             0.3360E+03
0          TIME DELAY--INGESTION OF PRODUCE BY MAN (HR)                                      0.3360E+03
0          REMOVAL RATE CONSTANT FOR PHYSICAL LOSS BY WEATHERING (PER HOUR)                  0.2900E-02
0          PERIOD OF EXPOSURE DURING GROWING SEASON--PASTURE GRASS (HR)                      0.7200E+03
0          PERIOD OF EXPOSURE DURING GROWING SEASON--CROPS OR LEAFY VEGETABLES (HR)          0.1440E+04
0          AGRICULTURAL PRODUCTIVITY BY UNIT AREA (GRASS-COW-MILK-MAN PATHWAY (KG/SQ. METER))  0.2800E+00
0          AGRICULTURAL PRODUCTIVITY BY UNIT AREA (PRODUCE OR LEAFY VEG INGESTED BY MAN (KG/SQ. METER))  0.7160E+00
0          FRACTION OF YEAR ANIMALS GRAZE ON PASTURE                                         0.4000E+00
0          FRACTION OF DAILY FEED THAT IS PASTURE GRASS WHEN ANIMAL GRAZES ON PASTURE        0.4300E+00
0          CONSUMPTION RATE OF CONTAMINATED FEED OR FORAGE BY AN ANIMAL IN KG/DAY (DRY WEIGHT)  0.1560E+02
0          TRANSPORT TIME FROM ANIMAL FEED-MILK-MAN (DAY)                                    0.2000E+01
0          RATE OF INGESTION OF PRODUCE BY MAN (KG/YR)                                       0.1760E+03
0          RATE OF INGESTION OF MILK BY MAN (LITERS/YR)                                      0.1120E+03
0          RATE OF INGESTION OF MEAT BY MAN (KG/YR)                                          0.8500E+02
0          RATE OF INGESTION OF LEAFY VEGETABLES BY MAN (KG/YR)                              0.1800E+02
0          AVERAGE TIME FROM SLAUGHTER OF MEAT ANIMAL TO CONSUMPTION (DAY)                   0.2000E+02
0          FRACTION OF PRODUCE INGESTED GROWN IN GARDEN OF INTEREST                          0.1000E+01
0          FRACTION OF LEAFY VEGETABLES GROWN IN GARDEN OF INTEREST                          0.1000E+01
0          PERIOD OF LONG-TERM BUILDUP FOR ACTIVITY IN SOIL (YEARS)                          0.1000E+01
0          EFFECTIVE SURFACE DENSITY OF SOIL (KG/SQ. M. DRY WEIGHT) (ASSUMES 15 CM PLOW LAYER)  0.2150E+03
0          VEGETABLE INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA            0.1000E+01
0          MEAT INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA                 0.1000E+01
0          MILK INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA                 0.1000E+01
0
                        MINIMUM FRACTIONS OF FOOD TYPES FROM OUTSIDE AREA LISTED BELOW ARE ACTUAL FIXED VALUES
0          MINIMUM FRACTION VEGETABLES INGESTED FROM OUTSIDE AREA                            0.5000E+00
0          MINIMUM FRACTION MEAT INGESTED FROM OUTSIDE AREA                                  0.5000E+00
0          MINIMUM FRACTION MILK INGESTED FROM OUTSIDE AREA                                  0.5000E+00
0          INHALATION RATE OF MAN (CUBIC CENTIMETERS/HR)                                     0.9167E+06
0          BUILDUP TIME FOR RADIONUCLIDES DEPOSITED ON GROUND AND WATER (DAYS)               0.3652E+03
0          DILUTION FACTOR FOR WATER FOR SWIMMING (CM)                                       0.1000E+01
0          FRACTION OF TIME SPENT SWIMMING                                                   0.0000E+00
0          MUSCLE MASS OF ANIMAL AT SLAUGHTER (KG)                                           0.2000E+03
0          FRACTION OF ANIMAL HERD SLAUGHTERED PER DAY                                       0.3800E-02
0          MILK PRODUCTION OF COW (LITERS/DAY)                                               0.1100E+02
0          FALLOUT INTERCEPTION FRACTION-VEGETABLES                                          0.2000E+00
0          FALLOUT INTERCEPTION FRACTION-PASTURE                                             0.5700E+00
0          FRACTION OF RADIOACTIVITY RETAINED ON LEAFY VEGETABLES AND PRODUCE AFTER WASHING  0.5000E+00
1                                   COMPUTED VALUES FOR THE AREA
0          TOTAL POPULATION                                                                  16244860.0
0          TOTAL NUMBER OF MEAT ANIMALS                                                         116016
0          TOTAL NUMBER OF MILK CATTLE                                                          170400
0          TOTAL AREA OF VEGETABLE FOOD CROPS (SQUARE METERS)                                0.3743E+09
0          TOTAL MEAT CONSUMPTION (KG PER YEAR)                                              0.1381E+10
0          TOTAL MEAT PRODUCTION (KG PER YEAR)                                               0.3218E+08
0          TOTAL MILK CONSUMPTION (LITERS/YEAR)                                              0.1819E+10
0          TOTAL MILK PRODUCTION (LITERS/YEAR)                                               0.6842E+09
0          TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR)                                    0.3152E+10
0          TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR)                                       0.2680E+09
1                                   LIST OF INPUT DATA FOR NUCLIDE RN-222
0          RADIOACTIVE DECAY CONSTANT (PER DAY)                                              0.1813E+00
0          ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY)                                   0.0000E+00
0          ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY)                                     0.0000E+00
0          AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)  0.0000E+00
0          FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)  0.0000E+00
0          CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE       0.0000E+00
                (IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0          CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS     0.0000E+00
                (IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0          GI UPTAKE FRACTION (INHALATION)                                                   0.0000E+00
0          GI UPTAKE FRACTION (INGESTION)                                                    0.0000E+00
0          PARTICLE SIZE (MICRONS)                                                           0.0000E+00
0          SOLUBILITY CLASS
0                                          DOSE CONVERSION FACTORS
0   ORGAN        INHALATION        INGESTION        SUBMERSION IN AIR      SURFACE EXPOSURE      SUBMERSION IN WATER
               (REMS/MICROCURIE)(REMS/MICROCURIE)   (REMS-CUBIC CM/        (REMS-SQUARE CM/       (REMS-CUBIC CM/
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			MICROCURIE-HR)	MICROCURIE-HR)	MICROCURIE-HR)
W BODY	0.102E+00	0.000E+00	0.198E+00	0.201E-04	0.428E-03
R MAR	0.920E-01	0.000E+00	0.198E+00	0.203E-04	0.431E-03
ENDOST	0.238E+00	0.000E+00	0.227E+00	0.233E-04	0.493E-03
THYROID	0.108E+00	0.000E+00	0.241E+00	0.247E-04	0.524E-03
BREAST	0.108E+00	0.000E+00	0.241E+00	0.247E-04	0.524E-03
PUL	0.112E+00	0.000E+00	0.194E+00	0.199E-04	0.421E-03
S WALL	0.108E+00	0.000E+00	0.178E+00	0.183E-04	0.387E-03
INT WALL	0.108E+00	0.000E+00	0.177E+00	0.181E-04	0.385E-03
LIVER	0.295E-01	0.000E+00	0.181E+00	0.185E-04	0.393E-03
PANCREAS	0.108E+00	0.000E+00	0.155E+00	0.159E-04	0.337E-03
KIDNEYS	0.193E+00	0.000E+00	0.188E+00	0.193E-04	0.409E-03

CONCENTRATIONS AND INTAKE RATES FOR RN-222

AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	1625	0.917E-14	0.475E-12	0.368E+00	0.736E+02
1	1700	0.851E-14	0.454E-12	0.351E+00	0.684E+02
1	1800	0.774E-14	0.429E-12	0.332E+00	0.622E+02
1	2000	0.651E-14	0.386E-12	0.298E+00	0.522E+02
1	2200	0.556E-14	0.350E-12	0.271E+00	0.446E+02
1	2500	0.450E-14	0.308E-12	0.238E+00	0.361E+02
1	5000	0.160E-14	0.182E-12	0.118E+00	0.129E+02
2	1625	0.608E-14	0.319E-12	0.246E+00	0.488E+02
2	1700	0.564E-14	0.304E-12	0.235E+00	0.453E+02
2	1800	0.513E-14	0.287E-12	0.222E+00	0.412E+02
2	2000	0.431E-14	0.258E-12	0.200E+00	0.346E+02
2	2200	0.368E-14	0.235E-12	0.181E+00	0.296E+02
2	2500	0.298E-14	0.206E-12	0.159E+00	0.239E+02
2	5000	0.106E-14	0.102E-12	0.786E-01	0.850E+01
3	1625	0.486E-14	0.216E-12	0.167E+00	0.390E+02
3	1700	0.451E-14	0.207E-12	0.160E+00	0.362E+02
3	1800	0.410E-14	0.195E-12	0.151E+00	0.329E+02
3	2000	0.344E-14	0.175E-12	0.136E+00	0.276E+02
3	2200	0.294E-14	0.159E-12	0.123E+00	0.236E+02
3	2500	0.237E-14	0.140E-12	0.108E+00	0.191E+02
3	5000	0.842E-15	0.688E-13	0.532E-01	0.676E+01
4	1625	0.753E-14	0.293E-12	0.227E+00	0.605E+02
4	1700	0.699E-14	0.280E-12	0.217E+00	0.561E+02
4	1800	0.636E-14	0.264E-12	0.204E+00	0.510E+02
4	2000	0.533E-14	0.237E-12	0.184E+00	0.428E+02
4	2200	0.455E-14	0.216E-12	0.167E+00	0.365E+02
4	2500	0.368E-14	0.189E-12	0.146E+00	0.295E+02
4	5000	0.131E-14	0.931E-13	0.720E-01	0.105E+02
5	1625	0.154E-13	0.549E-12	0.425E+00	0.124E+03
5	1700	0.143E-13	0.524E-12	0.406E+00	0.115E+03
5	1800	0.130E-13	0.495E-12	0.383E+00	0.105E+03
5	2000	0.109E-13	0.445E-12	0.344E+00	0.878E+02
5	2200	0.933E-14	0.404E-12	0.312E+00	0.749E+02
5	2500	0.754E-14	0.355E-12	0.274E+00	0.605E+02
5	5000	0.269E-14	0.175E-12	0.135E+00	0.216E+02
6	1625	0.110E-13	0.608E-12	0.470E+00	0.881E+02
6	1700	0.102E-13	0.581E-12	0.449E+00	0.818E+02
6	1800	0.926E-14	0.548E-12	0.424E+00	0.744E+02
6	2000	0.777E-14	0.483E-12	0.381E+00	0.624E+02
6	2200	0.663E-14	0.440E-12	0.346E+00	0.532E+02
6	2500	0.536E-14	0.393E-12	0.304E+00	0.430E+02
6	5000	0.189E-14	0.194E-12	0.150E+00	0.152E+02
7	1625	0.601E-14	0.332E-12	0.257E+00	0.483E+02
7	1700	0.558E-14	0.317E-12	0.245E+00	0.448E+02
7	1800	0.507E-14	0.299E-12	0.231E+00	0.407E+02
7	2000	0.425E-14	0.269E-12	0.208E+00	0.341E+02
7	2200	0.363E-14	0.244E-12	0.189E+00	0.291E+02
7	2500	0.293E-14	0.215E-12	0.166E+00	0.235E+02
7	5000	0.103E-14	0.106E-12	0.820E-01	0.827E+01
8	1625	0.600E-14	0.279E-12	0.216E+00	0.482E+02
8	1700	0.557E-14	0.267E-12	0.206E+00	0.447E+02
8	1800	0.506E-14	0.252E-12	0.195E+00	0.407E+02
8	2000	0.425E-14	0.227E-12	0.175E+00	0.341E+02
8	2200	0.363E-14	0.206E-12	0.159E+00	0.291E+02
8	2500	0.293E-14	0.181E-12	0.140E+00	0.235E+02
8	5000	0.104E-14	0.894E-13	0.691E-01	0.834E+01
9	1625	0.505E-14	0.283E-12	0.219E+00	0.406E+02
9	1700	0.469E-14	0.271E-12	0.209E+00	0.376E+02
9	1800	0.426E-14	0.256E-12	0.198E+00	0.342E+02
9	2000	0.358E-14	0.230E-12	0.178E+00	0.287E+02
9	2200	0.306E-14	0.209E-12	0.162E+00	0.245E+02
9	2500	0.247E-14	0.184E-12	0.142E+00	0.198E+02
9	5000	0.875E-15	0.909E-13	0.703E-01	0.702E+01
10	1625	0.110E-13	0.505E-12	0.391E+00	0.885E+02
10	1700	0.102E-13	0.483E-12	0.373E+00	0.821E+02
10	1800	0.929E-14	0.456E-12	0.352E+00	0.746E+02
10	2000	0.780E-14	0.410E-12	0.317E+00	0.626E+02
10	2200	0.665E-14	0.372E-12	0.288E+00	0.534E+02
10	2500	0.538E-14	0.327E-12	0.253E+00	0.432E+02
10	5000	0.191E-14	0.162E-12	0.125E+00	0.153E+02
11	1625	0.274E-13	0.818E-12	0.632E+00	0.220E+03
11	1700	0.254E-13	0.781E-12	0.604E+00	0.204E+03
11	1800	0.231E-13	0.737E-12	0.570E+00	0.185E+03
11	2000	0.194E-13	0.663E-12	0.513E+00	0.155E+03
11	2200	0.165E-13	0.602E-12	0.466E+00	0.133E+03
11	2500	0.133E-13	0.529E-12	0.409E+00	0.107E+03
11	5000	0.477E-14	0.261E-12	0.202E+00	0.383E+02
12	1625	0.353E-13	0.101E-11	0.784E+00	0.284E+03
12	1700	0.328E-13	0.969E-12	0.749E+00	0.263E+03
12	1800	0.298E-13	0.915E-12	0.707E+00	0.239E+03
12	2000	0.250E-13	0.822E-12	0.636E+00	0.201E+03
12	2200	0.214E-13	0.747E-12	0.577E+00	0.171E+03
12	2500	0.173E-13	0.656E-12	0.507E+00	0.139E+03
12	5000	0.619E-14	0.323E-12	0.250E+00	0.497E+02
13	1625	0.310E-13	0.111E-11	0.855E+00	0.249E+03
13	1700	0.288E-13	0.106E-11	0.817E+00	0.231E+03
13	1800	0.262E-13	0.998E-12	0.772E+00	0.210E+03
13	2000	0.220E-13	0.897E-12	0.694E+00	0.177E+03
13	2200	0.188E-13	0.814E-12	0.630E+00	0.151E+03

13	2500	0.152E-13	0.716E-12	0.553E+00	0.122E+03
13	5000	0.843E-14	0.363E-12	0.273E+00	0.436E+02
14	1625	0.323E-13	0.120E-11	0.928E+00	0.269E+03
14	1700	0.300E-13	0.115E-11	0.887E+00	0.241E+03
14	1800	0.273E-13	0.108E-11	0.837E+00	0.219E+03
14	2000	0.229E-13	0.973E-12	0.753E+00	0.184E+03
14	2200	0.195E-13	0.884E-12	0.683E+00	0.157E+03
14	2500	0.158E-13	0.776E-12	0.600E+00	0.127E+03
14	5000	0.566E-14	0.383E-12	0.296E+00	0.454E+02
15	1625	0.254E-13	0.121E-11	0.939E+00	0.204E+03
15	1700	0.235E-13	0.116E-11	0.897E+00	0.189E+03
15	1800	0.214E-13	0.109E-11	0.847E+00	0.172E+03
15	2000	0.180E-13	0.984E-12	0.761E+00	0.144E+03
15	2200	0.154E-13	0.894E-12	0.691E+00	0.123E+03
15	2500	0.124E-13	0.785E-12	0.607E+00	0.997E+02
15	5000	0.443E-14	0.388E-12	0.300E+00	0.356E+02
16	1625	0.175E-13	0.890E-12	0.689E+00	0.141E+03
16	1700	0.163E-13	0.851E-12	0.658E+00	0.131E+03
16	1800	0.148E-13	0.803E-12	0.621E+00	0.119E+03
16	2000	0.124E-13	0.722E-12	0.559E+00	0.998E+02
16	2200	0.106E-13	0.656E-12	0.508E+00	0.852E+02
16	2500	0.858E-14	0.577E-12	0.446E+00	0.689E+02
16	5000	0.306E-14	0.286E-12	0.221E+00	0.246E+02

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF "PUL" DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

0 0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-222	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.0000E+00	0.00	0.00

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                    INGEST.        0.0000E+00          0.00                    0.00
                      VEGET.       0.0000E+00        * 0.00                  * 0.00
                      MEAT         0.0000E+00        * 0.00                  * 0.00
                      MILK         0.0000E+00        * 0.00                  * 0.00
1                    PERCENT OF LIVER    DOSE BY EACH PATHWAY
0          NUCLIDE   PATHWAY        DOSE(REMS)        PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
           RN-222    SUBM AIR       0.0000E+00          0.00                    0.00
                     SURFACE        0.0000E+00          0.00                    0.00
                     SWIMMING       0.0000E+00          0.00                    0.00
                     INHAL.         0.0000E+00          0.00                    0.00
                     INGEST.        0.0000E+00          0.00                    0.00
                       VEGET.       0.0000E+00        * 0.00                  * 0.00
                       MEAT         0.0000E+00        * 0.00                  * 0.00
                       MILK         0.0000E+00        * 0.00                  * 0.00
1                    PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0          NUCLIDE   PATHWAY        DOSE(REMS)        PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
           RN-222    SUBM AIR       0.0000E+00          0.00                    0.00
                     SURFACE        0.0000E+00          0.00                    0.00
                     SWIMMING       0.0000E+00          0.00                    0.00
                     INHAL.         0.0000E+00          0.00                    0.00
                     INGEST.        0.0000E+00          0.00                    0.00
                       VEGET.       0.0000E+00        * 0.00                  * 0.00
                       MEAT         0.0000E+00        * 0.00                  * 0.00
                       MILK         0.0000E+00        * 0.00                  * 0.00
1                    PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0          NUCLIDE   PATHWAY        DOSE(REMS)        PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
           RN-222    SUBM AIR       0.0000E+00          0.00                    0.00
                     SURFACE        0.0000E+00          0.00                    0.00
                     SWIMMING       0.0000E+00          0.00                    0.00
                     INHAL.         0.0000E+00          0.00                    0.00
                     INGEST.        0.0000E+00          0.00                    0.00
                       VEGET.       0.0000E+00        * 0.00                  * 0.00
                       MEAT         0.0000E+00        * 0.00                  * 0.00
                       MILK         0.0000E+00        * 0.00                  * 0.00
0                        CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO R MAR    DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO ENDOST   DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO THYROID  DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO BREAST   DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO *PUL*    DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO S WALL   DOSES
0      EXPOSURE MODE                 ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0        SUBM AIR                      0.1000E-24                          20.0000
0        SURFACE                       0.1000E-24                          20.0000
0        SWIMMING                      0.1000E-24                          20.0000
0        INHAL.                        0.1000E-24                          20.0000
0        INGEST.                       0.1000E-24                          20.0000
0          VEGET.                     *0.1000E-24                        * 20.0000
0          MEAT                       *0.1000E-24                        * 20.0000
0          MILK                       *0.1000E-24                        * 20.0000
0                        CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
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EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	20.0000
SURFACE	0.1000E-24	20.0000
SWIMMING	0.1000E-24	20.0000
INHAL.	0.1000E-24	20.0000
INGEST.	0.1000E-24	20.0000
VEGET.	*0.1000E-24	20.0000
MEAT	*0.1000E-24	* 20.0000
MILK	*0.1000E-24	* 20.0000
		* 20.0000

CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	20.0000
SURFACE	0.1000E-24	20.0000
SWIMMING	0.1000E-24	20.0000
INHAL.	0.1000E-24	20.0000
INGEST.	0.1000E-24	20.0000
VEGET.	*0.1000E-24	20.0000
MEAT	*0.1000E-24	* 20.0000
MILK	*0.1000E-24	* 20.0000
		* 20.0000

CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	20.0000
SURFACE	0.1000E-24	20.0000
SWIMMING	0.1000E-24	20.0000
INHAL.	0.1000E-24	20.0000
INGEST.	0.1000E-24	20.0000
VEGET.	*0.1000E-24	20.0000
MEAT	*0.1000E-24	* 20.0000
MILK	*0.1000E-24	* 20.0000
		* 20.0000

CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	20.0000
SURFACE	0.1000E-24	20.0000
SWIMMING	0.1000E-24	20.0000
INHAL.	0.1000E-24	20.0000
INGEST.	0.1000E-24	20.0000
VEGET.	*0.1000E-24	20.0000
MEAT	*0.1000E-24	* 20.0000
MILK	*0.1000E-24	* 20.0000
		* 20.0000

TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

ORGAN	DOSE(REMS)
W BODY	0.5000E-24
R MAR	0.5000E-24
ENDOST	0.5000E-24
THYROID	0.5000E-24
BREAST	0.5000E-24
PUL	0.5000E-24
S WALL	0.5000E-24
INT WALL	0.5000E-24
LIVER	0.5000E-24
PANCREAS	0.5000E-24
KIDNEYS	0.5000E-24

CONTRIBUTORS TO ORGAN DOSES

NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	PERCENT S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
RN-222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

NUCLIDE	ORGAN	ANNUAL DOSES(REMS) DOSE	MAXIMUM LOCATION COLUMN	ROW
RN-222	W BODY	0.0000E+00	12	10
RN-222	R MAR	0.0000E+00	12	10
RN-222	ENDOST	0.0000E+00	12	10
RN-222	THYROID	0.0000E+00	12	10
RN-222	BREAST	0.0000E+00	12	10
RN-222	*PUL*	0.0000E+00	12	10
RN-222	S WALL	0.0000E+00	12	10
RN-222	INT WALL	0.0000E+00	12	10
RN-222	LIVER	0.0000E+00	12	10
RN-222	PANCREAS	0.0000E+00	12	10
RN-222	KIDNEYS	0.0000E+00	12	10

WORKING LEVELS FOR RN-222 AND ITS SHORT-LIFE PROGENY AT VARIOUS LOCATIONS IN THE ENVIRONMENT
(FRACTION OF EQUILIBRIUM ASSUMED FOR WORKING LEVEL CALCULATIONS=0.700)

AREA COLUMN	ROW	WORKING LEVEL
1	10	0.642E-07
1	11	0.596E-07
1	12	0.542E-07
1	13	0.455E-07
1	14	0.389E-07
1	15	0.315E-07
1	16	0.112E-07
2	10	0.426E-07
2	11	0.395E-07
2	12	0.359E-07
2	13	0.302E-07
2	14	0.258E-07
2	15	0.208E-07
2	16	0.741E-08
3	10	0.340E-07
3	11	0.316E-07
3	12	0.287E-07
3	13	0.241E-07
3	14	0.206E-07
3	15	0.166E-07
3	16	0.589E-08
4	10	0.527E-07
4	11	0.489E-07
4	12	0.445E-07
4	13	0.373E-07
4	14	0.319E-07
4	15	0.257E-07
4	16	0.916E-08
5	10	0.108E-06
5	11	0.100E-06

5	12	0.812E-07
5	13	0.765E-07
5	14	0.653E-07
5	15	0.528E-07
5	16	0.188E-07
6	10	0.768E-07
6	11	0.713E-07
6	12	0.648E-07
6	13	0.544E-07
6	14	0.464E-07
6	15	0.376E-07
6	16	0.133E-07
7	10	0.421E-07
7	11	0.390E-07
7	12	0.355E-07
7	13	0.298E-07
7	14	0.254E-07
7	15	0.205E-07
7	16	0.721E-08
8	10	0.420E-07
8	11	0.390E-07
8	12	0.355E-07
8	13	0.298E-07
8	14	0.254E-07
8	15	0.205E-07
8	16	0.727E-08
9	10	0.354E-07
9	11	0.328E-07
9	12	0.298E-07
9	13	0.251E-07
9	14	0.214E-07
9	15	0.173E-07
9	16	0.612E-08
10	10	0.771E-07
10	11	0.715E-07
10	12	0.650E-07
10	13	0.546E-07
10	14	0.466E-07
10	15	0.376E-07
10	16	0.134E-07
11	10	0.191E-06
11	11	0.178E-06
11	12	0.162E-06
11	13	0.136E-06
11	14	0.116E-06
11	15	0.934E-07
11	16	0.334E-07
12	10	0.247E-06
12	11	0.229E-06
12	12	0.209E-06
12	13	0.175E-06
12	14	0.149E-06
12	15	0.121E-06
12	16	0.433E-07
13	10	0.217E-06
13	11	0.202E-06
13	12	0.183E-06
13	13	0.154E-06
13	14	0.131E-06
13	15	0.106E-06
13	16	0.380E-07
14	10	0.226E-06
14	11	0.210E-06
14	12	0.191E-06
14	13	0.160E-06
14	14	0.137E-06
14	15	0.111E-06
14	16	0.396E-07
15	10	0.178E-06
15	11	0.165E-06
15	12	0.150E-06
15	13	0.126E-06
15	14	0.107E-06
15	15	0.869E-07
15	16	0.310E-07
16	10	0.123E-06
16	11	0.114E-06
16	12	0.104E-06
16	13	0.870E-07
16	14	0.743E-07
16	15	0.601E-07
16	16	0.214E-07

1 WORKING LEVEL FOR RN-222 AND SHORT-LIFE PROGENY AT LOCATION OF MAXIMUM INDIVIDUAL DOSE FROM ALL PATHWAYS FOR EACH ORGAN

0

ORGAN	LOCATION OF MAXIMUM DOSE		WORKING LEVEL
W BODY	12	10	0.247E-06
R MAR	12	10	0.247E-06
ENDOST	12	10	0.247E-06
THYROID	12	10	0.247E-06
BREAST	12	10	0.247E-06
PUL	12	10	0.247E-06
S WALL	12	10	0.247E-06
INT WALL	12	10	0.247E-06
LIVER	12	10	0.247E-06
PANCREAS	12	10	0.247E-06
KIDNEYS	12	10	0.247E-06

All Buildings

Continuous Radon-222 Releases

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='RN-220',REL=0.074 &END
1
 &MODI ISOL='*',LAMSUR=4.53E-2,SC=0,VD=0 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR THORIUM STORAGE FACILITIES
CONTINUOUS RADON-222 RELEASE FROM ALL BUILDINGS!
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR	(DEG K/METER)
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION–

		STACK NUMBER 1	2	3	4	5	6
0	HEIGHT (METERS)	0.0000					
0	DIAMETER (METERS)	0.0000					
0	EFFLUENT VELOCITY (METERS/SEC)	0.0000					
0	RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

1

RELEASE RATES FOR RADIONUCLIDES

	STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
0			
0	1	RN-220	0.740E-01

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

	NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
0					
0	RN-220	0.000	0.00000	0.341E-05	0.108E+04

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION
0

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
0							
0							
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383

15	0.0311	0.0191	0.0602	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0285	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.78	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0

AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1625	RN-220	1.29E-11	0.00E+00	2.20E-13	2.20E-13	6.94E-01
1	1700	RN-220	1.02E-11	0.00E+00	1.79E-13	1.79E-13	5.91E-01
1	1800	RN-220	7.53E-12	0.00E+00	1.37E-13	1.37E-13	4.77E-01
1	2000	RN-220	4.15E-12	0.00E+00	8.05E-14	8.05E-14	3.12E-01
1	2200	RN-220	2.33E-12	0.00E+00	4.81E-14	4.81E-14	2.05E-01
1	2500	RN-220	1.01E-12	0.00E+00	2.26E-14	2.26E-14	1.10E-01
1	5000	RN-220	1.98E-15	0.00E+00	6.25E-17	6.25E-17	6.05E-04
2	1625	RN-220	6.18E-12	0.00E+00	1.06E-13	1.06E-13	2.34E-01
2	1700	RN-220	4.91E-12	0.00E+00	8.68E-14	8.68E-14	2.00E-01
2	1800	RN-220	3.63E-12	0.00E+00	6.66E-14	6.66E-14	1.62E-01

2	2000	RN-220	2.01E-12	0.00E+00	3.96E-14	3.96E-14	1.07E-01
2	2200	RN-220	1.13E-12	0.00E+00	2.37E-14	2.37E-14	7.07E-02
2	2500	RN-220	4.93E-13	0.00E+00	1.12E-14	1.12E-14	3.79E-02
2	5000	RN-220	9.63E-16	0.00E+00	3.10E-17	3.10E-17	2.10E-04
3	1625	RN-220	1.15E-12	0.00E+00	2.40E-14	2.40E-14	4.50E-02
3	1700	RN-220	9.16E-13	0.00E+00	1.96E-14	1.96E-14	3.85E-02
3	1800	RN-220	6.76E-13	0.00E+00	1.50E-14	1.50E-14	3.13E-02
3	2000	RN-220	3.74E-13	0.00E+00	8.93E-15	8.93E-15	2.06E-02
3	2200	RN-220	2.10E-13	0.00E+00	5.36E-15	5.36E-15	1.36E-02
3	2500	RN-220	9.11E-14	0.00E+00	2.53E-15	2.53E-15	7.30E-03
3	5000	RN-220	1.72E-16	0.00E+00	6.99E-18	6.99E-18	4.03E-05
4	1625	RN-220	4.13E-14	0.00E+00	4.38E-15	4.38E-15	7.90E-03
4	1700	RN-220	3.22E-14	0.00E+00	3.58E-15	3.58E-15	6.73E-03
4	1800	RN-220	2.32E-14	0.00E+00	2.74E-15	2.74E-15	5.45E-03
4	2000	RN-220	1.24E-14	0.00E+00	1.62E-15	1.62E-15	3.58E-03
4	2200	RN-220	6.73E-15	0.00E+00	9.73E-16	9.73E-16	2.35E-03
4	2500	RN-220	2.79E-15	0.00E+00	4.59E-16	4.59E-16	1.26E-03
4	5000	RN-220	4.26E-18	0.00E+00	1.27E-18	1.27E-18	6.95E-06
5	1625	RN-220	2.53E-12	0.00E+00	6.16E-14	6.16E-14	1.28E-01
5	1700	RN-220	2.00E-12	0.00E+00	5.04E-14	5.04E-14	1.09E-01
5	1800	RN-220	1.48E-12	0.00E+00	3.87E-14	3.87E-14	8.88E-02
5	2000	RN-220	8.17E-13	0.00E+00	2.30E-14	2.30E-14	5.86E-02
5	2200	RN-220	4.59E-13	0.00E+00	1.38E-14	1.38E-14	3.87E-02
5	2500	RN-220	1.98E-13	0.00E+00	6.50E-15	6.50E-15	2.07E-02
5	5000	RN-220	3.72E-16	0.00E+00	1.80E-17	1.80E-17	1.15E-04
6	1625	RN-220	1.06E-11	0.00E+00	2.15E-13	2.15E-13	5.33E-01
6	1700	RN-220	8.44E-12	0.00E+00	1.75E-13	1.75E-13	4.55E-01
6	1800	RN-220	6.23E-12	0.00E+00	1.34E-13	1.34E-13	3.69E-01
6	2000	RN-220	3.45E-12	0.00E+00	7.97E-14	7.97E-14	2.43E-01
6	2200	RN-220	1.94E-12	0.00E+00	4.78E-14	4.78E-14	1.60E-01
6	2500	RN-220	8.41E-13	0.00E+00	2.25E-14	2.25E-14	8.60E-02
6	5000	RN-220	1.62E-15	0.00E+00	6.24E-17	6.24E-17	4.76E-04
7	1625	RN-220	7.03E-12	0.00E+00	1.39E-13	1.39E-13	3.37E-01
7	1700	RN-220	5.58E-12	0.00E+00	1.14E-13	1.14E-13	2.88E-01
7	1800	RN-220	4.12E-12	0.00E+00	8.73E-14	8.73E-14	2.34E-01
7	2000	RN-220	2.28E-12	0.00E+00	5.18E-14	5.18E-14	1.54E-01
7	2200	RN-220	1.28E-12	0.00E+00	3.11E-14	3.11E-14	1.02E-01
7	2500	RN-220	5.56E-13	0.00E+00	1.47E-14	1.47E-14	5.44E-02
7	5000	RN-220	1.07E-15	0.00E+00	4.06E-17	4.06E-17	3.01E-04
8	1625	RN-220	5.44E-12	0.00E+00	9.81E-14	9.81E-14	2.71E-01
8	1700	RN-220	4.31E-12	0.00E+00	8.01E-14	8.01E-14	2.31E-01
8	1800	RN-220	3.18E-12	0.00E+00	6.13E-14	6.13E-14	1.87E-01
8	2000	RN-220	1.76E-12	0.00E+00	3.63E-14	3.63E-14	1.23E-01
8	2200	RN-220	9.92E-13	0.00E+00	2.17E-14	2.17E-14	8.12E-02
8	2500	RN-220	4.30E-13	0.00E+00	1.02E-14	1.02E-14	4.35E-02
8	5000	RN-220	8.34E-16	0.00E+00	2.84E-17	2.84E-17	2.41E-04
9	1625	RN-220	6.08E-12	0.00E+00	1.03E-13	1.03E-13	3.20E-01
9	1700	RN-220	4.80E-12	0.00E+00	8.37E-14	8.37E-14	2.71E-01
9	1800	RN-220	3.52E-12	0.00E+00	6.36E-14	6.36E-14	2.17E-01
9	2000	RN-220	1.93E-12	0.00E+00	3.72E-14	3.72E-14	1.40E-01
9	2200	RN-220	1.08E-12	0.00E+00	2.21E-14	2.21E-14	9.15E-02
9	2500	RN-220	4.67E-13	0.00E+00	1.04E-14	1.04E-14	4.86E-02
9	5000	RN-220	9.16E-16	0.00E+00	2.85E-17	2.85E-17	2.67E-04
10	1625	RN-220	9.11E-12	0.00E+00	2.00E-13	2.00E-13	5.86E-01
10	1700	RN-220	7.20E-12	0.00E+00	1.63E-13	1.63E-13	4.99E-01
10	1800	RN-220	5.30E-12	0.00E+00	1.25E-13	1.25E-13	4.03E-01
10	2000	RN-220	2.92E-12	0.00E+00	7.35E-14	7.35E-14	2.64E-01
10	2200	RN-220	1.64E-12	0.00E+00	4.40E-14	4.40E-14	1.74E-01
10	2500	RN-220	7.07E-13	0.00E+00	2.07E-14	2.07E-14	9.28E-02
10	5000	RN-220	1.35E-15	0.00E+00	5.72E-17	5.72E-17	5.13E-04
11	1625	RN-220	1.20E-11	0.00E+00	2.23E-13	2.23E-13	6.20E-01
11	1700	RN-220	9.55E-12	0.00E+00	1.81E-13	1.81E-13	5.28E-01
11	1800	RN-220	7.04E-12	0.00E+00	1.39E-13	1.39E-13	4.27E-01
11	2000	RN-220	3.89E-12	0.00E+00	8.20E-14	8.20E-14	2.80E-01
11	2200	RN-220	2.19E-12	0.00E+00	4.90E-14	4.90E-14	1.84E-01

11	2500	RN-220	9.49E-13	0.00E+00	2.31E-14	2.31E-14	9.84E-02
11	5000	RN-220	1.84E-15	0.00E+00	6.39E-17	6.39E-17	5.44E-04
12	1625	RN-220	1.60E-11	0.00E+00	2.77E-13	2.77E-13	7.71E-01
12	1700	RN-220	1.27E-11	0.00E+00	2.25E-13	2.25E-13	6.56E-01
12	1800	RN-220	9.34E-12	0.00E+00	1.72E-13	1.72E-13	5.30E-01
12	2000	RN-220	5.16E-12	0.00E+00	1.02E-13	1.02E-13	3.47E-01
12	2200	RN-220	2.90E-12	0.00E+00	6.08E-14	6.08E-14	2.28E-01
12	2500	RN-220	1.26E-12	0.00E+00	2.86E-14	2.86E-14	1.22E-01
12	5000	RN-220	2.46E-15	0.00E+00	7.90E-17	7.90E-17	6.72E-04
13	1625	RN-220	2.86E-11	0.00E+00	5.11E-13	5.11E-13	1.42E+00
13	1700	RN-220	2.27E-11	0.00E+00	4.17E-13	4.17E-13	1.21E+00
13	1800	RN-220	1.67E-11	0.00E+00	3.19E-13	3.19E-13	9.80E-01
13	2000	RN-220	9.25E-12	0.00E+00	1.89E-13	1.89E-13	6.43E-01
13	2200	RN-220	5.21E-12	0.00E+00	1.13E-13	1.13E-13	4.23E-01
13	2500	RN-220	2.26E-12	0.00E+00	5.31E-14	5.31E-14	2.26E-01
13	5000	RN-220	4.41E-15	0.00E+00	1.47E-16	1.47E-16	1.25E-03
14	1625	RN-220	2.49E-11	0.00E+00	4.61E-13	4.61E-13	1.06E+00
14	1700	RN-220	1.98E-11	0.00E+00	3.77E-13	3.77E-13	9.10E-01
14	1800	RN-220	1.46E-11	0.00E+00	2.89E-13	2.89E-13	7.38E-01
14	2000	RN-220	8.11E-12	0.00E+00	1.71E-13	1.71E-13	4.87E-01
14	2200	RN-220	4.57E-12	0.00E+00	1.03E-13	1.03E-13	3.21E-01
14	2500	RN-220	1.98E-12	0.00E+00	4.85E-14	4.85E-14	1.72E-01
14	5000	RN-220	3.86E-15	0.00E+00	1.34E-16	1.34E-16	9.53E-04
15	1625	RN-220	2.92E-11	0.00E+00	4.98E-13	4.98E-13	1.24E+00
15	1700	RN-220	2.32E-11	0.00E+00	4.07E-13	4.07E-13	1.06E+00
15	1800	RN-220	1.72E-11	0.00E+00	3.12E-13	3.12E-13	8.56E-01
15	2000	RN-220	9.51E-12	0.00E+00	1.85E-13	1.85E-13	5.62E-01
15	2200	RN-220	5.36E-12	0.00E+00	1.11E-13	1.11E-13	3.70E-01
15	2500	RN-220	2.33E-12	0.00E+00	5.21E-14	5.21E-14	1.98E-01
15	5000	RN-220	4.57E-15	0.00E+00	1.44E-16	1.44E-16	1.09E-03
16	1625	RN-220	2.12E-11	0.00E+00	3.65E-13	3.65E-13	1.23E+00
16	1700	RN-220	1.67E-11	0.00E+00	2.96E-13	2.96E-13	1.04E+00
16	1800	RN-220	1.23E-11	0.00E+00	2.25E-13	2.25E-13	8.37E-01
16	2000	RN-220	6.75E-12	0.00E+00	1.32E-13	1.32E-13	5.44E-01
16	2200	RN-220	3.79E-12	0.00E+00	7.84E-14	7.84E-14	3.55E-01
16	2500	RN-220	1.64E-12	0.00E+00	3.67E-14	3.67E-14	1.89E-01
16	5000	RN-220	3.20E-15	0.00E+00	1.01E-16	1.01E-16	1.04E-03

1 GROUND-LEVEL CHI/Q VALUES FOR RN-220 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.551E-08	0.263E-08	0.492E-09	0.176E-10	0.108E-08	0.454E-08	0.300E-08	0.232E-08
1700	0.436E-08	0.209E-08	0.390E-09	0.137E-10	0.854E-09	0.360E-08	0.238E-08	0.184E-08
1800	0.321E-08	0.155E-08	0.288E-09	0.990E-11	0.630E-09	0.266E-08	0.176E-08	0.136E-08
2000	0.177E-08	0.857E-09	0.159E-09	0.527E-11	0.348E-09	0.147E-08	0.972E-09	0.750E-09
2200	0.995E-09	0.484E-09	0.897E-10	0.287E-11	0.196E-09	0.827E-09	0.547E-09	0.423E-09
2500	0.431E-09	0.210E-09	0.388E-10	0.119E-11	0.846E-10	0.358E-09	0.237E-09	0.183E-09
5000	0.843E-12	0.410E-12	0.733E-13	0.181E-14	0.158E-12	0.690E-12	0.454E-12	0.355E-12

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.259E-08	0.388E-08	0.513E-08	0.682E-08	0.122E-07	0.106E-07	0.125E-07	0.902E-08
1700	0.204E-08	0.307E-08	0.407E-08	0.540E-08	0.966E-08	0.844E-08	0.989E-08	0.712E-08
1800	0.150E-08	0.226E-08	0.300E-08	0.398E-08	0.713E-08	0.624E-08	0.731E-08	0.523E-08
2000	0.823E-09	0.124E-08	0.166E-08	0.220E-08	0.394E-08	0.346E-08	0.405E-08	0.288E-08
2200	0.461E-09	0.697E-09	0.933E-09	0.124E-08	0.222E-08	0.195E-08	0.228E-08	0.161E-08
2500	0.199E-09	0.301E-09	0.404E-09	0.536E-09	0.963E-09	0.846E-09	0.992E-09	0.698E-09
5000	0.390E-12	0.575E-12	0.783E-12	0.105E-11	0.188E-11	0.164E-11	0.195E-11	0.136E-11

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

1 LIST OF INPUT DATA FOR NUCLIDE RN-220

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1076E+04

0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00

0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00

0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L) 0.0000E+

0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG) 0.0000E+0

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE 0.0000E+0
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS 0.0000E+00
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.0000E+00

0 GI UPTAKE FRACTION (INGESTION) 0.0000E+00

0 PARTICLE SIZE (MICRONS) 0.0000E+00

0 SOLUBILITY CLASS

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.976E-03	0.000E+00	0.264E+00	0.270E-04	0.573E-03
R MAR	0.544E-03	0.000E+00	0.268E+00	0.274E-04	0.581E-03
ENDOST	0.479E-02	0.000E+00	0.304E+00	0.310E-04	0.658E-03
THYROID	0.238E-03	0.000E+00	0.326E+00	0.333E-04	0.707E-03
BREAST	0.238E-03	0.000E+00	0.324E+00	0.330E-04	0.701E-03
PUL	0.329E-02	0.000E+00	0.262E+00	0.268E-04	0.568E-03
S WALL	0.236E-03	0.000E+00	0.241E+00	0.246E-04	0.522E-03
INT WALL	0.236E-03	0.000E+00	0.240E+00	0.245E-04	0.520E-03
LIVER	0.590E-03	0.000E+00	0.245E+00	0.250E-04	0.530E-03
PANCREAS	0.238E-03	0.000E+00	0.210E+00	0.215E-04	0.456E-03
KIDNEYS	0.734E-03	0.000E+00	0.256E+00	0.261E-04	0.554E-03

1 CONCENTRATIONS AND INTAKE RATES FOR RN-220

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTA (PCI/YEAR)
0					
1	1625	0.129E-16	0.177E-18	0.000E+00	0.104E+00
1	1700	0.102E-16	0.144E-18	0.000E+00	0.822E-01
1	1800	0.753E-17	0.110E-18	0.000E+00	0.605E-01
1	2000	0.415E-17	0.646E-19	0.000E+00	0.334E-01
1	2200	0.233E-17	0.386E-19	0.000E+00	0.187E-01
1	2500	0.101E-17	0.181E-19	0.000E+00	0.812E-02
1	5000	0.198E-20	0.502E-22	0.000E+00	0.159E-04
2	1625	0.618E-17	0.852E-19	0.000E+00	0.496E-01
2	1700	0.491E-17	0.697E-19	0.000E+00	0.394E-01
2	1800	0.363E-17	0.535E-19	0.000E+00	0.291E-01
2	2000	0.201E-17	0.317E-19	0.000E+00	0.162E-01
2	2200	0.113E-17	0.190E-19	0.000E+00	0.911E-02
2	2500	0.493E-18	0.898E-20	0.000E+00	0.396E-02
2	5000	0.963E-21	0.249E-22	0.000E+00	0.774E-05
3	1625	0.115E-17	0.192E-19	0.000E+00	0.927E-02
3	1700	0.916E-18	0.157E-19	0.000E+00	0.735E-02
3	1800	0.676E-18	0.121E-19	0.000E+00	0.543E-02
3	2000	0.374E-18	0.717E-20	0.000E+00	0.300E-02
3	2200	0.210E-18	0.430E-20	0.000E+00	0.169E-02
3	2500	0.911E-19	0.203E-20	0.000E+00	0.731E-03
3	5000	0.172E-21	0.561E-23	0.000E+00	0.138E-05
4	1625	0.413E-19	0.352E-20	0.000E+00	0.331E-03
4	1700	0.322E-19	0.287E-20	0.000E+00	0.258E-03
4	1800	0.232E-19	0.220E-20	0.000E+00	0.187E-03
4	2000	0.124E-19	0.130E-20	0.000E+00	0.993E-04
4	2200	0.673E-20	0.781E-21	0.000E+00	0.540E-04
4	2500	0.279E-20	0.368E-21	0.000E+00	0.224E-04
4	5000	0.426E-23	0.102E-23	0.000E+00	0.342E-07
5	1625	0.253E-17	0.495E-19	0.000E+00	0.203E-01

5	1700	0.200E-17	0.405E-19	0.000E+00	0.161E-01
5	1800	0.148E-17	0.310E-19	0.000E+00	0.119E-01
5	2000	0.817E-18	0.184E-19	0.000E+00	0.656E-02
5	2200	0.459E-18	0.111E-19	0.000E+00	0.369E-02
5	2500	0.198E-18	0.522E-20	0.000E+00	0.159E-02
5	5000	0.372E-21	0.144E-22	0.000E+00	0.299E-05
6	1625	0.106E-16	0.172E-18	0.000E+00	0.855E-01
6	1700	0.844E-17	0.141E-18	0.000E+00	0.678E-01
6	1800	0.623E-17	0.108E-18	0.000E+00	0.500E-01
6	2000	0.345E-17	0.640E-19	0.000E+00	0.277E-01
6	2200	0.194E-17	0.384E-19	0.000E+00	0.156E-01
6	2500	0.841E-18	0.181E-19	0.000E+00	0.675E-02
6	5000	0.162E-20	0.501E-22	0.000E+00	0.130E-04
7	1625	0.703E-17	0.112E-18	0.000E+00	0.565E-01
7	1700	0.558E-17	0.915E-19	0.000E+00	0.448E-01
7	1800	0.412E-17	0.701E-19	0.000E+00	0.331E-01
7	2000	0.228E-17	0.416E-19	0.000E+00	0.183E-01
7	2200	0.128E-17	0.250E-19	0.000E+00	0.103E-01
7	2500	0.556E-18	0.118E-19	0.000E+00	0.447E-02
7	5000	0.107E-20	0.326E-22	0.000E+00	0.856E-05
8	1625	0.544E-17	0.788E-19	0.000E+00	0.437E-01
8	1700	0.431E-17	0.643E-19	0.000E+00	0.346E-01
8	1800	0.318E-17	0.492E-19	0.000E+00	0.256E-01
8	2000	0.176E-17	0.292E-19	0.000E+00	0.141E-01
8	2200	0.992E-18	0.175E-19	0.000E+00	0.796E-02
8	2500	0.430E-18	0.823E-20	0.000E+00	0.345E-02
8	5000	0.834E-21	0.228E-22	0.000E+00	0.670E-05
9	1625	0.608E-17	0.830E-19	0.000E+00	0.488E-01
9	1700	0.480E-17	0.672E-19	0.000E+00	0.385E-01
9	1800	0.352E-17	0.510E-19	0.000E+00	0.283E-01
9	2000	0.193E-17	0.299E-19	0.000E+00	0.155E-01
9	2200	0.108E-17	0.178E-19	0.000E+00	0.869E-02
9	2500	0.467E-18	0.832E-20	0.000E+00	0.375E-02
9	5000	0.916E-21	0.229E-22	0.000E+00	0.736E-05
10	1625	0.911E-17	0.161E-18	0.000E+00	0.731E-01
10	1700	0.720E-17	0.131E-18	0.000E+00	0.578E-01
10	1800	0.530E-17	0.100E-18	0.000E+00	0.425E-01
10	2000	0.292E-17	0.590E-19	0.000E+00	0.234E-01
10	2200	0.164E-17	0.353E-19	0.000E+00	0.131E-01
10	2500	0.707E-18	0.166E-19	0.000E+00	0.567E-02
10	5000	0.135E-20	0.459E-22	0.000E+00	0.108E-04
11	1625	0.120E-16	0.179E-18	0.000E+00	0.968E-01
11	1700	0.955E-17	0.146E-18	0.000E+00	0.767E-01
11	1800	0.704E-17	0.111E-18	0.000E+00	0.565E-01
11	2000	0.389E-17	0.658E-19	0.000E+00	0.312E-01
11	2200	0.219E-17	0.394E-19	0.000E+00	0.176E-01
11	2500	0.949E-18	0.185E-19	0.000E+00	0.762E-02
11	5000	0.184E-20	0.513E-22	0.000E+00	0.148E-04
12	1625	0.160E-16	0.222E-18	0.000E+00	0.129E+00
12	1700	0.127E-16	0.181E-18	0.000E+00	0.102E+00
12	1800	0.934E-17	0.138E-18	0.000E+00	0.750E-01
12	2000	0.516E-17	0.816E-19	0.000E+00	0.414E-01
12	2200	0.290E-17	0.488E-19	0.000E+00	0.233E-01
12	2500	0.126E-17	0.229E-19	0.000E+00	0.101E-01
12	5000	0.246E-20	0.634E-22	0.000E+00	0.197E-04
13	1625	0.286E-16	0.411E-18	0.000E+00	0.229E+00
13	1700	0.227E-16	0.335E-18	0.000E+00	0.182E+00
13	1800	0.167E-16	0.256E-18	0.000E+00	0.134E+00
13	2000	0.925E-17	0.152E-18	0.000E+00	0.743E-01
13	2200	0.521E-17	0.907E-19	0.000E+00	0.418E-01
13	2500	0.226E-17	0.427E-19	0.000E+00	0.181E-01
13	5000	0.441E-20	0.118E-21	0.000E+00	0.354E-04
14	1625	0.249E-16	0.370E-18	0.000E+00	0.200E+00
14	1700	0.198E-16	0.302E-18	0.000E+00	0.159E+00
14	1800	0.146E-16	0.232E-18	0.000E+00	0.118E+00

14	2000	0.811E-17	0.138E-18	0.000E+00	0.652E-01
14	2200	0.457E-17	0.828E-19	0.000E+00	0.367E-01
14	2500	0.198E-17	0.389E-19	0.000E+00	0.159E-01
14	5000	0.386E-20	0.108E-21	0.000E+00	0.310E-04
15	1625	0.292E-16	0.400E-18	0.000E+00	0.235E+00
15	1700	0.232E-16	0.327E-18	0.000E+00	0.186E+00
15	1800	0.172E-16	0.250E-18	0.000E+00	0.138E+00
15	2000	0.951E-17	0.148E-18	0.000E+00	0.763E-01
15	2200	0.536E-17	0.888E-19	0.000E+00	0.430E-01
15	2500	0.233E-17	0.418E-19	0.000E+00	0.187E-01
15	5000	0.457E-20	0.116E-21	0.000E+00	0.367E-04
16	1625	0.212E-16	0.293E-18	0.000E+00	0.170E+00
16	1700	0.167E-16	0.237E-18	0.000E+00	0.134E+00
16	1800	0.123E-16	0.181E-18	0.000E+00	0.986E-01
16	2000	0.675E-17	0.106E-18	0.000E+00	0.542E-01
16	2200	0.379E-17	0.630E-19	0.000E+00	0.304E-01
16	2500	0.164E-17	0.295E-19	0.000E+00	0.132E-01
16	5000	0.320E-20	0.812E-22	0.000E+00	0.257E-04

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RN-220	SUBM AIR	0.6775E-13	0.03	100.00
	SURFACE	0.9457E-17	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2291E-09	99.97	100.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RN-220	SUBM AIR	0.6866E-13	0.05	100.00
	SURFACE	0.9584E-17	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1277E-09	99.95	100.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RN-220	SUBM AIR	0.7782E-13	0.01	100.00
	SURFACE	0.1086E-16	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1125E-08	99.99	100.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RN-220	SUBM AIR	0.8357E-13	0.15	100.00
	SURFACE	0.1167E-16	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5581E-10	99.85	100.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

```
0
        RN-220     SUBM AIR     0.8292E-13        0.15          100.00
                 SURFACE      0.1157E-16        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.5581E-10       99.85          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF *PUL*   DOSE BY EACH PATHWAY
0       NUCLIDE      PATHWAY        DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        RN-220     SUBM AIR     0.6723E-13        0.01          100.00
                 SURFACE      0.9384E-17        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.7718E-09       99.99          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF S WALL   DOSE BY EACH PATHWAY
0       NUCLIDE      PATHWAY        DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        RN-220     SUBM AIR     0.6173E-13        0.11          100.00
                 SURFACE      0.8617E-17        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.5532E-10       99.89          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE      PATHWAY        DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        RN-220     SUBM AIR     0.6147E-13        0.11          100.00
                 SURFACE      0.8580E-17        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.5532E-10       99.89          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF LIVER   DOSE BY EACH PATHWAY
0       NUCLIDE      PATHWAY        DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        RN-220     SUBM AIR     0.6265E-13        0.05          100.00
                 SURFACE      0.8745E-17        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.1385E-09       99.95          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE      PATHWAY        DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        RN-220     SUBM AIR     0.5389E-13        0.10          100.00
                 SURFACE      0.7522E-17        0.00          100.00
                 SWIMMING     0.0000E+00        0.00            0.00
                 INHAL.       0.5586E-10       99.90          100.00
                 INGEST.      0.0000E+00        0.00            0.00
                  VEGET.      0.0000E+00      * 0.00          * 0.00
                  MEAT        0.0000E+00      * 0.00          * 0.00
                  MILK        0.0000E+00      * 0.00          * 0.00
1                 PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
```

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RN-220	SUBM AIR	0.6553E-13	0.04	100.00
	SURFACE	0.9146E-17	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1723E-09	99.96	100.00
	INGEST.	0.0000E+00	0.00	0.00
	VEGET.	0.0000E+00	* 0.00	* 0.00
	MEAT	0.0000E+00	* 0.00	* 0.00
	MILK	0.0000E+00	* 0.00	* 0.00

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.6775E-13	0.0298
SURFACE	0.9457E-17	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.2291E-09	99.9704
INGEST.	0.1000E-24	0.0000
VEGET.	*0.1000E-24	* 0.0000
MEAT	*0.1000E-24	* 0.0000
MILK	*0.1000E-24	* 0.0000

CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.6866E-13	0.0538
SURFACE	0.9584E-17	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1277E-09	99.9462
INGEST.	0.1000E-24	0.0000
VEGET.	*0.1000E-24	* 0.0000
MEAT	*0.1000E-24	* 0.0000
MILK	*0.1000E-24	* 0.0000

CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7782E-13	0.0069
SURFACE	0.1086E-16	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1125E-08	99.9931
INGEST.	0.1000E-24	0.0000
VEGET.	*0.1000E-24	* 0.0000
MEAT	*0.1000E-24	* 0.0000
MILK	*0.1000E-24	* 0.0000

CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.8357E-13	0.1495
SURFACE	0.1167E-16	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.5581E-10	99.8505
INGEST.	0.1000E-24	0.0000
VEGET.	*0.1000E-24	* 0.0000
MEAT	*0.1000E-24	* 0.0000
MILK	*0.1000E-24	* 0.0000

CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.8292E-13	0.1483
SURFACE	0.1157E-16	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.5581E-10	99.8516
INGEST.	0.1000E-24	0.0000
VEGET.	*0.1000E-24	* 0.0000
MEAT	*0.1000E-24	* 0.0000
MILK	*0.1000E-24	* 0.0000

CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.6723E-13	0.0087
SURFACE	0.9384E-17	0.0000
SWIMMING	0.1000E-24	0.0000

0	INHAL.	0.7718E-09	99.9913
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6173E-13	0.1115
0	SURFACE	0.8617E-17	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5532E-10	99.8885
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6147E-13	0.1110
0	SURFACE	0.8580E-17	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5532E-10	99.8890
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6265E-13	0.0452
0	SURFACE	0.8745E-17	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1385E-09	99.9548
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5389E-13	0.0964
0	SURFACE	0.7522E-17	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5586E-10	99.9036
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6553E-13	0.0380
0	SURFACE	0.9146E-17	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1723E-09	99.9620
0	INGEST.	0.1000E-24	0.0000
0	VEGET.	*0.1000E-24	* 0.0000
0	MEAT	*0.1000E-24	* 0.0000
0	MILK	*0.1000E-24	* 0.0000

1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.2292E-09
0	R MAR	0.1277E-09
0	ENDOST	0.1125E-08
0	THYROID	0.5590E-10
0	BREAST	0.5590E-10
0	*PUL*	0.7719E-09
0	S WALL	0.5538E-10
0	INT WALL	0.5538E-10

0 LIVER 0.1386E-09
0 PANCREAS 0.5592E-10
0 KIDNEYS 0.1723E-09
1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNE
RN-220	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	RN-220	W BODY	0.2292E-09	15	10
0	RN-220	R MAR	0.1277E-09	15	10
0	RN-220	ENDOST	0.1125E-08	15	10
0	RN-220	THYROID	0.5590E-10	15	10
0	RN-220	BREAST	0.5590E-10	15	10
0	RN-220	*PUL*	0.7719E-09	15	10
0	RN-220	S WALL	0.5538E-10	15	10
0	RN-220	INT WALL	0.5538E-10	15	10
0	RN-220	LIVER	0.1386E-09	15	10
0	RN-220	PANCREAS	0.5592E-10	15	10
0	RN-220	KIDNEYS	0.1723E-09	15	10

Building 60

Thorium-232

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=4,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-232',ISOL=Y,AMAD=1.0,REL=1.9 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 60 WITH 10% RELEASE
DOSE CALCULATED AT 750 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED--

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION--

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-232	0.190E+01

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-232	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

ESTIMATED RADIONUCLIDE CONCENTRATIONS

AREA TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	750	TH-232	4.08E-07	2.35E-08	2.62E-09	2.61E-08	3.36E+03
1	1000	TH-232	2.37E-07	1.36E-08	1.95E-09	1.56E-08	3.34E+03
1	1200	TH-232	1.74E-07	1.00E-08	1.62E-09	1.16E-08	3.33E+03
1	1300	TH-232	1.52E-07	8.75E-09	1.49E-09	1.02E-08	3.33E+03
1	1400	TH-232	1.34E-07	7.71E-09	1.38E-09	9.09E-09	3.32E+03
1	1500	TH-232	1.19E-07	6.85E-09	1.29E-09	8.14E-09	3.32E+03
1	1625	TH-232	1.04E-07	5.98E-09	1.19E-09	7.17E-09	3.31E+03
1	1700	TH-232	9.63E-08	5.54E-09	1.13E-09	6.68E-09	3.31E+03
1	1800	TH-232	8.74E-08	5.03E-09	1.07E-09	6.10E-09	3.30E+03
1	2000	TH-232	7.29E-08	4.20E-09	9.58E-10	5.16E-09	3.29E+03
1	2200	TH-232	6.21E-08	3.58E-09	8.69E-10	4.45E-09	3.29E+03
1	2500	TH-232	5.01E-08	2.88E-09	7.62E-10	3.65E-09	3.28E+03

1	5000	TH-232	1.71E-08	9.86E-10	3.70E-10	1.36E-09	3.21E+03
2	750	TH-232	2.69E-07	1.55E-08	1.75E-09	1.72E-08	1.64E+03
2	1000	TH-232	1.56E-07	8.96E-09	1.30E-09	1.03E-08	1.63E+03
2	1200	TH-232	1.14E-07	6.59E-09	1.08E-09	7.66E-09	1.62E+03
2	1300	TH-232	9.99E-08	5.75E-09	9.92E-10	6.74E-09	1.62E+03
2	1400	TH-232	8.80E-08	5.06E-09	9.18E-10	5.98E-09	1.62E+03
2	1500	TH-232	7.81E-08	4.50E-09	8.55E-10	5.35E-09	1.61E+03
2	1625	TH-232	6.82E-08	3.93E-09	7.87E-10	4.71E-09	1.61E+03
2	1700	TH-232	6.32E-08	3.64E-09	7.51E-10	4.39E-09	1.61E+03
2	1800	TH-232	5.73E-08	3.30E-09	7.08E-10	4.01E-09	1.60E+03
2	2000	TH-232	4.78E-08	2.75E-09	6.35E-10	3.39E-09	1.60E+03
2	2200	TH-232	4.07E-08	2.34E-09	5.75E-10	2.92E-09	1.59E+03
2	2500	TH-232	3.28E-08	1.89E-09	5.04E-10	2.39E-09	1.59E+03
2	5000	TH-232	1.11E-08	6.40E-10	2.43E-10	8.84E-10	1.54E+03
3	750	TH-232	2.10E-07	1.21E-08	1.17E-09	1.33E-08	8.89E+02
3	1000	TH-232	1.21E-07	6.98E-09	8.69E-10	7.85E-09	8.80E+02
3	1200	TH-232	8.87E-08	5.11E-09	7.20E-10	5.83E-09	8.75E+02
3	1300	TH-232	7.73E-08	4.45E-09	6.63E-10	5.11E-09	8.73E+02
3	1400	TH-232	6.79E-08	3.91E-09	6.13E-10	4.52E-09	8.70E+02
3	1500	TH-232	6.01E-08	3.46E-09	5.70E-10	4.03E-09	8.67E+02
3	1625	TH-232	5.24E-08	3.02E-09	5.25E-10	3.54E-09	8.64E+02
3	1700	TH-232	4.85E-08	2.79E-09	5.01E-10	3.29E-09	8.63E+02
3	1800	TH-232	4.39E-08	2.53E-09	4.72E-10	3.00E-09	8.61E+02
3	2000	TH-232	3.65E-08	2.10E-09	4.22E-10	2.52E-09	8.56E+02
3	2200	TH-232	3.10E-08	1.78E-09	3.82E-10	2.17E-09	8.54E+02
3	2500	TH-232	2.49E-08	1.43E-09	3.35E-10	1.77E-09	8.50E+02
3	5000	TH-232	8.26E-09	4.75E-10	1.60E-10	6.36E-10	8.14E+02
4	750	TH-232	3.22E-07	1.85E-08	1.57E-09	2.01E-08	1.11E+03
4	1000	TH-232	1.85E-07	1.07E-08	1.16E-09	1.18E-08	1.10E+03
4	1200	TH-232	1.36E-07	7.80E-09	9.64E-10	8.77E-09	1.09E+03
4	1300	TH-232	1.18E-07	6.79E-09	8.87E-10	7.68E-09	1.09E+03
4	1400	TH-232	1.04E-07	5.96E-09	8.20E-10	6.78E-09	1.08E+03
4	1500	TH-232	9.16E-08	5.27E-09	7.62E-10	6.04E-09	1.08E+03
4	1625	TH-232	7.98E-08	4.59E-09	7.01E-10	5.29E-09	1.08E+03
4	1700	TH-232	7.38E-08	4.25E-09	6.68E-10	4.91E-09	1.07E+03
4	1800	TH-232	6.68E-08	3.84E-09	6.29E-10	4.47E-09	1.07E+03
4	2000	TH-232	5.54E-08	3.19E-09	5.63E-10	3.75E-09	1.06E+03
4	2200	TH-232	4.71E-08	2.71E-09	5.10E-10	3.22E-09	1.06E+03
4	2500	TH-232	3.78E-08	2.18E-09	4.46E-10	2.62E-09	1.05E+03
4	5000	TH-232	1.25E-08	7.17E-10	2.12E-10	9.29E-10	1.00E+03
5	750	TH-232	6.57E-07	3.78E-08	2.94E-09	4.08E-08	2.28E+04
5	1000	TH-232	3.78E-07	2.18E-08	2.18E-09	2.39E-08	2.26E+04
5	1200	TH-232	2.76E-07	1.59E-08	1.80E-09	1.77E-08	2.24E+04
5	1300	TH-232	2.40E-07	1.38E-08	1.66E-09	1.55E-08	2.23E+04
5	1400	TH-232	2.11E-07	1.21E-08	1.53E-09	1.37E-08	2.23E+04
5	1500	TH-232	1.86E-07	1.07E-08	1.42E-09	1.22E-08	2.22E+04
5	1625	TH-232	1.62E-07	9.34E-09	1.31E-09	1.07E-08	2.21E+04
5	1700	TH-232	1.50E-07	8.64E-09	1.25E-09	9.89E-09	2.20E+04
5	1800	TH-232	1.36E-07	7.81E-09	1.18E-09	8.99E-09	2.20E+04
5	2000	TH-232	1.13E-07	6.48E-09	1.05E-09	7.53E-09	2.18E+04
5	2200	TH-232	9.56E-08	5.51E-09	9.51E-10	6.46E-09	2.18E+04
5	2500	TH-232	7.68E-08	4.42E-09	8.33E-10	5.25E-09	2.17E+04
5	5000	TH-232	2.52E-08	1.45E-09	3.95E-10	1.85E-09	2.06E+04
6	750	TH-232	4.84E-07	2.79E-08	3.35E-09	3.12E-08	3.47E+04
6	1000	TH-232	2.80E-07	1.61E-08	2.49E-09	1.86E-08	3.45E+04
6	1200	TH-232	2.05E-07	1.18E-08	2.07E-09	1.39E-08	3.44E+04
6	1300	TH-232	1.79E-07	1.03E-08	1.90E-09	1.22E-08	3.43E+04
6	1400	TH-232	1.58E-07	9.07E-09	1.76E-09	1.08E-08	3.43E+04
6	1500	TH-232	1.40E-07	8.04E-09	1.64E-09	9.69E-09	3.42E+04
6	1625	TH-232	1.22E-07	7.02E-09	1.51E-09	8.53E-09	3.41E+04
6	1700	TH-232	1.13E-07	6.49E-09	1.44E-09	7.94E-09	3.41E+04
6	1800	TH-232	1.02E-07	5.89E-09	1.36E-09	7.25E-09	3.40E+04

6	2000	TH-232	8.51E-08	4.90E-09	1.22E-09	6.12E-09	3.39E+03
6	2200	TH-232	7.24E-08	4.17E-09	1.11E-09	5.28E-09	3.39E+03
6	2500	TH-232	5.83E-08	3.35E-09	9.71E-10	4.33E-09	3.37E+03
6	5000	TH-232	1.95E-08	1.12E-09	4.70E-10	1.59E-09	3.29E+03
7	750	TH-232	2.64E-07	1.52E-08	1.83E-09	1.70E-08	1.90E+03
7	1000	TH-232	1.53E-07	8.83E-09	1.36E-09	1.02E-08	1.89E+03
7	1200	TH-232	1.12E-07	6.47E-09	1.13E-09	7.60E-09	1.89E+03
7	1300	TH-232	9.79E-08	5.63E-09	1.04E-09	6.68E-09	1.88E+03
7	1400	TH-232	8.61E-08	4.96E-09	9.65E-10	5.92E-09	1.88E+03
7	1500	TH-232	7.63E-08	4.39E-09	8.99E-10	5.29E-09	1.88E+03
7	1625	TH-232	6.65E-08	3.83E-09	8.28E-10	4.66E-09	1.87E+03
7	1700	TH-232	6.16E-08	3.54E-09	7.90E-10	4.33E-09	1.87E+03
7	1800	TH-232	5.58E-08	3.21E-09	7.45E-10	3.95E-09	1.87E+03
7	2000	TH-232	4.64E-08	2.67E-09	6.68E-10	3.34E-09	1.86E+03
7	2200	TH-232	3.95E-08	2.27E-09	6.06E-10	2.88E-09	1.86E+03
7	2500	TH-232	3.17E-08	1.83E-09	5.31E-10	2.36E-09	1.85E+03
7	5000	TH-232	1.05E-08	6.07E-10	2.57E-10	8.64E-10	1.80E+03
8	750	TH-232	2.61E-07	1.50E-08	1.53E-09	1.66E-08	1.74E+03
8	1000	TH-232	1.51E-07	8.70E-09	1.14E-09	9.84E-09	1.73E+03
8	1200	TH-232	1.11E-07	6.37E-09	9.46E-10	7.32E-09	1.72E+03
8	1300	TH-232	9.65E-08	5.55E-09	8.71E-10	6.42E-09	1.72E+03
8	1400	TH-232	8.48E-08	4.88E-09	8.07E-10	5.69E-09	1.72E+03
8	1500	TH-232	7.51E-08	4.32E-09	7.51E-10	5.07E-09	1.71E+03
8	1625	TH-232	6.55E-08	3.77E-09	6.91E-10	4.46E-09	1.71E+03
8	1700	TH-232	6.06E-08	3.49E-09	6.60E-10	4.15E-09	1.71E+03
8	1800	TH-232	5.49E-08	3.16E-09	6.22E-10	3.78E-09	1.71E+03
8	2000	TH-232	4.56E-08	2.62E-09	5.57E-10	3.18E-09	1.70E+03
8	2200	TH-232	3.88E-08	2.23E-09	5.05E-10	2.74E-09	1.70E+03
8	2500	TH-232	3.12E-08	1.80E-09	4.43E-10	2.24E-09	1.69E+03
8	5000	TH-232	1.04E-08	5.97E-10	2.14E-10	8.11E-10	1.65E+03
9	750	TH-232	2.25E-07	1.29E-08	1.57E-09	1.45E-08	2.19E+03
9	1000	TH-232	1.31E-07	7.51E-09	1.17E-09	8.68E-09	2.18E+03
9	1200	TH-232	9.59E-08	5.52E-09	9.73E-10	6.49E-09	2.17E+03
9	1300	TH-232	8.37E-08	4.82E-09	8.96E-10	5.71E-09	2.17E+03
9	1400	TH-232	7.37E-08	4.24E-09	8.30E-10	5.07E-09	2.16E+03
9	1500	TH-232	6.54E-08	3.76E-09	7.73E-10	4.54E-09	2.16E+03
9	1625	TH-232	5.71E-08	3.29E-09	7.13E-10	4.00E-09	2.16E+03
9	1700	TH-232	5.29E-08	3.04E-09	6.80E-10	3.72E-09	2.16E+03
9	1800	TH-232	4.79E-08	2.76E-09	6.42E-10	3.40E-09	2.15E+03
9	2000	TH-232	4.00E-08	2.30E-09	5.75E-10	2.88E-09	2.15E+03
9	2200	TH-232	3.40E-08	1.96E-09	5.22E-10	2.48E-09	2.15E+03
9	2500	TH-232	2.74E-08	1.58E-09	4.58E-10	2.04E-09	2.14E+03
9	5000	TH-232	9.27E-09	5.34E-10	2.23E-10	7.57E-10	2.10E+03
10	750	TH-232	4.80E-07	2.76E-08	2.77E-09	3.04E-08	3.22E+03
10	1000	TH-232	2.77E-07	1.59E-08	2.06E-09	1.80E-08	3.20E+03
10	1200	TH-232	2.03E-07	1.17E-08	1.71E-09	1.34E-08	3.19E+03
10	1300	TH-232	1.77E-07	1.02E-08	1.57E-09	1.17E-08	3.18E+03
10	1400	TH-232	1.55E-07	8.93E-09	1.45E-09	1.04E-08	3.17E+03
10	1500	TH-232	1.37E-07	7.91E-09	1.35E-09	9.26E-09	3.17E+03
10	1625	TH-232	1.20E-07	6.89E-09	1.25E-09	8.14E-09	3.16E+03
10	1700	TH-232	1.11E-07	6.38E-09	1.19E-09	7.57E-09	3.16E+03
10	1800	TH-232	1.00E-07	5.77E-09	1.12E-09	6.89E-09	3.15E+03
10	2000	TH-232	8.34E-08	4.80E-09	1.00E-09	5.80E-09	3.14E+03
10	2200	TH-232	7.09E-08	4.08E-09	9.10E-10	4.99E-09	3.14E+03
10	2500	TH-232	5.70E-08	3.28E-09	7.98E-10	4.08E-09	3.13E+03
10	5000	TH-232	1.90E-08	1.09E-09	3.85E-10	1.48E-09	3.04E+03
11	750	TH-232	1.16E-06	6.66E-08	4.36E-09	7.09E-08	4.42E+03
11	1000	TH-232	6.64E-07	3.82E-08	3.22E-09	4.14E-08	4.37E+03
11	1200	TH-232	4.85E-07	2.79E-08	2.67E-09	3.06E-08	4.35E+03
11	1300	TH-232	4.21E-07	2.43E-08	2.45E-09	2.67E-08	4.33E+03
11	1400	TH-232	3.70E-07	2.13E-08	2.26E-09	2.35E-08	4.32E+03
11	1500	TH-232	3.26E-07	1.88E-08	2.10E-09	2.09E-08	4.30E+03

11	1625	TH-232	2.84E-07	1.63E-08	1.93E-09	1.83E-08	4.29E+03
11	1700	TH-232	2.62E-07	1.51E-08	1.84E-09	1.70E-08	4.28E+03
11	1800	TH-232	2.37E-07	1.37E-08	1.73E-09	1.54E-08	4.27E+03
11	2000	TH-232	1.96E-07	1.13E-08	1.55E-09	1.29E-08	4.24E+03
11	2200	TH-232	1.67E-07	9.61E-09	1.40E-09	1.10E-08	4.23E+03
11	2500	TH-232	1.34E-07	7.71E-09	1.23E-09	8.94E-09	4.21E+03
11	5000	TH-232	4.38E-08	2.52E-09	5.80E-10	3.10E-09	4.04E+03
12	750	TH-232	1.49E-06	8.60E-08	5.39E-09	9.13E-08	5.26E+03
12	1000	TH-232	8.57E-07	4.93E-08	3.98E-09	5.33E-08	5.20E+03
12	1200	TH-232	6.26E-07	3.60E-08	3.29E-09	3.93E-08	5.17E+03
12	1300	TH-232	5.44E-07	3.13E-08	3.02E-09	3.44E-08	5.15E+03
12	1400	TH-232	4.78E-07	2.75E-08	2.79E-09	3.03E-08	5.13E+03
12	1500	TH-232	4.22E-07	2.43E-08	2.59E-09	2.69E-08	5.11E+03
12	1625	TH-232	3.67E-07	2.11E-08	2.38E-09	2.35E-08	5.10E+03
12	1700	TH-232	3.39E-07	1.95E-08	2.27E-09	2.18E-08	5.09E+03
12	1800	TH-232	3.07E-07	1.77E-08	2.14E-09	1.98E-08	5.07E+03
12	2000	TH-232	2.54E-07	1.44E-08	1.91E-09	1.65E-08	5.04E+03
12	2200	TH-232	2.16E-07	1.24E-08	1.73E-09	1.42E-08	5.03E+03
12	2500	TH-232	1.73E-07	9.98E-09	1.51E-09	1.15E-08	5.00E+03
12	5000	TH-232	5.70E-08	3.28E-09	7.12E-10	3.99E-09	4.78E+03
13	750	TH-232	1.33E-06	7.66E-08	5.96E-09	8.26E-08	6.13E+03
13	1000	TH-232	7.66E-07	4.41E-08	4.42E-09	4.85E-08	6.08E+03
13	1200	TH-232	5.60E-07	3.23E-08	3.66E-09	3.59E-08	6.05E+03
13	1300	TH-232	4.88E-07	2.81E-08	3.36E-09	3.14E-08	6.03E+03
13	1400	TH-232	4.28E-07	2.47E-08	3.11E-09	2.78E-08	6.02E+03
13	1500	TH-232	3.79E-07	2.18E-08	2.89E-09	2.47E-08	6.00E+03
13	1625	TH-232	3.30E-07	1.90E-08	2.66E-09	2.17E-08	5.98E+03
13	1700	TH-232	3.06E-07	1.76E-08	2.54E-09	2.01E-08	5.97E+03
13	1800	TH-232	2.77E-07	1.59E-08	2.39E-09	1.83E-08	5.96E+03
13	2000	TH-232	2.30E-07	1.32E-08	2.14E-09	1.54E-08	5.93E+03
13	2200	TH-232	1.95E-07	1.12E-08	1.94E-09	1.32E-08	5.92E+03
13	2500	TH-232	1.57E-07	9.03E-09	1.69E-09	1.07E-08	5.89E+03
13	5000	TH-232	5.22E-08	3.00E-09	8.08E-10	3.81E-09	5.68E+03
14	750	TH-232	1.39E-06	8.00E-08	6.46E-09	8.64E-08	5.78E+03
14	1000	TH-232	7.99E-07	4.60E-08	4.78E-09	5.08E-08	5.73E+03
14	1200	TH-232	5.85E-07	3.37E-08	3.96E-09	3.76E-08	5.69E+03
14	1300	TH-232	5.10E-07	2.93E-08	3.64E-09	3.30E-08	5.68E+03
14	1400	TH-232	4.48E-07	2.58E-08	3.37E-09	2.91E-08	5.66E+03
14	1500	TH-232	3.96E-07	2.28E-08	3.13E-09	2.60E-08	5.64E+03
14	1625	TH-232	3.46E-07	1.99E-08	2.88E-09	2.28E-08	5.62E+03
14	1700	TH-232	3.20E-07	1.84E-08	2.75E-09	2.11E-08	5.61E+03
14	1800	TH-232	2.89E-07	1.67E-08	2.59E-09	1.92E-08	5.60E+03
14	2000	TH-232	2.40E-07	1.38E-08	2.31E-09	1.62E-08	5.57E+03
14	2200	TH-232	2.04E-07	1.18E-08	2.10E-09	1.39E-08	5.55E+03
14	2500	TH-232	1.64E-07	9.46E-09	1.84E-09	1.13E-08	5.53E+03
14	5000	TH-232	5.48E-08	3.16E-09	8.74E-10	4.03E-09	5.30E+03
15	750	TH-232	1.11E-06	6.41E-08	6.64E-09	7.08E-08	6.90E+03
15	1000	TH-232	6.44E-07	3.71E-08	4.94E-09	4.20E-08	6.85E+03
15	1200	TH-232	4.73E-07	2.72E-08	4.10E-09	3.13E-08	6.82E+03
15	1300	TH-232	4.12E-07	2.37E-08	3.77E-09	2.75E-08	6.81E+03
15	1400	TH-232	3.63E-07	2.09E-08	3.49E-09	2.44E-08	6.79E+03
15	1500	TH-232	3.22E-07	1.85E-08	3.25E-09	2.18E-08	6.78E+03
15	1625	TH-232	2.81E-07	1.62E-08	2.99E-09	1.92E-08	6.76E+03
15	1700	TH-232	2.60E-07	1.50E-08	2.86E-09	1.78E-08	6.76E+03
15	1800	TH-232	2.36E-07	1.36E-08	2.69E-09	1.63E-08	6.74E+03
15	2000	TH-232	1.97E-07	1.13E-08	2.41E-09	1.37E-08	6.72E+03
15	2200	TH-232	1.67E-07	9.64E-09	2.19E-09	1.18E-08	6.71E+03
15	2500	TH-232	1.35E-07	7.76E-09	1.92E-09	9.68E-09	6.68E+03
15	5000	TH-232	4.56E-08	2.62E-09	9.25E-10	3.55E-09	6.49E+03
16	750	TH-232	7.77E-07	4.47E-08	4.91E-09	4.96E-08	6.79E+03
16	1000	TH-232	4.50E-07	2.59E-08	3.66E-09	2.95E-08	6.76E+03
16	1200	TH-232	3.30E-07	1.90E-08	3.04E-09	2.21E-08	6.74E+0

16	1300	TH-232	2.88E-07	1.66E-08	2.80E-09	1.94E-08	6.73E+03
16	1400	TH-232	2.54E-07	1.46E-08	2.59E-09	1.72E-08	6.72E+03
16	1500	TH-232	2.25E-07	1.30E-08	2.41E-09	1.54E-08	6.71E+03
16	1625	TH-232	1.97E-07	1.13E-08	2.22E-09	1.36E-08	6.70E+03
16	1700	TH-232	1.82E-07	1.05E-08	2.12E-09	1.26E-08	6.69E+03
16	1800	TH-232	1.65E-07	9.51E-09	2.00E-09	1.15E-08	6.69E+03
16	2000	TH-232	1.38E-07	7.93E-09	1.79E-09	9.73E-09	6.67E+03
16	2200	TH-232	1.17E-07	6.76E-09	1.63E-09	8.39E-09	6.66E+03
16	2500	TH-232	9.46E-08	5.44E-09	1.43E-09	6.87E-09	6.64E+03
16	5000	TH-232	3.21E-08	1.85E-09	6.93E-10	2.54E-09	6.50E+03

GROUND-LEVEL CHI/Q VALUES FOR TH-232 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

DISTANCE (METERS)	CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)							
	N	NNW	NW	WNW	W	WSW	SW	SSW
750	0.678E-05	0.446E-05	0.349E-05	0.535E-05	0.109E-04	0.803E-05	0.439E-05	0.434E-05
1000	0.393E-05	0.258E-05	0.201E-05	0.308E-05	0.627E-05	0.465E-05	0.254E-05	0.251E-05
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

	S	SSE	SE	ESE	E	ENE	NE	NNE
750	0.373E-05	0.796E-05	0.192E-04	0.248E-04	0.221E-04	0.231E-04	0.185E-04	0.129E-04
1000	0.217E-05	0.460E-05	0.110E-04	0.142E-04	0.127E-04	0.133E-04	0.107E-04	0.746E-05
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

SUMMARY OF AREA SURROUNDING PLANT

AREA COLUMN	ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION

0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2706E+09

1 LIST OF INPUT DATA FOR NUCLIDE TH-232

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1350E-12

0 ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY) 0.0000E+00

0 ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY) 0.0000E+00

0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L) 0.5000E-05

0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG) 0.1600E-05

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE 0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS 0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

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ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.206E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.685E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

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AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	750	0.408E-12	0.824E-08	0.433E+04	0.328E+04
1	1000	0.237E-12	0.491E-08	0.258E+04	0.190E+04
1	1200	0.174E-12	0.367E-08	0.193E+04	0.140E+04
1	1300	0.152E-12	0.323E-08	0.170E+04	0.122E+04
1	1400	0.134E-12	0.287E-08	0.151E+04	0.108E+04
1	1500	0.119E-12	0.257E-08	0.135E+04	0.955E+03
1	1625	0.104E-12	0.226E-08	0.119E+04	0.835E+03
1	1700	0.963E-13	0.211E-08	0.111E+04	0.773E+03
1	1800	0.874E-13	0.192E-08	0.101E+04	0.702E+03
1	2000	0.729E-13	0.163E-08	0.855E+03	0.586E+03
1	2200	0.621E-13	0.140E-08	0.737E+03	0.499E+03
1	2500	0.501E-13	0.115E-08	0.604E+03	0.402E+03
1	5000	0.171E-13	0.428E-09	0.225E+03	0.138E+03
2	750	0.269E-12	0.544E-08	0.286E+04	0.216E+04
2	1000	0.156E-12	0.324E-08	0.170E+04	0.125E+04
2	1200	0.114E-12	0.242E-08	0.127E+04	0.919E+03
2	1300	0.999E-13	0.213E-08	0.112E+04	0.802E+03
2	1400	0.880E-13	0.189E-08	0.992E+03	0.707E+03
2	1500	0.781E-13	0.169E-08	0.887E+03	0.627E+03
2	1625	0.682E-13	0.149E-08	0.781E+03	0.548E+03
2	1700	0.632E-13	0.138E-08	0.727E+03	0.507E+03
2	1800	0.573E-13	0.126E-08	0.664E+03	0.460E+03
2	2000	0.478E-13	0.107E-08	0.561E+03	0.384E+03
2	2200	0.407E-13	0.921E-09	0.484E+03	0.327E+03
2	2500	0.328E-13	0.755E-09	0.396E+03	0.263E+03

2	5000	0.111E-13	0.279E-09	0.147E+03	0.894E+02
3	750	0.210E-12	0.419E-08	0.220E+04	0.169E+04
3	1000	0.121E-12	0.248E-08	0.130E+04	0.973E+03
3	1200	0.887E-13	0.184E-08	0.966E+03	0.713E+03
3	1300	0.775E-13	0.161E-08	0.847E+03	0.621E+03
3	1400	0.679E-13	0.143E-08	0.750E+03	0.545E+03
3	1500	0.601E-13	0.127E-08	0.668E+03	0.483E+03
3	1625	0.524E-13	0.112E-08	0.587E+03	0.421E+03
3	1700	0.485E-13	0.104E-08	0.545E+03	0.389E+03
3	1800	0.439E-13	0.946E-09	0.497E+03	0.352E+03
3	2000	0.365E-13	0.795E-09	0.418E+03	0.293E+03
3	2200	0.310E-13	0.684E-09	0.359E+03	0.249E+03
3	2500	0.249E-13	0.558E-09	0.293E+03	0.200E+03
3	5000	0.826E-14	0.201E-09	0.105E+03	0.663E+02
4	750	0.322E-12	0.635E-08	0.333E+04	0.259E+04
4	1000	0.185E-12	0.374E-08	0.196E+04	0.149E+04
4	1200	0.136E-12	0.277E-08	0.145E+04	0.109E+04
4	1300	0.118E-12	0.242E-08	0.127E+04	0.947E+03
4	1400	0.104E-12	0.214E-08	0.112E+04	0.832E+03
4	1500	0.916E-13	0.190E-08	0.100E+04	0.736E+03
4	1625	0.798E-13	0.167E-08	0.877E+03	0.641E+03
4	1700	0.738E-13	0.155E-08	0.815E+03	0.592E+03
4	1800	0.668E-13	0.141E-08	0.741E+03	0.536E+03
4	2000	0.554E-13	0.118E-08	0.622E+03	0.445E+03
4	2200	0.471E-13	0.102E-08	0.534E+03	0.378E+03
4	2500	0.378E-13	0.827E-09	0.435E+03	0.303E+03
4	5000	0.125E-13	0.293E-09	0.154E+03	0.100E+03
5	750	0.657E-12	0.129E-07	0.676E+04	0.528E+04
5	1000	0.378E-12	0.755E-08	0.397E+04	0.303E+04
5	1200	0.276E-12	0.558E-08	0.293E+04	0.222E+04
5	1300	0.240E-12	0.489E-08	0.257E+04	0.193E+04
5	1400	0.211E-12	0.431E-08	0.227E+04	0.169E+04
5	1500	0.186E-12	0.383E-08	0.201E+04	0.150E+04
5	1625	0.162E-12	0.336E-08	0.177E+04	0.130E+04
5	1700	0.150E-12	0.312E-08	0.164E+04	0.121E+04
5	1800	0.136E-12	0.284E-08	0.149E+04	0.109E+04
5	2000	0.113E-12	0.238E-08	0.125E+04	0.904E+03
5	2200	0.956E-13	0.204E-08	0.107E+04	0.768E+03
5	2500	0.768E-13	0.166E-08	0.871E+03	0.617E+03
5	5000	0.252E-13	0.583E-09	0.306E+03	0.203E+03
6	750	0.484E-12	0.985E-08	0.517E+04	0.389E+04
6	1000	0.280E-12	0.588E-08	0.309E+04	0.225E+04
6	1200	0.205E-12	0.438E-08	0.230E+04	0.165E+04
6	1300	0.179E-12	0.385E-08	0.202E+04	0.144E+04
6	1400	0.158E-12	0.342E-08	0.180E+04	0.127E+04
6	1500	0.140E-12	0.306E-08	0.161E+04	0.112E+04
6	1625	0.122E-12	0.269E-08	0.141E+04	0.979E+03
6	1700	0.113E-12	0.250E-08	0.132E+04	0.906E+03
6	1800	0.102E-12	0.229E-08	0.120E+04	0.821E+03
6	2000	0.851E-13	0.193E-08	0.101E+04	0.684E+03
6	2200	0.724E-13	0.166E-08	0.875E+03	0.582E+03
6	2500	0.583E-13	0.136E-08	0.717E+03	0.468E+03
6	5000	0.195E-13	0.503E-09	0.264E+03	0.157E+03
7	750	0.264E-12	0.538E-08	0.283E+04	0.212E+04
7	1000	0.153E-12	0.321E-08	0.169E+04	0.123E+04
7	1200	0.112E-12	0.240E-08	0.126E+04	0.902E+03
7	1300	0.979E-13	0.211E-08	0.111E+04	0.786E+03
7	1400	0.861E-13	0.187E-08	0.981E+03	0.691E+03
7	1500	0.763E-13	0.167E-08	0.877E+03	0.613E+03
7	1625	0.665E-13	0.147E-08	0.772E+03	0.534E+03
7	1700	0.616E-13	0.137E-08	0.718E+03	0.494E+03
7	1800	0.558E-13	0.125E-08	0.655E+03	0.448E+03

7	2000	0.464E-13	0.105E-08	0.553E+03	0.372E+03
7	2200	0.395E-13	0.908E-09	0.477E+03	0.317E+03
7	2500	0.317E-13	0.744E-09	0.391E+03	0.255E+03
7	5000	0.105E-13	0.273E-09	0.143E+03	0.846E+02
8	750	0.261E-12	0.523E-08	0.275E+04	0.210E+04
8	1000	0.151E-12	0.311E-08	0.163E+04	0.121E+04
8	1200	0.111E-12	0.231E-08	0.121E+04	0.889E+03
8	1300	0.965E-13	0.203E-08	0.106E+04	0.775E+03
8	1400	0.848E-13	0.179E-08	0.943E+03	0.681E+03
8	1500	0.751E-13	0.160E-08	0.841E+03	0.603E+03
8	1625	0.655E-13	0.141E-08	0.739E+03	0.526E+03
8	1700	0.606E-13	0.131E-08	0.687E+03	0.486E+03
8	1800	0.549E-13	0.119E-08	0.627E+03	0.441E+03
8	2000	0.456E-13	0.100E-08	0.527E+03	0.366E+03
8	2200	0.388E-13	0.864E-09	0.454E+03	0.312E+03
8	2500	0.312E-13	0.706E-09	0.371E+03	0.250E+03
8	5000	0.104E-13	0.256E-09	0.134E+03	0.833E+02
9	750	0.225E-12	0.458E-08	0.241E+04	0.181E+04
9	1000	0.131E-12	0.274E-08	0.144E+04	0.105E+04
9	1200	0.959E-13	0.205E-08	0.108E+04	0.770E+03
9	1300	0.837E-13	0.180E-08	0.947E+03	0.672E+03
9	1400	0.737E-13	0.160E-08	0.841E+03	0.592E+03
9	1500	0.654E-13	0.143E-08	0.752E+03	0.525E+03
9	1625	0.571E-13	0.126E-08	0.663E+03	0.458E+03
9	1700	0.529E-13	0.117E-08	0.617E+03	0.425E+03
9	1800	0.479E-13	0.107E-08	0.564E+03	0.385E+03
9	2000	0.400E-13	0.908E-09	0.477E+03	0.321E+03
9	2200	0.340E-13	0.783E-09	0.411E+03	0.273E+03
9	2500	0.274E-13	0.643E-09	0.338E+03	0.220E+03
9	5000	0.927E-14	0.239E-09	0.125E+03	0.744E+02
10	750	0.480E-12	0.958E-08	0.504E+04	0.385E+04
10	1000	0.277E-12	0.568E-08	0.298E+04	0.222E+04
10	1200	0.203E-12	0.422E-08	0.222E+04	0.163E+04
10	1300	0.177E-12	0.370E-08	0.194E+04	0.142E+04
10	1400	0.155E-12	0.328E-08	0.172E+04	0.125E+04
10	1500	0.137E-12	0.292E-08	0.154E+04	0.110E+04
10	1625	0.120E-12	0.257E-08	0.135E+04	0.962E+03
10	1700	0.111E-12	0.239E-08	0.125E+04	0.890E+03
10	1800	0.100E-12	0.218E-08	0.114E+04	0.806E+03
10	2000	0.834E-13	0.183E-08	0.962E+03	0.670E+03
10	2200	0.709E-13	0.158E-08	0.827E+03	0.569E+03
10	2500	0.570E-13	0.129E-08	0.676E+03	0.458E+03
10	5000	0.190E-13	0.466E-09	0.245E+03	0.152E+03
11	750	0.116E-11	0.224E-07	0.118E+05	0.929E+04
11	1000	0.664E-12	0.131E-07	0.687E+04	0.533E+04
11	1200	0.485E-12	0.964E-08	0.507E+04	0.389E+04
11	1300	0.421E-12	0.843E-08	0.443E+04	0.338E+04
11	1400	0.370E-12	0.743E-08	0.390E+04	0.297E+04
11	1500	0.326E-12	0.659E-08	0.346E+04	0.262E+04
11	1625	0.284E-12	0.577E-08	0.303E+04	0.228E+04
11	1700	0.262E-12	0.535E-08	0.281E+04	0.211E+04
11	1800	0.237E-12	0.486E-08	0.255E+04	0.191E+04
11	2000	0.196E-12	0.406E-08	0.213E+04	0.158E+04
11	2200	0.167E-12	0.347E-08	0.183E+04	0.134E+04
11	2500	0.134E-12	0.282E-08	0.148E+04	0.108E+04
11	5000	0.438E-13	0.979E-09	0.514E+03	0.352E+03
12	750	0.149E-11	0.288E-07	0.151E+05	0.120E+05
12	1000	0.857E-12	0.168E-07	0.884E+04	0.688E+04
12	1200	0.626E-12	0.124E-07	0.652E+04	0.503E+04
12	1300	0.544E-12	0.108E-07	0.569E+04	0.437E+04
12	1400	0.478E-12	0.955E-08	0.502E+04	0.383E+04
12	1500	0.422E-12	0.848E-08	0.445E+04	0.339E+04

12	1625	0.367E-12	0.742E-08	0.390E+04	0.295E+04
12	1700	0.339E-12	0.688E-08	0.361E+04	0.273E+04
12	1800	0.307E-12	0.625E-08	0.328E+04	0.246E+04
12	2000	0.254E-12	0.522E-08	0.274E+04	0.204E+04
12	2200	0.216E-12	0.447E-08	0.235E+04	0.173E+04
12	2500	0.173E-12	0.363E-08	0.190E+04	0.139E+04
12	5000	0.570E-13	0.126E-08	0.661E+03	0.457E+03
13	750	0.133E-11	0.261E-07	0.137E+05	0.107E+05
13	1000	0.766E-12	0.153E-07	0.804E+04	0.615E+04
13	1200	0.560E-12	0.113E-07	0.595E+04	0.450E+04
13	1300	0.488E-12	0.992E-08	0.521E+04	0.392E+04
13	1400	0.428E-12	0.876E-08	0.460E+04	0.344E+04
13	1500	0.379E-12	0.780E-08	0.410E+04	0.304E+04
13	1625	0.330E-12	0.684E-08	0.359E+04	0.265E+04
13	1700	0.306E-12	0.635E-08	0.334E+04	0.245E+04
13	1800	0.277E-12	0.578E-08	0.303E+04	0.222E+04
13	2000	0.230E-12	0.484E-08	0.254E+04	0.184E+04
13	2200	0.195E-12	0.416E-08	0.218E+04	0.157E+04
13	2500	0.157E-12	0.338E-08	0.178E+04	0.126E+04
13	5000	0.522E-13	0.120E-08	0.631E+03	0.419E+03
14	750	0.139E-11	0.273E-07	0.143E+05	0.112E+05
14	1000	0.799E-12	0.160E-07	0.842E+04	0.642E+04
14	1200	0.585E-12	0.119E-07	0.624E+04	0.470E+04
14	1300	0.510E-12	0.104E-07	0.547E+04	0.409E+04
14	1400	0.448E-12	0.920E-08	0.483E+04	0.360E+04
14	1500	0.396E-12	0.819E-08	0.430E+04	0.318E+04
14	1625	0.346E-12	0.718E-08	0.377E+04	0.277E+04
14	1700	0.320E-12	0.667E-08	0.350E+04	0.257E+04
14	1800	0.289E-12	0.607E-08	0.319E+04	0.232E+04
14	2000	0.240E-12	0.510E-08	0.268E+04	0.193E+04
14	2200	0.204E-12	0.438E-08	0.230E+04	0.164E+04
14	2500	0.164E-12	0.356E-08	0.187E+04	0.132E+04
14	5000	0.548E-13	0.127E-08	0.668E+03	0.440E+03
15	750	0.111E-11	0.223E-07	0.117E+05	0.895E+04
15	1000	0.644E-12	0.133E-07	0.696E+04	0.517E+04
15	1200	0.473E-12	0.988E-08	0.519E+04	0.380E+04
15	1300	0.412E-12	0.868E-08	0.456E+04	0.331E+04
15	1400	0.363E-12	0.770E-08	0.404E+04	0.292E+04
15	1500	0.322E-12	0.688E-08	0.361E+04	0.259E+04
15	1625	0.281E-12	0.605E-08	0.318E+04	0.226E+04
15	1700	0.260E-12	0.563E-08	0.296E+04	0.209E+04
15	1800	0.236E-12	0.514E-08	0.270E+04	0.189E+04
15	2000	0.197E-12	0.433E-08	0.228E+04	0.158E+04
15	2200	0.167E-12	0.373E-08	0.196E+04	0.134E+04
15	2500	0.135E-12	0.305E-08	0.160E+04	0.108E+04
15	5000	0.456E-13	0.112E-08	0.588E+03	0.366E+03
16	750	0.777E-12	0.157E-07	0.823E+04	0.624E+04
16	1000	0.450E-12	0.932E-08	0.490E+04	0.361E+04
16	1200	0.330E-12	0.696E-08	0.366E+04	0.265E+04
16	1300	0.288E-12	0.612E-08	0.321E+04	0.232E+04
16	1400	0.254E-12	0.543E-08	0.285E+04	0.204E+04
16	1500	0.225E-12	0.486E-08	0.255E+04	0.181E+04
16	1625	0.197E-12	0.428E-08	0.225E+04	0.158E+04
16	1700	0.182E-12	0.398E-08	0.209E+04	0.146E+04
16	1800	0.165E-12	0.363E-08	0.191E+04	0.133E+04
16	2000	0.138E-12	0.307E-08	0.161E+04	0.111E+04
16	2200	0.117E-12	0.265E-08	0.139E+04	0.943E+03
16	2500	0.946E-13	0.217E-08	0.114E+04	0.760E+03
16	5000	0.321E-13	0.803E-09	0.422E+03	0.258E+03

DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

NUCLIDE	PATHWAY	PERCENT OF W BODY DOSE(REMS)	DOSE BY EACH PATHWAY PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

TH-232	SUBM AIR	0.1069E-08	0.00	100.00
	SURFACE	0.2358E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1379E+02	99.70	100.00
	INGEST.	0.4134E-01	0.30	100.00
	VEGET.	0.4131E-01	* 0.30	* 99.93
	MEAT	0.5859E-05	* 0.00	* 0.01
	MILK	0.2413E-04	* 0.00	* 0.06

PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.5817E-09	0.00	100.00
	SURFACE	0.1283E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1775E+02	99.53	100.00
	INGEST.	0.8298E-01	0.47	100.00
	VEGET.	0.8292E-01	* 0.46	* 99.93
	MEAT	0.1176E-04	* 0.00	* 0.01
	MILK	0.4843E-04	* 0.00	* 0.06

PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1556E-08	0.00	100.00
	SURFACE	0.3432E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2219E+03	99.53	100.00
	INGEST.	0.1037E+01	0.47	100.00
	VEGET.	0.1036E+01	* 0.46	* 99.93
	MEAT	0.1470E-03	* 0.00	* 0.01
	MILK	0.6054E-03	* 0.00	* 0.06

PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1326E-08	0.00	100.00
	SURFACE	0.2925E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2662E-01	99.73	100.00
	INGEST.	0.6784E-04	0.25	100.00
	VEGET.	0.6779E-04	* 0.25	* 99.93
	MEAT	0.9615E-08	* 0.00	* 0.01
	MILK	0.3959E-07	* 0.00	* 0.06

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.2990E-08	0.00	100.00
	SURFACE	0.6596E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2722E-01	99.72	100.00
	INGEST.	0.7056E-04	0.26	100.00
	VEGET.	0.7051E-04	* 0.26	* 99.93
	MEAT	0.1000E-07	* 0.00	* 0.01
	MILK	0.4118E-07	* 0.00	* 0.06

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.8928E-09	0.00	100.00
	SURFACE	0.1970E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4174E+02	100.00	100.00
	INGEST.	0.7011E-04	0.00	100.00
	VEGET.	0.7006E-04	* 0.00	* 99.93

	MEAT	0.9937E-08	• 0.00	• 0.01
	MILK	0.4092E-07	• 0.00	• 0.06

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.7440E-09	0.00	100.00
	SURFACE	0.1641E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1570E-01	99.44	100.00
	INGEST.	0.8670E-04	0.55	100.00
	VEGET.	0.8664E-04	• 0.55	• 99.93
	MEAT	0.1229E-07	• 0.00	• 0.01
	MILK	0.5060E-07	• 0.00	• 0.06

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.7034E-09	0.00	100.00
	SURFACE	0.1552E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1683E-01	92.86	100.00
	INGEST.	0.1292E-02	7.13	100.00
	VEGET.	0.1291E-02	• 7.13	• 99.93
	MEAT	0.1831E-06	• 0.00	• 0.01
	MILK	0.7541E-06	• 0.00	• 0.06

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.7846E-09	0.00	100.00
	SURFACE	0.1731E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9658E-01	99.70	100.00
	INGEST.	0.2877E-03	0.30	100.00
	VEGET.	0.2875E-03	• 0.30	• 99.93
	MEAT	0.4078E-07	• 0.00	• 0.01
	MILK	0.1679E-06	• 0.00	• 0.06

PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.5546E-09	0.00	100.00
	SURFACE	0.1224E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1577E-01	99.77	100.00
	INGEST.	0.3468E-04	0.22	100.00
	VEGET.	0.3465E-04	• 0.22	• 99.93
	MEAT	0.4915E-08	• 0.00	• 0.01
	MILK	0.2024E-07	• 0.00	• 0.06

PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.8387E-09	0.00	100.00
	SURFACE	0.1850E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1576E-01	99.77	100.00
	INGEST.	0.3425E-04	0.22	100.00
	VEGET.	0.3423E-04	• 0.22	• 99.93
	MEAT	0.4855E-08	• 0.00	• 0.01
	MILK	0.1999E-07	• 0.00	• 0.06

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1069E-08	0.0000
SURFACE	0.2358E-05	0.0000
SWIMMING	0.1000E-24	0.0000

0	INHAL.	0.1379E+02	99.7011
0	INGEST.	0.4134E-01	0.2988
0	VEGET.	*0.4131E-01	* 0.2986
0	MEAT	*0.5859E-05	* 0.0000
0	MILK	*0.2413E-04	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5817E-09	0.0000
0	SURFACE	0.1283E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1775E+02	99.5347
0	INGEST.	0.8298E-01	0.4653
0	VEGET.	*0.8292E-01	* 0.4650
0	MEAT	*0.1176E-04	* 0.0001
0	MILK	*0.4843E-04	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1556E-08	0.0000
0	SURFACE	0.3432E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2219E+03	99.5347
0	INGEST.	0.1037E+01	0.4653
0	VEGET.	*0.1036E+01	* 0.4650
0	MEAT	*0.1470E-03	* 0.0001
0	MILK	*0.6054E-03	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1326E-08	0.0000
0	SURFACE	0.2925E-05	0.0110
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2662E-01	99.7349
0	INGEST.	0.6786E-04	0.2541
0	VEGET.	*0.6779E-04	* 0.2539
0	MEAT	*0.9613E-08	* 0.0000
0	MILK	*0.3959E-07	* 0.0001

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2990E-08	0.0000
0	SURFACE	0.6596E-05	0.0242
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2722E-01	99.7174
0	INGEST.	0.7056E-04	0.2585
0	VEGET.	*0.7051E-04	* 0.2583
0	MEAT	*0.1000E-07	* 0.0000
0	MILK	*0.4118E-07	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8928E-09	0.0000
0	SURFACE	0.1970E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4174E+02	99.9998
0	INGEST.	0.7011E-04	0.0002
0	VEGET.	*0.7006E-04	* 0.0002
0	MEAT	*0.9937E-08	* 0.0000
0	MILK	*0.4092E-07	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7440E-09	0.0000
0	SURFACE	0.1641E-05	0.0104
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1570E-01	99.4404
0	INGEST.	0.8670E-04	0.5492

2	5000	0.111E-13	0.263E-09	0.164E+03	0.394E+02
3	750	0.210E-12	0.394E-08	0.245E+04	0.169E+04
3	1000	0.121E-12	0.233E-08	0.145E+04	0.973E+03
3	1200	0.887E-13	0.173E-08	0.108E+04	0.713E+03
3	1300	0.773E-13	0.152E-08	0.946E+03	0.621E+03
3	1400	0.679E-13	0.134E-08	0.837E+03	0.545E+03
3	1500	0.601E-13	0.120E-08	0.746E+03	0.483E+03
3	1625	0.524E-13	0.105E-08	0.655E+03	0.421E+03
3	1700	0.485E-13	0.978E-09	0.609E+03	0.389E+03
3	1800	0.439E-13	0.891E-09	0.555E+03	0.352E+03
3	2000	0.365E-13	0.749E-09	0.466E+03	0.293E+03
3	2200	0.310E-13	0.644E-09	0.401E+03	0.249E+03
3	2500	0.249E-13	0.526E-09	0.327E+03	0.200E+03
3	5000	0.826E-14	0.189E-09	0.118E+03	0.663E+02
4	750	0.322E-12	0.598E-08	0.372E+04	0.259E+04
4	1000	0.185E-12	0.352E-08	0.219E+04	0.149E+04
4	1200	0.136E-12	0.261E-08	0.162E+04	0.109E+04
4	1300	0.118E-12	0.228E-08	0.142E+04	0.947E+03
4	1400	0.104E-12	0.202E-08	0.126E+04	0.832E+03
4	1500	0.916E-13	0.179E-08	0.112E+04	0.736E+03
4	1625	0.798E-13	0.157E-08	0.980E+03	0.641E+03
4	1700	0.738E-13	0.146E-08	0.910E+03	0.592E+03
4	1800	0.668E-13	0.133E-08	0.828E+03	0.536E+03
4	2000	0.554E-13	0.111E-08	0.694E+03	0.445E+03
4	2200	0.471E-13	0.957E-09	0.596E+03	0.378E+03
4	2500	0.378E-13	0.779E-09	0.485E+03	0.303E+03
4	5000	0.125E-13	0.276E-09	0.172E+03	0.100E+03
5	750	0.657E-12	0.121E-07	0.755E+04	0.528E+04
5	1000	0.378E-12	0.711E-08	0.443E+04	0.303E+04
5	1200	0.276E-12	0.526E-08	0.328E+04	0.222E+04
5	1300	0.240E-12	0.460E-08	0.287E+04	0.193E+04
5	1400	0.211E-12	0.406E-08	0.253E+04	0.169E+04
5	1500	0.186E-12	0.361E-08	0.225E+04	0.150E+04
5	1625	0.162E-12	0.317E-08	0.197E+04	0.130E+04
5	1700	0.150E-12	0.294E-08	0.183E+04	0.121E+04
5	1800	0.136E-12	0.267E-08	0.166E+04	0.109E+04
5	2000	0.113E-12	0.224E-08	0.139E+04	0.904E+03
5	2200	0.956E-13	0.192E-08	0.119E+04	0.768E+03
5	2500	0.768E-13	0.156E-08	0.972E+03	0.617E+03
5	5000	0.252E-13	0.549E-09	0.342E+03	0.203E+03
6	750	0.484E-12	0.928E-08	0.578E+04	0.389E+04
6	1000	0.280E-12	0.554E-08	0.345E+04	0.225E+04
6	1200	0.205E-12	0.413E-08	0.257E+04	0.165E+04
6	1300	0.179E-12	0.363E-08	0.226E+04	0.144E+04
6	1400	0.158E-12	0.322E-08	0.201E+04	0.127E+04
6	1500	0.140E-12	0.288E-08	0.179E+04	0.112E+04
6	1625	0.122E-12	0.254E-08	0.158E+04	0.979E+03
6	1700	0.113E-12	0.236E-08	0.147E+04	0.906E+03
6	1800	0.102E-12	0.215E-08	0.134E+04	0.821E+03
6	2000	0.851E-13	0.182E-08	0.113E+04	0.684E+03
6	2200	0.724E-13	0.157E-08	0.976E+03	0.582E+03
6	2500	0.583E-13	0.129E-08	0.800E+03	0.468E+03
6	5000	0.195E-13	0.474E-09	0.295E+03	0.157E+03
7	750	0.264E-12	0.507E-08	0.315E+04	0.212E+04
7	1000	0.153E-12	0.303E-08	0.189E+04	0.123E+04
7	1200	0.112E-12	0.226E-08	0.141E+04	0.902E+03
7	1300	0.979E-13	0.198E-08	0.124E+04	0.786E+03
7	1400	0.861E-13	0.176E-08	0.110E+04	0.691E+03
7	1500	0.763E-13	0.157E-08	0.979E+03	0.613E+03
7	1625	0.665E-13	0.138E-08	0.862E+03	0.534E+03
7	1700	0.616E-13	0.129E-08	0.802E+03	0.494E+03
7	1800	0.558E-13	0.118E-08	0.732E+03	0.448E+03

7	2000	0.464E-13	0.992E-09	0.618E+03	0.372E+03
7	2200	0.395E-13	0.855E-09	0.532E+03	0.317E+03
7	2500	0.317E-13	0.701E-09	0.436E+03	0.255E+03
7	5000	0.105E-13	0.257E-09	0.160E+03	0.846E+02
8	750	0.261E-12	0.493E-08	0.307E+04	0.210E+04
8	1000	0.151E-12	0.293E-08	0.182E+04	0.121E+04
8	1200	0.111E-12	0.218E-08	0.135E+04	0.389E+03
8	1300	0.965E-13	0.191E-08	0.119E+04	0.775E+03
8	1400	0.848E-13	0.169E-08	0.105E+04	0.681E+03
8	1500	0.751E-13	0.151E-08	0.939E+03	0.603E+03
8	1625	0.655E-13	0.133E-08	0.825E+03	0.526E+03
8	1700	0.606E-13	0.123E-08	0.767E+03	0.486E+03
8	1800	0.549E-13	0.112E-08	0.699E+03	0.441E+03
8	2000	0.456E-13	0.946E-09	0.589E+03	0.366E+03
8	2200	0.388E-13	0.814E-09	0.507E+03	0.312E+03
8	2500	0.312E-13	0.665E-09	0.414E+03	0.250E+03
8	5000	0.104E-13	0.241E-09	0.150E+03	0.833E+02
9	750	0.225E-12	0.432E-08	0.269E+04	0.181E+04
9	1000	0.131E-12	0.258E-08	0.161E+04	0.105E+04
9	1200	0.959E-13	0.193E-08	0.120E+04	0.770E+03
9	1300	0.837E-13	0.170E-08	0.106E+04	0.672E+03
9	1400	0.737E-13	0.151E-08	0.939E+03	0.592E+03
9	1500	0.654E-13	0.135E-08	0.840E+03	0.525E+03
9	1625	0.571E-13	0.119E-08	0.740E+03	0.458E+03
9	1700	0.529E-13	0.111E-08	0.689E+03	0.425E+03
9	1800	0.479E-13	0.101E-08	0.629E+03	0.385E+03
9	2000	0.400E-13	0.855E-09	0.532E+03	0.321E+03
9	2200	0.340E-13	0.738E-09	0.459E+03	0.273E+03
9	2500	0.274E-13	0.605E-09	0.377E+03	0.220E+03
9	5000	0.927E-14	0.225E-09	0.140E+03	0.744E+02
10	750	0.480E-12	0.903E-08	0.562E+04	0.385E+04
10	1000	0.277E-12	0.535E-08	0.333E+04	0.222E+04
10	1200	0.203E-12	0.397E-08	0.247E+04	0.163E+04
10	1300	0.177E-12	0.349E-08	0.217E+04	0.142E+04
10	1400	0.155E-12	0.309E-08	0.192E+04	0.125E+04
10	1500	0.137E-12	0.275E-08	0.171E+04	0.110E+04
10	1625	0.120E-12	0.242E-08	0.151E+04	0.962E+03
10	1700	0.111E-12	0.225E-08	0.140E+04	0.890E+03
10	1800	0.100E-12	0.205E-08	0.128E+04	0.806E+03
10	2000	0.834E-13	0.172E-08	0.107E+04	0.670E+03
10	2200	0.709E-13	0.148E-08	0.924E+03	0.569E+03
10	2500	0.570E-13	0.121E-08	0.755E+03	0.458E+03
10	5000	0.190E-13	0.439E-09	0.273E+03	0.152E+03
11	750	0.116E-11	0.211E-07	0.131E+05	0.929E+04
11	1000	0.664E-12	0.123E-07	0.767E+04	0.533E+04
11	1200	0.485E-12	0.908E-08	0.566E+04	0.389E+04
11	1300	0.421E-12	0.794E-08	0.494E+04	0.338E+04
11	1400	0.370E-12	0.700E-08	0.436E+04	0.297E+04
11	1500	0.326E-12	0.621E-08	0.387E+04	0.262E+04
11	1625	0.284E-12	0.543E-08	0.338E+04	0.228E+04
11	1700	0.262E-12	0.504E-08	0.314E+04	0.211E+04
11	1800	0.237E-12	0.458E-08	0.285E+04	0.191E+04
11	2000	0.196E-12	0.382E-08	0.238E+04	0.158E+04
11	2200	0.167E-12	0.327E-08	0.204E+04	0.134E+04
11	2500	0.134E-12	0.266E-08	0.165E+04	0.108E+04
11	5000	0.438E-13	0.922E-09	0.574E+03	0.352E+03
12	750	0.149E-11	0.272E-07	0.169E+05	0.120E+05
12	1000	0.857E-12	0.158E-07	0.987E+04	0.688E+04
12	1200	0.626E-12	0.117E-07	0.728E+04	0.503E+04
12	1300	0.544E-12	0.102E-07	0.636E+04	0.437E+04
12	1400	0.478E-12	0.900E-08	0.560E+04	0.383E+04
12	1500	0.422E-12	0.799E-08	0.497E+04	0.339E+04

16	1300	RA-228	2.38E-07	1.66E-08	2.30E-09	1.94E-08	6.73E+03
16	1400	RA-228	2.54E-07	1.46E-08	2.59E-09	1.72E-08	6.72E+03
16	1500	RA-228	2.25E-07	1.30E-08	2.41E-09	1.54E-08	6.71E+03
16	1625	RA-228	1.97E-07	1.13E-08	2.22E-09	1.36E-08	6.70E+03
16	1700	RA-228	1.82E-07	1.05E-08	2.12E-09	1.26E-08	6.69E+03
16	1800	RA-228	1.65E-07	9.51E-09	2.00E-09	1.15E-08	6.69E+03
16	2000	RA-228	1.38E-07	7.93E-09	1.79E-09	9.73E-09	6.67E+03
16	2200	RA-228	1.17E-07	6.76E-09	1.63E-09	8.39E-09	6.66E+03
16	2500	RA-228	9.46E-08	5.44E-09	1.43E-09	6.87E-09	6.64E+03
16	5000	RA-228	3.21E-08	1.85E-09	6.93E-10	2.54E-09	6.50E+03

GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

	N	NNW	NW	WNW	W	WSW	SW	SSW
750	0.678E-05	0.446E-05	0.349E-05	0.535E-05	0.109E-04	0.803E-05	0.439E-05	0.434E-05
1000	0.393E-05	0.258E-05	0.201E-05	0.308E-05	0.627E-05	0.465E-05	0.254E-05	0.251E-05
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

	S	SSE	SE	ESE	E	ENE	NE	NNE
750	0.373E-05	0.796E-05	0.192E-04	0.248E-04	0.221E-04	0.231E-04	0.185E-04	0.129E-04
1000	0.217E-05	0.460E-05	0.110E-04	0.142E-04	0.127E-04	0.133E-04	0.107E-04	0.746E-05
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

SUMMARY OF AREA SURROUNDING PLANT

AREA	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
62					

COLUMN ROW

0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2706E+09

1 LIST OF INPUT DATA FOR NUCLIDE RA-228

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.3301E-03

0 ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY) 0.0000E+00

0 ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY) 0.0000E+00

0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L) 0.5900E-03

FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG) 0.5000E-03

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE 0.1000E+00
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS 0.2000E-01
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E+00

0 GI UPTAKE FRACTION (INGESTION) 0.2000E+00

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS W

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-06	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	750	0.408E-12	0.777E-08	0.484E+04	0.328E+04
1	1000	0.237E-12	0.463E-08	0.288E+04	0.190E+04
1	1200	0.174E-12	0.346E-08	0.215E+04	0.140E+04
1	1300	0.152E-12	0.304E-08	0.190E+04	0.122E+04
1	1400	0.134E-12	0.270E-08	0.168E+04	0.108E+04
1	1500	0.119E-12	0.242E-08	0.151E+04	0.955E+03
1	1625	0.104E-12	0.213E-08	0.133E+04	0.835E+03
1	1700	0.963E-13	0.198E-08	0.124E+04	0.773E+03
1	1800	0.874E-13	0.181E-08	0.113E+04	0.702E+03
1	2000	0.729E-13	0.153E-08	0.954E+03	0.586E+03
1	2200	0.621E-13	0.132E-08	0.823E+03	0.499E+03
1	2500	0.501E-13	0.108E-08	0.675E+03	0.402E+03
1	5000	0.171E-13	0.403E-09	0.251E+03	0.138E+03
2	750	0.269E-12	0.512E-08	0.319E+04	0.216E+04
2	1000	0.156E-12	0.305E-08	0.190E+04	0.125E+04
2	1200	0.114E-12	0.228E-08	0.142E+04	0.919E+03
2	1300	0.999E-13	0.200E-08	0.125E+04	0.802E+03
2	1400	0.880E-13	0.178E-08	0.111E+04	0.707E+03
2	1500	0.781E-13	0.159E-08	0.990E+03	0.627E+03
2	1625	0.682E-13	0.140E-08	0.872E+03	0.548E+03
2	1700	0.632E-13	0.130E-08	0.812E+03	0.507E+03
2	1800	0.573E-13	0.119E-08	0.741E+03	0.460E+03
2	2000	0.478E-13	0.101E-08	0.627E+03	0.384E+03
2	2200	0.407E-13	0.867E-09	0.540E+03	0.327E+03
2	2500	0.328E-13	0.711E-09	0.443E+03	0.263E+03

6	2000	RA-228	8.51E-08	4.90E-09	1.22E-09	6.12E-09	3.39E+03
6	2200	RA-228	7.24E-08	4.17E-09	1.11E-09	5.28E-09	3.39E+03
6	2500	RA-228	5.83E-08	3.35E-09	9.71E-10	4.33E-09	3.37E+03
6	5000	RA-228	1.95E-08	1.12E-09	4.70E-10	1.59E-09	3.29E+03
7	750	RA-228	2.64E-07	1.52E-08	1.83E-09	1.70E-08	1.90E+03
7	1000	RA-228	1.53E-07	8.33E-09	1.36E-09	1.02E-08	1.89E+03
7	1200	RA-228	1.12E-07	6.47E-09	1.13E-09	7.60E-09	1.89E+03
7	1300	RA-228	9.79E-08	5.63E-09	1.04E-09	6.68E-09	1.88E+03
7	1400	RA-228	8.61E-08	4.96E-09	9.65E-10	5.92E-09	1.88E+03
7	1500	RA-228	7.63E-08	4.39E-09	8.99E-10	5.29E-09	1.88E+03
7	1625	RA-228	6.65E-08	3.83E-09	8.28E-10	4.66E-09	1.87E+03
7	1700	RA-228	6.16E-08	3.54E-09	7.90E-10	4.33E-09	1.87E+03
7	1800	RA-228	5.58E-08	3.21E-09	7.45E-10	3.95E-09	1.87E+03
7	2000	RA-228	4.64E-08	2.67E-09	6.68E-10	3.34E-09	1.86E+03
7	2200	RA-228	3.95E-08	2.27E-09	6.06E-10	2.88E-09	1.86E+03
7	2500	RA-228	3.17E-08	1.83E-09	5.31E-10	2.36E-09	1.85E+03
7	5000	RA-228	1.05E-08	6.07E-10	2.57E-10	8.64E-10	1.80E+03
8	750	RA-228	2.61E-07	1.50E-08	1.53E-09	1.66E-08	1.74E+03
8	1000	RA-228	1.51E-07	8.70E-09	1.14E-09	9.84E-09	1.73E+03
8	1200	RA-228	1.11E-07	6.37E-09	9.46E-10	7.32E-09	1.72E+03
8	1300	RA-228	9.65E-08	5.55E-09	8.71E-10	6.42E-09	1.72E+03
8	1400	RA-228	8.48E-08	4.88E-09	8.07E-10	5.69E-09	1.72E+03
8	1500	RA-228	7.51E-08	4.32E-09	7.51E-10	5.07E-09	1.71E+03
8	1625	RA-228	6.55E-08	3.77E-09	6.91E-10	4.46E-09	1.71E+03
8	1700	RA-228	6.06E-08	3.49E-09	6.60E-10	4.15E-09	1.71E+03
8	1800	RA-228	5.49E-08	3.16E-09	6.22E-10	3.78E-09	1.71E+03
8	2000	RA-228	4.56E-08	2.62E-09	5.57E-10	3.18E-09	1.70E+03
8	2200	RA-228	3.88E-08	2.23E-09	5.05E-10	2.74E-09	1.70E+03
8	2500	RA-228	3.12E-08	1.80E-09	4.43E-10	2.24E-09	1.69E+03
8	5000	RA-228	1.04E-08	5.97E-10	2.14E-10	8.11E-10	1.65E+03
9	750	RA-228	2.25E-07	1.29E-08	1.57E-09	1.45E-08	2.19E+03
9	1000	RA-228	1.31E-07	7.51E-09	1.17E-09	8.68E-09	2.18E+03
9	1200	RA-228	9.59E-08	5.52E-09	9.73E-10	6.49E-09	2.17E+03
9	1300	RA-228	8.37E-08	4.82E-09	8.96E-10	5.71E-09	2.17E+03
9	1400	RA-228	7.37E-08	4.24E-09	8.30E-10	5.07E-09	2.16E+03
9	1500	RA-228	6.54E-08	3.76E-09	7.73E-10	4.54E-09	2.16E+03
9	1625	RA-228	5.71E-08	3.29E-09	7.13E-10	4.00E-09	2.16E+03
9	1700	RA-228	5.29E-08	3.04E-09	6.80E-10	3.72E-09	2.16E+03
9	1800	RA-228	4.79E-08	2.76E-09	6.42E-10	3.40E-09	2.15E+03
9	2000	RA-228	4.00E-08	2.30E-09	5.75E-10	2.88E-09	2.15E+03
9	2200	RA-228	3.40E-08	1.96E-09	5.22E-10	2.48E-09	2.15E+03
9	2500	RA-228	2.74E-08	1.58E-09	4.58E-10	2.04E-09	2.14E+03
9	5000	RA-228	9.27E-09	5.34E-10	2.23E-10	7.57E-10	2.10E+03
10	750	RA-228	4.80E-07	2.76E-08	2.77E-09	3.04E-08	3.22E+03
10	1000	RA-228	2.77E-07	1.59E-08	2.06E-09	1.80E-08	3.20E+03
10	1200	RA-228	2.03E-07	1.17E-08	1.71E-09	1.34E-08	3.19E+03
10	1300	RA-228	1.77E-07	1.02E-08	1.57E-09	1.17E-08	3.18E+03
10	1400	RA-228	1.55E-07	8.93E-09	1.45E-09	1.04E-08	3.17E+03
10	1500	RA-228	1.37E-07	7.91E-09	1.35E-09	9.26E-09	3.17E+03
10	1625	RA-228	1.20E-07	6.89E-09	1.25E-09	8.14E-09	3.16E+03
10	1700	RA-228	1.11E-07	6.38E-09	1.19E-09	7.57E-09	3.16E+03
10	1800	RA-228	1.00E-07	5.77E-09	1.12E-09	6.89E-09	3.15E+03
10	2000	RA-228	8.34E-08	4.80E-09	1.00E-09	5.80E-09	3.14E+03
10	2200	RA-228	7.09E-08	4.08E-09	9.10E-10	4.99E-09	3.14E+03
10	2500	RA-228	5.70E-08	3.28E-09	7.98E-10	4.08E-09	3.13E+03
10	5000	RA-228	1.90E-08	1.09E-09	3.85E-10	1.48E-09	3.04E+03
11	750	RA-228	1.16E-06	6.66E-08	4.36E-09	7.09E-08	4.42E+03
11	1000	RA-228	6.64E-07	3.82E-08	3.22E-09	4.14E-08	4.37E+03
11	1200	RA-228	4.85E-07	2.79E-08	2.67E-09	3.06E-08	4.35E+03
11	1300	RA-228	4.21E-07	2.43E-08	2.45E-09	2.67E-08	4.33E+03
11	1400	RA-228	3.70E-07	2.13E-08	2.26E-09	2.35E-08	4.32E+03
11	1500	RA-228	3.26E-07	1.88E-08	2.10E-09	2.09E-08	4.30E+03

11	1625	RA-228	2.84E-07	1.63E-08	1.93E-09	1.83E-08	4.29E+03
11	1700	RA-228	2.62E-07	1.51E-08	1.84E-09	1.70E-08	4.28E+03
11	1800	RA-228	2.37E-07	1.37E-08	1.73E-09	1.54E-08	4.27E+03
11	2000	RA-228	1.96E-07	1.13E-08	1.55E-09	1.29E-08	4.24E+03
11	2200	RA-228	1.67E-07	9.61E-09	1.40E-09	1.10E-08	4.23E+03
11	2500	RA-228	1.34E-07	7.71E-09	1.23E-09	8.94E-09	4.21E+03
11	5000	RA-228	4.33E-08	2.52E-09	5.80E-10	3.10E-09	4.04E+03
12	750	RA-228	1.49E-06	8.60E-08	5.39E-09	9.13E-08	5.26E+03
12	1000	RA-228	8.57E-07	4.93E-08	3.98E-09	5.33E-08	5.20E+03
12	1200	RA-228	6.26E-07	3.60E-08	3.29E-09	3.93E-08	5.17E+03
12	1300	RA-228	5.44E-07	3.13E-08	3.02E-09	3.44E-08	5.15E+03
12	1400	RA-228	4.78E-07	2.75E-08	2.79E-09	3.03E-08	5.13E+03
12	1500	RA-228	4.22E-07	2.43E-08	2.59E-09	2.69E-08	5.11E+03
12	1625	RA-228	3.67E-07	2.11E-08	2.38E-09	2.35E-08	5.10E+03
12	1700	RA-228	3.39E-07	1.95E-08	2.27E-09	2.18E-08	5.09E+03
12	1800	RA-228	3.07E-07	1.77E-08	2.14E-09	1.98E-08	5.07E+03
12	2000	RA-228	2.54E-07	1.46E-08	1.91E-09	1.65E-08	5.04E+03
12	2200	RA-228	2.16E-07	1.24E-08	1.73E-09	1.42E-08	5.03E+03
12	2500	RA-228	1.73E-07	9.98E-09	1.51E-09	1.15E-08	5.00E+03
12	5000	RA-228	5.70E-08	3.28E-09	7.12E-10	3.99E-09	4.78E+03
13	750	RA-228	1.33E-06	7.66E-08	5.96E-09	8.26E-08	6.13E+03
13	1000	RA-228	7.66E-07	4.41E-08	4.42E-09	4.85E-08	6.08E+03
13	1200	RA-228	5.60E-07	3.23E-08	3.66E-09	3.59E-08	6.05E+03
13	1300	RA-228	4.88E-07	2.81E-08	3.36E-09	3.14E-08	6.03E+03
13	1400	RA-228	4.28E-07	2.47E-08	3.11E-09	2.78E-08	6.02E+03
13	1500	RA-228	3.79E-07	2.18E-08	2.89E-09	2.47E-08	6.00E+03
13	1625	RA-228	3.30E-07	1.90E-08	2.66E-09	2.17E-08	5.98E+03
13	1700	RA-228	3.06E-07	1.76E-08	2.54E-09	2.01E-08	5.97E+03
13	1800	RA-228	2.77E-07	1.59E-08	2.39E-09	1.83E-08	5.96E+03
13	2000	RA-228	2.30E-07	1.32E-08	2.14E-09	1.54E-08	5.93E+03
13	2200	RA-228	1.95E-07	1.12E-08	1.94E-09	1.32E-08	5.92E+03
13	2500	RA-228	1.57E-07	9.03E-09	1.69E-09	1.07E-08	5.89E+03
13	5000	RA-228	5.22E-08	3.00E-09	8.08E-10	3.81E-09	5.68E+03
14	750	RA-228	1.39E-06	8.00E-08	6.46E-09	8.64E-08	5.78E+03
14	1000	RA-228	7.99E-07	4.60E-08	4.78E-09	5.08E-08	5.73E+03
14	1200	RA-228	5.85E-07	3.37E-08	3.96E-09	3.76E-08	5.69E+03
14	1300	RA-228	5.10E-07	2.93E-08	3.64E-09	3.30E-08	5.68E+03
14	1400	RA-228	4.48E-07	2.58E-08	3.37E-09	2.91E-08	5.66E+03
14	1500	RA-228	3.96E-07	2.28E-08	3.13E-09	2.60E-08	5.64E+03
14	1625	RA-228	3.46E-07	1.99E-08	2.88E-09	2.28E-08	5.62E+03
14	1700	RA-228	3.20E-07	1.84E-08	2.75E-09	2.11E-08	5.61E+03
14	1800	RA-228	2.89E-07	1.67E-08	2.59E-09	1.92E-08	5.60E+03
14	2000	RA-228	2.40E-07	1.38E-08	2.31E-09	1.62E-08	5.57E+03
14	2200	RA-228	2.04E-07	1.18E-08	2.10E-09	1.39E-08	5.55E+03
14	2500	RA-228	1.64E-07	9.46E-09	1.84E-09	1.13E-08	5.53E+03
14	5000	RA-228	5.48E-08	3.16E-09	8.74E-10	4.03E-09	5.30E+03
15	750	RA-228	1.11E-06	6.41E-08	6.64E-09	7.08E-08	6.90E+03
15	1000	RA-228	6.44E-07	3.71E-08	4.94E-09	4.20E-08	6.85E+03
15	1200	RA-228	4.73E-07	2.72E-08	4.10E-09	3.13E-08	6.82E+03
15	1300	RA-228	4.12E-07	2.37E-08	3.77E-09	2.75E-08	6.81E+03
15	1400	RA-228	3.63E-07	2.09E-08	3.49E-09	2.44E-08	6.79E+03
15	1500	RA-228	3.22E-07	1.85E-08	3.25E-09	2.18E-08	6.78E+03
15	1625	RA-228	2.81E-07	1.62E-08	2.99E-09	1.92E-08	6.76E+03
15	1700	RA-228	2.60E-07	1.50E-08	2.86E-09	1.78E-08	6.76E+03
15	1800	RA-228	2.36E-07	1.36E-08	2.69E-09	1.63E-08	6.74E+03
15	2000	RA-228	1.97E-07	1.13E-08	2.41E-09	1.37E-08	6.72E+03
15	2200	RA-228	1.67E-07	9.64E-09	2.19E-09	1.18E-08	6.71E+03
15	2500	RA-228	1.35E-07	7.76E-09	1.92E-09	9.68E-09	6.68E+03
15	5000	RA-228	4.56E-08	2.62E-09	9.25E-10	3.55E-09	6.49E+03
16	750	RA-228	7.77E-07	4.47E-08	4.91E-09	4.96E-08	6.79E+03
16	1000	RA-228	4.50E-07	2.59E-08	3.66E-09	2.95E-08	6.76E+03
16	1200	RA-228	3.30E-07	1.90E-08	3.04E-09	2.21E-08	6.74E+03

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.38	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

ESTIMATED RADIONUCLIDE CONCENTRATIONS

AREA TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	750	RA-228	4.08E-07	2.35E-08	2.62E-09	2.61E-08	3.36E+03
1	1000	RA-228	2.37E-07	1.36E-08	1.95E-09	1.56E-08	3.34E+03
1	1200	RA-228	1.74E-07	1.00E-08	1.62E-09	1.16E-08	3.33E+03
1	1300	RA-228	1.52E-07	8.75E-09	1.49E-09	1.02E-08	3.33E+03
1	1400	RA-228	1.34E-07	7.71E-09	1.38E-09	9.09E-09	3.32E+03
1	1500	RA-228	1.19E-07	6.85E-09	1.29E-09	8.14E-09	3.32E+03
1	1625	RA-228	1.04E-07	5.98E-09	1.19E-09	7.17E-09	3.31E+03
1	1700	RA-228	9.63E-08	5.54E-09	1.13E-09	6.68E-09	3.31E+03
1	1800	RA-228	8.74E-08	5.03E-09	1.07E-09	6.10E-09	3.30E+03
1	2000	RA-228	7.29E-08	4.20E-09	9.58E-10	5.16E-09	3.29E+03
1	2200	RA-228	6.21E-08	3.58E-09	8.69E-10	4.45E-09	3.29E+03
1	2500	RA-228	5.01E-08	2.88E-09	7.62E-10	3.65E-09	3.28E+03

1	5000	RA-228	1.71E-08	9.86E-10	3.70E-10	1.36E-09	3.21E+03
2	750	RA-228	2.69E-07	1.55E-08	1.75E-09	1.72E-08	1.64E+03
2	1000	RA-228	1.56E-07	8.96E-09	1.30E-09	1.03E-08	1.63E+03
2	1200	RA-228	1.14E-07	6.59E-09	1.08E-09	7.66E-09	1.62E+03
2	1300	RA-228	9.99E-08	5.75E-09	9.92E-10	6.74E-09	1.62E+03
2	1400	RA-228	8.80E-08	5.06E-09	9.18E-10	5.98E-09	1.62E+03
2	1500	RA-228	7.81E-08	4.50E-09	8.55E-10	5.35E-09	1.61E+03
2	1625	RA-228	6.82E-08	3.93E-09	7.87E-10	4.71E-09	1.61E+03
2	1700	RA-228	6.32E-08	3.64E-09	7.51E-10	4.39E-09	1.61E+03
2	1800	RA-228	5.73E-08	3.30E-09	7.08E-10	4.01E-09	1.60E+03
2	2000	RA-228	4.78E-08	2.75E-09	6.35E-10	3.39E-09	1.60E+03
2	2200	RA-228	4.07E-08	2.34E-09	5.75E-10	2.92E-09	1.59E+03
2	2500	RA-228	3.28E-08	1.89E-09	5.04E-10	2.39E-09	1.59E+03
2	5000	RA-228	1.11E-08	6.40E-10	2.43E-10	8.84E-10	1.54E+03
3	750	RA-228	2.10E-07	1.21E-08	1.17E-09	1.33E-08	8.89E+02
3	1000	RA-228	1.21E-07	6.98E-09	8.69E-10	7.85E-09	8.80E+02
3	1200	RA-228	8.87E-08	5.11E-09	7.20E-10	5.83E-09	8.75E+02
3	1300	RA-228	7.73E-08	4.45E-09	6.63E-10	5.11E-09	8.73E+02
3	1400	RA-228	6.79E-08	3.91E-09	6.13E-10	4.52E-09	8.70E+02
3	1500	RA-228	6.01E-08	3.46E-09	5.70E-10	4.03E-09	8.67E+02
3	1625	RA-228	5.24E-08	3.02E-09	5.25E-10	3.54E-09	8.64E+02
3	1700	RA-228	4.85E-08	2.79E-09	5.01E-10	3.29E-09	8.63E+02
3	1800	RA-228	4.39E-08	2.53E-09	4.72E-10	3.00E-09	8.61E+02
3	2000	RA-228	3.65E-08	2.10E-09	4.22E-10	2.52E-09	8.56E+02
3	2200	RA-228	3.10E-08	1.78E-09	3.82E-10	2.17E-09	8.54E+02
3	2500	RA-228	2.49E-08	1.43E-09	3.35E-10	1.77E-09	8.50E+02
3	5000	RA-228	8.26E-09	4.75E-10	1.60E-10	6.36E-10	8.14E+02
4	750	RA-228	3.22E-07	1.85E-08	1.57E-09	2.01E-08	1.11E+0
4	1000	RA-228	1.85E-07	1.07E-08	1.16E-09	1.18E-08	1.10E+0
4	1200	RA-228	1.36E-07	7.80E-09	9.64E-10	8.77E-09	1.09E+0
4	1300	RA-228	1.18E-07	6.79E-09	8.87E-10	7.68E-09	1.09E+
4	1400	RA-228	1.04E-07	5.96E-09	8.20E-10	6.78E-09	1.08E+
4	1500	RA-228	9.16E-08	5.27E-09	7.62E-10	6.04E-09	1.08E+
4	1625	RA-228	7.98E-08	4.59E-09	7.01E-10	5.29E-09	1.08E+
4	1700	RA-228	7.38E-08	4.25E-09	6.68E-10	4.91E-09	1.07E+
4	1800	RA-228	6.68E-08	3.84E-09	6.29E-10	4.47E-09	1.07E+
4	2000	RA-228	5.54E-08	3.19E-09	5.63E-10	3.75E-09	1.06E+
4	2200	RA-228	4.71E-08	2.71E-09	5.10E-10	3.22E-09	1.06E+
4	2500	RA-228	3.78E-08	2.18E-09	4.46E-10	2.62E-09	1.05E+
4	5000	RA-228	1.25E-08	7.17E-10	2.12E-10	9.29E-10	1.00E+
5	750	RA-228	6.57E-07	3.78E-08	2.94E-09	4.08E-08	2.28E+
5	1000	RA-228	3.78E-07	2.18E-08	2.18E-09	2.39E-08	2.26E+
5	1200	RA-228	2.76E-07	1.59E-08	1.80E-09	1.77E-08	2.24E+
5	1300	RA-228	2.40E-07	1.38E-08	1.66E-09	1.55E-08	2.23E+
5	1400	RA-228	2.11E-07	1.21E-08	1.53E-09	1.37E-08	2.23E+
5	1500	RA-228	1.86E-07	1.07E-08	1.42E-09	1.22E-08	2.22E+
5	1625	RA-228	1.62E-07	9.34E-09	1.31E-09	1.07E-08	2.21E+
5	1700	RA-228	1.50E-07	8.64E-09	1.25E-09	9.89E-09	2.20E+
5	1800	RA-228	1.36E-07	7.81E-09	1.18E-09	8.99E-09	2.20E+
5	2000	RA-228	1.13E-07	6.48E-09	1.05E-09	7.53E-09	2.18E+
5	2200	RA-228	9.56E-08	5.51E-09	9.51E-10	6.46E-09	2.18E+
5	2500	RA-228	7.68E-08	4.42E-09	8.33E-10	5.25E-09	2.17E+
5	5000	RA-228	2.52E-08	1.45E-09	3.95E-10	1.85E-09	2.06E+
6	750	RA-228	4.84E-07	2.79E-08	3.35E-09	3.12E-08	3.47E+
6	1000	RA-228	2.80E-07	1.61E-08	2.49E-09	1.86E-08	3.45E+
6	1200	RA-228	2.05E-07	1.18E-08	2.07E-09	1.39E-08	3.44E+
6	1300	RA-228	1.79E-07	1.03E-08	1.90E-09	1.22E-08	3.43E+
6	1400	RA-228	1.58E-07	9.07E-09	1.76E-09	1.08E-08	3.43E+
6	1500	RA-228	1.40E-07	8.04E-09	1.64E-09	9.69E-09	3.42E+
6	1625	RA-228	1.22E-07	7.02E-09	1.51E-09	8.53E-09	3.41E+
6	1700	RA-228	1.13E-07	6.49E-09	1.44E-09	7.94E-09	3.41E+
6	1800	RA-228	1.02E-07	5.89E-09	1.36E-09	7.25E-09	3.40E+

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=4,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='RA-228',ISOL=W,AMAD=1.0,REL=1.9 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 60 WITH 10% RELEASE
DOSE CALCULATED AT 750 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED--

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION--

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.190E+01

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

Building 60

Radium-228

VEGET.	*0.8664E-04	*	0.5488
MEAT	*0.1229E-07	*	0.0001
MILK	*0.5060E-07	*	0.0003

2020

CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7034E-09	0.0000
SURFACE	0.1552E-05	0.0086
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1683E-01	92.8605
INGEST.	0.1292E-02	7.1309
VEGET.	*0.1291E-02	* 7.1257
MEAT	*0.1831E-06	* 0.0010
MILK	*0.7541E-06	* 0.0042

CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7846E-09	0.0000
SURFACE	0.1731E-05	0.0018
SWIMMING	0.1000E-24	0.0000
INHAL.	0.9658E-01	99.7012
INGEST.	0.2877E-03	0.2970
VEGET.	*0.2875E-03	* 0.2968
MEAT	*0.4078E-07	* 0.0000
MILK	*0.1679E-06	* 0.0002

CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.5546E-09	0.0000
SURFACE	0.1224E-05	0.0077
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1577E-01	99.7729
INGEST.	0.3468E-04	0.2194
VEGET.	*0.3465E-04	* 0.2192
MEAT	*0.4915E-08	* 0.0000
MILK	*0.2024E-07	* 0.0001

CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.8387E-09	0.0000
SURFACE	0.1850E-05	0.0117
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1576E-01	99.7714
INGEST.	0.3425E-04	0.2169
VEGET.	*0.3423E-04	* 0.2167
MEAT	*0.4855E-08	* 0.0000
MILK	*0.1999E-07	* 0.0001

TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

ORGAN	DOSE(REMS)
W BODY	0.1383E+02
R MAR	0.1783E+02
ENDOST	0.2229E+03
THYROID	0.2669E-01
BREAST	0.2730E-01
PUL	0.4174E+02
S WALL	0.1579E-01
INT WALL	0.1812E-01
LIVER	0.9687E-01
PANCREAS	0.1581E-01
KIDNEYS	0.1579E-01

CONTRIBUTORS TO ORGAN DOSES

PERCENT

E	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION	
0				COLUMN	ROW
0	TH-232	W BODY	0.1383E+02	12	4
0	TH-232	R MAR	0.1783E+02	12	4
0	TH-232	ENDOST	0.2229E+03	12	4
0	TH-232	THYROID	0.2669E-01	12	4
0	TH-232	BREAST	0.2730E-01	12	4
0	TH-232	*PUL*	0.4174E+02	12	4
0	TH-232	S WALL	0.1579E-01	12	4
0	TH-232	INT WALL	0.1812E-01	12	4
0	TH-232	LIVER	0.9687E-01	12	4
0	TH-232	PANCREAS	0.1581E-01	12	4
0	TH-232	KIDNEYS	0.1579E-01	12	4

2020

1625	0.367E-12	0.699E-08	0.435E+04	0.295E+04
1700	0.339E-12	0.648E-08	0.404E+04	0.273E+04
1800	0.307E-12	0.589E-08	0.367E+04	0.246E+04
2000	0.254E-12	0.492E-08	0.306E+04	0.204E+04
2200	0.216E-12	0.421E-08	0.262E+04	0.173E+04
2500	0.173E-12	0.342E-08	0.213E+04	0.139E+04
5000	0.370E-13	0.119E-08	0.738E+03	0.457E+03
750	0.133E-11	0.246E-07	0.153E+05	0.107E+05
1000	0.766E-12	0.144E-07	0.898E+04	0.615E+04
1200	0.560E-12	0.107E-07	0.664E+04	0.450E+04
1300	0.488E-12	0.935E-08	0.582E+04	0.392E+04
1400	0.428E-12	0.326E-08	0.514E+04	0.344E+04
1500	0.379E-12	0.735E-08	0.457E+04	0.304E+04
1625	0.330E-12	0.644E-08	0.401E+04	0.265E+04
1700	0.306E-12	0.598E-08	0.372E+04	0.245E+04
1800	0.277E-12	0.544E-08	0.339E+04	0.222E+04
2000	0.230E-12	0.456E-08	0.284E+04	0.184E+04
2200	0.195E-12	0.392E-08	0.244E+04	0.157E+04
2500	0.157E-12	0.319E-08	0.198E+04	0.126E+04
5000	0.522E-13	0.113E-08	0.705E+03	0.419E+03
750	0.139E-11	0.257E-07	0.160E+05	0.112E+05
1000	0.799E-12	0.151E-07	0.940E+04	0.642E+04
1200	0.585E-12	0.112E-07	0.697E+04	0.470E+04
1300	0.510E-12	0.980E-08	0.610E+04	0.409E+04
1400	0.448E-12	0.866E-08	0.539E+04	0.360E+04
1500	0.396E-12	0.771E-08	0.480E+04	0.318E+04
1625	0.346E-12	0.677E-08	0.421E+04	0.277E+04
1700	0.320E-12	0.629E-08	0.391E+04	0.257E+04
1800	0.289E-12	0.572E-08	0.356E+04	0.232E+04
2000	0.240E-12	0.480E-08	0.299E+04	0.193E+04
2200	0.204E-12	0.412E-08	0.257E+04	0.164E+04
2500	0.164E-12	0.336E-08	0.209E+04	0.132E+04
5000	0.548E-13	0.120E-08	0.746E+03	0.440E+03
750	0.111E-11	0.210E-07	0.131E+05	0.895E+04
1000	0.644E-12	0.125E-07	0.777E+04	0.517E+04
1200	0.473E-12	0.931E-08	0.579E+04	0.380E+04
1300	0.412E-12	0.818E-08	0.509E+04	0.331E+04
1400	0.363E-12	0.725E-08	0.451E+04	0.292E+04
1500	0.322E-12	0.648E-08	0.403E+04	0.259E+04
1625	0.281E-12	0.570E-08	0.355E+04	0.226E+04
1700	0.260E-12	0.530E-08	0.330E+04	0.209E+04
1800	0.236E-12	0.484E-08	0.301E+04	0.189E+04
2000	0.197E-12	0.408E-08	0.254E+04	0.158E+04
2200	0.167E-12	0.351E-08	0.219E+04	0.134E+04
2500	0.135E-12	0.288E-08	0.179E+04	0.108E+04
5000	0.456E-13	0.105E-08	0.657E+03	0.366E+03
750	0.777E-12	0.148E-07	0.918E+04	0.624E+04
1000	0.450E-12	0.878E-08	0.547E+04	0.361E+04
1200	0.330E-12	0.656E-08	0.408E+04	0.265E+04
1300	0.288E-12	0.576E-08	0.359E+04	0.232E+04
1400	0.254E-12	0.512E-08	0.318E+04	0.204E+04
1500	0.225E-12	0.457E-08	0.285E+04	0.181E+04
1625	0.197E-12	0.403E-08	0.251E+04	0.158E+04
1700	0.182E-12	0.375E-08	0.233E+04	0.146E+04
1800	0.165E-12	0.342E-08	0.213E+04	0.133E+04
2000	0.138E-12	0.289E-08	0.180E+04	0.111E+04
2200	0.117E-12	0.249E-08	0.155E+04	0.943E+03
2500	0.946E-13	0.204E-08	0.127E+04	0.760E+03
5000	0.321E-13	0.756E-09	0.471E+03	0.258E+03

DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

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NUCLIDE	PATHWAY	PERCENT OF W BODY DOSE(REMS)	DOSE BY EACH PATHWAY PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

RA-228	SUBM AIR	0.3714E-15	0.00	100.00
	SURFACE	0.7028E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5721E-01	70.15	100.00
	INGEST.	0.2434E-01	29.35	100.00
	VEGET.	0.2194E-01	* 26.90	* 90.11
	MEAT	0.9385E-03	* 1.15	* 3.86
	MILK	0.1468E-02	* 1.30	* 6.03

PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3274E-01	44.45	100.00
	INGEST.	0.4091E-01	55.55	100.00
	VEGET.	0.3687E-01	* 50.06	* 90.11
	MEAT	0.1577E-02	* 2.14	* 3.86
	MILK	0.2467E-02	* 3.35	* 6.03

PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.4643E-16	0.00	100.00
	SURFACE	0.8785E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2890E+00	44.28	100.00
	INGEST.	0.3636E+00	55.72	100.00
	VEGET.	0.3277E+00	* 50.21	* 90.11
	MEAT	0.1402E-01	* 2.15	* 3.86
	MILK	0.2193E-01	* 3.36	* 6.03

PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8119E-02	45.25	100.00
	INGEST.	0.9822E-02	54.75	100.00
	VEGET.	0.8851E-02	* 49.33	* 90.11
	MEAT	0.3787E-03	* 2.11	* 3.86
	MILK	0.5923E-03	* 3.30	* 6.03

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.2693E-14	0.00	100.00
	SURFACE	0.5095E-11	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8167E-02	45.40	100.00
	INGEST.	0.9822E-02	54.60	100.00
	VEGET.	0.8851E-02	* 49.20	* 90.11
	MEAT	0.3787E-03	* 2.10	* 3.86
	MILK	0.5923E-03	* 3.29	* 6.03

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.4643E-16	0.00	100.00
	SURFACE	0.8785E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3202E+00	97.02	100.00
	INGEST.	0.9822E-02	2.98	100.00
	VEGET.	0.8851E-02	* 2.68	* 90.11

	MEAT	0.3787E-03	• 0.11	• 3.86
	MILK	0.5923E-03	• 0.18	• 6.03

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8119E-02	45.08	100.00
	INGEST.	0.9890E-02	54.92	100.00
	VEGET.	0.8912E-02	• 49.49	• 90.11
	MEAT	0.3813E-03	• 2.12	• 3.86
	MILK	0.5964E-03	• 3.31	• 6.03

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5858E-02	48.41	100.00
	INGEST.	0.6243E-02	51.59	100.00
	VEGET.	0.5626E-02	• 46.49	• 90.11
	MEAT	0.2407E-03	• 1.99	• 3.86
	MILK	0.3765E-03	• 3.11	• 6.03

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1030E-01	60.69	100.00
	INGEST.	0.6671E-02	39.31	100.00
	VEGET.	0.6011E-02	• 35.43	• 90.11
	MEAT	0.2572E-03	• 1.52	• 3.86
	MILK	0.4023E-03	• 2.37	• 6.03

PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5414E-02	49.07	100.00
	INGEST.	0.5618E-02	50.93	100.00
	VEGET.	0.5062E-02	• 45.89	• 90.11
	MEAT	0.2166E-03	• 1.96	• 3.86
	MILK	0.3387E-03	• 3.07	• 6.03

PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5521E-02	49.15	100.00
	INGEST.	0.5712E-02	50.85	100.00
	VEGET.	0.5148E-02	• 45.82	• 90.11
	MEAT	0.2202E-03	• 1.96	• 3.86
	MILK	0.3445E-03	• 3.07	• 6.03

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3714E-15	0.0000
SURFACE	0.7028E-12	0.0000
SWIMMING	0.1000E-24	0.0000

0	INHAL.	0.5721E-01	70.1484
0	INGEST.	0.2434E-01	29.8516
0	VEGET.	*0.2194E-01	* 26.9006
0	MEAT	*0.9385E-03	* 1.1509
0	MILK	*0.1468E-02	* 1.8001

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.1000E-24	0.0000
0 SURFACE	0.1000E-24	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.3274E-01	44.4531
0 INGEST.	0.4091E-01	55.5469
0 VEGET.	*0.3687E-01	* 50.0559
0 MEAT	*0.1577E-02	* 2.1415
0 MILK	*0.2467E-02	* 3.3495

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.4643E-16	0.0000
0 SURFACE	0.8785E-13	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.2890E+00	44.2843
0 INGEST.	0.3636E+00	55.7157
0 VEGET.	*0.3277E+00	* 50.2080
0 MEAT	*0.1402E-01	* 2.1480
0 MILK	*0.2193E-01	* 3.3597

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.1000E-24	0.0000
0 SURFACE	0.1000E-24	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.8119E-02	45.2542
0 INGEST.	0.9822E-02	54.7458
VEGET.	*0.8851E-02	* 49.3340
0 MEAT	*0.3787E-03	* 2.1106
0 MILK	*0.5923E-03	* 3.3012

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.2693E-14	0.0000
0 SURFACE	0.5095E-11	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.8167E-02	45.4002
0 INGEST.	0.9822E-02	54.5998
0 VEGET.	*0.8851E-02	* 49.2025
0 MEAT	*0.3787E-03	* 2.1050
0 MILK	*0.5923E-03	* 3.2924

0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.4643E-16	0.0000
0 SURFACE	0.8785E-13	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.3202E+00	97.0239
0 INGEST.	0.9822E-02	2.9761
0 VEGET.	*0.8851E-02	* 2.6819
0 MEAT	*0.3787E-03	* 0.1147
0 MILK	*0.5923E-03	* 0.1795

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.8119E-02	45.0842
0 INGEST.	0.9890E-02	54.9158

NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
RA-228	W BODY	0.8155E-01	12	4
RA-228	R MAR	0.7365E-01	12	4
RA-228	ENDOST	0.6527E+00	12	4
RA-228	THYROID	0.1794E-01	12	4
RA-228	BREAST	0.1799E-01	12	4
RA-228	*PUL*	0.3300E+00	12	4
RA-228	S WALL	0.1801E-01	12	4
RA-228	INT WALL	0.1210E-01	12	4
RA-228	LIVER	0.1697E-01	12	4
RA-228	PANCREAS	0.1103E-01	12	4
RA-228	KIDNEYS	0.1123E-01	12	4

VEGET.	*0.3912E-02	*	49.4871
MEAT	*0.3813E-03	*	2.1172
MILK	*0.5964E-03	*	3.3114

CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)		PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24		0.0000
SURFACE	0.1000E-24		0.0000
SWIMMING	0.1000E-24		0.0000
INHAL.	0.5858E-02		48.4106
INGEST.	0.6243E-02		51.5894
VEGET.	*0.5626E-02	*	46.4896
MEAT	*0.2407E-03	*	1.9889
MILK	*0.3765E-03	*	3.1109

CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)		PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24		0.0000
SURFACE	0.1000E-24		0.0000
SWIMMING	0.1000E-24		0.0000
INHAL.	0.1030E-01		60.6881
INGEST.	0.6671E-02		39.3119
VEGET.	*0.6011E-02	*	35.4258
MEAT	*0.2572E-03	*	1.5156
MILK	*0.4023E-03	*	2.3705

CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)		PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24		0.0000
SURFACE	0.1000E-24		0.0000
SWIMMING	0.1000E-24		0.0000
INHAL.	0.5414E-02		49.0748
INGEST.	0.5618E-02		50.9252
VEGET.	*0.5062E-02	*	45.8910
MEAT	*0.2166E-03	*	1.9633
MILK	*0.3387E-03	*	3.0708

CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)		PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24		0.0000
SURFACE	0.1000E-24		0.0000
SWIMMING	0.1000E-24		0.0000
INHAL.	0.5521E-02		49.1505
INGEST.	0.5712E-02		50.8495
VEGET.	*0.5148E-02	*	45.8228
MEAT	*0.2202E-03	*	1.9604
MILK	*0.3445E-03	*	3.0662

TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

ORGAN	DOSE(REMS)
W BODY	0.8155E-01
R MAR	0.7365E-01
ENDOST	0.6527E+00
THYROID	0.1794E-01
BREAST	0.1799E-01
PUL	0.3300E+00
S WALL	0.1801E-01
INT WALL	0.1210E-01
LIVER	0.1697E-01
PANCREAS	0.1103E-01
KIDNEYS	0.1123E-01

CONTRIBUTORS TO ORGAN DOSES

PERCENT

NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
RA-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

ANNUAL DOSES(REMS)

Building 60

Thorium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=4,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-228',ISOL=Y,AMAD=1.0,REL=1.9 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 60 WITH 10% RELEASE
DOSE CALCULATED AT 750 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED--

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION--

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-228	0.190E+01

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-228	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

ESTIMATED RADIONUCLIDE CONCENTRATIONS

AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	750	TH-228	4.08E-07	2.35E-08	2.62E-09	2.61E-08	3.36E+03
1	1000	TH-228	2.37E-07	1.36E-08	1.95E-09	1.56E-08	3.34E+03
1	1200	TH-228	1.74E-07	1.00E-08	1.62E-09	1.16E-08	3.33E+03
1	1300	TH-228	1.52E-07	8.75E-09	1.49E-09	1.02E-08	3.33E+03
1	1400	TH-228	1.34E-07	7.71E-09	1.38E-09	9.09E-09	3.32E+03
1	1500	TH-228	1.19E-07	6.85E-09	1.29E-09	8.14E-09	3.32E+03
1	1625	TH-228	1.04E-07	5.98E-09	1.19E-09	7.17E-09	3.31E+03
1	1700	TH-228	9.63E-08	5.54E-09	1.13E-09	6.68E-09	3.31E+03
1	1800	TH-228	8.74E-08	5.03E-09	1.07E-09	6.10E-09	3.30E+03
1	2000	TH-228	7.29E-08	4.20E-09	9.58E-10	5.16E-09	3.29E+03
1	2200	TH-228	6.21E-08	3.58E-09	8.69E-10	4.45E-09	3.29E+03
1	2500	TH-228	5.01E-08	2.88E-09	7.62E-10	3.65E-09	3.28E+03

1	5000	TH-228	1.71E-08	9.86E-10	3.70E-10	1.36E-09	3.21E+03
2	750	TH-228	2.69E-07	1.55E-08	1.75E-09	1.72E-08	1.64E+03
2	1000	TH-228	1.56E-07	8.96E-09	1.30E-09	1.03E-08	1.63E+03
2	1200	TH-228	1.14E-07	6.59E-09	1.08E-09	7.66E-09	1.62E+03
2	1300	TH-228	9.99E-08	5.75E-09	9.92E-10	6.74E-09	1.62E+03
2	1400	TH-228	8.80E-08	5.06E-09	9.18E-10	5.98E-09	1.62E+03
2	1500	TH-228	7.81E-08	4.50E-09	8.55E-10	5.35E-09	1.61E+03
2	1625	TH-228	6.82E-08	3.93E-09	7.87E-10	4.71E-09	1.61E+03
2	1700	TH-228	6.32E-08	3.64E-09	7.51E-10	4.39E-09	1.61E+03
2	1800	TH-228	5.73E-08	3.30E-09	7.08E-10	4.01E-09	1.60E+03
2	2000	TH-228	4.78E-08	2.75E-09	6.35E-10	3.39E-09	1.60E+03
2	2200	TH-228	4.07E-08	2.34E-09	5.75E-10	2.92E-09	1.59E+03
2	2500	TH-228	3.28E-08	1.89E-09	5.04E-10	2.39E-09	1.59E+03
2	5000	TH-228	1.11E-08	6.40E-10	2.43E-10	8.84E-10	1.54E+03
3	750	TH-228	2.10E-07	1.21E-08	1.17E-09	1.33E-08	8.89E+02
3	1000	TH-228	1.21E-07	6.98E-09	8.69E-10	7.85E-09	8.80E+02
3	1200	TH-228	8.87E-08	5.11E-09	7.20E-10	5.83E-09	8.75E+02
3	1300	TH-228	7.73E-08	4.45E-09	6.63E-10	5.11E-09	8.73E+02
3	1400	TH-228	6.79E-08	3.91E-09	6.13E-10	4.52E-09	8.70E+02
3	1500	TH-228	6.01E-08	3.46E-09	5.70E-10	4.03E-09	8.67E+02
3	1625	TH-228	5.24E-08	3.02E-09	5.25E-10	3.54E-09	8.64E+02
3	1700	TH-228	4.85E-08	2.79E-09	5.01E-10	3.29E-09	8.63E+02
3	1800	TH-228	4.39E-08	2.53E-09	4.72E-10	3.00E-09	8.61E+02
3	2000	TH-228	3.65E-08	2.10E-09	4.22E-10	2.52E-09	8.56E+02
3	2200	TH-228	3.10E-08	1.78E-09	3.82E-10	2.17E-09	8.54E+02
3	2500	TH-228	2.49E-08	1.43E-09	3.35E-10	1.77E-09	8.50E+02
3	5000	TH-228	8.26E-09	4.75E-10	1.60E-10	6.36E-10	8.14E+02
4	750	TH-228	3.22E-07	1.85E-08	1.57E-09	2.01E-08	1.11E+03
4	1000	TH-228	1.85E-07	1.07E-08	1.16E-09	1.18E-08	1.10E+03
4	1200	TH-228	1.36E-07	7.80E-09	9.64E-10	8.77E-09	1.09E+03
4	1300	TH-228	1.18E-07	6.79E-09	8.87E-10	7.68E-09	1.09E+03
4	1400	TH-228	1.04E-07	5.96E-09	8.20E-10	6.78E-09	1.08E+03
4	1500	TH-228	9.16E-08	5.27E-09	7.62E-10	6.04E-09	1.08E+03
4	1625	TH-228	7.98E-08	4.59E-09	7.01E-10	5.29E-09	1.08E+03
4	1700	TH-228	7.38E-08	4.25E-09	6.68E-10	4.91E-09	1.07E+03
4	1800	TH-228	6.68E-08	3.84E-09	6.29E-10	4.47E-09	1.07E+03
4	2000	TH-228	5.54E-08	3.19E-09	5.63E-10	3.75E-09	1.06E+03
4	2200	TH-228	4.71E-08	2.71E-09	5.10E-10	3.22E-09	1.06E+03
4	2500	TH-228	3.78E-08	2.18E-09	4.46E-10	2.62E-09	1.05E+03
4	5000	TH-228	1.25E-08	7.17E-10	2.12E-10	9.29E-10	1.00E+03
5	750	TH-228	6.57E-07	3.78E-08	2.94E-09	4.08E-08	2.28E+03
5	1000	TH-228	3.78E-07	2.18E-08	2.18E-09	2.39E-08	2.26E+03
5	1200	TH-228	2.76E-07	1.59E-08	1.80E-09	1.77E-08	2.24E+03
5	1300	TH-228	2.40E-07	1.38E-08	1.66E-09	1.55E-08	2.23E+03
5	1400	TH-228	2.11E-07	1.21E-08	1.53E-09	1.37E-08	2.23E+03
5	1500	TH-228	1.86E-07	1.07E-08	1.42E-09	1.22E-08	2.22E+03
5	1625	TH-228	1.62E-07	9.34E-09	1.31E-09	1.07E-08	2.21E+03
5	1700	TH-228	1.50E-07	8.64E-09	1.25E-09	9.89E-09	2.20E+03
5	1800	TH-228	1.36E-07	7.81E-09	1.18E-09	8.99E-09	2.20E+03
5	2000	TH-228	1.13E-07	6.48E-09	1.05E-09	7.53E-09	2.18E+03
5	2200	TH-228	9.56E-08	5.51E-09	9.51E-10	6.46E-09	2.18E+03
5	2500	TH-228	7.68E-08	4.42E-09	8.33E-10	5.25E-09	2.17E+03
5	5000	TH-228	2.52E-08	1.45E-09	3.95E-10	1.85E-09	2.06E+03
6	750	TH-228	4.84E-07	2.79E-08	3.35E-09	3.12E-08	3.47E+03
6	1000	TH-228	2.80E-07	1.61E-08	2.49E-09	1.86E-08	3.45E+03
6	1200	TH-228	2.05E-07	1.18E-08	2.07E-09	1.39E-08	3.44E+03
6	1300	TH-228	1.79E-07	1.03E-08	1.90E-09	1.22E-08	3.43E+03
6	1400	TH-228	1.58E-07	9.07E-09	1.76E-09	1.08E-08	3.43E+03
6	1500	TH-228	1.40E-07	8.04E-09	1.64E-09	9.69E-09	3.42E+03
6	1625	TH-228	1.22E-07	7.02E-09	1.51E-09	8.53E-09	3.41E+03
6	1700	TH-228	1.13E-07	6.49E-09	1.44E-09	7.94E-09	3.41E+03
6	1800	TH-228	1.02E-07	5.89E-09	1.36E-09	7.25E-09	3.40E+03

6	2000	TH-228	8.51E-08	4.90E-09	1.22E-09	6.12E-09	3.39E+03
6	2200	TH-228	7.24E-08	4.17E-09	1.11E-09	5.28E-09	3.39E+03
6	2500	TH-228	5.83E-08	3.35E-09	9.71E-10	4.33E-09	3.37E+03
6	5000	TH-228	1.95E-08	1.12E-09	4.70E-10	1.59E-09	3.29E+03
7	750	TH-228	2.64E-07	1.52E-08	1.83E-09	1.70E-08	1.90E+03
7	1000	TH-228	1.53E-07	8.83E-09	1.36E-09	1.02E-08	1.89E+03
7	1200	TH-228	1.12E-07	6.47E-09	1.13E-09	7.60E-09	1.89E+03
7	1300	TH-228	9.79E-08	5.63E-09	1.04E-09	6.68E-09	1.88E+03
7	1400	TH-228	8.61E-08	4.96E-09	9.65E-10	5.92E-09	1.88E+03
7	1500	TH-228	7.63E-08	4.39E-09	8.99E-10	5.29E-09	1.88E+03
7	1625	TH-228	6.65E-08	3.83E-09	8.28E-10	4.66E-09	1.87E+03
7	1700	TH-228	6.16E-08	3.54E-09	7.90E-10	4.33E-09	1.87E+03
7	1800	TH-228	5.58E-08	3.21E-09	7.45E-10	3.95E-09	1.87E+03
7	2000	TH-228	4.64E-08	2.67E-09	6.68E-10	3.34E-09	1.86E+03
7	2200	TH-228	3.95E-08	2.27E-09	6.06E-10	2.88E-09	1.86E+03
7	2500	TH-228	3.17E-08	1.83E-09	5.31E-10	2.36E-09	1.85E+03
7	5000	TH-228	1.05E-08	6.07E-10	2.57E-10	8.64E-10	1.80E+03
8	750	TH-228	2.61E-07	1.50E-08	1.53E-09	1.66E-08	1.74E+03
8	1000	TH-228	1.51E-07	8.70E-09	1.14E-09	9.84E-09	1.73E+03
8	1200	TH-228	1.11E-07	6.37E-09	9.46E-10	7.32E-09	1.72E+03
8	1300	TH-228	9.65E-08	5.55E-09	8.71E-10	6.42E-09	1.72E+03
8	1400	TH-228	8.48E-08	4.88E-09	8.07E-10	5.69E-09	1.72E+03
8	1500	TH-228	7.51E-08	4.32E-09	7.51E-10	5.07E-09	1.71E+03
8	1625	TH-228	6.55E-08	3.77E-09	6.91E-10	4.46E-09	1.71E+03
8	1700	TH-228	6.06E-08	3.49E-09	6.60E-10	4.15E-09	1.71E+03
8	1800	TH-228	5.49E-08	3.16E-09	6.22E-10	3.78E-09	1.71E+03
8	2000	TH-228	4.56E-08	2.62E-09	5.57E-10	3.18E-09	1.70E+03
8	2200	TH-228	3.88E-08	2.23E-09	5.05E-10	2.74E-09	1.70E+03
8	2500	TH-228	3.12E-08	1.80E-09	4.43E-10	2.24E-09	1.69E+03
8	5000	TH-228	1.04E-08	5.97E-10	2.14E-10	8.11E-10	1.65E+03
9	750	TH-228	2.25E-07	1.29E-08	1.57E-09	1.45E-08	2.19E+03
9	1000	TH-228	1.31E-07	7.51E-09	1.17E-09	8.68E-09	2.18E+03
9	1200	TH-228	9.59E-08	5.52E-09	9.73E-10	6.49E-09	2.17E+03
9	1300	TH-228	8.37E-08	4.82E-09	8.96E-10	5.71E-09	2.17E+03
9	1400	TH-228	7.37E-08	4.24E-09	8.30E-10	5.07E-09	2.16E+03
9	1500	TH-228	6.54E-08	3.76E-09	7.73E-10	4.54E-09	2.16E+03
9	1625	TH-228	5.71E-08	3.29E-09	7.13E-10	4.00E-09	2.16E+03
9	1700	TH-228	5.29E-08	3.04E-09	6.80E-10	3.72E-09	2.16E+03
9	1800	TH-228	4.79E-08	2.76E-09	6.42E-10	3.40E-09	2.15E+03
9	2000	TH-228	4.00E-08	2.30E-09	5.75E-10	2.88E-09	2.15E+03
9	2200	TH-228	3.40E-08	1.96E-09	5.22E-10	2.48E-09	2.15E+03
9	2500	TH-228	2.74E-08	1.58E-09	4.58E-10	2.04E-09	2.14E+03
9	5000	TH-228	9.27E-09	5.34E-10	2.23E-10	7.57E-10	2.10E+03
10	750	TH-228	4.80E-07	2.76E-08	2.77E-09	3.04E-08	3.22E+03
10	1000	TH-228	2.77E-07	1.59E-08	2.06E-09	1.80E-08	3.20E+03
10	1200	TH-228	2.03E-07	1.17E-08	1.71E-09	1.34E-08	3.19E+03
10	1300	TH-228	1.77E-07	1.02E-08	1.57E-09	1.17E-08	3.18E+03
10	1400	TH-228	1.55E-07	8.93E-09	1.45E-09	1.04E-08	3.17E+03
10	1500	TH-228	1.37E-07	7.91E-09	1.35E-09	9.26E-09	3.17E+03
10	1625	TH-228	1.20E-07	6.89E-09	1.25E-09	8.14E-09	3.16E+03
10	1700	TH-228	1.11E-07	6.38E-09	1.19E-09	7.57E-09	3.16E+03
10	1800	TH-228	1.00E-07	5.77E-09	1.12E-09	6.89E-09	3.15E+03
10	2000	TH-228	8.34E-08	4.80E-09	1.00E-09	5.80E-09	3.14E+03
10	2200	TH-228	7.09E-08	4.08E-09	9.10E-10	4.99E-09	3.14E+03
10	2500	TH-228	5.70E-08	3.28E-09	7.98E-10	4.08E-09	3.13E+03
10	5000	TH-228	1.90E-08	1.09E-09	3.85E-10	1.48E-09	3.04E+03
11	750	TH-228	1.16E-06	6.66E-08	4.36E-09	7.09E-08	4.42E+03
11	1000	TH-228	6.64E-07	3.82E-08	3.22E-09	4.14E-08	4.37E+03
11	1200	TH-228	4.85E-07	2.79E-08	2.67E-09	3.06E-08	4.35E+03
11	1300	TH-228	4.21E-07	2.43E-08	2.45E-09	2.67E-08	4.33E+03
11	1400	TH-228	3.70E-07	2.13E-08	2.26E-09	2.35E-08	4.32E+03
11	1500	TH-228	3.26E-07	1.88E-08	2.10E-09	2.09E-08	4.30E+03

11	1625	TH-228	2.84E-07	1.63E-08	1.93E-09	1.83E-08	4.29E+03
11	1700	TH-228	2.62E-07	1.51E-08	1.84E-09	1.70E-08	4.28E+03
11	1800	TH-228	2.37E-07	1.37E-08	1.73E-09	1.54E-08	4.27E+03
11	2000	TH-228	1.96E-07	1.13E-08	1.55E-09	1.29E-08	4.24E+03
11	2200	TH-228	1.67E-07	9.61E-09	1.40E-09	1.10E-08	4.23E+03
11	2500	TH-228	1.34E-07	7.71E-09	1.23E-09	8.94E-09	4.21E+03
11	5000	TH-228	4.38E-08	2.52E-09	5.80E-10	3.10E-09	4.04E+03
12	750	TH-228	1.49E-06	8.60E-08	5.39E-09	9.13E-08	5.26E+03
12	1000	TH-228	8.57E-07	4.93E-08	3.98E-09	5.33E-08	5.20E+03
12	1200	TH-228	6.26E-07	3.60E-08	3.29E-09	3.93E-08	5.17E+03
12	1300	TH-228	5.44E-07	3.13E-08	3.02E-09	3.44E-08	5.15E+03
12	1400	TH-228	4.78E-07	2.75E-08	2.79E-09	3.03E-08	5.13E+03
12	1500	TH-228	4.22E-07	2.43E-08	2.59E-09	2.69E-08	5.11E+03
12	1625	TH-228	3.67E-07	2.11E-08	2.38E-09	2.35E-08	5.10E+03
12	1700	TH-228	3.39E-07	1.95E-08	2.27E-09	2.18E-08	5.09E+03
12	1800	TH-228	3.07E-07	1.77E-08	2.14E-09	1.98E-08	5.07E+03
12	2000	TH-228	2.54E-07	1.46E-08	1.91E-09	1.65E-08	5.04E+03
12	2200	TH-228	2.16E-07	1.24E-08	1.73E-09	1.42E-08	5.03E+03
12	2500	TH-228	1.73E-07	9.98E-09	1.51E-09	1.15E-08	5.00E+03
12	5000	TH-228	5.70E-08	3.28E-09	7.12E-10	3.99E-09	4.78E+03
13	750	TH-228	1.33E-06	7.66E-08	5.96E-09	8.26E-08	6.13E+03
13	1000	TH-228	7.66E-07	4.41E-08	4.42E-09	4.85E-08	6.08E+03
13	1200	TH-228	5.60E-07	3.23E-08	3.66E-09	3.59E-08	6.05E+03
13	1300	TH-228	4.88E-07	2.81E-08	3.36E-09	3.14E-08	6.03E+03
13	1400	TH-228	4.28E-07	2.47E-08	3.11E-09	2.78E-08	6.02E+03
13	1500	TH-228	3.79E-07	2.18E-08	2.89E-09	2.47E-08	6.00E+03
13	1625	TH-228	3.30E-07	1.90E-08	2.66E-09	2.17E-08	5.98E+03
13	1700	TH-228	3.06E-07	1.76E-08	2.54E-09	2.01E-08	5.97E+03
13	1800	TH-228	2.77E-07	1.59E-08	2.39E-09	1.83E-08	5.96E+03
13	2000	TH-228	2.30E-07	1.32E-08	2.14E-09	1.54E-08	5.93E+03
13	2200	TH-228	1.95E-07	1.12E-08	1.94E-09	1.32E-08	5.92E+03
13	2500	TH-228	1.57E-07	9.03E-09	1.69E-09	1.07E-08	5.89E+03
13	5000	TH-228	5.22E-08	3.00E-09	8.08E-10	3.81E-09	5.68E+03
14	750	TH-228	1.39E-06	8.00E-08	6.46E-09	8.64E-08	5.78E+03
14	1000	TH-228	7.99E-07	4.60E-08	4.78E-09	5.08E-08	5.73E+03
14	1200	TH-228	5.85E-07	3.37E-08	3.96E-09	3.76E-08	5.69E+03
14	1300	TH-228	5.10E-07	2.93E-08	3.64E-09	3.30E-08	5.68E+03
14	1400	TH-228	4.48E-07	2.58E-08	3.37E-09	2.91E-08	5.66E+03
14	1500	TH-228	3.96E-07	2.28E-08	3.13E-09	2.60E-08	5.64E+03
14	1625	TH-228	3.46E-07	1.99E-08	2.88E-09	2.28E-08	5.62E+03
14	1700	TH-228	3.20E-07	1.84E-08	2.75E-09	2.11E-08	5.61E+03
14	1800	TH-228	2.89E-07	1.67E-08	2.59E-09	1.92E-08	5.60E+03
14	2000	TH-228	2.40E-07	1.38E-08	2.31E-09	1.62E-08	5.57E+03
14	2200	TH-228	2.04E-07	1.18E-08	2.10E-09	1.39E-08	5.55E+03
14	2500	TH-228	1.64E-07	9.46E-09	1.84E-09	1.13E-08	5.53E+03
14	5000	TH-228	5.48E-08	3.16E-09	8.74E-10	4.03E-09	5.30E+03
15	750	TH-228	1.11E-06	6.41E-08	6.64E-09	7.08E-08	6.90E+03
15	1000	TH-228	6.44E-07	3.71E-08	4.94E-09	4.20E-08	6.85E+03
15	1200	TH-228	4.73E-07	2.72E-08	4.10E-09	3.13E-08	6.82E+03
15	1300	TH-228	4.12E-07	2.37E-08	3.77E-09	2.75E-08	6.81E+03
15	1400	TH-228	3.63E-07	2.09E-08	3.49E-09	2.44E-08	6.79E+03
15	1500	TH-228	3.22E-07	1.85E-08	3.25E-09	2.18E-08	6.78E+03
15	1625	TH-228	2.81E-07	1.62E-08	2.99E-09	1.92E-08	6.76E+03
15	1700	TH-228	2.60E-07	1.50E-08	2.86E-09	1.78E-08	6.76E+03
15	1800	TH-228	2.36E-07	1.36E-08	2.69E-09	1.63E-08	6.74E+03
15	2000	TH-228	1.97E-07	1.13E-08	2.41E-09	1.37E-08	6.72E+03
15	2200	TH-228	1.67E-07	9.64E-09	2.19E-09	1.18E-08	6.71E+03
15	2500	TH-228	1.35E-07	7.76E-09	1.92E-09	9.68E-09	6.68E+03
15	5000	TH-228	4.56E-08	2.62E-09	9.25E-10	3.55E-09	6.49E+03
16	750	TH-228	7.77E-07	4.47E-08	4.91E-09	4.96E-08	6.79E+03
16	1000	TH-228	4.50E-07	2.59E-08	3.66E-09	2.95E-08	6.76E+03
16	1200	TH-228	3.30E-07	1.90E-08	3.04E-09	2.21E-08	6.74E+03

16	1300	TH-228	2.88E-07	1.66E-08	2.80E-09	1.94E-08	6.73E+03
16	1400	TH-228	2.54E-07	1.46E-08	2.59E-09	1.72E-08	6.72E+03
16	1500	TH-228	2.25E-07	1.30E-08	2.41E-09	1.54E-08	6.71E+03
16	1625	TH-228	1.97E-07	1.13E-08	2.22E-09	1.36E-08	6.70E+03
16	1700	TH-228	1.82E-07	1.05E-08	2.12E-09	1.26E-08	6.69E+03
16	1800	TH-228	1.65E-07	9.51E-09	2.00E-09	1.15E-08	6.69E+03
16	2000	TH-228	1.38E-07	7.93E-09	1.79E-09	9.73E-09	6.67E+03
16	2200	TH-228	1.17E-07	6.76E-09	1.63E-09	8.39E-09	6.66E+03
16	2500	TH-228	9.46E-08	5.44E-09	1.43E-09	6.87E-09	6.64E+03
16	5000	TH-228	3.21E-08	1.85E-09	6.93E-10	2.54E-09	6.50E+03

2020

GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

	N	NNW	NW	WNW	W	WSW	SW	SSW
750	0.678E-05	0.446E-05	0.349E-05	0.535E-05	0.109E-04	0.803E-05	0.439E-05	0.434E-05
1000	0.393E-05	0.258E-05	0.201E-05	0.308E-05	0.627E-05	0.465E-05	0.254E-05	0.251E-05
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

	S	SSE	SE	ESE	E	ENE	NE	NNE
750	0.373E-05	0.796E-05	0.192E-04	0.248E-04	0.221E-04	0.231E-04	0.185E-04	0.129E-04
1000	0.217E-05	0.460E-05	0.110E-04	0.142E-04	0.127E-04	0.133E-04	0.107E-04	0.746E-05
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

SUMMARY OF AREA SURROUNDING PLANT

AREA	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
COLUMN ROW					

0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2706E+09

1 LIST OF INPUT DATA FOR NUCLIDE TH-228

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.9919E-03

0 ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY) 0.0000E+00

0 ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY) 0.0000E+00

0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L) 0.5000E-05

0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG) 0.1600E-05

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE 0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS 0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0

ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.936E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.198E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

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AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	750	0.408E-12	0.692E-08	0.421E+04	0.328E+04
1	1000	0.237E-12	0.412E-08	0.251E+04	0.190E+04
1	1200	0.174E-12	0.308E-08	0.188E+04	0.140E+04
1	1300	0.152E-12	0.271E-08	0.165E+04	0.122E+04
1	1400	0.134E-12	0.241E-08	0.147E+04	0.108E+04
1	1500	0.119E-12	0.215E-08	0.131E+04	0.955E+03
1	1625	0.104E-12	0.190E-08	0.116E+04	0.835E+03
1	1700	0.963E-13	0.177E-08	0.108E+04	0.773E+03
1	1800	0.874E-13	0.161E-08	0.984E+03	0.702E+03
1	2000	0.729E-13	0.136E-08	0.832E+03	0.586E+03
1	2200	0.621E-13	0.118E-08	0.717E+03	0.499E+03
1	2500	0.501E-13	0.965E-09	0.588E+03	0.402E+03
1	5000	0.171E-13	0.359E-09	0.219E+03	0.138E+03
2	750	0.269E-12	0.456E-08	0.278E+04	0.216E+04
2	1000	0.156E-12	0.272E-08	0.166E+04	0.125E+04
2	1200	0.114E-12	0.203E-08	0.124E+04	0.919E+03
2	1300	0.999E-13	0.178E-08	0.109E+04	0.802E+03
2	1400	0.880E-13	0.158E-08	0.965E+03	0.707E+03
2	1500	0.781E-13	0.142E-08	0.863E+03	0.627E+03
2	1625	0.682E-13	0.125E-08	0.760E+03	0.548E+03
2	1700	0.632E-13	0.116E-08	0.708E+03	0.507E+03
2	1800	0.573E-13	0.106E-08	0.646E+03	0.460E+03
2	2000	0.478E-13	0.896E-09	0.546E+03	0.384E+03
2	2200	0.407E-13	0.772E-09	0.471E+03	0.327E+03
2	2500	0.328E-13	0.633E-09	0.386E+03	0.263E+03

2	5000	0.111E-13	0.234E-09	0.143E+03	0.894E+02
3	750	0.210E-12	0.351E-08	0.214E+04	0.169E+04
3	1000	0.121E-12	0.208E-08	0.127E+04	0.973E+03
3	1200	0.887E-13	0.154E-08	0.940E+03	0.713E+03
3	1300	0.773E-13	0.135E-08	0.824E+03	0.621E+03
3	1400	0.679E-13	0.120E-08	0.730E+03	0.545E+03
3	1500	0.601E-13	0.107E-08	0.650E+03	0.483E+03
3	1625	0.524E-13	0.937E-09	0.571E+03	0.421E+03
3	1700	0.485E-13	0.871E-09	0.531E+03	0.389E+03
3	1800	0.439E-13	0.793E-09	0.484E+03	0.352E+03
3	2000	0.365E-13	0.667E-09	0.407E+03	0.293E+03
3	2200	0.310E-13	0.574E-09	0.350E+03	0.249E+03
3	2500	0.249E-13	0.468E-09	0.285E+03	0.200E+03
3	5000	0.826E-14	0.168E-09	0.103E+03	0.663E+02
4	750	0.322E-12	0.532E-08	0.324E+04	0.259E+04
4	1000	0.185E-12	0.313E-08	0.191E+04	0.149E+04
4	1200	0.136E-12	0.232E-08	0.141E+04	0.109E+04
4	1300	0.118E-12	0.203E-08	0.124E+04	0.947E+03
4	1400	0.104E-12	0.180E-08	0.109E+04	0.832E+03
4	1500	0.916E-13	0.160E-08	0.974E+03	0.736E+03
4	1625	0.798E-13	0.140E-08	0.854E+03	0.641E+03
4	1700	0.738E-13	0.130E-08	0.793E+03	0.592E+03
4	1800	0.668E-13	0.118E-08	0.721E+03	0.536E+03
4	2000	0.554E-13	0.993E-09	0.605E+03	0.445E+03
4	2200	0.471E-13	0.852E-09	0.519E+03	0.378E+03
4	2500	0.378E-13	0.694E-09	0.423E+03	0.303E+03
4	5000	0.125E-13	0.246E-09	0.150E+03	0.100E+03
5	750	0.657E-12	0.108E-07	0.658E+04	0.528E+04
5	1000	0.378E-12	0.633E-08	0.386E+04	0.303E+04
5	1200	0.276E-12	0.469E-08	0.286E+04	0.222E+04
5	1300	0.240E-12	0.410E-08	0.250E+04	0.193E+04
5	1400	0.211E-12	0.362E-08	0.221E+04	0.169E+04
5	1500	0.186E-12	0.322E-08	0.196E+04	0.150E+04
5	1625	0.162E-12	0.282E-08	0.172E+04	0.130E+04
5	1700	0.150E-12	0.262E-08	0.159E+04	0.121E+04
5	1800	0.136E-12	0.238E-08	0.145E+04	0.109E+04
5	2000	0.113E-12	0.199E-08	0.121E+04	0.904E+03
5	2200	0.956E-13	0.171E-08	0.104E+04	0.768E+03
5	2500	0.768E-13	0.139E-08	0.847E+03	0.617E+03
5	5000	0.252E-13	0.489E-09	0.298E+03	0.203E+03
6	750	0.484E-12	0.826E-08	0.503E+04	0.389E+04
6	1000	0.280E-12	0.493E-08	0.300E+04	0.225E+04
6	1200	0.205E-12	0.368E-08	0.224E+04	0.165E+04
6	1300	0.179E-12	0.323E-08	0.197E+04	0.144E+04
6	1400	0.158E-12	0.287E-08	0.175E+04	0.127E+04
6	1500	0.140E-12	0.256E-08	0.156E+04	0.112E+04
6	1625	0.122E-12	0.226E-08	0.138E+04	0.979E+03
6	1700	0.113E-12	0.210E-08	0.128E+04	0.906E+03
6	1800	0.102E-12	0.192E-08	0.117E+04	0.821E+03
6	2000	0.851E-13	0.162E-08	0.987E+03	0.684E+03
6	2200	0.724E-13	0.140E-08	0.851E+03	0.582E+03
6	2500	0.583E-13	0.114E-08	0.698E+03	0.468E+03
6	5000	0.195E-13	0.422E-09	0.257E+03	0.157E+03
7	750	0.264E-12	0.451E-08	0.275E+04	0.212E+04
7	1000	0.153E-12	0.270E-08	0.164E+04	0.123E+04
7	1200	0.112E-12	0.201E-08	0.123E+04	0.902E+03
7	1300	0.979E-13	0.177E-08	0.108E+04	0.786E+03
7	1400	0.861E-13	0.157E-08	0.955E+03	0.691E+03
7	1500	0.763E-13	0.140E-08	0.853E+03	0.613E+03
7	1625	0.665E-13	0.123E-08	0.751E+03	0.534E+03
7	1700	0.616E-13	0.115E-08	0.699E+03	0.494E+03
7	1800	0.558E-13	0.105E-08	0.638E+03	0.448E+03

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7	2000	0.464E-13	0.883E-09	0.538E+03	0.372E+03
7	2200	0.395E-13	0.761E-09	0.464E+03	0.317E+03
7	2500	0.317E-13	0.624E-09	0.380E+03	0.255E+03
7	5000	0.105E-13	0.229E-09	0.139E+03	0.846E+02
8	750	0.261E-12	0.439E-08	0.267E+04	0.210E+04
8	1000	0.151E-12	0.261E-08	0.159E+04	0.121E+04
8	1200	0.111E-12	0.194E-08	0.118E+04	0.889E+03
8	1300	0.965E-13	0.170E-08	0.104E+04	0.775E+03
8	1400	0.848E-13	0.151E-08	0.918E+03	0.681E+03
8	1500	0.751E-13	0.134E-08	0.818E+03	0.603E+03
8	1625	0.655E-13	0.118E-08	0.719E+03	0.526E+03
8	1700	0.606E-13	0.110E-08	0.669E+03	0.486E+03
8	1800	0.549E-13	0.100E-08	0.610E+03	0.441E+03
8	2000	0.456E-13	0.842E-09	0.513E+03	0.366E+03
8	2200	0.388E-13	0.725E-09	0.442E+03	0.312E+03
8	2500	0.312E-13	0.592E-09	0.361E+03	0.250E+03
8	5000	0.104E-13	0.215E-09	0.131E+03	0.833E+02
9	750	0.225E-12	0.384E-08	0.234E+04	0.181E+04
9	1000	0.131E-12	0.230E-08	0.140E+04	0.105E+04
9	1200	0.959E-13	0.172E-08	0.105E+04	0.770E+03
9	1300	0.837E-13	0.151E-08	0.921E+03	0.672E+03
9	1400	0.737E-13	0.134E-08	0.818E+03	0.592E+03
9	1500	0.654E-13	0.120E-08	0.732E+03	0.525E+03
9	1625	0.571E-13	0.106E-08	0.645E+03	0.458E+03
9	1700	0.529E-13	0.986E-09	0.601E+03	0.425E+03
9	1800	0.479E-13	0.900E-09	0.549E+03	0.385E+03
9	2000	0.400E-13	0.761E-09	0.464E+03	0.321E+03
9	2200	0.340E-13	0.657E-09	0.400E+03	0.273E+03
9	2500	0.274E-13	0.539E-09	0.328E+03	0.220E+03
9	5000	0.927E-14	0.200E-09	0.122E+03	0.744E+02
10	750	0.480E-12	0.804E-08	0.490E+04	0.385E+04
10	1000	0.277E-12	0.476E-08	0.290E+04	0.222E+04
10	1200	0.203E-12	0.354E-08	0.216E+04	0.163E+04
10	1300	0.177E-12	0.311E-08	0.189E+04	0.142E+04
10	1400	0.155E-12	0.275E-08	0.168E+04	0.125E+04
10	1500	0.137E-12	0.245E-08	0.149E+04	0.110E+04
10	1625	0.120E-12	0.215E-08	0.131E+04	0.962E+03
10	1700	0.111E-12	0.200E-08	0.122E+04	0.890E+03
10	1800	0.100E-12	0.183E-08	0.111E+04	0.806E+03
10	2000	0.834E-13	0.154E-08	0.936E+03	0.670E+03
10	2200	0.709E-13	0.132E-08	0.805E+03	0.569E+03
10	2500	0.570E-13	0.108E-08	0.658E+03	0.458E+03
10	5000	0.190E-13	0.391E-09	0.238E+03	0.152E+03
11	750	0.116E-11	0.188E-07	0.114E+05	0.929E+04
11	1000	0.664E-12	0.110E-07	0.668E+04	0.533E+04
11	1200	0.485E-12	0.809E-08	0.493E+04	0.389E+04
11	1300	0.421E-12	0.707E-08	0.431E+04	0.338E+04
11	1400	0.370E-12	0.623E-08	0.380E+04	0.297E+04
11	1500	0.326E-12	0.553E-08	0.337E+04	0.262E+04
11	1625	0.284E-12	0.484E-08	0.295E+04	0.228E+04
11	1700	0.262E-12	0.449E-08	0.273E+04	0.211E+04
11	1800	0.237E-12	0.408E-08	0.248E+04	0.191E+04
11	2000	0.196E-12	0.340E-08	0.207E+04	0.158E+04
11	2200	0.167E-12	0.291E-08	0.178E+04	0.134E+04
11	2500	0.134E-12	0.237E-08	0.144E+04	0.108E+04
11	5000	0.438E-13	0.821E-09	0.500E+03	0.352E+03
12	750	0.149E-11	0.242E-07	0.147E+05	0.120E+05
12	1000	0.857E-12	0.141E-07	0.860E+04	0.688E+04
12	1200	0.626E-12	0.104E-07	0.634E+04	0.503E+04
12	1300	0.544E-12	0.909E-08	0.554E+04	0.437E+04
12	1400	0.478E-12	0.801E-08	0.488E+04	0.383E+04
12	1500	0.422E-12	0.711E-08	0.434E+04	0.339E+04

12	1625	0.367E-12	0.623E-08	0.379E+04	0.295E+04
12	1700	0.339E-12	0.577E-08	0.352E+04	0.273E+04
12	1800	0.307E-12	0.524E-08	0.319E+04	0.246E+04
12	2000	0.254E-12	0.438E-08	0.267E+04	0.204E+04
12	2200	0.216E-12	0.375E-08	0.228E+04	0.173E+04
12	2500	0.173E-12	0.304E-08	0.185E+04	0.139E+04
12	5000	0.570E-13	0.106E-08	0.644E+03	0.457E+03
13	750	0.133E-11	0.219E-07	0.133E+05	0.107E+05
13	1000	0.766E-12	0.128E-07	0.782E+04	0.615E+04
13	1200	0.560E-12	0.950E-08	0.579E+04	0.450E+04
13	1300	0.488E-12	0.832E-08	0.507E+04	0.392E+04
13	1400	0.428E-12	0.735E-08	0.448E+04	0.344E+04
13	1500	0.379E-12	0.654E-08	0.399E+04	0.304E+04
13	1625	0.330E-12	0.574E-08	0.350E+04	0.265E+04
13	1700	0.306E-12	0.533E-08	0.325E+04	0.245E+04
13	1800	0.277E-12	0.485E-08	0.295E+04	0.222E+04
13	2000	0.230E-12	0.406E-08	0.248E+04	0.184E+04
13	2200	0.195E-12	0.349E-08	0.213E+04	0.157E+04
13	2500	0.157E-12	0.284E-08	0.173E+04	0.126E+04
13	5000	0.522E-13	0.101E-08	0.615E+03	0.419E+03
14	750	0.139E-11	0.229E-07	0.139E+05	0.112E+05
14	1000	0.799E-12	0.134E-07	0.819E+04	0.642E+04
14	1200	0.585E-12	0.996E-08	0.607E+04	0.470E+04
14	1300	0.510E-12	0.873E-08	0.532E+04	0.409E+04
14	1400	0.448E-12	0.771E-08	0.470E+04	0.360E+04
14	1500	0.396E-12	0.687E-08	0.419E+04	0.318E+04
14	1625	0.346E-12	0.603E-08	0.367E+04	0.277E+04
14	1700	0.320E-12	0.560E-08	0.341E+04	0.257E+04
14	1800	0.289E-12	0.509E-08	0.310E+04	0.232E+04
14	2000	0.240E-12	0.428E-08	0.261E+04	0.193E+04
14	2200	0.204E-12	0.367E-08	0.224E+04	0.164E+04
14	2500	0.164E-12	0.299E-08	0.182E+04	0.132E+04
14	5000	0.548E-13	0.107E-08	0.650E+03	0.440E+03
15	750	0.111E-11	0.187E-07	0.114E+05	0.895E+04
15	1000	0.644E-12	0.111E-07	0.678E+04	0.517E+04
15	1200	0.473E-12	0.829E-08	0.505E+04	0.380E+04
15	1300	0.412E-12	0.728E-08	0.444E+04	0.331E+04
15	1400	0.363E-12	0.646E-08	0.393E+04	0.292E+04
15	1500	0.322E-12	0.577E-08	0.352E+04	0.259E+04
15	1625	0.281E-12	0.508E-08	0.309E+04	0.226E+04
15	1700	0.260E-12	0.472E-08	0.288E+04	0.209E+04
15	1800	0.236E-12	0.431E-08	0.263E+04	0.189E+04
15	2000	0.197E-12	0.363E-08	0.221E+04	0.158E+04
15	2200	0.167E-12	0.313E-08	0.191E+04	0.134E+04
15	2500	0.135E-12	0.256E-08	0.156E+04	0.108E+04
15	5000	0.456E-13	0.939E-09	0.572E+03	0.366E+03
16	750	0.777E-12	0.131E-07	0.801E+04	0.624E+04
16	1000	0.450E-12	0.782E-08	0.477E+04	0.361E+04
16	1200	0.330E-12	0.584E-08	0.356E+04	0.265E+04
16	1300	0.288E-12	0.513E-08	0.313E+04	0.232E+04
16	1400	0.254E-12	0.456E-08	0.278E+04	0.204E+04
16	1500	0.225E-12	0.407E-08	0.248E+04	0.181E+04
16	1625	0.197E-12	0.359E-08	0.219E+04	0.158E+04
16	1700	0.182E-12	0.334E-08	0.203E+04	0.146E+04
16	1800	0.165E-12	0.305E-08	0.186E+04	0.133E+04
16	2000	0.138E-12	0.258E-08	0.157E+04	0.111E+04
16	2200	0.117E-12	0.222E-08	0.135E+04	0.943E+03
16	2500	0.946E-13	0.182E-08	0.111E+04	0.760E+03
16	5000	0.321E-13	0.673E-09	0.410E+03	0.258E+03

DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

PERCENT OF W BODY DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

TH-228	SUBM AIR	0.1213E-07	0.00	100.00
	SURFACE	0.1080E-04	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4102E+01	99.86	100.00
	INGEST.	0.5835E-02	0.14	100.00
	VEGET.	0.5831E-02	• 0.14	• 99.93
	MEAT	0.7665E-06	• 0.00	• 0.01
	MILK	0.3213E-05	• 0.00	• 0.06

PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.9700E-08	0.00	100.00
	SURFACE	0.8636E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8299E+00	98.75	100.00
	INGEST.	0.1052E-01	1.25	100.00
	VEGET.	0.1051E-01	• 1.25	• 99.93
	MEAT	0.1382E-05	• 0.00	• 0.01
	MILK	0.5793E-05	• 0.00	• 0.06

PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1882E-07	0.00	100.00
	SURFACE	0.1675E-04	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1016E+02	98.74	100.00
	INGEST.	0.1292E+00	1.26	100.00
	VEGET.	0.1291E+00	• 1.26	• 99.93
	MEAT	0.1698E-04	• 0.00	• 0.01
	MILK	0.7116E-04	• 0.00	• 0.06

PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1646E-07	0.00	100.00
	SURFACE	0.1465E-04	0.14	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1021E-01	98.65	100.00
	INGEST.	0.1254E-03	1.21	100.00
	VEGET.	0.1253E-03	• 1.21	• 99.93
	MEAT	0.1647E-07	• 0.00	• 0.01
	MILK	0.6905E-07	• 0.00	• 0.06

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2045E-07	0.00	100.00
	SURFACE	0.1821E-04	0.17	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1029E-01	98.61	100.00
	INGEST.	0.1270E-03	1.22	100.00
	VEGET.	0.1269E-03	• 1.22	• 99.93
	MEAT	0.1669E-07	• 0.00	• 0.01
	MILK	0.6994E-07	• 0.00	• 0.06

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1163E-07	0.00	100.00
	SURFACE	0.1035E-04	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3070E+02	100.00	100.00
	INGEST.	0.1260E-03	0.00	100.00
	VEGET.	0.1259E-03	• 0.00	• 99.93

	MEAT	0.1655E-07	• 0.00	• 0.01
	MILK	0.6938E-07	• 0.00	• 0.06

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1025E-07	0.00	100.00
	SURFACE	0.9121E-05	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1003E-01	98.55	100.00
	INGEST.	0.1379E-03	1.36	100.00
	VEGET.	0.1378E-03	• 1.35	• 99.93
	MEAT	0.1812E-07	• 0.00	• 0.01
	MILK	0.7595E-07	• 0.00	• 0.06

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.9991E-08	0.00	100.00
	SURFACE	0.8895E-05	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3129E-01	89.73	100.00
	INGEST.	0.3570E-02	10.24	100.00
	VEGET.	0.3568E-02	• 10.23	• 99.93
	MEAT	0.4690E-06	• 0.00	• 0.01
	MILK	0.1966E-05	• 0.01	• 0.06

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1061E-07	0.00	100.00
	SURFACE	0.9445E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4411E-01	98.85	100.00
	INGEST.	0.5053E-03	1.13	100.00
	VEGET.	0.5049E-03	• 1.13	• 99.93
	MEAT	0.6637E-07	• 0.00	• 0.01
	MILK	0.2782E-06	• 0.00	• 0.06

PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.8283E-08	0.00	100.00
	SURFACE	0.7375E-05	0.07	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9977E-02	98.78	100.00
	INGEST.	0.1155E-03	1.14	100.00
	VEGET.	0.1155E-03	• 1.14	• 99.93
	MEAT	0.1518E-07	• 0.00	• 0.01
	MILK	0.6362E-07	• 0.00	• 0.06

PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1086E-07	0.00	100.00
	SURFACE	0.9671E-05	0.06	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1656E-01	99.10	100.00
	INGEST.	0.1407E-03	0.84	100.00
	VEGET.	0.1406E-03	• 0.84	• 99.93
	MEAT	0.1848E-07	• 0.00	• 0.01
	MILK	0.7747E-07	• 0.00	• 0.06

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1213E-07	0.0000
SURFACE	0.1080E-04	0.0003
SWIMMING	0.1000E-24	0.0000

0	INHAL.	0.4102E+01	99.8577
0	INGEST.	0.5835E-02	0.1421
0	VEGET.	*0.5831E-02	* 0.1420
0	MEAT	*0.7665E-06	* 0.0000
0	MILK	*0.3213E-05	* 0.0001
0	CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.9700E-08	0.0000
0	SURFACE	0.8636E-05	0.0010
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.8299E+00	98.7471
0	INGEST.	0.1052E-01	1.2519
0	VEGET.	*0.1051E-01	* 1.2510
0	MEAT	*0.1382E-05	* 0.0002
0	MILK	*0.5793E-05	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1882E-07	0.0000
0	SURFACE	0.1675E-04	0.0002
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1016E+02	98.7436
0	INGEST.	0.1292E+00	1.2562
0	VEGET.	*0.1291E+00	* 1.2554
0	MEAT	*0.1698E-04	* 0.0002
0	MILK	*0.7116E-04	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1646E-07	0.0002
0	SURFACE	0.1465E-04	0.1416
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1021E-01	98.6462
0	INGEST.	0.1254E-03	1.2121
0	VEGET.	*0.1253E-03	* 1.2112
0	MEAT	*0.1647E-07	* 0.0002
0	MILK	*0.6905E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2045E-07	0.0002
0	SURFACE	0.1821E-04	0.1745
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1029E-01	98.6080
0	INGEST.	0.1270E-03	1.2172
0	VEGET.	*0.1269E-03	* 1.2164
0	MEAT	*0.1669E-07	* 0.0002
0	MILK	*0.6994E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1163E-07	0.0000
0	SURFACE	0.1035E-04	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3070E+02	99.9996
0	INGEST.	0.1260E-03	0.0004
0	VEGET.	*0.1259E-03	* 0.0004
0	MEAT	*0.1655E-07	* 0.0000
0	MILK	*0.6938E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1025E-07	0.0001
0	SURFACE	0.9121E-05	0.0897
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1003E-01	98.5545
0	INGEST.	0.1379E-03	1.3558

VEGET.	*0.1378E-03	*	1.3549
MEAT	*0.1812E-07	*	0.0002
MILK	*0.7595E-07	*	0.0007

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CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.9991E-08	0.0000
SURFACE	0.8895E-05	0.0255
SWIMMING	0.1000E-24	0.0000
INHAL.	0.3129E-01	89.7348
INGEST.	0.3570E-02	10.2397
VEGET.	*0.3568E-02	* 10.2327
MEAT	*0.4690E-06	* 0.0013
MILK	*0.1966E-05	* 0.0056

CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1061E-07	0.0000
SURFACE	0.9445E-05	0.0212
SWIMMING	0.1000E-24	0.0000
INHAL.	0.4411E-01	98.8465
INGEST.	0.5053E-03	1.1323
VEGET.	*0.5049E-03	* 1.1315
MEAT	*0.6637E-07	* 0.0001
MILK	*0.2782E-06	* 0.0006

CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.8283E-08	0.0001
SURFACE	0.7375E-05	0.0730
SWIMMING	0.1000E-24	0.0000
INHAL.	0.9977E-02	98.7829
INGEST.	0.1155E-03	1.1440
VEGET.	*0.1155E-03	* 1.1432
MEAT	*0.1518E-07	* 0.0002
MILK	*0.6362E-07	* 0.0006

CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1086E-07	0.0001
SURFACE	0.9671E-05	0.0579
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1656E-01	99.1003
INGEST.	0.1407E-03	0.8418
VEGET.	*0.1406E-03	* 0.8412
MEAT	*0.1848E-07	* 0.0001
MILK	*0.7747E-07	* 0.0005

TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

ORGAN	DOSE(REMS)
W BODY	0.4107E+01
R MAR	0.8404E+00
ENDOST	0.1029E+02
THYROID	0.1035E-01
BREAST	0.1044E-01
PUL	0.3070E+02
S WALL	0.1017E-01
INT WALL	0.3487E-01
LIVER	0.4462E-01
PANCREAS	0.1010E-01
KIDNEYS	0.1671E-01

CONTRIBUTORS TO ORGAN DOSES

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PERCENT

'CLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
4-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

ANNUAL DOSES(REMS)

	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0					
0					
0	TH-228	W BODY	0.4107E+01	12	4
0	TH-228	R MAR	0.8404E+00	12	4
0	TH-228	ENDOST	0.1029E+02	12	4
0	TH-228	THYROID	0.1035E-01	12	4
0	TH-228	BREAST	0.1044E-01	12	4
0	TH-228	*PUL*	0.3070E+02	12	4
0	TH-228	S WALL	0.1017E-01	12	4
0	TH-228	INT WALL	0.3487E-01	12	4
0	TH-228	LIVER	0.4462E-01	12	4
0	TH-228	PANCREAS	0.1010E-01	12	4
0	TH-228	KIDNEYS	0.1671E-01	12	4

Building 60

Thorium-230

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=4,NRU=16,!DIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
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PHYSICAL STACK DATA
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 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
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AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 60 WITH 10% RELEASE
DOSE CALCULATED AT 750 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED--

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM----

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION--

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.200E+00

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.34	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.33	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.30	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

ESTIMATED RADIONUCLIDE CONCENTRATIONS

AREA WD TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	750	TH-230	4.30E-08	2.47E-09	2.76E-10	2.75E-09	3.54E+02
1	1000	TH-230	2.49E-08	1.43E-09	2.06E-10	1.64E-09	3.52E+02
1	1200	TH-230	1.83E-08	1.05E-09	1.71E-10	1.23E-09	3.51E+02
1	1300	TH-230	1.60E-08	9.21E-10	1.57E-10	1.08E-09	3.50E+02
1	1400	TH-230	1.41E-08	8.12E-10	1.46E-10	9.57E-10	3.50E+02
1	1500	TH-230	1.25E-08	7.21E-10	1.36E-10	8.57E-10	3.49E+02
1	1625	TH-230	1.09E-08	6.30E-10	1.25E-10	7.55E-10	3.49E+02
1	1700	TH-230	1.01E-08	5.83E-10	1.19E-10	7.03E-10	3.48E+02
1	1800	TH-230	9.20E-09	5.29E-10	1.12E-10	6.42E-10	3.48E+02
1	2000	TH-230	7.68E-09	4.42E-10	1.01E-10	5.43E-10	3.47E+02
1	2200	TH-230	6.54E-09	3.77E-10	9.15E-11	4.68E-10	3.46E+02
1	2500	TH-230	5.27E-09	3.04E-10	8.02E-11	3.84E-10	3.45E+02

	5000	TH-230	1.80E-09	1.04E-10	3.90E-11	1.43E-10	3.37E+02
2	750	TH-230	2.83E-08	1.63E-09	1.84E-10	1.81E-09	1.73E+02
2	1000	TH-230	1.64E-08	9.44E-10	1.37E-10	1.08E-09	1.72E+02
2	1200	TH-230	1.20E-08	6.93E-10	1.13E-10	8.07E-10	1.71E+02
2	1300	TH-230	1.05E-08	6.05E-10	1.04E-10	7.10E-10	1.70E+02
2	1400	TH-230	9.26E-09	5.33E-10	9.67E-11	6.30E-10	1.70E+02
2	1500	TH-230	8.22E-09	4.73E-10	9.00E-11	5.63E-10	1.70E+02
2	1625	TH-230	7.18E-09	4.13E-10	8.29E-11	4.96E-10	1.69E+02
2	1700	TH-230	6.65E-09	3.33E-10	7.91E-11	4.62E-10	1.69E+02
2	1800	TH-230	6.03E-09	3.47E-10	7.45E-11	4.22E-10	1.69E+02
2	2000	TH-230	5.03E-09	2.90E-10	6.68E-11	3.56E-10	1.68E+02
2	2200	TH-230	4.28E-09	2.47E-10	6.06E-11	3.07E-10	1.68E+02
2	2500	TH-230	3.45E-09	1.99E-10	5.31E-11	2.52E-10	1.67E+02
2	5000	TH-230	1.17E-09	6.74E-11	2.56E-11	9.30E-11	1.62E+02
3	750	TH-230	2.21E-08	1.27E-09	1.23E-10	1.40E-09	9.36E+01
3	1000	TH-230	1.28E-08	7.34E-10	9.15E-11	8.26E-10	9.27E+01
3	1200	TH-230	9.34E-09	5.38E-10	7.58E-11	6.14E-10	9.22E+01
3	1300	TH-230	8.14E-09	4.68E-10	6.97E-11	5.38E-10	9.19E+01
3	1400	TH-230	7.15E-09	4.11E-10	6.45E-11	4.76E-10	9.16E+01
3	1500	TH-230	6.33E-09	3.64E-10	6.00E-11	4.24E-10	9.13E+01
3	1625	TH-230	5.52E-09	3.18E-10	5.52E-11	3.73E-10	9.10E+01
3	1700	TH-230	5.10E-09	2.94E-10	5.27E-11	3.46E-10	9.08E+01
3	1800	TH-230	4.62E-09	2.66E-10	4.96E-11	3.16E-10	9.06E+01
3	2000	TH-230	3.84E-09	2.21E-10	4.44E-11	2.65E-10	9.01E+01
3	2200	TH-230	3.26E-09	1.88E-10	4.03E-11	2.28E-10	8.99E+01
3	2500	TH-230	2.62E-09	1.51E-10	3.53E-11	1.86E-10	8.94E+01
3	5000	TH-230	8.69E-10	5.00E-11	1.69E-11	6.69E-11	8.57E+01
4	750	TH-230	3.39E-08	1.95E-09	1.66E-10	2.12E-09	1.17E+02
4	1000	TH-230	1.95E-08	1.12E-09	1.23E-10	1.25E-09	1.16E+02
4	1200	TH-230	1.43E-08	8.21E-10	1.01E-10	9.23E-10	1.15E+02
4	1300	TH-230	1.24E-08	7.15E-10	9.33E-11	8.08E-10	1.15E+02
4	1400	TH-230	1.09E-08	6.28E-10	8.63E-11	7.14E-10	1.14E+02
4	1500	TH-230	9.64E-09	5.55E-10	8.02E-11	6.35E-10	1.14E+02
4	1625	TH-230	8.40E-09	4.83E-10	7.38E-11	5.57E-10	1.13E+02
4	1700	TH-230	7.77E-09	4.47E-10	7.04E-11	5.17E-10	1.13E+02
4	1800	TH-230	7.03E-09	4.04E-10	6.63E-11	4.71E-10	1.13E+02
4	2000	TH-230	5.83E-09	3.36E-10	5.92E-11	3.95E-10	1.12E+02
4	2200	TH-230	4.95E-09	2.85E-10	5.37E-11	3.39E-10	1.12E+02
4	2500	TH-230	3.98E-09	2.29E-10	4.70E-11	2.76E-10	1.11E+02
4	5000	TH-230	1.31E-09	7.55E-11	2.23E-11	9.78E-11	1.06E+02
5	750	TH-230	6.92E-08	3.98E-09	3.10E-10	4.29E-09	2.40E+02
5	1000	TH-230	3.98E-08	2.29E-09	2.29E-10	2.52E-09	2.38E+02
5	1200	TH-230	2.91E-08	1.67E-09	1.90E-10	1.86E-09	2.36E+02
5	1300	TH-230	2.53E-08	1.46E-09	1.74E-10	1.63E-09	2.35E+02
5	1400	TH-230	2.22E-08	1.28E-09	1.61E-10	1.44E-09	2.34E+02
5	1500	TH-230	1.96E-08	1.13E-09	1.50E-10	1.28E-09	2.33E+02
5	1625	TH-230	1.71E-08	9.84E-10	1.38E-10	1.12E-09	2.32E+02
5	1700	TH-230	1.58E-08	9.09E-10	1.31E-10	1.04E-09	2.32E+02
5	1800	TH-230	1.43E-08	8.23E-10	1.24E-10	9.46E-10	2.31E+02
5	2000	TH-230	1.18E-08	6.82E-10	1.11E-10	7.92E-10	2.30E+02
5	2200	TH-230	1.01E-08	5.79E-10	1.00E-10	6.80E-10	2.29E+02
5	2500	TH-230	8.08E-09	4.65E-10	8.76E-11	5.53E-10	2.28E+02
5	5000	TH-230	2.66E-09	1.53E-10	4.16E-11	1.95E-10	2.17E+02
6	750	TH-230	5.09E-08	2.93E-09	3.52E-10	3.28E-09	3.65E+02
6	1000	TH-230	2.95E-08	1.70E-09	2.62E-10	1.96E-09	3.63E+02
6	1200	TH-230	2.16E-08	1.25E-09	2.18E-10	1.46E-09	3.62E+02
6	1300	TH-230	1.89E-08	1.09E-09	2.01E-10	1.29E-09	3.61E+02
6	1400	TH-230	1.66E-08	9.55E-10	1.86E-10	1.14E-09	3.61E+02
6	1500	TH-230	1.47E-08	8.47E-10	1.73E-10	1.02E-09	3.60E+02
6	1625	TH-230	1.28E-08	7.39E-10	1.59E-10	8.98E-10	3.59E+02
6	1700	TH-230	1.19E-08	6.84E-10	1.52E-10	8.36E-10	3.59E+02
6	1800	TH-230	1.08E-08	6.20E-10	1.43E-10	7.63E-10	3.58E+02

6	2000	TH-230	8.96E-09	5.16E-10	1.28E-10	6.44E-10	3.37E+02
6	2200	TH-230	7.63E-09	4.39E-10	1.17E-10	5.55E-10	3.56E+02
6	2500	TH-230	6.13E-09	3.53E-10	1.02E-10	4.55E-10	3.55E+02
6	5000	TH-230	2.06E-09	1.18E-10	4.95E-11	1.68E-10	3.46E+02
7	750	TH-230	2.79E-08	1.60E-09	1.93E-10	1.79E-09	2.00E+02
7	1000	TH-230	1.51E-08	9.29E-10	1.44E-10	1.07E-09	1.99E+02
7	1200	TH-230	1.13E-08	6.81E-10	1.19E-10	8.00E-10	1.99E+02
7	1300	TH-230	1.02E-08	5.93E-10	1.10E-10	7.03E-10	1.98E+02
7	1400	TH-230	9.36E-09	5.22E-10	1.02E-10	6.23E-10	1.98E+02
7	1500	TH-230	8.03E-09	4.62E-10	9.46E-11	5.57E-10	1.97E+02
7	1625	TH-230	7.00E-09	4.03E-10	8.71E-11	4.90E-10	1.97E+02
7	1700	TH-230	6.48E-09	3.73E-10	8.32E-11	4.56E-10	1.97E+02
7	1800	TH-230	5.87E-09	3.38E-10	7.84E-11	4.16E-10	1.97E+02
7	2000	TH-230	4.88E-09	2.81E-10	7.03E-11	3.51E-10	1.96E+02
7	2200	TH-230	4.15E-09	2.39E-10	6.38E-11	3.03E-10	1.96E+02
7	2500	TH-230	3.34E-09	1.92E-10	5.59E-11	2.48E-10	1.95E+02
7	5000	TH-230	1.11E-09	6.39E-11	2.71E-11	9.10E-11	1.90E+02
8	750	TH-230	2.75E-08	1.58E-09	1.61E-10	1.75E-09	1.83E+02
8	1000	TH-230	1.59E-08	9.16E-10	1.20E-10	1.04E-09	1.82E+02
8	1200	TH-230	1.17E-08	6.71E-10	9.96E-11	7.71E-10	1.81E+02
8	1300	TH-230	1.02E-08	5.85E-10	9.17E-11	6.76E-10	1.81E+02
8	1400	TH-230	8.93E-09	5.14E-10	8.49E-11	5.99E-10	1.81E+02
8	1500	TH-230	7.91E-09	4.55E-10	7.90E-11	5.34E-10	1.80E+02
8	1625	TH-230	6.89E-09	3.97E-10	7.28E-11	4.69E-10	1.80E+02
8	1700	TH-230	6.38E-09	3.67E-10	6.94E-11	4.36E-10	1.80E+02
8	1800	TH-230	5.77E-09	3.32E-10	6.54E-11	3.98E-10	1.80E+02
8	2000	TH-230	4.80E-09	2.76E-10	5.86E-11	3.35E-10	1.79E+02
8	2200	TH-230	4.08E-09	2.35E-10	5.32E-11	2.88E-10	1.79E+02
8	2500	TH-230	3.28E-09	1.89E-10	4.66E-11	2.36E-10	1.78E+02
8	5000	TH-230	1.09E-09	6.28E-11	2.25E-11	8.54E-11	1.73E+02
9	750	TH-230	2.37E-08	1.36E-09	1.65E-10	1.53E-09	2.30E+02
9	1000	TH-230	1.37E-08	7.91E-10	1.23E-10	9.14E-10	2.29E+02
9	1200	TH-230	1.01E-08	5.81E-10	1.02E-10	6.83E-10	2.28E+02
9	1300	TH-230	8.81E-09	5.07E-10	9.43E-11	6.01E-10	2.28E+02
9	1400	TH-230	7.76E-09	4.46E-10	8.74E-11	5.34E-10	2.28E+02
9	1500	TH-230	6.88E-09	3.96E-10	8.14E-11	4.78E-10	2.27E+02
9	1625	TH-230	6.01E-09	3.46E-10	7.50E-11	4.21E-10	2.27E+02
9	1700	TH-230	5.56E-09	3.20E-10	7.16E-11	3.92E-10	2.27E+02
9	1800	TH-230	5.05E-09	2.90E-10	6.75E-11	3.58E-10	2.27E+02
9	2000	TH-230	4.21E-09	2.42E-10	6.06E-11	3.03E-10	2.26E+02
9	2200	TH-230	3.58E-09	2.06E-10	5.50E-11	2.61E-10	2.26E+02
9	2500	TH-230	2.89E-09	1.66E-10	4.82E-11	2.14E-10	2.25E+02
9	5000	TH-230	9.76E-10	5.62E-11	2.35E-11	7.96E-11	2.21E+02
10	750	TH-230	5.05E-08	2.91E-09	2.91E-10	3.20E-09	3.39E+02
10	1000	TH-230	2.91E-08	1.68E-09	2.16E-10	1.89E-09	3.37E+02
10	1200	TH-230	2.13E-08	1.23E-09	1.79E-10	1.41E-09	3.35E+02
10	1300	TH-230	1.86E-08	1.07E-09	1.65E-10	1.23E-09	3.35E+02
10	1400	TH-230	1.63E-08	9.40E-10	1.53E-10	1.09E-09	3.34E+02
10	1500	TH-230	1.45E-08	8.33E-10	1.42E-10	9.75E-10	3.33E+02
10	1625	TH-230	1.26E-08	7.26E-10	1.31E-10	8.57E-10	3.33E+02
10	1700	TH-230	1.17E-08	6.71E-10	1.25E-10	7.96E-10	3.32E+02
10	1800	TH-230	1.06E-08	6.08E-10	1.18E-10	7.26E-10	3.32E+02
10	2000	TH-230	8.78E-09	5.05E-10	1.06E-10	6.11E-10	3.31E+02
10	2200	TH-230	7.46E-09	4.30E-10	9.58E-11	5.25E-10	3.30E+02
10	2500	TH-230	6.00E-09	3.45E-10	8.40E-11	4.29E-10	3.29E+02
10	5000	TH-230	2.00E-09	1.15E-10	4.05E-11	1.55E-10	3.20E+02
11	750	TH-230	1.22E-07	7.01E-09	4.59E-10	7.47E-09	4.65E+02
11	1000	TH-230	6.99E-08	4.02E-09	3.39E-10	4.36E-09	4.60E+02
11	1200	TH-230	5.10E-08	2.94E-09	2.81E-10	3.22E-09	4.57E+02
11	1300	TH-230	4.43E-08	2.55E-09	2.58E-10	2.81E-09	4.56E+02
11	1400	TH-230	3.89E-08	2.24E-09	2.38E-10	2.48E-09	4.54E+02
11	1500	TH-230	3.44E-08	1.98E-09	2.21E-10	2.20E-09	4.53E+02

11	1625	TH-230	2.99E-08	1.72E-09	2.03E-10	1.92E-09	4.51E+0
11	1700	TH-230	2.76E-08	1.59E-09	1.94E-10	1.78E-09	4.50E+0
11	1800	TH-230	2.50E-08	1.44E-09	1.83E-10	1.62E-09	4.49E+0
11	2000	TH-230	2.07E-08	1.19E-09	1.63E-10	1.35E-09	4.47E+0
11	2200	TH-230	1.76E-08	1.01E-09	1.48E-10	1.16E-09	4.45E+0
11	2500	TH-230	1.41E-08	8.12E-10	1.29E-10	9.41E-10	4.44E+0
11	5000	TH-230	4.61E-09	2.66E-10	4.10E-11	3.27E-10	4.25E+0
12	750	TH-230	1.57E-07	9.05E-09	3.57E-10	9.62E-09	5.54E+0
12	1000	TH-230	9.02E-08	5.19E-09	4.19E-10	5.61E-09	5.48E+0
12	1200	TH-230	6.59E-08	3.79E-09	3.46E-10	4.14E-09	5.44E+0
12	1300	TH-230	5.73E-08	3.30E-09	3.18E-10	3.62E-09	5.42E+0
12	1400	TH-230	5.03E-08	2.89E-09	2.94E-10	3.19E-09	5.40E+0
12	1500	TH-230	4.44E-08	2.56E-09	2.73E-10	2.83E-09	5.38E+0
12	1625	TH-230	3.87E-08	2.23E-09	2.51E-10	2.48E-09	5.36E+0
12	1700	TH-230	3.57E-08	2.06E-09	2.39E-10	2.30E-09	5.35E+0
12	1800	TH-230	3.23E-08	1.86E-09	2.25E-10	2.08E-09	5.34E+0
12	2000	TH-230	2.68E-08	1.54E-09	2.01E-10	1.74E-09	5.31E+0
12	2200	TH-230	2.27E-08	1.31E-09	1.82E-10	1.49E-09	5.29E+0
12	2500	TH-230	1.83E-08	1.05E-09	1.59E-10	1.21E-09	5.27E+0
12	5000	TH-230	6.00E-09	3.45E-10	7.69E-11	4.20E-10	5.03E+0
13	750	TH-230	1.40E-07	8.07E-09	6.27E-10	8.70E-09	6.46E+0
13	1000	TH-230	8.06E-08	4.64E-09	4.65E-10	5.11E-09	6.40E+0
13	1200	TH-230	5.90E-08	3.39E-09	3.85E-10	3.78E-09	6.37E+0
13	1300	TH-230	5.13E-08	2.96E-09	3.54E-10	3.31E-09	6.35E+0
13	1400	TH-230	4.51E-08	2.60E-09	3.27E-10	2.92E-09	6.33E+0
13	1500	TH-230	3.99E-08	2.30E-09	3.04E-10	2.60E-09	6.31E+0
13	1625	TH-230	3.48E-08	2.00E-09	2.80E-10	2.28E-09	6.30E+0
13	1700	TH-230	3.22E-08	1.85E-09	2.67E-10	2.12E-09	6.29E+0
13	1800	TH-230	2.91E-08	1.68E-09	2.51E-10	1.93E-09	6.27E+0
13	2000	TH-230	2.42E-08	1.39E-09	2.25E-10	1.62E-09	6.24E+0
13	2200	TH-230	2.06E-08	1.18E-09	2.04E-10	1.39E-09	6.23E+0
13	2500	TH-230	1.65E-08	9.51E-10	1.78E-10	1.13E-09	6.20E+0
13	5000	TH-230	5.49E-09	3.16E-10	8.50E-11	4.01E-10	5.98E+0
14	750	TH-230	1.46E-07	8.42E-09	6.80E-10	9.10E-09	6.09E+0
14	1000	TH-230	8.42E-08	4.84E-09	5.04E-10	5.35E-09	6.03E+0
14	1200	TH-230	6.16E-08	3.54E-09	4.17E-10	3.96E-09	5.99E+0
14	1300	TH-230	5.36E-08	3.09E-09	3.83E-10	3.47E-09	5.98E+0
14	1400	TH-230	4.71E-08	2.71E-09	3.55E-10	3.07E-09	5.96E+0
14	1500	TH-230	4.17E-08	2.40E-09	3.30E-10	2.73E-09	5.94E+0
14	1625	TH-230	3.64E-08	2.09E-09	3.03E-10	2.40E-09	5.92E+0
14	1700	TH-230	3.36E-08	1.94E-09	2.89E-10	2.23E-09	5.91E+0
14	1800	TH-230	3.05E-08	1.75E-09	2.72E-10	2.03E-09	5.89E+0
14	2000	TH-230	2.53E-08	1.46E-09	2.44E-10	1.70E-09	5.86E+0
14	2200	TH-230	2.15E-08	1.24E-09	2.21E-10	1.46E-09	5.85E+0
14	2500	TH-230	1.73E-08	9.96E-10	1.93E-10	1.19E-09	5.82E+0
14	5000	TH-230	5.77E-09	3.32E-10	9.20E-11	4.24E-10	5.58E+0
15	750	TH-230	1.17E-07	6.75E-09	6.99E-10	7.45E-09	7.26E+0
15	1000	TH-230	6.78E-08	3.90E-09	5.20E-10	4.42E-09	7.21E+0
15	1200	TH-230	4.98E-08	2.86E-09	4.31E-10	3.30E-09	7.18E+0
15	1300	TH-230	4.34E-08	2.50E-09	3.97E-10	2.90E-09	7.17E+0
15	1400	TH-230	3.82E-08	2.20E-09	3.68E-10	2.57E-09	7.15E+0
15	1500	TH-230	3.39E-08	1.95E-09	3.42E-10	2.29E-09	7.14E+0
15	1625	TH-230	2.96E-08	1.70E-09	3.15E-10	2.02E-09	7.12E+0
15	1700	TH-230	2.74E-08	1.58E-09	3.01E-10	1.88E-09	7.11E+0
15	1800	TH-230	2.48E-08	1.43E-09	2.83E-10	1.71E-09	7.10E+0
15	2000	TH-230	2.07E-08	1.19E-09	2.54E-10	1.45E-09	7.07E+0
15	2200	TH-230	1.76E-08	1.01E-09	2.30E-10	1.24E-09	7.06E+0
15	2500	TH-230	1.42E-08	8.17E-10	2.02E-10	1.02E-09	7.03E+0
15	5000	TH-230	4.80E-09	2.76E-10	9.74E-11	3.74E-10	6.83E+0
16	750	TH-230	8.18E-08	4.71E-09	5.17E-10	5.22E-09	7.15E+0
16	1000	TH-230	4.73E-08	2.72E-09	3.85E-10	3.11E-09	7.12E+0
16	1200	TH-230	3.48E-08	2.00E-09	3.20E-10	2.32E-09	7.10E+0

16	1300	TH-230	3.03E-08	1.75E-09	2.95E-10	2.04E-09	7.09E+02
16	1400	TH-230	2.67E-08	1.54E-09	2.73E-10	1.81E-09	7.08E+02
16	1500	TH-230	2.37E-08	1.37E-09	2.54E-10	1.62E-09	7.06E+02
16	1625	TH-230	2.07E-08	1.19E-09	2.34E-10	1.43E-09	7.05E+02
16	1700	TH-230	1.92E-08	1.10E-09	2.23E-10	1.33E-09	7.05E+02
16	1800	TH-230	1.74E-08	1.00E-09	2.11E-10	1.21E-09	7.04E+02
16	2000	TH-230	1.45E-08	8.35E-10	1.89E-10	1.02E-09	7.02E+02
16	2200	TH-230	1.24E-08	7.11E-10	1.71E-10	8.83E-10	7.01E+02
16	2500	TH-230	9.96E-09	5.73E-10	1.50E-10	7.23E-10	6.99E+02
16	5000	TH-230	3.38E-09	1.95E-10	7.29E-11	2.68E-10	6.84E+02

2020

GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

	N	NNW	NW	WNW	W	WSW	SW	SSW
750	0.678E-05	0.446E-05	0.349E-05	0.535E-05	0.109E-04	0.803E-05	0.439E-05	0.434E-05
1000	0.393E-05	0.258E-05	0.201E-05	0.308E-05	0.627E-05	0.465E-05	0.254E-05	0.251E-05
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

	S	SSE	SE	ESE	E	ENE	NE	NNE
750	0.373E-05	0.796E-05	0.192E-04	0.248E-04	0.221E-04	0.231E-04	0.185E-04	0.129E-04
1000	0.217E-05	0.460E-05	0.110E-04	0.142E-04	0.127E-04	0.133E-04	0.107E-04	0.746E-05
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

SUMMARY OF AREA SURROUNDING PLANT

AREA		NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
COLUMN	ROW					

0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2706E+09

1 LIST OF INPUT DATA FOR NUCLIDE TH-230

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.2464E-07

0 ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY) 0.0000E+00

0 ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY) 0.0000E+00

0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L) 0.5000E-05

FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG) 0.1600E-05

CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE 0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)

0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS 0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.262E+03	0.548E+00	0.176E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.105E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INT. (PCI/YEAR)
0					
1	750	0.430E-13	0.868E-09	0.456E+03	0.345E+03
1	1000	0.249E-13	0.517E-09	0.272E+03	0.200E+03
1	1200	0.183E-13	0.387E-09	0.203E+03	0.147E+03
1	1300	0.160E-13	0.340E-09	0.179E+03	0.128E+03
1	1400	0.141E-13	0.302E-09	0.159E+03	0.113E+03
1	1500	0.125E-13	0.270E-09	0.142E+03	0.101E+03
1	1625	0.109E-13	0.238E-09	0.125E+03	0.879E+02
1	1700	0.101E-13	0.222E-09	0.116E+03	0.814E+02
1	1800	0.920E-14	0.203E-09	0.106E+03	0.738E+02
1	2000	0.768E-14	0.171E-09	0.900E+02	0.616E+02
1	2200	0.654E-14	0.148E-09	0.776E+02	0.525E+02
1	2500	0.527E-14	0.121E-09	0.636E+02	0.424E+02
1	5000	0.180E-14	0.450E-10	0.237E+02	0.145E+02
2	750	0.283E-13	0.572E-09	0.301E+03	0.227E+03
2	1000	0.164E-13	0.341E-09	0.179E+03	0.132E+03
2	1200	0.120E-13	0.255E-09	0.134E+03	0.967E+02
2	1300	0.105E-13	0.224E-09	0.118E+03	0.844E+02
2	1400	0.926E-14	0.199E-09	0.104E+03	0.744E+02
2	1500	0.822E-14	0.178E-09	0.934E+02	0.660E+02
2	1625	0.718E-14	0.157E-09	0.822E+02	0.577E+02
2	1700	0.665E-14	0.146E-09	0.766E+02	0.534E+02
2	1800	0.603E-14	0.133E-09	0.699E+02	0.484E+02
2	2000	0.503E-14	0.112E-09	0.591E+02	0.404E+02
2	2200	0.428E-14	0.969E-10	0.509E+02	0.344E+02
2	2500	0.345E-14	0.794E-10	0.417E+02	0.277E+02

2	5000	0.117E-14	0.294E-10	0.154E+02	0.941E+01
3	750	0.221E-13	0.441E-09	0.231E+03	0.178E+03
3	1000	0.128E-13	0.261E-09	0.137E+03	0.102E+03
3	1200	0.934E-14	0.194E-09	0.102E+03	0.750E+02
3	1300	0.814E-14	0.170E-09	0.392E+02	0.553E+02
3	1400	0.715E-14	0.150E-09	0.789E+02	0.374E+02
3	1500	0.633E-14	0.134E-09	0.703E+02	0.308E+02
3	1625	0.552E-14	0.118E-09	0.618E+02	[illegible]
3	1700	0.510E-14	0.109E-09	0.574E+02	0.410E+02
3	1800	0.462E-14	0.996E-10	0.523E+02	0.371E+02
3	2000	0.384E-14	0.837E-10	0.440E+02	0.308E+02
3	2200	0.326E-14	0.720E-10	0.378E+02	0.262E+02
3	2500	0.262E-14	0.588E-10	0.309E+02	0.211E+02
3	5000	0.869E-15	0.211E-10	0.111E+02	0.698E+01
4	750	0.339E-13	0.668E-09	0.351E+03	0.272E+03
4	1000	0.195E-13	0.393E-09	0.207E+03	0.157E+03
4	1200	0.143E-13	0.291E-09	0.153E+03	0.115E+03
4	1300	0.124E-13	0.255E-09	0.134E+03	0.997E+02
4	1400	0.109E-13	0.225E-09	0.118E+03	0.876E+02
4	1500	0.964E-14	0.200E-09	0.105E+03	0.774E+02
4	1625	0.840E-14	0.176E-09	0.924E+02	0.674E+02
4	1700	0.777E-14	0.163E-09	0.858E+02	0.624E+02
4	1800	0.703E-14	0.149E-09	0.780E+02	0.564E+02
4	2000	0.583E-14	0.125E-09	0.654E+02	0.468E+02
4	2200	0.495E-14	0.107E-09	0.562E+02	0.398E+02
4	2500	0.398E-14	0.871E-10	0.457E+02	0.319E+02
4	5000	0.131E-14	0.309E-10	0.162E+02	0.105E+02
5	750	0.692E-13	0.135E-08	0.711E+03	0.556E+03
5	1000	0.398E-13	0.795E-09	0.418E+03	0.319E+03
5	1200	0.291E-13	0.588E-09	0.309E+03	0.233E+03
5	1300	0.253E-13	0.514E-09	0.270E+03	0.203E+03
5	1400	0.222E-13	0.454E-09	0.239E+03	0.178E+03
5	1500	0.196E-13	0.404E-09	0.212E+03	0.158E+03
5	1625	0.171E-13	0.354E-09	0.186E+03	0.137E+03
5	1700	0.158E-13	0.328E-09	0.172E+03	0.127E+03
5	1800	0.143E-13	0.299E-09	0.157E+03	0.115E+03
5	2000	0.118E-13	0.250E-09	0.131E+03	0.951E+02
5	2200	0.101E-13	0.214E-09	0.113E+03	0.808E+02
5	2500	0.808E-14	0.174E-09	0.916E+02	0.649E+02
5	5000	0.266E-14	0.614E-10	0.322E+02	0.213E+02
6	750	0.509E-13	0.104E-08	0.545E+03	0.409E+03
6	1000	0.295E-13	0.618E-09	0.325E+03	0.237E+03
6	1200	0.216E-13	0.462E-09	0.242E+03	0.174E+03
6	1300	0.189E-13	0.406E-09	0.213E+03	0.151E+03
6	1400	0.166E-13	0.360E-09	0.189E+03	0.133E+03
6	1500	0.147E-13	0.322E-09	0.169E+03	0.118E+03
6	1625	0.128E-13	0.283E-09	0.149E+03	0.103E+03
6	1700	0.119E-13	0.264E-09	0.139E+03	0.954E+02
6	1800	0.108E-13	0.241E-09	0.126E+03	0.864E+02
6	2000	0.896E-14	0.203E-09	0.107E+03	0.720E+02
6	2200	0.763E-14	0.175E-09	0.921E+02	0.612E+02
6	2500	0.613E-14	0.144E-09	0.755E+02	0.493E+02
6	5000	0.206E-14	0.529E-10	0.278E+02	0.165E+02
7	750	0.278E-13	0.566E-09	0.297E+03	0.223E+03
7	1000	0.161E-13	0.338E-09	0.178E+03	0.130E+03
7	1200	0.118E-13	0.252E-09	0.133E+03	0.950E+02
7	1300	0.103E-13	0.222E-09	0.117E+03	0.828E+02
7	1400	0.906E-14	0.197E-09	0.103E+03	0.728E+02
7	1500	0.803E-14	0.176E-09	0.923E+02	0.645E+02
7	1625	0.700E-14	0.155E-09	0.813E+02	0.562E+02
7	1700	0.648E-14	0.144E-09	0.756E+02	0.520E+02
7	1800	0.587E-14	0.131E-09	0.690E+02	0.471E+02

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7	2000	0.488E-14	0.111E-09	0.582E+02	0.392E+02
7	2200	0.415E-14	0.955E-10	0.502E+02	0.334E+02
7	2500	0.334E-14	0.783E-10	0.411E+02	0.268E+02
7	5000	0.111E-14	0.287E-10	0.151E+02	0.891E+01
8	750	0.275E-13	0.551E-09	0.289E+03	0.221E+03
8	1000	0.159E-13	0.327E-09	0.172E+03	0.128E+03
8	1200	0.117E-13	0.243E-09	0.128E+03	0.936E+02
8	1300	0.102E-13	0.213E-09	0.112E+03	0.815E+02
8	1400	0.893E-14	0.189E-09	0.992E+02	0.717E+02
8	1500	0.791E-14	0.169E-09	0.885E+02	0.635E+02
8	1625	0.689E-14	0.148E-09	0.778E+02	0.553E+02
8	1700	0.638E-14	0.138E-09	0.724E+02	0.512E+02
8	1800	0.577E-14	0.126E-09	0.659E+02	0.464E+02
8	2000	0.480E-14	0.106E-09	0.555E+02	0.385E+02
8	2200	0.408E-14	0.909E-10	0.478E+02	0.328E+02
8	2500	0.328E-14	0.743E-10	0.391E+02	0.264E+02
8	5000	0.109E-14	0.269E-10	0.141E+02	0.877E+01
9	750	0.237E-13	0.482E-09	0.253E+03	0.190E+03
9	1000	0.137E-13	0.288E-09	0.152E+03	0.110E+03
9	1200	0.101E-13	0.216E-09	0.113E+03	0.811E+02
9	1300	0.881E-14	0.190E-09	0.997E+02	0.707E+02
9	1400	0.776E-14	0.168E-09	0.885E+02	0.623E+02
9	1500	0.688E-14	0.151E-09	0.792E+02	0.553E+02
9	1625	0.601E-14	0.133E-09	0.698E+02	0.483E+02
9	1700	0.556E-14	0.124E-09	0.650E+02	0.447E+02
9	1800	0.505E-14	0.113E-09	0.593E+02	0.405E+02
9	2000	0.421E-14	0.955E-10	0.502E+02	0.338E+02
9	2200	0.358E-14	0.824E-10	0.433E+02	0.288E+02
9	2500	0.289E-14	0.676E-10	0.355E+02	0.232E+02
9	5000	0.976E-15	0.251E-10	0.132E+02	0.784E+01
10	750	0.505E-13	0.101E-08	0.530E+03	0.405E+03
10	1000	0.291E-13	0.598E-09	0.314E+03	0.234E+03
10	1200	0.213E-13	0.444E-09	0.233E+03	0.171E+03
10	1300	0.186E-13	0.390E-09	0.205E+03	0.149E+03
10	1400	0.163E-13	0.345E-09	0.181E+03	0.131E+03
10	1500	0.145E-13	0.308E-09	0.162E+03	0.116E+03
10	1625	0.126E-13	0.270E-09	0.142E+03	0.101E+03
10	1700	0.117E-13	0.251E-09	0.132E+03	0.936E+02
10	1800	0.106E-13	0.229E-09	0.120E+03	0.848E+02
10	2000	0.878E-14	0.193E-09	0.101E+03	0.705E+02
10	2200	0.746E-14	0.166E-09	0.871E+02	0.599E+02
10	2500	0.600E-14	0.135E-09	0.712E+02	0.482E+02
10	5000	0.200E-14	0.490E-10	0.258E+02	0.160E+02
11	750	0.122E-12	0.236E-08	0.124E+04	0.977E+03
11	1000	0.699E-13	0.138E-08	0.723E+03	0.561E+03
11	1200	0.510E-13	0.102E-08	0.533E+03	0.410E+03
11	1300	0.443E-13	0.887E-09	0.466E+03	0.356E+03
11	1400	0.389E-13	0.782E-09	0.411E+03	0.312E+03
11	1500	0.344E-13	0.694E-09	0.364E+03	0.276E+03
11	1625	0.299E-13	0.607E-09	0.319E+03	0.240E+03
11	1700	0.276E-13	0.563E-09	0.296E+03	0.222E+03
11	1800	0.250E-13	0.511E-09	0.269E+03	0.201E+03
11	2000	0.207E-13	0.427E-09	0.224E+03	0.166E+03
11	2200	0.176E-13	0.366E-09	0.192E+03	0.141E+03
11	2500	0.141E-13	0.297E-09	0.156E+03	0.113E+03
11	5000	0.461E-14	0.103E-09	0.541E+02	0.370E+02
12	750	0.157E-12	0.303E-08	0.159E+04	0.126E+04
12	1000	0.902E-13	0.177E-08	0.930E+03	0.725E+03
12	1200	0.659E-13	0.131E-08	0.686E+03	0.529E+03
12	1300	0.573E-13	0.114E-08	0.599E+03	0.460E+03
12	1400	0.503E-13	0.101E-08	0.528E+03	0.404E+03
12	1500	0.444E-13	0.893E-09	0.469E+03	0.357E+03

12	1625	0.387E-13	0.781E-09	0.410E+03	0.310E+03
12	1700	0.357E-13	0.724E-09	0.381E+03	0.287E+03
12	1800	0.323E-13	0.658E-09	0.346E+03	0.259E+03
12	2000	0.268E-13	0.549E-09	0.289E+03	0.215E+03
12	2200	0.227E-13	0.470E-09	0.247E+03	0.182E+03
12	2500	0.183E-13	0.382E-09	0.201E+03	0.147E+03
12	5000	0.600E-14	0.133E-09	0.696E+02	0.481E+02
13	750	0.140E-12	0.274E-08	0.144E+04	0.113E+04
13	1000	0.806E-13	0.161E-08	0.846E+03	0.647E+03
13	1200	0.590E-13	0.119E-08	0.627E+03	0.474E+03
13	1300	0.513E-13	0.104E-08	0.549E+03	0.412E+03
13	1400	0.451E-13	0.922E-09	0.485E+03	0.362E+03
13	1500	0.399E-13	0.821E-09	0.431E+03	0.321E+03
13	1625	0.348E-13	0.720E-09	0.378E+03	0.279E+03
13	1700	0.322E-13	0.668E-09	0.351E+03	0.258E+03
13	1800	0.291E-13	0.608E-09	0.319E+03	0.234E+03
13	2000	0.242E-13	0.510E-09	0.268E+03	0.194E+03
13	2200	0.206E-13	0.438E-09	0.230E+03	0.165E+03
13	2500	0.165E-13	0.356E-09	0.187E+03	0.135E+03
13	5000	0.549E-14	0.127E-09	0.665E+02	0.441E+02
14	750	0.146E-12	0.287E-08	0.151E+04	0.117E+04
14	1000	0.842E-13	0.169E-08	0.886E+03	0.676E+03
14	1200	0.616E-13	0.125E-08	0.657E+03	0.495E+03
14	1300	0.536E-13	0.110E-08	0.575E+03	0.431E+03
14	1400	0.471E-13	0.968E-09	0.509E+03	0.379E+03
14	1500	0.417E-13	0.862E-09	0.453E+03	0.335E+03
14	1625	0.364E-13	0.756E-09	0.397E+03	0.292E+03
14	1700	0.336E-13	0.702E-09	0.369E+03	0.270E+03
14	1800	0.305E-13	0.639E-09	0.336E+03	0.245E+03
14	2000	0.253E-13	0.536E-09	0.282E+03	0.203E+03
14	2200	0.215E-13	0.461E-09	0.242E+03	0.173E+03
14	2500	0.173E-13	0.375E-09	0.197E+03	0.139E+03
14	5000	0.577E-14	0.134E-09	0.703E+02	0.464E+02
15	750	0.117E-12	0.235E-08	0.123E+04	0.942E+03
15	1000	0.678E-13	0.140E-08	0.733E+03	0.544E+03
15	1200	0.498E-13	0.104E-08	0.546E+03	0.400E+03
15	1300	0.434E-13	0.914E-09	0.480E+03	0.349E+03
15	1400	0.382E-13	0.810E-09	0.426E+03	0.307E+03
15	1500	0.339E-13	0.724E-09	0.380E+03	0.272E+03
15	1625	0.296E-13	0.637E-09	0.335E+03	0.238E+03
15	1700	0.274E-13	0.592E-09	0.311E+03	0.220E+03
15	1800	0.248E-13	0.541E-09	0.284E+03	0.199E+03
15	2000	0.207E-13	0.456E-09	0.240E+03	0.166E+03
15	2200	0.176E-13	0.393E-09	0.206E+03	0.142E+03
15	2500	0.142E-13	0.321E-09	0.169E+03	0.114E+03
15	5000	0.480E-14	0.118E-09	0.619E+02	0.385E+02
16	750	0.818E-13	0.165E-08	0.866E+03	0.657E+03
16	1000	0.473E-13	0.981E-09	0.516E+03	0.380E+03
16	1200	0.348E-13	0.733E-09	0.385E+03	0.279E+03
16	1300	0.303E-13	0.644E-09	0.338E+03	0.244E+03
16	1400	0.267E-13	0.572E-09	0.300E+03	0.215E+03
16	1500	0.237E-13	0.511E-09	0.269E+03	0.191E+03
16	1625	0.207E-13	0.450E-09	0.236E+03	0.166E+03
16	1700	0.192E-13	0.419E-09	0.220E+03	0.154E+03
16	1800	0.174E-13	0.382E-09	0.201E+03	0.140E+03
16	2000	0.145E-13	0.323E-09	0.170E+03	0.117E+03
16	2200	0.124E-13	0.279E-09	0.146E+03	0.992E+02
16	2500	0.996E-14	0.228E-09	0.120E+03	0.800E+02
16	5000	0.338E-14	0.845E-10	0.444E+02	0.272E+02

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DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

PERCENT OF W BODY DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

100

TH-230	SUBM AIR	0.2427E-09	0.00	100.00
	SURFACE	0.4627E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3307E+00	99.74	100.00
	INGEST.	0.8735E-03	0.26	100.00
	VEGET.	0.8728E-03	• 0.26	• 99.73
	MEAT	0.1238E-06	• 0.00	• 0.01
	MILK	0.5098E-06	• 0.00	• 0.06

PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1601E-09	0.00	100.00
	SURFACE	0.3053E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3270E+00	99.48	100.00
	INGEST.	0.1705E-02	0.52	100.00
	VEGET.	0.1704E-02	• 0.52	• 99.93
	MEAT	0.2417E-06	• 0.00	• 0.01
	MILK	0.9954E-06	• 0.00	• 0.06

PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3776E-09	0.00	100.00
	SURFACE	0.7198E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4065E+01	99.48	100.00
	INGEST.	0.2120E-01	0.52	100.00
	VEGET.	0.2118E-01	• 0.52	• 99.93
	MEAT	0.3005E-05	• 0.00	• 0.01
	MILK	0.1237E-04	• 0.00	• 0.06

PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3253E-09	0.00	100.00
	SURFACE	0.6202E-06	0.08	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8029E-03	99.43	100.00
	INGEST.	0.4017E-05	0.50	100.00
	VEGET.	0.4014E-05	• 0.50	• 99.93
	MEAT	0.5693E-09	• 0.00	• 0.01
	MILK	0.2344E-08	• 0.00	• 0.06

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.5293E-09	0.00	100.00
	SURFACE	0.1009E-05	0.12	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8029E-03	99.38	100.00
	INGEST.	0.4017E-05	0.50	100.00
	VEGET.	0.4014E-05	• 0.50	• 99.93
	MEAT	0.5693E-09	• 0.00	• 0.01
	MILK	0.2344E-08	• 0.00	• 0.06

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.2225E-09	0.00	100.00
	SURFACE	0.4242E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1401E+01	100.00	100.00
	INGEST.	0.4018E-05	0.00	100.00
	VEGET.	0.4015E-05	• 0.00	• 99.93

	MEAT	0.5695E-09	* 0.00	* 0.01
	MILK	0.2345E-08	* 0.00	* 0.06

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1905E-09	0.00	100.00
	SURFACE	0.3631E-06	0.04	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3151E-03	98.58	100.00
	INGEST.	0.1054E-04	1.28	100.00
	VEGET.	0.1053E-04	* 1.28	* 99.93
	MEAT	0.1494E-08	* 0.00	* 0.01
	MILK	0.6153E-08	* 0.00	* 0.06

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1820E-09	0.00	100.00
	SURFACE	0.3470E-06	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8841E-03	86.70	100.00
	INGEST.	0.1593E-03	15.26	100.00
	VEGET.	0.1592E-03	* 15.25	* 99.93
	MEAT	0.2258E-07	* 0.00	* 0.01
	MILK	0.9297E-07	* 0.01	* 0.06

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1989E-09	0.00	100.00
	SURFACE	0.3792E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6903E-02	99.49	100.00
	INGEST.	0.3480E-04	0.50	100.00
	VEGET.	0.3477E-04	* 0.50	* 99.93
	MEAT	0.4932E-08	* 0.00	* 0.01
	MILK	0.2031E-07	* 0.00	* 0.06

PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1450E-09	0.00	100.00
	SURFACE	0.2763E-06	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8164E-03	99.47	100.00
	INGEST.	0.4114E-05	0.50	100.00
	VEGET.	0.4111E-05	* 0.50	* 99.93
	MEAT	0.5831E-09	* 0.00	* 0.01
	MILK	0.2401E-08	* 0.00	* 0.06

PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.2090E-09	0.00	100.00
	SURFACE	0.3985E-06	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8163E-03	99.45	100.00
	INGEST.	0.4114E-05	0.50	100.00
	VEGET.	0.4111E-05	* 0.50	* 99.93
	MEAT	0.5831E-09	* 0.00	* 0.01
	MILK	0.2401E-08	* 0.00	* 0.06

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2427E-09	0.0000
SURFACE	0.4627E-06	0.0001
SWIMMING	0.1000E-24	0.0000

0	INHAL.	0.3307E+00	99.7365
0	INGEST.	0.8735E-03	0.2634
0	VEGET.	*0.8728E-03	* 0.2632
0	MEAT	*0.1238E-06	* 0.0000
0	MILK	*0.3098E-06	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1601E-09	0.0000
SURFACE	0.3053E-06	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL.	0.3270E+00	99.4810
INGEST.	0.1705E-02	0.5189
VEGET.	*0.1704E-02	* 0.5185
MEAT	*0.2417E-06	* 0.0001
MILK	*0.9954E-06	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3776E-09	0.0000
SURFACE	0.7198E-06	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.4065E+01	99.4812
INGEST.	0.2120E-01	0.5188
VEGET.	*0.2118E-01	* 0.5184
MEAT	*0.3005E-05	* 0.0001
MILK	*0.1237E-04	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3253E-09	0.0000
SURFACE	0.6202E-06	0.0768
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8029E-03	99.4258
INGEST.	0.4017E-05	0.4974
VEGET.	*0.4014E-05	* 0.4970
MEAT	*0.5693E-09	* 0.0001
MILK	*0.2344E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.5293E-09	0.0001
SURFACE	0.1009E-05	0.1249
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8029E-03	99.3779
INGEST.	0.4017E-05	0.4972
VEGET.	*0.4014E-05	* 0.4968
MEAT	*0.5693E-09	* 0.0001
MILK	*0.2344E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2225E-09	0.0000
SURFACE	0.4242E-06	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1401E+01	99.9997
INGEST.	0.4018E-05	0.0003
VEGET.	*0.4015E-05	* 0.0003
MEAT	*0.5695E-09	* 0.0000
MILK	*0.2345E-08	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1905E-09	0.0000
SURFACE	0.3631E-06	0.0440
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8151E-03	98.6798
INGEST.	0.1054E-04	1.2762

VEGET.	*0.1053E-06	*	1.2753
MEAT	*0.1494E-08	*	0.0002
MILK	*0.6153E-08	*	0.0007

CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1820E-09	0.0000
SURFACE	0.3470E-06	0.0333
SWIMMING	0.1000E-24	0.0000
INHAL.	0.3841E-03	84.7041
INGEST.	0.1593E-03	15.2626
VEGET.	*0.1592E-03	* 15.2516
MEAT	*0.2258E-07	* 0.0022
MILK	*0.9297E-07	* 0.0089

CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1989E-09	0.0000
SURFACE	0.3792E-06	0.0055
SWIMMING	0.1000E-24	0.0000
INHAL.	0.6903E-02	99.4930
INGEST.	0.3480E-04	0.5015
VEGET.	*0.3477E-04	* 0.5012
MEAT	*0.4932E-08	* 0.0001
MILK	*0.2031E-07	* 0.0003

CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1450E-09	0.0000
SURFACE	0.2763E-06	0.0337
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8164E-03	99.4651
INGEST.	0.4114E-05	0.5012
VEGET.	*0.4111E-05	* 0.5009
MEAT	*0.5831E-09	* 0.0001
MILK	*0.2401E-08	* 0.0003

CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2090E-09	0.0000
SURFACE	0.3985E-06	0.0485
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8163E-03	99.4502
INGEST.	0.4114E-05	0.5012
VEGET.	*0.4111E-05	* 0.5009
MEAT	*0.5831E-09	* 0.0001
MILK	*0.2401E-08	* 0.0003

TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

ORGAN	DOSE(REMS)
W BODY	0.3316E+00
R MAR	0.3287E+00
ENDOST	0.4086E+01
THYROID	0.8075E-03
BREAST	0.8079E-03
PUL	0.1401E+01
S WALL	0.8260E-03
INT WALL	0.1044E-02
LIVER	0.6938E-02
PANCREAS	0.8208E-03
KIDNEYS	0.8208E-03

CONTRIBUTORS TO ORGAN DOSES

PERCENT

LIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
230	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

ANNUAL DOSES(REMS)

NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
TH-230	W BODY	0.3316E+00	12	4
TH-230	R MAR	0.3287E+00	12	4
TH-230	ENDOST	0.4086E+01	12	4
TH-230	THYROID	0.8075E-03	12	4
TH-230	BREAST	0.8079E-03	12	4
TH-230	*PUL*	0.1401E+01	12	4
TH-230	S WALL	0.8260E-03	12	4
TH-230	INT WALL	0.1044E-02	12	4
TH-230	LIVER	0.6938E-02	12	4
TH-230	PANCREAS	0.8208E-03	12	4
TH-230	KIDNEYS	0.8208E-03	12	4

Building 64

Thorium-232

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  UPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METECROLOGICAL DATA
 &METE UD=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-232',ISOL=Y,AMAD=1.0,REL=1.1 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP 5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP 3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 64 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-232	0.110E+01

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-232	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0

0

		A	B	C	D	E	F	G
1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.10	1.27	1.08	0.77	0.77
3	0.016	0.77	0.77	0.77	0.39	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.34	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0

0

		A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA		NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
			(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)
WIND TOWARD	DISTANCE (METERS)						
0							
1	1200	TH-232	1.01E-07	5.80E-09	9.39E-10	6.74E-09	1.93E+03
1	1300	TH-232	8.80E-08	5.06E-09	8.65E-10	5.93E-09	1.93E+03
1	1400	TH-232	7.75E-08	4.46E-09	8.01E-10	5.26E-09	1.92E+03
1	1500	TH-232	6.89E-08	3.97E-09	7.46E-10	4.71E-09	1.92E+03
1	1625	TH-232	6.02E-08	3.46E-09	6.87E-10	4.15E-09	1.92E+03
1	1700	TH-232	5.57E-08	3.21E-09	6.56E-10	3.86E-09	1.92E+03
1	1800	TH-232	5.06E-08	2.91E-09	6.19E-10	3.53E-09	1.91E+03
1	2000	TH-232	4.22E-08	2.43E-09	5.55E-10	2.99E-09	1.91E+03
1	2200	TH-232	3.60E-08	2.07E-09	5.03E-10	2.57E-09	1.90E+03
1	2500	TH-232	2.90E-08	1.67E-09	4.41E-10	2.11E-09	1.90E+03
1	5000	TH-232	9.91E-09	5.71E-10	2.14E-10	7.85E-10	1.86E+03
2	1200	TH-232	6.63E-08	3.81E-09	6.24E-10	4.44E-09	9.39E+02
2	1300	TH-232	5.78E-08	3.33E-09	5.74E-10	3.90E-09	9.37E+02
2	1400	TH-232	5.09E-08	2.93E-09	5.32E-10	3.46E-09	9.35E+02
2	1500	TH-232	4.52E-08	2.60E-09	4.95E-10	3.10E-09	9.33E+02
2	1625	TH-232	3.95E-08	2.27E-09	4.56E-10	2.73E-09	9.31E+02

2	1700	TH-232	3.66E-08	2.11E-09	4.35E-10	2.54E-09	9.30E+02
2	1800	TH-232	3.32E-08	1.91E-09	4.10E-10	2.32E-09	9.28E+02
2	2000	TH-232	2.77E-08	1.59E-09	3.67E-10	1.96E-09	9.25E+02
2	2200	TH-232	2.36E-08	1.36E-09	3.33E-10	1.69E-09	9.22E+02
2	2500	TH-232	1.90E-08	1.09E-09	2.92E-10	1.38E-09	9.19E+02
2	5000	TH-232	6.44E-09	3.71E-10	1.41E-10	5.12E-10	8.91E+02
3	1200	TH-232	5.14E-08	2.96E-09	4.17E-10	3.37E-09	5.07E+02
3	1300	TH-232	4.47E-08	2.58E-09	3.84E-10	2.96E-09	5.05E+02
3	1400	TH-232	3.93E-08	2.26E-09	3.55E-10	2.62E-09	5.04E+02
3	1500	TH-232	3.48E-08	2.00E-09	3.30E-10	2.33E-09	5.02E+02
3	1625	TH-232	3.03E-08	1.75E-09	3.04E-10	2.05E-09	5.00E+02
3	1700	TH-232	2.81E-08	1.62E-09	2.90E-10	1.91E-09	5.00E+02
3	1800	TH-232	2.54E-08	1.46E-09	2.73E-10	1.74E-09	4.98E+02
3	2000	TH-232	2.11E-08	1.21E-09	2.44E-10	1.46E-09	4.96E+02
3	2200	TH-232	1.79E-08	1.03E-09	2.21E-10	1.25E-09	4.94E+02
3	2500	TH-232	1.44E-08	8.30E-10	1.94E-10	1.02E-09	4.92E+02
3	5000	TH-232	4.78E-09	2.75E-10	9.27E-11	3.68E-10	4.72E+02
4	1200	TH-232	7.85E-08	4.52E-09	5.58E-10	5.08E-09	6.33E+02
4	1300	TH-232	6.83E-08	3.93E-09	5.13E-10	4.44E-09	6.31E+02
4	1400	TH-232	6.00E-08	3.45E-09	4.75E-10	3.93E-09	6.28E+02
4	1500	TH-232	5.30E-08	3.05E-09	4.41E-10	3.49E-09	6.25E+02
4	1625	TH-232	4.62E-08	2.66E-09	4.06E-10	3.06E-09	6.23E+02
4	1700	TH-232	4.27E-08	2.46E-09	3.87E-10	2.85E-09	6.22E+02
4	1800	TH-232	3.86E-08	2.22E-09	3.64E-10	2.59E-09	6.20E+02
4	2000	TH-232	3.21E-08	1.85E-09	3.26E-10	2.17E-09	6.16E+02
4	2200	TH-232	2.72E-08	1.57E-09	2.95E-10	1.86E-09	6.14E+02
4	2500	TH-232	2.19E-08	1.26E-09	2.58E-10	1.52E-09	6.11E+02
4	5000	TH-232	7.21E-09	4.15E-10	1.23E-10	5.38E-10	5.81E+02
5	1200	TH-232	1.60E-07	9.20E-09	1.04E-09	1.02E-08	1.30E+03
5	1300	TH-232	1.39E-07	8.01E-09	9.59E-10	8.97E-09	1.29E+03
5	1400	TH-232	1.22E-07	7.03E-09	8.87E-10	7.91E-09	1.29E+03
5	1500	TH-232	1.08E-07	6.21E-09	8.24E-10	7.04E-09	1.28E+03
5	1625	TH-232	9.40E-08	5.41E-09	7.58E-10	6.17E-09	1.28E+03
5	1700	TH-232	8.69E-08	5.00E-09	7.23E-10	5.72E-09	1.28E+03
5	1800	TH-232	7.86E-08	4.52E-09	6.80E-10	5.20E-09	1.27E+03
5	2000	TH-232	6.52E-08	3.75E-09	6.08E-10	4.36E-09	1.26E+03
5	2200	TH-232	5.54E-08	3.19E-09	5.51E-10	3.74E-09	1.26E+03
5	2500	TH-232	4.45E-08	2.56E-09	4.82E-10	3.04E-09	1.25E+03
5	5000	TH-232	1.46E-08	8.41E-10	2.29E-10	1.07E-09	1.19E+03
6	1200	TH-232	1.19E-07	6.85E-09	1.20E-09	8.04E-09	1.99E+03
6	1300	TH-232	1.04E-07	5.97E-09	1.10E-09	7.07E-09	1.99E+03
6	1400	TH-232	9.13E-08	5.25E-09	1.02E-09	6.27E-09	1.98E+03
6	1500	TH-232	8.09E-08	4.66E-09	9.51E-10	5.61E-09	1.98E+03
6	1625	TH-232	7.06E-08	4.06E-09	8.76E-10	4.94E-09	1.98E+03
6	1700	TH-232	6.53E-08	3.76E-09	8.36E-10	4.60E-09	1.97E+03
6	1800	TH-232	5.92E-08	3.41E-09	7.88E-10	4.20E-09	1.97E+03
6	2000	TH-232	4.93E-08	2.84E-09	7.06E-10	3.54E-09	1.96E+03
6	2200	TH-232	4.19E-08	2.41E-09	6.41E-10	3.05E-09	1.96E+03
6	2500	TH-232	3.37E-08	1.94E-09	5.62E-10	2.50E-09	1.95E+03
6	5000	TH-232	1.13E-08	6.51E-10	2.72E-10	9.23E-10	1.90E+03
7	1200	TH-232	6.50E-08	3.74E-09	6.55E-10	4.40E-09	1.09E+03
7	1300	TH-232	5.67E-08	3.26E-09	6.03E-10	3.87E-09	1.09E+03
7	1400	TH-232	4.98E-08	2.87E-09	5.59E-10	3.43E-09	1.09E+03
7	1500	TH-232	4.42E-08	2.54E-09	5.20E-10	3.06E-09	1.09E+03
7	1625	TH-232	3.85E-08	2.22E-09	4.79E-10	2.70E-09	1.08E+03
7	1700	TH-232	3.56E-08	2.05E-09	4.57E-10	2.51E-09	1.08E+03
7	1800	TH-232	3.23E-08	1.86E-09	4.31E-10	2.29E-09	1.08E+03
7	2000	TH-232	2.69E-08	1.55E-09	3.87E-10	1.93E-09	1.08E+03
7	2200	TH-232	2.28E-08	1.31E-09	3.51E-10	1.67E-09	1.08E+03
7	2500	TH-232	1.84E-08	1.06E-09	3.08E-10	1.36E-09	1.07E+03
7	5000	TH-232	6.10E-09	3.51E-10	1.49E-10	5.00E-10	1.04E+03
8	1200	TH-232	6.41E-08	3.69E-09	5.48E-10	4.24E-09	9.98E+02
8	1300	TH-232	5.59E-08	3.21E-09	5.04E-10	3.72E-09	9.96E+02
8	1400	TH-232	4.91E-08	2.83E-09	4.67E-10	3.29E-09	9.94E+02
8	1500	TH-232	4.35E-08	2.50E-09	4.35E-10	2.94E-09	9.92E+02

8	1625	TH-232	3.79E-08	2.18E-09	4.00E-10	2.58E-09	9.90E+02
8	1700	TH-232	3.51E-08	2.02E-09	3.82E-10	2.40E-09	9.89E+02
8	1800	TH-232	3.18E-08	1.83E-09	3.60E-10	2.19E-09	9.87E+02
8	2000	TH-232	2.64E-08	1.52E-09	3.22E-10	1.84E-09	9.84E+02
8	2200	TH-232	2.25E-08	1.29E-09	2.92E-10	1.59E-09	9.82E+02
8	2500	TH-232	1.81E-08	1.04E-09	2.56E-10	1.30E-09	9.79E+02
8	5000	TH-232	6.00E-09	3.46E-10	1.24E-10	4.69E-10	9.53E+02
9	1200	TH-232	5.55E-08	3.20E-09	5.63E-10	3.76E-09	1.26E+03
9	1300	TH-232	4.84E-08	2.79E-09	5.19E-10	3.31E-09	1.25E+03
9	1400	TH-232	4.27E-08	2.46E-09	4.81E-10	2.94E-09	1.25E+03
9	1500	TH-232	3.79E-08	2.18E-09	4.48E-10	2.63E-09	1.25E+03
9	1625	TH-232	3.31E-08	1.90E-09	4.13E-10	2.31E-09	1.25E+03
9	1700	TH-232	3.06E-08	1.76E-09	3.94E-10	2.16E-09	1.25E+03
9	1800	TH-232	2.78E-08	1.60E-09	3.71E-10	1.97E-09	1.25E+03
9	2000	TH-232	2.31E-08	1.33E-09	3.33E-10	1.67E-09	1.24E+03
9	2200	TH-232	1.97E-08	1.13E-09	3.02E-10	1.44E-09	1.24E+03
9	2500	TH-232	1.59E-08	9.14E-10	2.65E-10	1.18E-09	1.24E+03
9	5000	TH-232	5.37E-09	3.09E-10	1.29E-10	4.38E-10	1.21E+03
10	1200	TH-232	1.17E-07	6.75E-09	9.87E-10	7.74E-09	1.84E+03
10	1300	TH-232	1.02E-07	5.88E-09	9.09E-10	6.79E-09	1.84E+03
10	1400	TH-232	8.98E-08	5.17E-09	8.42E-10	6.01E-09	1.84E+03
10	1500	TH-232	7.96E-08	4.58E-09	7.83E-10	5.36E-09	1.83E+03
10	1625	TH-232	6.93E-08	3.99E-09	7.21E-10	4.71E-09	1.83E+03
10	1700	TH-232	6.41E-08	3.69E-09	6.88E-10	4.38E-09	1.83E+03
10	1800	TH-232	5.81E-08	3.34E-09	6.48E-10	3.99E-09	1.83E+03
10	2000	TH-232	4.83E-08	2.78E-09	5.81E-10	3.36E-09	1.82E+03
10	2200	TH-232	4.11E-08	2.36E-09	5.27E-10	2.89E-09	1.82E+03
10	2500	TH-232	3.30E-08	1.90E-09	4.62E-10	2.36E-09	1.81E+03
10	5000	TH-232	1.10E-08	6.32E-10	2.23E-10	8.55E-10	1.76E+03
11	1200	TH-232	2.81E-07	1.61E-08	1.54E-09	1.77E-08	2.52E+03
11	1300	TH-232	2.44E-07	1.40E-08	1.42E-09	1.55E-08	2.51E+03
11	1400	TH-232	2.14E-07	1.23E-08	1.31E-09	1.36E-08	2.50E+03
11	1500	TH-232	1.89E-07	1.09E-08	1.22E-09	1.21E-08	2.49E+03
11	1625	TH-232	1.64E-07	9.47E-09	1.12E-09	1.06E-08	2.48E+03
11	1700	TH-232	1.52E-07	8.75E-09	1.07E-09	9.81E-09	2.48E+03
11	1800	TH-232	1.37E-07	7.91E-09	1.00E-09	8.91E-09	2.47E+03
11	2000	TH-232	1.14E-07	6.55E-09	8.97E-10	7.44E-09	2.46E+03
11	2200	TH-232	9.66E-08	5.56E-09	8.12E-10	6.38E-09	2.45E+03
11	2500	TH-232	7.75E-08	4.46E-09	7.11E-10	5.17E-09	2.44E+03
11	5000	TH-232	2.54E-08	1.46E-09	3.36E-10	1.80E-09	2.34E+03
12	1200	TH-232	3.62E-07	2.09E-08	1.90E-09	2.28E-08	2.99E+03
12	1300	TH-232	3.15E-07	1.81E-08	1.75E-09	1.99E-08	2.98E+03
12	1400	TH-232	2.76E-07	1.59E-08	1.62E-09	1.75E-08	2.97E+03
12	1500	TH-232	2.44E-07	1.41E-08	1.50E-09	1.56E-08	2.96E+03
12	1625	TH-232	2.13E-07	1.22E-08	1.38E-09	1.36E-08	2.95E+03
12	1700	TH-232	1.96E-07	1.13E-08	1.31E-09	1.26E-08	2.94E+03
12	1800	TH-232	1.78E-07	1.02E-08	1.24E-09	1.15E-08	2.94E+03
12	2000	TH-232	1.47E-07	8.47E-09	1.10E-09	9.58E-09	2.92E+03
12	2200	TH-232	1.25E-07	7.20E-09	1.00E-09	8.20E-09	2.91E+03
12	2500	TH-232	1.00E-07	5.78E-09	8.75E-10	6.65E-09	2.90E+03
12	5000	TH-232	3.30E-08	1.90E-09	4.12E-10	2.31E-09	2.77E+03
13	1200	TH-232	3.24E-07	1.87E-08	2.12E-09	2.08E-08	3.50E+03
13	1300	TH-232	2.82E-07	1.63E-08	1.95E-09	1.82E-08	3.49E+03
13	1400	TH-232	2.48E-07	1.43E-08	1.80E-09	1.61E-08	3.48E+03
13	1500	TH-232	2.20E-07	1.26E-08	1.67E-09	1.43E-08	3.47E+03
13	1625	TH-232	1.91E-07	1.10E-08	1.54E-09	1.25E-08	3.46E+03
13	1700	TH-232	1.77E-07	1.02E-08	1.47E-09	1.17E-08	3.46E+03
13	1800	TH-232	1.60E-07	9.22E-09	1.38E-09	1.06E-08	3.45E+03
13	2000	TH-232	1.33E-07	7.65E-09	1.24E-09	8.89E-09	3.43E+03
13	2200	TH-232	1.13E-07	6.51E-09	1.12E-09	7.63E-09	3.42E+03
13	2500	TH-232	9.08E-08	5.23E-09	9.81E-10	6.21E-09	3.41E+03
13	5000	TH-232	3.02E-08	1.74E-09	4.68E-10	2.21E-09	3.29E+03
14	1200	TH-232	3.39E-07	1.95E-08	2.29E-09	2.18E-08	3.30E+03
14	1300	TH-232	2.95E-07	1.70E-08	2.11E-09	1.91E-08	3.29E+03
14	1400	TH-232	2.59E-07	1.49E-08	1.95E-09	1.69E-08	3.28E+03

14	1500	TH-232	2.30E-07	1.32E-08	1.81E-09	1.50E-08	3.26E+03
14	1625	TH-232	2.00E-07	1.15E-08	1.67E-09	1.32E-08	3.26E+03
14	1700	TH-232	1.85E-07	1.07E-08	1.59E-09	1.22E-08	3.25E+03
14	1800	TH-232	1.68E-07	9.64E-09	1.50E-09	1.11E-08	3.24E+03
14	2000	TH-232	1.39E-07	8.01E-09	1.34E-09	9.35E-09	3.22E+03
14	2200	TH-232	1.18E-07	6.81E-09	1.21E-09	8.03E-09	3.21E+03
14	2500	TH-232	9.51E-08	5.48E-09	1.06E-09	6.54E-09	3.20E+03
14	5000	TH-232	3.17E-08	1.83E-09	5.06E-10	2.33E-09	3.07E+03
15	1200	TH-232	2.74E-07	1.58E-08	2.37E-09	1.81E-08	3.95E+03
15	1300	TH-232	2.39E-07	1.37E-08	2.18E-09	1.59E-08	3.94E+03
15	1400	TH-232	2.10E-07	1.21E-08	2.02E-09	1.41E-08	3.93E+03
15	1500	TH-232	1.86E-07	1.07E-08	1.88E-09	1.26E-08	3.92E+03
15	1625	TH-232	1.63E-07	9.37E-09	1.73E-09	1.11E-08	3.92E+03
15	1700	TH-232	1.51E-07	8.67E-09	1.65E-09	1.03E-08	3.91E+03
15	1800	TH-232	1.37E-07	7.86E-09	1.56E-09	9.42E-09	3.90E+03
15	2000	TH-232	1.14E-07	6.55E-09	1.40E-09	7.95E-09	3.89E+03
15	2200	TH-232	9.69E-08	5.58E-09	1.27E-09	6.85E-09	3.88E+03
15	2500	TH-232	7.80E-08	4.49E-09	1.11E-09	5.60E-09	3.87E+03
15	5000	TH-232	2.64E-08	1.52E-09	5.35E-10	2.05E-09	3.76E+03
16	1200	TH-232	1.91E-07	1.10E-08	1.76E-09	1.28E-08	3.90E+03
16	1300	TH-232	1.67E-07	9.61E-09	1.62E-09	1.12E-08	3.90E+03
16	1400	TH-232	1.47E-07	8.46E-09	1.50E-09	9.96E-09	3.89E+03
16	1500	TH-232	1.31E-07	7.51E-09	1.40E-09	8.91E-09	3.88E+03
16	1625	TH-232	1.14E-07	6.56E-09	1.29E-09	7.85E-09	3.88E+03
16	1700	TH-232	1.06E-07	6.07E-09	1.23E-09	7.30E-09	3.88E+03
16	1800	TH-232	9.57E-08	5.51E-09	1.16E-09	6.67E-09	3.87E+03
16	2000	TH-232	7.98E-08	4.59E-09	1.04E-09	5.63E-09	3.86E+03
16	2200	TH-232	6.80E-08	3.91E-09	9.42E-10	4.85E-09	3.85E+03
16	2500	TH-232	5.48E-08	3.15E-09	8.27E-10	3.98E-09	3.85E+03
16	5000	TH-232	1.86E-08	1.07E-09	4.01E-10	1.47E-09	3.76E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-232 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 TOTAL AREA OF VEGETABLE FOOD CROPS (SQUARE METERS) 0.3778E+09
0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-232
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1350E-12
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.206E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.885E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1200	0.101E-12	0.213E-08	0.112E+04	0.809E+03
1	1300	0.880E-13	0.187E-08	0.983E+03	0.707E+03
1	1400	0.775E-13	0.166E-08	0.873E+03	0.623E+03
1	1500	0.689E-13	0.149E-08	0.781E+03	0.553E+03
1	1625	0.602E-13	0.131E-08	0.688E+03	0.483E+03
1	1700	0.557E-13	0.122E-08	0.641E+03	0.448E+03
1	1800	0.506E-13	0.111E-08	0.585E+03	0.406E+03
1	2000	0.422E-13	0.942E-09	0.495E+03	0.339E+03
1	2200	0.360E-13	0.812E-09	0.427E+03	0.289E+03
1	2500	0.290E-13	0.666E-09	0.350E+03	0.233E+03
1	5000	0.991E-14	0.248E-09	0.130E+03	0.796E+02
2	1200	0.663E-13	0.140E-08	0.736E+03	0.532E+03
2	1300	0.578E-13	0.123E-08	0.647E+03	0.464E+03
2	1400	0.509E-13	0.109E-08	0.574E+03	0.409E+03
2	1500	0.452E-13	0.978E-09	0.514E+03	0.363E+03

2	1625	0.395E-13	0.861E-09	0.452E+03	0.317E+03
2	1700	0.366E-13	0.801E-09	0.421E+03	0.294E+03
2	1800	0.332E-13	0.732E-09	0.384E+03	0.266E+03
2	2000	0.277E-13	0.618E-09	0.325E+03	0.222E+03
2	2200	0.236E-13	0.533E-09	0.280E+03	0.189E+03
2	2500	0.190E-13	0.437E-09	0.230E+03	0.152E+03
2	5000	0.644E-14	0.161E-09	0.848E+02	0.517E+02
3	1200	0.514E-13	0.106E-08	0.559E+03	0.413E+03
3	1300	0.447E-13	0.934E-09	0.490E+03	0.359E+03
3	1400	0.393E-13	0.826E-09	0.434E+03	0.316E+03
3	1500	0.348E-13	0.736E-09	0.387E+03	0.280E+03
3	1625	0.303E-13	0.647E-09	0.340E+03	0.244E+03
3	1700	0.281E-13	0.601E-09	0.316E+03	0.225E+03
3	1800	0.254E-13	0.548E-09	0.288E+03	0.204E+03
3	2000	0.211E-13	0.460E-09	0.242E+03	0.170E+03
3	2200	0.179E-13	0.396E-09	0.208E+03	0.144E+03
3	2500	0.144E-13	0.323E-09	0.170E+03	0.116E+03
3	5000	0.478E-14	0.116E-09	0.610E+02	0.384E+02
4	1200	0.785E-13	0.160E-08	0.841E+03	0.630E+03
4	1300	0.683E-13	0.140E-08	0.737E+03	0.548E+03
4	1400	0.600E-13	0.124E-08	0.651E+03	0.482E+03
4	1500	0.530E-13	0.110E-08	0.579E+03	0.426E+03
4	1625	0.462E-13	0.967E-09	0.508E+03	0.371E+03
4	1700	0.427E-13	0.898E-09	0.472E+03	0.343E+03
4	1800	0.386E-13	0.817E-09	0.429E+03	0.310E+03
4	2000	0.321E-13	0.685E-09	0.360E+03	0.257E+03
4	2200	0.272E-13	0.588E-09	0.309E+03	0.219E+03
4	2500	0.219E-13	0.479E-09	0.252E+03	0.176E+03
4	5000	0.721E-14	0.170E-09	0.891E+02	0.579E+02
5	1200	0.160E-12	0.323E-08	0.170E+04	0.128E+04
5	1300	0.139E-12	0.283E-08	0.149E+04	0.112E+04
5	1400	0.122E-12	0.250E-08	0.131E+04	0.980E+03
5	1500	0.108E-12	0.222E-08	0.117E+04	0.867E+03
5	1625	0.940E-13	0.195E-08	0.102E+04	0.755E+03
5	1700	0.869E-13	0.181E-08	0.949E+03	0.698E+03
5	1800	0.786E-13	0.164E-08	0.863E+03	0.631E+03
5	2000	0.652E-13	0.138E-08	0.722E+03	0.523E+03
5	2200	0.554E-13	0.118E-08	0.620E+03	0.445E+03
5	2500	0.445E-13	0.959E-09	0.504E+03	0.357E+03
5	5000	0.146E-13	0.338E-09	0.177E+03	0.117E+03
6	1200	0.119E-12	0.254E-08	0.133E+04	0.955E+03
6	1300	0.104E-12	0.223E-08	0.117E+04	0.833E+03
6	1400	0.913E-13	0.198E-08	0.104E+04	0.733E+03
6	1500	0.809E-13	0.177E-08	0.930E+03	0.650E+03
6	1625	0.706E-13	0.156E-08	0.819E+03	0.567E+03
6	1700	0.653E-13	0.145E-08	0.762E+03	0.525E+03
6	1800	0.592E-13	0.132E-08	0.695E+03	0.475E+03
6	2000	0.493E-13	0.112E-08	0.587E+03	0.396E+03
6	2200	0.419E-13	0.964E-09	0.506E+03	0.337E+03
6	2500	0.337E-13	0.790E-09	0.415E+03	0.271E+03
6	5000	0.113E-13	0.291E-09	0.153E+03	0.908E+02
7	1200	0.650E-13	0.139E-08	0.729E+03	0.522E+03
7	1300	0.567E-13	0.122E-08	0.641E+03	0.455E+03
7	1400	0.498E-13	0.108E-08	0.568E+03	0.400E+03
7	1500	0.442E-13	0.966E-09	0.508E+03	0.355E+03
7	1625	0.385E-13	0.851E-09	0.447E+03	0.309E+03
7	1700	0.356E-13	0.792E-09	0.416E+03	0.286E+03
7	1800	0.323E-13	0.722E-09	0.379E+03	0.259E+03
7	2000	0.269E-13	0.610E-09	0.320E+03	0.216E+03
7	2200	0.228E-13	0.526E-09	0.276E+03	0.183E+03
7	2500	0.184E-13	0.431E-09	0.226E+03	0.147E+03
7	5000	0.610E-14	0.158E-09	0.829E+02	0.490E+02
8	1200	0.641E-13	0.134E-08	0.703E+03	0.515E+03
8	1300	0.559E-13	0.117E-08	0.616E+03	0.448E+03
8	1400	0.491E-13	0.104E-08	0.546E+03	0.394E+03

8	1500	0.435E-13	0.927E-09	0.487E+03	0.349E+03
8	1625	0.379E-13	0.815E-09	0.428E+03	0.304E+03
8	1700	0.351E-13	0.757E-09	0.398E+03	0.282E+03
8	1800	0.318E-13	0.690E-09	0.363E+03	0.255E+03
8	2000	0.264E-13	0.581E-09	0.305E+03	0.212E+03
8	2200	0.225E-13	0.500E-09	0.263E+03	0.180E+03
8	2500	0.181E-13	0.409E-09	0.215E+03	0.145E+03
8	5000	0.600E-14	0.148E-09	0.778E+02	0.482E+02
9	1200	0.555E-13	0.119E-08	0.623E+03	0.446E+03
9	1300	0.484E-13	0.104E-08	0.548E+03	0.389E+03
9	1400	0.427E-13	0.926E-09	0.487E+03	0.343E+03
9	1500	0.379E-13	0.829E-09	0.435E+03	0.304E+03
9	1625	0.331E-13	0.730E-09	0.384E+03	0.265E+03
9	1700	0.306E-13	0.680E-09	0.357E+03	0.246E+03
9	1800	0.278E-13	0.621E-09	0.326E+03	0.223E+03
9	2000	0.231E-13	0.525E-09	0.276E+03	0.186E+03
9	2200	0.197E-13	0.453E-09	0.238E+03	0.158E+03
9	2500	0.159E-13	0.372E-09	0.195E+03	0.127E+03
9	5000	0.537E-14	0.138E-09	0.726E+02	0.431E+02
10	1200	0.117E-12	0.244E-08	0.128E+04	0.942E+03
10	1300	0.102E-12	0.214E-08	0.113E+04	0.821E+03
10	1400	0.898E-13	0.190E-08	0.997E+03	0.721E+03
10	1500	0.796E-13	0.169E-08	0.889E+03	0.639E+03
10	1625	0.693E-13	0.149E-08	0.781E+03	0.557E+03
10	1700	0.641E-13	0.138E-08	0.726E+03	0.515E+03
10	1800	0.581E-13	0.126E-08	0.662E+03	0.466E+03
10	2000	0.483E-13	0.106E-08	0.557E+03	0.388E+03
10	2200	0.411E-13	0.912E-09	0.479E+03	0.330E+03
10	2500	0.330E-13	0.745E-09	0.391E+03	0.265E+03
10	5000	0.110E-13	0.270E-09	0.142E+03	0.882E+02
11	1200	0.281E-12	0.558E-08	0.293E+04	0.225E+04
11	1300	0.244E-12	0.488E-08	0.256E+04	0.196E+04
11	1400	0.214E-12	0.430E-08	0.226E+04	0.172E+04
11	1500	0.189E-12	0.382E-08	0.200E+04	0.152E+04
11	1625	0.164E-12	0.334E-08	0.175E+04	0.132E+04
11	1700	0.152E-12	0.310E-08	0.163E+04	0.122E+04
11	1800	0.137E-12	0.281E-08	0.148E+04	0.110E+04
11	2000	0.114E-12	0.235E-08	0.123E+04	0.914E+03
11	2200	0.966E-13	0.201E-08	0.106E+04	0.776E+03
11	2500	0.775E-13	0.163E-08	0.858E+03	0.623E+03
11	5000	0.254E-13	0.567E-09	0.298E+03	0.204E+03
12	1200	0.362E-12	0.718E-08	0.377E+04	0.291E+04
12	1300	0.315E-12	0.628E-08	0.330E+04	0.253E+04
12	1400	0.276E-12	0.553E-08	0.291E+04	0.222E+04
12	1500	0.244E-12	0.491E-08	0.258E+04	0.196E+04
12	1625	0.213E-12	0.430E-08	0.226E+04	0.171E+04
12	1700	0.196E-12	0.398E-08	0.209E+04	0.158E+04
12	1800	0.178E-12	0.362E-08	0.190E+04	0.143E+04
12	2000	0.147E-12	0.302E-08	0.159E+04	0.118E+04
12	2200	0.125E-12	0.259E-08	0.136E+04	0.100E+04
12	2500	0.100E-12	0.210E-08	0.110E+04	0.806E+03
12	5000	0.330E-13	0.729E-09	0.383E+03	0.265E+03
13	1200	0.324E-12	0.656E-08	0.345E+04	0.260E+04
13	1300	0.282E-12	0.574E-08	0.302E+04	0.227E+04
13	1400	0.248E-12	0.507E-08	0.267E+04	0.199E+04
13	1500	0.220E-12	0.451E-08	0.237E+04	0.176E+04
13	1625	0.191E-12	0.396E-08	0.208E+04	0.154E+04
13	1700	0.177E-12	0.368E-08	0.193E+04	0.142E+04
13	1800	0.160E-12	0.334E-08	0.176E+04	0.129E+04
13	2000	0.133E-12	0.280E-08	0.147E+04	0.107E+04
13	2200	0.113E-12	0.241E-08	0.126E+04	0.908E+03
13	2500	0.908E-13	0.196E-08	0.103E+04	0.729E+03
13	5000	0.302E-13	0.696E-09	0.366E+03	0.242E+03
14	1200	0.339E-12	0.688E-08	0.361E+04	0.272E+04
14	1300	0.295E-12	0.602E-08	0.316E+04	0.237E+04

14	1400	0.259E-12	0.532E-08	0.280E+04	0.208E+04
14	1500	0.230E-12	0.474E-08	0.249E+04	0.184E+04
14	1625	0.200E-12	0.416E-08	0.219E+04	0.161E+04
14	1700	0.185E-12	0.386E-08	0.203E+04	0.149E+04
14	1800	0.168E-12	0.352E-08	0.185E+04	0.135E+04
14	2000	0.139E-12	0.295E-08	0.155E+04	0.112E+04
14	2200	0.118E-12	0.253E-08	0.133E+04	0.951E+03
14	2500	0.961E-13	0.206E-08	0.108E+04	0.764E+03
14	5000	0.317E-13	0.736E-09	0.387E+03	0.255E+03
15	1200	0.274E-12	0.572E-08	0.300E+04	0.220E+04
15	1300	0.239E-12	0.503E-08	0.264E+04	0.192E+04
15	1400	0.210E-12	0.446E-08	0.234E+04	0.169E+04
15	1500	0.186E-12	0.398E-08	0.209E+04	0.150E+04
15	1625	0.163E-12	0.350E-08	0.184E+04	0.131E+04
15	1700	0.151E-12	0.326E-08	0.171E+04	0.121E+04
15	1800	0.137E-12	0.297E-08	0.156E+04	0.110E+04
15	2000	0.114E-12	0.251E-08	0.132E+04	0.914E+03
15	2200	0.969E-13	0.216E-08	0.113E+04	0.778E+03
15	2500	0.780E-13	0.177E-08	0.929E+03	0.627E+03
15	5000	0.264E-13	0.648E-09	0.341E+03	0.212E+03
16	1200	0.191E-12	0.403E-08	0.212E+04	0.154E+04
16	1300	0.167E-12	0.354E-08	0.186E+04	0.134E+04
16	1400	0.147E-12	0.314E-08	0.165E+04	0.118E+04
16	1500	0.131E-12	0.281E-08	0.148E+04	0.105E+04
16	1625	0.114E-12	0.248E-08	0.130E+04	0.915E+03
16	1700	0.106E-12	0.230E-08	0.121E+04	0.847E+03
16	1800	0.957E-13	0.210E-08	0.111E+04	0.768E+03
16	2000	0.798E-13	0.178E-08	0.934E+03	0.641E+03
16	2200	0.680E-13	0.153E-08	0.805E+03	0.546E+03
16	2500	0.548E-13	0.126E-08	0.660E+03	0.440E+03
16	5000	0.186E-13	0.465E-09	0.244E+03	0.149E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.2593E-09	0.00	100.00
	SURFACE	0.5875E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3347E+01	99.69	100.00
	INGEST.	0.1030E-01	0.31	100.00
	VEGET.	0.1029E-01	* 0.31	* 99.93
	MEAT	0.1460E-05	* 0.00	* 0.01
	MILK	0.6012E-05	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.1411E-09	0.00	100.00
	SURFACE	0.3198E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4307E+01	99.52	100.00
	INGEST.	0.2068E-01	0.48	100.00
	VEGET.	0.2066E-01	* 0.48	* 99.93
	MEAT	0.2931E-05	* 0.00	* 0.01
	MILK	0.1207E-04	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.3775E-09	0.00	100.00
	SURFACE	0.8553E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5384E+02	99.52	100.00
	INGEST.	0.2585E+00	0.48	100.00
	VEGET.	0.2583E+00	* 0.48	* 99.93
	MEAT	0.3663E-04	* 0.00	* 0.01
	MILK	0.1508E-03	* 0.00	* 0.06

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PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.0217E-09	0.00	100.00
	SURFACE	0.7238E-06	0.01	100.00
	SWIMMING	0.0000E-00	0.00	0.00
	INHAL	0.6460E-02	99.73	100.00
	INGEST.	0.1690E-04	0.26	100.00
	VEGET.	0.1689E-04	* 0.26	* 99.93
	MEAT	0.2396E-08	* 0.00	* 0.01
	MILK	0.9866E-08	* 0.00	* 0.06

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PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.7254E-09	0.00	100.00
	SURFACE	0.1644E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.6606E-02	99.71	100.00
	INGEST.	0.1758E-04	0.27	100.00
	VEGET.	0.1757E-04	* 0.27	* 99.93
	MEAT	0.2492E-08	* 0.00	* 0.01
	MILK	0.1026E-07	* 0.00	* 0.06

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PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.2166E-09	0.00	100.00
	SURFACE	0.4908E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.1013E+02	100.00	100.00
	INGEST.	0.1747E-04	0.00	100.00
	VEGET.	0.1746E-04	* 0.00	* 99.93
	MEAT	0.2476E-08	* 0.00	* 0.01
	MILK	0.1020E-07	* 0.00	* 0.06

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PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1805E-09	0.00	100.00
	SURFACE	0.4090E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.3809E-02	99.43	100.00
	INGEST.	0.2161E-04	0.56	100.00
	VEGET.	0.2159E-04	* 0.56	* 99.93
	MEAT	0.3062E-08	* 0.00	* 0.01
	MILK	0.1261E-07	* 0.00	* 0.06

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PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1707E-09	0.00	100.00
	SURFACE	0.3867E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.4083E-02	92.68	100.00
	INGEST.	0.3220E-03	7.31	100.00
	VEGET.	0.3217E-03	* 7.30	* 99.93
	MEAT	0.4564E-07	* 0.00	* 0.01
	MILK	0.1879E-06	* 0.00	* 0.06

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PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1904E-09	0.00	100.00
	SURFACE	0.4313E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.2343E-01	99.69	100.00
	INGEST.	0.7169E-04	0.30	100.00
	VEGET.	0.7164E-04	* 0.30	* 99.93
	MEAT	0.1016E-07	* 0.00	* 0.01

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                MILK        0.4184E-07        * 0.00            * 0.06
1               PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY      DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232    SUBM AIR     0.1346E-09        0.00              100.00
                SURFACE      0.3049E-06        0.01              100.00
                SWIMMING     0.0000E+00        0.00              0.00
                INHAL.       0.3827E-02        99.77             100.00
                INGEST.      0.8641E-05        0.23              100.00
                 VEGET.      0.8634E-05      * 0.23            * 99.93
                 MEAT        0.1225E-08      * 0.00            * 0.01
                 MILK        0.5043E-08      * 0.00            * 0.06
1               PERCENT OF KIDNEYS DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY      DOSE(REMS)      PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232    SUBM AIR     0.2035E-09        0.00              100.00
                SURFACE      0.4611E-06        0.01              100.00
                SWIMMING     0.0000E+00        0.00              0.00
                INHAL.       0.3824E-02        99.77             100.00
                INGEST.      0.8535E-05        0.22              100.00
                 VEGET.      0.8529E-05      * 0.22            * 99.93
                 MEAT        0.1210E-08      * 0.00            * 0.01
                 MILK        0.4981E-08      * 0.00            * 0.06
0                    CONTRIBUTION OF EXPOSURE MODES TO W BODY  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.2593E-09                       0.0000
0      SURFACE                     0.5875E-06                       0.0000
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.3347E+01                       99.6931
0      INGEST.                     0.1030E-01                       0.3069
0       VEGET.                     *0.1029E-01                    * 0.3066
0       MEAT                       *0.1460E-05                    * 0.0000
0       MILK                       *0.6012E-05                    * 0.0002
0                    CONTRIBUTION OF EXPOSURE MODES TO R MAR  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.1411E-09                       0.0000
0      SURFACE                     0.3198E-06                       0.0000
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.4307E+01                       99.5222
0      INGEST.                     0.2068E-01                       0.4778
0       VEGET.                     *0.2066E-01                    * 0.4775
0       MEAT                       *0.2931E-05                    * 0.0001
0       MILK                       *0.1207E-04                    * 0.0003
0                    CONTRIBUTION OF EXPOSURE MODES TO ENDOST  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.3775E-09                       0.0000
0      SURFACE                     0.8553E-06                       0.0000
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.5384E+02                       99.5222
0      INGEST.                     0.2585E+00                       0.4778
0       VEGET.                     *0.2583E+00                    * 0.4775
0       MEAT                       *0.3663E-04                    * 0.0001
0       MILK                       *0.1508E-03                    * 0.0003
0                    CONTRIBUTION OF EXPOSURE MODES TO THYROID  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.3217E-09                       0.0000
0      SURFACE                     0.7288E-06                       0.0113
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.6460E-02                       99.7278
0      INGEST.                     0.1690E-04                       0.2609
0       VEGET.                     *0.1689E-04                    * 0.2608
0       MEAT                       *0.2396E-08                    * 0.0000
0       MILK                       *0.9866E-08                    * 0.0002
0                    CONTRIBUTION OF EXPOSURE MODES TO BREAST  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
```

0	SUBM AIR	0.7254E-09	0.0000
0	SURFACE	0.1644E-05	0.0248
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.6606E-02	99.7098
0	INGEST.	0.1758E-04	0.2654
0	VEGET.	*0.1757E-04	* 0.2652
0	MEAT	*0.2492E-08	* 0.0000
0	MILK	*0.1026E-07	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2166E-09	0.0000
0	SURFACE	0.4908E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1013E+02	99.9998
0	INGEST.	0.1747E-04	0.0002
0	VEGET.	*0.1746E-04	* 0.0002
0	MEAT	*0.2476E-08	* 0.0000
0	MILK	*0.1020E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1805E-09	0.0000
0	SURFACE	0.4090E-06	0.0107
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.3809E-02	99.4254
0	INGEST.	0.2161E-04	0.5639
0	VEGET.	*0.2159E-04	* 0.5635
0	MEAT	*0.3062E-08	* 0.0001
0	MILK	*0.1261E-07	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1707E-09	0.0000
0	SURFACE	0.3867E-06	0.0088
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.4083E-02	92.6823
0	INGEST.	0.3220E-03	7.3089
0	VEGET.	*0.3217E-03	* 7.3036
0	MEAT	*0.4564E-07	* 0.0010
0	MILK	*0.1879E-06	* 0.0043
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1904E-09	0.0000
0	SURFACE	0.4313E-06	0.0018
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2343E-01	99.6932
0	INGEST.	0.7169E-04	0.3050
0	VEGET.	*0.7164E-04	* 0.3048
0	MEAT	*0.1016E-07	* 0.0000
0	MILK	*0.4184E-07	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1346E-09	0.0000
0	SURFACE	0.3049E-06	0.0079
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.3827E-02	99.7668
0	INGEST.	0.8641E-05	0.2253
0	VEGET.	*0.8634E-05	* 0.2251
0	MEAT	*0.1225E-08	* 0.0000
0	MILK	*0.5043E-08	* 0.0001
0	CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2035E-09	0.0000
0	SURFACE	0.4611E-06	0.0120
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.3824E-02	99.7653
0	INGEST.	0.8535E-05	0.2227

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0        VEGET.                    *0.8529E-06                    *  0.2225
0        MEAT                      *0.1210E-08                    *  0.0000
0        MILK                      *0.4981E-08                    *  0.0001
1                    TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                  ORGAN                          DOSE(REMS)
0                  W BODY                         0.3357E+01
0                  R MAR                          0.4328E+01
0                  ENDOST                         0.5409E+02
0                  THYROID                        0.6478E-02
0                  BREAST                         0.6625E-02
0                  *PUL*                          0.1013E+02
0                  S WALL                         0.3831E-02
0                  INT WALL                       0.4405E-02
0                  LIVER                          0.2351E-01
0                  PANCREAS                       0.3836E-02
0                  KIDNEYS                        0.3833E-02
1                        CONTRIBUTORS TO ORGAN DOSES
0                                    PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 TH-232   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                                ANNUAL DOSES(REMS)
0          NUCLIDE       ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN   ROW
0          TH-232        W BODY       0.3357E+01                 12      6
0          TH-232        R MAR        0.4328E+01                 12      6
0          TH-232        ENDOST       0.5409E+02                 12      6
0          TH-232        THYROID      0.6478E-02                 12      6
0          TH-232        BREAST       0.6625E-02                 12      6
0          TH-232        *PUL*        0.1013E+02                 12      6
0          TH-232        S WALL       0.3831E-02                 12      6
0          TH-232        INT WALL     0.4405E-02                 12      6
0          TH-232        LIVER        0.2351E-01                 12      6
0          TH-232        PANCREAS     0.3836E-02                 12      6
0          TH-232        KIDNEYS      0.3833E-02                 12      6
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Building 64

Radium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='RA-228',ISOL=W,AMAD=1.0,REL=1.1 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 64 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
•
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11 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.110E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 WIND TOWARD	AREA DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1200	RA-228	1.01E-07	5.80E-09	9.39E-10	6.74E-09	1.93E+03
1	1300	RA-228	6.80E-08	5.06E-09	8.65E-10	5.93E-09	1.93E+03
1	1400	RA-228	7.75E-08	4.46E-09	8.01E-10	5.26E-09	1.92E+03
1	1500	RA-228	6.89E-08	3.97E-09	7.46E-10	4.71E-09	1.92E+03
1	1625	RA-228	6.02E-08	3.46E-09	6.87E-10	4.15E-09	1.92E+03
1	1700	RA-228	5.57E-08	3.21E-09	6.56E-10	3.86E-09	1.92E+03
1	1800	RA-228	5.06E-08	2.91E-09	6.19E-10	3.53E-09	1.91E+03
1	2000	RA-228	4.22E-08	2.43E-09	5.55E-10	2.99E-09	1.91E+03
1	2200	RA-228	3.60E-08	2.07E-09	5.03E-10	2.57E-09	1.90E+03
1	2500	RA-228	2.90E-08	1.67E-09	4.41E-10	2.11E-09	1.90E+03
1	5000	RA-228	9.91E-09	5.71E-10	2.14E-10	7.85E-10	1.86E+03
2	1200	RA-228	6.63E-08	3.81E-09	6.24E-10	4.44E-09	9.39E+02
2	1300	RA-228	5.78E-08	3.33E-09	5.74E-10	3.90E-09	9.37E+02
2	1400	RA-228	5.09E-08	2.93E-09	5.32E-10	3.46E-09	9.35E+02
2	1500	RA-228	4.52E-08	2.60E-09	4.95E-10	3.10E-09	9.33E+02
2	1625	RA-228	3.95E-08	2.27E-09	4.56E-10	2.73E-09	9.31E+02
2	1700	RA-228	3.66E-08	2.11E-09	4.35E-10	2.54E-09	9.30E+02

2	1800	RA-228	3.32E-08	1.91E-09	4.10E-10	2.32E-09	9.28E+02
2	2000	RA-228	2.77E-08	1.59E-09	3.67E-10	1.96E-09	9.25E+02
2	2200	RA-228	2.36E-08	1.36E-09	3.33E-10	1.69E-09	9.22E+02
2	2500	RA-228	1.90E-08	1.09E-09	2.92E-10	1.38E-09	9.19E+02
2	5000	RA-228	6.44E-09	3.71E-10	1.41E-10	5.12E-10	8.91E+02
3	1200	RA-228	5.14E-08	2.96E-09	4.17E-10	3.37E-09	5.07E+02
3	1300	RA-228	4.47E-08	2.58E-09	3.84E-10	2.96E-09	5.05E+02
3	1400	RA-228	3.93E-08	2.26E-09	3.55E-10	2.62E-09	5.04E+02
3	1500	RA-228	3.48E-08	2.00E-09	3.30E-10	2.33E-09	5.02E+02
3	1625	RA-228	3.03E-08	1.75E-09	3.04E-10	2.05E-09	5.00E+02
3	1700	RA-228	2.81E-08	1.62E-09	2.90E-10	1.91E-09	5.00E+02
3	1800	RA-228	2.54E-08	1.46E-09	2.73E-10	1.74E-09	4.98E+02
3	2000	RA-228	2.11E-08	1.21E-09	2.44E-10	1.46E-09	4.96E+02
3	2200	RA-228	1.79E-08	1.03E-09	2.21E-10	1.25E-09	4.94E+02
3	2500	RA-228	1.44E-08	8.30E-10	1.94E-10	1.02E-09	4.92E+02
3	5000	RA-228	4.78E-09	2.75E-10	9.27E-11	3.68E-10	4.72E+02
4	1200	RA-228	7.85E-08	4.52E-09	5.58E-10	5.08E-09	6.33E+02
4	1300	RA-228	6.83E-08	3.93E-09	5.13E-10	4.44E-09	6.31E+02
4	1400	RA-228	6.00E-08	3.45E-09	4.75E-10	3.93E-09	6.28E+02
4	1500	RA-228	5.30E-08	3.05E-09	4.41E-10	3.49E-09	6.25E+02
4	1625	RA-228	4.62E-08	2.66E-09	4.06E-10	3.06E-09	6.23E+02
4	1700	RA-228	4.27E-08	2.46E-09	3.87E-10	2.85E-09	6.22E+02
4	1800	RA-228	3.86E-08	2.22E-09	3.64E-10	2.59E-09	6.20E+02
4	2000	RA-228	3.21E-08	1.85E-09	3.26E-10	2.17E-09	6.16E+02
4	2200	RA-228	2.72E-08	1.57E-09	2.95E-10	1.86E-09	6.14E+02
4	2500	RA-228	2.19E-08	1.26E-09	2.58E-10	1.52E-09	6.11E+02
4	5000	RA-228	7.21E-09	4.15E-10	1.23E-10	5.38E-10	5.81E+02
5	1200	RA-228	1.60E-07	9.20E-09	1.04E-09	1.02E-08	1.30E+03
5	1300	RA-228	1.39E-07	8.01E-09	9.59E-10	8.97E-09	1.29E+03
5	1400	RA-228	1.22E-07	7.03E-09	8.87E-10	7.91E-09	1.29E+03
5	1500	RA-228	1.08E-07	6.21E-09	8.24E-10	7.04E-09	1.28E+03
5	1625	RA-228	9.40E-08	5.41E-09	7.58E-10	6.17E-09	1.28E+03
5	1700	RA-228	8.69E-08	5.00E-09	7.23E-10	5.72E-09	1.28E+03
5	1800	RA-228	7.86E-08	4.52E-09	6.80E-10	5.20E-09	1.27E+03
5	2000	RA-228	6.52E-08	3.75E-09	6.08E-10	4.36E-09	1.26E+03
5	2200	RA-228	5.54E-08	3.19E-09	5.51E-10	3.74E-09	1.26E+03
5	2500	RA-228	4.45E-08	2.56E-09	4.82E-10	3.04E-09	1.25E+03
5	5000	RA-228	1.46E-08	8.41E-10	2.29E-10	1.07E-09	1.19E+03
6	1200	RA-228	1.19E-07	6.85E-09	1.20E-09	8.04E-09	1.99E+03
6	1300	RA-228	1.04E-07	5.97E-09	1.10E-09	7.07E-09	1.99E+03
6	1400	RA-228	9.13E-08	5.25E-09	1.02E-09	6.27E-09	1.98E+03
6	1500	RA-228	8.09E-08	4.66E-09	9.51E-10	5.61E-09	1.98E+03
6	1625	RA-228	7.06E-08	4.06E-09	8.76E-10	4.94E-09	1.98E+03
6	1700	RA-228	6.53E-08	3.76E-09	8.36E-10	4.60E-09	1.97E+03
6	1800	RA-228	5.92E-08	3.41E-09	7.88E-10	4.20E-09	1.97E+03
6	2000	RA-228	4.93E-08	2.84E-09	7.06E-10	3.54E-09	1.96E+03
6	2200	RA-228	4.19E-08	2.41E-09	6.41E-10	3.05E-09	1.96E+03
6	2500	RA-228	3.37E-08	1.94E-09	5.62E-10	2.50E-09	1.95E+03
6	5000	RA-228	1.13E-08	6.51E-10	2.72E-10	9.23E-10	1.90E+03
7	1200	RA-228	6.50E-08	3.74E-09	6.55E-10	4.40E-09	1.09E+03
7	1300	RA-228	5.67E-08	3.26E-09	6.03E-10	3.87E-09	1.09E+03
7	1400	RA-228	4.98E-08	2.87E-09	5.59E-10	3.43E-09	1.09E+03
7	1500	RA-228	4.42E-08	2.54E-09	5.20E-10	3.06E-09	1.09E+03
7	1625	RA-228	3.85E-08	2.22E-09	4.79E-10	2.70E-09	1.08E+03
7	1700	RA-228	3.56E-08	2.05E-09	4.57E-10	2.51E-09	1.08E+03
7	1800	RA-228	3.23E-08	1.86E-09	4.31E-10	2.29E-09	1.08E+03
7	2000	RA-228	2.69E-08	1.55E-09	3.87E-10	1.93E-09	1.08E+03
7	2200	RA-228	2.28E-08	1.31E-09	3.51E-10	1.67E-09	1.08E+03
7	2500	RA-228	1.84E-08	1.06E-09	3.08E-10	1.36E-09	1.07E+03
7	5000	RA-228	6.10E-09	3.51E-10	1.49E-10	5.00E-10	1.04E+03
8	1200	RA-228	6.41E-08	3.69E-09	5.48E-10	4.24E-09	9.98E+02
8	1300	RA-228	5.59E-08	3.21E-09	5.04E-10	3.72E-09	9.96E+02
8	1400	RA-228	4.91E-08	2.83E-09	4.67E-10	3.29E-09	9.94E+02
8	1500	RA-228	4.35E-08	2.50E-09	4.35E-10	2.94E-09	9.92E+02
8	1625	RA-228	3.79E-08	2.18E-09	4.00E-10	2.58E-09	9.90E+02

8	1700	RA-228	3.51E-08	2.02E-09	3.82E-10	2.40E-09	9.89E+02
8	1800	RA-228	3.18E-08	1.83E-09	3.60E-10	2.19E-09	9.87E+02
8	2000	RA-228	2.64E-08	1.52E-09	3.22E-10	1.84E-09	9.84E+02
8	2200	RA-228	2.25E-08	1.29E-09	2.92E-10	1.59E-09	9.82E+02
8	2500	RA-228	1.81E-08	1.04E-09	2.56E-10	1.30E-09	9.79E+02
8	5000	RA-228	6.00E-09	3.46E-10	1.24E-10	4.69E-10	9.53E+02
9	1200	RA-228	5.55E-08	3.20E-09	5.63E-10	3.76E-09	1.26E+03
9	1300	RA-228	4.84E-08	2.79E-09	5.19E-10	3.31E-09	1.25E+03
9	1400	RA-228	4.27E-08	2.46E-09	4.81E-10	2.94E-09	1.25E+03
9	1500	RA-228	3.79E-08	2.18E-09	4.48E-10	2.63E-09	1.25E+03
9	1625	RA-228	3.31E-08	1.90E-09	4.13E-10	2.31E-09	1.25E+03
9	1700	RA-228	3.06E-08	1.76E-09	3.94E-10	2.16E-09	1.25E+03
9	1800	RA-228	2.78E-08	1.60E-09	3.71E-10	1.97E-09	1.25E+03
9	2000	RA-228	2.31E-08	1.33E-09	3.33E-10	1.67E-09	1.24E+03
9	2200	RA-228	1.97E-08	1.13E-09	3.02E-10	1.44E-09	1.24E+03
9	2500	RA-228	1.59E-08	9.14E-10	2.65E-10	1.18E-09	1.24E+03
9	5000	RA-228	5.37E-09	3.09E-10	1.29E-10	4.38E-10	1.21E+03
10	1200	RA-228	1.17E-07	6.75E-09	9.87E-10	7.74E-09	1.84E+03
10	1300	RA-228	1.02E-07	5.88E-09	9.09E-10	6.79E-09	1.84E+03
10	1400	RA-228	8.98E-08	5.17E-09	8.42E-10	6.01E-09	1.84E+03
10	1500	RA-228	7.95E-08	4.58E-09	7.83E-10	5.36E-09	1.83E+03
10	1625	RA-228	6.93E-08	3.99E-09	7.21E-10	4.71E-09	1.83E+03
10	1700	RA-228	6.41E-08	3.69E-09	6.88E-10	4.38E-09	1.83E+03
10	1800	RA-228	5.81E-08	3.34E-09	6.48E-10	3.99E-09	1.83E+03
10	2000	RA-228	4.83E-08	2.78E-09	5.81E-10	3.36E-09	1.82E+03
10	2200	RA-228	4.11E-08	2.36E-09	5.27E-10	2.89E-09	1.82E+03
10	2500	RA-228	3.30E-08	1.90E-09	4.62E-10	2.36E-09	1.81E+03
10	5000	RA-228	1.10E-08	6.32E-10	2.23E-10	8.55E-10	1.76E+03
11	1200	RA-228	2.81E-07	1.61E-08	1.54E-09	1.77E-08	2.52E+03
11	1300	RA-228	2.44E-07	1.40E-08	1.42E-09	1.55E-08	2.51E+03
11	1400	RA-228	2.14E-07	1.23E-08	1.31E-09	1.36E-08	2.50E+03
11	1500	RA-228	1.89E-07	1.09E-08	1.22E-09	1.21E-08	2.49E+03
11	1625	RA-228	1.64E-07	9.47E-09	1.12E-09	1.06E-08	2.48E+03
11	1700	RA-228	1.52E-07	8.75E-09	1.07E-09	9.81E-09	2.48E+03
11	1800	RA-228	1.37E-07	7.91E-09	1.00E-09	8.91E-09	2.47E+03
11	2000	RA-228	1.14E-07	6.55E-09	8.97E-10	7.44E-09	2.46E+03
11	2200	RA-228	9.66E-08	5.56E-09	8.12E-10	6.38E-09	2.45E+03
11	2500	RA-228	7.75E-08	4.46E-09	7.11E-10	5.17E-09	2.44E+03
11	5000	RA-228	2.54E-08	1.46E-09	3.36E-10	1.80E-09	2.34E+03
12	1200	RA-228	3.62E-07	2.09E-08	1.90E-09	2.28E-08	2.99E+03
12	1300	RA-228	3.15E-07	1.81E-08	1.75E-09	1.99E-08	2.98E+03
12	1400	RA-228	2.76E-07	1.59E-08	1.62E-09	1.75E-08	2.97E+03
12	1500	RA-228	2.44E-07	1.41E-08	1.50E-09	1.56E-08	2.96E+03
12	1625	RA-228	2.13E-07	1.22E-08	1.38E-09	1.36E-08	2.95E+03
12	1700	RA-228	1.96E-07	1.13E-08	1.31E-09	1.26E-08	2.94E+03
12	1800	RA-228	1.78E-07	1.02E-08	1.24E-09	1.15E-08	2.94E+03
12	2000	RA-228	1.47E-07	8.47E-09	1.10E-09	9.58E-09	2.92E+03
12	2200	RA-228	1.25E-07	7.20E-09	1.00E-09	8.20E-09	2.91E+03
12	2500	RA-228	1.00E-07	5.78E-09	8.75E-10	6.65E-09	2.90E+03
12	5000	RA-228	3.30E-08	1.90E-09	4.12E-10	2.31E-09	2.77E+03
13	1200	RA-228	3.24E-07	1.87E-08	2.12E-09	2.08E-08	3.50E+03
13	1300	RA-228	2.82E-07	1.63E-08	1.95E-09	1.82E-08	3.49E+03
13	1400	RA-228	2.48E-07	1.43E-08	1.80E-09	1.61E-08	3.48E+03
13	1500	RA-228	2.20E-07	1.26E-08	1.67E-09	1.43E-08	3.47E+03
13	1625	RA-228	1.91E-07	1.10E-08	1.54E-09	1.25E-08	3.46E+03
13	1700	RA-228	1.77E-07	1.02E-08	1.47E-09	1.17E-08	3.46E+03
13	1800	RA-228	1.60E-07	9.22E-09	1.38E-09	1.06E-08	3.45E+03
13	2000	RA-228	1.33E-07	7.65E-09	1.24E-09	8.89E-09	3.43E+03
13	2200	RA-228	1.13E-07	6.51E-09	1.12E-09	7.63E-09	3.42E+03
13	2500	RA-228	9.08E-08	5.23E-09	9.81E-10	6.21E-09	3.41E+03
13	5000	RA-228	3.02E-08	1.74E-09	4.68E-10	2.21E-09	3.29E+03
14	1200	RA-228	3.39E-07	1.95E-08	2.29E-09	2.18E-08	3.30E+03
14	1300	RA-228	2.95E-07	1.70E-08	2.11E-09	1.91E-08	3.29E+03
14	1400	RA-228	2.59E-07	1.49E-08	1.95E-09	1.69E-08	3.28E+03
14	1500	RA-228	2.30E-07	1.32E-08	1.81E-09	1.50E-08	3.26E+03

14	1625	RA-228	2.00E-07	1.15E-08	1.67E-09	1.32E-08	3.26E+03
14	1700	RA-228	1.85E-07	1.07E-08	1.59E-09	1.22E-08	3.25E+03
14	1800	RA-228	1.68E-07	9.64E-09	1.50E-09	1.11E-08	3.24E+03
14	2000	RA-228	1.39E-07	8.01E-09	1.34E-09	9.35E-09	3.22E+03
14	2200	RA-228	1.18E-07	6.81E-09	1.21E-09	8.03E-09	3.21E+03
14	2500	RA-228	9.51E-08	5.48E-09	1.06E-09	6.54E-09	3.20E+03
14	5000	RA-228	3.17E-08	1.83E-09	5.06E-10	2.33E-09	3.07E+03
15	1200	RA-228	2.74E-07	1.58E-08	2.37E-09	1.81E-08	3.95E+03
15	1300	RA-228	2.39E-07	1.37E-08	2.18E-09	1.59E-08	3.94E+03
15	1400	RA-228	2.10E-07	1.21E-08	2.02E-09	1.41E-08	3.93E+03
15	1500	RA-228	1.86E-07	1.07E-08	1.88E-09	1.26E-08	3.92E+03
15	1625	RA-228	1.63E-07	9.37E-09	1.73E-09	1.11E-08	3.92E+03
15	1700	RA-228	1.51E-07	8.67E-09	1.65E-09	1.03E-08	3.91E+03
15	1800	RA-228	1.37E-07	7.86E-09	1.56E-09	9.42E-09	3.90E+03
15	2000	RA-228	1.14E-07	6.55E-09	1.40E-09	7.95E-09	3.89E+03
15	2200	RA-228	9.69E-08	5.58E-09	1.27E-09	6.85E-09	3.88E+03
15	2500	RA-228	7.80E-08	4.49E-09	1.11E-09	5.60E-09	3.87E+03
15	5000	RA-228	2.64E-08	1.52E-09	5.35E-10	2.05E-09	3.76E+03
16	1200	RA-228	1.91E-07	1.10E-08	1.76E-09	1.28E-08	3.90E+03
16	1300	RA-228	1.67E-07	9.61E-09	1.62E-09	1.12E-08	3.90E+03
16	1400	RA-228	1.47E-07	8.46E-09	1.50E-09	9.96E-09	3.89E+03
16	1500	RA-228	1.31E-07	7.51E-09	1.40E-09	8.91E-09	3.88E+03
16	1625	RA-228	1.14E-07	6.56E-09	1.29E-09	7.85E-09	3.88E+03
16	1700	RA-228	1.06E-07	6.07E-09	1.23E-09	7.30E-09	3.88E+03
16	1800	RA-228	9.57E-08	5.51E-09	1.16E-09	6.67E-09	3.87E+03
16	2000	RA-228	7.98E-08	4.59E-09	1.04E-09	5.63E-09	3.86E+03
16	2200	RA-228	6.80E-08	3.91E-09	9.42E-10	4.85E-09	3.85E+03
16	2500	RA-228	5.48E-08	3.15E-09	8.27E-10	3.98E-09	3.85E+03
16	5000	RA-228	1.86E-08	1.07E-09	4.01E-10	1.47E-09	3.76E+03

1 GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE RA-228
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.3301E-03
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5900E-03
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.5000E-03
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.1000E+00
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.2000E-01
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E+00
0 GI UPTAKE FRACTION (INGESTION) 0.2000E+00
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS W
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-06	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	1200	0.101E-12	0.200E-08	0.125E+04	0.809E+03
1	1300	0.880E-13	0.176E-08	0.110E+04	0.707E+03
1	1400	0.775E-13	0.156E-08	0.974E+03	0.623E+03
1	1500	0.689E-13	0.140E-08	0.872E+03	0.553E+03
1	1625	0.602E-13	0.123E-08	0.768E+03	0.483E+03
1	1700	0.557E-13	0.115E-08	0.715E+03	0.448E+03
1	1800	0.506E-13	0.105E-08	0.653E+03	0.406E+03
1	2000	0.422E-13	0.887E-09	0.552E+03	0.339E+03
1	2200	0.360E-13	0.765E-09	0.476E+03	0.289E+03
1	2500	0.290E-13	0.628E-09	0.391E+03	0.233E+03
1	5000	0.991E-14	0.233E-09	0.145E+03	0.796E+02
2	1200	0.663E-13	0.132E-08	0.821E+03	0.532E+03
2	1300	0.578E-13	0.116E-08	0.722E+03	0.464E+03
2	1400	0.509E-13	0.103E-08	0.641E+03	0.409E+03
2	1500	0.452E-13	0.921E-09	0.573E+03	0.363E+03
2	1625	0.395E-13	0.811E-09	0.505E+03	0.317E+03

2	1700	0.366E-13	0.755E-09	0.470E+03	0.294E+03
2	1800	0.332E-13	0.689E-09	0.429E+03	0.266E+03
2	2000	0.277E-13	0.583E-09	0.363E+03	0.222E+03
2	2200	0.236E-13	0.502E-09	0.313E+03	0.189E+03
2	2500	0.190E-13	0.412E-09	0.256E+03	0.152E+03
2	5000	0.644E-14	0.152E-09	0.947E+02	0.517E+02
3	1200	0.514E-13	0.100E-08	0.624E+03	0.413E+03
3	1300	0.447E-13	0.880E-09	0.548E+03	0.359E+03
3	1400	0.393E-13	0.778E-09	0.485E+03	0.316E+03
3	1500	0.348E-13	0.694E-09	0.432E+03	0.280E+03
3	1625	0.303E-13	0.609E-09	0.379E+03	0.244E+03
3	1700	0.281E-13	0.566E-09	0.353E+03	0.225E+03
3	1800	0.254E-13	0.516E-09	0.321E+03	0.204E+03
3	2000	0.211E-13	0.434E-09	0.270E+03	0.170E+03
3	2200	0.179E-13	0.373E-09	0.232E+03	0.144E+03
3	2500	0.144E-13	0.304E-09	0.190E+03	0.116E+03
3	5000	0.478E-14	0.109E-09	0.681E+02	0.384E+02
4	1200	0.785E-13	0.151E-08	0.939E+03	0.630E+03
4	1300	0.683E-13	0.132E-08	0.822E+03	0.548E+03
4	1400	0.600E-13	0.117E-08	0.727E+03	0.482E+03
4	1500	0.530E-13	0.104E-08	0.647E+03	0.426E+03
4	1625	0.462E-13	0.911E-09	0.567E+03	0.371E+03
4	1700	0.427E-13	0.846E-09	0.527E+03	0.343E+03
4	1800	0.386E-13	0.770E-09	0.479E+03	0.310E+03
4	2000	0.321E-13	0.645E-09	0.402E+03	0.257E+03
4	2200	0.272E-13	0.554E-09	0.345E+03	0.219E+03
4	2500	0.219E-13	0.451E-09	0.281E+03	0.176E+03
4	5000	0.721E-14	0.160E-09	0.995E+02	0.579E+02
5	1200	0.160E-12	0.305E-08	0.190E+04	0.128E+04
5	1300	0.139E-12	0.267E-08	0.166E+04	0.112E+04
5	1400	0.122E-12	0.235E-08	0.146E+04	0.980E+03
5	1500	0.108E-12	0.209E-08	0.130E+04	0.867E+03
5	1625	0.940E-13	0.183E-08	0.114E+04	0.755E+03
5	1700	0.869E-13	0.170E-08	0.106E+04	0.698E+03
5	1800	0.786E-13	0.155E-08	0.963E+03	0.631E+03
5	2000	0.652E-13	0.130E-08	0.807E+03	0.523E+03
5	2200	0.554E-13	0.111E-08	0.692E+03	0.445E+03
5	2500	0.445E-13	0.904E-09	0.563E+03	0.357E+03
5	5000	0.146E-13	0.318E-09	0.198E+03	0.117E+03
6	1200	0.119E-12	0.239E-08	0.149E+04	0.955E+03
6	1300	0.104E-12	0.210E-08	0.131E+04	0.833E+03
6	1400	0.913E-13	0.186E-08	0.116E+04	0.733E+03
6	1500	0.809E-13	0.167E-08	0.104E+04	0.650E+03
6	1625	0.706E-13	0.147E-08	0.914E+03	0.567E+03
6	1700	0.653E-13	0.137E-08	0.851E+03	0.525E+03
6	1800	0.592E-13	0.125E-08	0.776E+03	0.475E+03
6	2000	0.493E-13	0.105E-08	0.656E+03	0.396E+03
6	2200	0.419E-13	0.908E-09	0.565E+03	0.337E+03
6	2500	0.337E-13	0.744E-09	0.463E+03	0.271E+03
6	5000	0.113E-13	0.274E-09	0.171E+03	0.908E+02
7	1200	0.650E-13	0.131E-08	0.814E+03	0.522E+03
7	1300	0.567E-13	0.115E-08	0.715E+03	0.455E+03
7	1400	0.498E-13	0.102E-08	0.634E+03	0.400E+03
7	1500	0.442E-13	0.910E-09	0.567E+03	0.355E+03
7	1625	0.385E-13	0.801E-09	0.499E+03	0.309E+03
7	1700	0.356E-13	0.746E-09	0.464E+03	0.286E+03
7	1800	0.323E-13	0.681E-09	0.424E+03	0.259E+03
7	2000	0.269E-13	0.574E-09	0.358E+03	0.216E+03
7	2200	0.228E-13	0.495E-09	0.308E+03	0.183E+03
7	2500	0.184E-13	0.406E-09	0.253E+03	0.147E+03
7	5000	0.610E-14	0.149E-09	0.926E+02	0.490E+02
8	1200	0.641E-13	0.126E-08	0.784E+03	0.515E+03
8	1300	0.559E-13	0.111E-08	0.688E+03	0.448E+03
8	1400	0.491E-13	0.979E-09	0.609E+03	0.394E+03
8	1500	0.435E-13	0.873E-09	0.544E+03	0.349E+03

8	1625	0.379E-13	0.768E-09	0.478E+03	0.304E+03
8	1700	0.351E-13	0.714E-09	0.444E+03	0.282E+03
8	1800	0.318E-13	0.650E-09	0.405E+03	0.255E+03
8	2000	0.264E-13	0.548E-09	0.341E+03	0.212E+03
8	2200	0.225E-13	0.471E-09	0.293E+03	0.180E+03
8	2500	0.181E-13	0.385E-09	0.240E+03	0.145E+03
8	5000	0.600E-14	0.140E-09	0.869E+02	0.482E+02
9	1200	0.555E-13	0.112E-08	0.696E+03	0.446E+03
9	1300	0.484E-13	0.983E-09	0.612E+03	0.389E+03
9	1400	0.427E-13	0.873E-09	0.543E+03	0.343E+03
9	1500	0.379E-13	0.781E-09	0.486E+03	0.304E+03
9	1625	0.331E-13	0.688E-09	0.428E+03	0.265E+03
9	1700	0.306E-13	0.641E-09	0.399E+03	0.246E+03
9	1800	0.278E-13	0.585E-09	0.364E+03	0.223E+03
9	2000	0.231E-13	0.495E-09	0.308E+03	0.186E+03
9	2200	0.197E-13	0.427E-09	0.266E+03	0.158E+03
9	2500	0.159E-13	0.350E-09	0.218E+03	0.127E+03
9	5000	0.537E-14	0.130E-09	0.811E+02	0.431E+02
10	1200	0.117E-12	0.230E-08	0.143E+04	0.942E+03
10	1300	0.102E-12	0.202E-08	0.126E+04	0.821E+03
10	1400	0.898E-13	0.179E-08	0.111E+04	0.721E+03
10	1500	0.796E-13	0.159E-08	0.992E+03	0.639E+03
10	1625	0.693E-13	0.140E-08	0.872E+03	0.557E+03
10	1700	0.641E-13	0.130E-08	0.811E+03	0.515E+03
10	1800	0.581E-13	0.119E-08	0.739E+03	0.466E+03
10	2000	0.483E-13	0.999E-09	0.622E+03	0.388E+03
10	2200	0.411E-13	0.859E-09	0.535E+03	0.330E+03
10	2500	0.330E-13	0.702E-09	0.437E+03	0.265E+03
10	5000	0.110E-13	0.254E-09	0.158E+03	0.882E+02
11	1200	0.281E-12	0.526E-08	0.327E+04	0.225E+04
11	1300	0.244E-12	0.460E-08	0.286E+04	0.196E+04
11	1400	0.214E-12	0.405E-08	0.252E+04	0.172E+04
11	1500	0.189E-12	0.359E-08	0.224E+04	0.152E+04
11	1625	0.164E-12	0.315E-08	0.196E+04	0.132E+04
11	1700	0.152E-12	0.292E-08	0.182E+04	0.122E+04
11	1800	0.137E-12	0.265E-08	0.165E+04	0.110E+04
11	2000	0.114E-12	0.221E-08	0.138E+04	0.914E+03
11	2200	0.966E-13	0.190E-08	0.118E+04	0.776E+03
11	2500	0.775E-13	0.154E-08	0.958E+03	0.623E+03
11	5000	0.254E-13	0.534E-09	0.332E+03	0.204E+03
12	1200	0.362E-12	0.677E-08	0.421E+04	0.291E+04
12	1300	0.315E-12	0.591E-08	0.368E+04	0.253E+04
12	1400	0.276E-12	0.521E-08	0.324E+04	0.222E+04
12	1500	0.244E-12	0.462E-08	0.288E+04	0.196E+04
12	1625	0.213E-12	0.405E-08	0.252E+04	0.171E+04
12	1700	0.196E-12	0.375E-08	0.234E+04	0.158E+04
12	1800	0.178E-12	0.341E-08	0.212E+04	0.143E+04
12	2000	0.147E-12	0.285E-08	0.177E+04	0.118E+04
12	2200	0.125E-12	0.244E-08	0.152E+04	0.100E+04
12	2500	0.100E-12	0.198E-08	0.123E+04	0.806E+03
12	5000	0.330E-13	0.687E-09	0.428E+03	0.265E+03
13	1200	0.324E-12	0.618E-08	0.385E+04	0.260E+04
13	1300	0.282E-12	0.541E-08	0.337E+04	0.227E+04
13	1400	0.248E-12	0.478E-08	0.298E+04	0.199E+04
13	1500	0.220E-12	0.425E-08	0.265E+04	0.176E+04
13	1625	0.191E-12	0.373E-08	0.232E+04	0.154E+04
13	1700	0.177E-12	0.346E-08	0.216E+04	0.142E+04
13	1800	0.160E-12	0.315E-08	0.196E+04	0.129E+04
13	2000	0.133E-12	0.264E-08	0.164E+04	0.107E+04
13	2200	0.113E-12	0.227E-08	0.141E+04	0.908E+03
13	2500	0.908E-13	0.185E-08	0.115E+04	0.729E+03
13	5000	0.302E-13	0.656E-09	0.408E+03	0.242E+03
14	1200	0.339E-12	0.648E-08	0.403E+04	0.272E+04
14	1300	0.295E-12	0.567E-08	0.353E+04	0.237E+04
14	1400	0.259E-12	0.502E-08	0.312E+04	0.208E+04

14	1500	0.230E-12	0.447E-08	0.278E+04	0.184E+04
14	1625	0.200E-12	0.392E-08	0.244E+04	0.161E+04
14	1700	0.185E-12	0.364E-08	0.227E+04	0.149E+04
14	1800	0.168E-12	0.331E-08	0.206E+04	0.135E+04
14	2000	0.139E-12	0.278E-08	0.173E+04	0.112E+04
14	2200	0.118E-12	0.239E-08	0.149E+04	0.951E+03
14	2500	0.951E-13	0.194E-08	0.121E+04	0.764E+03
14	5000	0.317E-13	0.694E-09	0.432E+03	0.255E+03
15	1200	0.274E-12	0.539E-08	0.335E+04	0.220E+04
15	1300	0.239E-12	0.473E-08	0.295E+04	0.192E+04
15	1400	0.210E-12	0.420E-08	0.261E+04	0.169E+04
15	1500	0.186E-12	0.375E-08	0.233E+04	0.150E+04
15	1625	0.163E-12	0.330E-08	0.205E+04	0.131E+04
15	1700	0.151E-12	0.307E-08	0.191E+04	0.121E+04
15	1800	0.137E-12	0.280E-08	0.174E+04	0.110E+04
15	2000	0.114E-12	0.236E-08	0.147E+04	0.914E+03
15	2200	0.969E-13	0.203E-08	0.127E+04	0.778E+03
15	2500	0.780E-13	0.167E-08	0.104E+04	0.627E+03
15	5000	0.264E-13	0.611E-09	0.380E+03	0.212E+03
16	1200	0.191E-12	0.380E-08	0.236E+04	0.154E+04
16	1300	0.167E-12	0.334E-08	0.208E+04	0.134E+04
16	1400	0.147E-12	0.296E-08	0.184E+04	0.118E+04
16	1500	0.131E-12	0.265E-08	0.165E+04	0.105E+04
16	1625	0.114E-12	0.233E-08	0.145E+04	0.915E+03
16	1700	0.106E-12	0.217E-08	0.135E+04	0.847E+03
16	1800	0.957E-13	0.198E-08	0.123E+04	0.768E+03
16	2000	0.798E-13	0.167E-08	0.104E+04	0.641E+03
16	2200	0.680E-13	0.144E-08	0.898E+03	0.546E+03
16	2500	0.548E-13	0.118E-08	0.736E+03	0.440E+03
16	5000	0.186E-13	0.438E-09	0.273E+03	0.149E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.9013E-16	0.00	100.00
	SURFACE	0.1751E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1388E-01	69.59	100.00
	INGEST.	0.6066E-02	30.41	100.00
	VEGET.	0.5467E-02	* 27.40	* 90.11
	MEAT	0.2339E-03	* 1.17	* 3.86
	MILK	0.3658E-03	* 1.83	* 6.03

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7944E-02	43.80	100.00
	INGEST.	0.1019E-01	56.20	100.00
	VEGET.	0.9187E-02	* 50.65	* 90.11
	MEAT	0.3930E-03	* 2.17	* 3.86
	MILK	0.6147E-03	* 3.39	* 6.03

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.1127E-16	0.00	100.00
	SURFACE	0.2189E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7013E-01	43.63	100.00
	INGEST.	0.9061E-01	56.37	100.00
	VEGET.	0.8166E-01	* 50.80	* 90.11
	MEAT	0.3493E-02	* 2.17	* 3.86
	MILK	0.5464E-02	* 3.40	* 6.03

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

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0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1970E-02       44.60             100.00
                   INGEST.      0.2448E-02       55.40             100.00
                    VEGET.      0.2206E-02      * 49.93            * 90.11
                    MEAT        0.9436E-04      *  2.14            *  3.86
                    MILK        0.1476E-03      *  3.34            *  6.03
1                   PERCENT OF BREAST  DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.6534E-15        0.00             100.00
                   SURFACE      0.1270E-11        0.00             100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1982E-02       44.74             100.00
                   INGEST.      0.2448E-02       55.26             100.00
                    VEGET.      0.2206E-02      * 49.80            * 90.11
                    MEAT        0.9436E-04      *  2.13            *  3.86
                    MILK        0.1476E-03      *  3.33            *  6.03
1                   PERCENT OF *PUL*  DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.1127E-16        0.00             100.00
                   SURFACE      0.2189E-13        0.00             100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.7770E-01       96.95             100.00
                   INGEST.      0.2448E-02        3.05             100.00
                    VEGET.      0.2206E-02      *  2.75            * 90.11
                    MEAT        0.9436E-04      *  0.12            *  3.86
                    MILK        0.1476E-03      *  0.18            *  6.03
1                   PERCENT OF S WALL  DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1970E-02       44.43             100.00
                   INGEST.      0.2464E-02       55.57             100.00
                    VEGET.      0.2221E-02      * 50.08            * 90.11
                    MEAT        0.9501E-04      *  2.14            *  3.86
                    MILK        0.1486E-03      *  3.35            *  6.03
1                   PERCENT OF INT WALL DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1422E-02       47.75             100.00
                   INGEST.      0.1556E-02       52.25             100.00
                    VEGET.      0.1402E-02      * 47.09            * 90.11
                    MEAT        0.5998E-04      *  2.01            *  3.86
                    MILK        0.9381E-04      *  3.15            *  6.03
1                   PERCENT OF LIVER  DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.2499E-02       60.05             100.00
                   INGEST.      0.1662E-02       39.95             100.00
                    VEGET.      0.1498E-02      * 36.00            * 90.11
                    MEAT        0.6409E-04      *  1.54            *  3.86
                    MILK        0.1002E-03      *  2.41            *  6.03
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1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1314E-02	48.41	100.00
	INGEST.	0.1400E-02	51.59	100.00
	VEGET.	0.1261E-02	* 46.49	* 90.11
	MEAT	0.5397E-04	* 1.99	* 3.86
	MILK	0.8441E-04	* 3.11	* 6.03

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1340E-02	48.49	100.00
	INGEST.	0.1423E-02	51.51	100.00
	VEGET.	0.1283E-02	* 46.42	* 90.11
	MEAT	0.5488E-04	* 1.99	* 3.86
	MILK	0.8583E-04	* 3.11	* 6.03

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.9013E-16	0.0000
SURFACE	0.1751E-12	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1388E-01	69.5889
INGEST.	0.6066E-02	30.4111
VEGET.	*0.5467E-02	* 27.4049
MEAT	*0.2339E-03	* 1.1724
MILK	*0.3658E-03	* 1.8338

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.7944E-02	43.7978
INGEST.	0.1019E-01	56.2022
VEGET.	*0.9187E-02	* 50.6464
MEAT	*0.3930E-03	* 2.1668
MILK	*0.6147E-03	* 3.3890

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1127E-16	0.0000
SURFACE	0.2189E-13	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.7013E-01	43.6295
INGEST.	0.9061E-01	56.3705
VEGET.	*0.8166E-01	* 50.7981
MEAT	*0.3493E-02	* 2.1733
MILK	*0.5464E-02	* 3.3992

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1970E-02	44.5965
INGEST.	0.2448E-02	55.4035
VEGET.	*0.2206E-02	* 49.9267
MEAT	*0.9436E-04	* 2.1360
MILK	*0.1476E-03	* 3.3408

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.6534E-15	0.0000

0	SURFACE	0.1270E-11	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1982E-02	44.7421
0	INGEST.	0.2448E-02	55.2579
0	VEGET.	*0.2206E-02	* 49.7954
0	MEAT	*0.9436E-04	* 2.1304
0	MILK	*0.1476E-03	* 3.3321

0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1127E-16	0.0000
0	SURFACE	0.2189E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.7770E-01	96.9462
0	INGEST.	0.2448E-02	3.0538
0	VEGET.	*0.2206E-02	* 2.7519
0	MEAT	*0.9436E-04	* 0.1177
0	MILK	*0.1476E-03	* 0.1841

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1970E-02	44.4271
0	INGEST.	0.2464E-02	55.5729
0	VEGET.	*0.2221E-02	* 50.0794
0	MEAT	*0.9501E-04	* 2.1425
0	MILK	*0.1486E-03	* 3.3511

0 CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1422E-02	47.7471
0	INGEST.	0.1556E-02	52.2529
0	VEGET.	*0.1402E-02	* 47.0875
0	MEAT	*0.5998E-04	* 2.0145
0	MILK	*0.9381E-04	* 3.1509

0 CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2499E-02	60.0522
0	INGEST.	0.1662E-02	39.9478
0	VEGET.	*0.1498E-02	* 35.9988
0	MEAT	*0.6409E-04	* 1.5401
0	MILK	*0.1002E-03	* 2.4089

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1314E-02	48.4108
0	INGEST.	0.1400E-02	51.5892
0	VEGET.	*0.1261E-02	* 46.4895
0	MEAT	*0.5397E-04	* 1.9889
0	MILK	*0.8441E-04	* 3.1108

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1340E-02	48.4864
0	INGEST.	0.1423E-02	51.5136
0	VEGET.	*0.1283E-02	* 46.4213

0 MEAT *0.5488E-04 * 1.9860
0 MILK *0.8583E-04 * 3.1063
1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.1995E-01
0	R MAR	0.1814E-01
0	ENDOST	0.1607E+00
0	THYROID	0.4418E-02
0	BREAST	0.4429E-02
0	*PUL*	0.8015E-01
0	S WALL	0.4434E-02
0	INT WALL	0.2977E-02
0	LIVER	0.4161E-02
0	PANCREAS	0.2713E-02
0	KIDNEYS	0.2763E-02

1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
RA-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	RA-228	W BODY	0.1995E-01	12	6
0	RA-228	R MAR	0.1814E-01	12	6
0	RA-228	ENDOST	0.1607E+00	12	6
0	RA-228	THYROID	0.4418E-02	12	6
0	RA-228	BREAST	0.4429E-02	12	6
0	RA-228	*PUL*	0.8015E-01	12	6
0	RA-228	S WALL	0.4434E-02	12	6
0	RA-228	INT WALL	0.2977E-02	12	6
0	RA-228	LIVER	0.4161E-02	12	6
0	RA-228	PANCREAS	0.2713E-02	12	6
0	RA-228	KIDNEYS	0.2763E-02	12	6

Building 64

Thorium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  UPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
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METEOROLOGICAL DATA
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PHYSICAL STACK DATA
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WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
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AG DATA
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AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 64 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-228	0.110E+01

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-228	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)

WIND TOWARD	DISTANCE (METERS)					
0						
1	1200	TH-228	1.01E-07	5.80E-09	9.39E-10	6.74E-09	1.93E+03
1	1300	TH-228	8.80E-08	5.06E-09	8.65E-10	5.93E-09	1.93E+03
1	1400	TH-228	7.75E-08	4.46E-09	8.01E-10	5.26E-09	1.92E+03
1	1500	TH-228	6.89E-08	3.97E-09	7.46E-10	4.71E-09	1.92E+03
1	1625	TH-228	6.02E-08	3.46E-09	6.87E-10	4.15E-09	1.92E+03
1	1700	TH-228	5.57E-08	3.21E-09	6.56E-10	3.86E-09	1.92E+03
1	1800	TH-228	5.06E-08	2.91E-09	6.19E-10	3.53E-09	1.91E+03
1	2000	TH-228	4.22E-08	2.43E-09	5.55E-10	2.99E-09	1.91E+03
1	2200	TH-228	3.60E-08	2.07E-09	5.03E-10	2.57E-09	1.90E+03
1	2500	TH-228	2.90E-08	1.67E-09	4.41E-10	2.11E-09	1.90E+03
1	5000	TH-228	9.91E-09	5.71E-10	2.14E-10	7.85E-10	1.86E+03
2	1200	TH-228	6.63E-08	3.81E-09	6.24E-10	4.44E-09	9.39E+02
2	1300	TH-228	5.78E-08	3.33E-09	5.74E-10	3.90E-09	9.37E+02
2	1400	TH-228	5.09E-08	2.93E-09	5.32E-10	3.46E-09	9.35E+02
2	1500	TH-228	4.52E-08	2.60E-09	4.95E-10	3.10E-09	9.33E+02
2	1625	TH-228	3.95E-08	2.27E-09	4.56E-10	2.73E-09	9.31E+02
2	1700	TH-228	3.66E-08	2.11E-09	4.35E-10	2.54E-09	9.30E+02

2	1800	TH-228	3.32E-08	1.91E-09	4.10E-10	2.32E-09	9.28E+02
2	2000	TH-228	2.77E-08	1.59E-09	3.67E-10	1.96E-09	9.25E+02
2	2200	TH-228	2.36E-08	1.36E-09	3.33E-10	1.69E-09	9.22E+02
2	2500	TH-228	1.90E-08	1.09E-09	2.92E-10	1.38E-09	9.19E+02
2	5000	TH-228	6.44E-09	3.71E-10	1.41E-10	5.12E-10	8.91E+02
3	1200	TH-228	5.14E-08	2.96E-09	4.17E-10	3.37E-09	5.07E+02
3	1300	TH-228	4.47E-08	2.58E-09	3.84E-10	2.96E-09	5.05E+02
3	1400	TH-228	3.93E-08	2.26E-09	3.55E-10	2.62E-09	5.04E+02
3	1500	TH-228	3.48E-08	2.00E-09	3.30E-10	2.33E-09	5.02E+02
3	1625	TH-228	3.03E-08	1.75E-09	3.04E-10	2.05E-09	5.00E+02
3	1700	TH-228	2.81E-08	1.62E-09	2.90E-10	1.91E-09	5.00E+02
3	1800	TH-228	2.54E-08	1.46E-09	2.73E-10	1.74E-09	4.98E+02
3	2000	TH-228	2.11E-08	1.21E-09	2.44E-10	1.46E-09	4.96E+02
3	2200	TH-228	1.79E-08	1.03E-09	2.21E-10	1.25E-09	4.94E+02
3	2500	TH-228	1.44E-08	8.30E-10	1.94E-10	1.02E-09	4.92E+02
3	5000	TH-228	4.78E-09	2.75E-10	9.27E-11	3.68E-10	4.72E+02
4	1200	TH-228	7.85E-08	4.52E-09	5.58E-10	5.06E-09	6.33E+02
4	1300	TH-228	6.83E-08	3.93E-09	5.13E-10	4.44E-09	6.31E+02
4	1400	TH-228	6.00E-08	3.45E-09	4.75E-10	3.93E-09	6.28E+02
4	1500	TH-228	5.30E-08	3.05E-09	4.41E-10	3.49E-09	6.25E+02
4	1625	TH-228	4.62E-08	2.66E-09	4.06E-10	3.06E-09	6.23E+02
4	1700	TH-228	4.27E-08	2.46E-09	3.87E-10	2.85E-09	6.22E+02
4	1800	TH-228	3.86E-08	2.22E-09	3.64E-10	2.59E-09	6.20E+02
4	2000	TH-228	3.21E-08	1.85E-09	3.26E-10	2.17E-09	6.16E+02
4	2200	TH-228	2.72E-08	1.57E-09	2.95E-10	1.86E-09	6.14E+02
4	2500	TH-228	2.19E-08	1.26E-09	2.58E-10	1.52E-09	6.11E+02
4	5000	TH-228	7.21E-09	4.15E-10	1.23E-10	5.38E-10	5.81E+02
5	1200	TH-228	1.60E-07	9.20E-09	1.04E-09	1.02E-08	1.30E+03
5	1300	TH-228	1.39E-07	8.01E-09	9.59E-10	8.97E-09	1.29E+03
5	1400	TH-228	1.22E-07	7.03E-09	8.87E-10	7.91E-09	1.29E+03
5	1500	TH-228	1.08E-07	6.21E-09	8.24E-10	7.04E-09	1.28E+03
5	1625	TH-228	9.40E-08	5.41E-09	7.58E-10	6.17E-09	1.28E+03
5	1700	TH-228	8.69E-08	5.00E-09	7.23E-10	5.72E-09	1.28E+03
5	1800	TH-228	7.86E-08	4.52E-09	6.80E-10	5.20E-09	1.27E+03
5	2000	TH-228	6.52E-08	3.75E-09	6.08E-10	4.36E-09	1.26E+03
5	2200	TH-228	5.54E-08	3.19E-09	5.51E-10	3.74E-09	1.26E+03
5	2500	TH-228	4.45E-08	2.56E-09	4.82E-10	3.04E-09	1.25E+03
5	5000	TH-228	1.46E-08	8.41E-10	2.29E-10	1.07E-09	1.19E+03
6	1200	TH-228	1.19E-07	6.85E-09	1.20E-09	8.04E-09	1.99E+03
6	1300	TH-228	1.04E-07	5.97E-09	1.10E-09	7.07E-09	1.99E+03
6	1400	TH-228	9.13E-08	5.25E-09	1.02E-09	6.27E-09	1.98E+03
6	1500	TH-228	8.09E-08	4.66E-09	9.51E-10	5.61E-09	1.98E+03
6	1625	TH-228	7.06E-08	4.06E-09	8.76E-10	4.94E-09	1.98E+03
6	1700	TH-228	6.53E-08	3.76E-09	8.36E-10	4.60E-09	1.97E+03
6	1800	TH-228	5.92E-08	3.41E-09	7.88E-10	4.20E-09	1.97E+03
6	2000	TH-228	4.93E-08	2.84E-09	7.06E-10	3.54E-09	1.96E+03
6	2200	TH-228	4.19E-08	2.41E-09	6.41E-10	3.05E-09	1.96E+03
6	2500	TH-228	3.37E-08	1.94E-09	5.62E-10	2.50E-09	1.95E+03
6	5000	TH-228	1.13E-08	6.51E-10	2.72E-10	9.23E-10	1.90E+03
7	1200	TH-228	6.50E-08	3.74E-09	6.55E-10	4.40E-09	1.09E+03
7	1300	TH-228	5.67E-08	3.26E-09	6.03E-10	3.87E-09	1.09E+03
7	1400	TH-228	4.98E-08	2.87E-09	5.59E-10	3.43E-09	1.09E+03
7	1500	TH-228	4.42E-08	2.54E-09	5.20E-10	3.06E-09	1.09E+03
7	1625	TH-228	3.85E-08	2.22E-09	4.79E-10	2.70E-09	1.08E+03
7	1700	TH-228	3.56E-08	2.05E-09	4.57E-10	2.51E-09	1.08E+03
7	1800	TH-228	3.23E-08	1.86E-09	4.31E-10	2.29E-09	1.08E+03
7	2000	TH-228	2.69E-08	1.55E-09	3.87E-10	1.93E-09	1.08E+03
7	2200	TH-228	2.28E-08	1.31E-09	3.51E-10	1.67E-09	1.08E+03
7	2500	TH-228	1.84E-08	1.06E-09	3.08E-10	1.36E-09	1.07E+03
7	5000	TH-228	6.10E-09	3.51E-10	1.49E-10	5.00E-10	1.04E+03
8	1200	TH-228	6.41E-08	3.69E-09	5.48E-10	4.24E-09	9.98E+02
8	1300	TH-228	5.59E-08	3.21E-09	5.04E-10	3.72E-09	9.96E+02
8	1400	TH-228	4.91E-08	2.83E-09	4.67E-10	3.29E-09	9.94E+02
8	1500	TH-228	4.35E-08	2.50E-09	4.35E-10	2.94E-09	9.92E+02
8	1625	TH-228	3.79E-08	2.18E-09	4.00E-10	2.58E-09	9.90E+02

8	1700	TH-228	3.51E-08	2.02E-09	3.82E-10	2.40E-09	9.89E+02
8	1800	TH-228	3.18E-08	1.83E-09	3.60E-10	2.19E-09	9.87E+02
8	2000	TH-228	2.64E-08	1.52E-09	3.22E-10	1.84E-09	9.84E+02
8	2200	TH-228	2.25E-08	1.29E-09	2.92E-10	1.59E-09	9.82E+02
8	2500	TH-228	1.81E-08	1.04E-09	2.56E-10	1.30E-09	9.79E+02
8	5000	TH-228	6.00E-09	3.46E-10	1.24E-10	4.69E-10	9.53E+02
9	1200	TH-228	5.55E-08	3.20E-09	5.63E-10	3.76E-09	1.26E+03
9	1300	TH-228	4.84E-08	2.79E-09	5.19E-10	3.31E-09	1.25E+03
9	1400	TH-228	4.27E-08	2.46E-09	4.81E-10	2.94E-09	1.25E+03
9	1500	TH-228	3.79E-08	2.18E-09	4.48E-10	2.63E-09	1.25E+03
9	1625	TH-228	3.31E-08	1.90E-09	4.13E-10	2.31E-09	1.25E+03
9	1700	TH-228	3.06E-08	1.76E-09	3.94E-10	2.16E-09	1.25E+03
9	1800	TH-228	2.78E-08	1.60E-09	3.71E-10	1.97E-09	1.25E+03
9	2000	TH-228	2.31E-08	1.33E-09	3.33E-10	1.67E-09	1.24E+03
9	2200	TH-228	1.97E-08	1.13E-09	3.02E-10	1.44E-09	1.24E+03
9	2500	TH-228	1.59E-08	9.14E-10	2.65E-10	1.18E-09	1.24E+03
9	5000	TH-228	5.37E-09	3.09E-10	1.29E-10	4.38E-10	1.21E+03
10	1200	TH-228	1.17E-07	6.75E-09	9.87E-10	7.74E-09	1.84E+03
10	1300	TH-228	1.02E-07	5.88E-09	9.09E-10	6.79E-09	1.84E+03
10	1400	TH-228	8.98E-08	5.17E-09	8.42E-10	6.01E-09	1.84E+03
10	1500	TH-228	7.96E-08	4.58E-09	7.83E-10	5.36E-09	1.83E+03
10	1625	TH-228	6.93E-08	3.99E-09	7.21E-10	4.71E-09	1.83E+03
10	1700	TH-228	6.41E-08	3.69E-09	6.88E-10	4.38E-09	1.83E+03
10	1800	TH-228	5.81E-08	3.34E-09	6.48E-10	3.99E-09	1.83E+03
10	2000	TH-228	4.83E-08	2.78E-09	5.81E-10	3.36E-09	1.82E+03
10	2200	TH-228	4.11E-08	2.36E-09	5.27E-10	2.89E-09	1.82E+03
10	2500	TH-228	3.30E-08	1.90E-09	4.62E-10	2.36E-09	1.81E+03
10	5000	TH-228	1.10E-08	6.32E-10	2.23E-10	8.55E-10	1.76E+03
11	1200	TH-228	2.81E-07	1.61E-08	1.54E-09	1.77E-08	2.52E+03
11	1300	TH-228	2.44E-07	1.40E-08	1.42E-09	1.55E-08	2.51E+03
11	1400	TH-228	2.14E-07	1.23E-08	1.31E-09	1.36E-08	2.50E+03
11	1500	TH-228	1.89E-07	1.09E-08	1.22E-09	1.21E-08	2.49E+03
11	1625	TH-228	1.64E-07	9.47E-09	1.12E-09	1.06E-08	2.48E+03
11	1700	TH-228	1.52E-07	8.75E-09	1.07E-09	9.81E-09	2.48E+03
11	1800	TH-228	1.37E-07	7.91E-09	1.00E-09	8.91E-09	2.47E+03
11	2000	TH-228	1.14E-07	6.55E-09	8.97E-10	7.44E-09	2.46E+03
11	2200	TH-228	9.66E-08	5.56E-09	8.12E-10	6.38E-09	2.45E+03
11	2500	TH-228	7.75E-08	4.46E-09	7.11E-10	5.17E-09	2.44E+03
11	5000	TH-228	2.54E-08	1.46E-09	3.36E-10	1.80E-09	2.34E+03
12	1200	TH-228	3.62E-07	2.09E-08	1.90E-09	2.28E-08	2.99E+03
12	1300	TH-228	3.15E-07	1.81E-08	1.75E-09	1.99E-08	2.98E+03
12	1400	TH-228	2.76E-07	1.59E-08	1.62E-09	1.75E-08	2.97E+03
12	1500	TH-228	2.44E-07	1.41E-08	1.50E-09	1.56E-08	2.96E+03
12	1625	TH-228	2.13E-07	1.22E-08	1.38E-09	1.36E-08	2.95E+03
12	1700	TH-228	1.96E-07	1.13E-08	1.31E-09	1.26E-08	2.94E+03
12	1800	TH-228	1.78E-07	1.02E-08	1.24E-09	1.15E-08	2.94E+03
12	2000	TH-228	1.47E-07	8.47E-09	1.10E-09	9.58E-09	2.92E+03
12	2200	TH-228	1.25E-07	7.20E-09	1.00E-09	8.20E-09	2.91E+03
12	2500	TH-228	1.00E-07	5.78E-09	8.75E-10	6.65E-09	2.90E+03
12	5000	TH-228	3.30E-08	1.90E-09	4.12E-10	2.31E-09	2.77E+03
13	1200	TH-228	3.24E-07	1.87E-08	2.12E-09	2.08E-08	3.50E+03
13	1300	TH-228	2.82E-07	1.63E-08	1.95E-09	1.82E-08	3.49E+03
13	1400	TH-228	2.48E-07	1.43E-08	1.80E-09	1.61E-08	3.48E+03
13	1500	TH-228	2.20E-07	1.26E-08	1.67E-09	1.43E-08	3.47E+03
13	1625	TH-228	1.91E-07	1.10E-08	1.54E-09	1.25E-08	3.46E+03
13	1700	TH-228	1.77E-07	1.02E-08	1.47E-09	1.17E-08	3.46E+03
13	1800	TH-228	1.60E-07	9.22E-09	1.38E-09	1.06E-08	3.45E+03
13	2000	TH-228	1.33E-07	7.65E-09	1.24E-09	8.89E-09	3.43E+03
13	2200	TH-228	1.13E-07	6.51E-09	1.12E-09	7.63E-09	3.42E+03
13	2500	TH-228	9.08E-08	5.23E-09	9.81E-10	6.21E-09	3.41E+03
13	5000	TH-228	3.02E-08	1.74E-09	4.68E-10	2.21E-09	3.29E+03
14	1200	TH-228	3.39E-07	1.95E-08	2.29E-09	2.18E-08	3.30E+03
14	1300	TH-228	2.95E-07	1.70E-08	2.11E-09	1.91E-08	3.29E+03
14	1400	TH-228	2.59E-07	1.49E-08	1.95E-09	1.69E-08	3.28E+03
14	1500	TH-228	2.30E-07	1.32E-08	1.81E-09	1.50E-08	3.26E+03

14	1625	TH-228	2.00E-07	1.15E-08	1.67E-09	1.32E-08	3.26E+03
14	1700	TH-228	1.85E-07	1.07E-08	1.59E-09	1.22E-08	3.25E+03
14	1800	TH-228	1.68E-07	9.64E-09	1.50E-09	1.11E-08	3.24E+03
14	2000	TH-228	1.39E-07	8.01E-09	1.34E-09	9.35E-09	3.22E+03
14	2200	TH-228	1.18E-07	6.81E-09	1.21E-09	8.03E-09	3.21E+03
14	2500	TH-228	9.51E-08	5.48E-09	1.06E-09	6.54E-09	3.20E+03
14	5000	TH-228	3.17E-08	1.83E-09	5.06E-10	2.33E-09	3.07E+03
15	1200	TH-228	2.74E-07	1.58E-08	2.37E-09	1.81E-08	3.95E+03
15	1300	TH-228	2.39E-07	1.37E-08	2.18E-09	1.59E-08	3.94E+03
15	1400	TH-228	2.10E-07	1.21E-08	2.02E-09	1.41E-08	3.93E+03
15	1500	TH-228	1.86E-07	1.07E-08	1.88E-09	1.26E-08	3.92E+03
15	1625	TH-228	1.63E-07	9.37E-09	1.73E-09	1.11E-08	3.92E+03
15	1700	TH-228	1.51E-07	8.67E-09	1.65E-09	1.03E-08	3.91E+03
15	1800	TH-228	1.37E-07	7.86E-09	1.56E-09	9.42E-09	3.90E+03
15	2000	TH-228	1.14E-07	6.55E-09	1.40E-09	7.95E-09	3.89E+03
15	2200	TH-228	9.69E-08	5.58E-09	1.27E-09	6.85E-09	3.88E+03
15	2500	TH-228	7.80E-08	4.49E-09	1.11E-09	5.60E-09	3.87E+03
15	5000	TH-228	2.64E-08	1.52E-09	5.35E-10	2.05E-09	3.76E+03
16	1200	TH-228	1.91E-07	1.10E-08	1.76E-09	1.28E-08	3.90E+03
16	1300	TH-228	1.67E-07	9.61E-09	1.62E-09	1.12E-08	3.90E+03
16	1400	TH-228	1.47E-07	8.46E-09	1.50E-09	9.96E-09	3.89E+03
16	1500	TH-228	1.31E-07	7.51E-09	1.40E-09	8.91E-09	3.88E+03
16	1625	TH-228	1.14E-07	6.56E-09	1.29E-09	7.85E-09	3.88E+03
16	1700	TH-228	1.06E-07	6.07E-09	1.23E-09	7.30E-09	3.88E+03
16	1800	TH-228	9.57E-08	5.51E-09	1.16E-09	6.67E-09	3.87E+03
16	2000	TH-228	7.98E-08	4.59E-09	1.04E-09	5.63E-09	3.86E+03
16	2200	TH-228	6.80E-08	3.91E-09	9.42E-10	4.85E-09	3.85E+03
16	2500	TH-228	5.48E-08	3.15E-09	8.27E-10	3.98E-09	3.85E+03
16	5000	TH-228	1.86E-08	1.07E-09	4.01E-10	1.47E-09	3.76E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-228
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.9919E-03
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.836E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.198E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	1200	0.101E-12	0.178E-08	0.109E+04	0.809E+03
1	1300	0.880E-13	0.157E-08	0.956E+03	0.707E+03
1	1400	0.775E-13	0.139E-08	0.849E+03	0.623E+03
1	1500	0.689E-13	0.125E-08	0.760E+03	0.553E+03
1	1625	0.602E-13	0.110E-08	0.670E+03	0.483E+03
1	1700	0.557E-13	0.102E-08	0.623E+03	0.448E+03
1	1800	0.506E-13	0.934E-09	0.569E+03	0.406E+03
1	2000	0.422E-13	0.790E-09	0.482E+03	0.339E+03
1	2200	0.360E-13	0.681E-09	0.415E+03	0.289E+03
1	2500	0.290E-13	0.559E-09	0.341E+03	0.233E+03
1	5000	0.991E-14	0.208E-09	0.127E+03	0.796E+02
2	1200	0.663E-13	0.117E-08	0.716E+03	0.532E+03
2	1300	0.578E-13	0.103E-08	0.630E+03	0.464E+03
2	1400	0.509E-13	0.917E-09	0.559E+03	0.409E+03
2	1500	0.452E-13	0.820E-09	0.500E+03	0.363E+03
2	1625	0.395E-13	0.722E-09	0.440E+03	0.317E+03

2	1700	0.366E-13	0.672E-09	0.410E+03	0.294E+03
2	1800	0.332E-13	0.614E-09	0.374E+03	0.266E+03
2	2000	0.277E-13	0.519E-09	0.316E+03	0.222E+03
2	2200	0.236E-13	0.447E-09	0.273E+03	0.189E+03
2	2500	0.190E-13	0.367E-09	0.223E+03	0.152E+03
2	5000	0.644E-14	0.135E-09	0.825E+02	0.517E+02
3	1200	0.514E-13	0.893E-09	0.544E+03	0.413E+03
3	1300	0.447E-13	0.783E-09	0.477E+03	0.359E+03
3	1400	0.393E-13	0.693E-09	0.422E+03	0.316E+03
3	1500	0.348E-13	0.618E-09	0.376E+03	0.280E+03
3	1625	0.303E-13	0.543E-09	0.331E+03	0.244E+03
3	1700	0.281E-13	0.504E-09	0.307E+03	0.225E+03
3	1800	0.254E-13	0.459E-09	0.280E+03	0.204E+03
3	2000	0.211E-13	0.386E-09	0.235E+03	0.170E+03
3	2200	0.179E-13	0.332E-09	0.202E+03	0.144E+03
3	2500	0.144E-13	0.271E-09	0.165E+03	0.116E+03
3	5000	0.478E-14	0.974E-10	0.594E+02	0.384E+02
4	1200	0.785E-13	0.134E-08	0.819E+03	0.630E+03
4	1300	0.683E-13	0.118E-08	0.717E+03	0.548E+03
4	1400	0.600E-13	0.104E-08	0.633E+03	0.482E+03
4	1500	0.530E-13	0.925E-09	0.564E+03	0.426E+03
4	1625	0.462E-13	0.811E-09	0.494E+03	0.371E+03
4	1700	0.427E-13	0.753E-09	0.459E+03	0.343E+03
4	1800	0.386E-13	0.685E-09	0.418E+03	0.310E+03
4	2000	0.321E-13	0.575E-09	0.350E+03	0.257E+03
4	2200	0.272E-13	0.493E-09	0.301E+03	0.219E+03
4	2500	0.219E-13	0.402E-09	0.245E+03	0.176E+03
4	5000	0.721E-14	0.142E-09	0.867E+02	0.579E+02
5	1200	0.160E-12	0.271E-08	0.165E+04	0.128E+04
5	1300	0.139E-12	0.237E-08	0.145E+04	0.112E+04
5	1400	0.122E-12	0.209E-08	0.128E+04	0.980E+03
5	1500	0.108E-12	0.186E-08	0.114E+04	0.867E+03
5	1625	0.940E-13	0.163E-08	0.995E+03	0.755E+03
5	1700	0.869E-13	0.151E-08	0.923E+03	0.698E+03
5	1800	0.786E-13	0.138E-08	0.839E+03	0.631E+03
5	2000	0.652E-13	0.115E-08	0.703E+03	0.523E+03
5	2200	0.554E-13	0.969E-09	0.603E+03	0.445E+03
5	2500	0.445E-13	0.805E-09	0.490E+03	0.357E+03
5	5000	0.146E-13	0.283E-09	0.173E+03	0.117E+03
6	1200	0.119E-12	0.213E-08	0.130E+04	0.955E+03
6	1300	0.104E-12	0.187E-08	0.114E+04	0.833E+03
6	1400	0.913E-13	0.166E-08	0.101E+04	0.733E+03
6	1500	0.809E-13	0.148E-08	0.905E+03	0.650E+03
6	1625	0.706E-13	0.131E-08	0.797E+03	0.567E+03
6	1700	0.653E-13	0.122E-08	0.741E+03	0.525E+03
6	1800	0.592E-13	0.111E-08	0.677E+03	0.475E+03
6	2000	0.493E-13	0.938E-09	0.572E+03	0.396E+03
6	2200	0.419E-13	0.809E-09	0.493E+03	0.337E+03
6	2500	0.337E-13	0.663E-09	0.404E+03	0.271E+03
6	5000	0.113E-13	0.244E-09	0.149E+03	0.908E+02
7	1200	0.650E-13	0.116E-08	0.710E+03	0.522E+03
7	1300	0.567E-13	0.102E-08	0.624E+03	0.455E+03
7	1400	0.498E-13	0.907E-09	0.553E+03	0.400E+03
7	1500	0.442E-13	0.811E-09	0.494E+03	0.355E+03
7	1625	0.385E-13	0.714E-09	0.435E+03	0.309E+03
7	1700	0.356E-13	0.664E-09	0.405E+03	0.286E+03
7	1800	0.323E-13	0.606E-09	0.369E+03	0.259E+03
7	2000	0.269E-13	0.511E-09	0.312E+03	0.216E+03
7	2200	0.228E-13	0.441E-09	0.269E+03	0.183E+03
7	2500	0.184E-13	0.361E-09	0.220E+03	0.147E+03
7	5000	0.610E-14	0.132E-09	0.807E+02	0.490E+02
8	1200	0.641E-13	0.112E-08	0.684E+03	0.515E+03
8	1300	0.559E-13	0.984E-09	0.600E+03	0.448E+03
8	1400	0.491E-13	0.872E-09	0.531E+03	0.394E+03
8	1500	0.435E-13	0.778E-09	0.474E+03	0.349E+03

8	1625	0.379E-13	0.683E-09	0.417E+03	0.304E+03
8	1700	0.351E-13	0.635E-09	0.387E+03	0.282E+03
8	1800	0.318E-13	0.579E-09	0.353E+03	0.256E+03
8	2000	0.264E-13	0.488E-09	0.297E+03	0.212E+03
8	2200	0.225E-13	0.420E-09	0.256E+03	0.180E+03
8	2500	0.181E-13	0.343E-09	0.209E+03	0.145E+03
8	5000	0.600E-14	0.124E-09	0.757E+02	0.482E+02
9	1200	0.555E-13	0.995E-09	0.606E+03	0.446E+03
9	1300	0.484E-13	0.875E-09	0.533E+03	0.389E+03
9	1400	0.427E-13	0.777E-09	0.474E+03	0.343E+03
9	1500	0.379E-13	0.695E-09	0.424E+03	0.304E+03
9	1625	0.331E-13	0.613E-09	0.373E+03	0.265E+03
9	1700	0.306E-13	0.571E-09	0.348E+03	0.246E+03
9	1800	0.278E-13	0.521E-09	0.318E+03	0.223E+03
9	2000	0.231E-13	0.441E-09	0.269E+03	0.186E+03
9	2200	0.197E-13	0.380E-09	0.232E+03	0.158E+03
9	2500	0.159E-13	0.312E-09	0.190E+03	0.127E+03
9	5000	0.537E-14	0.116E-09	0.707E+02	0.431E+02
10	1200	0.117E-12	0.205E-08	0.125E+04	0.942E+03
10	1300	0.102E-12	0.180E-08	0.110E+04	0.821E+03
10	1400	0.898E-13	0.159E-08	0.970E+03	0.721E+03
10	1500	0.796E-13	0.142E-08	0.865E+03	0.639E+03
10	1625	0.693E-13	0.125E-08	0.760E+03	0.557E+03
10	1700	0.641E-13	0.116E-08	0.707E+03	0.515E+03
10	1800	0.581E-13	0.106E-08	0.644E+03	0.466E+03
10	2000	0.483E-13	0.889E-09	0.542E+03	0.388E+03
10	2200	0.411E-13	0.765E-09	0.466E+03	0.330E+03
10	2500	0.330E-13	0.625E-09	0.381E+03	0.265E+03
10	5000	0.110E-13	0.226E-09	0.138E+03	0.882E+02
11	1200	0.281E-12	0.468E-08	0.285E+04	0.225E+04
11	1300	0.244E-12	0.409E-08	0.249E+04	0.196E+04
11	1400	0.214E-12	0.361E-08	0.220E+04	0.172E+04
11	1500	0.189E-12	0.320E-08	0.195E+04	0.152E+04
11	1625	0.164E-12	0.280E-08	0.171E+04	0.132E+04
11	1700	0.152E-12	0.260E-08	0.158E+04	0.122E+04
11	1800	0.137E-12	0.236E-08	0.144E+04	0.110E+04
11	2000	0.114E-12	0.197E-08	0.120E+04	0.914E+03
11	2200	0.966E-13	0.169E-08	0.103E+04	0.776E+03
11	2500	0.775E-13	0.137E-08	0.835E+03	0.623E+03
11	5000	0.254E-13	0.475E-09	0.290E+03	0.204E+03
12	1200	0.362E-12	0.603E-08	0.367E+04	0.291E+04
12	1300	0.315E-12	0.526E-08	0.321E+04	0.253E+04
12	1400	0.276E-12	0.464E-08	0.283E+04	0.222E+04
12	1500	0.244E-12	0.412E-08	0.251E+04	0.196E+04
12	1625	0.213E-12	0.360E-08	0.220E+04	0.171E+04
12	1700	0.196E-12	0.334E-08	0.204E+04	0.158E+04
12	1800	0.178E-12	0.304E-08	0.185E+04	0.143E+04
12	2000	0.147E-12	0.253E-08	0.154E+04	0.118E+04
12	2200	0.125E-12	0.217E-08	0.132E+04	0.100E+04
12	2500	0.100E-12	0.176E-08	0.107E+04	0.806E+03
12	5000	0.330E-13	0.611E-09	0.373E+03	0.265E+03
13	1200	0.324E-12	0.550E-08	0.335E+04	0.260E+04
13	1300	0.282E-12	0.482E-08	0.294E+04	0.227E+04
13	1400	0.248E-12	0.426E-08	0.259E+04	0.199E+04
13	1500	0.220E-12	0.379E-08	0.231E+04	0.176E+04
13	1625	0.191E-12	0.332E-08	0.202E+04	0.154E+04
13	1700	0.177E-12	0.308E-08	0.188E+04	0.142E+04
13	1800	0.160E-12	0.281E-08	0.171E+04	0.129E+04
13	2000	0.133E-12	0.235E-08	0.143E+04	0.107E+04
13	2200	0.113E-12	0.202E-08	0.123E+04	0.908E+03
13	2500	0.908E-13	0.164E-08	0.100E+04	0.729E+03
13	5000	0.302E-13	0.584E-09	0.356E+03	0.242E+03
14	1200	0.339E-12	0.577E-08	0.352E+04	0.272E+04
14	1300	0.295E-12	0.505E-08	0.308E+04	0.237E+04
14	1400	0.259E-12	0.447E-08	0.272E+04	0.208E+04

14	1500	0.230E-12	0.398E-08	0.242E+04	0.184E+04
14	1625	0.200E-12	0.349E-08	0.213E+04	0.161E+04
14	1700	0.185E-12	0.324E-08	0.197E+04	0.149E+04
14	1800	0.168E-12	0.295E-08	0.180E+04	0.135E+04
14	2000	0.139E-12	0.248E-08	0.151E+04	0.112E+04
14	2200	0.118E-12	0.212E-08	0.129E+04	0.951E+03
14	2500	0.951E-13	0.173E-08	0.105E+04	0.764E+03
14	5000	0.317E-13	0.618E-09	0.376E+03	0.255E+03
15	1200	0.274E-12	0.480E-08	0.292E+04	0.220E+04
15	1300	0.239E-12	0.422E-08	0.257E+04	0.192E+04
15	1400	0.210E-12	0.374E-08	0.228E+04	0.169E+04
15	1500	0.186E-12	0.334E-08	0.204E+04	0.150E+04
15	1625	0.163E-12	0.294E-08	0.179E+04	0.131E+04
15	1700	0.151E-12	0.273E-08	0.167E+04	0.121E+04
15	1800	0.137E-12	0.249E-08	0.152E+04	0.110E+04
15	2000	0.114E-12	0.210E-08	0.128E+04	0.914E+03
15	2200	0.969E-13	0.181E-08	0.110E+04	0.778E+03
15	2500	0.780E-13	0.148E-08	0.904E+03	0.627E+03
15	5000	0.264E-13	0.544E-09	0.331E+03	0.212E+03
16	1200	0.191E-12	0.338E-08	0.206E+04	0.154E+04
16	1300	0.167E-12	0.297E-08	0.181E+04	0.134E+04
16	1400	0.147E-12	0.264E-08	0.161E+04	0.118E+04
16	1500	0.131E-12	0.236E-08	0.144E+04	0.105E+04
16	1625	0.114E-12	0.208E-08	0.127E+04	0.915E+03
16	1700	0.106E-12	0.193E-08	0.118E+04	0.847E+03
16	1800	0.957E-13	0.176E-08	0.108E+04	0.768E+03
16	2000	0.798E-13	0.149E-08	0.909E+03	0.641E+03
16	2200	0.680E-13	0.129E-08	0.783E+03	0.546E+03
16	2500	0.548E-13	0.105E-08	0.642E+03	0.440E+03
16	5000	0.186E-13	0.390E-09	0.238E+03	0.149E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.2944E-08	0.00	100.00
	SURFACE	0.2692E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9952E+00	99.85	100.00
	INGEST.	0.1454E-02	0.15	100.00
	VEGET.	0.1453E-02	* 0.15	* 99.93
	MEAT	0.1910E-06	* 0.00	* 0.01
	MILK	0.8007E-06	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.2354E-08	0.00	100.00
	SURFACE	0.2152E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2014E+00	98.71	100.00
	INGEST.	0.2622E-02	1.29	100.00
	VEGET.	0.2620E-02	* 1.28	* 99.93
	MEAT	0.3444E-06	* 0.00	* 0.01
	MILK	0.1444E-05	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.4566E-08	0.00	100.00
	SURFACE	0.4175E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2465E+01	98.71	100.00
	INGEST.	0.3220E-01	1.29	100.00
	VEGET.	0.3218E-01	* 1.29	* 99.93
	MEAT	0.4230E-05	* 0.00	* 0.01
	MILK	0.1773E-04	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.3993E-08	0.00	100.00
	SURFACE	0.3651E-05	0.15	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2476E-02	98.61	100.00
	INGEST.	0.3125E-04	1.24	100.00
	VEGET.	0.3123E-04	* 1.24	* 99.93
	MEAT	0.4105E-08	* 0.00	* 0.01
	MILK	0.1721E-07	* 0.00	* 0.06

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.4963E-08	0.00	100.00
	SURFACE	0.4538E-05	0.18	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2497E-02	98.57	100.00
	INGEST.	0.3165E-04	1.25	100.00
	VEGET.	0.3163E-04	* 1.25	* 99.93
	MEAT	0.4158E-08	* 0.00	* 0.01
	MILK	0.1743E-07	* 0.00	* 0.06

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2821E-08	0.00	100.00
	SURFACE	0.2579E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7450E+01	100.00	100.00
	INGEST.	0.3139E-04	0.00	100.00
	VEGET.	0.3137E-04	* 0.00	* 99.93
	MEAT	0.4124E-08	* 0.00	* 0.01
	MILK	0.1729E-07	* 0.00	* 0.06

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2486E-08	0.00	100.00
	SURFACE	0.2273E-05	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2433E-02	98.52	100.00
	INGEST.	0.3437E-04	1.39	100.00
	VEGET.	0.3435E-04	* 1.39	* 99.93
	MEAT	0.4515E-08	* 0.00	* 0.01
	MILK	0.1893E-07	* 0.00	* 0.06

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2424E-08	0.00	100.00
	SURFACE	0.2216E-05	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7592E-02	89.49	100.00
	INGEST.	0.8897E-03	10.49	100.00
	VEGET.	0.8891E-03	* 10.48	* 99.93
	MEAT	0.1169E-06	* 0.00	* 0.01
	MILK	0.4899E-06	* 0.01	* 0.06

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2574E-08	0.00	100.00
	SURFACE	0.2353E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1070E-01	98.82	100.00
	INGEST.	0.1259E-03	1.16	100.00
	VEGET.	0.1258E-03	* 1.16	* 99.93
	MEAT	0.1654E-07	* 0.00	* 0.01
	MILK	0.6933E-07	* 0.00	* 0.06

Building 64

Thorium-230

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-230',ISOL=Y,AMAD=1.0,REL=0.1 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 64 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED—

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION—

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.100E+00

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0

0

		A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.57	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1200	TH-230	9.16E-09	5.27E-10	8.54E-11	6.13E-10	1.75E+02
1	1300	TH-230	8.00E-09	4.60E-10	7.86E-11	5.39E-10	1.75E+02
1	1400	TH-230	7.05E-09	4.06E-10	7.28E-11	4.79E-10	1.75E+02
1	1500	TH-230	6.26E-09	3.60E-10	6.78E-11	4.28E-10	1.75E+02
1	1625	TH-230	5.47E-09	3.15E-10	6.25E-11	3.77E-10	1.74E+02
1	1700	TH-230	5.07E-09	2.92E-10	5.97E-11	3.51E-10	1.74E+02
1	1800	TH-230	4.60E-09	2.65E-10	5.62E-11	3.21E-10	1.74E+02
1	2000	TH-230	3.84E-09	2.21E-10	5.04E-11	2.71E-10	1.73E+02
1	2200	TH-230	3.27E-09	1.88E-10	4.57E-11	2.34E-10	1.73E+02
1	2500	TH-230	2.64E-09	1.52E-10	4.01E-11	1.92E-10	1.73E+02
1	5000	TH-230	9.01E-10	5.19E-11	1.95E-11	7.14E-11	1.69E+02
2	1200	TH-230	6.02E-09	3.47E-10	5.67E-11	4.03E-10	8.54E+01
2	1300	TH-230	5.26E-09	3.03E-10	5.22E-11	3.55E-10	8.52E+01
2	1400	TH-230	4.63E-09	2.67E-10	4.83E-11	3.15E-10	8.50E+01
2	1500	TH-230	4.11E-09	2.37E-10	4.50E-11	2.82E-10	8.48E+01
2	1625	TH-230	3.59E-09	2.07E-10	4.14E-11	2.48E-10	8.46E+01
2	1700	TH-230	3.32E-09	1.91E-10	3.95E-11	2.31E-10	8.45E+01

2	1800	TH-230	3.02E-09	1.74E-10	3.73E-11	2.11E-10	8.44E+01
2	2000	TH-230	2.52E-09	1.45E-10	3.34E-11	1.78E-10	8.41E+01
2	2200	TH-230	2.14E-09	1.23E-10	3.03E-11	1.54E-10	8.39E+01
2	2500	TH-230	1.73E-09	9.93E-11	2.65E-11	1.26E-10	8.36E+01
2	5000	TH-230	5.86E-10	3.37E-11	1.28E-11	4.65E-11	8.10E+01
3	1200	TH-230	4.67E-09	2.69E-10	3.79E-11	3.07E-10	4.61E+01
3	1300	TH-230	4.07E-09	2.34E-10	3.49E-11	2.69E-10	4.59E+01
3	1400	TH-230	3.57E-09	2.06E-10	3.23E-11	2.38E-10	4.58E+01
3	1500	TH-230	3.16E-09	1.82E-10	3.00E-11	2.12E-10	4.56E+01
3	1625	TH-230	2.76E-09	1.59E-10	2.76E-11	1.86E-10	4.55E+01
3	1700	TH-230	2.55E-09	1.47E-10	2.63E-11	1.73E-10	4.54E+01
3	1800	TH-230	2.31E-09	1.33E-10	2.48E-11	1.58E-10	4.53E+01
3	2000	TH-230	1.92E-09	1.10E-10	2.22E-11	1.33E-10	4.51E+01
3	2200	TH-230	1.63E-09	9.39E-11	2.01E-11	1.14E-10	4.49E+01
3	2500	TH-230	1.31E-09	7.55E-11	1.76E-11	9.31E-11	4.47E+01
3	5000	TH-230	4.35E-10	2.50E-11	8.43E-12	3.34E-11	4.29E+01
4	1200	TH-230	7.13E-09	4.11E-10	5.07E-11	4.61E-10	5.75E+01
4	1300	TH-230	6.21E-09	3.57E-10	4.67E-11	4.04E-10	5.73E+01
4	1400	TH-230	5.45E-09	3.14E-10	4.32E-11	3.57E-10	5.71E+01
4	1500	TH-230	4.82E-09	2.78E-10	4.01E-11	3.18E-10	5.69E+01
4	1625	TH-230	4.20E-09	2.42E-10	3.69E-11	2.79E-10	5.67E+01
4	1700	TH-230	3.88E-09	2.23E-10	3.52E-11	2.59E-10	5.65E+01
4	1800	TH-230	3.51E-09	2.02E-10	3.31E-11	2.35E-10	5.64E+01
4	2000	TH-230	2.91E-09	1.68E-10	2.96E-11	1.97E-10	5.60E+01
4	2200	TH-230	2.48E-09	1.43E-10	2.68E-11	1.69E-10	5.58E+01
4	2500	TH-230	1.99E-09	1.14E-10	2.35E-11	1.38E-10	5.55E+01
4	5000	TH-230	6.56E-10	3.77E-11	1.11E-11	4.89E-11	5.28E+01
5	1200	TH-230	1.45E-08	8.37E-10	9.48E-11	9.32E-10	1.18E+02
5	1300	TH-230	1.26E-08	7.28E-10	8.72E-11	8.15E-10	1.18E+02
5	1400	TH-230	1.11E-08	6.39E-10	8.06E-11	7.19E-10	1.17E+02
5	1500	TH-230	9.81E-09	5.65E-10	7.49E-11	6.40E-10	1.17E+02
5	1625	TH-230	8.54E-09	4.92E-10	6.89E-11	5.61E-10	1.16E+02
5	1700	TH-230	7.90E-09	4.55E-10	6.57E-11	5.20E-10	1.16E+02
5	1800	TH-230	7.14E-09	4.11E-10	6.18E-11	4.73E-10	1.16E+02
5	2000	TH-230	5.92E-09	3.41E-10	5.53E-11	3.96E-10	1.15E+02
5	2200	TH-230	5.03E-09	2.90E-10	5.01E-11	3.40E-10	1.15E+02
5	2500	TH-230	4.04E-09	2.33E-10	4.38E-11	2.76E-10	1.14E+02
5	5000	TH-230	1.33E-09	7.65E-11	2.08E-11	9.73E-11	1.09E+02
6	1200	TH-230	1.08E-08	6.23E-10	1.09E-10	7.31E-10	1.81E+02
6	1300	TH-230	9.43E-09	5.43E-10	1.00E-10	6.43E-10	1.81E+02
6	1400	TH-230	8.30E-09	4.77E-10	9.29E-11	5.70E-10	1.80E+02
6	1500	TH-230	7.36E-09	4.23E-10	8.64E-11	5.10E-10	1.80E+02
6	1625	TH-230	6.42E-09	3.69E-10	7.96E-11	4.49E-10	1.80E+02
6	1700	TH-230	5.94E-09	3.42E-10	7.60E-11	4.18E-10	1.79E+02
6	1800	TH-230	5.38E-09	3.10E-10	7.17E-11	3.81E-10	1.79E+02
6	2000	TH-230	4.48E-09	2.58E-10	6.42E-11	3.22E-10	1.79E+02
6	2200	TH-230	3.81E-09	2.19E-10	5.83E-11	2.78E-10	1.78E+02
6	2500	TH-230	3.07E-09	1.77E-10	5.11E-11	2.28E-10	1.78E+02
6	5000	TH-230	1.03E-09	5.92E-11	2.47E-11	8.39E-11	1.73E+02
7	1200	TH-230	5.91E-09	3.40E-10	5.96E-11	4.00E-10	9.93E+01
7	1300	TH-230	5.15E-09	2.97E-10	5.48E-11	3.51E-10	9.91E+01
7	1400	TH-230	4.53E-09	2.61E-10	5.08E-11	3.12E-10	9.89E+01
7	1500	TH-230	4.02E-09	2.31E-10	4.73E-11	2.78E-10	9.87E+01
7	1625	TH-230	3.50E-09	2.02E-10	4.36E-11	2.45E-10	9.85E+01
7	1700	TH-230	3.24E-09	1.86E-10	4.16E-11	2.28E-10	9.84E+01
7	1800	TH-230	2.93E-09	1.69E-10	3.92E-11	2.08E-10	9.83E+01
7	2000	TH-230	2.44E-09	1.41E-10	3.51E-11	1.76E-10	9.79E+01
7	2200	TH-230	2.08E-09	1.20E-10	3.19E-11	1.51E-10	9.78E+01
7	2500	TH-230	1.67E-09	9.61E-11	2.80E-11	1.24E-10	9.75E+01
7	5000	TH-230	5.55E-10	3.19E-11	1.35E-11	4.55E-11	9.49E+01
8	1200	TH-230	5.83E-09	3.35E-10	4.98E-11	3.85E-10	9.07E+01
8	1300	TH-230	5.08E-09	2.92E-10	4.58E-11	3.38E-10	9.06E+01
8	1400	TH-230	4.46E-09	2.57E-10	4.25E-11	2.99E-10	9.04E+01
8	1500	TH-230	3.95E-09	2.28E-10	3.95E-11	2.67E-10	9.02E+01
8	1625	TH-230	3.45E-09	1.98E-10	3.64E-11	2.35E-10	9.00E+01

8	1700	TH-230	3.19E-09	1.84E-10	3.47E-11	2.18E-10	8.99E+01
8	1800	TH-230	2.89E-09	1.66E-10	3.27E-11	1.99E-10	8.98E+01
8	2000	TH-230	2.40E-09	1.38E-10	2.93E-11	1.67E-10	8.94E+01
8	2200	TH-230	2.04E-09	1.18E-10	2.66E-11	1.44E-10	8.93E+01
8	2500	TH-230	1.64E-09	9.45E-11	2.33E-11	1.18E-10	8.90E+01
8	5000	TH-230	5.46E-10	3.14E-11	1.13E-11	4.27E-11	8.66E+01
9	1200	TH-230	5.05E-09	2.90E-10	5.12E-11	3.42E-10	1.14E+02
9	1300	TH-230	4.40E-09	2.53E-10	4.72E-11	3.01E-10	1.14E+02
9	1400	TH-230	3.88E-09	2.23E-10	4.37E-11	2.67E-10	1.14E+02
9	1500	TH-230	3.44E-09	1.98E-10	4.07E-11	2.39E-10	1.14E+02
9	1625	TH-230	3.00E-09	1.73E-10	3.75E-11	2.10E-10	1.14E+02
9	1700	TH-230	2.78E-09	1.60E-10	3.58E-11	1.96E-10	1.13E+02
9	1800	TH-230	2.52E-09	1.45E-10	3.38E-11	1.79E-10	1.13E+02
9	2000	TH-230	2.10E-09	1.21E-10	3.03E-11	1.51E-10	1.13E+02
9	2200	TH-230	1.79E-09	1.03E-10	2.75E-11	1.31E-10	1.13E+02
9	2500	TH-230	1.44E-09	8.31E-11	2.41E-11	1.07E-10	1.13E+02
9	5000	TH-230	4.88E-10	2.81E-11	1.17E-11	3.98E-11	1.10E+02
10	1200	TH-230	1.07E-08	6.14E-10	8.97E-11	7.04E-10	1.68E+02
10	1300	TH-230	9.29E-09	5.35E-10	8.26E-11	6.17E-10	1.67E+02
10	1400	TH-230	8.17E-09	4.70E-10	7.65E-11	5.47E-10	1.67E+02
10	1500	TH-230	7.23E-09	4.16E-10	7.12E-11	4.87E-10	1.67E+02
10	1625	TH-230	6.30E-09	3.63E-10	6.55E-11	4.28E-10	1.66E+02
10	1700	TH-230	5.83E-09	3.36E-10	6.26E-11	3.98E-10	1.66E+02
10	1800	TH-230	5.28E-09	3.04E-10	5.90E-11	3.63E-10	1.66E+02
10	2000	TH-230	4.39E-09	2.53E-10	5.28E-11	3.05E-10	1.65E+02
10	2200	TH-230	3.73E-09	2.15E-10	4.79E-11	2.63E-10	1.65E+02
10	2500	TH-230	3.00E-09	1.73E-10	4.20E-11	2.15E-10	1.65E+02
10	5000	TH-230	9.98E-10	5.75E-11	2.02E-11	7.77E-11	1.60E+02
11	1200	TH-230	2.55E-08	1.47E-09	1.40E-10	1.61E-09	2.29E+02
11	1300	TH-230	2.22E-08	1.28E-09	1.29E-10	1.41E-09	2.28E+02
11	1400	TH-230	1.94E-08	1.12E-09	1.19E-10	1.24E-09	2.27E+02
11	1500	TH-230	1.72E-08	9.89E-10	1.11E-10	1.10E-09	2.26E+02
11	1625	TH-230	1.49E-08	8.60E-10	1.02E-10	9.62E-10	2.26E+02
11	1700	TH-230	1.38E-08	7.95E-10	9.70E-11	8.92E-10	2.25E+02
11	1800	TH-230	1.25E-08	7.19E-10	9.13E-11	8.10E-10	2.25E+02
11	2000	TH-230	1.03E-08	5.95E-10	8.15E-11	6.77E-10	2.23E+02
11	2200	TH-230	8.79E-09	5.06E-10	7.39E-11	5.80E-10	2.23E+02
11	2500	TH-230	7.05E-09	4.06E-10	6.46E-11	4.70E-10	2.22E+02
11	5000	TH-230	2.31E-09	1.33E-10	3.05E-11	1.63E-10	2.13E+02
12	1200	TH-230	3.29E-08	1.90E-09	1.73E-10	2.07E-09	2.72E+02
12	1300	TH-230	2.86E-08	1.65E-09	1.59E-10	1.81E-09	2.71E+02
12	1400	TH-230	2.51E-08	1.45E-09	1.47E-10	1.59E-09	2.70E+02
12	1500	TH-230	2.22E-08	1.28E-09	1.36E-10	1.41E-09	2.69E+02
12	1625	TH-230	1.93E-08	1.11E-09	1.25E-10	1.24E-09	2.68E+02
12	1700	TH-230	1.79E-08	1.03E-09	1.20E-10	1.15E-09	2.68E+02
12	1800	TH-230	1.62E-08	9.30E-10	1.12E-10	1.04E-09	2.67E+02
12	2000	TH-230	1.34E-08	7.70E-10	1.00E-10	8.71E-10	2.65E+02
12	2200	TH-230	1.14E-08	6.55E-10	9.09E-11	7.45E-10	2.65E+02
12	2500	TH-230	9.13E-09	5.25E-10	7.96E-11	6.05E-10	2.63E+02
12	5000	TH-230	3.00E-09	1.73E-10	3.75E-11	2.10E-10	2.52E+02
13	1200	TH-230	2.95E-08	1.70E-09	1.92E-10	1.89E-09	3.18E+02
13	1300	TH-230	2.57E-08	1.48E-09	1.77E-10	1.65E-09	3.18E+02
13	1400	TH-230	2.26E-08	1.30E-09	1.64E-10	1.46E-09	3.17E+02
13	1500	TH-230	2.00E-08	1.15E-09	1.52E-10	1.30E-09	3.16E+02
13	1625	TH-230	1.74E-08	1.00E-09	1.40E-10	1.14E-09	3.15E+02
13	1700	TH-230	1.61E-08	9.26E-10	1.33E-10	1.06E-09	3.14E+02
13	1800	TH-230	1.46E-08	8.38E-10	1.26E-10	9.64E-10	3.14E+02
13	2000	TH-230	1.21E-08	6.96E-10	1.12E-10	8.08E-10	3.12E+02
13	2200	TH-230	1.03E-08	5.91E-10	1.02E-10	6.93E-10	3.11E+02
13	2500	TH-230	8.26E-09	4.75E-10	8.92E-11	5.64E-10	3.10E+02
13	5000	TH-230	2.75E-09	1.58E-10	4.25E-11	2.01E-10	2.99E+02
14	1200	TH-230	3.08E-08	1.77E-09	2.08E-10	1.98E-09	3.00E+02
14	1300	TH-230	2.68E-08	1.54E-09	1.92E-10	1.74E-09	2.99E+02
14	1400	TH-230	2.36E-08	1.36E-09	1.77E-10	1.53E-09	2.98E+02
14	1500	TH-230	2.09E-08	1.20E-09	1.65E-10	1.37E-09	2.97E+02

14	1625	TH-230	1.82E-08	1.06E-09	1.52E-10	1.20E-09	2.96E+02
14	1700	TH-230	1.68E-08	9.68E-10	1.45E-10	1.11E-09	2.95E+02
14	1800	TH-230	1.52E-08	8.77E-10	1.36E-10	1.01E-09	2.95E+02
14	2000	TH-230	1.27E-08	7.28E-10	1.22E-10	8.50E-10	2.93E+02
14	2200	TH-230	1.08E-08	6.19E-10	1.10E-10	7.30E-10	2.92E+02
14	2500	TH-230	8.65E-09	4.98E-10	9.66E-11	5.94E-10	2.91E+02
14	5000	TH-230	2.89E-09	1.66E-10	4.60E-11	2.12E-10	2.79E+02
15	1200	TH-230	2.49E-08	1.43E-09	2.16E-10	1.65E-09	3.59E+02
15	1300	TH-230	2.17E-08	1.25E-09	1.99E-10	1.45E-09	3.58E+02
15	1400	TH-230	1.91E-08	1.10E-09	1.84E-10	1.28E-09	3.58E+02
15	1500	TH-230	1.70E-08	9.76E-10	1.71E-10	1.15E-09	3.57E+02
15	1625	TH-230	1.48E-08	8.52E-10	1.58E-10	1.01E-09	3.56E+02
15	1700	TH-230	1.37E-08	7.88E-10	1.50E-10	9.39E-10	3.56E+02
15	1800	TH-230	1.24E-08	7.15E-10	1.42E-10	8.57E-10	3.55E+02
15	2000	TH-230	1.03E-08	5.96E-10	1.27E-10	7.23E-10	3.54E+02
15	2200	TH-230	8.81E-09	5.07E-10	1.15E-10	6.22E-10	3.53E+02
15	2500	TH-230	7.09E-09	4.08E-10	1.01E-10	5.09E-10	3.52E+02
15	5000	TH-230	2.40E-09	1.38E-10	4.87E-11	1.87E-10	3.41E+02
16	1200	TH-230	1.74E-08	1.00E-09	1.60E-10	1.16E-09	3.55E+02
16	1300	TH-230	1.52E-08	8.73E-10	1.47E-10	1.02E-09	3.54E+02
16	1400	TH-230	1.34E-08	7.69E-10	1.36E-10	9.06E-10	3.54E+02
16	1500	TH-230	1.19E-08	6.83E-10	1.27E-10	8.10E-10	3.53E+02
16	1625	TH-230	1.04E-08	5.96E-10	1.17E-10	7.13E-10	3.53E+02
16	1700	TH-230	9.59E-09	5.52E-10	1.12E-10	6.64E-10	3.52E+02
16	1800	TH-230	8.70E-09	5.01E-10	1.05E-10	6.06E-10	3.52E+02
16	2000	TH-230	7.25E-09	4.18E-10	9.44E-11	5.12E-10	3.51E+02
16	2200	TH-230	6.18E-09	3.56E-10	8.57E-11	4.41E-10	3.50E+02
16	2500	TH-230	4.98E-09	2.87E-10	7.51E-11	3.62E-10	3.50E+02
16	5000	TH-230	1.69E-09	9.74E-11	3.65E-11	1.34E-10	3.42E+02

1 GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-230
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.2464E-07
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.262E+03	0.548E+00	0.176E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.105E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1200	0.916E-14	0.193E-09	0.102E+03	0.736E+02
1	1300	0.800E-14	0.170E-09	0.893E+02	0.642E+02
1	1400	0.705E-14	0.151E-09	0.793E+02	0.566E+02
1	1500	0.626E-14	0.135E-09	0.710E+02	0.503E+02
1	1625	0.547E-14	0.119E-09	0.626E+02	0.439E+02
1	1700	0.507E-14	0.111E-09	0.582E+02	0.407E+02
1	1800	0.460E-14	0.101E-09	0.532E+02	0.369E+02
1	2000	0.384E-14	0.856E-10	0.450E+02	0.308E+02
1	2200	0.327E-14	0.738E-10	0.388E+02	0.263E+02
1	2500	0.264E-14	0.606E-10	0.318E+02	0.212E+02
1	5000	0.901E-15	0.225E-10	0.118E+02	0.724E+01
2	1200	0.502E-14	0.127E-09	0.669E+02	0.484E+02
2	1300	0.525E-14	0.112E-09	0.588E+02	0.422E+02
2	1400	0.463E-14	0.994E-10	0.522E+02	0.372E+02
2	1500	0.411E-14	0.889E-10	0.467E+02	0.330E+02
2	1625	0.359E-14	0.783E-10	0.411E+02	0.288E+02

2	1700	0.332E-14	0.729E-10	0.383E+02	0.267E+02
2	1800	0.302E-14	0.665E-10	0.349E+02	0.242E+02
2	2000	0.252E-14	0.562E-10	0.295E+02	0.202E+02
2	2200	0.214E-14	0.485E-10	0.255E+02	0.172E+02
2	2500	0.173E-14	0.397E-10	0.209E+02	0.139E+02
2	5000	0.586E-15	0.147E-10	0.771E+01	0.470E+01
3	1200	0.467E-14	0.968E-10	0.508E+02	0.375E+02
3	1300	0.407E-14	0.849E-10	0.446E+02	0.327E+02
3	1400	0.357E-14	0.751E-10	0.395E+02	0.287E+02
3	1500	0.316E-14	0.669E-10	0.352E+02	0.254E+02
3	1625	0.276E-14	0.588E-10	0.309E+02	0.221E+02
3	1700	0.255E-14	0.546E-10	0.287E+02	0.205E+02
3	1800	0.231E-14	0.498E-10	0.262E+02	0.185E+02
3	2000	0.192E-14	0.419E-10	0.220E+02	0.154E+02
3	2200	0.163E-14	0.360E-10	0.189E+02	0.131E+02
3	2500	0.131E-14	0.294E-10	0.154E+02	0.105E+02
3	5000	0.435E-15	0.106E-10	0.554E+01	0.349E+01
4	1200	0.713E-14	0.146E-09	0.765E+02	0.573E+02
4	1300	0.621E-14	0.127E-09	0.670E+02	0.499E+02
4	1400	0.545E-14	0.113E-09	0.592E+02	0.438E+02
4	1500	0.482E-14	0.100E-09	0.527E+02	0.387E+02
4	1625	0.420E-14	0.879E-10	0.462E+02	0.337E+02
4	1700	0.388E-14	0.816E-10	0.429E+02	0.312E+02
4	1800	0.351E-14	0.743E-10	0.390E+02	0.282E+02
4	2000	0.291E-14	0.623E-10	0.327E+02	0.234E+02
4	2200	0.248E-14	0.535E-10	0.281E+02	0.199E+02
4	2500	0.199E-14	0.435E-10	0.229E+02	0.160E+02
4	5000	0.656E-15	0.154E-10	0.810E+01	0.527E+01
5	1200	0.145E-13	0.294E-09	0.154E+03	0.117E+03
5	1300	0.126E-13	0.257E-09	0.135E+03	0.102E+03
5	1400	0.111E-13	0.227E-09	0.119E+03	0.891E+02
5	1500	0.981E-14	0.202E-09	0.106E+03	0.788E+02
5	1625	0.854E-14	0.177E-09	0.929E+02	0.686E+02
5	1700	0.790E-14	0.164E-09	0.862E+02	0.634E+02
5	1800	0.714E-14	0.149E-09	0.784E+02	0.574E+02
5	2000	0.592E-14	0.125E-09	0.657E+02	0.476E+02
5	2200	0.503E-14	0.107E-09	0.563E+02	0.404E+02
5	2500	0.404E-14	0.872E-10	0.458E+02	0.325E+02
5	5000	0.133E-14	0.307E-10	0.161E+02	0.107E+02
6	1200	0.108E-13	0.231E-09	0.121E+03	0.868E+02
6	1300	0.943E-14	0.203E-09	0.107E+03	0.757E+02
6	1400	0.830E-14	0.180E-09	0.945E+02	0.666E+02
6	1500	0.736E-14	0.161E-09	0.845E+02	0.591E+02
6	1625	0.642E-14	0.142E-09	0.744E+02	0.515E+02
6	1700	0.594E-14	0.132E-09	0.693E+02	0.477E+02
6	1800	0.538E-14	0.120E-09	0.632E+02	0.432E+02
6	2000	0.448E-14	0.102E-09	0.534E+02	0.360E+02
6	2200	0.381E-14	0.876E-10	0.460E+02	0.306E+02
6	2500	0.307E-14	0.718E-10	0.377E+02	0.246E+02
6	5000	0.103E-14	0.265E-10	0.139E+02	0.825E+01
7	1200	0.591E-14	0.126E-09	0.663E+02	0.475E+02
7	1300	0.515E-14	0.111E-09	0.583E+02	0.414E+02
7	1400	0.453E-14	0.983E-10	0.517E+02	0.364E+02
7	1500	0.402E-14	0.879E-10	0.462E+02	0.322E+02
7	1625	0.350E-14	0.773E-10	0.406E+02	0.281E+02
7	1700	0.324E-14	0.720E-10	0.378E+02	0.260E+02
7	1800	0.293E-14	0.657E-10	0.345E+02	0.236E+02
7	2000	0.244E-14	0.554E-10	0.291E+02	0.196E+02
7	2200	0.208E-14	0.478E-10	0.251E+02	0.167E+02
7	2500	0.167E-14	0.391E-10	0.206E+02	0.134E+02
7	5000	0.555E-15	0.143E-10	0.754E+01	0.445E+01
8	1200	0.583E-14	0.122E-09	0.639E+02	0.468E+02
8	1300	0.508E-14	0.107E-09	0.560E+02	0.408E+02
8	1400	0.446E-14	0.945E-10	0.496E+02	0.358E+02
8	1500	0.395E-14	0.843E-10	0.443E+02	0.317E+02

8	1625	0.345E-14	0.741E-10	0.389E+02	0.277E+02
8	1700	0.319E-14	0.689E-10	0.362E+02	0.256E+02
8	1800	0.289E-14	0.628E-10	0.330E+02	0.232E+02
8	2000	0.240E-14	0.528E-10	0.278E+02	0.193E+02
8	2200	0.204E-14	0.455E-10	0.239E+02	0.164E+02
8	2500	0.164E-14	0.372E-10	0.195E+02	0.132E+02
8	5000	0.546E-15	0.135E-10	0.707E+01	0.438E+01
9	1200	0.505E-14	0.108E-09	0.566E+02	0.405E+02
9	1300	0.440E-14	0.949E-10	0.498E+02	0.354E+02
9	1400	0.388E-14	0.842E-10	0.442E+02	0.311E+02
9	1500	0.344E-14	0.754E-10	0.396E+02	0.276E+02
9	1625	0.300E-14	0.664E-10	0.349E+02	0.241E+02
9	1700	0.278E-14	0.618E-10	0.325E+02	0.223E+02
9	1800	0.252E-14	0.565E-10	0.297E+02	0.203E+02
9	2000	0.210E-14	0.478E-10	0.251E+02	0.169E+02
9	2200	0.179E-14	0.412E-10	0.216E+02	0.144E+02
9	2500	0.144E-14	0.338E-10	0.178E+02	0.116E+02
9	5000	0.488E-15	0.126E-10	0.660E+01	0.392E+01
10	1200	0.107E-13	0.222E-09	0.117E+03	0.857E+02
10	1300	0.929E-14	0.195E-09	0.102E+03	0.746E+02
10	1400	0.817E-14	0.172E-09	0.906E+02	0.656E+02
10	1500	0.723E-14	0.154E-09	0.808E+02	0.581E+02
10	1625	0.630E-14	0.135E-09	0.710E+02	0.506E+02
10	1700	0.583E-14	0.126E-09	0.660E+02	0.468E+02
10	1800	0.528E-14	0.115E-09	0.602E+02	0.424E+02
10	2000	0.439E-14	0.964E-10	0.506E+02	0.352E+02
10	2200	0.373E-14	0.829E-10	0.435E+02	0.300E+02
10	2500	0.300E-14	0.677E-10	0.356E+02	0.241E+02
10	5000	0.998E-15	0.245E-10	0.129E+02	0.802E+01
11	1200	0.255E-13	0.508E-09	0.267E+03	0.205E+03
11	1300	0.222E-13	0.443E-09	0.233E+03	0.178E+03
11	1400	0.194E-13	0.391E-09	0.205E+03	0.156E+03
11	1500	0.172E-13	0.347E-09	0.182E+03	0.138E+03
11	1625	0.149E-13	0.304E-09	0.159E+03	0.120E+03
11	1700	0.138E-13	0.282E-09	0.148E+03	0.111E+03
11	1800	0.125E-13	0.256E-09	0.134E+03	0.100E+03
11	2000	0.103E-13	0.214E-09	0.112E+03	0.830E+02
11	2200	0.879E-14	0.183E-09	0.961E+02	0.706E+02
11	2500	0.705E-14	0.148E-09	0.780E+02	0.566E+02
11	5000	0.231E-14	0.515E-10	0.271E+02	0.185E+02
12	1200	0.329E-13	0.653E-09	0.343E+03	0.265E+03
12	1300	0.286E-13	0.571E-09	0.300E+03	0.230E+03
12	1400	0.251E-13	0.503E-09	0.264E+03	0.202E+03
12	1500	0.222E-13	0.446E-09	0.234E+03	0.178E+03
12	1625	0.193E-13	0.391E-09	0.205E+03	0.155E+03
12	1700	0.179E-13	0.362E-09	0.190E+03	0.143E+03
12	1800	0.162E-13	0.329E-09	0.173E+03	0.130E+03
12	2000	0.134E-13	0.275E-09	0.144E+03	0.107E+03
12	2200	0.114E-13	0.235E-09	0.124E+03	0.913E+02
12	2500	0.913E-14	0.191E-09	0.100E+03	0.733E+02
12	5000	0.300E-14	0.663E-10	0.348E+02	0.241E+02
13	1200	0.295E-13	0.596E-09	0.313E+03	0.237E+03
13	1300	0.257E-13	0.522E-09	0.274E+03	0.206E+03
13	1400	0.226E-13	0.461E-09	0.242E+03	0.181E+03
13	1500	0.200E-13	0.410E-09	0.216E+03	0.160E+03
13	1625	0.174E-13	0.360E-09	0.189E+03	0.140E+03
13	1700	0.161E-13	0.334E-09	0.176E+03	0.129E+03
13	1800	0.146E-13	0.304E-09	0.160E+03	0.117E+03
13	2000	0.121E-13	0.255E-09	0.134E+03	0.970E+02
13	2200	0.103E-13	0.219E-09	0.115E+03	0.825E+02
13	2500	0.826E-14	0.178E-09	0.936E+02	0.663E+02
13	5000	0.275E-14	0.633E-10	0.332E+02	0.220E+02
14	1200	0.308E-13	0.625E-09	0.328E+03	0.247E+03
14	1300	0.268E-13	0.548E-09	0.288E+03	0.215E+03
14	1400	0.236E-13	0.484E-09	0.254E+03	0.189E+03

14	1500	0.209E-13	0.431E-09	0.226E+03	0.168E+03
14	1625	0.182E-13	0.378E-09	0.199E+03	0.146E+03
14	1700	0.168E-13	0.351E-09	0.184E+03	0.135E+03
14	1800	0.152E-13	0.320E-09	0.168E+03	0.122E+03
14	2000	0.127E-13	0.268E-09	0.141E+03	0.102E+03
14	2200	0.108E-13	0.230E-09	0.121E+03	0.864E+02
14	2500	0.865E-14	0.188E-09	0.985E+02	0.695E+02
14	5000	0.289E-14	0.669E-10	0.352E+02	0.232E+02
15	1200	0.249E-13	0.520E-09	0.273E+03	0.200E+03
15	1300	0.217E-13	0.457E-09	0.240E+03	0.174E+03
15	1400	0.191E-13	0.405E-09	0.213E+03	0.153E+03
15	1500	0.170E-13	0.362E-09	0.190E+03	0.136E+03
15	1625	0.148E-13	0.318E-09	0.167E+03	0.119E+03
15	1700	0.137E-13	0.296E-09	0.156E+03	0.110E+03
15	1800	0.124E-13	0.270E-09	0.142E+03	0.997E+02
15	2000	0.103E-13	0.228E-09	0.120E+03	0.831E+02
15	2200	0.881E-14	0.196E-09	0.103E+03	0.708E+02
15	2500	0.709E-14	0.161E-09	0.844E+02	0.570E+02
15	5000	0.240E-14	0.589E-10	0.310E+02	0.193E+02
16	1200	0.174E-13	0.366E-09	0.192E+03	0.140E+03
16	1300	0.152E-13	0.322E-09	0.169E+03	0.122E+03
16	1400	0.134E-13	0.286E-09	0.150E+03	0.107E+03
16	1500	0.119E-13	0.256E-09	0.134E+03	0.953E+02
16	1625	0.104E-13	0.225E-09	0.118E+03	0.832E+02
16	1700	0.959E-14	0.209E-09	0.110E+03	0.770E+02
16	1800	0.870E-14	0.191E-09	0.100E+03	0.699E+02
16	2000	0.725E-14	0.162E-09	0.849E+02	0.583E+02
16	2200	0.618E-14	0.139E-09	0.732E+02	0.496E+02
16	2500	0.498E-14	0.114E-09	0.600E+02	0.400E+02
16	5000	0.169E-14	0.422E-10	0.222E+02	0.136E+02

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.5087E-10	0.00	100.00
	SURFACE	0.9958E-07	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.6931E-01	99.73	100.00
	INGEST.	0.1880E-03	0.27	100.00
	VEGET.	0.1878E-03	* 0.27	* 99.93
	MEAT	0.2664E-07	* 0.00	* 0.01
	MILK	0.1097E-06	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.3356E-10	0.00	100.00
	SURFACE	0.6570E-07	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.6852E-01	99.47	100.00
	INGEST.	0.3670E-03	0.53	100.00
	VEGET.	0.3668E-03	* 0.53	* 99.93
	MEAT	0.5202E-07	* 0.00	* 0.01
	MILK	0.2142E-06	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.7912E-10	0.00	100.00
	SURFACE	0.1549E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.8519E+00	99.47	100.00
	INGEST.	0.4562E-02	0.53	100.00
	VEGET.	0.4559E-02	* 0.53	* 99.93
	MEAT	0.6466E-06	* 0.00	* 0.01
	MILK	0.2663E-05	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

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0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.6817E-10        0.00               100.00
                   SURFACE      0.1335E-06        0.08               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1683E-03       99.41               100.00
                   INGEST.      0.8644E-06        0.51               100.00
                    VEGET.      0.8638E-06      * 0.51               * 99.93
                    MEAT        0.1225E-09      * 0.00               * 0.01
                    MILK        0.5045E-09      * 0.00               * 0.06
1                  PERCENT OF BREAST   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.1109E-09        0.00               100.00
                   SURFACE      0.2171E-06        0.13               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1683E-03       99.36               100.00
                   INGEST.      0.8644E-06        0.51               100.00
                    VEGET.      0.8638E-06      * 0.51               * 99.93
                    MEAT        0.1225E-09      * 0.00               * 0.01
                    MILK        0.5045E-09      * 0.00               * 0.06
1                  PERCENT OF *PUL*   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.4663E-10        0.00               100.00
                   SURFACE      0.9128E-07        0.00               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.2937E+00      100.00               100.00
                   INGEST.      0.8648E-06        0.00               100.00
                    VEGET.      0.8641E-06      * 0.00               * 99.93
                    MEAT        0.1226E-09      * 0.00               * 0.01
                    MILK        0.5047E-09      * 0.00               * 0.06
1                  PERCENT OF S WALL   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.3992E-10        0.00               100.00
                   SURFACE      0.7814E-07        0.05               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1708E-03       98.64               100.00
                   INGEST.      0.2269E-05        1.31               100.00
                    VEGET.      0.2267E-05      * 1.31               * 99.93
                    MEAT        0.3216E-09      * 0.00               * 0.01
                    MILK        0.1324E-08      * 0.00               * 0.06
1                  PERCENT OF INT WALL DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.3815E-10        0.00               100.00
                   SURFACE      0.7469E-07        0.03               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1853E-03       84.36               100.00
                   INGEST.      0.3428E-04       15.61               100.00
                    VEGET.      0.3426E-04      * 15.60              * 99.93
                    MEAT        0.4859E-08      * 0.00               * 0.01
                    MILK        0.2001E-07      * 0.01               * 0.06
1                  PERCENT OF LIVER   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.4168E-10        0.00               100.00
                   SURFACE      0.8160E-07        0.01               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL        0.1447E-02       99.48               100.00
                   INGEST.      0.7488E-05        0.51               100.00
                    VEGET.      0.7483E-05      * 0.51               * 99.93
                    MEAT        0.1061E-08      * 0.00               * 0.01
                    MILK        0.4370E-08      * 0.00               * 0.06
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1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3038E-10	0.00	100.00
	SURFACE	0.5947E-07	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.1711E-03	99.45	100.00
	INGEST.	0.8853E-06	0.51	100.00
	VEGET.	0.8847E-06	* 0.51	* 99.93
	MEAT	0.1255E-09	* 0.00	* 0.01
	MILK	0.5167E-09	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.4380E-10	0.00	100.00
	SURFACE	0.8575E-07	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.1711E-03	99.44	100.00
	INGEST.	0.8853E-06	0.51	100.00
	VEGET.	0.8847E-06	* 0.51	* 99.93
	MEAT	0.1255E-09	* 0.00	* 0.01
	MILK	0.5167E-09	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.5087E-10	0.0000
SURFACE	0.9958E-07	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL	0.6931E-01	99.7294
INGEST.	0.1880E-03	0.2705
VEGET.	*0.1878E-03	* 0.2703
MEAT	*0.2664E-07	* 0.0000
MILK	*0.1097E-06	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3356E-10	0.0000
SURFACE	0.6570E-07	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL	0.6852E-01	99.4671
INGEST.	0.3670E-03	0.5328
VEGET.	*0.3668E-03	* 0.5324
MEAT	*0.5202E-07	* 0.0001
MILK	*0.2142E-06	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7912E-10	0.0000
SURFACE	0.1549E-06	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL	0.8519E+00	99.4673
INGEST.	0.4562E-02	0.5327
VEGET.	*0.4559E-02	* 0.5323
MEAT	*0.6466E-06	* 0.0001
MILK	*0.2663E-05	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.6817E-10	0.0000
SURFACE	0.1335E-06	0.0789
SWIMMING	0.1000E-24	0.0000
INHAL	0.1683E-03	99.4104
INGEST.	0.8644E-06	0.5107
VEGET.	*0.8538E-06	* 0.5104
MEAT	*0.1225E-09	* 0.0001
MILK	*0.5045E-09	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1109E-09	0.0001

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0     SURFACE          0.2171E-06          0.1282
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1683E-03         99.3612
0     INGEST.           0.8644E-06          0.5105
0      VEGET.          *0.8638E-06       *  0.5101
0      MEAT            *0.1225E-09       *  0.0001
0      MILK            *0.5045E-09       *  0.0003
0                CONTRIBUTION OF EXPOSURE MODES TO *PUL*   DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.4663E-10          0.0000
0     SURFACE           0.9128E-07          0.0000
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.2937E+00         99.9997
0     INGEST.           0.8648E-06          0.0003
0      VEGET.          *0.8641E-06       *  0.0003
0      MEAT            *0.1226E-09       *  0.0000
0      MILK            *0.5047E-09       *  0.0000
0                CONTRIBUTION OF EXPOSURE MODES TO S WALL   DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.3992E-10          0.0000
0     SURFACE           0.7814E-07          0.0451
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1708E-03         98.6447
0     INGEST.           0.2269E-05          1.3101
0      VEGET.          *0.2267E-05       *  1.3092
0      MEAT            *0.3216E-09       *  0.0002
0      MILK            *0.1324E-08       *  0.0008
0                CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.3815E-10          0.0000
0     SURFACE           0.7469E-07          0.0340
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1853E-03         84.3565
0     INGEST.           0.3428E-04         15.6094
0      VEGET.          *0.3426E-04       *  15.5981
0      MEAT            *0.4859E-08       *  0.0022
0      MILK            *0.2001E-07       *  0.0091
0                CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.4168E-10          0.0000
0     SURFACE           0.8160E-07          0.0056
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1447E-02         99.4794
0     INGEST.           0.7488E-05          0.5150
0      VEGET.          *0.7483E-05       *  0.5146
0      MEAT            *0.1061E-08       *  0.0001
0      MILK            *0.4370E-08       *  0.0003
0                CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.3038E-10          0.0000
0     SURFACE           0.5947E-07          0.0346
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1711E-03         99.4508
0     INGEST.           0.8853E-06          0.5146
0      VEGET.          *0.8847E-06       *  0.5143
0      MEAT            *0.1255E-09       *  0.0001
0      MILK            *0.5167E-09       *  0.0003
0                CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0   EXPOSURE MODE          ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0     SUBM AIR          0.4380E-10          0.0000
0     SURFACE           0.8575E-07          0.0498
0     SWIMMING          0.1000E-24          0.0000
0     INHAL            0.1711E-03         99.4355
0     INGEST.           0.8853E-06          0.5146
0      VEGET.          *0.8847E-06       *  0.5143
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0        MEAT                    *0.1255E-09                    *  0.0001
0        MILK                    *0.5167E-09                    *  0.0003
1                    TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                    ORGAN                          DOSE(REMS)
0                    W BODY                         0.6950E-01
0                    R MAR                          0.6889E-01
0                    ENDOST                         0.8564E+00
0                    THYROID                        0.1693E-03
0                    BREAST                         0.1693E-03
0                    *PUL*                          0.2937E+00
0                    S WALL                         0.1732E-03
0                    INT WALL                       0.2196E-03
0                    LIVER                          0.1454E-02
0                    PANCREAS                       0.1720E-03
0                    KIDNEYS                        0.1720E-03
1                         CONTRIBUTORS TO ORGAN DOSES
0                                        PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 TH-230   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                              ANNUAL DOSES(REMS)
0          NUCLIDE        ORGAN          DOSE                    MAXIMUM LOCATION
0                                                          COLUMN    ROW
0          TH-230         W BODY         0.6950E-01                 12      6
0          TH-230         R MAR          0.6889E-01                 12      6
0          TH-230         ENDOST         0.8564E+00                 12      6
0          TH-230         THYROID        0.1693E-03                 12      6
0          TH-230         BREAST         0.1693E-03                 12      6
0          TH-230         *PUL*          0.2937E+00                 12      6
0          TH-230         S WALL         0.1732E-03                 12      6
0          TH-230         INT WALL       0.2196E-03                 12      6
0          TH-230         LIVER          0.1454E-02                 12      6
0          TH-230         PANCREAS       0.1720E-03                 12      6
0          TH-230         KIDNEYS        0.1720E-03                 12      6
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Building 65

Thorium-232

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OPTION
 &OPTI OPTION=0,1.0,0.0,.0.0,0.
  UPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE UD=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-232',ISCL=Y,AMAD=1.0,REL=3.5 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 65 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
•
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0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
0							
1	1200	TH-232	3.21E-07	1.85E-08	2.99E-09	2.14E-08	6.14E+03
1	1300	TH-232	2.80E-07	1.61E-08	2.75E-09	1.89E-08	6.13E+03
1	1400	TH-232	2.47E-07	1.42E-08	2.55E-09	1.68E-08	6.12E+03
1	1500	TH-232	2.19E-07	1.26E-08	2.37E-09	1.50E-08	6.11E+03
1	1625	TH-232	1.91E-07	1.10E-08	2.19E-09	1.32E-08	6.10E+03
1	1700	TH-232	1.77E-07	1.02E-08	2.09E-09	1.23E-08	6.09E+03
1	1800	TH-232	1.61E-07	9.26E-09	1.97E-09	1.12E-08	6.09E+03
1	2000	TH-232	1.34E-07	7.73E-09	1.76E-09	9.50E-09	6.07E+03
1	2200	TH-232	1.14E-07	6.59E-09	1.60E-09	8.19E-09	6.06E+03
1	2500	TH-232	9.23E-08	5.31E-09	1.40E-09	6.72E-09	6.04E+03
1	5000	TH-232	3.15E-08	1.82E-09	6.82E-10	2.50E-09	5.90E+03
2	1200	TH-232	2.11E-07	1.21E-08	1.98E-09	1.41E-08	2.99E+03
2	1300	TH-232	1.84E-07	1.06E-08	1.83E-09	1.24E-08	2.98E+03
2	1400	TH-232	1.62E-07	9.33E-09	1.69E-09	1.10E-08	2.98E+03
2	1500	TH-232	1.44E-07	8.28E-09	1.57E-09	9.86E-09	2.97E+03
2	1625	TH-232	1.26E-07	7.23E-09	1.45E-09	8.68E-09	2.96E+03
2	1700	TH-232	1.16E-07	6.70E-09	1.38E-09	8.08E-09	2.96E+03

8	1700	TH-232	1.12E-07	6.42E-09	1.22E-09	7.64E-09	3.15E+03
8	1800	TH-232	1.01E-07	5.82E-09	1.15E-09	6.96E-09	3.14E+03
8	2000	TH-232	8.40E-08	4.84E-09	1.03E-09	5.86E-09	3.13E+03
8	2200	TH-232	7.15E-08	4.11E-09	9.31E-10	5.04E-09	3.12E+03
8	2500	TH-232	5.75E-08	3.31E-09	8.16E-10	4.12E-09	3.12E+03
8	5000	TH-232	1.91E-08	1.10E-09	3.94E-10	1.49E-09	3.03E+03
9	1200	TH-232	1.77E-07	1.02E-08	1.79E-09	1.20E-08	4.00E+03
9	1300	TH-232	1.54E-07	8.87E-09	1.85E-09	1.05E-08	3.99E+03
9	1400	TH-232	1.36E-07	7.81E-09	1.53E-09	9.34E-09	3.99E+03
9	1500	TH-232	1.20E-07	6.93E-09	1.42E-09	8.36E-09	3.98E+03
9	1625	TH-232	1.05E-07	6.05E-09	1.31E-09	7.37E-09	3.98E+03
9	1700	TH-232	9.74E-08	5.61E-09	1.25E-09	6.86E-09	3.97E+03
9	1800	TH-232	8.83E-08	5.08E-09	1.18E-09	6.26E-09	3.97E+03
9	2000	TH-232	7.36E-08	4.24E-09	1.06E-09	5.30E-09	3.96E+03
9	2200	TH-232	6.27E-08	3.61E-09	9.62E-10	4.57E-09	3.95E+03
9	2500	TH-232	5.05E-08	2.91E-09	8.44E-10	3.75E-09	3.94E+03
9	5000	TH-232	1.71E-08	9.83E-10	4.11E-10	1.39E-09	3.87E+03
10	1200	TH-232	3.73E-07	2.15E-08	3.14E-09	2.46E-08	5.87E+03
10	1300	TH-232	3.25E-07	1.87E-08	2.89E-09	2.16E-08	5.86E+03
10	1400	TH-232	2.86E-07	1.65E-08	2.68E-09	1.91E-08	5.85E+03
10	1500	TH-232	2.53E-07	1.46E-08	2.49E-09	1.71E-08	5.83E+03
10	1625	TH-232	2.21E-07	1.27E-08	2.29E-09	1.50E-08	5.82E+03
10	1700	TH-232	2.04E-07	1.17E-08	2.19E-09	1.39E-08	5.82E+03
10	1800	TH-232	1.85E-07	1.06E-08	2.06E-09	1.27E-08	5.81E+03
10	2000	TH-232	1.54E-07	8.84E-09	1.85E-09	1.07E-08	5.79E+03
10	2200	TH-232	1.31E-07	7.52E-09	1.68E-09	9.20E-09	5.78E+03
10	2500	TH-232	1.05E-07	6.04E-09	1.47E-09	7.51E-09	5.76E+03
10	5000	TH-232	3.49E-08	2.01E-09	7.09E-10	2.72E-09	5.61E+03
11	1200	TH-232	8.93E-07	5.14E-08	4.91E-09	5.63E-08	8.00E+03
11	1300	TH-232	7.76E-07	4.47E-08	4.51E-09	4.92E-08	7.98E+03
11	1400	TH-232	6.81E-07	3.92E-08	4.17E-09	4.34E-08	7.95E+03
11	1500	TH-232	6.01E-07	3.46E-08	3.87E-09	3.85E-08	7.92E+03
11	1625	TH-232	5.23E-07	3.01E-08	3.56E-09	3.37E-08	7.90E+03
11	1700	TH-232	4.84E-07	2.78E-08	3.40E-09	3.12E-08	7.88E+03
11	1800	TH-232	4.37E-07	2.52E-08	3.20E-09	2.84E-08	7.86E+03
11	2000	TH-232	3.62E-07	2.08E-08	2.85E-09	2.37E-08	7.82E+03
11	2200	TH-232	3.08E-07	1.77E-08	2.58E-09	2.03E-08	7.80E+03
11	2500	TH-232	2.47E-07	1.42E-08	2.26E-09	1.65E-08	7.76E+03
11	5000	TH-232	8.07E-08	4.65E-09	1.07E-09	5.72E-09	7.44E+03
12	1200	TH-232	1.15E-06	6.64E-08	6.06E-09	7.24E-08	9.53E+03
12	1300	TH-232	1.00E-06	5.77E-08	5.57E-09	6.33E-08	9.49E+03
12	1400	TH-232	8.80E-07	5.06E-08	5.14E-09	5.58E-08	9.46E+03
12	1500	TH-232	7.77E-07	4.47E-08	4.77E-09	4.95E-08	9.42E+03
12	1625	TH-232	6.76E-07	3.89E-08	4.39E-09	4.33E-08	9.39E+03
12	1700	TH-232	6.25E-07	3.60E-08	4.18E-09	4.02E-08	9.37E+03
12	1800	TH-232	5.65E-07	3.25E-08	3.94E-09	3.65E-08	9.34E+03
12	2000	TH-232	4.68E-07	2.70E-08	3.51E-09	3.05E-08	9.29E+03
12	2200	TH-232	3.98E-07	2.29E-08	3.18E-09	2.61E-08	9.26E+03
12	2500	TH-232	3.19E-07	1.84E-08	2.78E-09	2.12E-08	9.22E+03
12	5000	TH-232	1.05E-07	6.04E-09	1.31E-09	7.35E-09	8.80E+03
13	1200	TH-232	1.03E-06	5.94E-08	6.73E-09	6.61E-08	1.11E+04
13	1300	TH-232	8.99E-07	5.17E-08	6.19E-09	5.79E-08	1.11E+04
13	1400	TH-232	7.89E-07	4.54E-08	5.73E-09	5.12E-08	1.11E+04
13	1500	TH-232	6.98E-07	4.02E-08	5.32E-09	4.55E-08	1.10E+04
13	1625	TH-232	6.09E-07	3.50E-08	4.90E-09	3.99E-08	1.10E+04
13	1700	TH-232	5.63E-07	3.24E-08	4.67E-09	3.71E-08	1.10E+04
13	1800	TH-232	5.09E-07	2.93E-08	4.40E-09	3.37E-08	1.10E+04
13	2000	TH-232	4.23E-07	2.43E-08	3.93E-09	2.83E-08	1.09E+04
13	2200	TH-232	3.60E-07	2.07E-08	3.57E-09	2.43E-08	1.09E+04
13	2500	TH-232	2.89E-07	1.66E-08	3.12E-09	1.98E-08	1.09E+04
13	5000	TH-232	9.61E-08	5.53E-09	1.49E-09	7.02E-09	1.05E+04
14	1200	TH-232	1.08E-06	6.20E-08	7.30E-09	6.93E-08	1.05E+04
14	1300	TH-232	9.39E-07	5.40E-08	6.71E-09	6.07E-08	1.05E+04
14	1400	TH-232	8.25E-07	4.75E-08	6.21E-09	5.37E-08	1.04E+04
14	1500	TH-232	7.30E-07	4.20E-08	5.77E-09	4.78E-08	1.04E+04

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-232
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1350E-12
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.5300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.206E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.685E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1200	0.321E-12	0.677E-08	0.355E+04	0.257E+04
1	1300	0.280E-12	0.595E-08	0.313E+04	0.225E+04
1	1400	0.247E-12	0.529E-08	0.278E+04	0.198E+04
1	1500	0.219E-12	0.473E-08	0.248E+04	0.176E+04
1	1625	0.191E-12	0.417E-08	0.219E+04	0.154E+04
1	1700	0.177E-12	0.388E-08	0.204E+04	0.142E+04
1	1800	0.161E-12	0.354E-08	0.186E+04	0.129E+04
1	2000	0.134E-12	0.300E-08	0.157E+04	0.108E+04
1	2200	0.114E-12	0.258E-08	0.136E+04	0.919E+03
1	2500	0.923E-13	0.212E-08	0.111E+04	0.741E+03
1	5000	0.315E-13	0.788E-09	0.414E+03	0.253E+03
2	1200	0.211E-12	0.445E-08	0.234E+04	0.169E+04
2	1300	0.184E-12	0.392E-08	0.206E+04	0.148E+04
2	1400	0.162E-12	0.348E-08	0.183E+04	0.130E+04
2	1500	0.144E-12	0.311E-08	0.163E+04	0.116E+04
2	1625	0.126E-12	0.274E-08	0.144E+04	0.101E+04

8	1625	0.121E-12	0.259E-08	0.136E+04	0.969E+03
8	1700	0.112E-12	0.241E-08	0.127E+04	0.896E+03
8	1800	0.101E-12	0.220E-08	0.115E+04	0.812E+03
8	2000	0.840E-13	0.185E-08	0.972E+03	0.675E+03
8	2200	0.715E-13	0.159E-08	0.836E+03	0.574E+03
8	2500	0.575E-13	0.130E-08	0.683E+03	0.461E+03
8	5000	0.191E-13	0.471E-09	0.248E+03	0.153E+03
9	1200	0.177E-12	0.377E-08	0.198E+04	0.142E+04
9	1300	0.154E-12	0.332E-08	0.174E+04	0.124E+04
9	1400	0.136E-12	0.295E-08	0.155E+04	0.109E+04
9	1500	0.120E-12	0.264E-08	0.139E+04	0.967E+03
9	1625	0.105E-12	0.232E-08	0.122E+04	0.844E+03
9	1700	0.974E-13	0.216E-08	0.114E+04	0.782E+03
9	1800	0.883E-13	0.198E-08	0.104E+04	0.709E+03
9	2000	0.736E-13	0.167E-08	0.878E+03	0.591E+03
9	2200	0.627E-13	0.144E-08	0.758E+03	0.504E+03
9	2500	0.505E-13	0.118E-08	0.622E+03	0.406E+03
9	5000	0.171E-13	0.440E-09	0.231E+03	0.137E+03
10	1200	0.373E-12	0.777E-08	0.408E+04	0.300E+04
10	1300	0.325E-12	0.682E-08	0.358E+04	0.261E+04
10	1400	0.286E-12	0.604E-08	0.317E+04	0.230E+04
10	1500	0.253E-12	0.538E-08	0.283E+04	0.203E+04
10	1625	0.221E-12	0.473E-08	0.249E+04	0.177E+04
10	1700	0.204E-12	0.440E-08	0.231E+04	0.164E+04
10	1800	0.185E-12	0.401E-08	0.211E+04	0.148E+04
10	2000	0.154E-12	0.337E-08	0.177E+04	0.123E+04
10	2200	0.131E-12	0.290E-08	0.152E+04	0.105E+04
10	2500	0.105E-12	0.237E-08	0.125E+04	0.843E+03
10	5000	0.349E-13	0.858E-09	0.451E+03	0.281E+03
11	1200	0.893E-12	0.178E-07	0.933E+04	0.717E+04
11	1300	0.776E-12	0.155E-07	0.815E+04	0.623E+04
11	1400	0.681E-12	0.137E-07	0.719E+04	0.547E+04
11	1500	0.601E-12	0.121E-07	0.638E+04	0.483E+04
11	1625	0.523E-12	0.106E-07	0.558E+04	0.420E+04
11	1700	0.484E-12	0.985E-08	0.518E+04	0.388E+04
11	1800	0.437E-12	0.895E-08	0.470E+04	0.351E+04
11	2000	0.362E-12	0.747E-08	0.393E+04	0.291E+04
11	2200	0.308E-12	0.640E-08	0.336E+04	0.247E+04
11	2500	0.247E-12	0.519E-08	0.273E+04	0.198E+04
11	5000	0.807E-13	0.180E-08	0.947E+03	0.648E+03
12	1200	0.115E-11	0.229E-07	0.120E+05	0.926E+04
12	1300	0.100E-11	0.200E-07	0.105E+05	0.805E+04
12	1400	0.880E-12	0.176E-07	0.925E+04	0.706E+04
12	1500	0.777E-12	0.156E-07	0.821E+04	0.624E+04
12	1625	0.676E-12	0.137E-07	0.718E+04	0.543E+04
12	1700	0.625E-12	0.127E-07	0.666E+04	0.502E+04
12	1800	0.565E-12	0.115E-07	0.605E+04	0.454E+04
12	2000	0.468E-12	0.961E-08	0.505E+04	0.376E+04
12	2200	0.398E-12	0.823E-08	0.432E+04	0.320E+04
12	2500	0.319E-12	0.668E-08	0.351E+04	0.256E+04
12	5000	0.105E-12	0.232E-08	0.122E+04	0.843E+03
13	1200	0.103E-11	0.209E-07	0.110E+05	0.829E+04
13	1300	0.899E-12	0.183E-07	0.960E+04	0.722E+04
13	1400	0.789E-12	0.161E-07	0.848E+04	0.634E+04
13	1500	0.698E-12	0.144E-07	0.755E+04	0.561E+04
13	1625	0.609E-12	0.126E-07	0.662E+04	0.489E+04
13	1700	0.563E-12	0.117E-07	0.614E+04	0.452E+04
13	1800	0.509E-12	0.106E-07	0.559E+04	0.409E+04
13	2000	0.423E-12	0.892E-08	0.469E+04	0.340E+04
13	2200	0.360E-12	0.766E-08	0.402E+04	0.289E+04
13	2500	0.289E-12	0.623E-08	0.327E+04	0.232E+04
13	5000	0.961E-13	0.221E-08	0.116E+04	0.772E+03
14	1200	0.108E-11	0.219E-07	0.115E+05	0.865E+04
14	1300	0.939E-12	0.192E-07	0.101E+05	0.754E+04
14	1400	0.825E-12	0.169E-07	0.890E+04	0.662E+04

	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
0					
	TH-232	SUBM AIR	0.1024E-08	0.00	100.00
		SURFACE	0.2319E-05	0.01	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.2056E-01	99.73	100.00
		INGEST.	0.5379E-04	0.26	100.00
		VEGET.	0.5375E-04	* 0.26	* 99.93
		MEAT	0.7624E-08	* 0.00	* 0.01
		MILK	0.3139E-07	* 0.00	* 0.06
1		PERCENT OF BREAST DOSE BY EACH PATHWAY			
0	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.2308E-08	0.00	100.00
		SURFACE	0.5230E-05	0.02	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.2102E-01	99.71	100.00
		INGEST.	0.5595E-04	0.27	100.00
		VEGET.	0.5591E-04	* 0.27	* 99.93
		MEAT	0.7930E-08	* 0.00	* 0.01
		MILK	0.3265E-07	* 0.00	* 0.06
1		PERCENT OF *PUL* DOSE BY EACH PATHWAY			
0	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.6893E-09	0.00	100.00
		SURFACE	0.1562E-05	0.00	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.3222E+02	100.00	100.00
		INGEST.	0.5559E-04	0.00	100.00
		VEGET.	0.5555E-04	* 0.00	* 99.93
		MEAT	0.7879E-08	* 0.00	* 0.01
		MILK	0.3244E-07	* 0.00	* 0.06
1		PERCENT OF S WALL DOSE BY EACH PATHWAY			
0	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.5744E-09	0.00	100.00
		SURFACE	0.1301E-05	0.01	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.1212E-01	99.43	100.00
		INGEST.	0.6875E-04	0.56	100.00
		VEGET.	0.6870E-04	* 0.56	* 99.93
		MEAT	0.9744E-08	* 0.00	* 0.01
		MILK	0.4012E-07	* 0.00	* 0.06
1		PERCENT OF INT WALL DOSE BY EACH PATHWAY			
0	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.5431E-09	0.00	100.00
		SURFACE	0.1230E-05	0.01	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.1299E-01	92.68	100.00
		INGEST.	0.1024E-02	7.31	100.00
		VEGET.	0.1024E-02	* 7.30	* 99.93
		MEAT	0.1452E-06	* 0.00	* 0.01
		MILK	0.5979E-06	* 0.00	* 0.06
1		PERCENT OF LIVER DOSE BY EACH PATHWAY			
0	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.6058E-09	0.00	100.00
		SURFACE	0.1372E-05	0.00	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.7457E-01	99.69	100.00
		INGEST.	0.2281E-03	0.30	100.00
		VEGET.	0.2279E-03	* 0.30	* 99.93
		MEAT	0.3233E-07	* 0.00	* 0.01
		MILK	0.1331E-06	* 0.00	* 0.06

0	SURFACE	0.5230E-05	0.0248
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2102E-01	99.7098
0	INGEST.	0.5595E-04	0.2654
0	VEGET.	*0.5591E-04	* 0.2652
0	MEAT	*0.7930E-08	* 0.0000
0	MILK	*0.3265E-07	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6893E-09	0.0000
0	SURFACE	0.1562E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3222E+02	99.9998
0	INGEST.	0.5559E-04	0.0002
0	VEGET.	*0.5555E-04	* 0.0002
0	MEAT	*0.7879E-08	* 0.0000
0	MILK	*0.3244E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5744E-09	0.0000
0	SURFACE	0.1301E-05	0.0107
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1212E-01	99.4254
0	INGEST.	0.6875E-04	0.5639
0	VEGET.	*0.6870E-04	* 0.5635
0	MEAT	*0.9744E-08	* 0.0001
0	MILK	*0.4012E-07	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5431E-09	0.0000
0	SURFACE	0.1230E-05	0.0088
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1299E-01	92.6823
0	INGEST.	0.1024E-02	7.3089
0	VEGET.	*0.1024E-02	* 7.3038
0	MEAT	*0.1452E-06	* 0.0010
0	MILK	*0.5979E-06	* 0.0043
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6058E-09	0.0000
0	SURFACE	0.1372E-05	0.0018
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7457E-01	99.6932
0	INGEST.	0.2281E-03	0.3050
0	VEGET.	*0.2279E-03	* 0.3048
0	MEAT	*0.3233E-07	* 0.0000
0	MILK	*0.1331E-06	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4282E-09	0.0000
0	SURFACE	0.9702E-06	0.0079
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1218E-01	99.7668
0	INGEST.	0.2749E-04	0.2253
0	VEGET.	*0.2747E-04	* 0.2251
0	MEAT	*0.3897E-08	* 0.0000
0	MILK	*0.1605E-07	* 0.0001
0	CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6475E-09	0.0000
0	SURFACE	0.1467E-05	0.0120
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1217E-01	99.7653
0	INGEST.	0.2716E-04	0.2227
0	VEGET.	*0.2714E-04	* 0.2225

Building 65

Radium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE UD=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='RA-228',ISOL=W,AMAD=1.0,REL=3.5 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 65 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.350E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
0							
1	1200	RA-228	3.21E-07	1.85E-08	2.99E-09	2.14E-08	6.14E+03
1	1300	RA-228	2.80E-07	1.61E-08	2.75E-09	1.89E-08	6.13E+03
1	1400	RA-228	2.47E-07	1.42E-08	2.55E-09	1.68E-08	6.12E+03
1	1500	RA-228	2.19E-07	1.26E-08	2.37E-09	1.50E-08	6.11E+03
1	1625	RA-228	1.91E-07	1.10E-08	2.19E-09	1.32E-08	6.10E+03
1	1700	RA-228	1.77E-07	1.02E-08	2.09E-09	1.23E-08	6.09E+03
1	1800	RA-228	1.61E-07	9.26E-09	1.97E-09	1.12E-08	6.09E+03
1	2000	RA-228	1.34E-07	7.73E-09	1.76E-09	9.50E-09	6.07E+03
1	2200	RA-228	1.14E-07	6.59E-09	1.60E-09	8.19E-09	6.06E+03
1	2500	RA-228	9.23E-08	5.31E-09	1.40E-09	6.72E-09	6.04E+03
1	5000	RA-228	3.15E-08	1.82E-09	6.82E-10	2.50E-09	5.90E+03
2	1200	RA-228	2.11E-07	1.21E-08	1.98E-09	1.41E-08	2.99E+03
2	1300	RA-228	1.84E-07	1.06E-08	1.83E-09	1.24E-08	2.98E+03
2	1400	RA-228	1.62E-07	9.33E-09	1.69E-09	1.10E-08	2.98E+03
2	1500	RA-228	1.44E-07	8.28E-09	1.57E-09	9.86E-09	2.97E+03
2	1625	RA-228	1.26E-07	7.23E-09	1.45E-09	8.68E-09	2.96E+03
2	1700	RA-228	1.16E-07	6.70E-09	1.38E-09	8.08E-09	2.96E+03

2	1800	RA-228	1.06E-07	6.08E-09	1.30E-09	7.38E-09	2.95E+03
2	2000	RA-228	8.80E-08	5.07E-09	1.17E-09	6.24E-09	2.94E+03
2	2200	RA-228	7.50E-08	4.32E-09	1.06E-09	5.38E-09	2.94E+03
2	2500	RA-228	6.04E-08	3.48E-09	9.29E-10	4.41E-09	2.92E+03
2	5000	RA-228	2.05E-08	1.18E-09	4.48E-10	1.63E-09	2.83E+03
3	1200	RA-228	1.63E-07	9.41E-09	1.33E-09	1.07E-08	1.61E+03
3	1300	RA-228	1.42E-07	8.19E-09	1.22E-09	9.42E-09	1.61E+03
3	1400	RA-228	1.25E-07	7.20E-09	1.13E-09	8.33E-09	1.60E+03
3	1500	RA-228	1.11E-07	6.38E-09	1.05E-09	7.43E-09	1.60E+03
3	1625	RA-228	9.65E-08	5.56E-09	9.67E-10	6.52E-09	1.59E+03
3	1700	RA-228	8.93E-08	5.14E-09	9.22E-10	6.06E-09	1.59E+03
3	1800	RA-228	8.08E-08	4.65E-09	8.69E-10	5.52E-09	1.59E+03
3	2000	RA-228	6.72E-08	3.87E-09	7.77E-10	4.64E-09	1.58E+03
3	2200	RA-228	5.71E-08	3.29E-09	7.04E-10	3.99E-09	1.57E+03
3	2500	RA-228	4.59E-08	2.64E-09	6.17E-10	3.26E-09	1.57E+03
3	5000	RA-228	1.52E-08	8.76E-10	2.95E-10	1.17E-09	1.50E+03
4	1200	RA-228	2.50E-07	1.44E-08	1.78E-09	1.61E-08	2.01E+03
4	1300	RA-228	2.17E-07	1.25E-08	1.63E-09	1.41E-08	2.01E+03
4	1400	RA-228	1.91E-07	1.10E-08	1.51E-09	1.25E-08	2.00E+03
4	1500	RA-228	1.69E-07	9.71E-09	1.40E-09	1.11E-08	1.99E+03
4	1625	RA-228	1.47E-07	8.46E-09	1.29E-09	9.75E-09	1.98E+03
4	1700	RA-228	1.36E-07	7.82E-09	1.23E-09	9.05E-09	1.98E+03
4	1800	RA-228	1.23E-07	7.08E-09	1.16E-09	8.24E-09	1.97E+03
4	2000	RA-228	1.02E-07	5.87E-09	1.04E-09	6.91E-09	1.96E+03
4	2200	RA-228	8.67E-08	4.99E-09	9.39E-10	5.93E-09	1.95E+03
4	2500	RA-228	6.96E-08	4.01E-09	8.22E-10	4.83E-09	1.94E+03
4	5000	RA-228	2.29E-08	1.32E-09	3.90E-10	1.71E-09	1.85E+03
5	1200	RA-228	5.09E-07	2.93E-08	3.32E-09	3.26E-08	4.13E+03
5	1300	RA-228	4.43E-07	2.55E-08	3.05E-09	2.85E-08	4.12E+03
5	1400	RA-228	3.88E-07	2.24E-08	2.82E-09	2.52E-08	4.10E+03
5	1500	RA-228	3.43E-07	1.98E-08	2.62E-09	2.24E-08	4.08E+03
5	1625	RA-228	2.99E-07	1.72E-08	2.41E-09	1.96E-08	4.07E+03
5	1700	RA-228	2.76E-07	1.59E-08	2.30E-09	1.82E-08	4.06E+03
5	1800	RA-228	2.50E-07	1.44E-08	2.16E-09	1.66E-08	4.05E+03
5	2000	RA-228	2.07E-07	1.19E-08	1.93E-09	1.39E-08	4.02E+03
5	2200	RA-228	1.76E-07	1.01E-08	1.75E-09	1.19E-08	4.01E+03
5	2500	RA-228	1.41E-07	8.14E-09	1.53E-09	9.67E-09	3.99E+03
5	5000	RA-228	4.65E-08	2.68E-09	7.27E-10	3.40E-09	3.80E+03
6	1200	RA-228	3.79E-07	2.18E-08	3.81E-09	2.56E-08	6.33E+03
6	1300	RA-228	3.30E-07	1.90E-08	3.51E-09	2.25E-08	6.32E+03
6	1400	RA-228	2.90E-07	1.67E-08	3.25E-09	2.00E-08	6.31E+03
6	1500	RA-228	2.57E-07	1.48E-08	3.03E-09	1.78E-08	6.30E+03
6	1625	RA-228	2.25E-07	1.29E-08	2.79E-09	1.57E-08	6.29E+03
6	1700	RA-228	2.08E-07	1.20E-08	2.66E-09	1.46E-08	6.28E+03
6	1800	RA-228	1.88E-07	1.08E-08	2.51E-09	1.33E-08	6.27E+03
6	2000	RA-228	1.57E-07	9.03E-09	2.25E-09	1.13E-08	6.25E+03
6	2200	RA-228	1.33E-07	7.68E-09	2.04E-09	9.72E-09	6.24E+03
6	2500	RA-228	1.07E-07	6.18E-09	1.79E-09	7.97E-09	6.22E+03
6	5000	RA-228	3.60E-08	2.07E-09	8.66E-10	2.94E-09	6.05E+03
7	1200	RA-228	2.07E-07	1.19E-08	2.08E-09	1.40E-08	3.47E+03
7	1300	RA-228	1.80E-07	1.04E-08	1.92E-09	1.23E-08	3.47E+03
7	1400	RA-228	1.59E-07	9.13E-09	1.78E-09	1.09E-08	3.46E+03
7	1500	RA-228	1.41E-07	8.09E-09	1.66E-09	9.75E-09	3.45E+03
7	1625	RA-228	1.23E-07	7.05E-09	1.52E-09	8.58E-09	3.45E+03
7	1700	RA-228	1.13E-07	6.53E-09	1.46E-09	7.98E-09	3.44E+03
7	1800	RA-228	1.03E-07	5.91E-09	1.37E-09	7.28E-09	3.44E+03
7	2000	RA-228	8.54E-08	4.92E-09	1.23E-09	6.15E-09	3.43E+03
7	2200	RA-228	7.27E-08	4.18E-09	1.12E-09	5.30E-09	3.42E+03
7	2500	RA-228	5.84E-08	3.36E-09	9.79E-10	4.34E-09	3.41E+03
7	5000	RA-228	1.94E-08	1.12E-09	4.74E-10	1.59E-09	3.32E+03
8	1200	RA-228	2.04E-07	1.17E-08	1.74E-09	1.35E-08	3.18E+03
8	1300	RA-228	1.78E-07	1.02E-08	1.60E-09	1.18E-08	3.17E+03
8	1400	RA-228	1.56E-07	8.99E-09	1.49E-09	1.05E-08	3.16E+03
8	1500	RA-228	1.38E-07	7.96E-09	1.38E-09	9.35E-09	3.16E+03
8	1625	RA-228	1.21E-07	6.94E-09	1.27E-09	8.22E-09	3.15E+03

8	1700	RA-228	1.12E-07	6.42E-09	1.22E-09	7.64E-09	3.15E+03
8	1800	RA-228	1.01E-07	5.82E-09	1.15E-09	6.96E-09	3.14E+03
8	2000	RA-228	8.40E-08	4.84E-09	1.03E-09	5.86E-09	3.13E+03
8	2200	RA-228	7.15E-08	4.11E-09	9.31E-10	5.04E-09	3.12E+03
8	2500	RA-228	5.75E-08	3.31E-09	8.16E-10	4.12E-09	3.12E+03
8	5000	RA-228	1.91E-08	1.10E-09	3.94E-10	1.49E-09	3.03E+03
9	1200	RA-228	1.77E-07	1.02E-08	1.79E-09	1.20E-08	4.00E+03
9	1300	RA-228	1.54E-07	8.87E-09	1.65E-09	1.05E-08	3.99E+03
9	1400	RA-228	1.36E-07	7.81E-09	1.53E-09	9.34E-09	3.99E+03
9	1500	RA-228	1.20E-07	6.93E-09	1.42E-09	8.36E-09	3.98E+03
9	1625	RA-228	1.05E-07	6.05E-09	1.31E-09	7.37E-09	3.98E+03
9	1700	RA-228	9.74E-08	5.61E-09	1.25E-09	6.86E-09	3.97E+03
9	1800	RA-228	8.83E-08	5.08E-09	1.18E-09	6.26E-09	3.97E+03
9	2000	RA-228	7.36E-08	4.24E-09	1.06E-09	5.30E-09	3.96E+03
9	2200	RA-228	6.27E-08	3.61E-09	9.62E-10	4.57E-09	3.95E+03
9	2500	RA-228	5.05E-08	2.91E-09	8.44E-10	3.75E-09	3.94E+03
9	5000	RA-228	1.71E-08	9.83E-10	4.11E-10	1.39E-09	3.87E+03
10	1200	RA-228	3.73E-07	2.15E-08	3.14E-09	2.46E-08	5.87E+03
10	1300	RA-228	3.25E-07	1.87E-08	2.89E-09	2.16E-08	5.86E+03
10	1400	RA-228	2.86E-07	1.65E-08	2.68E-09	1.91E-08	5.85E+03
10	1500	RA-228	2.53E-07	1.46E-08	2.49E-09	1.71E-08	5.83E+03
10	1625	RA-228	2.21E-07	1.27E-08	2.29E-09	1.50E-08	5.82E+03
10	1700	RA-228	2.04E-07	1.17E-08	2.19E-09	1.39E-08	5.82E+03
10	1800	RA-228	1.85E-07	1.06E-08	2.06E-09	1.27E-08	5.81E+03
10	2000	RA-228	1.54E-07	8.84E-09	1.85E-09	1.07E-08	5.79E+03
10	2200	RA-228	1.31E-07	7.52E-09	1.68E-09	9.20E-09	5.78E+03
10	2500	RA-228	1.05E-07	6.04E-09	1.47E-09	7.51E-09	5.76E+03
10	5000	RA-228	3.49E-08	2.01E-09	7.09E-10	2.72E-09	5.61E+03
11	1200	RA-228	8.93E-07	5.14E-08	4.91E-09	5.63E-08	8.00E+03
11	1300	RA-228	7.76E-07	4.47E-08	4.51E-09	4.92E-08	7.98E+03
11	1400	RA-228	6.81E-07	3.92E-08	4.17E-09	4.34E-08	7.95E+03
11	1500	RA-228	6.01E-07	3.46E-08	3.87E-09	3.85E-08	7.92E+03
11	1625	RA-228	5.23E-07	3.01E-08	3.56E-09	3.37E-08	7.90E+03
11	1700	RA-228	4.84E-07	2.78E-08	3.40E-09	3.12E-08	7.88E+03
11	1800	RA-228	4.37E-07	2.52E-08	3.20E-09	2.84E-08	7.86E+03
11	2000	RA-228	3.62E-07	2.08E-08	2.85E-09	2.37E-08	7.82E+03
11	2200	RA-228	3.08E-07	1.77E-08	2.58E-09	2.03E-08	7.80E+03
11	2500	RA-228	2.47E-07	1.42E-08	2.26E-09	1.65E-08	7.76E+03
11	5000	RA-228	8.07E-08	4.65E-09	1.07E-09	5.72E-09	7.44E+03
12	1200	RA-228	1.15E-06	6.64E-08	6.06E-09	7.24E-08	9.53E+03
12	1300	RA-228	1.00E-06	5.77E-08	5.57E-09	6.33E-08	9.49E+03
12	1400	RA-228	8.80E-07	5.06E-08	5.14E-09	5.58E-08	9.46E+03
12	1500	RA-228	7.77E-07	4.47E-08	4.77E-09	4.95E-08	9.42E+03
12	1625	RA-228	6.76E-07	3.89E-08	4.39E-09	4.33E-08	9.39E+03
12	1700	RA-228	6.25E-07	3.60E-08	4.18E-09	4.02E-08	9.37E+03
12	1800	RA-228	5.65E-07	3.25E-08	3.94E-09	3.65E-08	9.34E+03
12	2000	RA-228	4.68E-07	2.70E-08	3.51E-09	3.05E-08	9.29E+03
12	2200	RA-228	3.98E-07	2.29E-08	3.18E-09	2.61E-08	9.26E+03
12	2500	RA-228	3.19E-07	1.84E-08	2.78E-09	2.12E-08	9.22E+03
12	5000	RA-228	1.05E-07	6.04E-09	1.31E-09	7.35E-09	8.80E+03
13	1200	RA-228	1.03E-06	5.94E-08	6.73E-09	6.61E-08	1.11E+04
13	1300	RA-228	8.99E-07	5.17E-08	6.19E-09	5.79E-08	1.11E+04
13	1400	RA-228	7.89E-07	4.54E-08	5.73E-09	5.12E-08	1.11E+04
13	1500	RA-228	6.98E-07	4.02E-08	5.32E-09	4.55E-08	1.10E+04
13	1625	RA-228	6.09E-07	3.50E-08	4.90E-09	3.99E-08	1.10E+04
13	1700	RA-228	5.63E-07	3.24E-08	4.67E-09	3.71E-08	1.10E+04
13	1800	RA-228	5.09E-07	2.93E-08	4.40E-09	3.37E-08	1.10E+04
13	2000	RA-228	4.23E-07	2.43E-08	3.93E-09	2.83E-08	1.09E+04
13	2200	RA-228	3.60E-07	2.07E-08	3.57E-09	2.43E-08	1.09E+04
13	2500	RA-228	2.89E-07	1.66E-08	3.12E-09	1.98E-08	1.09E+04
13	5000	RA-228	9.61E-08	5.53E-09	1.49E-09	7.02E-09	1.05E+04
14	1200	RA-228	1.08E-06	6.20E-08	7.30E-09	6.93E-08	1.05E+04
14	1300	RA-228	9.39E-07	5.40E-08	6.71E-09	6.07E-08	1.05E+04
14	1400	RA-228	8.25E-07	4.75E-08	6.21E-09	5.37E-08	1.04E+04
14	1500	RA-228	7.30E-07	4.20E-08	5.77E-09	4.78E-08	1.04E+04

14	1625	RA-228	6.36E-07	3.66E-08	5.31E-09	4.19E-08	1.04E+04
14	1700	RA-228	5.89E-07	3.39E-08	5.06E-09	3.90E-08	1.03E+04
14	1800	RA-228	5.33E-07	3.07E-08	4.77E-09	3.55E-08	1.03E+04
14	2000	RA-228	4.43E-07	2.55E-08	4.26E-09	2.98E-08	1.03E+04
14	2200	RA-228	3.77E-07	2.17E-08	3.86E-09	2.55E-08	1.02E+04
14	2500	RA-228	3.03E-07	1.74E-08	3.38E-09	2.08E-08	1.02E+04
14	5000	RA-228	1.01E-07	5.81E-09	1.61E-09	7.42E-09	9.77E+03
15	1200	RA-228	8.71E-07	5.01E-08	7.55E-09	5.77E-08	1.26E+04
15	1300	RA-228	7.60E-07	4.37E-08	6.95E-09	5.07E-08	1.25E+04
15	1400	RA-228	6.69E-07	3.85E-08	6.44E-09	4.49E-08	1.25E+04
15	1500	RA-228	5.93E-07	3.42E-08	5.99E-09	4.01E-08	1.25E+04
15	1625	RA-228	5.18E-07	2.98E-08	5.51E-09	3.53E-08	1.25E+04
15	1700	RA-228	4.79E-07	2.76E-08	5.26E-09	3.29E-08	1.24E+04
15	1800	RA-228	4.35E-07	2.50E-08	4.96E-09	3.00E-08	1.24E+04
15	2000	RA-228	3.62E-07	2.08E-08	4.44E-09	2.53E-08	1.24E+04
15	2200	RA-228	3.08E-07	1.78E-08	4.03E-09	2.18E-08	1.24E+04
15	2500	RA-228	2.48E-07	1.43E-08	3.53E-09	1.78E-08	1.23E+04
15	5000	RA-228	8.40E-08	4.83E-09	1.70E-09	6.54E-09	1.19E+04
16	1200	RA-228	6.09E-07	3.50E-08	5.60E-09	4.06E-08	1.24E+04
16	1300	RA-228	5.31E-07	3.06E-08	5.15E-09	3.57E-08	1.24E+04
16	1400	RA-228	4.68E-07	2.69E-08	4.78E-09	3.17E-08	1.24E+04
16	1500	RA-228	4.15E-07	2.39E-08	4.45E-09	2.83E-08	1.24E+04
16	1625	RA-228	3.63E-07	2.09E-08	4.10E-09	2.50E-08	1.23E+04
16	1700	RA-228	3.36E-07	1.93E-08	3.91E-09	2.32E-08	1.23E+04
16	1800	RA-228	3.04E-07	1.75E-08	3.69E-09	2.12E-08	1.23E+04
16	2000	RA-228	2.54E-07	1.46E-08	3.30E-09	1.79E-08	1.23E+04
16	2200	RA-228	2.16E-07	1.24E-08	3.00E-09	1.54E-08	1.23E+04
16	2500	RA-228	1.74E-07	1.00E-08	2.63E-09	1.27E-08	1.22E+04
16	5000	RA-228	5.92E-08	3.41E-09	1.28E-09	4.69E-09	1.20E+04

1 GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE RA-228
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.3301E-03
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5900E-03
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.5000E-03
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.1000E+00
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.2000E-01
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E+00
0 GI UPTAKE FRACTION (INGESTION) 0.2000E+00
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS W
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-06	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	1200	0.321E-12	0.637E-08	0.397E+04	0.257E+04
1	1300	0.280E-12	0.561E-08	0.349E+04	0.225E+04
1	1400	0.247E-12	0.498E-08	0.310E+04	0.198E+04
1	1500	0.219E-12	0.446E-08	0.277E+04	0.176E+04
1	1625	0.191E-12	0.393E-08	0.244E+04	0.154E+04
1	1700	0.177E-12	0.366E-08	0.228E+04	0.142E+04
1	1800	0.161E-12	0.334E-08	0.208E+04	0.129E+04
1	2000	0.134E-12	0.282E-08	0.176E+04	0.108E+04
1	2200	0.114E-12	0.243E-08	0.152E+04	0.919E+03
1	2500	0.923E-13	0.200E-08	0.124E+04	0.741E+03
1	5000	0.315E-13	0.742E-09	0.462E+03	0.253E+03
2	1200	0.211E-12	0.420E-08	0.261E+04	0.169E+04
2	1300	0.184E-12	0.369E-08	0.230E+04	0.148E+04
2	1400	0.162E-12	0.328E-08	0.204E+04	0.130E+04
2	1500	0.144E-12	0.293E-08	0.182E+04	0.116E+04
2	1625	0.126E-12	0.258E-08	0.161E+04	0.101E+04

2	1700	0.116E-12	0.240E-08	0.150E+04	0.934E+03
2	1800	0.106E-12	0.219E-08	0.137E+04	0.848E+03
2	2000	0.380E-13	0.185E-08	0.115E+04	0.707E+03
2	2200	0.750E-13	0.160E-08	0.995E+03	0.602E+03
2	2500	0.604E-13	0.131E-08	0.815E+03	0.485E+03
2	5000	0.205E-13	0.484E-09	0.301E+03	0.165E+03
3	1200	0.183E-12	0.319E-08	0.199E+04	0.131E+04
3	1300	0.142E-12	0.280E-08	0.174E+04	0.114E+04
3	1400	0.125E-12	0.248E-08	0.154E+04	0.100E+04
3	1500	0.111E-12	0.221E-08	0.137E+04	0.889E+03
3	1625	0.965E-13	0.194E-08	0.121E+04	0.775E+03
3	1700	0.893E-13	0.180E-08	0.112E+04	0.717E+03
3	1800	0.808E-13	0.164E-08	0.102E+04	0.649E+03
3	2000	0.672E-13	0.138E-08	0.859E+03	0.539E+03
3	2200	0.571E-13	0.119E-08	0.739E+03	0.459E+03
3	2500	0.459E-13	0.969E-09	0.603E+03	0.369E+03
3	5000	0.152E-13	0.348E-09	0.217E+03	0.122E+03
4	1200	0.250E-12	0.480E-08	0.299E+04	0.201E+04
4	1300	0.217E-12	0.420E-08	0.262E+04	0.175E+04
4	1400	0.191E-12	0.371E-08	0.231E+04	0.153E+04
4	1500	0.169E-12	0.330E-08	0.206E+04	0.136E+04
4	1625	0.147E-12	0.290E-08	0.180E+04	0.118E+04
4	1700	0.136E-12	0.269E-08	0.168E+04	0.109E+04
4	1800	0.123E-12	0.245E-08	0.152E+04	0.987E+03
4	2000	0.102E-12	0.205E-08	0.128E+04	0.819E+03
4	2200	0.867E-13	0.176E-08	0.110E+04	0.696E+03
4	2500	0.696E-13	0.144E-08	0.894E+03	0.559E+03
4	5000	0.229E-13	0.509E-09	0.317E+03	0.184E+03
5	1200	0.509E-12	0.969E-08	0.603E+04	0.409E+04
5	1300	0.443E-12	0.848E-08	0.528E+04	0.355E+04
5	1400	0.388E-12	0.749E-08	0.466E+04	0.312E+04
5	1500	0.343E-12	0.666E-08	0.414E+04	0.276E+04
5	1625	0.299E-12	0.583E-08	0.363E+04	0.240E+04
5	1700	0.276E-12	0.541E-08	0.337E+04	0.222E+04
5	1800	0.250E-12	0.492E-08	0.306E+04	0.201E+04
5	2000	0.207E-12	0.412E-08	0.257E+04	0.166E+04
5	2200	0.176E-12	0.354E-08	0.220E+04	0.141E+04
5	2500	0.141E-12	0.288E-08	0.179E+04	0.114E+04
5	5000	0.465E-13	0.101E-08	0.630E+03	0.373E+03
6	1200	0.379E-12	0.761E-08	0.474E+04	0.304E+04
6	1300	0.330E-12	0.669E-08	0.416E+04	0.265E+04
6	1400	0.290E-12	0.593E-08	0.369E+04	0.233E+04
6	1500	0.257E-12	0.530E-08	0.330E+04	0.207E+04
6	1625	0.225E-12	0.467E-08	0.291E+04	0.180E+04
6	1700	0.208E-12	0.435E-08	0.271E+04	0.167E+04
6	1800	0.188E-12	0.397E-08	0.247E+04	0.151E+04
6	2000	0.157E-12	0.335E-08	0.209E+04	0.126E+04
6	2200	0.133E-12	0.289E-08	0.180E+04	0.107E+04
6	2500	0.107E-12	0.237E-08	0.147E+04	0.862E+03
6	5000	0.360E-13	0.873E-09	0.543E+03	0.289E+03
7	1200	0.207E-12	0.416E-08	0.259E+04	0.166E+04
7	1300	0.180E-12	0.366E-08	0.228E+04	0.145E+04
7	1400	0.159E-12	0.324E-08	0.202E+04	0.127E+04
7	1500	0.141E-12	0.290E-08	0.180E+04	0.113E+04
7	1625	0.123E-12	0.255E-08	0.159E+04	0.984E+03
7	1700	0.113E-12	0.237E-08	0.148E+04	0.910E+03
7	1800	0.103E-12	0.217E-08	0.135E+04	0.825E+03
7	2000	0.854E-13	0.183E-08	0.114E+04	0.686E+03
7	2200	0.727E-13	0.158E-08	0.981E+03	0.584E+03
7	2500	0.584E-13	0.129E-08	0.804E+03	0.469E+03
7	5000	0.194E-13	0.473E-09	0.295E+03	0.156E+03
8	1200	0.204E-12	0.401E-08	0.250E+04	0.164E+04
8	1300	0.178E-12	0.352E-08	0.219E+04	0.143E+04
8	1400	0.156E-12	0.311E-08	0.194E+04	0.125E+04
8	1500	0.138E-12	0.278E-08	0.173E+04	0.111E+04

8	1625	0.121E-12	0.244E-08	0.152E+04	0.969E+03
8	1700	0.112E-12	0.227E-08	0.141E+04	0.896E+03
8	1800	0.101E-12	0.207E-08	0.129E+04	0.812E+03
8	2000	0.840E-13	0.174E-08	0.108E+04	0.675E+03
8	2200	0.715E-13	0.150E-08	0.933E+03	0.574E+03
8	2500	0.575E-13	0.123E-08	0.763E+03	0.461E+03
8	5000	0.191E-13	0.444E-09	0.276E+03	0.153E+03
9	1200	0.177E-12	0.355E-08	0.221E+04	0.142E+04
9	1300	0.154E-12	0.313E-08	0.195E+04	0.124E+04
9	1400	0.136E-12	0.278E-08	0.173E+04	0.109E+04
9	1500	0.120E-12	0.248E-08	0.155E+04	0.967E+03
9	1625	0.105E-12	0.219E-08	0.136E+04	0.844E+03
9	1700	0.974E-13	0.204E-08	0.127E+04	0.782E+03
9	1800	0.883E-13	0.186E-08	0.116E+04	0.709E+03
9	2000	0.736E-13	0.157E-08	0.981E+03	0.591E+03
9	2200	0.627E-13	0.136E-08	0.846E+03	0.504E+03
9	2500	0.505E-13	0.112E-08	0.694E+03	0.406E+03
9	5000	0.171E-13	0.414E-09	0.258E+03	0.137E+03
10	1200	0.373E-12	0.732E-08	0.456E+04	0.300E+04
10	1300	0.325E-12	0.642E-08	0.400E+04	0.261E+04
10	1400	0.286E-12	0.569E-08	0.354E+04	0.230E+04
10	1500	0.253E-12	0.507E-08	0.316E+04	0.203E+04
10	1625	0.221E-12	0.446E-08	0.277E+04	0.177E+04
10	1700	0.204E-12	0.414E-08	0.258E+04	0.164E+04
10	1800	0.185E-12	0.378E-08	0.235E+04	0.148E+04
10	2000	0.154E-12	0.318E-08	0.198E+04	0.123E+04
10	2200	0.131E-12	0.273E-08	0.170E+04	0.105E+04
10	2500	0.105E-12	0.223E-08	0.139E+04	0.843E+03
10	5000	0.349E-13	0.809E-09	0.503E+03	0.281E+03
11	1200	0.893E-12	0.167E-07	0.104E+05	0.717E+04
11	1300	0.776E-12	0.146E-07	0.910E+04	0.623E+04
11	1400	0.681E-12	0.129E-07	0.802E+04	0.547E+04
11	1500	0.601E-12	0.114E-07	0.712E+04	0.483E+04
11	1625	0.523E-12	0.100E-07	0.623E+04	0.420E+04
11	1700	0.484E-12	0.928E-08	0.578E+04	0.388E+04
11	1800	0.437E-12	0.843E-08	0.525E+04	0.351E+04
11	2000	0.362E-12	0.704E-08	0.438E+04	0.291E+04
11	2200	0.308E-12	0.603E-08	0.375E+04	0.247E+04
11	2500	0.247E-12	0.489E-08	0.305E+04	0.198E+04
11	5000	0.807E-13	0.170E-08	0.106E+04	0.648E+03
12	1200	0.115E-11	0.215E-07	0.134E+05	0.926E+04
12	1300	0.100E-11	0.188E-07	0.117E+05	0.805E+04
12	1400	0.880E-12	0.166E-07	0.103E+05	0.706E+04
12	1500	0.777E-12	0.147E-07	0.916E+04	0.624E+04
12	1625	0.676E-12	0.129E-07	0.802E+04	0.543E+04
12	1700	0.625E-12	0.119E-07	0.743E+04	0.502E+04
12	1800	0.565E-12	0.108E-07	0.675E+04	0.454E+04
12	2000	0.468E-12	0.906E-08	0.564E+04	0.376E+04
12	2200	0.398E-12	0.776E-08	0.483E+04	0.320E+04
12	2500	0.319E-12	0.629E-08	0.392E+04	0.256E+04
12	5000	0.105E-12	0.218E-08	0.136E+04	0.843E+03
13	1200	0.103E-11	0.197E-07	0.122E+05	0.829E+04
13	1300	0.899E-12	0.172E-07	0.107E+05	0.722E+04
13	1400	0.789E-12	0.152E-07	0.947E+04	0.634E+04
13	1500	0.698E-12	0.135E-07	0.843E+04	0.561E+04
13	1625	0.609E-12	0.119E-07	0.739E+04	0.489E+04
13	1700	0.563E-12	0.110E-07	0.686E+04	0.452E+04
13	1800	0.509E-12	0.100E-07	0.624E+04	0.409E+04
13	2000	0.423E-12	0.841E-08	0.523E+04	0.340E+04
13	2200	0.360E-12	0.721E-08	0.449E+04	0.289E+04
13	2500	0.289E-12	0.587E-08	0.366E+04	0.232E+04
13	5000	0.961E-13	0.209E-08	0.130E+04	0.772E+03
14	1200	0.108E-11	0.206E-07	0.128E+05	0.865E+04
14	1300	0.939E-12	0.181E-07	0.112E+05	0.754E+04
14	1400	0.825E-12	0.160E-07	0.994E+04	0.662E+04

14	1500	0.730E-12	0.142E-07	0.885E+04	0.586E+04
14	1625	0.636E-12	0.125E-07	0.776E+04	0.511E+04
14	1700	0.589E-12	0.116E-07	0.721E+04	0.473E+04
14	1800	0.533E-12	0.105E-07	0.656E+04	0.429E+04
14	2000	0.443E-12	0.884E-08	0.551E+04	0.355E+04
14	2200	0.377E-12	0.759E-08	0.473E+04	0.302E+04
14	2500	0.303E-12	0.618E-08	0.385E+04	0.243E+04
14	5000	0.101E-12	0.221E-08	0.137E+04	0.811E+03
15	1200	0.871E-12	0.171E-07	0.107E+05	0.699E+04
15	1300	0.760E-12	0.151E-07	0.938E+04	0.610E+04
15	1400	0.669E-12	0.134E-07	0.832E+04	0.537E+04
15	1500	0.593E-12	0.119E-07	0.743E+04	0.476E+04
15	1625	0.518E-12	0.105E-07	0.654E+04	0.416E+04
15	1700	0.479E-12	0.977E-08	0.608E+04	0.385E+04
15	1800	0.435E-12	0.891E-08	0.555E+04	0.349E+04
15	2000	0.362E-12	0.752E-08	0.468E+04	0.291E+04
15	2200	0.308E-12	0.647E-08	0.403E+04	0.248E+04
15	2500	0.248E-12	0.530E-08	0.330E+04	0.199E+04
15	5000	0.840E-13	0.194E-08	0.121E+04	0.674E+03
16	1200	0.609E-12	0.121E-07	0.752E+04	0.489E+04
16	1300	0.531E-12	0.106E-07	0.661E+04	0.426E+04
16	1400	0.468E-12	0.942E-08	0.587E+04	0.376E+04
16	1500	0.415E-12	0.843E-08	0.525E+04	0.333E+04
16	1625	0.363E-12	0.742E-08	0.462E+04	0.291E+04
16	1700	0.336E-12	0.691E-08	0.430E+04	0.270E+04
16	1800	0.304E-12	0.631E-08	0.393E+04	0.245E+04
16	2000	0.254E-12	0.533E-08	0.332E+04	0.204E+04
16	2200	0.216E-12	0.459E-08	0.286E+04	0.174E+04
16	2500	0.174E-12	0.376E-08	0.234E+04	0.140E+04
16	5000	0.592E-13	0.139E-08	0.867E+03	0.476E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.2868E-15	0.00	100.00
	SURFACE	0.5572E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4417E-01	69.59	100.00
	INGEST.	0.1930E-01	30.41	100.00
	VEGET.	0.1739E-01	* 27.40	* 90.11
	MEAT	0.7441E-03	* 1.17	* 3.86
	MILK	0.1164E-02	* 1.83	* 6.03

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2528E-01	43.80	100.00
	INGEST.	0.3244E-01	56.20	100.00
	VEGET.	0.2923E-01	* 50.65	* 90.11
	MEAT	0.1251E-02	* 2.17	* 3.86
	MILK	0.1956E-02	* 3.39	* 6.03

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.3585E-16	0.00	100.00
	SURFACE	0.6965E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2231E+00	43.63	100.00
	INGEST.	0.2883E+00	56.37	100.00
	VEGET.	0.2598E+00	* 50.80	* 90.11
	MEAT	0.1112E-01	* 2.17	* 3.86
	MILK	0.1739E-01	* 3.40	* 6.03

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

```
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.6269E-02       44.60             100.00
                   INGEST.      0.7788E-02       55.40             100.00
                    VEGET.      0.7018E-02      * 49.93            * 90.11
                    MEAT        0.3002E-03      *  2.14            *  3.86
                    MILK        0.4696E-03      *  3.34            *  6.03
1                   PERCENT OF BREAST   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.2079E-14        0.00             100.00
                   SURFACE      0.4040E-11        0.00             100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.6306E-02       44.74             100.00
                   INGEST.      0.7788E-02       55.26             100.00
                    VEGET.      0.7018E-02      * 49.80            * 90.11
                    MEAT        0.3002E-03      *  2.13            *  3.86
                    MILK        0.4696E-03      *  3.33            *  6.03
1                   PERCENT OF *PUL*   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.3585E-16        0.00             100.00
                   SURFACE      0.6965E-13        0.00             100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.2472E+00       96.95             100.00
                   INGEST.      0.7788E-02        3.05             100.00
                    VEGET.      0.7018E-02      *  2.75            * 90.11
                    MEAT        0.3002E-03      *  0.12            *  3.86
                    MILK        0.4696E-03      *  0.18            *  6.03
1                   PERCENT OF S WALL   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.6269E-02       44.43             100.00
                   INGEST.      0.7841E-02       55.57             100.00
                    VEGET.      0.7066E-02      * 50.08            * 90.11
                    MEAT        0.3023E-03      *  2.14            *  3.86
                    MILK        0.4728E-03      *  3.35            *  6.03
1                   PERCENT OF INT WALL DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.4523E-02       47.75             100.00
                   INGEST.      0.4950E-02       52.25             100.00
                    VEGET.      0.4461E-02      * 47.09            * 90.11
                    MEAT        0.1908E-03      *  2.01            *  3.86
                    MILK        0.2985E-03      *  3.15            *  6.03
1                   PERCENT OF LIVER   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         RA-228     SUBM AIR     0.0000E+00        0.00               0.00
                   SURFACE      0.0000E+00        0.00               0.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.7951E-02       60.05             100.00
                   INGEST.      0.5289E-02       39.95             100.00
                    VEGET.      0.4766E-02      * 36.00            * 90.11
                    MEAT        0.2039E-03      *  1.54            *  3.86
                    MILK        0.3189E-03      *  2.41            *  6.03
```

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.4180E-02	48.41	100.00
	INGEST.	0.4454E-02	51.59	100.00
	VEGET.	0.4014E-02	* 46.49	* 90.11
	MEAT	0.1717E-03	* 1.99	* 3.86
	MILK	0.2686E-03	* 3.11	* 6.03

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.4263E-02	48.49	100.00
	INGEST.	0.4529E-02	51.51	100.00
	VEGET.	0.4081E-02	* 46.42	* 90.11
	MEAT	0.1746E-03	* 1.99	* 3.86
	MILK	0.2731E-03	* 3.11	* 6.03

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2868E-15	0.0000
SURFACE	0.5572E-12	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL	0.4417E-01	69.5889
INGEST.	0.1930E-01	30.4111
VEGET.	*0.1739E-01	* 27.4049
MEAT	*0.7441E-03	* 1.1724
MILK	*0.1164E-02	* 1.8338

CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL	0.2528E-01	43.7978
INGEST.	0.3244E-01	56.2022
VEGET.	*0.2923E-01	* 50.6464
MEAT	*0.1251E-02	* 2.1668
MILK	*0.1956E-02	* 3.3890

CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3585E-16	0.0000
SURFACE	0.6965E-13	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL	0.2231E+00	43.6295
INGEST.	0.2883E+00	56.3705
VEGET.	*0.2598E+00	* 50.7981
MEAT	*0.1112E-01	* 2.1733
MILK	*0.1739E-01	* 3.3992

CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL	0.6269E-02	44.5965
INGEST.	0.7788E-02	55.4035
VEGET.	*0.7018E-02	* 49.9267
MEAT	*0.3002E-03	* 2.1360
MILK	*0.4696E-03	* 3.3408

CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2079E-14	0.0000

0	SURFACE	0.4040E-11	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6306E-02	44.7421
0	INGEST.	0.7788E-02	55.2579
0	VEGET.	*0.7018E-02	* 49.7954
0	MEAT	*0.3002E-03	* 2.1304
0	MILK	*0.4696E-03	* 3.3321
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3585E-16	0.0000
0	SURFACE	0.6965E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2472E+00	96.9462
0	INGEST.	0.7788E-02	3.0538
0	VEGET.	*0.7018E-02	* 2.7519
0	MEAT	*0.3002E-03	* 0.1177
0	MILK	*0.4696E-03	* 0.1841
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6269E-02	44.4271
0	INGEST.	0.7841E-02	55.5729
0	VEGET.	*0.7066E-02	* 50.0794
0	MEAT	*0.3023E-03	* 2.1425
0	MILK	*0.4728E-03	* 3.3511
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4523E-02	47.7471
0	INGEST.	0.4950E-02	52.2529
0	VEGET.	*0.4461E-02	* 47.0875
0	MEAT	*0.1908E-03	* 2.0145
0	MILK	*0.2985E-03	* 3.1509
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7951E-02	60.0522
0	INGEST.	0.5289E-02	39.9478
0	VEGET.	*0.4766E-02	* 35.9988
0	MEAT	*0.2039E-03	* 1.5401
0	MILK	*0.3189E-03	* 2.4089
0	CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4180E-02	48.4108
0	INGEST.	0.4454E-02	51.5892
0	VEGET.	*0.4014E-02	* 46.4895
0	MEAT	*0.1717E-03	* 1.9889
0	MILK	*0.2686E-03	* 3.1108
0	CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4263E-02	48.4864
0	INGEST.	0.4529E-02	51.5136
0	VEGET.	*0.4081E-02	* 46.4213

0 MEAT *0.1746E-03 * 1.9880
0 MILK *0.2731E-03 * 3.1063
1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.6347E-01
0	R MAR	0.5772E-01
0	ENDOST	0.5115E+00
0	THYROID	0.1406E-01
0	BREAST	0.1409E-01
0	*PUL*	0.2550E+00
0	S WALL	0.1411E-01
0	INT WALL	0.9473E-02
0	LIVER	0.1324E-01
0	PANCREAS	0.8634E-02
0	KIDNEYS	0.8792E-02

1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
RA-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	RA-228	W BODY	0.6347E-01	12	6
0	RA-228	R MAR	0.5772E-01	12	6
0	RA-228	ENDOST	0.5115E+00	12	6
0	RA-228	THYROID	0.1406E-01	12	6
0	RA-228	BREAST	0.1409E-01	12	6
0	RA-228	*PUL*	0.2550E+00	12	6
0	RA-228	S WALL	0.1411E-01	12	6
0	RA-228	INT WALL	0.9473E-02	12	6
0	RA-228	LIVER	0.1324E-01	12	6
0	RA-228	PANCREAS	0.8634E-02	12	6
0	RA-228	KIDNEYS	0.8792E-02	12	6

Building 65

Thorium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
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 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-228',ISOL=Y,AMAD=1.0,REL=3.5 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 65 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-228	0.350E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-228	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA		NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
WIND TOWARD	DISTANCE (METERS)		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)
0							
1	1200	TH-228	3.21E-07	1.85E-08	2.99E-09	2.14E-08	6.14E+03
1	1300	TH-228	2.80E-07	1.61E-08	2.75E-09	1.89E-08	6.13E+03
1	1400	TH-228	2.47E-07	1.42E-08	2.55E-09	1.68E-08	6.12E+03
1	1500	TH-228	2.19E-07	1.26E-08	2.37E-09	1.50E-08	6.11E+03
1	1625	TH-228	1.91E-07	1.10E-08	2.19E-09	1.32E-08	6.10E+03
1	1700	TH-228	1.77E-07	1.02E-08	2.09E-09	1.23E-08	6.09E+03
1	1800	TH-228	1.61E-07	9.26E-09	1.97E-09	1.12E-08	6.09E+03
1	2000	TH-228	1.34E-07	7.73E-09	1.76E-09	9.50E-09	6.07E+03
1	2200	TH-228	1.14E-07	6.59E-09	1.60E-09	8.19E-09	6.06E+03
1	2500	TH-228	9.23E-08	5.31E-09	1.40E-09	6.72E-09	6.04E+03
1	5000	TH-228	3.15E-08	1.82E-09	6.82E-10	2.50E-09	5.90E+03
2	1200	TH-228	2.11E-07	1.21E-08	1.98E-09	1.41E-08	2.99E+03
2	1300	TH-228	1.84E-07	1.06E-08	1.83E-09	1.24E-08	2.98E+03
2	1400	TH-228	1.62E-07	9.33E-09	1.69E-09	1.10E-08	2.98E+03
2	1500	TH-228	1.44E-07	8.28E-09	1.57E-09	9.86E-09	2.97E+03
2	1625	TH-228	1.26E-07	7.23E-09	1.45E-09	8.68E-09	2.96E+03
2	1700	TH-228	1.16E-07	6.70E-09	1.38E-09	8.08E-09	2.96E+03

2	1800	TH-228	1.06E-07	6.08E-09	1.30E-09	7.38E-09	2.95E+03
2	2000	TH-228	8.80E-08	5.07E-09	1.17E-09	6.24E-09	2.94E+03
2	2200	TH-228	7.50E-08	4.32E-09	1.06E-09	5.38E-09	2.94E+03
2	2500	TH-228	6.04E-08	3.48E-09	9.29E-10	4.41E-09	2.92E+03
2	5000	TH-228	2.05E-08	1.18E-09	4.48E-10	1.63E-09	2.83E+03
3	1200	TH-228	1.63E-07	9.41E-09	1.33E-09	1.07E-08	1.61E+03
3	1300	TH-228	1.42E-07	8.19E-09	1.22E-09	9.42E-09	1.61E+03
3	1400	TH-228	1.25E-07	7.20E-09	1.13E-09	8.33E-09	1.60E+03
3	1500	TH-228	1.11E-07	6.38E-09	1.06E-09	7.43E-09	1.60E+03
3	1625	TH-228	9.65E-08	5.56E-09	9.67E-10	6.52E-09	1.59E+03
3	1700	TH-228	8.93E-08	5.14E-09	9.22E-10	6.06E-09	1.59E+03
3	1800	TH-228	8.08E-08	4.65E-09	8.69E-10	5.52E-09	1.59E+03
3	2000	TH-228	6.72E-08	3.87E-09	7.77E-10	4.64E-09	1.58E+03
3	2200	TH-228	5.71E-08	3.29E-09	7.04E-10	3.99E-09	1.57E+03
3	2500	TH-228	4.59E-08	2.64E-09	6.17E-10	3.28E-09	1.57E+03
3	5000	TH-228	1.52E-08	8.76E-10	2.95E-10	1.17E-09	1.50E+03
4	1200	TH-228	2.50E-07	1.44E-08	1.78E-09	1.61E-08	2.01E+03
4	1300	TH-228	2.17E-07	1.25E-08	1.63E-09	1.41E-08	2.01E+03
4	1400	TH-228	1.91E-07	1.10E-08	1.51E-09	1.25E-08	2.00E+03
4	1500	TH-228	1.69E-07	9.71E-09	1.40E-09	1.11E-08	1.99E+03
4	1625	TH-228	1.47E-07	8.46E-09	1.29E-09	9.75E-09	1.98E+03
4	1700	TH-228	1.36E-07	7.82E-09	1.23E-09	9.05E-09	1.98E+03
4	1800	TH-228	1.23E-07	7.08E-09	1.16E-09	8.24E-09	1.97E+03
4	2000	TH-228	1.02E-07	5.87E-09	1.04E-09	6.91E-09	1.96E+03
4	2200	TH-228	8.67E-08	4.99E-09	9.39E-10	5.93E-09	1.95E+03
4	2500	TH-228	6.96E-08	4.01E-09	8.22E-10	4.83E-09	1.94E+03
4	5000	TH-228	2.29E-08	1.32E-09	3.90E-10	1.71E-09	1.85E+03
5	1200	TH-228	5.09E-07	2.93E-08	3.32E-09	3.26E-08	4.13E+03
5	1300	TH-228	4.43E-07	2.55E-08	3.05E-09	2.85E-08	4.12E+03
5	1400	TH-228	3.88E-07	2.24E-08	2.82E-09	2.52E-08	4.10E+03
5	1500	TH-228	3.43E-07	1.98E-08	2.62E-09	2.24E-08	4.08E+03
5	1625	TH-228	2.99E-07	1.72E-08	2.41E-09	1.96E-08	4.07E+03
5	1700	TH-228	2.76E-07	1.59E-08	2.30E-09	1.82E-08	4.06E+03
5	1800	TH-228	2.50E-07	1.44E-08	2.16E-09	1.66E-08	4.05E+03
5	2000	TH-228	2.07E-07	1.19E-08	1.93E-09	1.39E-08	4.02E+03
5	2200	TH-228	1.76E-07	1.01E-08	1.75E-09	1.19E-08	4.01E+03
5	2500	TH-228	1.41E-07	8.14E-09	1.53E-09	9.67E-09	3.99E+03
5	5000	TH-228	4.65E-08	2.68E-09	7.27E-10	3.40E-09	3.80E+03
6	1200	TH-228	3.79E-07	2.18E-08	3.81E-09	2.56E-08	6.33E+03
6	1300	TH-228	3.30E-07	1.90E-08	3.51E-09	2.25E-08	6.32E+03
6	1400	TH-228	2.90E-07	1.67E-08	3.25E-09	2.00E-08	6.31E+03
6	1500	TH-228	2.57E-07	1.48E-08	3.03E-09	1.78E-08	6.30E+03
6	1625	TH-228	2.25E-07	1.29E-08	2.79E-09	1.57E-08	6.29E+03
6	1700	TH-228	2.08E-07	1.20E-08	2.66E-09	1.46E-08	6.28E+03
6	1800	TH-228	1.88E-07	1.08E-08	2.51E-09	1.33E-08	6.27E+03
6	2000	TH-228	1.57E-07	9.03E-09	2.25E-09	1.13E-08	6.25E+03
6	2200	TH-228	1.33E-07	7.68E-09	2.04E-09	9.72E-09	6.24E+03
6	2500	TH-228	1.07E-07	6.18E-09	1.79E-09	7.97E-09	6.22E+03
6	5000	TH-228	3.60E-08	2.07E-09	8.66E-10	2.94E-09	6.05E+03
7	1200	TH-228	2.07E-07	1.19E-08	2.08E-09	1.40E-08	3.47E+03
7	1300	TH-228	1.80E-07	1.04E-08	1.92E-09	1.23E-08	3.47E+03
7	1400	TH-228	1.59E-07	9.13E-09	1.78E-09	1.09E-08	3.46E+03
7	1500	TH-228	1.41E-07	8.09E-09	1.66E-09	9.75E-09	3.45E+03
7	1625	TH-228	1.23E-07	7.05E-09	1.52E-09	8.58E-09	3.45E+03
7	1700	TH-228	1.13E-07	6.53E-09	1.46E-09	7.98E-09	3.44E+03
7	1800	TH-228	1.03E-07	5.91E-09	1.37E-09	7.28E-09	3.44E+03
7	2000	TH-228	8.54E-08	4.92E-09	1.23E-09	6.15E-09	3.43E+03
7	2200	TH-228	7.27E-08	4.18E-09	1.12E-09	5.30E-09	3.42E+03
7	2500	TH-228	5.84E-08	3.36E-09	9.79E-10	4.34E-09	3.41E+03
7	5000	TH-228	1.94E-08	1.12E-09	4.74E-10	1.59E-09	3.32E+03
8	1200	TH-228	2.04E-07	1.17E-08	1.74E-09	1.35E-08	3.18E+03
8	1300	TH-228	1.78E-07	1.02E-08	1.60E-09	1.18E-08	3.17E+03
8	1400	TH-228	1.56E-07	8.99E-09	1.49E-09	1.05E-08	3.16E+03
8	1500	TH-228	1.38E-07	7.96E-09	1.38E-09	9.35E-09	3.16E+03
8	1625	TH-228	1.21E-07	6.94E-09	1.27E-09	8.22E-09	3.15E+03

8	1700	TH-228	1.12E-07	6.42E-09	1.22E-09	7.64E-09	3.15E+03
8	1800	TH-228	1.01E-07	5.82E-09	1.15E-09	6.96E-09	3.14E+03
8	2000	TH-228	8.40E-08	4.84E-09	1.03E-09	5.86E-09	3.13E+03
8	2200	TH-228	7.15E-08	4.11E-09	9.31E-10	5.04E-09	3.12E+03
8	2500	TH-228	5.75E-08	3.31E-09	8.16E-10	4.12E-09	3.12E+03
8	5000	TH-228	1.91E-08	1.10E-09	3.94E-10	1.49E-09	3.03E+03
9	1200	TH-228	1.77E-07	1.02E-08	1.79E-09	1.20E-08	4.00E+03
9	1300	TH-228	1.54E-07	8.87E-09	1.65E-09	1.05E-08	3.99E+03
9	1400	TH-228	1.36E-07	7.81E-09	1.53E-09	9.34E-09	3.99E+03
9	1500	TH-228	1.20E-07	6.93E-09	1.42E-09	8.36E-09	3.98E+03
9	1625	TH-228	1.06E-07	6.06E-09	1.31E-09	7.37E-09	3.98E+03
9	1700	TH-228	9.74E-08	5.61E-09	1.25E-09	6.86E-09	3.97E+03
9	1800	TH-228	8.83E-08	5.08E-09	1.18E-09	6.26E-09	3.97E+03
9	2000	TH-228	7.36E-08	4.24E-09	1.06E-09	5.30E-09	3.96E+03
9	2200	TH-228	6.27E-08	3.61E-09	9.62E-10	4.57E-09	3.95E+03
9	2500	TH-228	5.05E-08	2.91E-09	8.44E-10	3.75E-09	3.94E+03
9	5000	TH-228	1.71E-08	9.83E-10	4.11E-10	1.39E-09	3.87E+03
10	1200	TH-228	3.73E-07	2.15E-08	3.14E-09	2.46E-08	5.87E+03
10	1300	TH-228	3.25E-07	1.87E-08	2.89E-09	2.16E-08	5.86E+03
10	1400	TH-228	2.86E-07	1.65E-08	2.68E-09	1.91E-08	5.85E+03
10	1500	TH-228	2.53E-07	1.46E-08	2.49E-09	1.71E-08	5.83E+03
10	1625	TH-228	2.21E-07	1.27E-08	2.29E-09	1.50E-08	5.82E+03
10	1700	TH-228	2.04E-07	1.17E-08	2.19E-09	1.39E-08	5.82E+03
10	1800	TH-228	1.85E-07	1.06E-08	2.06E-09	1.27E-08	5.81E+03
10	2000	TH-228	1.54E-07	8.84E-09	1.85E-09	1.07E-08	5.79E+03
10	2200	TH-228	1.31E-07	7.52E-09	1.68E-09	9.20E-09	5.78E+03
10	2500	TH-228	1.05E-07	6.04E-09	1.47E-09	7.51E-09	5.76E+03
10	5000	TH-228	3.49E-08	2.01E-09	7.09E-10	2.72E-09	5.61E+03
11	1200	TH-228	8.93E-07	5.14E-08	4.91E-09	5.63E-08	8.00E+03
11	1300	TH-228	7.76E-07	4.47E-08	4.51E-09	4.92E-08	7.98E+03
11	1400	TH-228	6.81E-07	3.92E-08	4.17E-09	4.34E-08	7.95E+03
11	1500	TH-228	6.01E-07	3.46E-08	3.87E-09	3.85E-08	7.92E+03
11	1625	TH-228	5.23E-07	3.01E-08	3.56E-09	3.37E-08	7.90E+03
11	1700	TH-228	4.84E-07	2.78E-08	3.40E-09	3.12E-08	7.88E+03
11	1800	TH-228	4.37E-07	2.52E-08	3.20E-09	2.84E-08	7.86E+03
11	2000	TH-228	3.62E-07	2.08E-08	2.85E-09	2.37E-08	7.82E+03
11	2200	TH-228	3.08E-07	1.77E-08	2.58E-09	2.03E-08	7.80E+03
11	2500	TH-228	2.47E-07	1.42E-08	2.26E-09	1.65E-08	7.76E+03
11	5000	TH-228	8.07E-08	4.65E-09	1.07E-09	5.72E-09	7.44E+03
12	1200	TH-228	1.15E-06	6.64E-08	6.06E-09	7.24E-08	9.53E+03
12	1300	TH-228	1.00E-06	5.77E-08	5.57E-09	6.33E-08	9.49E+03
12	1400	TH-228	8.80E-07	5.06E-08	5.14E-09	5.58E-08	9.46E+03
12	1500	TH-228	7.77E-07	4.47E-08	4.77E-09	4.95E-08	9.42E+03
12	1625	TH-228	6.76E-07	3.89E-08	4.39E-09	4.33E-08	9.39E+03
12	1700	TH-228	6.25E-07	3.60E-08	4.18E-09	4.02E-08	9.37E+03
12	1800	TH-228	5.65E-07	3.25E-08	3.94E-09	3.65E-08	9.34E+03
12	2000	TH-228	4.68E-07	2.70E-08	3.51E-09	3.05E-08	9.29E+03
12	2200	TH-228	3.98E-07	2.29E-08	3.18E-09	2.61E-08	9.26E+03
12	2500	TH-228	3.19E-07	1.84E-08	2.78E-09	2.12E-08	9.22E+03
12	5000	TH-228	1.05E-07	6.04E-09	1.31E-09	7.35E-09	8.80E+03
13	1200	TH-228	1.03E-06	5.94E-08	6.73E-09	6.61E-08	1.11E+04
13	1300	TH-228	8.99E-07	5.17E-08	6.19E-09	5.79E-08	1.11E+04
13	1400	TH-228	7.89E-07	4.54E-08	5.73E-09	5.12E-08	1.11E+04
13	1500	TH-228	6.98E-07	4.02E-08	5.32E-09	4.55E-08	1.10E+04
13	1625	TH-228	6.09E-07	3.50E-08	4.90E-09	3.99E-08	1.10E+04
13	1700	TH-228	5.63E-07	3.24E-08	4.67E-09	3.71E-08	1.10E+04
13	1800	TH-228	5.09E-07	2.93E-08	4.40E-09	3.37E-08	1.10E+04
13	2000	TH-228	4.23E-07	2.43E-08	3.93E-09	2.83E-08	1.09E+04
13	2200	TH-228	3.60E-07	2.07E-08	3.57E-09	2.43E-08	1.09E+04
13	2500	TH-228	2.89E-07	1.66E-08	3.12E-09	1.98E-08	1.09E+04
13	5000	TH-228	9.61E-08	5.53E-09	1.49E-09	7.02E-09	1.05E+04
14	1200	TH-228	1.08E-06	6.20E-08	7.30E-09	6.93E-08	1.05E+04
14	1300	TH-228	9.39E-07	5.40E-08	6.71E-09	6.07E-08	1.05E+04
14	1400	TH-228	8.25E-07	4.75E-08	6.21E-09	5.37E-08	1.04E+04
14	1500	TH-228	7.30E-07	4.20E-08	5.77E-09	4.78E-08	1.04E+04

14	1625	TH-228	6.36E-07	3.66E-08	5.31E-09	4.19E-08	1.04E+04
14	1700	TH-228	5.89E-07	3.39E-08	5.06E-09	3.90E-08	1.03E+04
14	1800	TH-228	5.33E-07	3.07E-08	4.77E-09	3.55E-08	1.03E+04
14	2000	TH-228	4.43E-07	2.55E-08	4.26E-09	2.98E-08	1.03E+04
14	2200	TH-228	3.77E-07	2.17E-08	3.86E-09	2.55E-08	1.02E+04
14	2500	TH-228	3.03E-07	1.74E-08	3.38E-09	2.08E-08	1.02E+04
14	5000	TH-228	1.01E-07	5.81E-09	1.61E-09	7.42E-09	9.77E+03
15	1200	TH-228	8.71E-07	5.01E-08	7.56E-09	5.77E-08	1.26E+04
15	1300	TH-228	7.60E-07	4.37E-08	6.95E-09	5.07E-08	1.25E+04
15	1400	TH-228	6.69E-07	3.85E-08	6.44E-09	4.49E-08	1.25E+04
15	1500	TH-228	5.93E-07	3.42E-08	5.99E-09	4.01E-08	1.25E+04
15	1625	TH-228	5.18E-07	2.98E-08	5.51E-09	3.53E-08	1.25E+04
15	1700	TH-228	4.79E-07	2.76E-08	5.26E-09	3.29E-08	1.24E+04
15	1800	TH-228	4.35E-07	2.50E-08	4.96E-09	3.00E-08	1.24E+04
15	2000	TH-228	3.62E-07	2.08E-08	4.44E-09	2.53E-08	1.24E+04
15	2200	TH-228	3.08E-07	1.78E-08	4.03E-09	2.18E-08	1.24E+04
15	2500	TH-228	2.48E-07	1.43E-08	3.53E-09	1.78E-08	1.23E+04
15	5000	TH-228	8.40E-08	4.83E-09	1.70E-09	6.54E-09	1.19E+04
16	1200	TH-228	6.09E-07	3.50E-08	5.60E-09	4.06E-08	1.24E+04
16	1300	TH-228	5.31E-07	3.06E-08	5.15E-09	3.57E-08	1.24E+04
16	1400	TH-228	4.68E-07	2.69E-08	4.78E-09	3.17E-08	1.24E+04
16	1500	TH-228	4.15E-07	2.39E-08	4.45E-09	2.83E-08	1.24E+04
16	1625	TH-228	3.63E-07	2.09E-08	4.10E-09	2.50E-08	1.23E+04
16	1700	TH-228	3.36E-07	1.93E-08	3.91E-09	2.32E-08	1.23E+04
16	1800	TH-228	3.04E-07	1.75E-08	3.69E-09	2.12E-08	1.23E+04
16	2000	TH-228	2.54E-07	1.46E-08	3.30E-09	1.79E-08	1.23E+04
16	2200	TH-228	2.16E-07	1.24E-08	3.00E-09	1.54E-08	1.23E+04
16	2500	TH-228	1.74E-07	1.00E-08	2.63E-09	1.27E-08	1.22E+04
16	5000	TH-228	5.92E-08	3.41E-09	1.28E-09	4.69E-09	1.20E+04

1 GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2706E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-228
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.9919E-03
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-06
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-06
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.936E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.198E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1200	0.321E-12	0.568E-08	0.346E+04	0.257E+04
1	1300	0.280E-12	0.499E-08	0.304E+04	0.225E+04
1	1400	0.247E-12	0.443E-08	0.270E+04	0.198E+04
1	1500	0.219E-12	0.397E-08	0.242E+04	0.176E+04
1	1625	0.191E-12	0.350E-08	0.213E+04	0.154E+04
1	1700	0.177E-12	0.326E-08	0.198E+04	0.142E+04
1	1800	0.161E-12	0.297E-08	0.181E+04	0.129E+04
1	2000	0.134E-12	0.251E-08	0.153E+04	0.108E+04
1	2200	0.114E-12	0.217E-08	0.132E+04	0.919E+03
1	2500	0.923E-13	0.178E-08	0.108E+04	0.741E+03
1	5000	0.315E-13	0.661E-09	0.403E+03	0.253E+03
2	1200	0.211E-12	0.374E-08	0.228E+04	0.169E+04
2	1300	0.184E-12	0.329E-08	0.200E+04	0.148E+04
2	1400	0.162E-12	0.292E-08	0.178E+04	0.130E+04
2	1500	0.144E-12	0.261E-08	0.159E+04	0.116E+04
2	1625	0.126E-12	0.230E-08	0.140E+04	0.101E+04

2	1700	0.116E-12	0.214E-08	0.130E+04	0.934E+03
2	1800	0.106E-12	0.196E-08	0.119E+04	0.848E+03
2	2000	0.880E-13	0.165E-08	0.101E+04	0.707E+03
2	2200	0.750E-13	0.142E-08	0.867E+03	0.602E+03
2	2500	0.604E-13	0.117E-08	0.711E+03	0.485E+03
2	5000	0.205E-13	0.431E-09	0.263E+03	0.165E+03
3	1200	0.163E-12	0.284E-08	0.173E+04	0.131E+04
3	1300	0.142E-12	0.249E-08	0.152E+04	0.114E+04
3	1400	0.125E-12	0.221E-08	0.134E+04	0.100E+04
3	1500	0.111E-12	0.197E-08	0.120E+04	0.889E+03
3	1625	0.965E-13	0.173E-08	0.105E+04	0.775E+03
3	1700	0.893E-13	0.160E-08	0.978E+03	0.717E+03
3	1800	0.808E-13	0.146E-08	0.891E+03	0.649E+03
3	2000	0.672E-13	0.123E-08	0.749E+03	0.539E+03
3	2200	0.571E-13	0.106E-08	0.644E+03	0.459E+03
3	2500	0.459E-13	0.863E-09	0.526E+03	0.369E+03
3	5000	0.152E-13	0.310E-09	0.189E+03	0.122E+03
4	1200	0.250E-12	0.427E-08	0.261E+04	0.201E+04
4	1300	0.217E-12	0.374E-08	0.228E+04	0.175E+04
4	1400	0.191E-12	0.331E-08	0.202E+04	0.153E+04
4	1500	0.169E-12	0.294E-08	0.179E+04	0.136E+04
4	1625	0.147E-12	0.258E-08	0.157E+04	0.118E+04
4	1700	0.136E-12	0.240E-08	0.146E+04	0.109E+04
4	1800	0.123E-12	0.218E-08	0.133E+04	0.987E+03
4	2000	0.102E-12	0.183E-08	0.111E+04	0.819E+03
4	2200	0.867E-13	0.157E-08	0.957E+03	0.696E+03
4	2500	0.696E-13	0.128E-08	0.779E+03	0.559E+03
4	5000	0.229E-13	0.453E-09	0.276E+03	0.184E+03
5	1200	0.509E-12	0.863E-08	0.526E+04	0.409E+04
5	1300	0.443E-12	0.755E-08	0.460E+04	0.355E+04
5	1400	0.388E-12	0.667E-08	0.406E+04	0.312E+04
5	1500	0.343E-12	0.593E-08	0.361E+04	0.276E+04
5	1625	0.299E-12	0.519E-08	0.317E+04	0.240E+04
5	1700	0.276E-12	0.482E-08	0.294E+04	0.222E+04
5	1800	0.250E-12	0.438E-08	0.267E+04	0.201E+04
5	2000	0.207E-12	0.367E-08	0.224E+04	0.166E+04
5	2200	0.176E-12	0.315E-08	0.192E+04	0.141E+04
5	2500	0.141E-12	0.256E-08	0.156E+04	0.114E+04
5	5000	0.465E-13	0.901E-09	0.549E+03	0.373E+03
6	1200	0.379E-12	0.678E-08	0.413E+04	0.304E+04
6	1300	0.330E-12	0.596E-08	0.363E+04	0.265E+04
6	1400	0.290E-12	0.528E-08	0.322E+04	0.233E+04
6	1500	0.257E-12	0.472E-08	0.288E+04	0.207E+04
6	1625	0.225E-12	0.416E-08	0.253E+04	0.180E+04
6	1700	0.208E-12	0.387E-08	0.236E+04	0.167E+04
6	1800	0.188E-12	0.353E-08	0.215E+04	0.151E+04
6	2000	0.157E-12	0.298E-08	0.182E+04	0.126E+04
6	2200	0.133E-12	0.257E-08	0.157E+04	0.107E+04
6	2500	0.107E-12	0.211E-08	0.129E+04	0.862E+03
6	5000	0.360E-13	0.777E-09	0.474E+03	0.289E+03
7	1200	0.207E-12	0.371E-08	0.226E+04	0.166E+04
7	1300	0.180E-12	0.326E-08	0.198E+04	0.145E+04
7	1400	0.159E-12	0.289E-08	0.176E+04	0.127E+04
7	1500	0.141E-12	0.258E-08	0.157E+04	0.113E+04
7	1625	0.123E-12	0.227E-08	0.138E+04	0.984E+03
7	1700	0.113E-12	0.211E-08	0.129E+04	0.910E+03
7	1800	0.103E-12	0.193E-08	0.118E+04	0.825E+03
7	2000	0.854E-13	0.163E-08	0.992E+03	0.686E+03
7	2200	0.727E-13	0.140E-08	0.855E+03	0.584E+03
7	2500	0.584E-13	0.115E-08	0.700E+03	0.469E+03
7	5000	0.194E-13	0.421E-09	0.257E+03	0.156E+03
8	1200	0.204E-12	0.357E-08	0.218E+04	0.164E+04
8	1300	0.178E-12	0.313E-08	0.191E+04	0.143E+04
8	1400	0.156E-12	0.277E-08	0.169E+04	0.125E+04
8	1500	0.138E-12	0.247E-08	0.151E+04	0.111E+04

8	1625	0.121E-12	0.217E-08	0.133E+04	0.989E+03
8	1700	0.112E-12	0.202E-08	0.123E+04	0.896E+03
8	1800	0.101E-12	0.184E-08	0.112E+04	0.812E+03
8	2000	0.840E-13	0.155E-08	0.946E+03	0.675E+03
8	2200	0.715E-13	0.134E-08	0.814E+03	0.574E+03
8	2500	0.575E-13	0.109E-08	0.665E+03	0.461E+03
8	5000	0.191E-13	0.395E-09	0.241E+03	0.153E+03
9	1200	0.177E-12	0.317E-08	0.193E+04	0.142E+04
9	1300	0.154E-12	0.279E-08	0.170E+04	0.124E+04
9	1400	0.136E-12	0.247E-08	0.151E+04	0.109E+04
9	1500	0.120E-12	0.221E-08	0.135E+04	0.967E+03
9	1625	0.105E-12	0.195E-08	0.119E+04	0.844E+03
9	1700	0.974E-13	0.182E-08	0.111E+04	0.782E+03
9	1800	0.883E-13	0.166E-08	0.101E+04	0.709E+03
9	2000	0.736E-13	0.140E-08	0.855E+03	0.591E+03
9	2200	0.627E-13	0.121E-08	0.737E+03	0.504E+03
9	2500	0.505E-13	0.993E-09	0.605E+03	0.406E+03
9	5000	0.171E-13	0.369E-09	0.225E+03	0.137E+03
10	1200	0.373E-12	0.652E-08	0.397E+04	0.300E+04
10	1300	0.325E-12	0.572E-08	0.349E+04	0.261E+04
10	1400	0.286E-12	0.506E-08	0.309E+04	0.230E+04
10	1500	0.253E-12	0.452E-08	0.275E+04	0.203E+04
10	1625	0.221E-12	0.397E-08	0.242E+04	0.177E+04
10	1700	0.204E-12	0.369E-08	0.225E+04	0.164E+04
10	1800	0.185E-12	0.336E-08	0.205E+04	0.148E+04
10	2000	0.154E-12	0.283E-08	0.172E+04	0.123E+04
10	2200	0.131E-12	0.243E-08	0.148E+04	0.105E+04
10	2500	0.105E-12	0.199E-08	0.121E+04	0.843E+03
10	5000	0.349E-13	0.720E-09	0.439E+03	0.281E+03
11	1200	0.893E-12	0.149E-07	0.908E+04	0.717E+04
11	1300	0.776E-12	0.130E-07	0.793E+04	0.623E+04
11	1400	0.681E-12	0.115E-07	0.699E+04	0.547E+04
11	1500	0.601E-12	0.102E-07	0.621E+04	0.483E+04
11	1625	0.523E-12	0.891E-08	0.543E+04	0.420E+04
11	1700	0.484E-12	0.827E-08	0.504E+04	0.388E+04
11	1800	0.437E-12	0.751E-08	0.457E+04	0.351E+04
11	2000	0.362E-12	0.627E-08	0.382E+04	0.291E+04
11	2200	0.308E-12	0.537E-08	0.327E+04	0.247E+04
11	2500	0.247E-12	0.436E-08	0.266E+04	0.198E+04
11	5000	0.807E-13	0.151E-08	0.922E+03	0.648E+03
12	1200	0.115E-11	0.192E-07	0.117E+05	0.926E+04
12	1300	0.100E-11	0.168E-07	0.102E+05	0.805E+04
12	1400	0.880E-12	0.148E-07	0.900E+04	0.706E+04
12	1500	0.777E-12	0.131E-07	0.799E+04	0.624E+04
12	1625	0.676E-12	0.115E-07	0.699E+04	0.543E+04
12	1700	0.625E-12	0.106E-07	0.648E+04	0.502E+04
12	1800	0.565E-12	0.966E-08	0.589E+04	0.454E+04
12	2000	0.468E-12	0.807E-08	0.492E+04	0.376E+04
12	2200	0.398E-12	0.691E-08	0.421E+04	0.320E+04
12	2500	0.319E-12	0.560E-08	0.341E+04	0.256E+04
12	5000	0.105E-12	0.195E-08	0.119E+04	0.843E+03
13	1200	0.103E-11	0.175E-07	0.107E+05	0.829E+04
13	1300	0.899E-12	0.153E-07	0.934E+04	0.722E+04
13	1400	0.789E-12	0.135E-07	0.825E+04	0.634E+04
13	1500	0.698E-12	0.121E-07	0.734E+04	0.561E+04
13	1625	0.609E-12	0.106E-07	0.644E+04	0.489E+04
13	1700	0.563E-12	0.981E-08	0.598E+04	0.452E+04
13	1800	0.509E-12	0.893E-08	0.544E+04	0.409E+04
13	2000	0.423E-12	0.749E-08	0.456E+04	0.340E+04
13	2200	0.360E-12	0.642E-08	0.391E+04	0.289E+04
13	2500	0.289E-12	0.523E-08	0.319E+04	0.232E+04
13	5000	0.961E-13	0.186E-08	0.113E+04	0.772E+03
14	1200	0.108E-11	0.184E-07	0.112E+05	0.865E+04
14	1300	0.939E-12	0.161E-07	0.980E+04	0.754E+04
14	1400	0.825E-12	0.142E-07	0.866E+04	0.662E+04

14	1500	0.730E-12	0.127E-07	0.771E+04	0.586E+04
14	1625	0.636E-12	0.111E-07	0.677E+04	0.511E+04
14	1700	0.589E-12	0.103E-07	0.628E+04	0.473E+04
14	1800	0.533E-12	0.938E-08	0.572E+04	0.428E+04
14	2000	0.443E-12	0.788E-08	0.480E+04	0.356E+04
14	2200	0.377E-12	0.676E-08	0.412E+04	0.302E+04
14	2500	0.303E-12	0.551E-08	0.336E+04	0.243E+04
14	5000	0.101E-12	0.197E-08	0.120E+04	0.811E+03
15	1200	0.871E-12	0.153E-07	0.930E+04	0.699E+04
15	1300	0.760E-12	0.134E-07	0.817E+04	0.610E+04
15	1400	0.669E-12	0.119E-07	0.725E+04	0.537E+04
15	1500	0.593E-12	0.106E-07	0.648E+04	0.476E+04
15	1625	0.518E-12	0.935E-08	0.570E+04	0.416E+04
15	1700	0.479E-12	0.870E-08	0.530E+04	0.385E+04
15	1800	0.435E-12	0.794E-08	0.484E+04	0.349E+04
15	2000	0.362E-12	0.669E-08	0.408E+04	0.291E+04
15	2200	0.308E-12	0.577E-08	0.351E+04	0.248E+04
15	2500	0.248E-12	0.472E-08	0.288E+04	0.199E+04
15	5000	0.840E-13	0.173E-08	0.105E+04	0.674E+03
16	1200	0.609E-12	0.108E-07	0.655E+04	0.489E+04
16	1300	0.531E-12	0.946E-08	0.576E+04	0.426E+04
16	1400	0.468E-12	0.839E-08	0.511E+04	0.376E+04
16	1500	0.415E-12	0.750E-08	0.457E+04	0.333E+04
16	1625	0.363E-12	0.661E-08	0.403E+04	0.291E+04
16	1700	0.336E-12	0.615E-08	0.375E+04	0.270E+04
16	1800	0.304E-12	0.561E-08	0.342E+04	0.245E+04
16	2000	0.254E-12	0.474E-08	0.289E+04	0.204E+04
16	2200	0.216E-12	0.409E-08	0.249E+04	0.174E+04
16	2500	0.174E-12	0.335E-08	0.204E+04	0.140E+04
16	5000	0.592E-13	0.124E-08	0.756E+03	0.476E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.9369E-08	0.00	100.00
	SURFACE	0.8565E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3167E+01	99.85	100.00
	INGEST.	0.4627E-02	0.15	100.00
	VEGET.	0.4623E-02	* 0.15	* 99.93
	MEAT	0.6078E-06	* 0.00	* 0.01
	MILK	0.2548E-05	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.7489E-08	0.00	100.00
	SURFACE	0.6847E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6407E+00	98.71	100.00
	INGEST.	0.8342E-02	1.29	100.00
	VEGET.	0.8336E-02	* 1.28	* 99.93
	MEAT	0.1096E-05	* 0.00	* 0.01
	MILK	0.4593E-05	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.1453E-07	0.00	100.00
	SURFACE	0.1328E-04	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7843E+01	98.71	100.00
	INGEST.	0.1025E+00	1.29	100.00
	VEGET.	0.1024E+00	* 1.29	* 99.93
	MEAT	0.1346E-04	* 0.00	* 0.01
	MILK	0.5642E-04	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1271E-07	0.00	100.00
	SURFACE	0.1162E-04	0.15	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7880E-02	98.61	100.00
	INGEST.	0.9943E-04	1.24	100.00
	VEGET.	0.9936E-04	* 1.24	* 99.93
	MEAT	0.1306E-07	* 0.00	* 0.01
	MILK	0.5475E-07	* 0.00	* 0.06

PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1579E-07	0.00	100.00
	SURFACE	0.1444E-04	0.18	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7944E-02	98.57	100.00
	INGEST.	0.1007E-03	1.25	100.00
	VEGET.	0.1006E-03	* 1.25	* 99.93
	MEAT	0.1323E-07	* 0.00	* 0.01
	MILK	0.5546E-07	* 0.00	* 0.06

PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.8976E-08	0.00	100.00
	SURFACE	0.8206E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2370E+02	100.00	100.00
	INGEST.	0.9989E-04	0.00	100.00
	VEGET.	0.9982E-04	* 0.00	* 99.93
	MEAT	0.1312E-07	* 0.00	* 0.01
	MILK	0.5501E-07	* 0.00	* 0.06

PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.7910E-08	0.00	100.00
	SURFACE	0.7232E-05	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7741E-02	98.52	100.00
	INGEST.	0.1094E-03	1.39	100.00
	VEGET.	0.1093E-03	* 1.39	* 99.93
	MEAT	0.1437E-07	* 0.00	* 0.01
	MILK	0.6022E-07	* 0.00	* 0.06

PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.7714E-08	0.00	100.00
	SURFACE	0.7052E-05	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2416E-01	89.49	100.00
	INGEST.	0.2831E-02	10.49	100.00
	VEGET.	0.2829E-02	* 10.48	* 99.93
	MEAT	0.3719E-06	* 0.00	* 0.01
	MILK	0.1559E-05	* 0.01	* 0.06

PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.8190E-08	0.00	100.00
	SURFACE	0.7488E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3406E-01	98.82	100.00
	INGEST.	0.4006E-03	1.16	100.00
	VEGET.	0.4003E-03	* 1.16	* 99.93
	MEAT	0.5263E-07	* 0.00	* 0.01
	MILK	0.2206E-06	* 0.00	* 0.06

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.6395E-08	0.00	100.00
	SURFACE	0.5847E-06	0.07	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7703E-02	98.75	100.00
	INGEST.	0.9161E-04	1.17	100.00
	VEGET.	0.9155E-04	* 1.17	* 99.93
	MEAT	0.1203E-07	* 0.00	* 0.01
	MILK	0.5044E-07	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-228	SUBM AIR	0.8387E-08	0.00	100.00
	SURFACE	0.7668E-06	0.06	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1279E-01	99.06	100.00
	INGEST.	0.1115E-03	0.86	100.00
	VEGET.	0.1115E-03	* 0.86	* 99.93
	MEAT	0.1465E-07	* 0.00	* 0.01
	MILK	0.6142E-07	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.9369E-08	0.0000
SURFACE	0.8565E-05	0.0003
SWIMMING	0.1000E-24	0.0000
INHAL.	0.3167E+01	99.8538
INGEST.	0.4627E-02	0.1459
VEGET.	*0.4623E-02	* 0.1458
MEAT	*0.6078E-06	* 0.0000
MILK	*0.2548E-05	* 0.0001

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7489E-08	0.0000
SURFACE	0.6847E-05	0.0011
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8407E+00	98.7138
INGEST.	0.8342E-02	1.2852
VEGET.	*0.8336E-02	* 1.2843
MEAT	*0.1096E-05	* 0.0002
MILK	*0.4593E-05	* 0.0007

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1453E-07	0.0000
SURFACE	0.1328E-04	0.0002
SWIMMING	0.1000E-24	0.0000
INHAL.	0.7843E+01	98.7102
INGEST.	0.1025E+00	1.2896
VEGET.	*0.1024E+00	* 1.2888
MEAT	*0.1346E-04	* 0.0002
MILK	*0.5642E-04	* 0.0007

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1271E-07	0.0002
SURFACE	0.1162E-04	0.1454
SWIMMING	0.1000E-24	0.0000
INHAL.	0.7880E-02	98.6102
INGEST.	0.9943E-04	1.2443
VEGET.	*0.9936E-04	* 1.2434
MEAT	*0.1306E-07	* 0.0002
MILK	*0.5475E-07	* 0.0007

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1579E-07	0.0002

0	SURFACE	0.1444E-04	0.1791
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7944E-02	98.5711
0	INGEST.	0.1007E-03	1.2498
0	VEGET.	*0.1006E-03	* 1.2487
0	MEAT	*0.1323E-07	* 0.0002
0	MILK	*0.5546E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8976E-08	0.0000
0	SURFACE	0.8206E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2370E+02	99.9996
0	INGEST.	0.9969E-04	0.0004
0	VEGET.	*0.9962E-04	* 0.0004
0	MEAT	*0.1312E-07	* 0.0000
0	MILK	*0.5501E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7910E-08	0.0001
0	SURFACE	0.7232E-05	0.0920
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7741E-02	98.5161
0	INGEST.	0.1094E-03	1.3918
0	VEGET.	*0.1093E-03	* 1.3906
0	MEAT	*0.1437E-07	* 0.0002
0	MILK	*0.6022E-07	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7714E-08	0.0000
0	SURFACE	0.7052E-05	0.0261
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2416E-01	89.4873
0	INGEST.	0.2831E-02	10.4866
0	VEGET.	*0.2829E-02	* 10.4794
0	MEAT	*0.3719E-06	* 0.0014
0	MILK	*0.1559E-05	* 0.0058
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8190E-08	0.0000
0	SURFACE	0.7488E-05	0.0217
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3406E-01	98.8158
0	INGEST.	0.4006E-03	1.1624
0	VEGET.	*0.4003E-03	* 1.1617
0	MEAT	*0.5263E-07	* 0.0002
0	MILK	*0.2206E-06	* 0.0006
0	CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6395E-08	0.0001
0	SURFACE	0.5847E-05	0.0750
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7703E-02	98.7505
0	INGEST.	0.9161E-04	1.1744
0	VEGET.	*0.9155E-04	* 1.1736
0	MEAT	*0.1203E-07	* 0.0002
0	MILK	*0.5044E-07	* 0.0006
0	CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8387E-08	0.0001
0	SURFACE	0.7668E-05	0.0594
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1279E-01	99.0763
0	INGEST.	0.1115E-03	0.8642
0	VEGET.	*0.1115E-03	* 0.8636

0 MEAT *0.1465E-07 * 0.0001
0 MILK *0.6142E-07 * 0.0006
1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.3171E+01
0	R MAR	0.6491E+00
0	ENDOST	0.7945E+01
0	THYROID	0.7991E-02
0	BREAST	0.8060E-02
0	*PUL*	0.2370E+02
0	S WALL	0.7857E-02
0	INT WALL	0.2700E-01
0	LIVER	0.3446E-01
0	PANCREAS	0.7800E-02
0	KIDNEYS	0.1291E-01

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-228	W BODY	0.3171E+01	12	6
0	TH-228	R MAR	0.6491E+00	12	6
0	TH-228	ENDOST	0.7945E+01	12	6
0	TH-228	THYROID	0.7991E-02	12	6
0	TH-228	BREAST	0.8060E-02	12	6
0	TH-228	*PUL*	0.2370E+02	12	6
0	TH-228	S WALL	0.7857E-02	12	6
0	TH-228	INT WALL	0.2700E-01	12	6
0	TH-228	LIVER	0.3446E-01	12	6
0	TH-228	PANCREAS	0.7800E-02	12	6
0	TH-228	KIDNEYS	0.1291E-01	12	6

Building 65

Thorium-230

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=6,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
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PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
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AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP 5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP 3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 65 WITH 10% RELEASE
DOSE CALCULATED AT 1200 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.300E+00

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.85	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1200	TH-230	2.75E-08	1.58E-09	2.56E-10	1.84E-09	5.26E+02
1	1300	TH-230	2.40E-08	1.38E-09	2.36E-10	1.62E-09	5.25E+02
1	1400	TH-230	2.11E-08	1.22E-09	2.19E-10	1.44E-09	5.25E+02
1	1500	TH-230	1.88E-08	1.08E-09	2.03E-10	1.28E-09	5.24E+02
1	1625	TH-230	1.64E-08	9.45E-10	1.87E-10	1.13E-09	5.23E+02
1	1700	TH-230	1.52E-08	8.75E-10	1.79E-10	1.05E-09	5.22E+02
1	1800	TH-230	1.38E-08	7.94E-10	1.69E-10	9.63E-10	5.22E+02
1	2000	TH-230	1.15E-08	6.63E-10	1.51E-10	8.14E-10	5.20E+02
1	2200	TH-230	9.81E-09	5.65E-10	1.37E-10	7.02E-10	5.19E+02
1	2500	TH-230	7.91E-09	4.55E-10	1.20E-10	5.76E-10	5.18E+02
1	5000	TH-230	2.70E-09	1.56E-10	5.84E-11	2.14E-10	5.06E+02
2	1200	TH-230	1.81E-08	1.04E-09	1.70E-10	1.21E-09	2.56E+02
2	1300	TH-230	1.58E-08	9.08E-10	1.57E-10	1.06E-09	2.56E+02
2	1400	TH-230	1.39E-08	8.00E-10	1.45E-10	9.45E-10	2.55E+02
2	1500	TH-230	1.23E-08	7.10E-10	1.35E-10	8.45E-10	2.54E+02
2	1625	TH-230	1.08E-08	6.20E-10	1.24E-10	7.44E-10	2.54E+02
2	1700	TH-230	9.97E-09	5.74E-10	1.19E-10	6.93E-10	2.54E+02

2	1800	TH-230	9.05E-09	5.21E-10	1.12E-10	6.33E-10	2.53E+02
2	2000	TH-230	7.55E-09	4.34E-10	1.00E-10	5.35E-10	2.52E+02
2	2200	TH-230	6.43E-09	3.70E-10	9.08E-11	4.61E-10	2.52E+02
2	2500	TH-230	5.18E-09	2.98E-10	7.96E-11	3.78E-10	2.51E+02
2	5000	TH-230	1.76E-09	1.01E-10	3.84E-11	1.40E-10	2.43E+02
3	1200	TH-230	1.40E-08	8.07E-10	1.14E-10	9.20E-10	1.38E+02
3	1300	TH-230	1.22E-08	7.02E-10	1.05E-10	8.07E-10	1.38E+02
3	1400	TH-230	1.07E-08	6.17E-10	9.68E-11	7.14E-10	1.37E+02
3	1500	TH-230	9.49E-09	5.46E-10	9.00E-11	6.37E-10	1.37E+02
3	1625	TH-230	8.27E-09	4.76E-10	8.28E-11	5.59E-10	1.36E+02
3	1700	TH-230	7.65E-09	4.41E-10	7.90E-11	5.20E-10	1.36E+02
3	1800	TH-230	6.93E-09	3.99E-10	7.45E-11	4.73E-10	1.36E+02
3	2000	TH-230	5.76E-09	3.31E-10	6.66E-11	3.98E-10	1.35E+02
3	2200	TH-230	4.90E-09	2.82E-10	6.04E-11	3.42E-10	1.35E+02
3	2500	TH-230	3.93E-09	2.26E-10	5.29E-11	2.79E-10	1.34E+02
3	5000	TH-230	1.30E-09	7.51E-11	2.53E-11	1.00E-10	1.29E+02
4	1200	TH-230	2.14E-08	1.23E-09	1.52E-10	1.38E-09	1.73E+02
4	1300	TH-230	1.86E-08	1.07E-09	1.40E-10	1.21E-09	1.72E+02
4	1400	TH-230	1.64E-08	9.41E-10	1.29E-10	1.07E-09	1.71E+02
4	1500	TH-230	1.45E-08	8.33E-10	1.20E-10	9.53E-10	1.71E+02
4	1625	TH-230	1.26E-08	7.25E-10	1.11E-10	8.36E-10	1.70E+02
4	1700	TH-230	1.16E-08	6.70E-10	1.06E-10	7.76E-10	1.70E+02
4	1800	TH-230	1.05E-08	6.07E-10	9.94E-11	7.06E-10	1.69E+02
4	2000	TH-230	8.74E-09	5.03E-10	8.88E-11	5.92E-10	1.68E+02
4	2200	TH-230	7.43E-09	4.28E-10	8.05E-11	5.08E-10	1.67E+02
4	2500	TH-230	5.97E-09	3.43E-10	7.04E-11	4.14E-10	1.67E+02
4	5000	TH-230	1.97E-09	1.13E-10	3.34E-11	1.47E-10	1.58E+02
5	1200	TH-230	4.36E-08	2.51E-09	2.84E-10	2.79E-09	3.54E+02
5	1300	TH-230	3.79E-08	2.18E-09	2.62E-10	2.45E-09	3.53E+02
5	1400	TH-230	3.33E-08	1.92E-09	2.42E-10	2.16E-09	3.51E+02
5	1500	TH-230	2.94E-08	1.69E-09	2.25E-10	1.92E-09	3.50E+02
5	1625	TH-230	2.56E-08	1.48E-09	2.07E-10	1.68E-09	3.49E+02
5	1700	TH-230	2.37E-08	1.36E-09	1.97E-10	1.56E-09	3.48E+02
5	1800	TH-230	2.14E-08	1.23E-09	1.86E-10	1.42E-09	3.47E+02
5	2000	TH-230	1.78E-08	1.02E-09	1.66E-10	1.19E-09	3.45E+02
5	2200	TH-230	1.51E-08	8.69E-10	1.50E-10	1.02E-09	3.44E+02
5	2500	TH-230	1.21E-08	6.98E-10	1.31E-10	8.29E-10	3.42E+02
5	5000	TH-230	3.99E-09	2.29E-10	6.23E-11	2.92E-10	3.26E+02
6	1200	TH-230	3.24E-08	1.87E-09	3.27E-10	2.19E-09	5.43E+02
6	1300	TH-230	2.83E-08	1.63E-09	3.01E-10	1.93E-09	5.42E+02
6	1400	TH-230	2.49E-08	1.43E-09	2.79E-10	1.71E-09	5.41E+02
6	1500	TH-230	2.21E-08	1.27E-09	2.59E-10	1.53E-09	5.40E+02
6	1625	TH-230	1.92E-08	1.11E-09	2.39E-10	1.35E-09	5.39E+02
6	1700	TH-230	1.78E-08	1.03E-09	2.28E-10	1.25E-09	5.38E+02
6	1800	TH-230	1.61E-08	9.29E-10	2.15E-10	1.14E-09	5.37E+02
6	2000	TH-230	1.34E-08	7.74E-10	1.93E-10	9.66E-10	5.36E+02
6	2200	TH-230	1.14E-08	6.58E-10	1.75E-10	8.33E-10	5.34E+02
6	2500	TH-230	9.20E-09	5.30E-10	1.53E-10	6.83E-10	5.33E+02
6	5000	TH-230	3.08E-09	1.77E-10	7.42E-11	2.52E-10	5.19E+02
7	1200	TH-230	1.77E-08	1.02E-09	1.79E-10	1.20E-09	2.98E+02
7	1300	TH-230	1.55E-08	8.90E-10	1.65E-10	1.05E-09	2.97E+02
7	1400	TH-230	1.36E-08	7.82E-10	1.52E-10	9.35E-10	2.97E+02
7	1500	TH-230	1.20E-08	6.93E-10	1.42E-10	8.35E-10	2.96E+02
7	1625	TH-230	1.05E-08	6.05E-10	1.31E-10	7.35E-10	2.96E+02
7	1700	TH-230	9.72E-09	5.59E-10	1.25E-10	6.84E-10	2.95E+02
7	1800	TH-230	8.80E-09	5.07E-10	1.18E-10	6.24E-10	2.95E+02
7	2000	TH-230	7.32E-09	4.22E-10	1.05E-10	5.27E-10	2.94E+02
7	2200	TH-230	6.23E-09	3.59E-10	9.56E-11	4.54E-10	2.93E+02
7	2500	TH-230	5.01E-09	2.88E-10	8.39E-11	3.72E-10	2.92E+02
7	5000	TH-230	1.66E-09	9.58E-11	4.06E-11	1.36E-10	2.85E+02
8	1200	TH-230	1.75E-08	1.01E-09	1.49E-10	1.16E-09	2.72E+02
8	1300	TH-230	1.52E-08	8.77E-10	1.38E-10	1.01E-09	2.72E+02
8	1400	TH-230	1.34E-08	7.71E-10	1.27E-10	8.98E-10	2.71E+02
8	1500	TH-230	1.19E-08	6.83E-10	1.19E-10	8.01E-10	2.70E+02
8	1625	TH-230	1.03E-08	5.95E-10	1.09E-10	7.04E-10	2.70E+02

8	1700	TH-230	9.56E-09	5.51E-10	1.04E-10	6.55E-10	2.70E+02
8	1800	TH-230	8.66E-09	4.99E-10	9.82E-11	5.97E-10	2.69E+02
8	2000	TH-230	7.20E-09	4.14E-10	8.80E-11	5.02E-10	2.68E+02
8	2200	TH-230	6.13E-09	3.53E-10	7.98E-11	4.32E-10	2.68E+02
8	2500	TH-230	4.92E-09	2.83E-10	6.99E-11	3.53E-10	2.67E+02
8	5000	TH-230	1.64E-09	9.43E-11	3.38E-11	1.28E-10	2.60E+02
9	1200	TH-230	1.51E-08	8.71E-10	1.54E-10	1.03E-09	3.43E+02
9	1300	TH-230	1.32E-08	7.60E-10	1.42E-10	9.02E-10	3.42E+02
9	1400	TH-230	1.16E-08	6.70E-10	1.31E-10	8.01E-10	3.42E+02
9	1500	TH-230	1.03E-08	5.94E-10	1.22E-10	7.16E-10	3.41E+02
9	1625	TH-230	9.01E-09	5.19E-10	1.13E-10	6.31E-10	3.41E+02
9	1700	TH-230	8.35E-09	4.80E-10	1.07E-10	5.88E-10	3.40E+02
9	1800	TH-230	7.57E-09	4.36E-10	1.01E-10	5.37E-10	3.40E+02
9	2000	TH-230	6.31E-09	3.63E-10	9.09E-11	4.54E-10	3.39E+02
9	2200	TH-230	5.37E-09	3.09E-10	8.24E-11	3.92E-10	3.39E+02
9	2500	TH-230	4.33E-09	2.49E-10	7.23E-11	3.22E-10	3.38E+02
9	5000	TH-230	1.46E-09	8.42E-11	3.52E-11	1.19E-10	3.31E+02
10	1200	TH-230	3.20E-08	1.84E-09	2.69E-10	2.11E-09	5.03E+02
10	1300	TH-230	2.79E-08	1.60E-09	2.48E-10	1.85E-09	5.02E+02
10	1400	TH-230	2.45E-08	1.41E-09	2.30E-10	1.64E-09	5.01E+02
10	1500	TH-230	2.17E-08	1.25E-09	2.14E-10	1.46E-09	5.00E+02
10	1625	TH-230	1.89E-08	1.09E-09	1.97E-10	1.29E-09	4.99E+02
10	1700	TH-230	1.75E-08	1.01E-09	1.88E-10	1.19E-09	4.99E+02
10	1800	TH-230	1.58E-08	9.12E-10	1.77E-10	1.09E-09	4.98E+02
10	2000	TH-230	1.32E-08	7.58E-10	1.58E-10	9.16E-10	4.96E+02
10	2200	TH-230	1.12E-08	6.44E-10	1.44E-10	7.88E-10	4.95E+02
10	2500	TH-230	9.00E-09	5.18E-10	1.26E-10	6.44E-10	4.94E+02
10	5000	TH-230	3.00E-09	1.72E-10	6.07E-11	2.33E-10	4.81E+02
11	1200	TH-230	7.65E-08	4.40E-09	4.21E-10	4.83E-09	6.86E+02
11	1300	TH-230	6.65E-08	3.83E-09	3.87E-10	4.22E-09	6.84E+02
11	1400	TH-230	5.83E-08	3.36E-09	3.58E-10	3.72E-09	6.82E+02
11	1500	TH-230	5.15E-08	2.97E-09	3.32E-10	3.30E-09	6.79E+02
11	1625	TH-230	4.48E-08	2.58E-09	3.06E-10	2.89E-09	6.77E+02
11	1700	TH-230	4.14E-08	2.39E-09	2.91E-10	2.68E-09	6.76E+02
11	1800	TH-230	3.75E-08	2.16E-09	2.74E-10	2.43E-09	6.74E+02
11	2000	TH-230	3.10E-08	1.79E-09	2.45E-10	2.03E-09	6.70E+02
11	2200	TH-230	2.64E-08	1.52E-09	2.22E-10	1.74E-09	6.68E+02
11	2500	TH-230	2.11E-08	1.22E-09	1.94E-10	1.41E-09	6.65E+02
11	5000	TH-230	6.92E-09	3.98E-10	9.16E-11	4.90E-10	6.38E+02
12	1200	TH-230	9.88E-08	5.69E-09	5.19E-10	6.21E-09	8.17E+02
12	1300	TH-230	8.59E-08	4.95E-09	4.77E-10	5.42E-09	8.14E+02
12	1400	TH-230	7.54E-08	4.34E-09	4.41E-10	4.78E-09	8.11E+02
12	1500	TH-230	6.66E-08	3.83E-09	4.09E-10	4.24E-09	8.07E+02
12	1625	TH-230	5.80E-08	3.34E-09	3.76E-10	3.71E-09	8.05E+02
12	1700	TH-230	5.36E-08	3.08E-09	3.59E-10	3.44E-09	8.03E+02
12	1800	TH-230	4.85E-08	2.79E-09	3.37E-10	3.13E-09	8.01E+02
12	2000	TH-230	4.01E-08	2.31E-09	3.01E-10	2.61E-09	7.96E+02
12	2200	TH-230	3.41E-08	1.96E-09	2.73E-10	2.24E-09	7.94E+02
12	2500	TH-230	2.74E-08	1.58E-09	2.39E-10	1.81E-09	7.90E+02
12	5000	TH-230	8.99E-09	5.18E-10	1.12E-10	6.30E-10	7.55E+02
13	1200	TH-230	8.85E-08	5.09E-09	5.77E-10	5.67E-09	9.55E+02
13	1300	TH-230	7.70E-08	4.43E-09	5.31E-10	4.96E-09	9.53E+02
13	1400	TH-230	6.77E-08	3.89E-09	4.91E-10	4.39E-09	9.50E+02
13	1500	TH-230	5.99E-08	3.45E-09	4.56E-10	3.90E-09	9.47E+02
13	1625	TH-230	5.22E-08	3.00E-09	4.20E-10	3.42E-09	9.44E+02
13	1700	TH-230	4.82E-08	2.78E-09	4.00E-10	3.18E-09	9.43E+02
13	1800	TH-230	4.37E-08	2.51E-09	3.77E-10	2.89E-09	9.41E+02
13	2000	TH-230	3.63E-08	2.09E-09	3.37E-10	2.42E-09	9.36E+02
13	2200	TH-230	3.08E-08	1.77E-09	3.06E-10	2.08E-09	9.34E+02
13	2500	TH-230	2.48E-08	1.43E-09	2.68E-10	1.69E-09	9.30E+02
13	5000	TH-230	8.24E-09	4.74E-10	1.28E-10	6.02E-10	8.97E+02
14	1200	TH-230	9.24E-08	5.32E-09	6.25E-10	5.94E-09	8.99E+02
14	1300	TH-230	8.05E-08	4.63E-09	5.75E-10	5.21E-09	8.96E+02
14	1400	TH-230	7.07E-08	4.07E-09	5.32E-10	4.60E-09	8.93E+02
14	1500	TH-230	6.26E-08	3.60E-09	4.94E-10	4.10E-09	8.90E+02

14	1625	TH-230	5.46E-08	3.14E-09	4.55E-10	3.60E-09	8.88E+02
14	1700	TH-230	5.05E-08	2.90E-09	4.34E-10	3.34E-09	8.86E+02
14	1800	TH-230	4.57E-08	2.63E-09	4.09E-10	3.04E-09	8.84E+02
14	2000	TH-230	3.80E-08	2.18E-09	3.65E-10	2.55E-09	8.79E+02
14	2200	TH-230	3.23E-08	1.86E-09	3.31E-10	2.19E-09	8.77E+02
14	2500	TH-230	2.59E-08	1.49E-09	2.90E-10	1.78E-09	8.73E+02
14	5000	TH-230	8.68E-09	4.98E-10	1.38E-10	6.36E-10	8.37E+02
15	1200	TH-230	7.47E-08	4.30E-09	6.47E-10	4.94E-09	1.08E+03
15	1300	TH-230	6.51E-08	3.75E-09	5.96E-10	4.34E-09	1.08E+03
15	1400	TH-230	5.73E-08	3.30E-09	5.52E-10	3.85E-09	1.07E+03
15	1500	TH-230	5.09E-08	2.93E-09	5.13E-10	3.44E-09	1.07E+03
15	1625	TH-230	4.44E-08	2.55E-09	4.73E-10	3.03E-09	1.07E+03
15	1700	TH-230	4.11E-08	2.37E-09	4.51E-10	2.82E-09	1.07E+03
15	1800	TH-230	3.73E-08	2.14E-09	4.25E-10	2.57E-09	1.06E+03
15	2000	TH-230	3.10E-08	1.79E-09	3.81E-10	2.17E-09	1.06E+03
15	2200	TH-230	2.64E-08	1.52E-09	3.45E-10	1.87E-09	1.06E+03
15	2500	TH-230	2.13E-08	1.23E-09	3.03E-10	1.53E-09	1.06E+03
15	5000	TH-230	7.20E-09	4.14E-10	1.46E-10	5.60E-10	1.02E+03
16	1200	TH-230	5.22E-08	3.00E-09	4.80E-10	3.48E-09	1.06E+03
16	1300	TH-230	4.55E-08	2.62E-09	4.42E-10	3.06E-09	1.06E+03
16	1400	TH-230	4.01E-08	2.31E-09	4.09E-10	2.72E-09	1.06E+03
16	1500	TH-230	3.56E-08	2.05E-09	3.81E-10	2.43E-09	1.06E+03
16	1625	TH-230	3.11E-08	1.79E-09	3.51E-10	2.14E-09	1.06E+03
16	1700	TH-230	2.88E-08	1.66E-09	3.35E-10	1.99E-09	1.06E+03
16	1800	TH-230	2.61E-08	1.50E-09	3.16E-10	1.82E-09	1.06E+03
16	2000	TH-230	2.18E-08	1.25E-09	2.83E-10	1.54E-09	1.05E+03
16	2200	TH-230	1.85E-08	1.07E-09	2.57E-10	1.32E-09	1.05E+03
16	2500	TH-230	1.49E-08	8.60E-10	2.25E-10	1.09E-09	1.05E+03
16	5000	TH-230	5.08E-09	2.92E-10	1.09E-10	4.02E-10	1.03E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1200	0.289E-05	0.190E-05	0.147E-05	0.225E-05	0.458E-05	0.341E-05	0.186E-05	0.184E-05
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1200	0.159E-05	0.336E-05	0.804E-05	0.104E-04	0.930E-05	0.971E-05	0.785E-05	0.548E-05
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1449E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3249E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1909E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6906E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3307E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2705E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-230
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.2464E-07
0 ENVIRONMENTAL DECAY CONSTANT-SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT-WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.262E+03	0.548E+00	0.178E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.105E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1200	0.275E-13	0.580E-09	0.305E+03	0.221E+03
1	1300	0.240E-13	0.510E-09	0.268E+03	0.193E+03
1	1400	0.211E-13	0.453E-09	0.238E+03	0.170E+03
1	1500	0.188E-13	0.405E-09	0.213E+03	0.151E+03
1	1625	0.164E-13	0.357E-09	0.188E+03	0.132E+03
1	1700	0.152E-13	0.333E-09	0.175E+03	0.122E+03
1	1800	0.138E-13	0.304E-09	0.160E+03	0.111E+03
1	2000	0.115E-13	0.257E-09	0.135E+03	0.925E+02
1	2200	0.981E-14	0.222E-09	0.116E+03	0.788E+02
1	2500	0.791E-14	0.182E-09	0.954E+02	0.635E+02
1	5000	0.270E-14	0.675E-10	0.355E+02	0.217E+02
2	1200	0.181E-13	0.382E-09	0.201E+03	0.145E+03
2	1300	0.158E-13	0.336E-09	0.176E+03	0.127E+03
2	1400	0.139E-13	0.298E-09	0.157E+03	0.112E+03
2	1500	0.123E-13	0.267E-09	0.140E+03	0.991E+02
2	1625	0.108E-13	0.235E-09	0.123E+03	0.865E+02

2	1700	0.997E-14	0.219E-09	0.118E+03	0.801E+02
2	1800	0.905E-14	0.200E-09	0.106E+03	0.726E+02
2	2000	0.755E-14	0.169E-09	0.886E+02	0.606E+02
2	2200	0.643E-14	0.145E-09	0.754E+02	0.516E+02
2	2500	0.518E-14	0.119E-09	0.626E+02	0.416E+02
2	5000	0.176E-14	0.440E-10	0.231E+02	0.141E+02
3	1200	0.140E-13	0.290E-09	0.153E+03	0.113E+03
3	1300	0.122E-13	0.255E-09	0.134E+03	0.980E+02
3	1400	0.107E-13	0.225E-09	0.118E+03	0.861E+02
3	1500	0.949E-14	0.201E-09	0.106E+03	0.762E+02
3	1625	0.827E-14	0.178E-09	0.927E+02	0.664E+02
3	1700	0.765E-14	0.164E-09	0.861E+02	0.615E+02
3	1800	0.693E-14	0.149E-09	0.785E+02	0.556E+02
3	2000	0.576E-14	0.126E-09	0.660E+02	0.462E+02
3	2200	0.490E-14	0.108E-09	0.567E+02	0.393E+02
3	2500	0.393E-14	0.881E-10	0.463E+02	0.316E+02
3	5000	0.130E-14	0.317E-10	0.166E+02	0.105E+02
4	1200	0.214E-13	0.437E-09	0.229E+03	0.172E+03
4	1300	0.186E-13	0.382E-09	0.201E+03	0.150E+03
4	1400	0.164E-13	0.338E-09	0.178E+03	0.131E+03
4	1500	0.145E-13	0.301E-09	0.158E+03	0.116E+03
4	1625	0.126E-13	0.264E-09	0.139E+03	0.101E+03
4	1700	0.116E-13	0.245E-09	0.129E+03	0.935E+02
4	1800	0.105E-13	0.223E-09	0.117E+03	0.846E+02
4	2000	0.874E-14	0.187E-09	0.982E+02	0.702E+02
4	2200	0.743E-14	0.160E-09	0.842E+02	0.597E+02
4	2500	0.597E-14	0.131E-09	0.686E+02	0.479E+02
4	5000	0.197E-14	0.463E-10	0.243E+02	0.158E+02
5	1200	0.436E-13	0.882E-09	0.463E+03	0.350E+03
5	1300	0.379E-13	0.772E-09	0.405E+03	0.305E+03
5	1400	0.333E-13	0.681E-09	0.358E+03	0.267E+03
5	1500	0.294E-13	0.606E-09	0.318E+03	0.236E+03
5	1625	0.256E-13	0.531E-09	0.279E+03	0.206E+03
5	1700	0.237E-13	0.493E-09	0.259E+03	0.190E+03
5	1800	0.214E-13	0.448E-09	0.235E+03	0.172E+03
5	2000	0.178E-13	0.375E-09	0.197E+03	0.143E+03
5	2200	0.151E-13	0.322E-09	0.169E+03	0.121E+03
5	2500	0.121E-13	0.262E-09	0.137E+03	0.974E+02
5	5000	0.399E-14	0.921E-10	0.484E+02	0.320E+02
6	1200	0.324E-13	0.692E-09	0.364E+03	0.261E+03
6	1300	0.283E-13	0.609E-09	0.320E+03	0.227E+03
6	1400	0.249E-13	0.540E-09	0.284E+03	0.200E+03
6	1500	0.221E-13	0.483E-09	0.254E+03	0.177E+03
6	1625	0.192E-13	0.425E-09	0.223E+03	0.155E+03
6	1700	0.178E-13	0.396E-09	0.208E+03	0.143E+03
6	1800	0.161E-13	0.361E-09	0.190E+03	0.130E+03
6	2000	0.134E-13	0.305E-09	0.160E+03	0.108E+03
6	2200	0.114E-13	0.263E-09	0.138E+03	0.918E+02
6	2500	0.920E-14	0.215E-09	0.113E+03	0.739E+02
6	5000	0.308E-14	0.794E-10	0.417E+02	0.248E+02
7	1200	0.177E-13	0.379E-09	0.199E+03	0.142E+03
7	1300	0.155E-13	0.333E-09	0.175E+03	0.124E+03
7	1400	0.136E-13	0.295E-09	0.155E+03	0.109E+03
7	1500	0.120E-13	0.264E-09	0.138E+03	0.967E+02
7	1625	0.105E-13	0.232E-09	0.122E+03	0.843E+02
7	1700	0.972E-14	0.216E-09	0.113E+03	0.780E+02
7	1800	0.880E-14	0.197E-09	0.103E+03	0.707E+02
7	2000	0.732E-14	0.166E-09	0.874E+02	0.588E+02
7	2200	0.623E-14	0.143E-09	0.753E+02	0.500E+02
7	2500	0.501E-14	0.117E-09	0.617E+02	0.402E+02
7	5000	0.166E-14	0.430E-10	0.226E+02	0.134E+02
8	1200	0.175E-13	0.365E-09	0.192E+03	0.140E+03
8	1300	0.152E-13	0.320E-09	0.168E+03	0.122E+03
8	1400	0.134E-13	0.283E-09	0.149E+03	0.108E+03
8	1500	0.119E-13	0.253E-09	0.133E+03	0.952E+02

8	1625	0.103E-13	0.222E-09	0.117E+03	0.830E+02
8	1700	0.966E-14	0.207E-09	0.109E+03	0.768E+02
8	1800	0.868E-14	0.188E-09	0.989E+02	0.696E+02
8	2000	0.720E-14	0.159E-09	0.833E+02	0.578E+02
8	2200	0.613E-14	0.136E-09	0.717E+02	0.492E+02
8	2500	0.492E-14	0.112E-09	0.586E+02	0.396E+02
8	5000	0.164E-14	0.404E-10	0.212E+02	0.131E+02
9	1200	0.151E-13	0.323E-09	0.170E+03	0.122E+03
9	1300	0.132E-13	0.285E-09	0.149E+03	0.108E+03
9	1400	0.116E-13	0.253E-09	0.133E+03	0.934E+02
9	1500	0.103E-13	0.226E-09	0.119E+03	0.829E+02
9	1625	0.901E-14	0.199E-09	0.105E+03	0.724E+02
9	1700	0.835E-14	0.185E-09	0.974E+02	0.670E+02
9	1800	0.757E-14	0.169E-09	0.890E+02	0.606E+02
9	2000	0.631E-14	0.143E-09	0.753E+02	0.507E+02
9	2200	0.537E-14	0.124E-09	0.649E+02	0.432E+02
9	2500	0.433E-14	0.101E-09	0.533E+02	0.348E+02
9	5000	0.146E-14	0.377E-10	0.198E+02	0.118E+02
10	1200	0.320E-13	0.666E-09	0.350E+03	0.257E+03
10	1300	0.279E-13	0.584E-09	0.307E+03	0.224E+03
10	1400	0.245E-13	0.517E-09	0.272E+03	0.197E+03
10	1500	0.217E-13	0.461E-09	0.242E+03	0.174E+03
10	1625	0.189E-13	0.405E-09	0.213E+03	0.152E+03
10	1700	0.175E-13	0.377E-09	0.198E+03	0.140E+03
10	1800	0.158E-13	0.344E-09	0.180E+03	0.127E+03
10	2000	0.132E-13	0.289E-09	0.152E+03	0.106E+03
10	2200	0.112E-13	0.249E-09	0.131E+03	0.899E+02
10	2500	0.900E-14	0.203E-09	0.107E+03	0.723E+02
10	5000	0.300E-14	0.736E-10	0.386E+02	0.241E+02
11	1200	0.765E-13	0.152E-08	0.800E+03	0.614E+03
11	1300	0.665E-13	0.133E-08	0.699E+03	0.534E+03
11	1400	0.583E-13	0.117E-08	0.616E+03	0.469E+03
11	1500	0.515E-13	0.104E-08	0.547E+03	0.414E+03
11	1625	0.448E-13	0.911E-09	0.478E+03	0.360E+03
11	1700	0.414E-13	0.845E-09	0.444E+03	0.333E+03
11	1800	0.375E-13	0.767E-09	0.403E+03	0.301E+03
11	2000	0.310E-13	0.641E-09	0.337E+03	0.249E+03
11	2200	0.264E-13	0.549E-09	0.288E+03	0.212E+03
11	2500	0.211E-13	0.445E-09	0.234E+03	0.170E+03
11	5000	0.692E-14	0.155E-09	0.812E+02	0.556E+02
12	1200	0.988E-13	0.196E-08	0.103E+04	0.794E+03
12	1300	0.859E-13	0.171E-08	0.899E+03	0.690E+03
12	1400	0.754E-13	0.151E-08	0.792E+03	0.605E+03
12	1500	0.666E-13	0.134E-08	0.703E+03	0.535E+03
12	1625	0.580E-13	0.117E-08	0.616E+03	0.466E+03
12	1700	0.536E-13	0.109E-08	0.571E+03	0.430E+03
12	1800	0.485E-13	0.987E-09	0.518E+03	0.389E+03
12	2000	0.401E-13	0.824E-09	0.433E+03	0.322E+03
12	2200	0.341E-13	0.706E-09	0.371E+03	0.274E+03
12	2500	0.274E-13	0.573E-09	0.301E+03	0.220E+03
12	5000	0.899E-14	0.199E-09	0.104E+03	0.722E+02
13	1200	0.885E-13	0.179E-08	0.940E+03	0.710E+03
13	1300	0.770E-13	0.157E-08	0.823E+03	0.618E+03
13	1400	0.677E-13	0.138E-08	0.727E+03	0.543E+03
13	1500	0.599E-13	0.123E-08	0.647E+03	0.481E+03
13	1625	0.522E-13	0.108E-08	0.567E+03	0.419E+03
13	1700	0.482E-13	0.100E-08	0.527E+03	0.387E+03
13	1800	0.437E-13	0.912E-09	0.479E+03	0.351E+03
13	2000	0.363E-13	0.765E-09	0.402E+03	0.291E+03
13	2200	0.308E-13	0.656E-09	0.345E+03	0.248E+03
13	2500	0.248E-13	0.534E-09	0.281E+03	0.199E+03
13	5000	0.824E-14	0.190E-09	0.997E+02	0.661E+02
14	1200	0.924E-13	0.188E-08	0.985E+03	0.742E+03
14	1300	0.805E-13	0.164E-08	0.863E+03	0.646E+03
14	1400	0.707E-13	0.145E-08	0.763E+03	0.568E+03

14	1500	0.626E-13	0.129E-08	0.679E+03	0.503E+03
14	1625	0.546E-13	0.113E-08	0.596E+03	0.438E+03
14	1700	0.505E-13	0.105E-08	0.553E+03	0.405E+03
14	1800	0.457E-13	0.959E-09	0.504E+03	0.367E+03
14	2000	0.380E-13	0.805E-09	0.423E+03	0.305E+03
14	2200	0.323E-13	0.691E-09	0.363E+03	0.259E+03
14	2500	0.259E-13	0.563E-09	0.296E+03	0.208E+03
14	5000	0.866E-14	0.201E-09	0.105E+03	0.695E+02
15	1200	0.747E-13	0.156E-08	0.820E+03	0.599E+03
15	1300	0.651E-13	0.137E-08	0.720E+03	0.523E+03
15	1400	0.573E-13	0.122E-08	0.638E+03	0.460E+03
15	1500	0.509E-13	0.109E-08	0.570E+03	0.408E+03
15	1625	0.444E-13	0.955E-09	0.502E+03	0.356E+03
15	1700	0.411E-13	0.889E-09	0.467E+03	0.330E+03
15	1800	0.373E-13	0.811E-09	0.426E+03	0.299E+03
15	2000	0.310E-13	0.684E-09	0.359E+03	0.249E+03
15	2200	0.264E-13	0.589E-09	0.309E+03	0.212E+03
15	2500	0.213E-13	0.482E-09	0.253E+03	0.171E+03
15	5000	0.720E-14	0.177E-09	0.929E+02	0.578E+02
16	1200	0.522E-13	0.110E-08	0.577E+03	0.419E+03
16	1300	0.455E-13	0.966E-09	0.508E+03	0.366E+03
16	1400	0.401E-13	0.857E-09	0.450E+03	0.322E+03
16	1500	0.356E-13	0.767E-09	0.403E+03	0.286E+03
16	1625	0.311E-13	0.675E-09	0.355E+03	0.250E+03
16	1700	0.288E-13	0.628E-09	0.330E+03	0.231E+03
16	1800	0.261E-13	0.574E-09	0.301E+03	0.210E+03
16	2000	0.218E-13	0.485E-09	0.255E+03	0.175E+03
16	2200	0.185E-13	0.418E-09	0.219E+03	0.149E+03
16	2500	0.149E-13	0.342E-09	0.180E+03	0.120E+03
16	5000	0.508E-14	0.127E-09	0.666E+02	0.408E+02

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.1526E-09	0.00	100.00
	SURFACE	0.2987E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2079E+00	99.73	100.00
	INGEST.	0.5639E-03	0.27	100.00
	VEGET.	0.5635E-03	* 0.27	* 99.93
	MEAT	0.7993E-07	* 0.00	* 0.01
	MILK	0.3291E-06	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.1007E-09	0.00	100.00
	SURFACE	0.1971E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2056E+00	99.47	100.00
	INGEST.	0.1101E-02	0.53	100.00
	VEGET.	0.1100E-02	* 0.53	* 99.93
	MEAT	0.1561E-06	* 0.00	* 0.01
	MILK	0.6426E-06	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.2374E-09	0.00	100.00
	SURFACE	0.4647E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2556E+01	99.47	100.00
	INGEST.	0.1369E-01	0.53	100.00
	VEGET.	0.1368E-01	* 0.53	* 99.93
	MEAT	0.1940E-05	* 0.00	* 0.01
	MILK	0.7988E-05	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

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0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.2045E-09        0.00               100.00
                   SURFACE      0.4004E-06        0.08               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.5048E-03       99.41               100.00
                   INGEST.      0.2593E-05        0.51               100.00
                    VEGET.      0.2591E-05       * 0.51              * 99.93
                    MEAT        0.3676E-09       * 0.00              * 0.01
                    MILK        0.1513E-08       * 0.00              * 0.06
1                   PERCENT OF BREAST   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.3327E-09        0.00               100.00
                   SURFACE      0.6514E-06        0.13               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.5048E-03       99.36               100.00
                   INGEST.      0.2593E-05        0.51               100.00
                    VEGET.      0.2591E-05       * 0.51              * 99.93
                    MEAT        0.3676E-09       * 0.00              * 0.01
                    MILK        0.1513E-08       * 0.00              * 0.06
1                   PERCENT OF *PUL*   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.1399E-09        0.00               100.00
                   SURFACE      0.2738E-06        0.00               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.8810E+00      100.00               100.00
                   INGEST.      0.2594E-05        0.00               100.00
                    VEGET.      0.2592E-05       * 0.00              * 99.93
                    MEAT        0.3677E-09       * 0.00              * 0.01
                    MILK        0.1514E-08       * 0.00              * 0.06
1                   PERCENT OF S WALL   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.1197E-09        0.00               100.00
                   SURFACE      0.2344E-06        0.05               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.5125E-03       98.64               100.00
                   INGEST.      0.6806E-05        1.31               100.00
                    VEGET.      0.6801E-05       * 1.31              * 99.93
                    MEAT        0.9647E-09       * 0.00              * 0.01
                    MILK        0.3972E-08       * 0.00              * 0.06
1                   PERCENT OF INT WALL DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.1144E-09        0.00               100.00
                   SURFACE      0.2241E-06        0.03               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.5558E-03       84.36               100.00
                   INGEST.      0.1028E-03       15.61               100.00
                    VEGET.      0.1028E-03       * 15.60             * 99.93
                    MEAT        0.1458E-07       * 0.00              * 0.01
                    MILK        0.6002E-07       * 0.01              * 0.06
1                   PERCENT OF LIVER   DOSE BY EACH PATHWAY
0        NUCLIDE    PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
         TH-230     SUBM AIR     0.1250E-09        0.00               100.00
                   SURFACE      0.2448E-06        0.01               100.00
                   SWIMMING     0.0000E+00        0.00               0.00
                   INHAL.       0.4340E-02       99.48               100.00
                   INGEST.      0.2246E-04        0.51               100.00
                    VEGET.      0.2245E-04       * 0.51              * 99.93
                    MEAT        0.3184E-08       * 0.00              * 0.01
                    MILK        0.1311E-07       * 0.00              * 0.06
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1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.9113E-10	0.00	100.00
	SURFACE	0.1784E-06	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5133E-03	99.45	100.00
	INGEST.	0.2656E-05	0.51	100.00
	VEGET.	0.2654E-05	* 0.51	* 99.93
	MEAT	0.3765E-09	* 0.00	* 0.01
	MILK	0.1550E-08	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1314E-09	0.00	100.00
	SURFACE	0.2572E-06	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5132E-03	99.44	100.00
	INGEST.	0.2656E-05	0.51	100.00
	VEGET.	0.2654E-05	* 0.51	* 99.93
	MEAT	0.3765E-09	* 0.00	* 0.01
	MILK	0.1550E-08	* 0.00	* 0.06

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1526E-09	0.0000
SURFACE	0.2987E-06	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL.	0.2079E+00	99.7294
INGEST.	0.5639E-03	0.2705
VEGET.	*0.5635E-03	* 0.2703
MEAT	*0.7993E-07	* 0.0000
MILK	*0.3291E-06	* 0.0002

CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1007E-09	0.0000
SURFACE	0.1971E-06	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL.	0.2056E+00	99.4671
INGEST.	0.1101E-02	0.5328
VEGET.	*0.1100E-02	* 0.5324
MEAT	*0.1561E-06	* 0.0001
MILK	*0.6426E-06	* 0.0003

CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2374E-09	0.0000
SURFACE	0.4647E-06	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.2556E+01	99.4673
INGEST.	0.1369E-01	0.5327
VEGET.	*0.1368E-01	* 0.5323
MEAT	*0.1940E-05	* 0.0001
MILK	*0.7988E-05	* 0.0003

CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2045E-09	0.0000
SURFACE	0.4004E-06	0.0789
SWIMMING	0.1000E-24	0.0000
INHAL.	0.5048E-03	99.4104
INGEST.	0.2593E-05	0.5107
VEGET.	*0.2591E-05	* 0.5104
MEAT	*0.3676E-09	* 0.0001
MILK	*0.1513E-08	* 0.0003

CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3327E-09	0.0001

Building 67

Thorium-232

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OPTION
 &OPTI OPTION=0,1,0,0.0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=11,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-232',ISOL=Y,AMAD=1.0,REL=1.6 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 67 WITH 10% RELEASE
DOSE CALCULATED AT 1700 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-232	0.160E+01

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-232	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0

0

		A	B	C	D	E	F	G
1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.66	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
0								
1	1	1700	TH-232	8.11E-08	4.67E-09	9.54E-10	5.62E-09	2.79E+03
1	1	1800	TH-232	7.36E-08	4.23E-09	9.00E-10	5.13E-09	2.78E+03
1	1	2000	TH-232	6.14E-08	3.54E-09	8.07E-10	4.34E-09	2.77E+03
1	1	2200	TH-232	5.23E-08	3.01E-09	7.32E-10	3.74E-09	2.77E+03
1	1	2500	TH-232	4.22E-08	2.43E-09	6.42E-10	3.07E-09	2.76E+03
1	1	5000	TH-232	1.44E-08	8.30E-10	3.12E-10	1.14E-09	2.70E+03
2	2	1700	TH-232	5.32E-08	3.06E-09	6.33E-10	3.69E-09	1.35E+03
2	2	1800	TH-232	4.82E-08	2.78E-09	5.96E-10	3.37E-09	1.35E+03
2	2	2000	TH-232	4.02E-08	2.32E-09	5.34E-10	2.85E-09	1.34E+03
2	2	2200	TH-232	3.43E-08	1.97E-09	4.85E-10	2.46E-09	1.34E+03
2	2	2500	TH-232	2.76E-08	1.59E-09	4.25E-10	2.01E-09	1.34E+03
2	2	5000	TH-232	9.37E-09	5.39E-10	2.05E-10	7.44E-10	1.30E+03
3	3	1700	TH-232	4.08E-08	2.35E-09	4.22E-10	2.77E-09	7.27E+02
3	3	1800	TH-232	3.70E-08	2.13E-09	3.97E-10	2.52E-09	7.25E+02
3	3	2000	TH-232	3.07E-08	1.77E-09	3.55E-10	2.12E-09	7.21E+02
3	3	2200	TH-232	2.61E-08	1.50E-09	3.22E-10	1.82E-09	7.19E+02
3	3	2500	TH-232	2.10E-08	1.21E-09	2.82E-10	1.49E-09	7.16E+02

3	5000	TH-232	6.95E-09	4.00E-10	1.35E-10	5.35E-10	6.86E+02
4	1700	TH-232	6.21E-08	3.58E-09	5.63E-10	4.14E-09	9.05E+02
4	1800	TH-232	5.62E-08	3.24E-09	5.30E-10	3.77E-09	9.02E+02
4	2000	TH-232	4.66E-08	2.68E-09	4.74E-10	3.16E-09	8.96E+02
4	2200	TH-232	3.96E-08	2.28E-09	4.29E-10	2.71E-09	8.93E+02
4	2500	TH-232	3.18E-08	1.83E-09	3.76E-10	2.21E-09	8.88E+02
4	5000	TH-232	1.05E-08	6.04E-10	1.78E-10	7.82E-10	8.45E+02
5	1700	TH-232	1.26E-07	7.27E-09	1.05E-09	8.32E-09	1.86E+03
5	1800	TH-232	1.14E-07	6.58E-09	9.89E-10	7.57E-09	1.85E+03
5	2000	TH-232	9.48E-08	5.45E-09	8.84E-10	6.34E-09	1.84E+03
5	2200	TH-232	8.05E-08	4.64E-09	8.01E-10	5.44E-09	1.83E+03
5	2500	TH-232	6.47E-08	3.72E-09	7.01E-10	4.42E-09	1.82E+03
5	5000	TH-232	2.13E-08	1.22E-09	3.33E-10	1.56E-09	1.74E+03
6	1700	TH-232	9.50E-08	5.47E-09	1.22E-09	6.69E-09	2.87E+03
6	1800	TH-232	8.61E-08	4.96E-09	1.15E-09	6.10E-09	2.87E+03
6	2000	TH-232	7.17E-08	4.13E-09	1.03E-09	5.15E-09	2.86E+03
6	2200	TH-232	6.10E-08	3.51E-09	9.32E-10	4.44E-09	2.85E+03
6	2500	TH-232	4.91E-08	2.82E-09	8.17E-10	3.64E-09	2.84E+03
6	5000	TH-232	1.64E-08	9.47E-10	3.96E-10	1.34E-09	2.77E+03
7	1700	TH-232	5.18E-08	2.98E-09	6.65E-10	3.65E-09	1.57E+03
7	1800	TH-232	4.70E-08	2.70E-09	6.27E-10	3.33E-09	1.57E+03
7	2000	TH-232	3.91E-08	2.25E-09	5.62E-10	2.81E-09	1.57E+03
7	2200	TH-232	3.32E-08	1.91E-09	5.10E-10	2.42E-09	1.56E+03
7	2500	TH-232	2.67E-08	1.54E-09	4.47E-10	1.99E-09	1.56E+03
7	5000	TH-232	8.87E-09	5.11E-10	2.17E-10	7.28E-10	1.52E+03
8	1700	TH-232	5.10E-08	2.94E-09	5.56E-10	3.49E-09	1.44E+03
8	1800	TH-232	4.62E-08	2.66E-09	5.24E-10	3.18E-09	1.44E+03
8	2000	TH-232	3.84E-08	2.21E-09	4.69E-10	2.68E-09	1.43E+03
8	2200	TH-232	3.27E-08	1.88E-09	4.25E-10	2.31E-09	1.43E+03
8	2500	TH-232	2.63E-08	1.51E-09	3.73E-10	1.88E-09	1.42E+03
8	5000	TH-232	8.73E-09	5.03E-10	1.80E-10	6.83E-10	1.39E+03
9	1700	TH-232	4.45E-08	2.56E-09	5.73E-10	3.14E-09	1.82E+03
9	1800	TH-232	4.04E-08	2.32E-09	5.40E-10	2.86E-09	1.81E+03
9	2000	TH-232	3.37E-08	1.94E-09	4.85E-10	2.42E-09	1.81E+03
9	2200	TH-232	2.87E-08	1.65E-09	4.40E-10	2.09E-09	1.81E+03
9	2500	TH-232	2.31E-08	1.33E-09	3.86E-10	1.71E-09	1.80E+03
9	5000	TH-232	7.81E-09	4.49E-10	1.88E-10	6.37E-10	1.77E+03
10	1700	TH-232	9.33E-08	5.37E-09	1.00E-09	6.37E-09	2.66E+03
10	1800	TH-232	8.45E-08	4.86E-09	9.43E-10	5.81E-09	2.65E+03
10	2000	TH-232	7.02E-08	4.04E-09	8.45E-10	4.89E-09	2.65E+03
10	2200	TH-232	5.97E-08	3.44E-09	7.66E-10	4.20E-09	2.64E+03
10	2500	TH-232	4.80E-08	2.76E-09	6.72E-10	3.43E-09	2.63E+03
10	5000	TH-232	1.60E-08	9.19E-10	3.24E-10	1.24E-09	2.56E+03
11	1700	TH-232	2.21E-07	1.27E-08	1.55E-09	1.43E-08	3.60E+03
11	1800	TH-232	2.00E-07	1.15E-08	1.46E-09	1.30E-08	3.59E+03
11	2000	TH-232	1.65E-07	9.52E-09	1.30E-09	1.08E-08	3.57E+03
11	2200	TH-232	1.41E-07	8.09E-09	1.18E-09	9.27E-09	3.56E+03
11	2500	TH-232	1.13E-07	6.49E-09	1.03E-09	7.53E-09	3.55E+03
11	5000	TH-232	3.69E-08	2.12E-09	4.88E-10	2.61E-09	3.40E+03
12	1700	TH-232	2.86E-07	1.65E-08	1.91E-09	1.84E-08	4.28E+03
12	1800	TH-232	2.58E-07	1.49E-08	1.80E-09	1.67E-08	4.27E+03
12	2000	TH-232	2.14E-07	1.23E-08	1.61E-09	1.39E-08	4.24E+03
12	2200	TH-232	1.82E-07	1.05E-08	1.45E-09	1.19E-08	4.23E+03
12	2500	TH-232	1.46E-07	8.40E-09	1.27E-09	9.68E-09	4.21E+03
12	5000	TH-232	4.80E-08	2.76E-09	5.99E-10	3.36E-09	4.02E+03
13	1700	TH-232	2.57E-07	1.48E-08	2.14E-09	1.69E-08	5.03E+03
13	1800	TH-232	2.33E-07	1.34E-08	2.01E-09	1.54E-08	5.02E+03
13	2000	TH-232	1.93E-07	1.11E-08	1.80E-09	1.29E-08	4.99E+03
13	2200	TH-232	1.64E-07	9.46E-09	1.63E-09	1.11E-08	4.98E+03
13	2500	TH-232	1.32E-07	7.60E-09	1.43E-09	9.03E-09	4.96E+03
13	5000	TH-232	4.39E-08	2.53E-09	6.80E-10	3.21E-09	4.78E+03
14	1700	TH-232	2.69E-07	1.55E-08	2.31E-09	1.78E-08	4.73E+03
14	1800	TH-232	2.44E-07	1.40E-08	2.18E-09	1.62E-08	4.71E+03
14	2000	TH-232	2.02E-07	1.17E-08	1.95E-09	1.36E-08	4.69E+03
14	2200	TH-232	1.72E-07	9.91E-09	1.77E-09	1.17E-08	4.68E+03

14	2500	TH-232	1.38E-07	7.97E-09	1.55E-09	9.51E-09	4.66E+03
14	5000	TH-232	4.62E-08	2.66E-09	7.36E-10	3.39E-09	4.47E+03
15	1700	TH-232	2.19E-07	1.26E-08	2.41E-09	1.50E-08	5.69E+03
15	1800	TH-232	1.99E-07	1.14E-08	2.27E-09	1.37E-08	5.68E+03
15	2000	TH-232	1.66E-07	9.53E-09	2.03E-09	1.16E-08	5.66E+03
15	2200	TH-232	1.41E-07	8.11E-09	1.84E-09	9.96E-09	5.65E+03
15	2500	TH-232	1.14E-07	6.53E-09	1.61E-09	8.15E-09	5.63E+03
15	5000	TH-232	3.84E-08	2.21E-09	7.79E-10	2.99E-09	5.46E+03
16	1700	TH-232	1.53E-07	8.83E-09	1.79E-09	1.06E-08	5.64E+03
16	1800	TH-232	1.39E-07	8.01E-09	1.69E-09	9.70E-09	5.63E+03
16	2000	TH-232	1.16E-07	6.68E-09	1.51E-09	8.19E-09	5.62E+03
16	2200	TH-232	9.89E-08	5.69E-09	1.37E-09	7.06E-09	5.61E+03
16	2500	TH-232	7.97E-08	4.58E-09	1.20E-09	5.79E-09	5.59E+03
16	5000	TH-232	2.71E-08	1.56E-09	5.84E-10	2.14E-09	5.47E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-232 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1
0
0
0

SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0
1	4	1	2	0.461E+04	0	4165.0
1	5	2	3	0.646E+04	0	346.0
1	6	6	8	0.185E+05	0	0.0
1	7	8	12	0.258E+05	0	0.0
1	8	10	15	0.332E+05	0	0.0
1	9	45	66	0.144E+06	0	5474.0
1	10	41	61	0.133E+06	0	4090.0

0
0

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.206E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.685E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1700	0.811E-13	0.177E-08	0.932E+03	0.651E+03
1	1800	0.736E-13	0.162E-08	0.851E+03	0.591E+03
1	2000	0.614E-13	0.137E-08	0.720E+03	0.493E+03
1	2200	0.523E-13	0.118E-08	0.621E+03	0.420E+03
1	2500	0.422E-13	0.969E-09	0.509E+03	0.339E+03
1	5000	0.144E-13	0.360E-09	0.189E+03	0.116E+03
2	1700	0.532E-13	0.117E-08	0.612E+03	0.427E+03
2	1800	0.482E-13	0.106E-08	0.559E+03	0.387E+03
2	2000	0.402E-13	0.900E-09	0.473E+03	0.323E+03
2	2200	0.343E-13	0.775E-09	0.407E+03	0.275E+03
2	2500	0.276E-13	0.635E-09	0.334E+03	0.222E+03
2	5000	0.937E-14	0.235E-09	0.123E+03	0.752E+02
3	1700	0.408E-13	0.874E-09	0.459E+03	0.328E+03
3	1800	0.370E-13	0.797E-09	0.418E+03	0.297E+03
3	2000	0.307E-13	0.670E-09	0.352E+03	0.247E+03
3	2200	0.261E-13	0.576E-09	0.302E+03	0.210E+03
3	2500	0.210E-13	0.470E-09	0.247E+03	0.168E+03
3	5000	0.695E-14	0.169E-09	0.887E+02	0.558E+02
4	1700	0.621E-13	0.131E-08	0.686E+03	0.499E+03
4	1800	0.562E-13	0.119E-08	0.624E+03	0.451E+03
4	2000	0.466E-13	0.996E-09	0.523E+03	0.374E+03
4	2200	0.396E-13	0.855E-09	0.449E+03	0.318E+03
4	2500	0.318E-13	0.697E-09	0.366E+03	0.256E+03
4	5000	0.105E-13	0.247E-09	0.130E+03	0.842E+02
5	1700	0.126E-12	0.263E-08	0.138E+04	0.101E+04
5	1800	0.114E-12	0.239E-08	0.125E+04	0.918E+03
5	2000	0.948E-13	0.200E-08	0.105E+04	0.761E+03
5	2200	0.805E-13	0.172E-08	0.901E+03	0.647E+03
5	2500	0.647E-13	0.140E-08	0.733E+03	0.519E+03
5	5000	0.213E-13	0.491E-09	0.258E+03	0.171E+03
6	1700	0.950E-13	0.211E-08	0.111E+04	0.763E+03
6	1800	0.861E-13	0.193E-08	0.101E+04	0.691E+03
6	2000	0.717E-13	0.163E-08	0.854E+03	0.576E+03
6	2200	0.610E-13	0.140E-08	0.737E+03	0.490E+03
6	2500	0.491E-13	0.115E-08	0.604E+03	0.394E+03
6	5000	0.164E-13	0.424E-09	0.223E+03	0.132E+03
7	1700	0.518E-13	0.115E-08	0.605E+03	0.416E+03
7	1800	0.470E-13	0.105E-08	0.552E+03	0.377E+03
7	2000	0.391E-13	0.887E-09	0.466E+03	0.314E+03
7	2200	0.332E-13	0.764E-09	0.402E+03	0.267E+03
7	2500	0.267E-13	0.626E-09	0.329E+03	0.215E+03

7	5000	0.887E-14	0.230E-09	0.121E+03	0.713E+02
8	1700	0.510E-13	0.110E-08	0.579E+03	0.410E+03
8	1800	0.462E-13	0.100E-08	0.528E+03	0.371E+03
8	2000	0.384E-13	0.845E-09	0.444E+03	0.308E+03
8	2200	0.327E-13	0.728E-09	0.382E+03	0.262E+03
8	2500	0.263E-13	0.595E-09	0.312E+03	0.211E+03
8	5000	0.873E-14	0.215E-09	0.113E+03	0.701E+02
9	1700	0.445E-13	0.989E-09	0.520E+03	0.357E+03
9	1800	0.404E-13	0.904E-09	0.475E+03	0.324E+03
9	2000	0.337E-13	0.764E-09	0.401E+03	0.270E+03
9	2200	0.287E-13	0.659E-09	0.346E+03	0.230E+03
9	2500	0.231E-13	0.541E-09	0.284E+03	0.185E+03
9	5000	0.781E-14	0.201E-09	0.106E+03	0.627E+02
10	1700	0.933E-13	0.201E-08	0.106E+04	0.749E+03
10	1800	0.845E-13	0.183E-08	0.962E+03	0.678E+03
10	2000	0.702E-13	0.154E-08	0.810E+03	0.564E+03
10	2200	0.597E-13	0.133E-08	0.697E+03	0.480E+03
10	2500	0.480E-13	0.108E-08	0.569E+03	0.385E+03
10	5000	0.160E-13	0.392E-09	0.206E+03	0.128E+03
11	1700	0.221E-12	0.450E-08	0.237E+04	0.177E+04
11	1800	0.200E-12	0.409E-08	0.215E+04	0.160E+04
11	2000	0.165E-12	0.342E-08	0.179E+04	0.133E+04
11	2200	0.141E-12	0.293E-08	0.154E+04	0.113E+04
11	2500	0.113E-12	0.237E-08	0.125E+04	0.906E+03
11	5000	0.369E-13	0.824E-09	0.433E+03	0.296E+03
12	1700	0.286E-12	0.579E-08	0.304E+04	0.230E+04
12	1800	0.258E-12	0.526E-08	0.276E+04	0.208E+04
12	2000	0.214E-12	0.440E-08	0.231E+04	0.172E+04
12	2200	0.182E-12	0.376E-08	0.198E+04	0.146E+04
12	2500	0.146E-12	0.305E-08	0.160E+04	0.117E+04
12	5000	0.480E-13	0.106E-08	0.557E+03	0.385E+03
13	1700	0.257E-12	0.535E-08	0.281E+04	0.207E+04
13	1800	0.233E-12	0.486E-08	0.256E+04	0.187E+04
13	2000	0.193E-12	0.408E-08	0.214E+04	0.155E+04
13	2200	0.164E-12	0.350E-08	0.184E+04	0.132E+04
13	2500	0.132E-12	0.285E-08	0.150E+04	0.108E+04
13	5000	0.439E-13	0.101E-08	0.532E+03	0.353E+03
14	1700	0.269E-12	0.562E-08	0.295E+04	0.216E+04
14	1800	0.244E-12	0.511E-08	0.269E+04	0.196E+04
14	2000	0.202E-12	0.429E-08	0.225E+04	0.163E+04
14	2200	0.172E-12	0.368E-08	0.194E+04	0.138E+04
14	2500	0.138E-12	0.300E-08	0.158E+04	0.111E+04
14	5000	0.462E-13	0.107E-08	0.563E+03	0.371E+03
15	1700	0.219E-12	0.474E-08	0.249E+04	0.176E+04
15	1800	0.199E-12	0.432E-08	0.227E+04	0.160E+04
15	2000	0.166E-12	0.365E-08	0.192E+04	0.133E+04
15	2200	0.141E-12	0.314E-08	0.165E+04	0.113E+04
15	2500	0.114E-12	0.257E-08	0.135E+04	0.912E+03
15	5000	0.384E-13	0.943E-09	0.495E+03	0.308E+03
16	1700	0.153E-12	0.335E-08	0.176E+04	0.123E+04
16	1800	0.139E-12	0.306E-08	0.161E+04	0.112E+04
16	2000	0.116E-12	0.258E-08	0.136E+04	0.932E+03
16	2200	0.989E-13	0.223E-08	0.117E+04	0.794E+03
16	2500	0.797E-13	0.183E-08	0.959E+03	0.640E+03
16	5000	0.271E-13	0.676E-09	0.355E+03	0.217E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.2045E-09	0.00	100.00
	SURFACE	0.4740E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2639E+01	99.69	100.00
	INGEST.	0.8310E-02	0.31	100.00
	VEGET.	0.8304E-02	* 0.31	* 99.93

	MEAT	0.1178E-06	* 0.00	* 0.01
	MILK	0.4850E-05	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1113E-09	0.00	100.00
	SURFACE	0.2580E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3397E+01	99.51	100.00
	INGEST.	0.1668E-01	0.49	100.00
	VEGET.	0.1667E-01	* 0.49	* 99.93
	MEAT	0.2364E-05	* 0.00	* 0.01
	MILK	0.9736E-05	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.2977E-09	0.00	100.00
	SURFACE	0.6900E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4246E+02	99.51	100.00
	INGEST.	0.2085E+00	0.49	100.00
	VEGET.	0.2084E+00	* 0.49	* 99.93
	MEAT	0.2956E-04	* 0.00	* 0.01
	MILK	0.1217E-03	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.2537E-09	0.00	100.00
	SURFACE	0.5880E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5095E-02	99.72	100.00
	INGEST.	0.1364E-04	0.27	100.00
	VEGET.	0.1363E-04	* 0.27	* 99.93
	MEAT	0.1933E-06	* 0.00	* 0.01
	MILK	0.7959E-06	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.5721E-09	0.00	100.00
	SURFACE	0.1326E-05	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5210E-02	99.70	100.00
	INGEST.	0.1419E-04	0.27	100.00
	VEGET.	0.1418E-04	* 0.27	* 99.93
	MEAT	0.2011E-06	* 0.00	* 0.01
	MILK	0.8279E-06	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1709E-09	0.00	100.00
	SURFACE	0.3960E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7987E+01	100.00	100.00
	INGEST.	0.1409E-04	0.00	100.00
	VEGET.	0.1408E-04	* 0.00	* 99.93
	MEAT	0.1998E-06	* 0.00	* 0.01
	MILK	0.8226E-06	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1424E-09	0.00	100.00
	SURFACE	0.3300E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3004E-02	99.41	100.00
	INGEST.	0.1743E-04	0.58	100.00

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                VEGET.      0.1742E-04      * 0.58          * 99.93
                MEAT        0.2471E-08      * 0.00          * 0.01
                MILK        0.1017E-07      * 0.00          * 0.06
1               PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY     DOSE(REMS)      PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232      SUBM AIR    0.1346E-09      0.00            100.00
                    SURFACE     0.3120E-06      0.01            100.00
                    SWIMMING    0.0000E+00      0.00            0.00
                    INHAL.      0.3220E-02      92.53           100.00
                    INGEST.     0.2598E-03      7.46            100.00
                    VEGET.      0.2596E-03      * 7.46          * 99.93
                    MEAT        0.3682E-07      * 0.00          * 0.01
                    MILK        0.1516E-06      * 0.00          * 0.06
1               PERCENT OF LIVER  DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY     DOSE(REMS)      PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232      SUBM AIR    0.1502E-09      0.00            100.00
                    SURFACE     0.3480E-06      0.00            100.00
                    SWIMMING    0.0000E+00      0.00            0.00
                    INHAL.      0.1848E-01      99.69           100.00
                    INGEST.     0.5784E-04      0.31            100.00
                    VEGET.      0.5780E-04      * 0.31          * 99.93
                    MEAT        0.8198E-08      * 0.00          * 0.01
                    MILK        0.3376E-07      * 0.00          * 0.06
1               PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY     DOSE(REMS)      PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232      SUBM AIR    0.1061E-09      0.00            100.00
                    SURFACE     0.2460E-06      0.01            100.00
                    SWIMMING    0.0000E+00      0.00            0.00
                    INHAL.      0.3018E-02      99.76           100.00
                    INGEST.     0.6971E-05      0.23            100.00
                    VEGET.      0.6966E-05      * 0.23          * 99.93
                    MEAT        0.9681E-09      * 0.00          * 0.01
                    MILK        0.4068E-08      * 0.00          * 0.06
1               PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY     DOSE(REMS)      PERCENT OF TOTAL    PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-232      SUBM AIR    0.1605E-09      0.00            100.00
                    SURFACE     0.3720E-06      0.01            100.00
                    SWIMMING    0.0000E+00      0.00            0.00
                    INHAL.      0.3016E-02      99.76           100.00
                    INGEST.     0.6886E-05      0.23            100.00
                    VEGET.      0.6881E-05      * 0.23          * 99.93
                    MEAT        0.9760E-09      * 0.00          * 0.01
                    MILK        0.4019E-08      * 0.00          * 0.06
0                   CONTRIBUTION OF EXPOSURE MODES TO W BODY  DOSES
0       EXPOSURE MODE           ANNUAL DOSE(REMS)           PERCENT OF TOTAL DOSE
0       SUBM AIR                0.2045E-09                  0.0000
0       SURFACE                 0.4740E-06                  0.0000
0       SWIMMING                0.1000E-24                  0.0000
0       INHAL.                  0.2639E+01                  99.6861
0       INGEST.                 0.8310E-02                  0.3139
0       VEGET.                  *0.8304E-02                 * 0.3136
0       MEAT                    *0.1178E-05                 * 0.0000
0       MILK                    *0.4850E-05                 * 0.0002
0                   CONTRIBUTION OF EXPOSURE MODES TO R MAR  DOSES
0       EXPOSURE MODE           ANNUAL DOSE(REMS)           PERCENT OF TOTAL DOSE
0       SUBM AIR                0.1113E-09                  0.0000
0       SURFACE                 0.2580E-06                  0.0000
0       SWIMMING                0.1000E-24                  0.0000
0       INHAL.                  0.3397E+01                  99.5113
0       INGEST.                 0.1668E-01                  0.4887
0       VEGET.                  *0.1667E-01                 * 0.4883
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0	MEAT	*0.2364E-05	* 0.0001
0	MILK	*0.9736E-05	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2977E-09	0.0000
0	SURFACE	0.6900E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4246E+02	99.5113
0	INGEST.	0.2085E+00	0.4887
0	VEGET.	*0.2084E+00	* 0.4883
0	MEAT	*0.2956E-04	* 0.0001
0	MILK	*0.1217E-03	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2537E-09	0.0000
0	SURFACE	0.5880E-06	0.0115
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5095E-02	99.7216
0	INGEST.	0.1364E-04	0.2669
0	VEGET.	*0.1363E-04	* 0.2667
0	MEAT	*0.1933E-08	* 0.0000
0	MILK	*0.7959E-08	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5721E-09	0.0000
0	SURFACE	0.1326E-05	0.0254
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5210E-02	99.7032
0	INGEST.	0.1419E-04	0.2715
0	VEGET.	*0.1418E-04	* 0.2713
0	MEAT	*0.2011E-08	* 0.0000
0	MILK	*0.8279E-08	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1709E-09	0.0000
0	SURFACE	0.3960E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7987E+01	99.9998
0	INGEST.	0.1409E-04	0.0002
0	VEGET.	*0.1408E-04	* 0.0002
0	MEAT	*0.1998E-08	* 0.0000
0	MILK	*0.8226E-08	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1424E-09	0.0000
0	SURFACE	0.3300E-06	0.0109
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3004E-02	99.4123
0	INGEST.	0.1743E-04	0.5768
0	VEGET.	*0.1742E-04	* 0.5763
0	MEAT	*0.2471E-08	* 0.0001
0	MILK	*0.1017E-07	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1346E-09	0.0000
0	SURFACE	0.3120E-06	0.0090
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3220E-02	92.5273
0	INGEST.	0.2598E-03	7.4637
0	VEGET.	*0.2596E-03	* 7.4583
0	MEAT	*0.3682E-07	* 0.0011
0	MILK	*0.1516E-06	* 0.0044
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1502E-09	0.0000

0	SURFACE	0.3480E-08	0.0019
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1848E-01	99.6862
0	INGEST.	0.5784E-04	0.3119
0	VEGET.	*0.5780E-04	* 0.3117
0	MEAT	*0.8198E-08	* 0.0000
0	MILK	*0.3376E-07	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1061E-09	0.0000
0	SURFACE	0.2460E-06	0.0081
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3018E-02	99.7615
0	INGEST.	0.6971E-05	0.2304
0	VEGET.	*0.6966E-05	* 0.2302
0	MEAT	*0.9881E-09	* 0.0000
0	MILK	*0.4068E-08	* 0.0001

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1605E-09	0.0000
0	SURFACE	0.3720E-06	0.0123
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3016E-02	99.7599
0	INGEST.	0.6886E-05	0.2278
0	VEGET.	*0.6881E-05	* 0.2276
0	MEAT	*0.9760E-09	* 0.0000
0	MILK	*0.4019E-08	* 0.0001

1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

0	ORGAN	DOSE(REMS)
0	W BODY	0.2648E+01
0	R MAR	0.3414E+01
0	ENDOST	0.4267E+02
0	THYROID	0.5110E-02
0	BREAST	0.5226E-02
0	*PUL*	0.7987E+01
0	S WALL	0.3022E-02
0	INT WALL	0.3480E-02
0	LIVER	0.1854E-01
0	PANCREAS	0.3025E-02
0	KIDNEYS	0.3023E-02

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-232	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-232	W BODY	0.2648E+01	12	11
0	TH-232	R MAR	0.3414E+01	12	11
0	TH-232	ENDOST	0.4267E+02	12	11
0	TH-232	THYROID	0.5110E-02	12	11
0	TH-232	BREAST	0.5226E-02	12	11
0	TH-232	*PUL*	0.7987E+01	12	11
0	TH-232	S WALL	0.3022E-02	12	11
0	TH-232	INT WALL	0.3480E-02	12	11
0	TH-232	LIVER	0.1854E-01	12	11
0	TH-232	PANCREAS	0.3025E-02	12	11
0	TH-232	KIDNEYS	0.3023E-02	12	11

Building 67

Radium-228

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OPTION
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  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
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WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
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SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 67 WITH 10% RELEASE
DOSE CALCULATED AT 1700 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0 OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.160E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

0

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

0

	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.06	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1700	RA-228	8.11E-08	4.67E-09	9.54E-10	5.62E-09	2.79E+03
1	1800	RA-228	7.36E-08	4.23E-09	9.00E-10	5.13E-09	2.78E+03
1	2000	RA-228	6.14E-08	3.54E-09	8.07E-10	4.34E-09	2.77E+03
1	2200	RA-228	5.23E-08	3.01E-09	7.32E-10	3.74E-09	2.77E+03
1	2500	RA-228	4.22E-08	2.43E-09	6.42E-10	3.07E-09	2.76E+03
1	5000	RA-228	1.44E-08	8.30E-10	3.12E-10	1.14E-09	2.70E+03
2	1700	RA-228	5.32E-08	3.06E-09	6.33E-10	3.69E-09	1.35E+03
2	1800	RA-228	4.82E-08	2.78E-09	5.96E-10	3.37E-09	1.35E+03
2	2000	RA-228	4.02E-08	2.32E-09	5.34E-10	2.85E-09	1.34E+03
2	2200	RA-228	3.43E-08	1.97E-09	4.85E-10	2.46E-09	1.34E+03
2	2500	RA-228	2.76E-08	1.59E-09	4.25E-10	2.01E-09	1.34E+03
2	5000	RA-228	9.37E-09	5.39E-10	2.05E-10	7.44E-10	1.30E+03
3	1700	RA-228	4.08E-08	2.35E-09	4.22E-10	2.77E-09	7.27E+02
3	1800	RA-228	3.70E-08	2.13E-09	3.97E-10	2.52E-09	7.25E+02
3	2000	RA-228	3.07E-08	1.77E-09	3.55E-10	2.12E-09	7.21E+02
3	2200	RA-228	2.61E-08	1.50E-09	3.22E-10	1.82E-09	7.19E+02
3	2500	RA-228	2.10E-08	1.21E-09	2.82E-10	1.49E-09	7.16E+02

3	5000	RA-228	6.96E-09	4.00E-10	1.35E-10	5.36E-10	6.86E+02
4	1700	RA-228	6.21E-08	3.58E-09	5.63E-10	4.14E-09	9.05E+02
4	1800	RA-228	5.62E-08	3.24E-09	5.30E-10	3.77E-09	9.02E+02
4	2000	RA-228	4.66E-08	2.68E-09	4.74E-10	3.16E-09	8.96E+02
4	2200	RA-228	3.96E-08	2.28E-09	4.29E-10	2.71E-09	8.93E+02
4	2500	RA-228	3.18E-08	1.83E-09	3.76E-10	2.21E-09	8.88E+02
4	5000	RA-228	1.05E-08	6.04E-10	1.78E-10	7.82E-10	8.45E+02
5	1700	RA-228	1.26E-07	7.27E-09	1.06E-09	8.32E-09	1.86E+03
5	1800	RA-228	1.14E-07	6.58E-09	9.89E-10	7.57E-09	1.85E+03
5	2000	RA-228	9.48E-08	5.45E-09	8.84E-10	6.34E-09	1.84E+03
5	2200	RA-228	8.05E-08	4.64E-09	8.01E-10	5.44E-09	1.83E+03
5	2500	RA-228	6.47E-08	3.72E-09	7.01E-10	4.42E-09	1.82E+03
5	5000	RA-228	2.13E-08	1.22E-09	3.33E-10	1.56E-09	1.74E+03
6	1700	RA-228	9.50E-08	5.47E-09	1.22E-09	6.69E-09	2.87E+03
6	1800	RA-228	8.61E-08	4.96E-09	1.15E-09	6.10E-09	2.87E+03
6	2000	RA-228	7.17E-08	4.13E-09	1.03E-09	5.15E-09	2.86E+03
6	2200	RA-228	6.10E-08	3.51E-09	9.32E-10	4.44E-09	2.85E+03
6	2500	RA-228	4.91E-08	2.82E-09	8.17E-10	3.64E-09	2.84E+03
6	5000	RA-228	1.64E-08	9.47E-10	3.96E-10	1.34E-09	2.77E+03
7	1700	RA-228	5.18E-08	2.98E-09	6.65E-10	3.65E-09	1.57E+03
7	1800	RA-228	4.70E-08	2.70E-09	6.27E-10	3.33E-09	1.57E+03
7	2000	RA-228	3.91E-08	2.25E-09	5.62E-10	2.81E-09	1.57E+03
7	2200	RA-228	3.32E-08	1.91E-09	5.10E-10	2.42E-09	1.56E+03
7	2500	RA-228	2.67E-08	1.54E-09	4.47E-10	1.99E-09	1.56E+03
7	5000	RA-228	8.87E-09	5.11E-10	2.17E-10	7.28E-10	1.52E+03
8	1700	RA-228	5.10E-08	2.94E-09	5.56E-10	3.49E-09	1.44E+03
8	1800	RA-228	4.62E-08	2.66E-09	5.24E-10	3.18E-09	1.44E+03
8	2000	RA-228	3.84E-08	2.21E-09	4.69E-10	2.68E-09	1.43E+03
8	2200	RA-228	3.27E-08	1.88E-09	4.25E-10	2.31E-09	1.43E+03
8	2500	RA-228	2.63E-08	1.51E-09	3.73E-10	1.88E-09	1.42E+03
8	5000	RA-228	8.73E-09	5.03E-10	1.80E-10	6.83E-10	1.39E+03
9	1700	RA-228	4.45E-08	2.56E-09	5.73E-10	3.14E-09	1.82E+03
9	1800	RA-228	4.04E-08	2.32E-09	5.40E-10	2.86E-09	1.81E+03
9	2000	RA-228	3.37E-08	1.94E-09	4.85E-10	2.42E-09	1.81E+03
9	2200	RA-228	2.87E-08	1.65E-09	4.40E-10	2.09E-09	1.81E+03
9	2500	RA-228	2.31E-08	1.33E-09	3.86E-10	1.71E-09	1.80E+03
9	5000	RA-228	7.81E-09	4.49E-10	1.88E-10	6.37E-10	1.77E+03
10	1700	RA-228	9.33E-08	5.37E-09	1.00E-09	6.37E-09	2.66E+03
10	1800	RA-228	8.45E-08	4.86E-09	9.43E-10	5.81E-09	2.65E+03
10	2000	RA-228	7.02E-08	4.04E-09	8.45E-10	4.89E-09	2.65E+03
10	2200	RA-228	5.97E-08	3.44E-09	7.66E-10	4.20E-09	2.64E+03
10	2500	RA-228	4.80E-08	2.76E-09	6.72E-10	3.43E-09	2.63E+03
10	5000	RA-228	1.60E-08	9.19E-10	3.24E-10	1.24E-09	2.56E+03
11	1700	RA-228	2.21E-07	1.27E-08	1.55E-09	1.43E-08	3.60E+03
11	1800	RA-228	2.00E-07	1.15E-08	1.46E-09	1.30E-08	3.59E+03
11	2000	RA-228	1.65E-07	9.52E-09	1.30E-09	1.08E-08	3.57E+03
11	2200	RA-228	1.41E-07	8.09E-09	1.18E-09	9.27E-09	3.56E+03
11	2500	RA-228	1.13E-07	6.49E-09	1.03E-09	7.53E-09	3.55E+03
11	5000	RA-228	3.69E-08	2.12E-09	4.88E-10	2.61E-09	3.40E+03
12	1700	RA-228	2.86E-07	1.65E-08	1.91E-09	1.84E-08	4.28E+03
12	1800	RA-228	2.58E-07	1.49E-08	1.80E-09	1.67E-08	4.27E+03
12	2000	RA-228	2.14E-07	1.23E-08	1.61E-09	1.39E-08	4.24E+03
12	2200	RA-228	1.82E-07	1.05E-08	1.45E-09	1.19E-08	4.23E+03
12	2500	RA-228	1.46E-07	8.40E-09	1.27E-09	9.68E-09	4.21E+03
12	5000	RA-228	4.80E-08	2.76E-09	5.99E-10	3.36E-09	4.02E+03
13	1700	RA-228	2.57E-07	1.48E-08	2.14E-09	1.69E-08	5.03E+03
13	1800	RA-228	2.33E-07	1.34E-08	2.01E-09	1.54E-08	5.02E+03
13	2000	RA-228	1.93E-07	1.11E-08	1.80E-09	1.29E-08	4.99E+03
13	2200	RA-228	1.64E-07	9.46E-09	1.63E-09	1.11E-08	4.98E+03
13	2500	RA-228	1.32E-07	7.60E-09	1.43E-09	9.03E-09	4.96E+03
13	5000	RA-228	4.39E-08	2.53E-09	6.80E-10	3.21E-09	4.78E+03
14	1700	RA-228	2.69E-07	1.55E-08	2.31E-09	1.78E-08	4.73E+03
14	1800	RA-228	2.44E-07	1.40E-08	2.18E-09	1.62E-08	4.71E+03
14	2000	RA-228	2.02E-07	1.17E-08	1.95E-09	1.36E-08	4.69E+03
14	2200	RA-228	1.72E-07	9.91E-09	1.77E-09	1.17E-08	4.68E+03

14	2500	RA-228	1.38E-07	7.97E-09	1.55E-09	9.51E-09	4.86E+03
14	5000	RA-228	4.62E-08	2.66E-09	7.36E-10	3.39E-09	4.47E+03
15	1700	RA-228	2.19E-07	1.26E-08	2.41E-09	1.50E-08	5.69E+03
15	1800	RA-228	1.99E-07	1.14E-08	2.27E-09	1.37E-08	5.68E+03
15	2000	RA-223	1.66E-07	9.53E-09	2.03E-09	1.16E-08	5.66E+03
15	2200	RA-228	1.41E-07	8.11E-09	1.84E-09	9.96E-09	5.65E+03
15	2500	RA-228	1.14E-07	6.53E-09	1.61E-09	8.15E-09	5.63E+03
15	5000	RA-228	3.84E-08	2.21E-09	7.79E-10	2.99E-09	5.46E+03
16	1700	RA-228	1.53E-07	8.83E-09	1.79E-09	1.06E-08	5.64E+03
16	1800	RA-228	1.39E-07	8.01E-09	1.69E-09	9.70E-09	5.63E+03
16	2000	RA-228	1.16E-07	6.68E-09	1.51E-09	8.19E-09	5.62E+03
16	2200	RA-228	9.89E-08	5.69E-09	1.37E-09	7.06E-09	5.61E+03
16	2500	RA-228	7.97E-08	4.58E-09	1.20E-09	5.79E-09	5.59E+03
16	5000	RA-228	2.71E-08	1.56E-09	5.84E-10	2.14E-09	5.47E+03

1 GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

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0

SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	AREA (SQUARE METERS)	FOOD CROPS	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0	
1	2	0	1	0.144E+04	0	0.0	
1	3	0	1	0.133E+04	0	0.0	
1	4	1	2	0.461E+04	0	4165.0	
1	5	2	3	0.646E+04	0	346.0	
1	6	6	8	0.185E+05	0	0.0	
1	7	8	12	0.258E+05	0	0.0	
1	8	10	15	0.332E+05	0	0.0	
1	9	45	66	0.144E+06	0	5474.0	
1	10	41	61	0.133E+06	0	4090.0	

0

0 ORGAN INHALATION INGESTION SUBMERSION IN AIR SURFACE EXPOSURE SUBMERSION IN WATER
(REMS/MICROCURIE) (REMS/MICROCURIE) (REMS-CUBIC CM/ MICROCURIE-HR) (REMS-SQUARE CM/ MICROCURIE-HR) (REMS-CUBIC CM/ MICROCURIE-HR)

0

W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-08	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

0

DIRECTION	DISTANCE (METERS)	AREA AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
1	1700	0.811E-13	0.167E-08	0.104E+04	0.651E+03
1	1800	0.736E-13	0.153E-08	0.950E+03	0.591E+03
1	2000	0.614E-13	0.129E-08	0.804E+03	0.493E+03
1	2200	0.523E-13	0.111E-08	0.693E+03	0.420E+03
1	2500	0.422E-13	0.913E-09	0.568E+03	0.339E+03
1	5000	0.144E-13	0.339E-09	0.211E+03	0.116E+03
2	1700	0.532E-13	0.110E-08	0.684E+03	0.427E+03
2	1800	0.482E-13	0.100E-08	0.624E+03	0.387E+03
2	2000	0.402E-13	0.847E-09	0.528E+03	0.323E+03
2	2200	0.343E-13	0.731E-09	0.455E+03	0.275E+03
2	2500	0.276E-13	0.599E-09	0.373E+03	0.222E+03
2	5000	0.937E-14	0.221E-09	0.138E+03	0.752E+02
3	1700	0.408E-13	0.824E-09	0.513E+03	0.328E+03
3	1800	0.370E-13	0.750E-09	0.467E+03	0.297E+03
3	2000	0.307E-13	0.631E-09	0.393E+03	0.247E+03
3	2200	0.261E-13	0.542E-09	0.338E+03	0.210E+03
3	2500	0.210E-13	0.443E-09	0.276E+03	0.168E+03
3	5000	0.695E-14	0.159E-09	0.990E+02	0.558E+02
4	1700	0.621E-13	0.123E-08	0.766E+03	0.499E+03
4	1800	0.562E-13	0.112E-08	0.697E+03	0.451E+03
4	2000	0.466E-13	0.939E-09	0.584E+03	0.374E+03
4	2200	0.396E-13	0.806E-09	0.502E+03	0.318E+03
4	2500	0.318E-13	0.656E-09	0.409E+03	0.256E+03
4	5000	0.105E-13	0.233E-09	0.145E+03	0.842E+02
5	1700	0.126E-12	0.247E-08	0.154E+04	0.101E+04
5	1800	0.114E-12	0.225E-08	0.140E+04	0.918E+03
5	2000	0.948E-13	0.188E-08	0.117E+04	0.761E+03
5	2200	0.805E-13	0.162E-08	0.101E+04	0.647E+03
5	2500	0.647E-13	0.131E-08	0.818E+03	0.519E+03
5	5000	0.213E-13	0.463E-09	0.288E+03	0.171E+03
6	1700	0.950E-13	0.199E-08	0.124E+04	0.763E+03
6	1800	0.861E-13	0.181E-08	0.113E+04	0.691E+03
6	2000	0.717E-13	0.153E-08	0.954E+03	0.576E+03
6	2200	0.610E-13	0.132E-08	0.822E+03	0.490E+03
6	2500	0.491E-13	0.108E-08	0.674E+03	0.394E+03
6	5000	0.164E-13	0.399E-09	0.248E+03	0.132E+03
7	1700	0.518E-13	0.108E-08	0.675E+03	0.416E+03
7	1800	0.470E-13	0.990E-09	0.616E+03	0.377E+03
7	2000	0.391E-13	0.835E-09	0.520E+03	0.314E+03
7	2200	0.332E-13	0.720E-09	0.448E+03	0.267E+03
7	2500	0.267E-13	0.590E-09	0.367E+03	0.215E+03

7	5000	0.887E-14	0.216E-09	0.135E+03	0.713E+02
8	1700	0.510E-13	0.104E-08	0.646E+03	0.410E+03
8	1800	0.462E-13	0.946E-09	0.589E+03	0.371E+03
8	2000	0.384E-13	0.797E-09	0.496E+03	0.308E+03
8	2200	0.327E-13	0.685E-09	0.427E+03	0.262E+03
8	2500	0.263E-13	0.560E-09	0.349E+03	0.211E+03
8	5000	0.873E-14	0.203E-09	0.126E+03	0.701E+02
9	1700	0.445E-13	0.932E-09	0.580E+03	0.357E+03
9	1800	0.404E-13	0.851E-09	0.530E+03	0.324E+03
9	2000	0.337E-13	0.720E-09	0.448E+03	0.270E+03
9	2200	0.287E-13	0.621E-09	0.387E+03	0.230E+03
9	2500	0.231E-13	0.510E-09	0.317E+03	0.185E+03
9	5000	0.781E-14	0.189E-09	0.118E+03	0.627E+02
10	1700	0.933E-13	0.189E-08	0.118E+04	0.749E+03
10	1800	0.845E-13	0.173E-08	0.107E+04	0.678E+03
10	2000	0.702E-13	0.145E-08	0.904E+03	0.564E+03
10	2200	0.597E-13	0.125E-08	0.778E+03	0.480E+03
10	2500	0.480E-13	0.102E-08	0.636E+03	0.385E+03
10	5000	0.160E-13	0.370E-09	0.230E+03	0.128E+03
11	1700	0.221E-12	0.424E-08	0.264E+04	0.177E+04
11	1800	0.200E-12	0.385E-08	0.240E+04	0.160E+04
11	2000	0.165E-12	0.322E-08	0.200E+04	0.133E+04
11	2200	0.141E-12	0.276E-08	0.172E+04	0.113E+04
11	2500	0.113E-12	0.224E-08	0.139E+04	0.906E+03
11	5000	0.369E-13	0.777E-09	0.484E+03	0.296E+03
12	1700	0.286E-12	0.546E-08	0.340E+04	0.230E+04
12	1800	0.258E-12	0.496E-08	0.309E+04	0.208E+04
12	2000	0.214E-12	0.414E-08	0.258E+04	0.172E+04
12	2200	0.182E-12	0.355E-08	0.221E+04	0.146E+04
12	2500	0.146E-12	0.288E-08	0.179E+04	0.117E+04
12	5000	0.480E-13	0.999E-09	0.622E+03	0.385E+03
13	1700	0.257E-12	0.504E-08	0.314E+04	0.207E+04
13	1800	0.233E-12	0.458E-08	0.285E+04	0.187E+04
13	2000	0.193E-12	0.384E-08	0.239E+04	0.155E+04
13	2200	0.164E-12	0.330E-08	0.205E+04	0.132E+04
13	2500	0.132E-12	0.268E-08	0.167E+04	0.108E+04
13	5000	0.439E-13	0.954E-09	0.594E+03	0.353E+03
14	1700	0.269E-12	0.529E-08	0.330E+04	0.216E+04
14	1800	0.244E-12	0.482E-08	0.300E+04	0.196E+04
14	2000	0.202E-12	0.404E-08	0.252E+04	0.163E+04
14	2200	0.172E-12	0.347E-08	0.216E+04	0.138E+04
14	2500	0.138E-12	0.283E-08	0.176E+04	0.111E+04
14	5000	0.462E-13	0.101E-08	0.628E+03	0.371E+03
15	1700	0.219E-12	0.447E-08	0.278E+04	0.176E+04
15	1800	0.199E-12	0.407E-08	0.254E+04	0.160E+04
15	2000	0.166E-12	0.344E-08	0.214E+04	0.133E+04
15	2200	0.141E-12	0.296E-08	0.184E+04	0.113E+04
15	2500	0.114E-12	0.242E-08	0.151E+04	0.912E+03
15	5000	0.384E-13	0.888E-09	0.553E+03	0.308E+03
16	1700	0.153E-12	0.316E-08	0.197E+04	0.123E+04
16	1800	0.139E-12	0.288E-08	0.179E+04	0.112E+04
16	2000	0.116E-12	0.244E-08	0.152E+04	0.932E+03
16	2200	0.989E-13	0.210E-08	0.131E+04	0.794E+03
16	2500	0.797E-13	0.172E-08	0.107E+04	0.640E+03
16	5000	0.271E-13	0.637E-09	0.396E+03	0.217E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.7109E-16	0.00	100.00
	SURFACE	0.1413E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.1095E-01	69.11	100.00
	INGEST.	0.4894E-02	30.89	100.00
	VEGET.	0.4410E-02	* 27.84	* 90.11

	MEAT	0.1887E-03	* 1.19	* 3.86
	MILK	0.2951E-03	* 1.86	* 6.03

1
0 PERCENT OF R MAR DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6266E-02	43.24	100.00
	INGEST.	0.8225E-02	56.76	100.00
	VEGET.	0.7412E-02	* 51.15	* 90.11
	MEAT	0.3171E-03	* 2.19	* 3.86
	MILK	0.4959E-03	* 3.42	* 6.03

1
0 PERCENT OF ENDOST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.8886E-17	0.00	100.00
	SURFACE	0.1766E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5531E-01	43.07	100.00
	INGEST.	0.7310E-01	56.93	100.00
	VEGET.	0.6588E-01	* 51.30	* 90.11
	MEAT	0.2818E-02	* 2.19	* 3.86
	MILK	0.4408E-02	* 3.43	* 6.03

1
0 PERCENT OF THYROID DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1554E-02	44.04	100.00
	INGEST.	0.1975E-02	55.96	100.00
	VEGET.	0.1779E-02	* 50.43	* 90.11
	MEAT	0.7613E-04	* 2.16	* 3.86
	MILK	0.1191E-03	* 3.37	* 6.03

1
0 PERCENT OF BREAST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.5154E-15	0.00	100.00
	SURFACE	0.1024E-11	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1563E-02	44.18	100.00
	INGEST.	0.1975E-02	55.82	100.00
	VEGET.	0.1779E-02	* 50.30	* 90.11
	MEAT	0.7613E-04	* 2.15	* 3.86
	MILK	0.1191E-03	* 3.37	* 6.03

1
0 PERCENT OF *PUL* DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.8886E-17	0.00	100.00
	SURFACE	0.1766E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6128E-01	96.88	100.00
	INGEST.	0.1975E-02	3.12	100.00
	VEGET.	0.1779E-02	* 2.81	* 90.11
	MEAT	0.7613E-04	* 0.12	* 3.86
	MILK	0.1191E-03	* 0.19	* 6.03

1
0 PERCENT OF S WALL DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1554E-02	43.87	100.00
	INGEST.	0.1988E-02	56.13	100.00

	VEGET.	0.1792E-02	* 50.58	* 90.11
	MEAT	0.7665E-04	* 2.16	* 3.86
	MILK	0.1199E-03	* 3.38	* 6.03

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1121E-02	47.18	100.00
	INGEST.	0.1255E-02	52.82	100.00
	VEGET.	0.1131E-02	* 47.60	* 90.11
	MEAT	0.4839E-04	* 2.04	* 3.86
	MILK	0.7568E-04	* 3.18	* 6.03

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1971E-02	59.51	100.00
	INGEST.	0.1341E-02	40.49	100.00
	VEGET.	0.1209E-02	* 36.49	* 90.11
	MEAT	0.5170E-04	* 1.56	* 3.86
	MILK	0.8087E-04	* 2.44	* 6.03

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1036E-02	47.85	100.00
	INGEST.	0.1129E-02	52.15	100.00
	VEGET.	0.1018E-02	* 47.00	* 90.11
	MEAT	0.4354E-04	* 2.01	* 3.86
	MILK	0.6810E-04	* 3.14	* 6.03

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1057E-02	47.92	100.00
	INGEST.	0.1148E-02	52.08	100.00
	VEGET.	0.1035E-02	* 46.93	* 90.11
	MEAT	0.4427E-04	* 2.01	* 3.86
	MILK	0.6925E-04	* 3.14	* 6.03

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7109E-16	0.0000
SURFACE	0.1413E-12	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1095E-01	69.1079
INGEST.	0.4894E-02	30.8921
VEGET.	*0.4410E-02	* 27.8383
MEAT	*0.1887E-03	* 1.1910
MILK	*0.2951E-03	* 1.8628

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1000E-24	0.0000
SURFACE	0.1000E-24	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.6266E-02	43.2416
INGEST.	0.8225E-02	56.7584
VEGET.	*0.7412E-02	* 51.1477

0	MEAT	*0.3171E-03	* 2.1882
0	MILK	*0.4959E-03	* 3.4226
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8886E-17	0.0000
0	SURFACE	0.1766E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5531E-01	43.0738
0	INGEST.	0.7310E-01	56.9262
0	VEGET.	*0.6588E-01	* 51.2989
0	MEAT	*0.2618E-02	* 2.1947
0	MILK	*0.4408E-02	* 3.4327
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1554E-02	44.0381
0	INGEST.	0.1975E-02	55.9619
0	VEGET.	*0.1779E-02	* 50.4299
0	MEAT	*0.7613E-04	* 2.1575
0	MILK	*0.1191E-03	* 3.3745
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5154E-15	0.0000
0	SURFACE	0.1024E-11	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1563E-02	44.1833
0	INGEST.	0.1975E-02	55.8167
0	VEGET.	*0.1779E-02	* 50.2990
0	MEAT	*0.7613E-04	* 2.1519
0	MILK	*0.1191E-03	* 3.3658
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8886E-17	0.0000
0	SURFACE	0.1766E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6128E-01	96.8785
0	INGEST.	0.1975E-02	3.1215
0	VEGET.	*0.1779E-02	* 2.8130
0	MEAT	*0.7613E-04	* 0.1203
0	MILK	*0.1191E-03	* 0.1882
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1554E-02	43.8691
0	INGEST.	0.1988E-02	56.1309
0	VEGET.	*0.1792E-02	* 50.5822
0	MEAT	*0.7665E-04	* 2.1640
0	MILK	*0.1199E-03	* 3.3847
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1121E-02	47.1828
0	INGEST.	0.1255E-02	52.8172
0	VEGET.	*0.1131E-02	* 47.5960
0	MEAT	*0.4839E-04	* 2.0363
0	MILK	*0.7568E-04	* 3.1849
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000

```
0      SURFACE                    0.1000E-24                    0.0000
0      SWIMMING                   0.1000E-24                    0.0000
0      INHAL                      0.1971E-02                   59.5081
0      INGEST.                    0.1341E-02                   40.4919
0       VEGET.                   *0.1209E-02                 * 36.4891
0       MEAT                     *0.5170E-04                 *  1.5611
0       MILK                     *0.8087E-04                 *  2.4417
0                    CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1000E-24                    0.0000
0      SURFACE                    0.1000E-24                    0.0000
0      SWIMMING                   0.1000E-24                    0.0000
0      INHAL                      0.1036E-02                   47.8458
0      INGEST.                    0.1129E-02                   52.1542
0       VEGET.                   *0.1018E-02                 * 46.9986
0       MEAT                     *0.4354E-04                 *  2.0107
0       MILK                     *0.6810E-04                 *  3.1449
0                    CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)          PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1000E-24                    0.0000
0      SURFACE                    0.1000E-24                    0.0000
0      SWIMMING                   0.1000E-24                    0.0000
0      INHAL                      0.1057E-02                   47.9214
0      INGEST.                    0.1148E-02                   52.0786
0       VEGET.                   *0.1035E-02                 * 46.9304
0       MEAT                     *0.4427E-04                 *  2.0078
0       MILK                     *0.6925E-04                 *  3.1404
1                    TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                ORGAN                    DOSE(REMS)
0                W BODY                   0.1584E-01
0                R MAR                    0.1449E-01
0                ENDOST                   0.1284E+00
0                THYROID                  0.3528E-02
0                BREAST                   0.3538E-02
0                *PUL*                    0.6326E-01
0                S WALL                   0.3542E-02
0                INT WALL                 0.2376E-02
0                LIVER                    0.3312E-02
0                PANCREAS                 0.2165E-02
0                KIDNEYS                  0.2205E-02
1                         CONTRIBUTORS TO ORGAN DOSES
0                                        PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 RA-228   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                         ANNUAL DOSES(REMS)
0          NUCLIDE      ORGAN        DOSE                    MAXIMUM LOCATION
0                                                         COLUMN   ROW
0          RA-228       W BODY       0.1584E-01                12      11
0          RA-228       R MAR        0.1449E-01                12      11
0          RA-228       ENDOST       0.1284E+00                12      11
0          RA-228       THYROID      0.3528E-02                12      11
0          RA-228       BREAST       0.3538E-02                12      11
0          RA-228       *PUL*        0.6326E-01                12      11
0          RA-228       S WALL       0.3542E-02                12      11
0          RA-228       INT WALL     0.2376E-02                12      11
0          RA-228       LIVER        0.3312E-02                12      11
0          RA-228       PANCREAS     0.2165E-02                12      11
0          RA-228       KIDNEYS      0.2205E-02                12      11
```

Building 67

Thorium-228

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=11,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-228',ISOL=Y,AMAD=1.0,REL=1.6 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 67 WITH 10% RELEASE
DOSE CALCULATED AT 1700 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-228	0.160E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-228	0.000	0.00058	0.341E-05	0.000E+00

0

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.85	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)

WIND TOWARD	DISTANCE (METERS)					
0						
1	1700	TH-228	8.11E-08	4.67E-09	9.54E-10	5.62E-09	2.79E+03
1	1800	TH-228	7.36E-08	4.23E-09	9.00E-10	5.13E-09	2.78E+03
1	2000	TH-228	6.14E-08	3.54E-09	8.07E-10	4.34E-09	2.77E+03
1	2200	TH-228	5.23E-08	3.01E-09	7.32E-10	3.74E-09	2.77E+03
1	2500	TH-228	4.22E-08	2.43E-09	6.42E-10	3.07E-09	2.76E+03
1	5000	TH-228	1.44E-08	8.30E-10	3.12E-10	1.14E-09	2.70E+03
2	1700	TH-228	5.32E-08	3.06E-09	6.33E-10	3.69E-09	1.35E+03
2	1800	TH-228	4.82E-08	2.78E-09	5.96E-10	3.37E-09	1.35E+03
2	2000	TH-228	4.02E-08	2.32E-09	5.34E-10	2.85E-09	1.34E+03
2	2200	TH-228	3.43E-08	1.97E-09	4.85E-10	2.46E-09	1.34E+03
2	2500	TH-228	2.76E-08	1.59E-09	4.25E-10	2.01E-09	1.34E+03
2	5000	TH-228	9.37E-09	5.39E-10	2.05E-10	7.44E-10	1.30E+03
3	1700	TH-228	4.08E-08	2.35E-09	4.22E-10	2.77E-09	7.27E+02
3	1800	TH-228	3.70E-08	2.13E-09	3.97E-10	2.52E-09	7.25E+02
3	2000	TH-228	3.07E-08	1.77E-09	3.55E-10	2.12E-09	7.21E+02
3	2200	TH-228	2.61E-08	1.50E-09	3.22E-10	1.82E-09	7.19E+02
3	2500	TH-228	2.10E-08	1.21E-09	2.82E-10	1.49E-09	7.16E+02

3	5000	TH-228	6.95E-09	4.00E-10	1.35E-10	5.35E-10	6.86E+02
4	1700	TH-228	6.21E-08	3.58E-09	5.63E-10	4.14E-09	9.05E+02
4	1800	TH-228	5.62E-08	3.24E-09	5.30E-10	3.77E-09	9.02E+02
4	2000	TH-228	4.66E-08	2.68E-09	4.74E-10	3.16E-09	8.96E+02
4	2200	TH-228	3.96E-08	2.28E-09	4.29E-10	2.71E-09	8.93E+02
4	2500	TH-228	3.18E-08	1.83E-09	3.76E-10	2.21E-09	8.88E+02
4	5000	TH-228	1.05E-08	6.04E-10	1.78E-10	7.82E-10	8.45E+02
5	1700	TH-228	1.26E-07	7.27E-09	1.06E-09	8.32E-09	1.86E+03
5	1800	TH-228	1.14E-07	6.58E-09	9.89E-10	7.57E-09	1.85E+03
5	2000	TH-228	9.48E-08	5.45E-09	8.84E-10	6.34E-09	1.84E+03
5	2200	TH-228	8.05E-08	4.64E-09	8.01E-10	5.44E-09	1.83E+03
5	2500	TH-228	6.47E-08	3.72E-09	7.01E-10	4.42E-09	1.82E+03
5	5000	TH-228	2.13E-08	1.22E-09	3.33E-10	1.56E-09	1.74E+03
6	1700	TH-228	9.50E-08	5.47E-09	1.22E-09	6.69E-09	2.87E+03
6	1800	TH-228	8.61E-08	4.96E-09	1.15E-09	6.10E-09	2.87E+03
6	2000	TH-228	7.17E-08	4.13E-09	1.03E-09	5.15E-09	2.86E+03
6	2200	TH-228	6.10E-08	3.51E-09	9.32E-10	4.44E-09	2.85E+03
6	2500	TH-228	4.91E-08	2.82E-09	8.17E-10	3.64E-09	2.84E+03
6	5000	TH-228	1.64E-08	9.47E-10	3.96E-10	1.34E-09	2.77E+03
7	1700	TH-228	5.18E-08	2.98E-09	6.65E-10	3.65E-09	1.57E+03
7	1800	TH-228	4.70E-08	2.70E-09	6.27E-10	3.33E-09	1.57E+03
7	2000	TH-228	3.91E-08	2.25E-09	5.62E-10	2.81E-09	1.57E+03
7	2200	TH-228	3.32E-08	1.91E-09	5.10E-10	2.42E-09	1.56E+03
7	2500	TH-228	2.67E-08	1.54E-09	4.47E-10	1.99E-09	1.56E+03
7	5000	TH-228	8.87E-09	5.11E-10	2.17E-10	7.28E-10	1.52E+03
8	1700	TH-228	5.10E-08	2.94E-09	5.56E-10	3.49E-09	1.44E+03
8	1800	TH-228	4.62E-08	2.66E-09	5.24E-10	3.18E-09	1.44E+03
8	2000	TH-228	3.84E-08	2.21E-09	4.69E-10	2.68E-09	1.43E+03
8	2200	TH-228	3.27E-08	1.88E-09	4.25E-10	2.31E-09	1.43E+03
8	2500	TH-228	2.63E-08	1.51E-09	3.73E-10	1.88E-09	1.42E+03
8	5000	TH-228	8.73E-09	5.03E-10	1.80E-10	6.83E-10	1.39E+03
9	1700	TH-228	4.45E-08	2.56E-09	5.73E-10	3.14E-09	1.82E+03
9	1800	TH-228	4.04E-08	2.32E-09	5.40E-10	2.86E-09	1.81E+03
9	2000	TH-228	3.37E-08	1.94E-09	4.85E-10	2.42E-09	1.81E+03
9	2200	TH-228	2.87E-08	1.65E-09	4.40E-10	2.09E-09	1.81E+03
9	2500	TH-228	2.31E-08	1.33E-09	3.86E-10	1.71E-09	1.80E+03
9	5000	TH-228	7.81E-09	4.49E-10	1.88E-10	6.37E-10	1.77E+03
10	1700	TH-228	9.33E-08	5.37E-09	1.00E-09	6.37E-09	2.66E+03
10	1800	TH-228	8.45E-08	4.86E-09	9.43E-10	5.81E-09	2.65E+03
10	2000	TH-228	7.02E-08	4.04E-09	8.45E-10	4.89E-09	2.65E+03
10	2200	TH-228	5.97E-08	3.44E-09	7.66E-10	4.20E-09	2.64E+03
10	2500	TH-228	4.80E-08	2.76E-09	6.72E-10	3.43E-09	2.63E+03
10	5000	TH-228	1.60E-08	9.19E-10	3.24E-10	1.24E-09	2.56E+03
11	1700	TH-228	2.21E-07	1.27E-08	1.55E-09	1.43E-08	3.60E+03
11	1800	TH-228	2.00E-07	1.15E-08	1.46E-09	1.30E-08	3.59E+03
11	2000	TH-228	1.65E-07	9.52E-09	1.30E-09	1.08E-08	3.57E+03
11	2200	TH-228	1.41E-07	8.09E-09	1.18E-09	9.27E-09	3.56E+03
11	2500	TH-228	1.13E-07	6.49E-09	1.03E-09	7.53E-09	3.55E+03
11	5000	TH-228	3.69E-08	2.12E-09	4.88E-10	2.61E-09	3.40E+03
12	1700	TH-228	2.86E-07	1.65E-08	1.91E-09	1.84E-08	4.28E+03
12	1800	TH-228	2.58E-07	1.49E-08	1.80E-09	1.67E-08	4.27E+03
12	2000	TH-228	2.14E-07	1.23E-08	1.61E-09	1.39E-08	4.24E+03
12	2200	TH-228	1.82E-07	1.05E-08	1.45E-09	1.19E-08	4.23E+03
12	2500	TH-228	1.46E-07	8.40E-09	1.27E-09	9.68E-09	4.21E+03
12	5000	TH-228	4.80E-08	2.76E-09	5.99E-10	3.36E-09	4.02E+03
13	1700	TH-228	2.57E-07	1.48E-08	2.14E-09	1.69E-08	5.03E+03
13	1800	TH-228	2.33E-07	1.34E-08	2.01E-09	1.54E-08	5.02E+03
13	2000	TH-228	1.93E-07	1.11E-08	1.80E-09	1.29E-08	4.99E+03
13	2200	TH-228	1.64E-07	9.46E-09	1.63E-09	1.11E-08	4.98E+03
13	2500	TH-228	1.32E-07	7.60E-09	1.43E-09	9.03E-09	4.96E+03
13	5000	TH-228	4.39E-08	2.53E-09	6.80E-10	3.21E-09	4.78E+03
14	1700	TH-228	2.69E-07	1.55E-08	2.31E-09	1.78E-08	4.73E+03
14	1800	TH-228	2.44E-07	1.40E-08	2.18E-09	1.62E-08	4.71E+03
14	2000	TH-228	2.02E-07	1.17E-08	1.95E-09	1.36E-08	4.69E+03
14	2200	TH-228	1.72E-07	9.91E-09	1.77E-09	1.17E-08	4.68E+03

14	2500	TH-228	1.38E-07	7.97E-09	1.55E-09	9.51E-09	4.66E+03
14	5000	TH-228	4.62E-08	2.66E-09	7.36E-10	3.39E-09	4.47E+03
15	1700	TH-228	2.19E-07	1.26E-08	2.41E-09	1.50E-08	5.69E+03
15	1800	TH-228	1.99E-07	1.14E-08	2.27E-09	1.37E-08	5.68E+03
15	2000	TH-228	1.66E-07	9.53E-09	2.03E-09	1.16E-08	5.66E+03
15	2200	TH-228	1.41E-07	8.11E-09	1.84E-09	9.96E-09	5.65E+03
15	2500	TH-228	1.14E-07	6.53E-09	1.61E-09	8.15E-09	5.63E+03
15	5000	TH-228	3.84E-08	2.21E-09	7.79E-10	2.99E-09	5.46E+03
16	1700	TH-228	1.53E-07	8.83E-09	1.79E-09	1.06E-08	5.64E+03
16	1800	TH-228	1.39E-07	8.01E-09	1.69E-09	9.70E-09	5.63E+03
16	2000	TH-228	1.16E-07	6.68E-09	1.51E-09	8.19E-09	5.62E+03
16	2200	TH-228	9.89E-08	5.69E-09	1.37E-09	7.06E-09	5.61E+03
16	2500	TH-228	7.97E-08	4.58E-09	1.20E-09	5.79E-09	5.59E+03
16	5000	TH-228	2.71E-08	1.56E-09	5.84E-10	2.14E-09	5.47E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

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0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.358E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1

0

0

0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	AREA (SQUARE METERS)	FOOD CROPS	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0	
1	2	0	1	0.144E+04	0	0.0	
1	3	0	1	0.133E+04	0	0.0	
1	4	1	2	0.461E+04	0	4165.0	
1	5	2	3	0.646E+04	0	346.0	
1	6	6	8	0.185E+05	0	0.0	
1	7	8	12	0.258E+05	0	0.0	
1	8	10	15	0.332E+05	0	0.0	
1	9	45	66	0.144E+06	0	5474.0	
1	10	41	61	0.133E+06	0	4090.0	

0

0

0 ORGAN INHALATION INGESTION SUBMERSION IN AIR SURFACE EXPOSURE SUBMERSION IN WATER

(REMS/MICROCURIE) (REMS/MICROCURIE) (REMS-CUBIC CM/ MICROCURIE-HR) (REMS-SQUARE CM/ MICROCURIE-HR) (REMS-CUBIC CM/ MICROCURIE-HR)

0

W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.936E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.196E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1700	0.811E-13	0.149E-08	0.907E+03	0.651E+03
1	1800	0.736E-13	0.136E-08	0.828E+03	0.591E+03
1	2000	0.614E-13	0.115E-08	0.700E+03	0.493E+03
1	2200	0.523E-13	0.991E-09	0.604E+03	0.420E+03
1	2500	0.422E-13	0.813E-09	0.495E+03	0.339E+03
1	5000	0.144E-13	0.302E-09	0.184E+03	0.116E+03
2	1700	0.532E-13	0.978E-09	0.596E+03	0.427E+03
2	1800	0.482E-13	0.893E-09	0.544E+03	0.387E+03
2	2000	0.402E-13	0.755E-09	0.460E+03	0.323E+03
2	2200	0.343E-13	0.651E-09	0.396E+03	0.275E+03
2	2500	0.276E-13	0.533E-09	0.325E+03	0.222E+03
2	5000	0.937E-14	0.197E-09	0.120E+03	0.752E+02
3	1700	0.408E-13	0.733E-09	0.447E+03	0.328E+03
3	1800	0.370E-13	0.668E-09	0.407E+03	0.297E+03
3	2000	0.307E-13	0.562E-09	0.342E+03	0.247E+03
3	2200	0.261E-13	0.483E-09	0.294E+03	0.210E+03
3	2500	0.210E-13	0.394E-09	0.240E+03	0.168E+03
3	5000	0.695E-14	0.142E-09	0.863E+02	0.558E+02
4	1700	0.621E-13	0.110E-08	0.668E+03	0.499E+03
4	1800	0.562E-13	0.997E-09	0.607E+03	0.451E+03
4	2000	0.466E-13	0.836E-09	0.509E+03	0.374E+03
4	2200	0.396E-13	0.718E-09	0.437E+03	0.318E+03
4	2500	0.318E-13	0.584E-09	0.356E+03	0.256E+03
4	5000	0.105E-13	0.207E-09	0.126E+03	0.842E+02
5	1700	0.126E-12	0.220E-08	0.134E+04	0.101E+04
5	1800	0.114E-12	0.200E-08	0.122E+04	0.918E+03
5	2000	0.948E-13	0.168E-08	0.102E+04	0.761E+03
5	2200	0.805E-13	0.144E-08	0.877E+03	0.647E+03
5	2500	0.647E-13	0.117E-08	0.713E+03	0.519E+03
5	5000	0.213E-13	0.412E-09	0.251E+03	0.171E+03
6	1700	0.950E-13	0.177E-08	0.108E+04	0.763E+03
6	1800	0.861E-13	0.162E-08	0.984E+03	0.691E+03
6	2000	0.717E-13	0.136E-08	0.831E+03	0.576E+03
6	2200	0.610E-13	0.118E-08	0.717E+03	0.490E+03
6	2500	0.491E-13	0.964E-09	0.588E+03	0.394E+03
6	5000	0.164E-13	0.355E-09	0.217E+03	0.132E+03
7	1700	0.518E-13	0.966E-09	0.589E+03	0.416E+03
7	1800	0.470E-13	0.881E-09	0.537E+03	0.377E+03
7	2000	0.391E-13	0.744E-09	0.453E+03	0.314E+03
7	2200	0.332E-13	0.641E-09	0.391E+03	0.267E+03
7	2500	0.267E-13	0.525E-09	0.320E+03	0.215E+03

7	5000	0.887E-14	0.193E-09	0.117E+03	0.713E+02
8	1700	0.510E-13	0.924E-09	0.563E+03	0.410E+03
8	1800	0.462E-13	0.842E-09	0.513E+03	0.371E+03
8	2000	0.384E-13	0.709E-09	0.432E+03	0.308E+03
8	2200	0.327E-13	0.610E-09	0.372E+03	0.262E+03
8	2500	0.263E-13	0.499E-09	0.304E+03	0.211E+03
8	5000	0.873E-14	0.181E-09	0.110E+03	0.701E+02
9	1700	0.445E-13	0.830E-09	0.506E+03	0.357E+03
9	1800	0.404E-13	0.758E-09	0.462E+03	0.324E+03
9	2000	0.337E-13	0.641E-09	0.391E+03	0.270E+03
9	2200	0.287E-13	0.553E-09	0.337E+03	0.230E+03
9	2500	0.231E-13	0.454E-09	0.277E+03	0.185E+03
9	5000	0.781E-14	0.169E-09	0.103E+03	0.627E+02
10	1700	0.933E-13	0.169E-08	0.103E+04	0.749E+03
10	1800	0.845E-13	0.154E-08	0.937E+03	0.678E+03
10	2000	0.702E-13	0.129E-08	0.788E+03	0.564E+03
10	2200	0.597E-13	0.111E-08	0.678E+03	0.480E+03
10	2500	0.480E-13	0.909E-09	0.554E+03	0.385E+03
10	5000	0.160E-13	0.329E-09	0.201E+03	0.128E+03
11	1700	0.221E-12	0.378E-08	0.230E+04	0.177E+04
11	1800	0.200E-12	0.343E-08	0.209E+04	0.160E+04
11	2000	0.165E-12	0.287E-08	0.175E+04	0.133E+04
11	2200	0.141E-12	0.245E-08	0.150E+04	0.113E+04
11	2500	0.113E-12	0.199E-08	0.121E+04	0.906E+03
11	5000	0.369E-13	0.692E-09	0.421E+03	0.296E+03
12	1700	0.286E-12	0.486E-08	0.296E+04	0.230E+04
12	1800	0.258E-12	0.441E-08	0.269E+04	0.208E+04
12	2000	0.214E-12	0.369E-08	0.225E+04	0.172E+04
12	2200	0.182E-12	0.316E-08	0.192E+04	0.146E+04
12	2500	0.146E-12	0.256E-08	0.156E+04	0.117E+04
12	5000	0.480E-13	0.889E-09	0.542E+03	0.385E+03
13	1700	0.257E-12	0.449E-08	0.273E+04	0.207E+04
13	1800	0.233E-12	0.408E-08	0.249E+04	0.187E+04
13	2000	0.193E-12	0.342E-08	0.209E+04	0.155E+04
13	2200	0.164E-12	0.294E-08	0.179E+04	0.132E+04
13	2500	0.132E-12	0.239E-08	0.146E+04	0.106E+04
13	5000	0.439E-13	0.849E-09	0.517E+03	0.353E+03
14	1700	0.269E-12	0.471E-08	0.287E+04	0.216E+04
14	1800	0.244E-12	0.429E-08	0.261E+04	0.196E+04
14	2000	0.202E-12	0.360E-08	0.219E+04	0.163E+04
14	2200	0.172E-12	0.309E-08	0.188E+04	0.138E+04
14	2500	0.138E-12	0.252E-08	0.153E+04	0.111E+04
14	5000	0.462E-13	0.898E-09	0.547E+03	0.371E+03
15	1700	0.219E-12	0.398E-08	0.242E+04	0.176E+04
15	1800	0.199E-12	0.363E-08	0.221E+04	0.160E+04
15	2000	0.166E-12	0.306E-08	0.186E+04	0.133E+04
15	2200	0.141E-12	0.264E-08	0.161E+04	0.113E+04
15	2500	0.114E-12	0.216E-08	0.131E+04	0.912E+03
15	5000	0.384E-13	0.791E-09	0.482E+03	0.308E+03
16	1700	0.153E-12	0.281E-08	0.171E+04	0.123E+04
16	1800	0.139E-12	0.257E-08	0.156E+04	0.112E+04
16	2000	0.116E-12	0.217E-08	0.132E+04	0.932E+03
16	2200	0.989E-13	0.187E-08	0.114E+04	0.794E+03
16	2500	0.797E-13	0.153E-08	0.934E+03	0.640E+03
16	5000	0.271E-13	0.567E-09	0.346E+03	0.217E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2322E-08	0.00	100.00
	SURFACE	0.2172E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7850E+00	99.85	100.00
	INGEST.	0.1173E-02	0.15	100.00
	VEGET.	0.1172E-02	* 0.15	* 99.93

	MEAT	0.1541E-06	* 0.00	* 0.01
	MILK	0.6460E-06	* 0.00	* 0.06

1
0 PERCENT OF R MAR DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1856E-06	0.00	100.00
	SURFACE	0.1736E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1588E+00	98.68	100.00
	INGEST.	0.2115E-02	1.31	100.00
	VEGET.	0.2114E-02	* 1.31	* 99.93
	MEAT	0.2778E-06	* 0.00	* 0.01
	MILK	0.1165E-05	* 0.00	* 0.06

1
0 PERCENT OF ENDOST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.3602E-06	0.00	100.00
	SURFACE	0.3368E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1944E+01	98.68	100.00
	INGEST.	0.2598E-01	1.32	100.00
	VEGET.	0.2596E-01	* 1.32	* 99.93
	MEAT	0.3413E-05	* 0.00	* 0.01
	MILK	0.1431E-04	* 0.00	* 0.06

1
0 PERCENT OF THYROID DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.3150E-06	0.00	100.00
	SURFACE	0.2946E-05	0.15	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1953E-02	98.58	100.00
	INGEST.	0.2521E-04	1.27	100.00
	VEGET.	0.2519E-04	* 1.27	* 99.93
	MEAT	0.3312E-06	* 0.00	* 0.01
	MILK	0.1388E-07	* 0.00	* 0.06

1
0 PERCENT OF BREAST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.3915E-06	0.00	100.00
	SURFACE	0.3661E-05	0.18	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1969E-02	98.54	100.00
	INGEST.	0.2554E-04	1.28	100.00
	VEGET.	0.2552E-04	* 1.28	* 99.93
	MEAT	0.3354E-06	* 0.00	* 0.01
	MILK	0.1406E-07	* 0.00	* 0.06

1
0 PERCENT OF *PUL* DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.2225E-06	0.00	100.00
	SURFACE	0.2081E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5876E+01	100.00	100.00
	INGEST.	0.2533E-04	0.00	100.00
	VEGET.	0.2531E-04	* 0.00	* 99.93
	MEAT	0.3327E-06	* 0.00	* 0.01
	MILK	0.1395E-07	* 0.00	* 0.06

1
0 PERCENT OF S WALL DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-228	SUBM AIR	0.1961E-06	0.00	100.00
	SURFACE	0.1834E-05	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1919E-02	98.48	100.00
	INGEST.	0.2773E-04	1.42	100.00

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                VEGET.      0.2771E-04      * 1.42          * 99.93
                MEAT        0.3642E-08      * 0.00          * 0.01
                MILK        0.1527E-07      * 0.00          * 0.06
1               PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY     DOSE(REMS)    PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228    SUBM AIR    0.1912E-08      0.00            100.00
                  SURFACE     0.1788E-05      0.03            100.00
                  SWIMMING    0.0000E+00      0.00            0.00
                  INHAL.      0.5988E-02      89.27           100.00
                  INGEST.     0.7178E-03      10.70           100.00
                  VEGET.      0.7173E-03      * 10.69         * 99.93
                  MEAT        0.9429E-07      * 0.00          * 0.01
                  MILK        0.3952E-06      * 0.01          * 0.06
1               PERCENT OF LIVER   DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY     DOSE(REMS)    PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228    SUBM AIR    0.2030E-08      0.00            100.00
                  SURFACE     0.1899E-05      0.02            100.00
                  SWIMMING    0.0000E+00      0.00            0.00
                  INHAL.      0.8442E-02      98.79           100.00
                  INGEST.     0.1016E-03      1.19            100.00
                  VEGET.      0.1015E-03      * 1.19          * 99.93
                  MEAT        0.1334E-07      * 0.00          * 0.01
                  MILK        0.5593E-07      * 0.00          * 0.06
1               PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY     DOSE(REMS)    PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228    SUBM AIR    0.1585E-08      0.00            100.00
                  SURFACE     0.1483E-05      0.08            100.00
                  SWIMMING    0.0000E+00      0.00            0.00
                  INHAL.      0.1909E-02      98.72           100.00
                  INGEST.     0.2323E-04      1.20            100.00
                  VEGET.      0.2321E-04      * 1.20          * 99.93
                  MEAT        0.3051E-08      * 0.00          * 0.01
                  MILK        0.1279E-07      * 0.00          * 0.06
1               PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0       NUCLIDE   PATHWAY     DOSE(REMS)    PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228    SUBM AIR    0.2079E-08      0.00            100.00
                  SURFACE     0.1944E-05      0.06            100.00
                  SWIMMING    0.0000E+00      0.00            0.00
                  INHAL.      0.3170E-02      99.06           100.00
                  INGEST.     0.2828E-04      0.88            100.00
                  VEGET.      0.2826E-04      * 0.88          * 99.93
                  MEAT        0.3715E-08      * 0.00          * 0.01
                  MILK        0.1557E-07      * 0.00          * 0.06
0                   CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.2322E-08                     0.0000
0      SURFACE                     0.2172E-05                     0.0003
0      SWIMMING                    0.1000E-24                     0.0000
0      INHAL.                      0.7850E+00                     99.8505
0      INGEST.                     0.1173E-02                     0.1492
0       VEGET.                     *0.1172E-02                    * 0.1491
0       MEAT                       *0.1541E-06                    * 0.0000
0       MILK                       *0.6460E-06                    * 0.0001
0                   CONTRIBUTION OF EXPOSURE MODES TO R MAR   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.1856E-08                     0.0000
0      SURFACE                     0.1736E-05                     0.0011
0      SWIMMING                    0.1000E-24                     0.0000
0      INHAL.                      0.1588E+00                     98.6847
0      INGEST.                     0.2115E-02                     1.3142
0       VEGET.                     *0.2114E-02                    * 1.3133
```

0	MEAT	*0.2778E-06	* 0.0002
0	MILK	*0.1185E-05	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3602E-08	0.0000
0	SURFACE	0.3368E-05	0.0002
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1944E+01	98.6811
0	INGEST.	0.2598E-01	1.3188
0	VEGET.	*0.2596E-01	* 1.3179
0	MEAT	*0.3413E-05	* 0.0002
0	MILK	*0.1431E-04	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3150E-08	0.0002
0	SURFACE	0.2946E-05	0.1487
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1953E-02	98.5788
0	INGEST.	0.2521E-04	1.2723
0	VEGET.	*0.2519E-04	* 1.2715
0	MEAT	*0.3312E-08	* 0.0002
0	MILK	*0.1388E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3915E-08	0.0002
0	SURFACE	0.3661E-05	0.1832
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1969E-02	98.5389
0	INGEST.	0.2554E-04	1.2777
0	VEGET.	*0.2552E-04	* 1.2769
0	MEAT	*0.3354E-08	* 0.0002
0	MILK	*0.1406E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2225E-08	0.0000
0	SURFACE	0.2081E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5876E+01	99.9995
0	INGEST.	0.2533E-04	0.0004
0	VEGET.	*0.2531E-04	* 0.0004
0	MEAT	*0.3327E-08	* 0.0000
0	MILK	*0.1395E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1961E-08	0.0001
0	SURFACE	0.1834E-05	0.0941
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1919E-02	98.4827
0	INGEST.	0.2773E-04	1.4231
0	VEGET.	*0.2771E-04	* 1.4222
0	MEAT	*0.3642E-08	* 0.0002
0	MILK	*0.1527E-07	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1912E-08	0.0000
0	SURFACE	0.1788E-05	0.0267
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5988E-02	89.2726
0	INGEST.	0.7178E-03	10.7008
0	VEGET.	*0.7173E-03	* 10.6935
0	MEAT	*0.9429E-07	* 0.0014
0	MILK	*0.3952E-06	* 0.0059
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2030E-08	0.0000

0	SURFACE	0.1899E-05	0.0222
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.8442E-02	98.7890
0	INGEST.	0.1016E-03	1.1887
0	VEGET.	*0.1015E-03	* 1.1879
0	MEAT	*0.1334E-07	* 0.0002
0	MILK	*0.5593E-07	* 0.0007

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1585E-08	0.0001
0	SURFACE	0.1483E-05	0.0767
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1909E-02	98.7223
0	INGEST.	0.2323E-04	1.2010
0	VEGET.	*0.2321E-04	* 1.2002
0	MEAT	*0.3051E-08	* 0.0002
0	MILK	*0.1279E-07	* 0.0007

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2079E-08	0.0001
0	SURFACE	0.1944E-05	0.0608
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3170E-02	99.0554
0	INGEST.	0.2828E-04	0.8838
0	VEGET.	*0.2826E-04	* 0.8832
0	MEAT	*0.3715E-08	* 0.0001
0	MILK	*0.1557E-07	* 0.0005

1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.7861E+00
0	R MAR	0.1609E+00
0	ENDOST	0.1970E+01
0	THYROID	0.1981E-02
0	BREAST	0.1998E-02
0	*PUL*	0.5876E+01
0	S WALL	0.1948E-02
0	INT WALL	0.6708E-02
0	LIVER	0.8545E-02
0	PANCREAS	0.1934E-02
0	KIDNEYS	0.3200E-02

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-228	W BODY	0.7861E+00	12	11
0	TH-228	R MAR	0.1609E+00	12	11
0	TH-228	ENDOST	0.1970E+01	12	11
0	TH-228	THYROID	0.1981E-02	12	11
0	TH-228	BREAST	0.1998E-02	12	11
0	TH-228	*PUL*	0.5876E+01	12	11
0	TH-228	S WALL	0.1948E-02	12	11
0	TH-228	INT WALL	0.6708E-02	12	11
0	TH-228	LIVER	0.8545E-02	12	11
0	TH-228	PANCREAS	0.1934E-02	12	11
0	TH-228	KIDNEYS	0.3200E-02	12	11

Building 67

Thorium-230

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=11,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
1
 &RADI NUC='TH-230',ISOL=Y,AMAD=1.0,REL=0.2 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 67 WITH 10% RELEASE
DOSE CALCULATED AT 1700 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS
0
1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—
0
0
0 AVERAGE AIR TEMPERATURE (DEG K) 285.0
0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)
0 IN STABILITY CLASS E 0.0728
0 IN STABILITY CLASS F 0.1090
0 IN STABILITY CLASS G 0.1455
0 RAINFALL RATE (CM/YEAR) 102.00
0 HEIGHT OF LID (METERS) 1000
0 NUMBER OF STACKS IN THE PLANT 1
0
0
0 STACK INFORMATION–
0
0 STACK NUMBER
0 1 2 3 4 5 6
0 HEIGHT (METERS) 0.0000
0 DIAMETER (METERS) 0.0000
0 EFFLUENT VELOCITY (METERS/SEC) 0.0000
0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00
1 RELEASE RATES FOR RADIONUCLIDES
0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.200E+00

0
1 PLUME DEPLETION AND DEPOSITION PARAMETERS
0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

0
1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION
0
0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS
0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS
0
0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)
0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.06	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA		NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
			(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)
WIND TOWARD	DISTANCE (METERS)						
0							
1	1700	TH-230	1.01E-08	5.83E-10	1.19E-10	7.03E-10	3.48E+02
1	1800	TH-230	9.20E-09	5.29E-10	1.12E-10	6.42E-10	3.48E+02
1	2000	TH-230	7.68E-09	4.42E-10	1.01E-10	5.43E-10	3.47E+02
1	2200	TH-230	6.54E-09	3.77E-10	9.15E-11	4.68E-10	3.46E+02
1	2500	TH-230	5.27E-09	3.04E-10	8.02E-11	3.84E-10	3.45E+02
1	5000	TH-230	1.80E-09	1.04E-10	3.90E-11	1.43E-10	3.37E+02
2	1700	TH-230	6.65E-09	3.83E-10	7.91E-11	4.62E-10	1.69E+02
2	1800	TH-230	6.03E-09	3.47E-10	7.45E-11	4.22E-10	1.69E+02
2	2000	TH-230	5.03E-09	2.90E-10	6.68E-11	3.56E-10	1.68E+02
2	2200	TH-230	4.28E-09	2.47E-10	6.06E-11	3.07E-10	1.68E+02
2	2500	TH-230	3.45E-09	1.99E-10	5.31E-11	2.52E-10	1.67E+02
2	5000	TH-230	1.17E-09	6.74E-11	2.56E-11	9.30E-11	1.62E+02
3	1700	TH-230	5.10E-09	2.94E-10	5.27E-11	3.46E-10	9.08E+01
3	1800	TH-230	4.62E-09	2.66E-10	4.96E-11	3.16E-10	9.06E+01
3	2000	TH-230	3.84E-09	2.21E-10	4.44E-11	2.65E-10	9.01E+01
3	2200	TH-230	3.26E-09	1.88E-10	4.03E-11	2.28E-10	8.99E+01
3	2500	TH-230	2.62E-09	1.51E-10	3.53E-11	1.86E-10	8.94E+01

3	5000	TH-230	8.69E-10	5.00E-11	1.69E-11	6.69E-11	8.57E+01
4	1700	TH-230	7.77E-09	4.47E-10	7.04E-11	5.17E-10	1.13E+02
4	1800	TH-230	7.03E-09	4.04E-10	6.63E-11	4.71E-10	1.13E+02
4	2000	TH-230	5.83E-09	3.36E-10	5.92E-11	3.95E-10	1.12E+02
4	2200	TH-230	4.95E-09	2.85E-10	5.37E-11	3.39E-10	1.12E+02
4	2500	TH-230	3.98E-09	2.29E-10	4.70E-11	2.76E-10	1.11E+02
4	5000	TH-230	1.31E-09	7.55E-11	2.23E-11	9.78E-11	1.06E+02
5	1700	TH-230	1.58E-08	9.09E-10	1.31E-10	1.04E-09	2.32E+02
5	1800	TH-230	1.43E-08	8.23E-10	1.24E-10	9.46E-10	2.31E+02
5	2000	TH-230	1.18E-08	6.82E-10	1.11E-10	7.92E-10	2.30E+02
5	2200	TH-230	1.01E-08	5.79E-10	1.00E-10	6.80E-10	2.29E+02
5	2500	TH-230	8.08E-09	4.65E-10	8.76E-11	5.53E-10	2.28E+02
5	5000	TH-230	2.66E-09	1.53E-10	4.16E-11	1.95E-10	2.17E+02
6	1700	TH-230	1.19E-08	6.84E-10	1.52E-10	8.36E-10	3.59E+02
6	1800	TH-230	1.08E-08	6.20E-10	1.43E-10	7.63E-10	3.58E+02
6	2000	TH-230	8.96E-09	5.16E-10	1.28E-10	6.44E-10	3.57E+02
6	2200	TH-230	7.63E-09	4.39E-10	1.17E-10	5.55E-10	3.56E+02
6	2500	TH-230	6.13E-09	3.53E-10	1.02E-10	4.55E-10	3.55E+02
6	5000	TH-230	2.06E-09	1.18E-10	4.95E-11	1.68E-10	3.46E+02
7	1700	TH-230	6.48E-09	3.73E-10	8.32E-11	4.56E-10	1.97E+02
7	1800	TH-230	5.87E-09	3.38E-10	7.84E-11	4.16E-10	1.97E+02
7	2000	TH-230	4.88E-09	2.81E-10	7.03E-11	3.51E-10	1.96E+02
7	2200	TH-230	4.15E-09	2.39E-10	6.38E-11	3.03E-10	1.96E+02
7	2500	TH-230	3.34E-09	1.92E-10	5.59E-11	2.48E-10	1.95E+02
7	5000	TH-230	1.11E-09	6.39E-11	2.71E-11	9.10E-11	1.90E+02
8	1700	TH-230	6.38E-09	3.67E-10	6.94E-11	4.36E-10	1.80E+02
8	1800	TH-230	5.77E-09	3.32E-10	6.54E-11	3.98E-10	1.80E+02
8	2000	TH-230	4.80E-09	2.76E-10	5.86E-11	3.35E-10	1.79E+02
8	2200	TH-230	4.08E-09	2.35E-10	5.32E-11	2.88E-10	1.79E+02
8	2500	TH-230	3.28E-09	1.89E-10	4.66E-11	2.36E-10	1.78E+02
8	5000	TH-230	1.09E-09	6.28E-11	2.25E-11	8.54E-11	1.73E+02
9	1700	TH-230	5.56E-09	3.20E-10	7.16E-11	3.92E-10	2.27E+02
9	1800	TH-230	5.05E-09	2.90E-10	6.75E-11	3.58E-10	2.27E+02
9	2000	TH-230	4.21E-09	2.42E-10	6.06E-11	3.03E-10	2.26E+02
9	2200	TH-230	3.58E-09	2.06E-10	5.50E-11	2.61E-10	2.26E+02
9	2500	TH-230	2.89E-09	1.66E-10	4.82E-11	2.14E-10	2.25E+02
9	5000	TH-230	9.76E-10	5.62E-11	2.35E-11	7.96E-11	2.21E+02
10	1700	TH-230	1.17E-08	6.71E-10	1.25E-10	7.96E-10	3.32E+02
10	1800	TH-230	1.06E-08	6.08E-10	1.18E-10	7.26E-10	3.32E+02
10	2000	TH-230	8.78E-09	5.05E-10	1.06E-10	6.11E-10	3.31E+02
10	2200	TH-230	7.46E-09	4.30E-10	9.58E-11	5.25E-10	3.30E+02
10	2500	TH-230	6.00E-09	3.45E-10	8.40E-11	4.29E-10	3.29E+02
10	5000	TH-230	2.00E-09	1.15E-10	4.05E-11	1.55E-10	3.20E+02
11	1700	TH-230	2.76E-08	1.59E-09	1.94E-10	1.78E-09	4.50E+02
11	1800	TH-230	2.50E-08	1.44E-09	1.83E-10	1.62E-09	4.49E+02
11	2000	TH-230	2.07E-08	1.19E-09	1.63E-10	1.35E-09	4.47E+02
11	2200	TH-230	1.76E-08	1.01E-09	1.48E-10	1.16E-09	4.45E+02
11	2500	TH-230	1.41E-08	8.12E-10	1.29E-10	9.41E-10	4.44E+02
11	5000	TH-230	4.61E-09	2.66E-10	6.10E-11	3.27E-10	4.25E+02
12	1700	TH-230	3.57E-08	2.06E-09	2.39E-10	2.30E-09	5.35E+02
12	1800	TH-230	3.23E-08	1.86E-09	2.25E-10	2.08E-09	5.34E+02
12	2000	TH-230	2.68E-08	1.54E-09	2.01E-10	1.74E-09	5.31E+02
12	2200	TH-230	2.27E-08	1.31E-09	1.82E-10	1.49E-09	5.29E+02
12	2500	TH-230	1.83E-08	1.05E-09	1.59E-10	1.21E-09	5.27E+02
12	5000	TH-230	6.00E-09	3.45E-10	7.49E-11	4.20E-10	5.03E+02
13	1700	TH-230	3.22E-08	1.85E-09	2.67E-10	2.12E-09	6.29E+02
13	1800	TH-230	2.91E-08	1.68E-09	2.51E-10	1.93E-09	6.27E+02
13	2000	TH-230	2.42E-08	1.39E-09	2.25E-10	1.62E-09	6.24E+02
13	2200	TH-230	2.06E-08	1.18E-09	2.04E-10	1.39E-09	6.23E+02
13	2500	TH-230	1.65E-08	9.51E-10	1.78E-10	1.13E-09	6.20E+02
13	5000	TH-230	5.49E-09	3.16E-10	8.50E-11	4.01E-10	5.98E+02
14	1700	TH-230	3.36E-08	1.94E-09	2.89E-10	2.23E-09	5.91E+02
14	1800	TH-230	3.05E-08	1.75E-09	2.72E-10	2.03E-09	5.89E+02
14	2000	TH-230	2.53E-08	1.46E-09	2.44E-10	1.70E-09	5.86E+02
14	2200	TH-230	2.15E-08	1.24E-09	2.21E-10	1.46E-09	5.85E+02

14	2500	TH-230	1.73E-08	9.96E-10	1.93E-10	1.19E-09	5.82E+02
14	5000	TH-230	5.77E-09	3.32E-10	9.20E-11	4.24E-10	5.58E+02
15	1700	TH-230	2.74E-08	1.58E-09	3.01E-10	1.88E-09	7.11E+02
15	1800	TH-230	2.48E-08	1.43E-09	2.83E-10	1.71E-09	7.10E+02
15	2000	TH-230	2.07E-08	1.19E-09	2.54E-10	1.45E-09	7.07E+02
15	2200	TH-230	1.76E-08	1.01E-09	2.30E-10	1.24E-09	7.06E+02
15	2500	TH-230	1.42E-08	8.17E-10	2.02E-10	1.02E-09	7.03E+02
15	5000	TH-230	4.80E-09	2.76E-10	9.74E-11	3.74E-10	6.83E+02
16	1700	TH-230	1.92E-08	1.10E-09	2.23E-10	1.33E-09	7.05E+02
16	1800	TH-230	1.74E-08	1.00E-09	2.11E-10	1.21E-09	7.04E+02
16	2000	TH-230	1.45E-08	8.35E-10	1.89E-10	1.02E-09	7.02E+02
16	2200	TH-230	1.24E-08	7.11E-10	1.71E-10	8.83E-10	7.01E+02
16	2500	TH-230	9.96E-09	5.73E-10	1.50E-10	7.23E-10	6.99E+02
16	5000	TH-230	3.38E-09	1.95E-10	7.29E-11	2.68E-10	6.84E+02

1 GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-06	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-06	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-06	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-06	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

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0
0
0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0
1	4	1	2	0.461E+04	0	4165.0
1	5	2	3	0.646E+04	0	346.0
1	6	6	8	0.185E+05	0	0.0
1	7	8	12	0.258E+05	0	0.0
1	8	10	15	0.332E+05	0	0.0
1	9	45	66	0.144E+06	0	5474.0
1	10	41	61	0.133E+06	0	4080.0

0 ORGAN INHALATION INGESTION SUBMERSION IN AIR SURFACE EXPOSURE SUBMERSION IN WATER

(REMS/MICROCURIE) (REMS/MICROCURIE) (REMS-CUBIC CM/ MICROCURIE-HR) (REMS-SQUARE CM/ MICROCURIE-HR) (REMS-CUBIC CM/ MICROCURIE-HR)

0

W BODY	0.262E+03	0.548E+00	0.176E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.106E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1700	0.101E-13	0.222E-09	0.116E+03	0.814E+02
1	1800	0.920E-14	0.203E-09	0.106E+03	0.738E+02
1	2000	0.768E-14	0.171E-09	0.900E+02	0.616E+02
1	2200	0.654E-14	0.148E-09	0.776E+02	0.525E+02
1	2500	0.527E-14	0.121E-09	0.636E+02	0.424E+02
1	5000	0.180E-14	0.450E-10	0.237E+02	0.145E+02
2	1700	0.665E-14	0.146E-09	0.766E+02	0.534E+02
2	1800	0.603E-14	0.133E-09	0.699E+02	0.484E+02
2	2000	0.503E-14	0.112E-09	0.591E+02	0.404E+02
2	2200	0.428E-14	0.969E-10	0.509E+02	0.344E+02
2	2500	0.345E-14	0.794E-10	0.417E+02	0.277E+02
2	5000	0.117E-14	0.294E-10	0.154E+02	0.941E+01
3	1700	0.510E-14	0.109E-09	0.574E+02	0.410E+02
3	1800	0.462E-14	0.996E-10	0.523E+02	0.371E+02
3	2000	0.384E-14	0.837E-10	0.440E+02	0.308E+02
3	2200	0.326E-14	0.720E-10	0.378E+02	0.262E+02
3	2500	0.262E-14	0.588E-10	0.309E+02	0.211E+02
3	5000	0.869E-15	0.211E-10	0.111E+02	0.698E+01
4	1700	0.777E-14	0.163E-09	0.858E+02	0.624E+02
4	1800	0.703E-14	0.149E-09	0.780E+02	0.564E+02
4	2000	0.583E-14	0.125E-09	0.654E+02	0.468E+02
4	2200	0.495E-14	0.107E-09	0.562E+02	0.398E+02
4	2500	0.398E-14	0.871E-10	0.457E+02	0.319E+02
4	5000	0.131E-14	0.309E-10	0.162E+02	0.105E+02
5	1700	0.158E-13	0.328E-09	0.172E+03	0.127E+03
5	1800	0.143E-13	0.299E-09	0.157E+03	0.115E+03
5	2000	0.118E-13	0.250E-09	0.131E+03	0.951E+02
5	2200	0.101E-13	0.214E-09	0.113E+03	0.808E+02
5	2500	0.808E-14	0.174E-09	0.916E+02	0.649E+02
5	5000	0.266E-14	0.614E-10	0.322E+02	0.213E+02
6	1700	0.119E-13	0.264E-09	0.139E+03	0.954E+02
6	1800	0.108E-13	0.241E-09	0.126E+03	0.864E+02
6	2000	0.896E-14	0.203E-09	0.107E+03	0.720E+02
6	2200	0.763E-14	0.175E-09	0.921E+02	0.612E+02
6	2500	0.613E-14	0.144E-09	0.755E+02	0.493E+02
6	5000	0.206E-14	0.529E-10	0.278E+02	0.165E+02
7	1700	0.648E-14	0.144E-09	0.756E+02	0.520E+02
7	1800	0.587E-14	0.131E-09	0.690E+02	0.471E+02
7	2000	0.488E-14	0.111E-09	0.582E+02	0.392E+02
7	2200	0.415E-14	0.955E-10	0.502E+02	0.334E+02
7	2500	0.334E-14	0.783E-10	0.411E+02	0.268E+02

7	5000	0.111E-14	0.287E-10	0.161E+02	0.891E+01
8	1700	0.638E-14	0.138E-09	0.724E+02	0.512E+02
8	1800	0.577E-14	0.126E-09	0.659E+02	0.464E+02
8	2000	0.480E-14	0.106E-09	0.555E+02	0.385E+02
8	2200	0.406E-14	0.909E-10	0.478E+02	0.326E+02
8	2500	0.328E-14	0.743E-10	0.391E+02	0.264E+02
8	5000	0.109E-14	0.269E-10	0.141E+02	0.877E+01
9	1700	0.566E-14	0.124E-09	0.650E+02	0.447E+02
9	1800	0.505E-14	0.113E-09	0.593E+02	0.405E+02
9	2000	0.421E-14	0.955E-10	0.502E+02	0.338E+02
9	2200	0.358E-14	0.824E-10	0.433E+02	0.288E+02
9	2500	0.289E-14	0.676E-10	0.355E+02	0.232E+02
9	5000	0.976E-15	0.251E-10	0.132E+02	0.784E+01
10	1700	0.117E-13	0.251E-09	0.132E+03	0.936E+02
10	1800	0.106E-13	0.229E-09	0.120E+03	0.848E+02
10	2000	0.878E-14	0.193E-09	0.101E+03	0.705E+02
10	2200	0.746E-14	0.166E-09	0.871E+02	0.599E+02
10	2500	0.600E-14	0.135E-09	0.712E+02	0.482E+02
10	5000	0.200E-14	0.490E-10	0.258E+02	0.160E+02
11	1700	0.276E-13	0.563E-09	0.296E+03	0.222E+03
11	1800	0.250E-13	0.511E-09	0.269E+03	0.201E+03
11	2000	0.207E-13	0.427E-09	0.224E+03	0.166E+03
11	2200	0.176E-13	0.366E-09	0.192E+03	0.141E+03
11	2500	0.141E-13	0.297E-09	0.156E+03	0.113E+03
11	5000	0.461E-14	0.103E-09	0.541E+02	0.370E+02
12	1700	0.357E-13	0.724E-09	0.381E+03	0.287E+03
12	1800	0.323E-13	0.658E-09	0.346E+03	0.259E+03
12	2000	0.268E-13	0.549E-09	0.289E+03	0.215E+03
12	2200	0.227E-13	0.470E-09	0.247E+03	0.183E+03
12	2500	0.183E-13	0.382E-09	0.201E+03	0.147E+03
12	5000	0.600E-14	0.133E-09	0.696E+02	0.481E+02
13	1700	0.322E-13	0.668E-09	0.351E+03	0.258E+03
13	1800	0.291E-13	0.608E-09	0.319E+03	0.234E+03
13	2000	0.242E-13	0.510E-09	0.268E+03	0.194E+03
13	2200	0.206E-13	0.438E-09	0.230E+03	0.165E+03
13	2500	0.165E-13	0.356E-09	0.187E+03	0.133E+03
13	5000	0.549E-14	0.127E-09	0.665E+02	0.441E+02
14	1700	0.336E-13	0.702E-09	0.369E+03	0.270E+03
14	1800	0.305E-13	0.639E-09	0.336E+03	0.245E+03
14	2000	0.253E-13	0.536E-09	0.282E+03	0.203E+03
14	2200	0.215E-13	0.461E-09	0.242E+03	0.173E+03
14	2500	0.173E-13	0.375E-09	0.197E+03	0.139E+03
14	5000	0.577E-14	0.134E-09	0.703E+02	0.464E+02
15	1700	0.274E-13	0.592E-09	0.311E+03	0.220E+03
15	1800	0.248E-13	0.541E-09	0.284E+03	0.199E+03
15	2000	0.207E-13	0.456E-09	0.240E+03	0.166E+03
15	2200	0.176E-13	0.393E-09	0.206E+03	0.142E+03
15	2500	0.142E-13	0.321E-09	0.169E+03	0.114E+03
15	5000	0.480E-14	0.118E-09	0.619E+02	0.385E+02
16	1700	0.192E-13	0.419E-09	0.220E+03	0.154E+03
16	1800	0.174E-13	0.382E-09	0.201E+03	0.140E+03
16	2000	0.145E-13	0.323E-09	0.170E+03	0.117E+03
16	2200	0.124E-13	0.279E-09	0.146E+03	0.992E+02
16	2500	0.996E-14	0.228E-09	0.120E+03	0.800E+02
16	5000	0.338E-14	0.845E-10	0.444E+02	0.272E+02

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-230	SUBM AIR	0.5516E-10	0.00	100.00
	SURFACE	0.1105E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7517E-01	99.72	100.00
	INGEST.	0.2085E-03	0.28	100.00
	VEGET.	0.2084E-03	• 0.28	• 99.93

MEAT	0.2956E-07	* 0.00	* 0.01	
MILK	0.1217E-06	* 0.00	* 0.06	

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3639E-10	0.00	100.00
	SURFACE	0.7288E-07	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7431E-01	99.45	100.00
	INGEST.	0.4072E-03	0.54	100.00
	VEGET.	0.4069E-03	* 0.54	* 99.93
	MEAT	0.5771E-07	* 0.00	* 0.01
	MILK	0.2376E-06	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.8581E-10	0.00	100.00
	SURFACE	0.1718E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9238E+00	99.46	100.00
	INGEST.	0.5061E-02	0.54	100.00
	VEGET.	0.5057E-02	* 0.54	* 99.93
	MEAT	0.7173E-06	* 0.00	* 0.01
	MILK	0.2954E-05	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.7393E-10	0.00	100.00
	SURFACE	0.1481E-06	0.08	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1825E-03	99.40	100.00
	INGEST.	0.9589E-06	0.52	100.00
	VEGET.	0.9582E-06	* 0.52	* 99.93
	MEAT	0.1359E-09	* 0.00	* 0.01
	MILK	0.5596E-09	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.1203E-09	0.00	100.00
	SURFACE	0.2409E-06	0.13	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1825E-03	99.35	100.00
	INGEST.	0.9589E-06	0.52	100.00
	VEGET.	0.9582E-06	* 0.52	* 99.93
	MEAT	0.1359E-09	* 0.00	* 0.01
	MILK	0.5596E-09	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.5057E-10	0.00	100.00
	SURFACE	0.1013E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3185E+00	100.00	100.00
	INGEST.	0.9593E-06	0.00	100.00
	VEGET.	0.9586E-06	* 0.00	* 99.93
	MEAT	0.1360E-09	* 0.00	* 0.01
	MILK	0.5599E-09	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.4329E-10	0.00	100.00
	SURFACE	0.8668E-07	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1853E-03	98.61	100.00
	INGEST.	0.2517E-05	1.34	100.00

	VEGET.	0.2515E-05	* 1.34	* 99.93
	MEAT	0.3567E-09	* 0.00	* 0.01
	MILK	0.1469E-08	* 0.00	* 0.06

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.4137E-10	0.00	100.00
	SURFACE	0.8285E-07	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2009E-03	84.06	100.00
	INGEST.	0.3803E-04	15.91	100.00
	VEGET.	0.3800E-04	* 15.90	* 99.93
	MEAT	0.5390E-08	* 0.00	* 0.01
	MILK	0.2219E-07	* 0.01	* 0.06

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.4520E-10	0.00	100.00
	SURFACE	0.9052E-07	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1569E-02	99.47	100.00
	INGEST.	0.8307E-05	0.53	100.00
	VEGET.	0.8301E-05	* 0.53	* 99.93
	MEAT	0.1177E-08	* 0.00	* 0.01
	MILK	0.4848E-08	* 0.00	* 0.06

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.3294E-10	0.00	100.00
	SURFACE	0.6597E-07	0.04	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1855E-03	99.44	100.00
	INGEST.	0.9821E-06	0.53	100.00
	VEGET.	0.9814E-06	* 0.53	* 99.93
	MEAT	0.1392E-09	* 0.00	* 0.01
	MILK	0.5732E-09	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.4750E-10	0.00	100.00
	SURFACE	0.9512E-07	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1855E-03	99.42	100.00
	INGEST.	0.9821E-06	0.53	100.00
	VEGET.	0.9814E-06	* 0.53	* 99.93
	MEAT	0.1392E-09	* 0.00	* 0.01
	MILK	0.5732E-09	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.5516E-10	0.0000
0 SURFACE	0.1105E-06	0.0001
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.7517E-01	99.7232
0 INGEST.	0.2085E-03	0.2766
0 VEGET.	*0.2084E-03	* 0.2764
0 MEAT	*0.2956E-07	* 0.0000
0 MILK	*0.1217E-06	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.3639E-10	0.0000
0 SURFACE	0.7288E-07	0.0001
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.7431E-01	99.4550
0 INGEST.	0.4072E-03	0.5449
0 VEGET.	*0.4069E-03	* 0.5445

0	MEAT	*0.5771E-07	* 0.0001
0	MILK	*0.2376E-06	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8581E-10	0.0000
0	SURFACE	0.1718E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.9238E+00	99.4551
0	INGEST.	0.5061E-02	0.5448
0	VEGET.	*0.5057E-02	* 0.5444
0	MEAT	*0.7173E-06	* 0.0001
0	MILK	*0.2954E-05	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7393E-10	0.0000
0	SURFACE	0.1481E-06	0.0006
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1825E-03	99.3970
0	INGEST.	0.9589E-06	0.5223
0	VEGET.	*0.9582E-06	* 0.5220
0	MEAT	*0.1359E-09	* 0.0001
0	MILK	*0.5596E-09	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1203E-09	0.0001
0	SURFACE	0.2409E-06	0.1311
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1825E-03	99.3467
0	INGEST.	0.9589E-06	0.5221
0	VEGET.	*0.9582E-06	* 0.5217
0	MEAT	*0.1359E-09	* 0.0001
0	MILK	*0.5596E-09	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5057E-10	0.0000
0	SURFACE	0.1013E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3185E+00	99.9997
0	INGEST.	0.9593E-06	0.0003
0	VEGET.	*0.9586E-06	* 0.0003
0	MEAT	*0.1360E-09	* 0.0000
0	MILK	*0.5599E-09	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4329E-10	0.0000
0	SURFACE	0.8668E-07	0.0461
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1853E-03	98.6141
0	INGEST.	0.2517E-05	1.3397
0	VEGET.	*0.2515E-05	* 1.3387
0	MEAT	*0.3567E-09	* 0.0002
0	MILK	*0.1469E-08	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4137E-10	0.0000
0	SURFACE	0.8285E-07	0.0347
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2009E-03	84.0556
0	INGEST.	0.3803E-04	15.9097
0	VEGET.	*0.3800E-04	* 15.8982
0	MEAT	*0.5390E-08	* 0.0023
0	MILK	*0.2219E-07	* 0.0093
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4520E-10	0.0000

0	SURFACE	0.9052E-07	0.0057
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1569E-02	99.4576
0	INGEST.	0.8307E-06	0.5267
0	VEGET.	*0.8301E-06	* 0.5263
0	MEAT	*0.1177E-08	* 0.0001
0	MILK	*0.4848E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3294E-10	0.0000
0	SURFACE	0.6597E-07	0.0354
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1855E-03	99.4383
0	INGEST.	0.9821E-06	0.5264
0	VEGET.	*0.9814E-06	* 0.5260
0	MEAT	*0.1392E-09	* 0.0001
0	MILK	*0.5732E-09	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4750E-10	0.0000
0	SURFACE	0.9512E-07	0.0510
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1855E-03	99.4226
0	INGEST.	0.9821E-06	0.5264
0	VEGET.	*0.9814E-06	* 0.5260
0	MEAT	*0.1392E-09	* 0.0001
0	MILK	*0.5732E-09	* 0.0003

1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.7538E-01
0	R MAR	0.7471E-01
0	ENDOST	0.9289E+00
0	THYROID	0.1836E-03
0	BREAST	0.1837E-03
0	*PUL*	0.3185E+00
0	S WALL	0.1879E-03
0	INT WALL	0.2390E-03
0	LIVER	0.1577E-02
0	PANCREAS	0.1866E-03
0	KIDNEYS	0.1866E-03

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-230	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-230	W BODY	0.7538E-01	12	11
0	TH-230	R MAR	0.7471E-01	12	11
0	TH-230	ENDOST	0.9289E+00	12	11
0	TH-230	THYROID	0.1836E-03	12	11
0	TH-230	BREAST	0.1837E-03	12	11
0	TH-230	*PUL*	0.3185E+00	12	11
0	TH-230	S WALL	0.1879E-03	12	11
0	TH-230	INT WALL	0.2390E-03	12	11
0	TH-230	LIVER	0.1577E-02	12	11
0	TH-230	PANCREAS	0.1866E-03	12	11
0	TH-230	KIDNEYS	0.1866E-03	12	11

Building 67

Uranium-233

```
OPTION
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  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
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  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
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METEOROLOGICAL DATA
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PHYSICAL STACK DATA
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 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
-


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AG DATA
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AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 67 WITH 10% RELEASE
DOSE CALCULATED AT 1700 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
•
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED--

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM--

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION--

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	U-233	0.200E-01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
U-233	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 FRACTION OF TIME IN EACH STABILITY CLASS

0

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.06	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)
WIND TOWARD	DISTANCE (METERS)					
0						
1 1700	U-233	1.01E-09	5.83E-11	1.19E-11	7.03E-11	3.48E+01
1 1800	U-233	9.20E-10	5.29E-11	1.12E-11	6.42E-11	3.48E+01
1 2000	U-233	7.68E-10	4.42E-11	1.01E-11	5.43E-11	3.47E+01
1 2200	U-233	6.54E-10	3.77E-11	9.15E-12	4.68E-11	3.46E+01
1 2500	U-233	5.27E-10	3.04E-11	8.02E-12	3.84E-11	3.45E+01
1 5000	U-233	1.80E-10	1.04E-11	3.90E-12	1.43E-11	3.37E+01
2 1700	U-233	6.65E-10	3.83E-11	7.91E-12	4.62E-11	1.69E+01
2 1800	U-233	6.03E-10	3.47E-11	7.45E-12	4.22E-11	1.69E+01
2 2000	U-233	5.03E-10	2.90E-11	6.68E-12	3.56E-11	1.68E+01
2 2200	U-233	4.28E-10	2.47E-11	6.06E-12	3.07E-11	1.68E+01
2 2500	U-233	3.45E-10	1.99E-11	5.31E-12	2.52E-11	1.67E+01
2 5000	U-233	1.17E-10	6.74E-12	2.56E-12	9.30E-12	1.62E+01
3 1700	U-233	5.10E-10	2.94E-11	5.27E-12	3.46E-11	9.08E+00
3 1800	U-233	4.62E-10	2.66E-11	4.96E-12	3.16E-11	9.06E+00
3 2000	U-233	3.84E-10	2.21E-11	4.44E-12	2.65E-11	9.01E+00
3 2200	U-233	3.26E-10	1.88E-11	4.03E-12	2.28E-11	8.99E+00
3 2500	U-233	2.62E-10	1.51E-11	3.53E-12	1.86E-11	8.94E+00

3	5000	U-233	8.69E-11	5.00E-12	1.69E-12	6.89E-12	8.57E+00
4	1700	U-233	7.77E-10	4.47E-11	7.04E-12	5.17E-11	1.13E+01
4	1800	U-233	7.03E-10	4.04E-11	6.63E-12	4.71E-11	1.13E+01
4	2000	U-233	5.83E-10	3.36E-11	5.92E-12	3.95E-11	1.12E+01
4	2200	U-233	4.95E-10	2.85E-11	5.37E-12	3.39E-11	1.12E+01
4	2500	U-233	3.98E-10	2.29E-11	4.70E-12	2.76E-11	1.11E+01
4	5000	U-233	1.31E-10	7.55E-12	2.23E-12	9.78E-12	1.06E+01
5	1700	U-233	1.58E-09	9.09E-11	1.31E-11	1.04E-10	2.32E+01
5	1800	U-233	1.43E-09	8.23E-11	1.24E-11	9.46E-11	2.31E+01
5	2000	U-233	1.18E-09	6.82E-11	1.11E-11	7.92E-11	2.30E+01
5	2200	U-233	1.01E-09	5.79E-11	1.00E-11	6.80E-11	2.29E+01
5	2500	U-233	8.08E-10	4.65E-11	8.76E-12	5.53E-11	2.28E+01
5	5000	U-233	2.66E-10	1.53E-11	4.16E-12	1.95E-11	2.17E+01
6	1700	U-233	1.19E-09	6.84E-11	1.52E-11	8.36E-11	3.59E+01
6	1800	U-233	1.08E-09	6.20E-11	1.43E-11	7.63E-11	3.58E+01
6	2000	U-233	8.96E-10	5.16E-11	1.28E-11	6.44E-11	3.57E+01
6	2200	U-233	7.63E-10	4.39E-11	1.17E-11	5.55E-11	3.56E+01
6	2500	U-233	6.13E-10	3.53E-11	1.02E-11	4.55E-11	3.55E+01
6	5000	U-233	2.06E-10	1.18E-11	4.95E-12	1.68E-11	3.46E+01
7	1700	U-233	6.48E-10	3.73E-11	8.32E-12	4.56E-11	1.97E+01
7	1800	U-233	5.87E-10	3.38E-11	7.84E-12	4.16E-11	1.97E+01
7	2000	U-233	4.88E-10	2.81E-11	7.03E-12	3.51E-11	1.96E+01
7	2200	U-233	4.15E-10	2.39E-11	6.38E-12	3.03E-11	1.96E+01
7	2500	U-233	3.34E-10	1.92E-11	5.59E-12	2.48E-11	1.95E+01
7	5000	U-233	1.11E-10	6.39E-12	2.71E-12	9.10E-12	1.90E+01
8	1700	U-233	6.38E-10	3.67E-11	6.94E-12	4.36E-11	1.80E+01
8	1800	U-233	5.77E-10	3.32E-11	6.54E-12	3.98E-11	1.80E+01
8	2000	U-233	4.80E-10	2.76E-11	5.86E-12	3.35E-11	1.79E+01
8	2200	U-233	4.08E-10	2.35E-11	5.32E-12	2.88E-11	1.79E+01
8	2500	U-233	3.28E-10	1.89E-11	4.66E-12	2.36E-11	1.78E+01
8	5000	U-233	1.09E-10	6.28E-12	2.25E-12	8.54E-12	1.73E+01
9	1700	U-233	5.56E-10	3.20E-11	7.16E-12	3.92E-11	2.27E+01
9	1800	U-233	5.05E-10	2.90E-11	6.75E-12	3.58E-11	2.27E+01
9	2000	U-233	4.21E-10	2.42E-11	6.08E-12	3.03E-11	2.26E+01
9	2200	U-233	3.58E-10	2.06E-11	5.50E-12	2.61E-11	2.26E+01
9	2500	U-233	2.89E-10	1.66E-11	4.82E-12	2.14E-11	2.25E+01
9	5000	U-233	9.76E-11	5.62E-12	2.35E-12	7.96E-12	2.21E+01
10	1700	U-233	1.17E-09	6.71E-11	1.25E-11	7.96E-11	3.32E+01
10	1800	U-233	1.06E-09	6.08E-11	1.18E-11	7.26E-11	3.32E+01
10	2000	U-233	8.78E-10	5.05E-11	1.06E-11	6.11E-11	3.31E+01
10	2200	U-233	7.46E-10	4.30E-11	9.58E-12	5.25E-11	3.30E+01
10	2500	U-233	6.00E-10	3.45E-11	8.40E-12	4.29E-11	3.29E+01
10	5000	U-233	2.00E-10	1.15E-11	4.05E-12	1.55E-11	3.20E+01
11	1700	U-233	2.76E-09	1.59E-10	1.94E-11	1.78E-10	4.50E+01
11	1800	U-233	2.50E-09	1.44E-10	1.83E-11	1.62E-10	4.49E+01
11	2000	U-233	2.07E-09	1.19E-10	1.63E-11	1.35E-10	4.47E+01
11	2200	U-233	1.76E-09	1.01E-10	1.48E-11	1.16E-10	4.45E+01
11	2500	U-233	1.41E-09	8.12E-11	1.29E-11	9.41E-11	4.44E+01
11	5000	U-233	4.61E-10	2.66E-11	6.10E-12	3.27E-11	4.25E+01
12	1700	U-233	3.57E-09	2.06E-10	2.39E-11	2.30E-10	5.35E+01
12	1800	U-233	3.23E-09	1.86E-10	2.25E-11	2.08E-10	5.34E+01
12	2000	U-233	2.68E-09	1.54E-10	2.01E-11	1.74E-10	5.31E+01
12	2200	U-233	2.27E-09	1.31E-10	1.82E-11	1.49E-10	5.29E+01
12	2500	U-233	1.83E-09	1.05E-10	1.59E-11	1.21E-10	5.27E+01
12	5000	U-233	6.00E-10	3.45E-11	7.49E-12	4.20E-11	5.03E+01
13	1700	U-233	3.22E-09	1.85E-10	2.67E-11	2.12E-10	6.29E+01
13	1800	U-233	2.91E-09	1.68E-10	2.51E-11	1.93E-10	6.27E+01
13	2000	U-233	2.42E-09	1.39E-10	2.25E-11	1.62E-10	6.24E+01
13	2200	U-233	2.06E-09	1.18E-10	2.04E-11	1.39E-10	6.23E+01
13	2500	U-233	1.65E-09	9.51E-11	1.78E-11	1.13E-10	6.20E+01
13	5000	U-233	5.49E-10	3.16E-11	8.50E-12	4.01E-11	5.98E+01
14	1700	U-233	3.36E-09	1.94E-10	2.89E-11	2.23E-10	5.91E+01
14	1800	U-233	3.05E-09	1.75E-10	2.72E-11	2.03E-10	5.89E+01
14	2000	U-233	2.53E-09	1.46E-10	2.44E-11	1.70E-10	5.86E+01
14	2200	U-233	2.15E-09	1.24E-10	2.21E-11	1.46E-10	5.85E+01

14	2500	U-233	1.73E-09	9.96E-11	1.93E-11	1.19E-10	5.82E+01
14	5000	U-233	5.77E-10	3.32E-11	9.20E-12	4.24E-11	5.58E+01
15	1700	U-233	2.74E-09	1.58E-10	3.01E-11	1.88E-10	7.11E+01
15	1800	U-233	2.48E-09	1.43E-10	2.83E-11	1.71E-10	7.10E+01
15	2000	U-233	2.07E-09	1.19E-10	2.54E-11	1.45E-10	7.07E+01
15	2200	U-233	1.78E-09	1.01E-10	2.30E-11	1.24E-10	7.06E+01
15	2500	U-233	1.42E-09	8.17E-11	2.02E-11	1.02E-10	7.03E+01
15	5000	U-233	4.80E-10	2.76E-11	9.74E-12	3.74E-11	6.83E+01
16	1700	U-233	1.92E-09	1.10E-10	2.23E-11	1.33E-10	7.05E+01
16	1800	U-233	1.74E-09	1.00E-10	2.11E-11	1.21E-10	7.04E+01
16	2000	U-233	1.45E-09	8.35E-11	1.89E-11	1.02E-10	7.02E+01
16	2200	U-233	1.24E-09	7.11E-11	1.71E-11	8.83E-11	7.01E+01
16	2500	U-233	9.96E-10	5.73E-11	1.50E-11	7.23E-11	6.99E+01
16	5000	U-233	3.38E-10	1.95E-11	7.29E-12	2.68E-11	6.84E+01

1 GROUND-LEVEL CHI/Q VALUES FOR U-233 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.868E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1
0
0
0 SUMMARY OF AREA SURROUNDING PLANT

0 AREA		NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
0 COLUMN	ROW					
0						
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0
1	4	1	2	0.461E+04	0	4165.0
1	5	2	3	0.646E+04	0	346.0
1	6	6	8	0.185E+05	0	0.0
1	7	8	12	0.258E+05	0	0.0
1	8	10	15	0.332E+05	0	0.0
1	9	45	66	0.144E+06	0	5474.0
1	10	41	61	0.133E+06	0	4090.0

0 ORGAN INHALATION INGESTION SUBMERSION IN AIR SURFACE EXPOSURE SUBMERSION IN WATER

	(REMS/MICROCURIE)	(REMS/MICROCURIE)	(REMS-CUBIC CM/ MICROCURIE-HR)	(REMS-SQUARE CM/ MICROCURIE-HR)	(REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.135E+03	0.266E-01	0.111E+00	0.102E-03	0.276E-03
R MAR	0.273E+00	0.109E-01	0.849E-01	0.780E-04	0.211E-03
ENDOST	0.429E+01	0.171E+00	0.167E+00	0.154E-03	0.415E-03
THYROID	0.999E-02	0.389E-03	0.143E+00	0.131E-03	0.354E-03
BREAST	0.101E-01	0.389E-03	0.221E+00	0.203E-03	0.548E-03
PUL	0.112E+04	0.389E-03	0.101E+00	0.931E-04	0.251E-03
S WALL	0.995E+00	0.396E-03	0.893E-01	0.821E-04	0.222E-03
INT WALL	0.679E-01	0.995E-01	0.880E-01	0.809E-04	0.219E-03
LIVER	0.101E-01	0.390E-03	0.905E-01	0.832E-04	0.225E-03
PANCREAS	0.100E-01	0.390E-03	0.736E-01	0.676E-04	0.183E-03
KIDNEYS	0.172E+01	0.670E-01	0.918E-01	0.844E-04	0.228E-03

1 CONCENTRATIONS AND INTAKE RATES FOR U-233

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1700	0.101E-14	0.222E-10	0.119E+02	0.814E+01
1	1800	0.920E-15	0.203E-10	0.108E+02	0.738E+01
1	2000	0.768E-15	0.171E-10	0.917E+01	0.616E+01
1	2200	0.654E-15	0.148E-10	0.791E+01	0.525E+01
1	2500	0.527E-15	0.121E-10	0.648E+01	0.424E+01
1	5000	0.180E-15	0.450E-11	0.241E+01	0.145E+01
2	1700	0.665E-15	0.146E-10	0.780E+01	0.534E+01
2	1800	0.603E-15	0.133E-10	0.712E+01	0.484E+01
2	2000	0.503E-15	0.112E-10	0.602E+01	0.404E+01
2	2200	0.428E-15	0.969E-11	0.519E+01	0.344E+01
2	2500	0.345E-15	0.794E-11	0.425E+01	0.277E+01
2	5000	0.117E-15	0.294E-11	0.157E+01	0.941E+00
3	1700	0.510E-15	0.109E-10	0.585E+01	0.410E+01
3	1800	0.462E-15	0.996E-11	0.533E+01	0.371E+01
3	2000	0.384E-15	0.837E-11	0.448E+01	0.308E+01
3	2200	0.326E-15	0.720E-11	0.385E+01	0.262E+01
3	2500	0.262E-15	0.588E-11	0.315E+01	0.211E+01
3	5000	0.869E-16	0.211E-11	0.113E+01	0.698E+00
4	1700	0.777E-15	0.163E-10	0.874E+01	0.624E+01
4	1800	0.703E-15	0.149E-10	0.795E+01	0.564E+01
4	2000	0.583E-15	0.125E-10	0.667E+01	0.468E+01
4	2200	0.495E-15	0.107E-10	0.572E+01	0.398E+01
4	2500	0.398E-15	0.871E-11	0.466E+01	0.319E+01
4	5000	0.131E-15	0.309E-11	0.165E+01	0.105E+01
5	1700	0.158E-14	0.328E-10	0.176E+02	0.127E+02
5	1800	0.143E-14	0.299E-10	0.160E+02	0.115E+02
5	2000	0.118E-14	0.250E-10	0.134E+02	0.951E+01
5	2200	0.101E-14	0.214E-10	0.115E+02	0.808E+01
5	2500	0.808E-15	0.174E-10	0.934E+01	0.649E+01
5	5000	0.266E-15	0.614E-11	0.329E+01	0.213E+01
6	1700	0.119E-14	0.264E-10	0.141E+02	0.954E+01
6	1800	0.108E-14	0.241E-10	0.129E+02	0.864E+01
6	2000	0.896E-15	0.203E-10	0.109E+02	0.720E+01
6	2200	0.763E-15	0.175E-10	0.938E+01	0.612E+01
6	2500	0.613E-15	0.144E-10	0.769E+01	0.493E+01
6	5000	0.206E-15	0.529E-11	0.283E+01	0.165E+01
7	1700	0.648E-15	0.144E-10	0.770E+01	0.520E+01
7	1800	0.587E-15	0.131E-10	0.703E+01	0.471E+01
7	2000	0.488E-15	0.111E-10	0.593E+01	0.392E+01
7	2200	0.415E-15	0.955E-11	0.512E+01	0.334E+01
7	2500	0.334E-15	0.783E-11	0.419E+01	0.268E+01

7	5000	0.111E-15	0.287E-11	0.154E+01	0.891E+00
8	1700	0.638E-15	0.138E-10	0.737E+01	0.512E+01
8	1800	0.577E-15	0.126E-10	0.672E+01	0.464E+01
8	2000	0.480E-15	0.106E-10	0.566E+01	0.385E+01
8	2200	0.406E-15	0.909E-11	0.487E+01	0.328E+01
8	2500	0.328E-15	0.743E-11	0.398E+01	0.264E+01
8	5000	0.109E-15	0.269E-11	0.144E+01	0.877E+00
9	1700	0.556E-15	0.124E-10	0.662E+01	0.447E+01
9	1800	0.505E-15	0.113E-10	0.605E+01	0.405E+01
9	2000	0.421E-15	0.955E-11	0.511E+01	0.338E+01
9	2200	0.358E-15	0.824E-11	0.441E+01	0.288E+01
9	2500	0.289E-15	0.676E-11	0.362E+01	0.232E+01
9	5000	0.976E-16	0.251E-11	0.135E+01	0.784E+00
10	1700	0.117E-14	0.251E-10	0.135E+02	0.936E+01
10	1800	0.106E-14	0.229E-10	0.123E+02	0.848E+01
10	2000	0.878E-15	0.193E-10	0.103E+02	0.705E+01
10	2200	0.746E-15	0.166E-10	0.888E+01	0.599E+01
10	2500	0.600E-15	0.135E-10	0.725E+01	0.482E+01
10	5000	0.200E-15	0.490E-11	0.263E+01	0.160E+01
11	1700	0.276E-14	0.563E-10	0.301E+02	0.222E+02
11	1800	0.250E-14	0.511E-10	0.274E+02	0.201E+02
11	2000	0.207E-14	0.427E-10	0.229E+02	0.166E+02
11	2200	0.176E-14	0.366E-10	0.196E+02	0.141E+02
11	2500	0.141E-14	0.297E-10	0.159E+02	0.113E+02
11	5000	0.461E-15	0.103E-10	0.552E+01	0.370E+01
12	1700	0.357E-14	0.724E-10	0.388E+02	0.287E+02
12	1800	0.323E-14	0.658E-10	0.352E+02	0.259E+02
12	2000	0.268E-14	0.549E-10	0.294E+02	0.215E+02
12	2200	0.227E-14	0.470E-10	0.252E+02	0.183E+02
12	2500	0.183E-14	0.382E-10	0.204E+02	0.147E+02
12	5000	0.600E-15	0.133E-10	0.710E+01	0.481E+01
13	1700	0.322E-14	0.668E-10	0.358E+02	0.258E+02
13	1800	0.291E-14	0.608E-10	0.326E+02	0.234E+02
13	2000	0.242E-14	0.510E-10	0.273E+02	0.194E+02
13	2200	0.206E-14	0.438E-10	0.234E+02	0.165E+02
13	2500	0.165E-14	0.356E-10	0.191E+02	0.133E+02
13	5000	0.549E-15	0.127E-10	0.677E+01	0.441E+01
14	1700	0.336E-14	0.702E-10	0.376E+02	0.270E+02
14	1800	0.305E-14	0.639E-10	0.342E+02	0.245E+02
14	2000	0.253E-14	0.536E-10	0.287E+02	0.203E+02
14	2200	0.215E-14	0.461E-10	0.247E+02	0.173E+02
14	2500	0.173E-14	0.375E-10	0.201E+02	0.139E+02
14	5000	0.577E-15	0.134E-10	0.717E+01	0.464E+01
15	1700	0.274E-14	0.592E-10	0.317E+02	0.220E+02
15	1800	0.248E-14	0.541E-10	0.289E+02	0.199E+02
15	2000	0.207E-14	0.456E-10	0.244E+02	0.166E+02
15	2200	0.176E-14	0.393E-10	0.210E+02	0.142E+02
15	2500	0.142E-14	0.321E-10	0.172E+02	0.114E+02
15	5000	0.480E-15	0.118E-10	0.631E+01	0.385E+01
16	1700	0.192E-14	0.419E-10	0.224E+02	0.154E+02
16	1800	0.174E-14	0.382E-10	0.205E+02	0.140E+02
16	2000	0.145E-14	0.323E-10	0.173E+02	0.117E+02
16	2200	0.124E-14	0.279E-10	0.149E+02	0.992E+01
16	2500	0.996E-15	0.228E-10	0.122E+02	0.800E+01
16	5000	0.338E-15	0.845E-11	0.452E+01	0.272E+01

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.3483E-11	0.00	100.00
	SURFACE	0.6491E-08	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3873E-02	99.97	100.00
	INGEST.	0.1031E-05	0.03	100.00
	VEGET.	0.1015E-05	* 0.03	* 98.38

	MEAT	0.1436E-09	* 0.00	* 0.01
	MILK	0.1656E-07	* 0.00	* 1.61

1
0 PERCENT OF R MAR DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2667E-11	0.00	100.00
	SURFACE	0.4951E-08	0.06	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7832E-05	94.82	100.00
	INGEST.	0.4231E-06	5.12	100.00
	VEGET.	0.4162E-06	* 5.04	* 98.38
	MEAT	0.5890E-10	* 0.00	* 0.01
	MILK	0.6791E-08	* 0.08	* 1.61

1
0 PERCENT OF ENDOST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.5236E-11	0.00	100.00
	SURFACE	0.9755E-08	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1231E-03	94.88	100.00
	INGEST.	0.6631E-05	5.11	100.00
	VEGET.	0.6524E-05	* 5.03	* 98.38
	MEAT	0.9232E-09	* 0.00	* 0.01
	MILK	0.1064E-06	* 0.08	* 1.61

1
0 PERCENT OF THYROID DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.4467E-11	0.00	100.00
	SURFACE	0.8325E-08	2.69	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2868E-06	92.45	100.00
	INGEST.	0.1508E-07	4.87	100.00
	VEGET.	0.1484E-07	* 4.79	* 98.38
	MEAT	0.2100E-11	* 0.00	* 0.01
	MILK	0.2421E-09	* 0.08	* 1.61

1
0 PERCENT OF BREAST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.6908E-11	0.00	100.00
	SURFACE	0.1287E-07	4.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2898E-06	91.20	100.00
	INGEST.	0.1508E-07	4.75	100.00
	VEGET.	0.1484E-07	* 4.67	* 98.38
	MEAT	0.2100E-11	* 0.00	* 0.01
	MILK	0.2421E-09	* 0.08	* 1.61

1
0 PERCENT OF *PUL* DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.3168E-11	0.00	100.00
	SURFACE	0.5905E-08	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3213E-01	100.00	100.00
	INGEST.	0.1508E-07	0.00	100.00
	VEGET.	0.1484E-07	* 0.00	* 98.38
	MEAT	0.2100E-11	* 0.00	* 0.01
	MILK	0.2421E-09	* 0.00	* 1.61

1
0 PERCENT OF S WALL DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2795E-11	0.00	100.00
	SURFACE	0.5208E-08	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2855E-04	99.93	100.00
	INGEST.	0.1536E-07	0.05	100.00

	VEGET.	0.1511E-07	* 0.05	* 98.38
	MEAT	0.2138E-11	* 0.00	* 0.01
	MILK	0.2465E-09	* 0.00	* 1.61

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2755E-11	0.00	100.00
	SURFACE	0.5134E-08	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1949E-05	33.53	100.00
	INGEST.	0.3858E-05	66.38	100.00
	VEGET.	0.3796E-05	* 65.30	* 98.38
	MEAT	0.5372E-09	* 0.01	* 0.01
	MILK	0.6193E-07	* 1.07	* 1.61

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2834E-11	0.00	100.00
	SURFACE	0.5281E-08	1.71	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2892E-06	93.41	100.00
	INGEST.	0.1512E-07	4.88	100.00
	VEGET.	0.1487E-07	* 4.80	* 98.38
	MEAT	0.2104E-11	* 0.00	* 0.01
	MILK	0.2426E-09	* 0.08	* 1.61

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2303E-11	0.00	100.00
	SURFACE	0.4291E-08	1.40	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2880E-06	93.69	100.00
	INGEST.	0.1512E-07	4.92	100.00
	VEGET.	0.1487E-07	* 4.84	* 98.38
	MEAT	0.2105E-11	* 0.00	* 0.01
	MILK	0.2427E-09	* 0.08	* 1.61

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.2873E-11	0.00	100.00
	SURFACE	0.5354E-08	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4920E-04	94.97	100.00
	INGEST.	0.2599E-05	5.02	100.00
	VEGET.	0.2557E-05	* 4.94	* 98.38
	MEAT	0.3619E-09	* 0.00	* 0.01
	MILK	0.4172E-07	* 0.08	* 1.61

CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3483E-11	0.0000
SURFACE	0.6491E-08	0.0002
SWIMMING	0.1000E-24	0.0000
INHAL.	0.3873E-02	99.9732
INGEST.	0.1031E-05	0.0266
VEGET.	*0.1015E-05	* 0.0262
MEAT	*0.1436E-09	* 0.0000
MILK	*0.1656E-07	* 0.0004

CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2657E-11	0.0000
SURFACE	0.4951E-08	0.0599
SWIMMING	0.1000E-24	0.0000
INHAL.	0.7832E-05	94.8185
INGEST.	0.4231E-06	5.1216
VEGET.	*0.4162E-06	* 5.0387

0508

0	MEAT	*0.5890E-10	* 0.0007
0	MILK	*0.6791E-08	* 0.0822
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5235E-11	0.0000
0	SURFACE	0.9755E-08	0.0075
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1231E-03	94.8808
0	INGEST.	0.6631E-05	5.1117
0	VEGET.	*0.6524E-05	* 5.0289
0	MEAT	*0.9232E-09	* 0.0007
0	MILK	*0.1064E-08	* 0.0820
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4467E-11	0.0014
0	SURFACE	0.8325E-08	2.6853
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2866E-06	92.4478
0	INGEST.	0.1508E-07	4.8655
0	VEGET.	*0.1484E-07	* 4.7867
0	MEAT	*0.2100E-11	* 0.0007
0	MILK	*0.2421E-09	* 0.0781
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6908E-11	0.0022
0	SURFACE	0.1287E-07	4.0514
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2898E-06	91.1989
0	INGEST.	0.1508E-07	4.7475
0	VEGET.	*0.1484E-07	* 4.6707
0	MEAT	*0.2100E-11	* 0.0007
0	MILK	*0.2421E-09	* 0.0762
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3168E-11	0.0000
0	SURFACE	0.5905E-08	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.3213E-01	99.9999
0	INGEST.	0.1508E-07	0.0000
0	VEGET.	*0.1484E-07	* 0.0000
0	MEAT	*0.2100E-11	* 0.0000
0	MILK	*0.2421E-09	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2795E-11	0.0000
0	SURFACE	0.5208E-08	0.0182
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2855E-04	99.9280
0	INGEST.	0.1536E-07	0.0538
0	VEGET.	*0.1511E-07	* 0.0529
0	MEAT	*0.2138E-11	* 0.0000
0	MILK	*0.2465E-09	* 0.0009
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2755E-11	0.0000
0	SURFACE	0.5134E-08	0.0883
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1949E-05	33.5335
0	INGEST.	0.3858E-05	66.3781
0	VEGET.	*0.3796E-05	* 65.3034
0	MEAT	*0.5372E-09	* 0.0092
0	MILK	*0.6193E-07	* 1.0654
0	CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2834E-11	0.0009

0509

0	SURFACE	0.5281E-08	1.7068
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2892E-06	93.4109
0	INGEST.	0.1512E-07	4.8823
0	VEGET.	*0.1487E-07	* 4.8033
0	MEAT	*0.2104E-11	* 0.0007
0	MILK	*0.2426E-09	* 0.0784

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2303E-11	0.0007
0	SURFACE	0.4291E-08	1.3956
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2880E-06	93.6862
0	INGEST.	0.1512E-07	4.9175
0	VEGET.	*0.1487E-07	* 4.8379
0	MEAT	*0.2105E-11	* 0.0007
0	MILK	*0.2427E-09	* 0.0789

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2873E-11	0.0000
0	SURFACE	0.5354E-08	0.0103
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4920E-04	94.9726
0	INGEST.	0.2599E-05	5.0171
0	VEGET.	*0.2557E-05	* 4.9359
0	MEAT	*0.3619E-09	* 0.0007
0	MILK	*0.4172E-07	* 0.0805

1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

0	ORGAN	DOSE(REMS)
0	W BODY	0.3874E-02
0	R MAR	0.8260E-05
0	ENDOST	0.1297E-03
0	THYROID	0.3100E-06
0	BREAST	0.3177E-06
0	*PUL*	0.3213E-01
0	S WALL	0.2857E-04
0	INT WALL	0.5813E-05
0	LIVER	0.3096E-06
0	PANCREAS	0.3075E-06
0	KIDNEYS	0.5181E-04

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
U-233	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	U-233	W BODY	0.3874E-02	12	11
0	U-233	R MAR	0.8260E-05	12	11
0	U-233	ENDOST	0.1297E-03	12	11
0	U-233	THYROID	0.3100E-06	12	11
0	U-233	BREAST	0.3177E-06	12	11
0	U-233	*PUL*	0.3213E-01	12	11
0	U-233	S WALL	0.2857E-04	12	11
0	U-233	INT WALL	0.5813E-05	12	11
0	U-233	LIVER	0.3096E-06	12	11
0	U-233	PANCREAS	0.3075E-06	12	11
0	U-233	KIDNEYS	0.5181E-04	12	11

Building 68

Thorium-232

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=7,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC='TH-232',ISOL=Y,AMAD=1.0,REL=3.6 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FN=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 68 WITH 10% RELEASE
DOSE CALCULATED AT 1300 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION–

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-232	0.360E+01

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-232	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2969	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
0								
1		1300	TH-232	2.88E-07	1.66E-08	2.83E-09	1.94E-08	6.31E+03
1		1400	TH-232	2.54E-07	1.46E-08	2.62E-09	1.72E-08	6.30E+03
1		1500	TH-232	2.25E-07	1.30E-08	2.44E-09	1.54E-08	6.28E+03
1		1625	TH-232	1.97E-07	1.13E-08	2.25E-09	1.36E-08	6.27E+03
1		1700	TH-232	1.82E-07	1.05E-08	2.15E-09	1.26E-08	6.27E+03
1		1800	TH-232	1.66E-07	9.53E-09	2.02E-09	1.16E-08	6.26E+03
1		2000	TH-232	1.38E-07	7.95E-09	1.82E-09	9.77E-09	6.24E+03
1		2200	TH-232	1.18E-07	6.78E-09	1.65E-09	8.42E-09	6.23E+03
1		2500	TH-232	9.49E-08	5.46E-09	1.44E-09	6.91E-09	6.21E+03
1		5000	TH-232	3.24E-08	1.87E-09	7.01E-10	2.57E-09	6.07E+03
2		1300	TH-232	1.89E-07	1.09E-08	1.88E-09	1.28E-08	3.07E+03
2		1400	TH-232	1.67E-07	9.60E-09	1.74E-09	1.13E-08	3.06E+03
2		1500	TH-232	1.48E-07	8.52E-09	1.62E-09	1.01E-08	3.05E+03
2		1625	TH-232	1.29E-07	7.44E-09	1.49E-09	8.93E-09	3.05E+03
2		1700	TH-232	1.20E-07	6.89E-09	1.42E-09	8.31E-09	3.04E+03
2		1800	TH-232	1.09E-07	6.25E-09	1.34E-09	7.59E-09	3.04E+03
2		2000	TH-232	9.06E-08	5.21E-09	1.20E-09	6.41E-09	3.03E+03

2	2200	TH-232	7.71E-08	4.44E-09	1.09E-09	5.53E-09	3.02E+03
2	2500	TH-232	6.21E-08	3.58E-09	9.56E-10	4.53E-09	3.01E+03
2	5000	TH-232	2.11E-08	1.21E-09	4.61E-10	1.67E-09	2.92E+03
3	1300	TH-232	1.46E-07	8.43E-09	1.28E-09	9.68E-09	1.85E+03
3	1400	TH-232	1.29E-07	7.41E-09	1.16E-09	8.57E-09	1.85E+03
3	1500	TH-232	1.14E-07	6.56E-09	1.08E-09	7.64E-09	1.84E+03
3	1625	TH-232	9.93E-08	5.72E-09	9.94E-10	6.71E-09	1.84E+03
3	1700	TH-232	9.18E-08	5.29E-09	9.49E-10	6.23E-09	1.83E+03
3	1800	TH-232	8.32E-08	4.79E-09	8.93E-10	5.68E-09	1.83E+03
3	2000	TH-232	6.91E-08	3.98E-09	8.00E-10	4.78E-09	1.82E+03
3	2200	TH-232	5.87E-08	3.38E-09	7.25E-10	4.11E-09	1.82E+03
3	2500	TH-232	4.72E-08	2.72E-09	6.35E-10	3.35E-09	1.81E+03
3	5000	TH-232	1.56E-08	9.01E-10	3.03E-10	1.20E-09	1.54E+03
4	1300	TH-232	2.24E-07	1.29E-08	1.68E-09	1.45E-08	2.06E+03
4	1400	TH-232	1.96E-07	1.13E-08	1.55E-09	1.28E-08	2.06E+03
4	1500	TH-232	1.74E-07	9.99E-09	1.44E-09	1.14E-08	2.05E+03
4	1625	TH-232	1.51E-07	8.70E-09	1.33E-09	1.00E-08	2.04E+03
4	1700	TH-232	1.40E-07	8.05E-09	1.27E-09	9.31E-09	2.04E+03
4	1800	TH-232	1.26E-07	7.28E-09	1.19E-09	8.47E-09	2.03E+03
4	2000	TH-232	1.05E-07	6.04E-09	1.07E-09	7.11E-09	2.02E+03
4	2200	TH-232	8.92E-08	5.13E-09	9.66E-10	6.10E-09	2.01E+03
4	2500	TH-232	7.16E-08	4.12E-09	8.45E-10	4.97E-09	2.00E+03
4	5000	TH-232	2.36E-08	1.36E-09	4.01E-10	1.76E-09	1.90E+03
5	1300	TH-232	4.55E-07	2.62E-08	3.14E-09	2.93E-08	4.23E+03
5	1400	TH-232	4.00E-07	2.30E-08	2.90E-09	2.59E-08	4.22E+03
5	1500	TH-232	3.53E-07	2.03E-08	2.70E-09	2.30E-08	4.20E+03
5	1625	TH-232	3.08E-07	1.77E-08	2.48E-09	2.02E-08	4.18E+03
5	1700	TH-232	2.84E-07	1.64E-08	2.36E-09	1.87E-08	4.18E+03
5	1800	TH-232	2.57E-07	1.48E-08	2.23E-09	1.70E-08	4.16E+03
5	2000	TH-232	2.13E-07	1.23E-08	1.99E-09	1.43E-08	4.14E+03
5	2200	TH-232	1.81E-07	1.04E-08	1.80E-09	1.22E-08	4.12E+03
5	2500	TH-232	1.45E-07	8.37E-09	1.58E-09	9.95E-09	4.10E+03
5	5000	TH-232	4.78E-08	2.75E-09	7.48E-10	3.50E-09	3.91E+03
6	1300	TH-232	3.39E-07	1.95E-08	3.61E-09	2.31E-08	6.50E+03
6	1400	TH-232	2.99E-07	1.72E-08	3.34E-09	2.05E-08	6.49E+03
6	1500	TH-232	2.65E-07	1.52E-08	3.11E-09	1.84E-08	6.48E+03
6	1625	TH-232	2.31E-07	1.33E-08	2.87E-09	1.62E-08	6.46E+03
6	1700	TH-232	2.14E-07	1.23E-08	2.74E-09	1.50E-08	6.46E+03
6	1800	TH-232	1.94E-07	1.12E-08	2.58E-09	1.37E-08	6.45E+03
6	2000	TH-232	1.61E-07	9.28E-09	2.31E-09	1.16E-08	6.43E+03
6	2200	TH-232	1.37E-07	7.90E-09	2.10E-09	1.00E-08	6.41E+03
6	2500	TH-232	1.10E-07	6.36E-09	1.84E-09	8.19E-09	6.39E+03
6	5000	TH-232	3.70E-08	2.13E-09	8.91E-10	3.02E-09	6.23E+03
7	1300	TH-232	1.85E-07	1.07E-08	1.97E-09	1.27E-08	3.57E+03
7	1400	TH-232	1.63E-07	9.39E-09	1.83E-09	1.12E-08	3.56E+03
7	1500	TH-232	1.45E-07	8.32E-09	1.70E-09	1.00E-08	3.55E+03
7	1625	TH-232	1.26E-07	7.25E-09	1.57E-09	8.82E-09	3.55E+03
7	1700	TH-232	1.17E-07	6.71E-09	1.50E-09	8.21E-09	3.54E+03
7	1800	TH-232	1.06E-07	6.08E-09	1.41E-09	7.49E-09	3.54E+03
7	2000	TH-232	8.79E-08	5.06E-09	1.27E-09	6.32E-09	3.53E+03
7	2200	TH-232	7.48E-08	4.30E-09	1.15E-09	5.45E-09	3.52E+03
7	2500	TH-232	6.01E-08	3.46E-09	1.01E-09	4.47E-09	3.51E+03
7	5000	TH-232	2.00E-08	1.15E-09	4.88E-10	1.64E-09	3.42E+03
8	1300	TH-232	1.83E-07	1.05E-08	1.65E-09	1.22E-08	3.26E+03
8	1400	TH-232	1.61E-07	9.25E-09	1.53E-09	1.08E-08	3.25E+03
8	1500	TH-232	1.42E-07	8.19E-09	1.42E-09	9.61E-09	3.25E+03
8	1625	TH-232	1.24E-07	7.14E-09	1.31E-09	8.45E-09	3.24E+03
8	1700	TH-232	1.15E-07	6.61E-09	1.25E-09	7.86E-09	3.24E+03
8	1800	TH-232	1.04E-07	5.98E-09	1.18E-09	7.16E-09	3.23E+03
8	2000	TH-232	8.64E-08	4.97E-09	1.06E-09	6.03E-09	3.22E+03
8	2200	TH-232	7.35E-08	4.23E-09	9.57E-10	5.19E-09	3.21E+03
8	2500	TH-232	5.91E-08	3.40E-09	8.39E-10	4.24E-09	3.20E+03
8	5000	TH-232	1.96E-08	1.13E-09	4.05E-10	1.54E-09	3.12E+03
9	1300	TH-232	1.59E-07	9.12E-09	1.70E-09	1.08E-08	4.11E+03
9	1400	TH-232	1.40E-07	8.04E-09	1.57E-09	9.61E-09	4.10E+03

9	1500	TH-232	1.24E-07	7.13E-09	1.47E-09	8.60E-09	4.09E+03
9	1625	TH-232	1.08E-07	6.23E-09	1.35E-09	7.58E-09	4.09E+03
9	1700	TH-232	1.00E-07	5.77E-09	1.29E-09	7.06E-09	4.09E+03
9	1800	TH-232	9.08E-08	5.23E-09	1.22E-09	6.44E-09	4.08E+03
9	2000	TH-232	7.57E-08	4.36E-09	1.09E-09	5.46E-09	4.07E+03
9	2200	TH-232	6.45E-08	3.71E-09	9.89E-10	4.70E-09	4.06E+03
9	2500	TH-232	5.19E-08	2.99E-09	8.68E-10	3.86E-09	4.06E+03
9	5000	TH-232	1.76E-08	1.01E-09	4.23E-10	1.43E-09	3.98E+03
10	1300	TH-232	3.34E-07	1.93E-08	2.97E-09	2.22E-08	6.03E+03
10	1400	TH-232	2.94E-07	1.69E-08	2.75E-09	1.97E-08	6.01E+03
10	1500	TH-232	2.60E-07	1.50E-08	2.56E-09	1.75E-08	6.00E+03
10	1625	TH-232	2.27E-07	1.31E-08	2.36E-09	1.54E-08	5.99E+03
10	1700	TH-232	2.10E-07	1.21E-08	2.25E-09	1.43E-08	5.98E+03
10	1800	TH-232	1.90E-07	1.09E-08	2.12E-09	1.31E-08	5.97E+03
10	2000	TH-232	1.58E-07	9.09E-09	1.90E-09	1.10E-08	5.95E+03
10	2200	TH-232	1.34E-07	7.73E-09	1.72E-09	9.46E-09	5.94E+03
10	2500	TH-232	1.08E-07	6.22E-09	1.51E-09	7.73E-09	5.92E+03
10	5000	TH-232	3.59E-08	2.07E-09	7.29E-10	2.80E-09	5.77E+03
11	1300	TH-232	7.98E-07	4.59E-08	4.64E-09	5.06E-08	8.21E+03
11	1400	TH-232	7.00E-07	4.03E-08	4.29E-09	4.46E-08	8.18E+03
11	1500	TH-232	6.18E-07	3.56E-08	3.98E-09	3.96E-08	8.15E+03
11	1625	TH-232	5.38E-07	3.10E-08	3.68E-09	3.46E-08	8.12E+03
11	1700	TH-232	4.97E-07	2.86E-08	3.49E-09	3.21E-08	8.11E+03
11	1800	TH-232	4.50E-07	2.59E-08	3.29E-09	2.92E-08	8.09E+03
11	2000	TH-232	3.72E-07	2.14E-08	2.93E-09	2.44E-08	8.04E+03
11	2200	TH-232	3.16E-07	1.82E-08	2.66E-09	2.09E-08	8.02E+03
11	2500	TH-232	2.54E-07	1.46E-08	2.33E-09	1.69E-08	7.98E+03
11	5000	TH-232	8.30E-08	4.78E-09	1.10E-09	5.88E-09	7.65E+03
12	1300	TH-232	1.03E-06	5.94E-08	5.73E-09	6.51E-08	9.76E+03
12	1400	TH-232	9.05E-07	5.21E-08	5.29E-09	5.74E-08	9.73E+03
12	1500	TH-232	7.99E-07	4.60E-08	4.91E-09	5.09E-08	9.69E+03
12	1625	TH-232	6.96E-07	4.01E-08	4.51E-09	4.46E-08	9.66E+03
12	1700	TH-232	6.43E-07	3.70E-08	4.30E-09	4.13E-08	9.64E+03
12	1800	TH-232	5.82E-07	3.35E-08	4.05E-09	3.76E-08	9.61E+03
12	2000	TH-232	4.82E-07	2.77E-08	3.61E-09	3.13E-08	9.55E+03
12	2200	TH-232	4.09E-07	2.36E-08	3.27E-09	2.68E-08	9.52E+03
12	2500	TH-232	3.29E-07	1.89E-08	2.86E-09	2.18E-08	9.48E+03
12	5000	TH-232	1.08E-07	6.21E-09	1.35E-09	7.56E-09	9.05E+03
13	1300	TH-232	9.24E-07	5.32E-08	6.37E-09	5.96E-08	1.14E+04
13	1400	TH-232	8.12E-07	4.67E-08	5.89E-09	5.26E-08	1.14E+04
13	1500	TH-232	7.18E-07	4.14E-08	5.48E-09	4.68E-08	1.14E+04
13	1625	TH-232	6.26E-07	3.60E-08	5.04E-09	4.11E-08	1.13E+04
13	1700	TH-232	5.79E-07	3.33E-08	4.81E-09	3.81E-08	1.13E+04
13	1800	TH-232	5.24E-07	3.02E-08	4.53E-09	3.47E-08	1.13E+04
13	2000	TH-232	4.35E-07	2.50E-08	4.05E-09	2.91E-08	1.12E+04
13	2200	TH-232	3.70E-07	2.13E-08	3.67E-09	2.50E-08	1.12E+04
13	2500	TH-232	2.97E-07	1.71E-08	3.21E-09	2.03E-08	1.12E+04
13	5000	TH-232	9.88E-08	5.69E-09	1.53E-09	7.22E-09	1.08E+04
14	1300	TH-232	9.65E-07	5.56E-08	6.90E-09	6.25E-08	1.08E+04
14	1400	TH-232	8.48E-07	4.88E-08	6.38E-09	5.52E-08	1.07E+04
14	1500	TH-232	7.51E-07	4.32E-08	5.93E-09	4.92E-08	1.07E+04
14	1625	TH-232	6.55E-07	3.77E-08	5.46E-09	4.31E-08	1.07E+04
14	1700	TH-232	6.06E-07	3.49E-08	5.21E-09	4.01E-08	1.06E+04
14	1800	TH-232	5.48E-07	3.16E-08	4.90E-09	3.65E-08	1.06E+04
14	2000	TH-232	4.55E-07	2.62E-08	4.38E-09	3.06E-08	1.06E+04
14	2200	TH-232	3.87E-07	2.23E-08	3.97E-09	2.63E-08	1.05E+04
14	2500	TH-232	3.11E-07	1.79E-08	3.48E-09	2.14E-08	1.05E+04
14	5000	TH-232	1.04E-07	5.98E-09	1.66E-09	7.64E-09	1.00E+04
15	1300	TH-232	7.81E-07	4.50E-08	7.15E-09	5.21E-08	1.29E+04
15	1400	TH-232	6.88E-07	3.96E-08	6.62E-09	4.62E-08	1.29E+04
15	1500	TH-232	6.10E-07	3.51E-08	6.16E-09	4.13E-08	1.28E+04
15	1625	TH-232	5.33E-07	3.07E-08	5.67E-09	3.63E-08	1.28E+04
15	1700	TH-232	4.93E-07	2.84E-08	5.41E-09	3.38E-08	1.28E+04
15	1800	TH-232	4.47E-07	2.57E-08	5.10E-09	3.08E-08	1.28E+04
15	2000	TH-232	3.73E-07	2.14E-08	4.57E-09	2.60E-08	1.27E+04

15	2200	TH-232	3.17E-07	1.83E-08	4.14E-09	2.24E-08	1.27E+04
15	2500	TH-232	2.55E-07	1.47E-08	3.63E-09	1.83E-08	1.27E+04
15	5000	TH-232	8.64E-08	4.97E-09	1.75E-09	6.72E-09	1.23E+04
16	1300	TH-232	5.46E-07	3.14E-08	5.30E-09	3.67E-08	1.28E+04
16	1400	TH-232	4.81E-07	2.77E-08	4.91E-09	3.26E-08	1.27E+04
16	1500	TH-232	4.27E-07	2.46E-08	4.57E-09	2.92E-08	1.27E+04
16	1625	TH-232	3.73E-07	2.15E-08	4.21E-09	2.57E-08	1.27E+04
16	1700	TH-232	3.45E-07	1.99E-08	4.02E-09	2.39E-08	1.27E+04
16	1800	TH-232	3.13E-07	1.80E-08	3.79E-09	2.18E-08	1.27E+04
16	2000	TH-232	2.61E-07	1.50E-08	3.40E-09	1.84E-08	1.26E+04
16	2200	TH-232	2.22E-07	1.28E-08	3.08E-09	1.59E-08	1.26E+04
16	2500	TH-232	1.79E-07	1.03E-08	2.71E-09	1.30E-08	1.26E+04
16	5000	TH-232	6.09E-08	3.51E-09	1.31E-09	4.82E-09	1.23E+04

1 GROUND-LEVEL CHI/Q VALUES FOR TH-232 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1

0

0

0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0

0 REMOVAL RATE CONSTANT FOR PHYSICAL LOSS BY WEATHERING (PER HOUR) 0.2900E-02
0 PERIOD OF EXPOSURE DURING GROWING SEASON–PASTURE GRASS (HR) 0.7200E+03
0 PERIOD OF EXPOSURE DURING GROWING SEASON–CROPS OR LEAFY VEGETABLES (HR)
0.1440E+04
0 AGRICULTURAL PRODUCTIVITY BY UNIT AREA (GRASS-COW-MILK-MAN PATHWAY (KG/SQ. METER))
0.2800E+00
0 AGRICULTURAL PRODUCTIVITY BY UNIT AREA (PRODUCE OR LEAFY VEG INGESTED BY MAN (KG/SQ. METER))
0.7160E+00
0 FRACTION OF YEAR ANIMALS GRAZE ON PASTURE 0.4000E+00
0 FRACTION OF DAILY FEED THAT IS PASTURE GRASS WHEN ANIMAL GRAZES ON PASTURE 0.4300E+00
0 CONSUMPTION RATE OF CONTAMINATED FEED OR FORAGE BY AN ANIMAL IN KG/DAY (DRY WEIGHT)
0.1560E+02
0 TRANSPORT TIME FROM ANIMAL FEED-MILK-MAN (DAY) 0.2000E+01
0 RATE OF INGESTION OF PRODUCE BY MAN (KG/YR) 0.1760E+03
0 RATE OF INGESTION OF MILK BY MAN (LITERS/YR) 0.1120E+03
0 RATE OF INGESTION OF MEAT BY MAN (KG/YR) 0.8500E+02
0 RATE OF INGESTION OF LEAFY VEGETABLES BY MAN (KG/YR) 0.1800E+02
0 AVERAGE TIME FROM SLAUGHTER OF MEAT ANIMAL TO CONSUMPTION (DAY) 0.2000E+02
0 FRACTION OF PRODUCE INGESTED GROWN IN GARDEN OF INTEREST 0.1000E+01
0 FRACTION OF LEAFY VEGETABLES GROWN IN GARDEN OF INTEREST 0.1000E+01
0 PERIOD OF LONG-TERM BUILDUP FOR ACTIVITY IN SOIL (YEARS) 0.1000E+01
0 EFFECTIVE SURFACE DENSITY OF SOIL (KG/SQ. M, DRY WEIGHT) (ASSUMES 15 CM PLOW LAYER)
0.2150E+03
0 VEGETABLE INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA 0.1000E+01
0 MEAT INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA 0.1000E+01
0 MILK INGESTION RATIO-IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA 0.1000E+01
0
MINIMUM FRACTIONS OF FOOD TYPES FROM OUTSIDE AREA LISTED BELOW ARE ACTUAL FIXED VALUES
0 MINIMUM FRACTION VEGETABLES INGESTED FROM OUTSIDE AREA 0.5000E+00
0 MINIMUM FRACTION MEAT INGESTED FROM OUTSIDE AREA 0.5000E+00
0 MINIMUM FRACTION MILK INGESTED FROM OUTSIDE AREA 0.5000E+00
0 INHALATION RATE OF MAN (CUBIC CENTIMETERS/HR) 0.9167E+06
0 BUILDUP TIME FOR RADIONUCLIDES DEPOSITED ON GROUND AND WATER (DAYS) 0.3652E+03
0 DILUTION FACTOR FOR WATER FOR SWIMMING (CM) 0.1000E+01
0 FRACTION OF TIME SPENT SWIMMING 0.0000E+00
0 MUSCLE MASS OF ANIMAL AT SLAUGHTER (KG) 0.2000E+03
0 FRACTION OF ANIMAL HERD SLAUGHTERED PER DAY 0.3800E-02
0 MILK PRODUCTION OF COW (LITERS/DAY) 0.1100E+02
0 FALLOUT INTERCEPTION FRACTION-VEGETABLES 0.2000E+00
0 FALLOUT INTERCEPTION FRACTION-PASTURE 0.5700E+00
0 FRACTION OF RADIOACTIVITY RETAINED ON LEAFY VEGETABLES AND PRODUCE AFTER WASHING
0.5000E+00
1 COMPUTED VALUES FOR THE AREA
0 TOTAL POPULATION 16965100.0
0 TOTAL NUMBER OF MEAT ANIMALS 117024
0 TOTAL NUMBER OF MILK CATTLE 171888
0 TOTAL AREA OF VEGETABLE FOOD CROPS (SQUARE METERS) 0.3775E+09
0 TOTAL MEAT CONSUMPTION (KG PER YEAR) 0.1442E+10
0 TOTAL MEAT PRODUCTION (KG PER YEAR) 0.3246E+08
0 TOTAL MILK CONSUMPTION (LITERS/YEAR) 0.1900E+10
0 TOTAL MILK PRODUCTION (LITERS/YEAR) 0.6901E+09
0 TOTAL VEGETABLE FOOD CONSUMPTION (KG PER YEAR) 0.3291E+10
0 TOTAL VEGETABLE FOOD PRODUCED (KG PER YEAR) 0.2703E+09
1 LIST OF INPUT DATA FOR NUCLIDE TH-232
0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1350E-12
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS

0.3500E-03

(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.208E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.685E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

0 DIRECTION	AREA DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1300	0.288E-12	0.612E-08	0.322E+04	0.231E+04
1	1400	0.254E-12	0.544E-08	0.286E+04	0.204E+04
1	1500	0.225E-12	0.487E-08	0.256E+04	0.181E+04
1	1625	0.197E-12	0.429E-08	0.225E+04	0.158E+04
1	1700	0.182E-12	0.399E-08	0.210E+04	0.147E+04
1	1800	0.166E-12	0.365E-08	0.191E+04	0.133E+04
1	2000	0.138E-12	0.308E-08	0.162E+04	0.111E+04
1	2200	0.118E-12	0.266E-08	0.140E+04	0.946E+03
1	2500	0.949E-13	0.218E-08	0.115E+04	0.762E+03
1	5000	0.324E-13	0.810E-09	0.426E+03	0.261E+03
2	1300	0.189E-12	0.403E-08	0.212E+04	0.152E+04
2	1400	0.167E-12	0.358E-08	0.188E+04	0.134E+04
2	1500	0.148E-12	0.320E-08	0.168E+04	0.119E+04
2	1625	0.129E-12	0.282E-08	0.148E+04	0.104E+04
2	1700	0.120E-12	0.262E-08	0.138E+04	0.961E+03
2	1800	0.109E-12	0.240E-08	0.126E+04	0.872E+03
2	2000	0.906E-13	0.202E-08	0.106E+04	0.727E+03
2	2200	0.771E-13	0.174E-08	0.917E+03	0.619E+03
2	2500	0.621E-13	0.143E-08	0.751E+03	0.499E+03
2	5000	0.211E-13	0.528E-09	0.278E+03	0.169E+03
3	1300	0.146E-12	0.306E-08	0.161E+04	0.118E+04
3	1400	0.129E-12	0.270E-08	0.142E+04	0.103E+04
3	1500	0.114E-12	0.241E-08	0.127E+04	0.915E+03
3	1625	0.993E-13	0.212E-08	0.111E+04	0.797E+03
3	1700	0.918E-13	0.197E-08	0.103E+04	0.737E+03
3	1800	0.832E-13	0.179E-08	0.941E+03	0.668E+03
3	2000	0.691E-13	0.151E-08	0.792E+03	0.555E+03
3	2200	0.587E-13	0.130E-08	0.681E+03	0.472E+03
3	2500	0.472E-13	0.106E-08	0.556E+03	0.379E+03
3	5000	0.156E-13	0.380E-09	0.200E+03	0.126E+03
4	1300	0.224E-12	0.459E-08	0.241E+04	0.179E+04
4	1400	0.196E-12	0.405E-08	0.213E+04	0.158E+04
4	1500	0.174E-12	0.361E-08	0.190E+04	0.139E+04
4	1625	0.151E-12	0.316E-08	0.166E+04	0.121E+04

4	1700	0.140E-12	0.294E-08	0.154E+04	0.112E+04
4	1800	0.128E-12	0.267E-08	0.140E+04	0.102E+04
4	2000	0.105E-12	0.224E-08	0.118E+04	0.843E+03
4	2200	0.892E-13	0.192E-08	0.101E+04	0.716E+03
4	2500	0.716E-13	0.157E-08	0.823E+03	0.575E+03
4	5000	0.236E-13	0.555E-09	0.292E+03	0.190E+03
5	1300	0.455E-12	0.926E-08	0.486E+04	0.368E+04
5	1400	0.400E-12	0.817E-08	0.429E+04	0.321E+04
5	1500	0.353E-12	0.727E-08	0.382E+04	0.284E+04
5	1625	0.308E-12	0.637E-08	0.335E+04	0.247E+04
5	1700	0.284E-12	0.591E-08	0.310E+04	0.228E+04
5	1800	0.257E-12	0.537E-08	0.282E+04	0.207E+04
5	2000	0.213E-12	0.450E-08	0.236E+04	0.171E+04
5	2200	0.181E-12	0.386E-08	0.203E+04	0.146E+04
5	2500	0.145E-12	0.314E-08	0.165E+04	0.117E+04
5	5000	0.478E-13	0.110E-08	0.580E+03	0.384E+03
6	1300	0.339E-12	0.730E-08	0.384E+04	0.273E+04
6	1400	0.299E-12	0.648E-08	0.340E+04	0.240E+04
6	1500	0.265E-12	0.579E-08	0.304E+04	0.213E+04
6	1625	0.231E-12	0.510E-08	0.268E+04	0.185E+04
6	1700	0.214E-12	0.475E-08	0.249E+04	0.172E+04
6	1800	0.194E-12	0.433E-08	0.228E+04	0.156E+04
6	2000	0.161E-12	0.366E-08	0.192E+04	0.130E+04
6	2200	0.137E-12	0.315E-08	0.166E+04	0.110E+04
6	2500	0.110E-12	0.259E-08	0.136E+04	0.887E+03
6	5000	0.370E-13	0.953E-09	0.501E+03	0.297E+03
7	1300	0.185E-12	0.399E-08	0.210E+04	0.149E+04
7	1400	0.163E-12	0.354E-08	0.186E+04	0.131E+04
7	1500	0.145E-12	0.316E-08	0.166E+04	0.116E+04
7	1625	0.126E-12	0.278E-08	0.146E+04	0.101E+04
7	1700	0.117E-12	0.259E-08	0.136E+04	0.937E+03
7	1800	0.106E-12	0.236E-08	0.124E+04	0.848E+03
7	2000	0.879E-13	0.200E-08	0.105E+04	0.706E+03
7	2200	0.748E-13	0.172E-08	0.904E+03	0.600E+03
7	2500	0.601E-13	0.141E-08	0.740E+03	0.483E+03
7	5000	0.200E-13	0.517E-09	0.271E+03	0.160E+03
8	1300	0.183E-12	0.384E-08	0.202E+04	0.147E+04
8	1400	0.161E-12	0.340E-08	0.179E+04	0.129E+04
8	1500	0.142E-12	0.303E-08	0.159E+04	0.114E+04
8	1625	0.124E-12	0.267E-08	0.140E+04	0.996E+03
8	1700	0.115E-12	0.248E-08	0.130E+04	0.922E+03
8	1800	0.104E-12	0.226E-08	0.119E+04	0.835E+03
8	2000	0.864E-13	0.190E-08	0.999E+03	0.694E+03
8	2200	0.735E-13	0.164E-08	0.860E+03	0.590E+03
8	2500	0.591E-13	0.134E-08	0.703E+03	0.475E+03
8	5000	0.196E-13	0.485E-09	0.255E+03	0.158E+03
9	1300	0.159E-12	0.341E-08	0.179E+04	0.127E+04
9	1400	0.140E-12	0.303E-08	0.159E+04	0.112E+04
9	1500	0.124E-12	0.271E-08	0.143E+04	0.995E+03
9	1625	0.108E-12	0.239E-08	0.126E+04	0.869E+03
9	1700	0.100E-12	0.223E-08	0.117E+04	0.804E+03
9	1800	0.908E-13	0.203E-08	0.107E+04	0.729E+03
9	2000	0.757E-13	0.172E-08	0.903E+03	0.608E+03
9	2200	0.645E-13	0.148E-08	0.779E+03	0.518E+03
9	2500	0.519E-13	0.122E-08	0.640E+03	0.417E+03
9	5000	0.176E-13	0.452E-09	0.238E+03	0.141E+03
10	1300	0.334E-12	0.701E-08	0.368E+04	0.269E+04
10	1400	0.294E-12	0.621E-08	0.326E+04	0.236E+04
10	1500	0.260E-12	0.554E-08	0.291E+04	0.209E+04
10	1625	0.227E-12	0.487E-08	0.256E+04	0.182E+04
10	1700	0.210E-12	0.452E-08	0.238E+04	0.169E+04
10	1800	0.190E-12	0.412E-08	0.217E+04	0.153E+04
10	2000	0.158E-12	0.347E-08	0.182E+04	0.127E+04
10	2200	0.134E-12	0.298E-08	0.157E+04	0.108E+04
10	2500	0.108E-12	0.244E-08	0.128E+04	0.867E+03

10	5000	0.359E-13	0.883E-09	0.464E+03	0.289E+03
11	1300	0.798E-12	0.160E-07	0.839E+04	0.641E+04
11	1400	0.700E-12	0.141E-07	0.739E+04	0.562E+04
11	1500	0.618E-12	0.125E-07	0.656E+04	0.497E+04
11	1625	0.538E-12	0.109E-07	0.574E+04	0.432E+04
11	1700	0.497E-12	0.101E-07	0.532E+04	0.399E+04
11	1800	0.450E-12	0.920E-08	0.484E+04	0.361E+04
11	2000	0.372E-12	0.769E-08	0.404E+04	0.299E+04
11	2200	0.316E-12	0.658E-08	0.346E+04	0.254E+04
11	2500	0.254E-12	0.534E-08	0.281E+04	0.204E+04
11	5000	0.830E-13	0.185E-08	0.974E+03	0.667E+03
12	1300	0.103E-11	0.205E-07	0.108E+05	0.828E+04
12	1400	0.905E-12	0.181E-07	0.951E+04	0.727E+04
12	1500	0.799E-12	0.161E-07	0.844E+04	0.642E+04
12	1625	0.696E-12	0.141E-07	0.739E+04	0.559E+04
12	1700	0.643E-12	0.130E-07	0.685E+04	0.516E+04
12	1800	0.582E-12	0.118E-07	0.622E+04	0.467E+04
12	2000	0.482E-12	0.989E-08	0.520E+04	0.387E+04
12	2200	0.409E-12	0.847E-08	0.445E+04	0.329E+04
12	2500	0.329E-12	0.687E-08	0.361E+04	0.264E+04
12	5000	0.108E-12	0.239E-08	0.125E+04	0.867E+03
13	1300	0.924E-12	0.188E-07	0.987E+04	0.742E+04
13	1400	0.812E-12	0.166E-07	0.872E+04	0.652E+04
13	1500	0.718E-12	0.148E-07	0.776E+04	0.577E+04
13	1625	0.626E-12	0.130E-07	0.681E+04	0.503E+04
13	1700	0.579E-12	0.120E-07	0.632E+04	0.465E+04
13	1800	0.524E-12	0.109E-07	0.575E+04	0.421E+04
13	2000	0.435E-12	0.918E-08	0.482E+04	0.349E+04
13	2200	0.370E-12	0.788E-08	0.414E+04	0.297E+04
13	2500	0.297E-12	0.641E-08	0.337E+04	0.239E+04
13	5000	0.988E-13	0.228E-08	0.120E+04	0.794E+03
14	1300	0.965E-12	0.197E-07	0.104E+05	0.775E+04
14	1400	0.848E-12	0.174E-07	0.915E+04	0.681E+04
14	1500	0.751E-12	0.155E-07	0.815E+04	0.603E+04
14	1625	0.655E-12	0.136E-07	0.715E+04	0.526E+04
14	1700	0.606E-12	0.126E-07	0.664E+04	0.488E+04
14	1800	0.548E-12	0.115E-07	0.604E+04	0.440E+04
14	2000	0.455E-12	0.966E-08	0.507E+04	0.366E+04
14	2200	0.387E-12	0.829E-08	0.435E+04	0.311E+04
14	2500	0.311E-12	0.675E-08	0.355E+04	0.250E+04
14	5000	0.104E-12	0.241E-08	0.127E+04	0.834E+03
15	1300	0.781E-12	0.164E-07	0.864E+04	0.627E+04
15	1400	0.688E-12	0.146E-07	0.766E+04	0.552E+04
15	1500	0.610E-12	0.130E-07	0.684E+04	0.490E+04
15	1625	0.533E-12	0.115E-07	0.602E+04	0.428E+04
15	1700	0.493E-12	0.107E-07	0.560E+04	0.396E+04
15	1800	0.447E-12	0.973E-08	0.511E+04	0.359E+04
15	2000	0.373E-12	0.821E-08	0.431E+04	0.299E+04
15	2200	0.317E-12	0.707E-08	0.371E+04	0.255E+04
15	2500	0.255E-12	0.579E-08	0.304E+04	0.205E+04
15	5000	0.864E-13	0.212E-08	0.111E+04	0.694E+03
16	1300	0.546E-12	0.116E-07	0.609E+04	0.439E+04
16	1400	0.481E-12	0.103E-07	0.540E+04	0.386E+04
16	1500	0.427E-12	0.920E-08	0.483E+04	0.343E+04
16	1625	0.373E-12	0.810E-08	0.426E+04	0.299E+04
16	1700	0.345E-12	0.754E-08	0.396E+04	0.277E+04
16	1800	0.313E-12	0.688E-08	0.362E+04	0.251E+04
16	2000	0.261E-12	0.582E-08	0.306E+04	0.210E+04
16	2200	0.222E-12	0.501E-08	0.263E+04	0.179E+04
16	2500	0.179E-12	0.411E-08	0.216E+04	0.144E+04
16	5000	0.609E-13	0.152E-08	0.799E+03	0.489E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.7380E-09	0.00	100.00
	SURFACE	0.1680E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9524E+01	99.69	100.00
	INGEST.	0.2946E-01	0.31	100.00
	VEGET.	0.2943E-01	* 0.31	* 99.93
	MEAT	0.4175E-05	* 0.00	* 0.01
	MILK	0.1719E-04	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-232	SUBM AIR	0.4017E-09	0.00	100.00
	SURFACE	0.9144E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1226E+02	99.52	100.00
	INGEST.	0.5913E-01	0.48	100.00
	VEGET.	0.5908E-01	* 0.48	* 99.93
	MEAT	0.8380E-05	* 0.00	* 0.01
	MILK	0.3451E-04	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-232	SUBM AIR	0.1074E-08	0.00	100.00
	SURFACE	0.2446E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1532E+03	99.52	100.00
	INGEST.	0.7391E+00	0.48	100.00
	VEGET.	0.7385E+00	* 0.48	* 99.93
	MEAT	0.1048E-03	* 0.00	* 0.01
	MILK	0.4313E-03	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-232	SUBM AIR	0.9155E-09	0.00	100.00
	SURFACE	0.2084E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1839E-01	99.73	100.00
	INGEST.	0.4834E-04	0.26	100.00
	VEGET.	0.4830E-04	* 0.26	* 99.93
	MEAT	0.6851E-08	* 0.00	* 0.01
	MILK	0.2821E-07	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-232	SUBM AIR	0.2065E-08	0.00	100.00
	SURFACE	0.4700E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1880E-01	99.71	100.00
	INGEST.	0.5028E-04	0.27	100.00
	VEGET.	0.5024E-04	* 0.27	* 99.93
	MEAT	0.7126E-08	* 0.00	* 0.01
	MILK	0.2934E-07	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-232	SUBM AIR	0.6166E-09	0.00	100.00
	SURFACE	0.1404E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2882E+02	100.00	100.00
	INGEST.	0.4996E-04	0.00	100.00
	VEGET.	0.4992E-04	* 0.00	* 99.93
	MEAT	0.7081E-08	* 0.00	* 0.01
	MILK	0.2916E-07	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.5138E-09	0.00	100.00
	SURFACE	0.1170E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1084E-01	99.42	100.00
	INGEST.	0.6178E-04	0.57	100.00
	VEGET.	0.6174E-04	* 0.57	* 99.93
	MEAT	0.8757E-08	* 0.00	* 0.01
	MILK	0.3606E-07	* 0.00	* 0.06

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.4858E-09	0.00	100.00
	SURFACE	0.1106E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1162E-01	92.65	100.00
	INGEST.	0.9207E-03	7.34	100.00
	VEGET.	0.9200E-03	* 7.34	* 99.93
	MEAT	0.1305E-06	* 0.00	* 0.01
	MILK	0.5373E-06	* 0.00	* 0.06

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.5418E-09	0.00	100.00
	SURFACE	0.1233E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6669E-01	99.69	100.00
	INGEST.	0.2050E-03	0.31	100.00
	VEGET.	0.2049E-03	* 0.31	* 99.93
	MEAT	0.2906E-07	* 0.00	* 0.01
	MILK	0.1196E-06	* 0.00	* 0.06

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.3830E-09	0.00	100.00
	SURFACE	0.8719E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1089E-01	99.77	100.00
	INGEST.	0.2471E-04	0.23	100.00
	VEGET.	0.2469E-04	* 0.23	* 99.93
	MEAT	0.3502E-08	* 0.00	* 0.01
	MILK	0.1442E-07	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-232	SUBM AIR	0.5792E-09	0.00	100.00
	SURFACE	0.1318E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1088E-01	99.76	100.00
	INGEST.	0.2441E-04	0.22	100.00
	VEGET.	0.2439E-04	* 0.22	* 99.93
	MEAT	0.3459E-08	* 0.00	* 0.01
	MILK	0.1424E-07	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7380E-09	0.0000
0	SURFACE	0.1680E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.9524E+01	99.6917
0	INGEST.	0.2946E-01	0.3083
0	VEGET.	*0.2943E-01	* 0.3081
0	MEAT	*0.4175E-05	* 0.0000
0	MILK	*0.1719E-04	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE ANNUAL DOSE(REMS) PERCENT OF TOTAL DOSE

0	SUBM AIR	0.4017E-09	0.0000
0	SURFACE	0.9144E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1226E+02	99.5199
0	INGEST.	0.5913E-01	0.4801
0	VEGET.	*0.5906E-01	* 0.4797
0	MEAT	*0.8380E-06	* 0.0001
0	MILK	*0.3451E-04	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1074E-08	0.0000
0	SURFACE	0.2446E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1532E+03	99.5199
0	INGEST.	0.7391E+00	0.4801
0	VEGET.	*0.7385E+00	* 0.4797
0	MEAT	*0.1048E-03	* 0.0001
0	MILK	*0.4313E-03	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.9155E-09	0.0000
0	SURFACE	0.2084E-05	0.0113
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1839E-01	99.7285
0	INGEST.	0.4834E-04	0.2622
0	VEGET.	*0.4830E-04	* 0.2620
0	MEAT	*0.6851E-08	* 0.0000
0	MILK	*0.2821E-07	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2065E-08	0.0000
0	SURFACE	0.4700E-05	0.0249
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1880E-01	99.7084
0	INGEST.	0.5028E-04	0.2667
0	VEGET.	*0.5024E-04	* 0.2665
0	MEAT	*0.7126E-08	* 0.0000
0	MILK	*0.2934E-07	* 0.0002
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6166E-09	0.0000
0	SURFACE	0.1404E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2882E+02	99.9998
0	INGEST.	0.4996E-04	0.0002
0	VEGET.	*0.4992E-04	* 0.0002
0	MEAT	*0.7081E-08	* 0.0000
0	MILK	*0.2916E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.5138E-09	0.0000
0	SURFACE	0.1170E-05	0.0107
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1084E-01	99.4227
0	INGEST.	0.6178E-04	0.5666
0	VEGET.	*0.6174E-04	* 0.5662
0	MEAT	*0.8757E-08	* 0.0001
0	MILK	*0.3606E-07	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4858E-09	0.0000
0	SURFACE	0.1106E-05	0.0088
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1162E-01	92.6501
0	INGEST.	0.9207E-03	7.3410

```
0        VEGET.                    *0.9200E-03                    *  7.3357
0        MEAT                      *0.1305E-06                    *  0.0010
0        MILK                      *0.5373E-06                    *  0.0043
0                        CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.5418E-09                       0.0000
0      SURFACE                    0.1233E-05                       0.0018
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.6669E-01                      99.6917
0      INGEST.                    0.2050E-03                       0.3064
0        VEGET.                   *0.2049E-03                    *  0.3062
0        MEAT                     *0.2906E-07                    *  0.0000
0        MILK                     *0.1196E-06                    *  0.0002
0                        CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.3830E-09                       0.0000
0      SURFACE                    0.6719E-06                       0.0060
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.1069E-01                      99.7657
0      INGEST.                    0.2471E-04                       0.2263
0        VEGET.                   *0.2469E-04                    *  0.2262
0        MEAT                     *0.3502E-08                    *  0.0000
0        MILK                     *0.1442E-07                    *  0.0001
0                        CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.5792E-09                       0.0000
0      SURFACE                    0.1318E-05                       0.0121
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.1088E-01                      99.7642
0      INGEST.                    0.2441E-04                       0.2237
0        VEGET.                   *0.2439E-04                    *  0.2236
0        MEAT                     *0.3459E-08                    *  0.0000
0        MILK                     *0.1424E-07                    *  0.0001
1                        TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                     ORGAN                    DOSE(REMS)
0                     W BODY                   0.9554E+01
0                     R MAR                    0.1232E+02
0                     ENDOST                   0.1540E+03
0                     THYROID                  0.1844E-01
0                     BREAST                   0.1886E-01
0                     *PUL*                    0.2882E+02
0                     S WALL                   0.1090E-01
0                     INT WALL                 0.1254E-01
0                     LIVER                    0.6690E-01
0                     PANCREAS                 0.1092E-01
0                     KIDNEYS                  0.1091E-01
1                        CONTRIBUTORS TO ORGAN DOSES
0                                   PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 TH-232   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                        ANNUAL DOSES(REMS)
0          NUCLIDE      ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN   ROW
0          TH-232       W BODY       0.9554E+01                 12      7
0          TH-232       R MAR        0.1232E+02                 12      7
0          TH-232       ENDOST       0.1540E+03                 12      7
0          TH-232       THYROID      0.1844E-01                 12      7
0          TH-232       BREAST       0.1886E-01                 12      7
0          TH-232       *PUL*        0.2882E+02                 12      7
0          TH-232       S WALL       0.1090E-01                 12      7
0          TH-232       INT WALL     0.1254E-01                 12      7
0          TH-232       LIVER        0.6690E-01                 12      7
0          TH-232       PANCREAS     0.1092E-01                 12      7
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0	TH-232	KIDNEYS	0.1091E-01	12	7

Building 68

Radium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=7,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC=Ra-228 ,ISOL=Y,AMAD=1.0,REL=3.6 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 68 WITH 10% RELEASE
DOSE CALCULATED AT 1300 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION–

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.360E+01

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.06	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.86	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA		NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
			(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)
WIND TOWARD	DISTANCE (METERS)						
0							
1	1300	RA-228	2.88E-07	1.66E-08	2.83E-09	1.94E-08	6.31E+03
1	1400	RA-228	2.54E-07	1.46E-08	2.62E-09	1.72E-08	6.30E+03
1	1500	RA-228	2.25E-07	1.30E-08	2.44E-09	1.54E-08	6.28E+03
1	1625	RA-228	1.97E-07	1.13E-08	2.25E-09	1.36E-08	6.27E+03
1	1700	RA-228	1.82E-07	1.05E-08	2.15E-09	1.26E-08	6.27E+03
1	1800	RA-228	1.66E-07	9.53E-09	2.02E-09	1.16E-08	6.26E+03
1	2000	RA-228	1.38E-07	7.95E-09	1.82E-09	9.77E-09	6.24E+03
1	2200	RA-228	1.18E-07	6.78E-09	1.65E-09	8.42E-09	6.23E+03
1	2500	RA-228	9.49E-08	5.46E-09	1.44E-09	6.91E-09	6.21E+03
1	5000	RA-228	3.24E-08	1.87E-09	7.01E-10	2.57E-09	6.07E+03
2	1300	RA-228	1.89E-07	1.09E-08	1.88E-09	1.28E-08	3.07E+03
2	1400	RA-228	1.67E-07	9.60E-09	1.74E-09	1.13E-08	3.06E+03
2	1500	RA-228	1.48E-07	8.52E-09	1.62E-09	1.01E-08	3.05E+03
2	1625	RA-228	1.29E-07	7.44E-09	1.49E-09	8.93E-09	3.05E+03
2	1700	RA-228	1.20E-07	6.89E-09	1.42E-09	8.31E-09	3.04E+03
2	1800	RA-228	1.09E-07	6.25E-09	1.34E-09	7.59E-09	3.04E+03
2	2000	RA-228	9.06E-08	5.21E-09	1.20E-09	6.41E-09	3.03E+03

2	2200	RA-228	7.71E-08	4.44E-09	1.09E-09	5.53E-09	3.02E+03
2	2500	RA-228	6.21E-08	3.58E-09	9.56E-10	4.53E-09	3.01E+03
2	5000	RA-228	2.11E-08	1.21E-09	4.61E-10	1.67E-09	2.92E+03
3	1300	RA-228	1.46E-07	8.43E-09	1.26E-09	9.68E-09	1.65E+03
3	1400	RA-228	1.29E-07	7.41E-09	1.16E-09	8.57E-09	1.65E+03
3	1500	RA-228	1.14E-07	6.56E-09	1.08E-09	7.64E-09	1.64E+03
3	1625	RA-228	9.93E-08	5.72E-09	9.94E-10	6.71E-09	1.64E+03
3	1700	RA-228	9.18E-08	5.29E-09	9.49E-10	6.23E-09	1.63E+03
3	1800	RA-228	8.32E-08	4.79E-09	8.93E-10	5.68E-09	1.63E+03
3	2000	RA-228	6.91E-08	3.98E-09	8.00E-10	4.78E-09	1.62E+03
3	2200	RA-228	5.87E-08	3.38E-09	7.25E-10	4.11E-09	1.62E+03
3	2500	RA-228	4.72E-08	2.72E-09	6.35E-10	3.36E-09	1.61E+03
3	5000	RA-228	1.56E-08	9.01E-10	3.03E-10	1.20E-09	1.54E+03
4	1300	RA-228	2.24E-07	1.29E-08	1.68E-09	1.45E-08	2.06E+03
4	1400	RA-228	1.96E-07	1.13E-08	1.55E-09	1.28E-08	2.06E+03
4	1500	RA-228	1.74E-07	9.99E-09	1.44E-09	1.14E-08	2.05E+03
4	1625	RA-228	1.51E-07	8.70E-09	1.33E-09	1.00E-08	2.04E+03
4	1700	RA-228	1.40E-07	8.05E-09	1.27E-09	9.31E-09	2.04E+03
4	1800	RA-228	1.26E-07	7.28E-09	1.19E-09	8.47E-09	2.03E+03
4	2000	RA-228	1.05E-07	6.04E-09	1.07E-09	7.11E-09	2.02E+03
4	2200	RA-228	8.92E-08	5.13E-09	9.66E-10	6.10E-09	2.01E+03
4	2500	RA-228	7.16E-08	4.12E-09	8.45E-10	4.97E-09	2.00E+03
4	5000	RA-228	2.36E-08	1.36E-09	4.01E-10	1.76E-09	1.90E+03
5	1300	RA-228	4.55E-07	2.62E-08	3.14E-09	2.93E-08	4.23E+03
5	1400	RA-228	4.00E-07	2.30E-08	2.90E-09	2.59E-08	4.22E+03
5	1500	RA-228	3.53E-07	2.03E-08	2.70E-09	2.30E-08	4.20E+03
5	1625	RA-228	3.08E-07	1.77E-08	2.48E-09	2.02E-08	4.18E+03
5	1700	RA-228	2.84E-07	1.64E-08	2.36E-09	1.87E-08	4.18E+03
5	1800	RA-228	2.57E-07	1.48E-08	2.23E-09	1.70E-08	4.16E+03
5	2000	RA-228	2.13E-07	1.23E-08	1.99E-09	1.43E-08	4.14E+03
5	2200	RA-228	1.81E-07	1.04E-08	1.80E-09	1.22E-08	4.12E+03
5	2500	RA-228	1.45E-07	8.37E-09	1.58E-09	9.95E-09	4.10E+03
5	5000	RA-228	4.78E-08	2.75E-09	7.48E-10	3.50E-09	3.91E+03
6	1300	RA-228	3.39E-07	1.95E-08	3.61E-09	2.31E-08	6.50E+03
6	1400	RA-228	2.99E-07	1.72E-08	3.34E-09	2.05E-08	6.49E+03
6	1500	RA-228	2.65E-07	1.52E-08	3.11E-09	1.84E-08	6.48E+03
6	1625	RA-228	2.31E-07	1.33E-08	2.87E-09	1.62E-08	6.46E+03
6	1700	RA-228	2.14E-07	1.23E-08	2.74E-09	1.50E-08	6.46E+03
6	1800	RA-228	1.94E-07	1.12E-08	2.58E-09	1.37E-08	6.45E+03
6	2000	RA-228	1.61E-07	9.28E-09	2.31E-09	1.16E-08	6.43E+03
6	2200	RA-228	1.37E-07	7.90E-09	2.10E-09	1.00E-08	6.41E+03
6	2500	RA-228	1.10E-07	6.36E-09	1.84E-09	8.19E-09	6.39E+03
6	5000	RA-228	3.70E-08	2.13E-09	8.91E-10	3.02E-09	6.23E+03
7	1300	RA-228	1.85E-07	1.07E-08	1.97E-09	1.27E-08	3.57E+03
7	1400	RA-228	1.63E-07	9.39E-09	1.83E-09	1.12E-08	3.56E+03
7	1500	RA-228	1.45E-07	8.32E-09	1.70E-09	1.00E-08	3.55E+03
7	1625	RA-228	1.26E-07	7.25E-09	1.57E-09	8.82E-09	3.55E+03
7	1700	RA-228	1.17E-07	6.71E-09	1.50E-09	8.21E-09	3.54E+03
7	1800	RA-228	1.06E-07	6.08E-09	1.41E-09	7.49E-09	3.54E+03
7	2000	RA-228	8.79E-08	5.06E-09	1.27E-09	6.32E-09	3.53E+03
7	2200	RA-228	7.48E-08	4.30E-09	1.15E-09	5.45E-09	3.52E+03
7	2500	RA-228	6.01E-08	3.46E-09	1.01E-09	4.47E-09	3.51E+03
7	5000	RA-228	2.00E-08	1.15E-09	4.88E-10	1.64E-09	3.42E+03
8	1300	RA-228	1.83E-07	1.05E-08	1.65E-09	1.22E-08	3.26E+03
8	1400	RA-228	1.61E-07	9.25E-09	1.53E-09	1.08E-08	3.25E+03
8	1500	RA-228	1.42E-07	8.19E-09	1.42E-09	9.61E-09	3.25E+03
8	1625	RA-228	1.24E-07	7.14E-09	1.31E-09	8.45E-09	3.24E+03
8	1700	RA-228	1.15E-07	6.61E-09	1.25E-09	7.86E-09	3.24E+03
8	1800	RA-228	1.04E-07	5.98E-09	1.18E-09	7.16E-09	3.23E+03
8	2000	RA-228	8.64E-08	4.97E-09	1.06E-09	6.03E-09	3.22E+03
8	2200	RA-228	7.35E-08	4.23E-09	9.57E-10	5.19E-09	3.21E+03
8	2500	RA-228	5.91E-08	3.40E-09	8.39E-10	4.24E-09	3.20E+03
8	5000	RA-228	1.96E-08	1.13E-09	4.05E-10	1.54E-09	3.12E+03
9	1300	RA-228	1.59E-07	9.12E-09	1.70E-09	1.08E-08	4.11E+03
9	1400	RA-228	1.40E-07	8.04E-09	1.57E-09	9.61E-09	4.10E+03

9	1500	RA-228	1.24E-07	7.13E-09	1.47E-09	8.60E-09	4.09E+03
9	1625	RA-228	1.08E-07	6.23E-09	1.35E-09	7.58E-09	4.09E+03
9	1700	RA-228	1.00E-07	5.77E-09	1.29E-09	7.06E-09	4.09E+03
9	1800	RA-228	9.08E-08	5.23E-09	1.22E-09	6.44E-09	4.08E+03
9	2000	RA-228	7.57E-08	4.36E-09	1.09E-09	5.45E-09	4.07E+03
9	2200	RA-228	6.45E-08	3.71E-09	9.89E-10	4.70E-09	4.06E+03
9	2500	RA-228	5.19E-08	2.99E-09	8.68E-10	3.86E-09	4.06E+03
9	5000	RA-228	1.76E-08	1.01E-09	4.23E-10	1.43E-09	3.98E+03
10	1300	RA-228	3.34E-07	1.93E-08	2.97E-09	2.22E-08	6.03E+03
10	1400	RA-228	2.94E-07	1.69E-08	2.75E-09	1.97E-08	6.01E+03
10	1500	RA-228	2.60E-07	1.50E-08	2.56E-09	1.75E-08	6.00E+03
10	1625	RA-228	2.27E-07	1.31E-08	2.36E-09	1.54E-08	5.99E+03
10	1700	RA-228	2.10E-07	1.21E-08	2.25E-09	1.43E-08	5.98E+03
10	1800	RA-228	1.90E-07	1.09E-08	2.12E-09	1.31E-08	5.97E+03
10	2000	RA-228	1.58E-07	9.09E-09	1.90E-09	1.10E-08	5.95E+03
10	2200	RA-228	1.34E-07	7.73E-09	1.72E-09	9.46E-09	5.94E+03
10	2500	RA-228	1.08E-07	6.22E-09	1.51E-09	7.73E-09	5.92E+03
10	5000	RA-228	3.59E-08	2.07E-09	7.29E-10	2.80E-09	5.77E+03
11	1300	RA-228	7.98E-07	4.59E-08	4.64E-09	5.06E-08	8.21E+03
11	1400	RA-228	7.00E-07	4.03E-08	4.29E-09	4.46E-08	8.18E+03
11	1500	RA-228	6.18E-07	3.56E-08	3.98E-09	3.96E-08	8.15E+03
11	1625	RA-228	5.38E-07	3.10E-08	3.66E-09	3.46E-08	8.12E+03
11	1700	RA-228	4.97E-07	2.86E-08	3.49E-09	3.21E-08	8.11E+03
11	1800	RA-228	4.50E-07	2.59E-08	3.29E-09	2.92E-08	8.09E+03
11	2000	RA-228	3.72E-07	2.14E-08	2.93E-09	2.44E-08	8.04E+03
11	2200	RA-228	3.16E-07	1.82E-08	2.66E-09	2.09E-08	8.02E+03
11	2500	RA-228	2.54E-07	1.46E-08	2.33E-09	1.69E-08	7.98E+03
11	5000	RA-228	8.30E-08	4.78E-09	1.10E-09	5.88E-09	7.65E+03
12	1300	RA-228	1.03E-06	5.94E-08	5.73E-09	6.51E-08	9.76E+03
12	1400	RA-228	9.05E-07	5.21E-08	5.29E-09	5.74E-08	9.73E+03
12	1500	RA-228	7.99E-07	4.60E-08	4.91E-09	5.09E-08	9.69E+03
12	1625	RA-228	6.96E-07	4.01E-08	4.51E-09	4.46E-08	9.66E+03
12	1700	RA-228	6.43E-07	3.70E-08	4.30E-09	4.13E-08	9.64E+03
12	1800	RA-228	5.82E-07	3.35E-08	4.05E-09	3.75E-08	9.61E+03
12	2000	RA-228	4.82E-07	2.77E-08	3.61E-09	3.13E-08	9.55E+03
12	2200	RA-228	4.09E-07	2.36E-08	3.27E-09	2.68E-08	9.52E+03
12	2500	RA-228	3.29E-07	1.89E-08	2.86E-09	2.18E-08	9.48E+03
12	5000	RA-228	1.08E-07	6.21E-09	1.35E-09	7.56E-09	9.05E+03
13	1300	RA-228	9.24E-07	5.32E-08	6.37E-09	5.96E-08	1.14E+04
13	1400	RA-228	8.12E-07	4.67E-08	5.89E-09	5.26E-08	1.14E+04
13	1500	RA-228	7.18E-07	4.14E-08	5.48E-09	4.68E-08	1.14E+04
13	1625	RA-228	6.26E-07	3.60E-08	5.04E-09	4.11E-08	1.13E+04
13	1700	RA-228	5.79E-07	3.33E-08	4.81E-09	3.81E-08	1.13E+04
13	1800	RA-228	5.24E-07	3.02E-08	4.53E-09	3.47E-08	1.13E+04
13	2000	RA-228	4.35E-07	2.50E-08	4.05E-09	2.91E-08	1.12E+04
13	2200	RA-228	3.70E-07	2.13E-08	3.67E-09	2.50E-08	1.12E+04
13	2500	RA-228	2.97E-07	1.71E-08	3.21E-09	2.03E-08	1.12E+04
13	5000	RA-228	9.88E-08	5.69E-09	1.53E-09	7.22E-09	1.08E+04
14	1300	RA-228	9.65E-07	5.56E-08	6.90E-09	6.25E-08	1.08E+04
14	1400	RA-228	8.48E-07	4.88E-08	6.38E-09	5.52E-08	1.07E+04
14	1500	RA-228	7.51E-07	4.32E-08	5.93E-09	4.92E-08	1.07E+04
14	1625	RA-228	6.55E-07	3.77E-08	5.46E-09	4.31E-08	1.07E+04
14	1700	RA-228	6.06E-07	3.49E-08	5.21E-09	4.01E-08	1.06E+04
14	1800	RA-228	5.48E-07	3.16E-08	4.90E-09	3.65E-08	1.06E+04
14	2000	RA-228	4.55E-07	2.62E-08	4.38E-09	3.06E-08	1.06E+04
14	2200	RA-228	3.87E-07	2.23E-08	3.97E-09	2.63E-08	1.05E+04
14	2500	RA-228	3.11E-07	1.79E-08	3.48E-09	2.14E-08	1.05E+04
14	5000	RA-228	1.04E-07	5.98E-09	1.66E-09	7.64E-09	1.00E+04
15	1300	RA-228	7.81E-07	4.50E-08	7.15E-09	5.21E-08	1.29E+04
15	1400	RA-228	6.88E-07	3.96E-08	6.62E-09	4.62E-08	1.29E+04
15	1500	RA-228	6.10E-07	3.51E-08	6.16E-09	4.13E-08	1.28E+04
15	1625	RA-228	5.33E-07	3.07E-08	5.67E-09	3.63E-08	1.28E+04
15	1700	RA-228	4.93E-07	2.84E-08	5.41E-09	3.38E-08	1.28E+04
15	1800	RA-228	4.47E-07	2.57E-08	5.10E-09	3.08E-08	1.28E+04
15	2000	RA-228	3.73E-07	2.14E-08	4.57E-09	2.60E-08	1.27E+04

15	2200	RA-228	3.17E-07	1.83E-08	4.14E-09	2.24E-08	1.27E+04
15	2500	RA-228	2.55E-07	1.47E-08	3.63E-09	1.83E-08	1.27E+04
15	5000	RA-228	8.64E-08	4.97E-09	1.75E-09	6.72E-09	1.23E+04
16	1300	RA-228	5.46E-07	3.14E-08	5.30E-09	3.67E-08	1.28E+04
16	1400	RA-228	4.81E-07	2.77E-08	4.91E-09	3.26E-08	1.27E+04
16	1500	RA-228	4.27E-07	2.46E-08	4.57E-09	2.92E-08	1.27E+04
16	1625	RA-228	3.73E-07	2.15E-08	4.21E-09	2.57E-08	1.27E+04
16	1700	RA-228	3.45E-07	1.99E-08	4.02E-09	2.39E-08	1.27E+04
16	1800	RA-228	3.13E-07	1.80E-08	3.79E-09	2.18E-08	1.27E+04
16	2000	RA-228	2.61E-07	1.50E-08	3.40E-09	1.84E-08	1.26E+04
16	2200	RA-228	2.22E-07	1.28E-08	3.08E-09	1.59E-08	1.26E+04
16	2500	RA-228	1.79E-07	1.03E-08	2.71E-09	1.30E-08	1.26E+04
16	5000	RA-228	6.09E-08	3.51E-09	1.31E-09	4.82E-09	1.23E+04

1 GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1

0

0

0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	AREA (SQUARE METERS)	FOOD CROPS	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0	
1	2	0	1	0.144E+04	0	0.0	
1	3	0	1	0.133E+04	0	0.0	

0

0.2000E-01

(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E+00

0 GI UPTAKE FRACTION (INGESTION) 0.2000E+00

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS W

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-08	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1300	0.288E-12	0.577E-08	0.359E+04	0.231E+04
1	1400	0.254E-12	0.512E-08	0.319E+04	0.204E+04
1	1500	0.225E-12	0.458E-08	0.285E+04	0.181E+04
1	1625	0.197E-12	0.404E-08	0.251E+04	0.158E+04
1	1700	0.182E-12	0.376E-08	0.234E+04	0.147E+04
1	1800	0.166E-12	0.343E-08	0.214E+04	0.133E+04
1	2000	0.138E-12	0.290E-08	0.181E+04	0.111E+04
1	2200	0.118E-12	0.250E-08	0.156E+04	0.946E+03
1	2500	0.949E-13	0.205E-08	0.128E+04	0.762E+03
1	5000	0.324E-13	0.764E-09	0.475E+03	0.261E+03
2	1300	0.189E-12	0.380E-08	0.236E+04	0.152E+04
2	1400	0.167E-12	0.337E-08	0.210E+04	0.134E+04
2	1500	0.148E-12	0.301E-08	0.188E+04	0.119E+04
2	1625	0.129E-12	0.265E-08	0.165E+04	0.104E+04
2	1700	0.120E-12	0.247E-08	0.154E+04	0.961E+03
2	1800	0.109E-12	0.226E-08	0.140E+04	0.872E+03
2	2000	0.906E-13	0.191E-08	0.119E+04	0.727E+03
2	2200	0.771E-13	0.164E-08	0.102E+04	0.619E+03
2	2500	0.621E-13	0.135E-08	0.839E+03	0.499E+03
2	5000	0.211E-13	0.498E-09	0.310E+03	0.169E+03
3	1300	0.146E-12	0.288E-08	0.179E+04	0.118E+04
3	1400	0.129E-12	0.255E-08	0.159E+04	0.103E+04
3	1500	0.114E-12	0.227E-08	0.141E+04	0.915E+03
3	1625	0.993E-13	0.199E-08	0.124E+04	0.797E+03
3	1700	0.918E-13	0.185E-08	0.115E+04	0.737E+03
3	1800	0.832E-13	0.169E-08	0.105E+04	0.668E+03
3	2000	0.691E-13	0.142E-08	0.884E+03	0.555E+03
3	2200	0.587E-13	0.122E-08	0.760E+03	0.472E+03
3	2500	0.472E-13	0.996E-09	0.620E+03	0.379E+03
3	5000	0.156E-13	0.358E-09	0.223E+03	0.126E+03
4	1300	0.224E-12	0.432E-08	0.269E+04	0.179E+04
4	1400	0.196E-12	0.382E-08	0.238E+04	0.158E+04
4	1500	0.174E-12	0.340E-08	0.212E+04	0.139E+04
4	1625	0.151E-12	0.298E-08	0.186E+04	0.121E+04

4	1700	0.140E-12	0.277E-08	0.172E+04	0.112E+04
4	1800	0.126E-12	0.252E-08	0.157E+04	0.102E+04
4	2000	0.105E-12	0.211E-08	0.131E+04	0.843E+03
4	2200	0.892E-13	0.181E-08	0.113E+04	0.716E+03
4	2500	0.716E-13	0.148E-08	0.919E+03	0.575E+03
4	5000	0.236E-13	0.523E-09	0.326E+03	0.190E+03
5	1300	0.455E-12	0.872E-08	0.543E+04	0.366E+04
5	1400	0.400E-12	0.770E-08	0.479E+04	0.321E+04
5	1500	0.353E-12	0.685E-08	0.426E+04	0.284E+04
5	1625	0.308E-12	0.600E-08	0.374E+04	0.247E+04
5	1700	0.284E-12	0.557E-08	0.347E+04	0.228E+04
5	1800	0.257E-12	0.506E-08	0.316E+04	0.207E+04
5	2000	0.213E-12	0.424E-08	0.264E+04	0.171E+04
5	2200	0.181E-12	0.364E-08	0.226E+04	0.146E+04
5	2500	0.145E-12	0.296E-08	0.184E+04	0.117E+04
5	5000	0.478E-13	0.104E-08	0.648E+03	0.384E+03
6	1300	0.339E-12	0.688E-08	0.428E+04	0.273E+04
6	1400	0.299E-12	0.610E-08	0.380E+04	0.240E+04
6	1500	0.265E-12	0.546E-08	0.340E+04	0.213E+04
6	1625	0.231E-12	0.480E-08	0.299E+04	0.185E+04
6	1700	0.214E-12	0.447E-08	0.278E+04	0.172E+04
6	1800	0.194E-12	0.408E-08	0.254E+04	0.156E+04
6	2000	0.161E-12	0.345E-08	0.215E+04	0.130E+04
6	2200	0.137E-12	0.297E-08	0.185E+04	0.110E+04
6	2500	0.110E-12	0.244E-08	0.152E+04	0.887E+03
6	5000	0.370E-13	0.898E-09	0.559E+03	0.297E+03
7	1300	0.185E-12	0.376E-08	0.234E+04	0.149E+04
7	1400	0.163E-12	0.333E-08	0.208E+04	0.131E+04
7	1500	0.145E-12	0.298E-08	0.185E+04	0.116E+04
7	1625	0.126E-12	0.262E-08	0.163E+04	0.101E+04
7	1700	0.117E-12	0.244E-08	0.152E+04	0.937E+03
7	1800	0.106E-12	0.223E-08	0.139E+04	0.848E+03
7	2000	0.879E-13	0.188E-08	0.117E+04	0.706E+03
7	2200	0.748E-13	0.162E-08	0.101E+04	0.600E+03
7	2500	0.601E-13	0.133E-08	0.827E+03	0.483E+03
7	5000	0.200E-13	0.487E-09	0.303E+03	0.160E+03
8	1300	0.183E-12	0.362E-08	0.225E+04	0.147E+04
8	1400	0.161E-12	0.320E-08	0.199E+04	0.129E+04
8	1500	0.142E-12	0.286E-08	0.178E+04	0.114E+04
8	1625	0.124E-12	0.251E-08	0.156E+04	0.996E+03
8	1700	0.115E-12	0.234E-08	0.145E+04	0.922E+03
8	1800	0.104E-12	0.213E-08	0.133E+04	0.835E+03
8	2000	0.864E-13	0.179E-08	0.112E+04	0.694E+03
8	2200	0.735E-13	0.154E-08	0.960E+03	0.590E+03
8	2500	0.591E-13	0.126E-08	0.785E+03	0.475E+03
8	5000	0.196E-13	0.457E-09	0.284E+03	0.158E+03
9	1300	0.159E-12	0.322E-08	0.200E+04	0.127E+04
9	1400	0.140E-12	0.286E-08	0.178E+04	0.112E+04
9	1500	0.124E-12	0.256E-08	0.159E+04	0.995E+03
9	1625	0.108E-12	0.225E-08	0.140E+04	0.869E+03
9	1700	0.100E-12	0.210E-08	0.131E+04	0.804E+03
9	1800	0.908E-13	0.192E-08	0.119E+04	0.729E+03
9	2000	0.757E-13	0.162E-08	0.101E+04	0.608E+03
9	2200	0.645E-13	0.140E-08	0.870E+03	0.518E+03
9	2500	0.519E-13	0.115E-08	0.714E+03	0.417E+03
9	5000	0.176E-13	0.426E-09	0.265E+03	0.141E+03
10	1300	0.334E-12	0.661E-08	0.411E+04	0.269E+04
10	1400	0.294E-12	0.585E-08	0.364E+04	0.236E+04
10	1500	0.260E-12	0.522E-08	0.325E+04	0.209E+04
10	1625	0.227E-12	0.458E-08	0.285E+04	0.182E+04
10	1700	0.210E-12	0.426E-08	0.265E+04	0.169E+04
10	1800	0.190E-12	0.388E-08	0.242E+04	0.153E+04
10	2000	0.158E-12	0.327E-08	0.203E+04	0.127E+04
10	2200	0.134E-12	0.281E-08	0.175E+04	0.108E+04
10	2500	0.108E-12	0.230E-08	0.143E+04	0.867E+03

10	5000	0.359E-13	0.832E-09	0.518E+03	0.289E+03
11	1300	0.798E-12	0.150E-07	0.936E+04	0.641E+04
11	1400	0.700E-12	0.133E-07	0.825E+04	0.562E+04
11	1500	0.618E-12	0.118E-07	0.732E+04	0.497E+04
11	1625	0.538E-12	0.103E-07	0.641E+04	0.432E+04
11	1700	0.497E-12	0.955E-08	0.594E+04	0.399E+04
11	1800	0.450E-12	0.867E-08	0.540E+04	0.361E+04
11	2000	0.372E-12	0.724E-08	0.451E+04	0.299E+04
11	2200	0.316E-12	0.620E-08	0.386E+04	0.254E+04
11	2500	0.254E-12	0.503E-08	0.313E+04	0.204E+04
11	5000	0.830E-13	0.175E-08	0.109E+04	0.667E+03
12	1300	0.103E-11	0.193E-07	0.120E+05	0.828E+04
12	1400	0.905E-12	0.171E-07	0.106E+05	0.727E+04
12	1500	0.799E-12	0.151E-07	0.942E+04	0.642E+04
12	1625	0.696E-12	0.132E-07	0.825E+04	0.559E+04
12	1700	0.643E-12	0.123E-07	0.765E+04	0.516E+04
12	1800	0.582E-12	0.112E-07	0.694E+04	0.467E+04
12	2000	0.482E-12	0.932E-08	0.580E+04	0.387E+04
12	2200	0.409E-12	0.798E-08	0.497E+04	0.329E+04
12	2500	0.329E-12	0.647E-08	0.403E+04	0.264E+04
12	5000	0.108E-12	0.225E-08	0.140E+04	0.867E+03
13	1300	0.924E-12	0.177E-07	0.110E+05	0.742E+04
13	1400	0.812E-12	0.156E-07	0.974E+04	0.652E+04
13	1500	0.718E-12	0.139E-07	0.867E+04	0.577E+04
13	1625	0.626E-12	0.122E-07	0.760E+04	0.503E+04
13	1700	0.579E-12	0.113E-07	0.706E+04	0.465E+04
13	1800	0.524E-12	0.103E-07	0.642E+04	0.421E+04
13	2000	0.435E-12	0.865E-08	0.538E+04	0.349E+04
13	2200	0.370E-12	0.742E-08	0.462E+04	0.297E+04
13	2500	0.297E-12	0.604E-08	0.376E+04	0.239E+04
13	5000	0.988E-13	0.215E-08	0.134E+04	0.794E+03
14	1300	0.965E-12	0.186E-07	0.116E+05	0.775E+04
14	1400	0.848E-12	0.164E-07	0.102E+05	0.681E+04
14	1500	0.751E-12	0.146E-07	0.910E+04	0.603E+04
14	1625	0.655E-12	0.128E-07	0.798E+04	0.526E+04
14	1700	0.606E-12	0.119E-07	0.741E+04	0.486E+04
14	1800	0.548E-12	0.108E-07	0.675E+04	0.440E+04
14	2000	0.455E-12	0.910E-08	0.566E+04	0.366E+04
14	2200	0.387E-12	0.781E-08	0.486E+04	0.311E+04
14	2500	0.311E-12	0.636E-08	0.396E+04	0.250E+04
14	5000	0.104E-12	0.227E-08	0.141E+04	0.834E+03
15	1300	0.781E-12	0.155E-07	0.965E+04	0.627E+04
15	1400	0.688E-12	0.137E-07	0.855E+04	0.552E+04
15	1500	0.610E-12	0.123E-07	0.764E+04	0.490E+04
15	1625	0.533E-12	0.108E-07	0.672E+04	0.428E+04
15	1700	0.493E-12	0.100E-07	0.625E+04	0.396E+04
15	1800	0.447E-12	0.917E-08	0.571E+04	0.359E+04
15	2000	0.373E-12	0.773E-08	0.481E+04	0.299E+04
15	2200	0.317E-12	0.666E-08	0.415E+04	0.255E+04
15	2500	0.255E-12	0.545E-08	0.339E+04	0.205E+04
15	5000	0.864E-13	0.200E-08	0.124E+04	0.694E+03
16	1300	0.546E-12	0.109E-07	0.680E+04	0.439E+04
16	1400	0.481E-12	0.969E-08	0.603E+04	0.386E+04
16	1500	0.427E-12	0.867E-08	0.540E+04	0.343E+04
16	1625	0.373E-12	0.763E-08	0.475E+04	0.299E+04
16	1700	0.345E-12	0.710E-08	0.442E+04	0.277E+04
16	1800	0.313E-12	0.649E-08	0.404E+04	0.251E+04
16	2000	0.261E-12	0.548E-08	0.341E+04	0.210E+04
16	2200	0.222E-12	0.472E-08	0.294E+04	0.179E+04
16	2500	0.179E-12	0.387E-08	0.241E+04	0.144E+04
16	5000	0.609E-13	0.143E-08	0.892E+03	0.489E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.2565E-15	0.00	100.00
	SURFACE	0.5007E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3950E-01	69.49	100.00
	INGEST.	0.1735E-01	30.51	100.00
	VEGET.	0.1563E-01	* 27.50	* 90.11
	MEAT	0.6687E-03	* 1.18	* 3.86
	MILK	0.1046E-02	* 1.84	* 6.03

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2261E-01	43.68	100.00
	INGEST.	0.2915E-01	56.32	100.00
	VEGET.	0.2627E-01	* 50.75	* 90.11
	MEAT	0.1124E-02	* 2.17	* 3.86
	MILK	0.1758E-02	* 3.40	* 6.03

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.3206E-16	0.00	100.00
	SURFACE	0.6259E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1996E+00	43.51	100.00
	INGEST.	0.2591E+00	56.49	100.00
	VEGET.	0.2335E+00	* 50.90	* 90.11
	MEAT	0.9989E-02	* 2.18	* 3.86
	MILK	0.1562E-01	* 3.41	* 6.03

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5607E-02	44.48	100.00
	INGEST.	0.6999E-02	55.52	100.00
	VEGET.	0.6307E-02	* 50.03	* 90.11
	MEAT	0.2698E-03	* 2.14	* 3.86
	MILK	0.4220E-03	* 3.35	* 6.03

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.1860E-14	0.00	100.00
	SURFACE	0.3630E-11	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5640E-02	44.63	100.00
	INGEST.	0.6999E-02	55.37	100.00
	VEGET.	0.6307E-02	* 49.90	* 90.11
	MEAT	0.2698E-03	* 2.13	* 3.86
	MILK	0.4220E-03	* 3.34	* 6.03

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.3206E-16	0.00	100.00
	SURFACE	0.6259E-13	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2211E+00	96.93	100.00
	INGEST.	0.6999E-02	3.07	100.00
	VEGET.	0.6307E-02	* 2.76	* 90.11
	MEAT	0.2698E-03	* 0.12	* 3.86
	MILK	0.4220E-03	* 0.18	* 6.03

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5607E-02	44.31	100.00
	INGEST.	0.7047E-02	55.69	100.00
	VEGET.	0.6350E-02	* 50.18	* 90.11
	MEAT	0.2717E-03	* 2.15	* 3.86
	MILK	0.4249E-03	* 3.36	* 6.03

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4046E-02	47.63	100.00
	INGEST.	0.4449E-02	52.37	100.00
	VEGET.	0.4009E-02	* 47.19	* 90.11
	MEAT	0.1715E-03	* 2.02	* 3.86
	MILK	0.2682E-03	* 3.16	* 6.03

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7112E-02	59.94	100.00
	INGEST.	0.4753E-02	40.06	100.00
	VEGET.	0.4283E-02	* 36.10	* 90.11
	MEAT	0.1833E-03	* 1.54	* 3.86
	MILK	0.2866E-03	* 2.42	* 6.03

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3738E-02	48.29	100.00
	INGEST.	0.4003E-02	51.71	100.00
	VEGET.	0.3607E-02	* 46.60	* 90.11
	MEAT	0.1543E-03	* 1.99	* 3.86
	MILK	0.2414E-03	* 3.12	* 6.03

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3813E-02	48.37	100.00
	INGEST.	0.4070E-02	51.63	100.00
	VEGET.	0.3668E-02	* 46.53	* 90.11
	MEAT	0.1569E-03	* 1.99	* 3.86
	MILK	0.2454E-03	* 3.11	* 6.03

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.2565E-15	0.0000
0 SURFACE	0.5007E-12	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.3950E-01	69.4887
0 INGEST.	0.1735E-01	30.5113
0 VEGET.	*0.1563E-01	* 27.4952
0 MEAT	*0.6687E-03	* 1.1763
0 MILK	*0.1046E-02	* 1.8398

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE

0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2261E-01	43.6814
0	INGEST.	0.2915E-01	56.3186
0	VEGET.	*0.2627E-01	* 50.7513
0	MEAT	*0.1124E-02	* 2.1713
0	MILK	*0.1758E-02	* 3.3960
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3206E-16	0.0000
0	SURFACE	0.6259E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.1996E+00	43.5132
0	INGEST.	0.2591E+00	56.4868
0	VEGET.	*0.2335E+00	* 50.9029
0	MEAT	*0.9989E-02	* 2.1777
0	MILK	*0.1562E-01	* 3.4062
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.5607E-02	44.4797
0	INGEST.	0.6999E-02	55.5203
0	VEGET.	*0.6307E-02	* 50.0320
0	MEAT	*0.2698E-03	* 2.1405
0	MILK	*0.4220E-03	* 3.3479
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1860E-14	0.0000
0	SURFACE	0.3630E-11	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.5640E-02	44.6252
0	INGEST.	0.6999E-02	55.3748
0	VEGET.	*0.6307E-02	* 49.9008
0	MEAT	*0.2698E-03	* 2.1349
0	MILK	*0.4220E-03	* 3.3391
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3206E-16	0.0000
0	SURFACE	0.6259E-13	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2211E+00	96.9321
0	INGEST.	0.6999E-02	3.0679
0	VEGET.	*0.6307E-02	* 2.7646
0	MEAT	*0.2698E-03	* 0.1183
0	MILK	*0.4220E-03	* 0.1850
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.5607E-02	44.3103
0	INGEST.	0.7047E-02	55.6897
0	VEGET.	*0.6350E-02	* 50.1846
0	MEAT	*0.2717E-03	* 2.1470
0	MILK	*0.4249E-03	* 3.3581
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1000E-24	0.0000
0	SURFACE	0.1000E-24	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.4046E-02	47.6291
0	INGEST.	0.4449E-02	52.3709

```
0        VEGET.                    *0.4009E-02                    *  47.1939
0        MEAT                      *0.1715E-03                    *   2.0191
0        MILK                      *0.2682E-03                    *   3.1580
0                        CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1000E-24                        0.0000
0      SURFACE                    0.1000E-24                        0.0000
0      SWIMMING                   0.1000E-24                        0.0000
0      INHAL.                     0.7112E-02                       59.9386
0      INGEST.                    0.4753E-02                       40.0614
0        VEGET.                   *0.4283E-02                    *  36.1012
0        MEAT                     *0.1833E-03                    *   1.5445
0        MILK                     *0.2868E-03                    *   2.4157
0                        CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1000E-24                        0.0000
0      SURFACE                    0.1000E-24                        0.0000
0      SWIMMING                   0.1000E-24                        0.0000
0      INHAL.                     0.3738E-02                       48.2926
0      INGEST.                    0.4003E-02                       51.7074
0        VEGET.                   *0.3607E-02                    *  46.5959
0        MEAT                     *0.1543E-03                    *   1.9935
0        MILK                     *0.2414E-03                    *   3.1180
0                        CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1000E-24                        0.0000
0      SURFACE                    0.1000E-24                        0.0000
0      SWIMMING                   0.1000E-24                        0.0000
0      INHAL.                     0.3813E-02                       48.3683
0      INGEST.                    0.4070E-02                       51.6317
0        VEGET.                   *0.3668E-02                    *  46.5278
0        MEAT                     *0.1569E-03                    *   1.9906
0        MILK                     *0.2454E-03                    *   3.1134
1                        TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                        ORGAN                    DOSE(REMS)
0                        W BODY                   0.5685E-01
0                        R MAR                    0.5176E-01
0                        ENDOST                   0.4587E+00
0                        THYROID                  0.1261E-01
0                        BREAST                   0.1264E-01
0                        *PUL*                    0.2281E+00
0                        S WALL                   0.1265E-01
0                        INT WALL                 0.8494E-02
0                        LIVER                    0.1186E-01
0                        PANCREAS                 0.7741E-02
0                        KIDNEYS                  0.7883E-02
1                                CONTRIBUTORS TO ORGAN DOSES
0                                          PERCENT
0NUCLIDE   W BODY    R MAR    ENDOST   THYROID  BREAST   *PUL*    S WALL   INT WALL  LIVER    PANCREAS
 KIDNEYS

 RA-228   100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000
1                                ANNUAL DOSES(REMS)
0          NUCLIDE      ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN   ROW
0          RA-228       W BODY      0.5685E-01                 12      7
0          RA-228       R MAR       0.5176E-01                 12      7
0          RA-228       ENDOST      0.4587E+00                 12      7
0          RA-228       THYROID     0.1261E-01                 12      7
0          RA-228       BREAST      0.1264E-01                 12      7
0          RA-228       *PUL*       0.2281E+00                 12      7
0          RA-228       S WALL      0.1265E-01                 12      7
0          RA-228       INT WALL    0.8494E-02                 12      7
0          RA-228       LIVER       0.1186E-01                 12      7
0          RA-228       PANCREAS    0.7741E-02                 12      7
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0	RA-228	KIDNEYS	0.7883E-02	12	7

Building 68

Thorium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=7,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC='TH-228,ISOL=Y,AMAD=1.0,REL=3.6 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 68 WITH 10% RELEASE
DOSE CALCULATED AT 1300 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1
0

OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED--
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS
0
1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—
0
0
0 AVERAGE AIR TEMPERATURE (DEG K) 285.0
0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)
0 IN STABILITY CLASS E 0.0728
0 IN STABILITY CLASS F 0.1090
0 IN STABILITY CLASS G 0.1455
0 RAINFALL RATE (CM/YEAR) 102.00
0 HEIGHT OF LID (METERS) 1000
0 NUMBER OF STACKS IN THE PLANT 1
0
0
0 STACK INFORMATION--
0
0 STACK NUMBER
0 1 2 3 4 5 6
0 HEIGHT (METERS) 0.0000
0 DIAMETER (METERS) 0.0000
0 EFFLUENT VELOCITY (METERS/SEC) 0.0000
0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00
1 RELEASE RATES FOR RADIONUCLIDES
0 STACK NUCLIDE RELEASE RATE (CURIES/YEAR)
0
1 TH-228 0.360E+01
1 PLUME DEPLETION AND DEPOSITION PARAMETERS
0 NUCLIDE GRAVITATIONAL FALL VELOCITY (METERS/SEC) DEPOSITION VELOCITY (METERS/SEC) SCAVENGING COEFFICIENT (1/SEC) EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
0
TH-228 0.000 0.00058 0.341E-05 0.000E+00
1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION
0
0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS
0 A B C D E F G
0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS
0
0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)
0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
0								
1	1	1300	TH-228	2.88E-07	1.66E-08	2.83E-09	1.94E-08	6.31E+03
1	1	1400	TH-228	2.54E-07	1.46E-08	2.62E-09	1.72E-08	6.30E+03
1	1	1500	TH-228	2.25E-07	1.30E-08	2.44E-09	1.54E-08	6.28E+03
1	1	1625	TH-228	1.97E-07	1.13E-08	2.25E-09	1.36E-08	6.27E+03
1	1	1700	TH-228	1.82E-07	1.05E-08	2.15E-09	1.26E-08	6.27E+03
1	1	1800	TH-228	1.66E-07	9.53E-09	2.02E-09	1.16E-08	6.26E+03
1	1	2000	TH-228	1.38E-07	7.95E-09	1.82E-09	9.77E-09	6.24E+03
1	1	2200	TH-228	1.18E-07	6.78E-09	1.65E-09	8.42E-09	6.23E+03
1	1	2500	TH-228	9.49E-08	5.46E-09	1.44E-09	6.91E-09	6.21E+03
1	1	5000	TH-228	3.24E-08	1.87E-09	7.01E-10	2.57E-09	6.07E+03
2	2	1300	TH-228	1.89E-07	1.09E-08	1.88E-09	1.28E-08	3.07E+03
2	2	1400	TH-228	1.67E-07	9.60E-09	1.74E-09	1.13E-08	3.06E+03
2	2	1500	TH-228	1.48E-07	8.52E-09	1.62E-09	1.01E-08	3.05E+03
2	2	1625	TH-228	1.29E-07	7.44E-09	1.49E-09	8.93E-09	3.05E+03
2	2	1700	TH-228	1.20E-07	6.89E-09	1.42E-09	8.31E-09	3.04E+03
2	2	1800	TH-228	1.09E-07	6.25E-09	1.34E-09	7.59E-09	3.04E+03
2	2	2000	TH-228	9.06E-08	5.21E-09	1.20E-09	6.41E-09	3.03E+03

2	2200	TH-228	7.71E-08	4.44E-09	1.09E-09	5.53E-09	3.02E+03
2	2500	TH-228	6.21E-08	3.58E-09	9.56E-10	4.53E-09	3.01E+03
2	5000	TH-228	2.11E-08	1.21E-09	4.61E-10	1.67E-09	2.92E+03
3	1300	TH-228	1.46E-07	8.43E-09	1.26E-09	9.68E-09	1.65E+03
3	1400	TH-228	1.29E-07	7.41E-09	1.16E-09	8.57E-09	1.65E+03
3	1500	TH-228	1.14E-07	6.56E-09	1.08E-09	7.64E-09	1.64E+03
3	1625	TH-228	9.93E-08	5.72E-09	9.94E-10	6.71E-09	1.64E+03
3	1700	TH-228	9.18E-08	5.29E-09	9.49E-10	6.23E-09	1.63E+03
3	1800	TH-228	8.32E-08	4.79E-09	8.93E-10	5.68E-09	1.63E+03
3	2000	TH-228	6.91E-08	3.98E-09	8.00E-10	4.78E-09	1.62E+03
3	2200	TH-228	5.87E-08	3.38E-09	7.25E-10	4.11E-09	1.62E+03
3	2500	TH-228	4.72E-08	2.72E-09	6.35E-10	3.35E-09	1.61E+03
3	5000	TH-228	1.56E-08	9.01E-10	3.03E-10	1.20E-09	1.54E+03
4	1300	TH-228	2.24E-07	1.29E-08	1.68E-09	1.45E-08	2.06E+03
4	1400	TH-228	1.96E-07	1.13E-08	1.55E-09	1.28E-08	2.06E+03
4	1500	TH-228	1.74E-07	9.99E-09	1.44E-09	1.14E-08	2.05E+03
4	1625	TH-228	1.51E-07	8.70E-09	1.33E-09	1.00E-08	2.04E+03
4	1700	TH-228	1.40E-07	8.05E-09	1.27E-09	9.31E-09	2.04E+03
4	1800	TH-228	1.26E-07	7.28E-09	1.19E-09	8.47E-09	2.03E+03
4	2000	TH-228	1.05E-07	6.04E-09	1.07E-09	7.11E-09	2.02E+03
4	2200	TH-228	8.92E-08	5.13E-09	9.66E-10	6.10E-09	2.01E+03
4	2500	TH-228	7.16E-08	4.12E-09	8.45E-10	4.97E-09	2.00E+03
4	5000	TH-228	2.36E-08	1.36E-09	4.01E-10	1.76E-09	1.90E+03
5	1300	TH-228	4.55E-07	2.62E-08	3.14E-09	2.93E-08	4.23E+03
5	1400	TH-228	4.00E-07	2.30E-08	2.90E-09	2.59E-08	4.22E+03
5	1500	TH-228	3.53E-07	2.03E-08	2.70E-09	2.30E-08	4.20E+03
5	1625	TH-228	3.08E-07	1.77E-08	2.48E-09	2.02E-08	4.18E+03
5	1700	TH-228	2.84E-07	1.64E-08	2.36E-09	1.87E-08	4.18E+03
5	1800	TH-228	2.57E-07	1.48E-08	2.23E-09	1.70E-08	4.16E+03
5	2000	TH-228	2.13E-07	1.23E-08	1.99E-09	1.43E-08	4.14E+03
5	2200	TH-228	1.81E-07	1.04E-08	1.80E-09	1.22E-08	4.12E+03
5	2500	TH-228	1.45E-07	8.37E-09	1.58E-09	9.95E-09	4.10E+03
5	5000	TH-228	4.78E-08	2.75E-09	7.48E-10	3.50E-09	3.91E+03
6	1300	TH-228	3.39E-07	1.95E-08	3.61E-09	2.31E-08	6.50E+03
6	1400	TH-228	2.99E-07	1.72E-08	3.34E-09	2.05E-08	6.49E+03
6	1500	TH-228	2.65E-07	1.52E-08	3.11E-09	1.84E-08	6.48E+03
6	1625	TH-228	2.31E-07	1.33E-08	2.87E-09	1.62E-08	6.46E+03
6	1700	TH-228	2.14E-07	1.23E-08	2.74E-09	1.50E-08	6.46E+03
6	1800	TH-228	1.94E-07	1.12E-08	2.58E-09	1.37E-08	6.45E+03
6	2000	TH-228	1.61E-07	9.28E-09	2.31E-09	1.16E-08	6.43E+03
6	2200	TH-228	1.37E-07	7.90E-09	2.10E-09	1.00E-08	6.41E+03
6	2500	TH-228	1.10E-07	6.36E-09	1.84E-09	8.19E-09	6.39E+03
6	5000	TH-228	3.70E-08	2.13E-09	8.91E-10	3.02E-09	6.23E+03
7	1300	TH-228	1.85E-07	1.07E-08	1.97E-09	1.27E-08	3.57E+03
7	1400	TH-228	1.63E-07	9.39E-09	1.83E-09	1.12E-08	3.56E+03
7	1500	TH-228	1.45E-07	8.32E-09	1.70E-09	1.00E-08	3.55E+03
7	1625	TH-228	1.26E-07	7.25E-09	1.57E-09	8.82E-09	3.55E+03
7	1700	TH-228	1.17E-07	6.71E-09	1.50E-09	8.21E-09	3.54E+03
7	1800	TH-228	1.06E-07	6.08E-09	1.41E-09	7.49E-09	3.54E+03
7	2000	TH-228	8.79E-08	5.06E-09	1.27E-09	6.32E-09	3.53E+03
7	2200	TH-228	7.48E-08	4.30E-09	1.15E-09	5.45E-09	3.52E+03
7	2500	TH-228	6.01E-08	3.46E-09	1.01E-09	4.47E-09	3.51E+03
7	5000	TH-228	2.00E-08	1.15E-09	4.88E-10	1.64E-09	3.42E+03
8	1300	TH-228	1.83E-07	1.05E-08	1.65E-09	1.22E-08	3.26E+03
8	1400	TH-228	1.61E-07	9.25E-09	1.53E-09	1.08E-08	3.25E+03
8	1500	TH-228	1.42E-07	8.19E-09	1.42E-09	9.61E-09	3.25E+03
8	1625	TH-228	1.24E-07	7.14E-09	1.31E-09	8.45E-09	3.24E+03
8	1700	TH-228	1.15E-07	6.61E-09	1.25E-09	7.86E-09	3.24E+03
8	1800	TH-228	1.04E-07	5.98E-09	1.18E-09	7.16E-09	3.23E+03
8	2000	TH-228	8.64E-08	4.97E-09	1.06E-09	6.03E-09	3.22E+03
8	2200	TH-228	7.35E-08	4.23E-09	9.57E-10	5.19E-09	3.21E+03
8	2500	TH-228	5.91E-08	3.40E-09	8.39E-10	4.24E-09	3.20E+03
8	5000	TH-228	1.96E-08	1.13E-09	4.05E-10	1.54E-09	3.12E+03
9	1300	TH-228	1.59E-07	9.12E-09	1.70E-09	1.08E-08	4.11E+03
9	1400	TH-228	1.40E-07	8.04E-09	1.57E-09	9.61E-09	4.10E+03

9	1500	TH-228	1.24E-07	7.13E-09	1.47E-09	8.60E-09	4.09E+03
9	1625	TH-228	1.08E-07	6.23E-09	1.35E-09	7.58E-09	4.09E+03
9	1700	TH-228	1.00E-07	5.77E-09	1.29E-09	7.05E-09	4.09E+03
9	1800	TH-228	9.08E-08	5.23E-09	1.22E-09	6.44E-09	4.08E+03
9	2000	TH-228	7.57E-08	4.36E-09	1.09E-09	5.46E-09	4.07E+03
9	2200	TH-228	6.45E-08	3.71E-09	9.89E-10	4.70E-09	4.06E+03
9	2500	TH-228	5.19E-08	2.99E-09	8.68E-10	3.86E-09	4.06E+03
9	5000	TH-228	1.76E-08	1.01E-09	4.23E-10	1.43E-09	3.98E+03
10	1300	TH-228	3.34E-07	1.93E-08	2.97E-09	2.22E-08	6.03E+03
10	1400	TH-228	2.94E-07	1.69E-08	2.75E-09	1.97E-08	6.01E+03
10	1500	TH-228	2.60E-07	1.50E-08	2.56E-09	1.75E-08	6.00E+03
10	1625	TH-228	2.27E-07	1.31E-08	2.36E-09	1.54E-08	5.99E+03
10	1700	TH-228	2.10E-07	1.21E-08	2.25E-09	1.43E-08	5.98E+03
10	1800	TH-228	1.90E-07	1.09E-08	2.12E-09	1.31E-08	5.97E+03
10	2000	TH-228	1.58E-07	9.09E-09	1.90E-09	1.10E-08	5.95E+03
10	2200	TH-228	1.34E-07	7.73E-09	1.72E-09	9.46E-09	5.94E+03
10	2500	TH-228	1.08E-07	6.22E-09	1.51E-09	7.73E-09	5.92E+03
10	5000	TH-228	3.59E-08	2.07E-09	7.29E-10	2.80E-09	5.77E+03
11	1300	TH-228	7.98E-07	4.59E-08	4.64E-09	5.06E-08	8.21E+03
11	1400	TH-228	7.00E-07	4.03E-08	4.29E-09	4.46E-08	8.18E+03
11	1500	TH-228	6.18E-07	3.56E-08	3.98E-09	3.96E-08	8.15E+03
11	1625	TH-228	5.38E-07	3.10E-08	3.66E-09	3.46E-08	8.12E+03
11	1700	TH-228	4.97E-07	2.86E-08	3.49E-09	3.21E-08	8.11E+03
11	1800	TH-228	4.50E-07	2.59E-08	3.29E-09	2.92E-08	8.09E+03
11	2000	TH-228	3.72E-07	2.14E-08	2.93E-09	2.44E-08	8.04E+03
11	2200	TH-228	3.16E-07	1.82E-08	2.66E-09	2.09E-08	8.02E+03
11	2500	TH-228	2.54E-07	1.46E-08	2.33E-09	1.69E-08	7.98E+03
11	5000	TH-228	8.30E-08	4.78E-09	1.10E-09	5.88E-09	7.65E+03
12	1300	TH-228	1.03E-06	5.94E-08	5.73E-09	6.51E-08	9.76E+03
12	1400	TH-228	9.05E-07	5.21E-08	5.29E-09	5.74E-08	9.73E+03
12	1500	TH-228	7.99E-07	4.60E-08	4.91E-09	5.09E-08	9.69E+03
12	1625	TH-228	6.96E-07	4.01E-08	4.51E-09	4.46E-08	9.66E+03
12	1700	TH-228	6.43E-07	3.70E-08	4.30E-09	4.13E-08	9.64E+03
12	1800	TH-228	5.82E-07	3.35E-08	4.05E-09	3.75E-08	9.61E+03
12	2000	TH-228	4.82E-07	2.77E-08	3.61E-09	3.13E-08	9.55E+03
12	2200	TH-228	4.09E-07	2.36E-08	3.27E-09	2.68E-08	9.52E+03
12	2500	TH-228	3.29E-07	1.89E-08	2.86E-09	2.18E-08	9.48E+03
12	5000	TH-228	1.08E-07	6.21E-09	1.35E-09	7.56E-09	9.05E+03
13	1300	TH-228	9.24E-07	5.32E-08	6.37E-09	5.96E-08	1.14E+04
13	1400	TH-228	8.12E-07	4.67E-08	5.89E-09	5.26E-08	1.14E+04
13	1500	TH-228	7.18E-07	4.14E-08	5.48E-09	4.68E-08	1.14E+04
13	1625	TH-228	6.26E-07	3.60E-08	5.04E-09	4.11E-08	1.13E+04
13	1700	TH-228	5.79E-07	3.33E-08	4.81E-09	3.81E-08	1.13E+04
13	1800	TH-228	5.24E-07	3.02E-08	4.53E-09	3.47E-08	1.13E+04
13	2000	TH-228	4.35E-07	2.50E-08	4.05E-09	2.91E-08	1.12E+04
13	2200	TH-228	3.70E-07	2.13E-08	3.67E-09	2.50E-08	1.12E+04
13	2500	TH-228	2.97E-07	1.71E-08	3.21E-09	2.03E-08	1.12E+04
13	5000	TH-228	9.88E-08	5.69E-09	1.53E-09	7.22E-09	1.08E+04
14	1300	TH-228	9.65E-07	5.56E-08	6.90E-09	6.25E-08	1.08E+04
14	1400	TH-228	8.48E-07	4.88E-08	6.38E-09	5.52E-08	1.07E+04
14	1500	TH-228	7.51E-07	4.32E-08	5.93E-09	4.92E-08	1.07E+04
14	1625	TH-228	6.55E-07	3.77E-08	5.46E-09	4.31E-08	1.07E+04
14	1700	TH-228	6.06E-07	3.49E-08	5.21E-09	4.01E-08	1.06E+04
14	1800	TH-228	5.48E-07	3.16E-08	4.90E-09	3.65E-08	1.06E+04
14	2000	TH-228	4.55E-07	2.62E-08	4.38E-09	3.06E-08	1.06E+04
14	2200	TH-228	3.87E-07	2.23E-08	3.97E-09	2.63E-08	1.05E+04
14	2500	TH-228	3.11E-07	1.79E-08	3.48E-09	2.14E-08	1.05E+04
14	5000	TH-228	1.04E-07	5.98E-09	1.66E-09	7.64E-09	1.00E+04
15	1300	TH-228	7.81E-07	4.50E-08	7.15E-09	5.21E-08	1.29E+04
15	1400	TH-228	6.88E-07	3.96E-08	6.62E-09	4.62E-08	1.29E+04
15	1500	TH-228	6.10E-07	3.51E-08	6.16E-09	4.13E-08	1.28E+04
15	1625	TH-228	5.33E-07	3.07E-08	5.67E-09	3.63E-08	1.28E+04
15	1700	TH-228	4.93E-07	2.84E-08	5.41E-09	3.38E-08	1.28E+04
15	1800	TH-228	4.47E-07	2.57E-08	5.10E-09	3.08E-08	1.28E+04
15	2000	TH-228	3.73E-07	2.14E-08	4.57E-09	2.60E-08	1.27E+04

15	2200	TH-228	3.17E-07	1.83E-08	4.14E-09	2.24E-08	1.27E+04
15	2500	TH-228	2.55E-07	1.47E-08	3.63E-09	1.83E-08	1.27E+04
15	5000	TH-228	8.64E-08	4.97E-09	1.75E-09	6.72E-09	1.23E+04
16	1300	TH-228	5.46E-07	3.14E-08	6.30E-09	3.67E-08	1.28E+04
16	1400	TH-228	4.81E-07	2.77E-08	4.91E-09	3.26E-08	1.27E+04
16	1500	TH-228	4.27E-07	2.46E-08	4.57E-09	2.92E-08	1.27E+04
16	1625	TH-228	3.73E-07	2.15E-08	4.21E-09	2.57E-08	1.27E+04
16	1700	TH-228	3.45E-07	1.99E-08	4.02E-09	2.39E-08	1.27E+04
16	1800	TH-228	3.13E-07	1.80E-08	3.79E-09	2.18E-08	1.27E+04
16	2000	TH-228	2.61E-07	1.50E-08	3.40E-09	1.84E-08	1.26E+04
16	2200	TH-228	2.22E-07	1.28E-08	3.08E-09	1.59E-08	1.26E+04
16	2500	TH-228	1.79E-07	1.03E-08	2.71E-09	1.30E-08	1.26E+04
16	5000	TH-228	6.09E-08	3.51E-09	1.31E-09	4.82E-09	1.23E+04

1 GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1

0

0

0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA		NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS	WATER AREA	POPULATION
COLUMN	ROW		(SQUARE METERS)			
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0

0.3500E-03

(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.936E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.198E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1300	0.288E-12	0.514E-08	0.313E+04	0.231E+04
1	1400	0.254E-12	0.458E-08	0.278E+04	0.204E+04
1	1500	0.225E-12	0.408E-08	0.249E+04	0.181E+04
1	1625	0.197E-12	0.360E-08	0.219E+04	0.158E+04
1	1700	0.182E-12	0.335E-08	0.204E+04	0.147E+04
1	1800	0.166E-12	0.306E-08	0.186E+04	0.133E+04
1	2000	0.138E-12	0.259E-08	0.158E+04	0.111E+04
1	2200	0.118E-12	0.223E-08	0.136E+04	0.946E+03
1	2500	0.949E-13	0.183E-08	0.111E+04	0.762E+03
1	5000	0.324E-13	0.680E-09	0.414E+03	0.261E+03
2	1300	0.189E-12	0.338E-08	0.206E+04	0.152E+04
2	1400	0.167E-12	0.300E-08	0.183E+04	0.134E+04
2	1500	0.148E-12	0.268E-08	0.164E+04	0.119E+04
2	1625	0.129E-12	0.236E-08	0.144E+04	0.104E+04
2	1700	0.120E-12	0.220E-08	0.134E+04	0.961E+03
2	1800	0.109E-12	0.201E-08	0.122E+04	0.872E+03
2	2000	0.906E-13	0.170E-08	0.103E+04	0.727E+03
2	2200	0.771E-13	0.146E-08	0.892E+03	0.619E+03
2	2500	0.621E-13	0.120E-08	0.731E+03	0.499E+03
2	5000	0.211E-13	0.443E-09	0.270E+03	0.169E+03
3	1300	0.146E-12	0.256E-08	0.156E+04	0.118E+04
3	1400	0.129E-12	0.227E-08	0.138E+04	0.103E+04
3	1500	0.114E-12	0.202E-08	0.123E+04	0.915E+03
3	1625	0.993E-13	0.178E-08	0.108E+04	0.797E+03
3	1700	0.918E-13	0.165E-08	0.101E+04	0.737E+03
3	1800	0.832E-13	0.150E-08	0.916E+03	0.668E+03
3	2000	0.691E-13	0.126E-08	0.770E+03	0.555E+03
3	2200	0.587E-13	0.109E-08	0.662E+03	0.472E+03
3	2500	0.472E-13	0.887E-09	0.541E+03	0.379E+03
3	5000	0.156E-13	0.319E-09	0.194E+03	0.126E+03
4	1300	0.224E-12	0.385E-08	0.235E+04	0.179E+04
4	1400	0.196E-12	0.340E-08	0.207E+04	0.158E+04
4	1500	0.174E-12	0.303E-08	0.184E+04	0.139E+04
4	1625	0.151E-12	0.265E-08	0.162E+04	0.121E+04

4	1700	0.140E-12	0.246E-08	0.150E+04	0.112E+04
4	1800	0.126E-12	0.224E-08	0.137E+04	0.102E+04
4	2000	0.105E-12	0.188E-08	0.115E+04	0.843E+03
4	2200	0.892E-13	0.161E-08	0.984E+03	0.716E+03
4	2500	0.716E-13	0.131E-08	0.801E+03	0.575E+03
4	5000	0.236E-13	0.466E-09	0.284E+03	0.190E+03
5	1300	0.455E-12	0.777E-08	0.473E+04	0.366E+04
5	1400	0.400E-12	0.686E-08	0.418E+04	0.321E+04
5	1500	0.353E-12	0.610E-08	0.371E+04	0.284E+04
5	1625	0.308E-12	0.534E-08	0.326E+04	0.247E+04
5	1700	0.284E-12	0.496E-08	0.302E+04	0.228E+04
5	1800	0.257E-12	0.451E-08	0.275E+04	0.207E+04
5	2000	0.213E-12	0.378E-08	0.230E+04	0.171E+04
5	2200	0.181E-12	0.324E-08	0.197E+04	0.146E+04
5	2500	0.145E-12	0.263E-08	0.161E+04	0.117E+04
5	5000	0.478E-13	0.927E-09	0.565E+03	0.384E+03
6	1300	0.339E-12	0.613E-08	0.373E+04	0.273E+04
6	1400	0.299E-12	0.544E-08	0.331E+04	0.240E+04
6	1500	0.265E-12	0.486E-08	0.296E+04	0.213E+04
6	1625	0.231E-12	0.428E-08	0.261E+04	0.185E+04
6	1700	0.214E-12	0.398E-08	0.243E+04	0.172E+04
6	1800	0.194E-12	0.363E-08	0.221E+04	0.156E+04
6	2000	0.161E-12	0.307E-08	0.187E+04	0.130E+04
6	2200	0.137E-12	0.265E-08	0.161E+04	0.110E+04
6	2500	0.110E-12	0.217E-08	0.132E+04	0.887E+03
6	5000	0.370E-13	0.800E-09	0.487E+03	0.297E+03
7	1300	0.185E-12	0.335E-08	0.204E+04	0.149E+04
7	1400	0.163E-12	0.297E-08	0.181E+04	0.131E+04
7	1500	0.145E-12	0.265E-08	0.162E+04	0.116E+04
7	1625	0.126E-12	0.234E-08	0.142E+04	0.101E+04
7	1700	0.117E-12	0.217E-08	0.132E+04	0.937E+03
7	1800	0.106E-12	0.198E-08	0.121E+04	0.848E+03
7	2000	0.879E-13	0.167E-08	0.102E+04	0.706E+03
7	2200	0.748E-13	0.144E-08	0.879E+03	0.600E+03
7	2500	0.601E-13	0.118E-08	0.720E+03	0.483E+03
7	5000	0.200E-13	0.433E-09	0.264E+03	0.160E+03
8	1300	0.183E-12	0.322E-08	0.196E+04	0.147E+04
8	1400	0.161E-12	0.285E-08	0.174E+04	0.129E+04
8	1500	0.142E-12	0.254E-08	0.155E+04	0.114E+04
8	1625	0.124E-12	0.224E-08	0.136E+04	0.996E+03
8	1700	0.115E-12	0.208E-08	0.127E+04	0.922E+03
8	1800	0.104E-12	0.190E-08	0.116E+04	0.835E+03
8	2000	0.864E-13	0.160E-08	0.973E+03	0.694E+03
8	2200	0.735E-13	0.137E-08	0.837E+03	0.590E+03
8	2500	0.591E-13	0.112E-08	0.684E+03	0.475E+03
8	5000	0.196E-13	0.407E-09	0.248E+03	0.158E+03
9	1300	0.159E-12	0.286E-08	0.175E+04	0.127E+04
9	1400	0.140E-12	0.254E-08	0.155E+04	0.112E+04
9	1500	0.124E-12	0.228E-08	0.139E+04	0.995E+03
9	1625	0.108E-12	0.201E-08	0.122E+04	0.869E+03
9	1700	0.100E-12	0.187E-08	0.114E+04	0.804E+03
9	1800	0.908E-13	0.171E-08	0.104E+04	0.729E+03
9	2000	0.757E-13	0.144E-08	0.879E+03	0.608E+03
9	2200	0.645E-13	0.124E-08	0.758E+03	0.518E+03
9	2500	0.519E-13	0.102E-08	0.622E+03	0.417E+03
9	5000	0.176E-13	0.379E-09	0.231E+03	0.141E+03
10	1300	0.334E-12	0.588E-08	0.359E+04	0.269E+04
10	1400	0.294E-12	0.521E-08	0.317E+04	0.236E+04
10	1500	0.260E-12	0.465E-08	0.283E+04	0.209E+04
10	1625	0.227E-12	0.408E-08	0.249E+04	0.182E+04
10	1700	0.210E-12	0.379E-08	0.231E+04	0.169E+04
10	1800	0.190E-12	0.346E-08	0.211E+04	0.153E+04
10	2000	0.158E-12	0.291E-08	0.177E+04	0.127E+04
10	2200	0.134E-12	0.250E-08	0.153E+04	0.108E+04
10	2500	0.108E-12	0.205E-08	0.125E+04	0.867E+03

10	5000	0.359E-13	0.741E-09	0.451E+03	0.289E+03
11	1300	0.798E-12	0.134E-07	0.816E+04	0.641E+04
11	1400	0.700E-12	0.118E-07	0.719E+04	0.562E+04
11	1500	0.618E-12	0.105E-07	0.638E+04	0.497E+04
11	1625	0.538E-12	0.917E-08	0.559E+04	0.432E+04
11	1700	0.497E-12	0.850E-08	0.518E+04	0.399E+04
11	1800	0.450E-12	0.772E-08	0.471E+04	0.361E+04
11	2000	0.372E-12	0.645E-08	0.393E+04	0.299E+04
11	2200	0.316E-12	0.552E-08	0.337E+04	0.254E+04
11	2500	0.254E-12	0.448E-08	0.273E+04	0.204E+04
11	5000	0.830E-13	0.156E-08	0.948E+03	0.667E+03
12	1300	0.103E-11	0.172E-07	0.105E+05	0.828E+04
12	1400	0.905E-12	0.152E-07	0.925E+04	0.727E+04
12	1500	0.799E-12	0.135E-07	0.821E+04	0.642E+04
12	1625	0.696E-12	0.118E-07	0.719E+04	0.559E+04
12	1700	0.643E-12	0.109E-07	0.667E+04	0.516E+04
12	1800	0.582E-12	0.993E-08	0.605E+04	0.467E+04
12	2000	0.482E-12	0.830E-08	0.506E+04	0.387E+04
12	2200	0.409E-12	0.710E-08	0.433E+04	0.329E+04
12	2500	0.329E-12	0.576E-08	0.351E+04	0.264E+04
12	5000	0.108E-12	0.200E-08	0.122E+04	0.867E+03
13	1300	0.924E-12	0.158E-07	0.961E+04	0.742E+04
13	1400	0.812E-12	0.139E-07	0.849E+04	0.652E+04
13	1500	0.718E-12	0.124E-07	0.755E+04	0.577E+04
13	1625	0.626E-12	0.109E-07	0.662E+04	0.503E+04
13	1700	0.579E-12	0.101E-07	0.615E+04	0.465E+04
13	1800	0.524E-12	0.918E-08	0.560E+04	0.421E+04
13	2000	0.435E-12	0.770E-08	0.469E+04	0.349E+04
13	2200	0.370E-12	0.661E-08	0.403E+04	0.297E+04
13	2500	0.297E-12	0.538E-08	0.328E+04	0.239E+04
13	5000	0.988E-13	0.191E-08	0.116E+04	0.794E+03
14	1300	0.965E-12	0.165E-07	0.101E+05	0.775E+04
14	1400	0.848E-12	0.146E-07	0.891E+04	0.681E+04
14	1500	0.751E-12	0.130E-07	0.793E+04	0.603E+04
14	1625	0.655E-12	0.114E-07	0.696E+04	0.526E+04
14	1700	0.606E-12	0.106E-07	0.646E+04	0.486E+04
14	1800	0.548E-12	0.965E-08	0.588E+04	0.440E+04
14	2000	0.455E-12	0.810E-08	0.494E+04	0.366E+04
14	2200	0.387E-12	0.695E-08	0.424E+04	0.311E+04
14	2500	0.311E-12	0.566E-08	0.345E+04	0.250E+04
14	5000	0.104E-12	0.202E-08	0.123E+04	0.834E+03
15	1300	0.781E-12	0.138E-07	0.841E+04	0.627E+04
15	1400	0.688E-12	0.122E-07	0.746E+04	0.552E+04
15	1500	0.610E-12	0.109E-07	0.666E+04	0.490E+04
15	1625	0.533E-12	0.962E-08	0.586E+04	0.428E+04
15	1700	0.493E-12	0.895E-08	0.545E+04	0.396E+04
15	1800	0.447E-12	0.816E-08	0.497E+04	0.359E+04
15	2000	0.373E-12	0.689E-08	0.420E+04	0.299E+04
15	2200	0.317E-12	0.593E-08	0.361E+04	0.255E+04
15	2500	0.255E-12	0.485E-08	0.296E+04	0.205E+04
15	5000	0.864E-13	0.178E-08	0.108E+04	0.694E+03
16	1300	0.546E-12	0.973E-08	0.593E+04	0.439E+04
16	1400	0.481E-12	0.863E-08	0.526E+04	0.386E+04
16	1500	0.427E-12	0.772E-08	0.470E+04	0.343E+04
16	1625	0.373E-12	0.680E-08	0.414E+04	0.299E+04
16	1700	0.345E-12	0.633E-08	0.386E+04	0.277E+04
16	1800	0.313E-12	0.578E-08	0.352E+04	0.251E+04
16	2000	0.261E-12	0.488E-08	0.297E+04	0.210E+04
16	2200	0.222E-12	0.421E-08	0.256E+04	0.179E+04
16	2500	0.179E-12	0.345E-08	0.210E+04	0.144E+04
16	5000	0.609E-13	0.128E-08	0.777E+03	0.489E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH
1 PERCENT OF W BODY DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

TH-228	SUBM AIR	0.8360E-08	0.00	100.00
	SURFACE	0.7698E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.2832E+01	99.85	100.00
	INGEST.	0.4158E-02	0.15	100.00
	VEGET.	0.4155E-02	* 0.15	* 99.93
	MEAT	0.5462E-06	* 0.00	* 0.01
	MILK	0.2290E-05	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-228	SUBM AIR	0.6699E-08	0.00	100.00
	SURFACE	0.6154E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.5731E+00	98.71	100.00
	INGEST.	0.7497E-02	1.29	100.00
	VEGET.	0.7492E-02	* 1.29	* 99.93
	MEAT	0.9648E-06	* 0.00	* 0.01
	MILK	0.4128E-05	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-228	SUBM AIR	0.1300E-07	0.00	100.00
	SURFACE	0.1194E-04	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.7015E+01	98.70	100.00
	INGEST.	0.9208E-01	1.30	100.00
	VEGET.	0.9202E-01	* 1.29	* 99.93
	MEAT	0.1210E-04	* 0.00	* 0.01
	MILK	0.5070E-04	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-228	SUBM AIR	0.1137E-07	0.00	100.00
	SURFACE	0.1044E-04	0.15	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.7048E-02	98.60	100.00
	INGEST.	0.8935E-04	1.25	100.00
	VEGET.	0.8929E-04	* 1.25	* 99.93
	MEAT	0.1174E-07	* 0.00	* 0.01
	MILK	0.4920E-07	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-228	SUBM AIR	0.1413E-07	0.00	100.00
	SURFACE	0.1298E-04	0.18	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.7108E-02	98.56	100.00
	INGEST.	0.9051E-04	1.26	100.00
	VEGET.	0.9045E-04	* 1.25	* 99.93
	MEAT	0.1189E-07	* 0.00	* 0.01
	MILK	0.4984E-07	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-228	SUBM AIR	0.8028E-08	0.00	100.00
	SURFACE	0.7375E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL	0.2120E+02	100.00	100.00
	INGEST.	0.8977E-04	0.00	100.00
	VEGET.	0.8971E-04	* 0.00	* 99.93
	MEAT	0.1179E-07	* 0.00	* 0.01
	MILK	0.4943E-07	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

```
0
        TH-228     SUBM AIR      0.7075E-08        0.00            100.00
                  SURFACE       0.6499E-05        0.09            100.00
                  SWIMMING      0.0000E+00        0.00              0.00
                  INHAL.       0.6924E-02       98.51            100.00
                  INGEST.       0.9828E-04        1.40            100.00
                   VEGET.       0.9821E-04      * 1.40            * 99.93
                   MEAT         0.1291E-07      * 0.00            * 0.01
                   MILK         0.5412E-07      * 0.00            * 0.06
1                  PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228     SUBM AIR      0.6899E-08        0.00            100.00
                  SURFACE       0.6338E-05        0.03            100.00
                  SWIMMING      0.0000E+00        0.00              0.00
                  INHAL.       0.2161E-01       89.44            100.00
                  INGEST.       0.2544E-02       10.53            100.00
                   VEGET.       0.2542E-02      * 10.52           * 99.93
                   MEAT         0.3342E-06      * 0.00            * 0.01
                   MILK         0.1401E-05      * 0.01            * 0.06
1                  PERCENT OF LIVER   DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228     SUBM AIR      0.7326E-08        0.00            100.00
                  SURFACE       0.6730E-05        0.02            100.00
                  SWIMMING      0.0000E+00        0.00              0.00
                  INHAL.       0.3046E-01       98.81            100.00
                  INGEST.       0.3600E-03        1.17            100.00
                   VEGET.       0.3598E-03      * 1.17            * 99.93
                   MEAT         0.4729E-07      * 0.00            * 0.01
                   MILK         0.1983E-06      * 0.00            * 0.06
1                  PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228     SUBM AIR      0.5720E-08        0.00            100.00
                  SURFACE       0.5255E-05        0.08            100.00
                  SWIMMING      0.0000E+00        0.00              0.00
                  INHAL.       0.6890E-02       98.74            100.00
                  INGEST.       0.8233E-04        1.18            100.00
                   VEGET.       0.8227E-04      * 1.18            * 99.93
                   MEAT         0.1081E-07      * 0.00            * 0.01
                   MILK         0.4533E-07      * 0.00            * 0.06
1                  PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-228     SUBM AIR      0.7502E-08        0.00            100.00
                  SURFACE       0.6891E-05        0.06            100.00
                  SWIMMING      0.0000E+00        0.00              0.00
                  INHAL.       0.1144E-01       99.07            100.00
                  INGEST.       0.1002E-03        0.87            100.00
                   VEGET.       0.1002E-03      * 0.87            * 99.93
                   MEAT         0.1317E-07      * 0.00            * 0.01
                   MILK         0.5520E-07      * 0.00            * 0.06
0                    CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.8380E-08                      0.0000
0      SURFACE                    0.7698E-05                      0.0003
0      SWIMMING                   0.1000E-24                      0.0000
0      INHAL.                    0.2832E+01                      99.8532
0      INGEST.                    0.4158E-02                      0.1466
0       VEGET.                   *0.4155E-02                    * 0.1465
0       MEAT                     *0.5462E-06                    * 0.0000
0       MILK                     *0.2290E-05                    * 0.0001
0                    CONTRIBUTION OF EXPOSURE MODES TO R MAR   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
```

0	SUBM AIR	0.6699E-08	0.0000
0	SURFACE	0.6154E-05	0.0011
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5731E+00	98.7078
0	INGEST.	0.7497E-02	1.2912
0	VEGET.	*0.7492E-02	* 1.2903
0	MEAT	*0.9848E-06	* 0.0002
0	MILK	*0.4128E-05	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1300E-07	0.0000
0	SURFACE	0.1194E-04	0.0002
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7015E+01	98.7042
0	INGEST.	0.9208E-01	1.2957
0	VEGET.	*0.9202E-01	* 1.2948
0	MEAT	*0.1210E-04	* 0.0002
0	MILK	*0.5070E-04	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1137E-07	0.0002
0	SURFACE	0.1044E-04	0.1461
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7048E-02	98.6037
0	INGEST.	0.8935E-04	1.2501
0	VEGET.	*0.8929E-04	* 1.2492
0	MEAT	*0.1174E-07	* 0.0002
0	MILK	*0.4920E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1413E-07	0.0002
0	SURFACE	0.1298E-04	0.1800
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.7106E-02	98.5844
0	INGEST.	0.9051E-04	1.2554
0	VEGET.	*0.9045E-04	* 1.2546
0	MEAT	*0.1189E-07	* 0.0002
0	MILK	*0.4984E-07	* 0.0007
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8028E-08	0.0000
0	SURFACE	0.7375E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2120E+02	99.9995
0	INGEST.	0.8977E-04	0.0004
0	VEGET.	*0.8971E-04	* 0.0004
0	MEAT	*0.1179E-07	* 0.0000
0	MILK	*0.4943E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.7075E-08	0.0001
0	SURFACE	0.6499E-05	0.0925
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6924E-02	98.5092
0	INGEST.	0.9828E-04	1.3983
0	VEGET.	*0.9821E-04	* 1.3973
0	MEAT	*0.1291E-07	* 0.0002
0	MILK	*0.5412E-07	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.6899E-08	0.0000
0	SURFACE	0.6338E-05	0.0262
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2161E-01	89.4427
0	INGEST.	0.2544E-02	10.5310

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0        VEGET.                    *0.2542E-02                    *  10.5238
0        MEAT                      *0.3342E-06                    *   0.0014
0        MILK                      *0.1401E-05                    *   0.0058
0                        CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0       SUBM AIR                  0.7326E-08                       0.0000
0       SURFACE                   0.6730E-05                       0.0218
0       SWIMMING                  0.1000E-24                       0.0000
0       INHAL.                    0.3046E-01                      98.8103
0       INGEST.                   0.3600E-03                       1.1679
0        VEGET.                   *0.3598E-03                    *  1.1671
0        MEAT                     *0.4729E-07                    *  0.0002
0        MILK                     *0.1983E-06                    *  0.0006
0                        CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0       SUBM AIR                  0.5720E-08                       0.0001
0       SURFACE                   0.5255E-05                       0.0753
0       SWIMMING                  0.1000E-24                       0.0000
0       INHAL.                    0.6890E-02                      98.7447
0       INGEST.                   0.8233E-04                       1.1799
0        VEGET.                   *0.8227E-04                    *  1.1791
0        MEAT                     *0.1081E-07                    *  0.0002
0        MILK                     *0.4533E-07                    *  0.0006
0                        CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0       SUBM AIR                  0.7502E-08                       0.0001
0       SURFACE                   0.6891E-05                       0.0597
0       SWIMMING                  0.1000E-24                       0.0000
0       INHAL.                    0.1144E-01                      99.0719
0       INGEST.                   0.1002E-03                       0.8683
0        VEGET.                   *0.1002E-03                    *  0.8677
0        MEAT                     *0.1317E-07                    *  0.0001
0        MILK                     *0.5520E-07                    *  0.0005
1                        TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                     ORGAN                      DOSE(REMS)
0                     W BODY                     0.2837E+01
0                     R MAR                      0.5806E+00
0                     ENDOST                     0.7107E+01
0                     THYROID                    0.7148E-02
0                     BREAST                     0.7209E-02
0                     *PUL*                      0.2120E+02
0                     S WALL                     0.7028E-02
0                     INT WALL                   0.2416E-01
0                     LIVER                      0.3083E-01
0                     PANCREAS                   0.6977E-02
0                     KIDNEYS                    0.1154E-01
1                        CONTRIBUTORS TO ORGAN DOSES
0                                          PERCENT
0NUCLIDE   W BODY    R MAR    ENDOST   THYROID  BREAST   *PUL*    S WALL   INT WALL  LIVER    PANCREAS
 KIDNEYS

 TH-228   100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000 100.0000
1                        ANNUAL DOSES(REMS)
0          NUCLIDE      ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN   ROW
0          TH-228       W BODY       0.2837E+01                 12      7
0          TH-228       R MAR        0.5806E+00                 12      7
0          TH-228       ENDOST       0.7107E+01                 12      7
0          TH-228       THYROID      0.7148E-02                 12      7
0          TH-228       BREAST       0.7209E-02                 12      7
0          TH-228       *PUL*        0.2120E+02                 12      7
0          TH-228       S WALL       0.7028E-02                 12      7
0          TH-228       INT WALL     0.2416E-01                 12      7
0          TH-228       LIVER        0.3083E-01                 12      7
0          TH-228       PANCREAS     0.6977E-02                 12      7
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0	TH-228	KIDNEYS	0.1154E-01	12	7

Building 68

Thorium-230

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=7,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA


 &RADI NUC='TH-230',ISOL=Y,AMAD=1.0,REL=0.4 &END

AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 68 WITH 10% RELEASE
DOSE CALCULATED AT 1300 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K) 285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)
IN STABILITY CLASS E 0.0728
IN STABILITY CLASS F 0.1090
IN STABILITY CLASS G 0.1455
RAINFALL RATE (CM/YEAR) 102.00
HEIGHT OF LID (METERS) 1000
NUMBER OF STACKS IN THE PLANT 1

STACK INFORMATION–

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.400E+00

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0619
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.06	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.82	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)

WIND TOWARD	DISTANCE (METERS)					
0						
1	1300	TH-230	3.20E-08	1.84E-09	3.15E-10	2.16E-09	7.01E+02
1	1400	TH-230	2.82E-08	1.62E-09	2.91E-10	1.91E-09	6.99E+02
1	1500	TH-230	2.50E-08	1.44E-09	2.71E-10	1.71E-09	6.98E+02
1	1625	TH-230	2.19E-08	1.26E-09	2.50E-10	1.51E-09	6.97E+02
1	1700	TH-230	2.03E-08	1.17E-09	2.39E-10	1.41E-09	6.96E+02
1	1800	TH-230	1.84E-08	1.06E-09	2.25E-10	1.28E-09	6.96E+02
1	2000	TH-230	1.54E-08	8.84E-10	2.02E-10	1.09E-09	6.94E+02
1	2200	TH-230	1.31E-08	7.53E-10	1.83E-10	9.36E-10	6.92E+02
1	2500	TH-230	1.05E-08	6.07E-10	1.60E-10	7.68E-10	6.91E+02
1	5000	TH-230	3.60E-09	2.07E-10	7.79E-11	2.85E-10	6.75E+02
2	1300	TH-230	2.10E-08	1.21E-09	2.09E-10	1.42E-09	3.41E+02
2	1400	TH-230	1.85E-08	1.07E-09	1.93E-10	1.26E-09	3.40E+02
2	1500	TH-230	1.64E-08	9.47E-10	1.80E-10	1.13E-09	3.39E+02
2	1625	TH-230	1.44E-08	8.27E-10	1.66E-10	9.92E-10	3.39E+02
2	1700	TH-230	1.33E-08	7.65E-10	1.58E-10	9.24E-10	3.38E+02
2	1800	TH-230	1.21E-08	6.94E-10	1.49E-10	8.43E-10	3.38E+02
2	2000	TH-230	1.01E-08	5.79E-10	1.34E-10	7.13E-10	3.36E+02

2	2200	TH-230	8.57E-09	4.93E-10	1.21E-10	6.14E-10	3.35E+02
2	2500	TH-230	6.90E-09	3.97E-10	1.06E-10	5.04E-10	3.34E+02
2	5000	TH-230	2.34E-09	1.35E-10	5.12E-11	1.86E-10	3.24E+02
3	1300	TH-230	1.63E-08	9.37E-10	1.39E-10	1.08E-09	1.84E+02
3	1400	TH-230	1.43E-08	8.23E-10	1.29E-10	9.52E-10	1.83E+02
3	1500	TH-230	1.27E-08	7.29E-10	1.20E-10	8.49E-10	1.83E+02
3	1625	TH-230	1.10E-08	6.35E-10	1.10E-10	7.45E-10	1.82E+02
3	1700	TH-230	1.02E-08	5.87E-10	1.05E-10	6.93E-10	1.82E+02
3	1800	TH-230	9.24E-09	5.32E-10	9.93E-11	6.31E-10	1.81E+02
3	2000	TH-230	7.68E-09	4.42E-10	8.88E-11	5.31E-10	1.80E+02
3	2200	TH-230	6.53E-09	3.76E-10	8.05E-11	4.56E-10	1.80E+02
3	2500	TH-230	5.25E-09	3.02E-10	7.05E-11	3.72E-10	1.79E+02
3	5000	TH-230	1.74E-09	1.00E-10	3.37E-11	1.34E-10	1.71E+02
4	1300	TH-230	2.48E-08	1.43E-09	1.87E-10	1.62E-09	2.29E+02
4	1400	TH-230	2.18E-08	1.26E-09	1.73E-10	1.43E-09	2.28E+02
4	1500	TH-230	1.93E-08	1.11E-09	1.60E-10	1.27E-09	2.27E+02
4	1625	TH-230	1.68E-08	9.67E-10	1.48E-10	1.11E-09	2.27E+02
4	1700	TH-230	1.55E-08	8.94E-10	1.41E-10	1.03E-09	2.26E+02
4	1800	TH-230	1.41E-08	8.09E-10	1.33E-10	9.41E-10	2.25E+02
4	2000	TH-230	1.17E-08	6.71E-10	1.18E-10	7.89E-10	2.24E+02
4	2200	TH-230	9.91E-09	5.70E-10	1.07E-10	6.78E-10	2.23E+02
4	2500	TH-230	7.96E-09	4.58E-10	9.39E-11	5.52E-10	2.22E+02
4	5000	TH-230	2.62E-09	1.51E-10	4.46E-11	1.96E-10	2.11E+02
5	1300	TH-230	5.06E-08	2.91E-09	3.49E-10	3.26E-09	4.70E+02
5	1400	TH-230	4.44E-08	2.56E-09	3.22E-10	2.88E-09	4.69E+02
5	1500	TH-230	3.92E-08	2.26E-09	3.00E-10	2.56E-09	4.67E+02
5	1625	TH-230	3.42E-08	1.97E-09	2.76E-10	2.24E-09	4.65E+02
5	1700	TH-230	3.16E-08	1.82E-09	2.63E-10	2.08E-09	4.64E+02
5	1800	TH-230	2.86E-08	1.65E-09	2.47E-10	1.89E-09	4.63E+02
5	2000	TH-230	2.37E-08	1.36E-09	2.21E-10	1.58E-09	4.60E+02
5	2200	TH-230	2.01E-08	1.16E-09	2.00E-10	1.36E-09	4.58E+02
5	2500	TH-230	1.62E-08	9.30E-10	1.75E-10	1.11E-09	4.56E+02
5	5000	TH-230	5.31E-09	3.06E-10	8.31E-11	3.89E-10	4.34E+02
6	1300	TH-230	3.77E-08	2.17E-09	4.01E-10	2.57E-09	7.23E+02
6	1400	TH-230	3.32E-08	1.91E-09	3.71E-10	2.28E-09	7.21E+02
6	1500	TH-230	2.94E-08	1.69E-09	3.46E-10	2.04E-09	7.20E+02
6	1625	TH-230	2.57E-08	1.48E-09	3.18E-10	1.80E-09	7.18E+02
6	1700	TH-230	2.38E-08	1.37E-09	3.04E-10	1.67E-09	7.17E+02
6	1800	TH-230	2.15E-08	1.24E-09	2.87E-10	1.53E-09	7.16E+02
6	2000	TH-230	1.79E-08	1.03E-09	2.57E-10	1.29E-09	7.14E+02
6	2200	TH-230	1.53E-08	8.78E-10	2.33E-10	1.11E-09	7.13E+02
6	2500	TH-230	1.23E-08	7.06E-10	2.04E-10	9.11E-10	7.11E+02
6	5000	TH-230	4.11E-09	2.37E-10	9.90E-11	3.36E-10	6.92E+02
7	1300	TH-230	2.06E-08	1.19E-09	2.19E-10	1.41E-09	3.96E+02
7	1400	TH-230	1.81E-08	1.04E-09	2.03E-10	1.25E-09	3.96E+02
7	1500	TH-230	1.61E-08	9.25E-10	1.89E-10	1.11E-09	3.95E+02
7	1625	TH-230	1.40E-08	8.06E-10	1.74E-10	9.80E-10	3.94E+02
7	1700	TH-230	1.30E-08	7.46E-10	1.66E-10	9.12E-10	3.94E+02
7	1800	TH-230	1.17E-08	6.76E-10	1.57E-10	8.33E-10	3.93E+02
7	2000	TH-230	9.77E-09	5.62E-10	1.41E-10	7.03E-10	3.92E+02
7	2200	TH-230	8.31E-09	4.78E-10	1.28E-10	6.06E-10	3.91E+02
7	2500	TH-230	6.68E-09	3.84E-10	1.12E-10	4.96E-10	3.90E+02
7	5000	TH-230	2.22E-09	1.28E-10	5.42E-11	1.82E-10	3.80E+02
8	1300	TH-230	2.03E-08	1.17E-09	1.83E-10	1.35E-09	3.62E+02
8	1400	TH-230	1.79E-08	1.03E-09	1.70E-10	1.20E-09	3.61E+02
8	1500	TH-230	1.58E-08	9.10E-10	1.58E-10	1.07E-09	3.61E+02
8	1625	TH-230	1.38E-08	7.93E-10	1.46E-10	9.39E-10	3.60E+02
8	1700	TH-230	1.28E-08	7.34E-10	1.39E-10	8.73E-10	3.60E+02
8	1800	TH-230	1.15E-08	6.65E-10	1.31E-10	7.96E-10	3.59E+02
8	2000	TH-230	9.60E-09	5.53E-10	1.17E-10	6.70E-10	3.58E+02
8	2200	TH-230	8.17E-09	4.70E-10	1.06E-10	5.76E-10	3.57E+02
8	2500	TH-230	6.57E-09	3.78E-10	9.33E-11	4.71E-10	3.56E+02
8	5000	TH-230	2.18E-09	1.26E-10	4.50E-11	1.71E-10	3.47E+02
9	1300	TH-230	1.76E-08	1.01E-09	1.89E-10	1.20E-09	4.56E+02
9	1400	TH-230	1.55E-08	8.93E-10	1.75E-10	1.07E-09	4.56E+02

9	1500	TH-230	1.38E-08	7.93E-10	1.63E-10	9.55E-10	4.55E+02
9	1625	TH-230	1.20E-08	6.92E-10	1.50E-10	8.42E-10	4.54E+02
9	1700	TH-230	1.11E-08	6.41E-10	1.43E-10	7.84E-10	4.54E+02
9	1800	TH-230	1.01E-08	5.81E-10	1.35E-10	7.16E-10	4.53E+02
9	2000	TH-230	8.42E-09	4.84E-10	1.21E-10	6.06E-10	4.52E+02
9	2200	TH-230	7.17E-09	4.12E-10	1.10E-10	5.22E-10	4.52E+02
9	2500	TH-230	5.77E-09	3.32E-10	9.64E-11	4.29E-10	4.51E+02
9	5000	TH-230	1.95E-09	1.12E-10	4.69E-11	1.59E-10	4.42E+02
10	1300	TH-230	3.72E-08	2.14E-09	3.31E-10	2.47E-09	6.70E+02
10	1400	TH-230	3.27E-08	1.88E-09	3.06E-10	2.19E-09	6.68E+02
10	1500	TH-230	2.89E-08	1.67E-09	2.85E-10	1.95E-09	6.67E+02
10	1625	TH-230	2.52E-08	1.45E-09	2.62E-10	1.71E-09	6.65E+02
10	1700	TH-230	2.33E-08	1.34E-09	2.50E-10	1.59E-09	6.65E+02
10	1800	TH-230	2.11E-08	1.22E-09	2.36E-10	1.45E-09	6.64E+02
10	2000	TH-230	1.76E-08	1.01E-09	2.11E-10	1.22E-09	6.61E+02
10	2200	TH-230	1.49E-08	8.59E-10	1.92E-10	1.05E-09	6.60E+02
10	2500	TH-230	1.20E-08	6.91E-10	1.68E-10	8.59E-10	6.58E+02
10	5000	TH-230	3.99E-09	2.30E-10	8.10E-11	3.11E-10	6.41E+02
11	1300	TH-230	8.87E-08	5.11E-09	5.16E-10	5.62E-09	9.12E+02
11	1400	TH-230	7.78E-08	4.48E-09	4.77E-10	4.95E-09	9.09E+02
11	1500	TH-230	6.87E-08	3.95E-09	4.43E-10	4.40E-09	9.05E+02
11	1625	TH-230	5.98E-08	3.44E-09	4.07E-10	3.85E-09	9.03E+02
11	1700	TH-230	5.53E-08	3.18E-09	3.88E-10	3.57E-09	9.01E+02
11	1800	TH-230	5.00E-08	2.88E-09	3.65E-10	3.24E-09	8.99E+02
11	2000	TH-230	4.14E-08	2.38E-09	3.26E-10	2.71E-09	8.93E+02
11	2200	TH-230	3.51E-08	2.02E-09	2.95E-10	2.32E-09	8.91E+02
11	2500	TH-230	2.82E-08	1.62E-09	2.59E-10	1.88E-09	8.87E+02
11	5000	TH-230	9.23E-09	5.31E-10	1.22E-10	6.53E-10	8.50E+02
12	1300	TH-230	1.15E-07	6.60E-09	6.36E-10	7.23E-09	1.08E+03
12	1400	TH-230	1.01E-07	5.79E-09	5.88E-10	6.37E-09	1.08E+03
12	1500	TH-230	8.88E-08	5.11E-09	5.46E-10	5.66E-09	1.08E+03
12	1625	TH-230	7.73E-08	4.45E-09	5.02E-10	4.95E-09	1.07E+03
12	1700	TH-230	7.15E-08	4.11E-09	4.78E-10	4.59E-09	1.07E+03
12	1800	TH-230	6.46E-08	3.72E-09	4.50E-10	4.17E-09	1.07E+03
12	2000	TH-230	5.35E-08	3.08E-09	4.02E-10	3.48E-09	1.06E+03
12	2200	TH-230	4.55E-08	2.62E-09	3.64E-10	2.98E-09	1.06E+03
12	2500	TH-230	3.65E-08	2.10E-09	3.18E-10	2.42E-09	1.05E+03
12	5000	TH-230	1.20E-08	6.90E-10	1.50E-10	8.40E-10	1.01E+03
13	1300	TH-230	1.03E-07	5.91E-09	7.08E-10	6.62E-09	1.27E+03
13	1400	TH-230	9.02E-08	5.19E-09	6.55E-10	5.85E-09	1.27E+03
13	1500	TH-230	7.98E-08	4.59E-09	6.08E-10	5.20E-09	1.26E+03
13	1625	TH-230	6.96E-08	4.00E-09	5.60E-10	4.56E-09	1.26E+03
13	1700	TH-230	6.43E-08	3.70E-09	5.34E-10	4.24E-09	1.26E+03
13	1800	TH-230	5.82E-08	3.35E-09	5.03E-10	3.85E-09	1.25E+03
13	2000	TH-230	4.83E-08	2.78E-09	4.50E-10	3.23E-09	1.25E+03
13	2200	TH-230	4.11E-08	2.37E-09	4.07E-10	2.77E-09	1.25E+03
13	2500	TH-230	3.30E-08	1.90E-09	3.57E-10	2.26E-09	1.24E+03
13	5000	TH-230	1.10E-08	6.32E-10	1.70E-10	8.02E-10	1.20E+03
14	1300	TH-230	1.07E-07	6.17E-09	7.67E-10	6.94E-09	1.20E+03
14	1400	TH-230	9.43E-08	5.43E-09	7.09E-10	6.14E-09	1.19E+03
14	1500	TH-230	8.35E-08	4.80E-09	6.59E-10	5.46E-09	1.19E+03
14	1625	TH-230	7.27E-08	4.19E-09	6.07E-10	4.79E-09	1.18E+03
14	1700	TH-230	6.73E-08	3.87E-09	5.79E-10	4.45E-09	1.18E+03
14	1800	TH-230	6.09E-08	3.51E-09	5.45E-10	4.05E-09	1.18E+03
14	2000	TH-230	5.06E-08	2.91E-09	4.87E-10	3.40E-09	1.17E+03
14	2200	TH-230	4.30E-08	2.48E-09	4.41E-10	2.92E-09	1.17E+03
14	2500	TH-230	3.46E-08	1.99E-09	3.86E-10	2.38E-09	1.16E+03
14	5000	TH-230	1.15E-08	6.64E-10	1.84E-10	8.48E-10	1.12E+03
15	1300	TH-230	8.68E-08	5.00E-09	7.94E-10	5.79E-09	1.43E+03
15	1400	TH-230	7.64E-08	4.40E-09	7.35E-10	5.14E-09	1.43E+03
15	1500	TH-230	6.78E-08	3.90E-09	6.84E-10	4.59E-09	1.43E+03
15	1625	TH-230	5.92E-08	3.41E-09	6.30E-10	4.04E-09	1.42E+03
15	1700	TH-230	5.48E-08	3.15E-09	6.01E-10	3.76E-09	1.42E+03
15	1800	TH-230	4.97E-08	2.86E-09	5.67E-10	3.43E-09	1.42E+03
15	2000	TH-230	4.14E-08	2.38E-09	5.08E-10	2.89E-09	1.41E+03

15	2200	TH-230	3.52E-08	2.03E-09	4.61E-10	2.49E-09	1.41E+03
15	2500	TH-230	2.84E-08	1.63E-09	4.04E-10	2.04E-09	1.41E+03
15	5000	TH-230	9.60E-09	5.52E-10	1.96E-10	7.47E-10	1.37E+03
16	1300	TH-230	6.07E-08	3.49E-09	5.89E-10	4.08E-09	1.42E+03
16	1400	TH-230	5.35E-08	3.08E-09	5.46E-10	3.62E-09	1.42E+03
16	1500	TH-230	4.75E-08	2.73E-09	5.08E-10	3.24E-09	1.41E+03
16	1625	TH-230	4.14E-08	2.38E-09	4.68E-10	2.85E-09	1.41E+03
16	1700	TH-230	3.84E-08	2.21E-09	4.47E-10	2.66E-09	1.41E+03
16	1800	TH-230	3.48E-08	2.00E-09	4.21E-10	2.42E-09	1.41E+03
16	2000	TH-230	2.90E-08	1.67E-09	3.78E-10	2.05E-09	1.40E+03
16	2200	TH-230	2.47E-08	1.42E-09	3.43E-10	1.77E-09	1.40E+03
16	2500	TH-230	1.99E-08	1.15E-09	3.01E-10	1.45E-09	1.40E+03
16	5000	TH-230	6.77E-09	3.90E-10	1.46E-10	5.35E-10	1.37E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

1

0

0

0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA		NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS	WATER AREA	POPULATION
COLUMN	ROW		(SQUARE METERS)			
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0

0

0.3500E-03

(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.262E+03	0.548E+00	0.176E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.105E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1300	0.320E-13	0.680E-09	0.357E+03	0.257E+03
1	1400	0.282E-13	0.604E-09	0.317E+03	0.226E+03
1	1500	0.250E-13	0.541E-09	0.284E+03	0.201E+03
1	1625	0.219E-13	0.476E-09	0.250E+03	0.176E+03
1	1700	0.203E-13	0.443E-09	0.233E+03	0.163E+03
1	1800	0.184E-13	0.405E-09	0.213E+03	0.148E+03
1	2000	0.154E-13	0.343E-09	0.180E+03	0.123E+03
1	2200	0.131E-13	0.295E-09	0.155E+03	0.105E+03
1	2500	0.105E-13	0.242E-09	0.127E+03	0.847E+02
1	5000	0.360E-14	0.901E-10	0.473E+02	0.289E+02
2	1300	0.210E-13	0.448E-09	0.235E+03	0.169E+03
2	1400	0.185E-13	0.397E-09	0.209E+03	0.149E+03
2	1500	0.164E-13	0.355E-09	0.187E+03	0.132E+03
2	1625	0.144E-13	0.313E-09	0.164E+03	0.115E+03
2	1700	0.133E-13	0.291E-09	0.153E+03	0.107E+03
2	1800	0.121E-13	0.266E-09	0.140E+03	0.969E+02
2	2000	0.101E-13	0.225E-09	0.118E+03	0.808E+02
2	2200	0.857E-14	0.194E-09	0.102E+03	0.688E+02
2	2500	0.690E-14	0.159E-09	0.835E+02	0.554E+02
2	5000	0.234E-14	0.587E-10	0.308E+02	0.188E+02
3	1300	0.163E-13	0.340E-09	0.178E+03	0.131E+03
3	1400	0.143E-13	0.300E-09	0.158E+03	0.115E+03
3	1500	0.127E-13	0.268E-09	0.141E+03	0.102E+03
3	1625	0.110E-13	0.235E-09	0.124E+03	0.886E+02
3	1700	0.102E-13	0.219E-09	0.115E+03	0.819E+02
3	1800	0.924E-14	0.199E-09	0.105E+03	0.742E+02
3	2000	0.768E-14	0.167E-09	0.880E+02	0.616E+02
3	2200	0.653E-14	0.144E-09	0.756E+02	0.524E+02
3	2500	0.525E-14	0.118E-09	0.617E+02	0.421E+02
3	5000	0.174E-14	0.422E-10	0.222E+02	0.140E+02
4	1300	0.248E-13	0.510E-09	0.268E+03	0.199E+03
4	1400	0.218E-13	0.451E-09	0.237E+03	0.175E+03
4	1500	0.193E-13	0.401E-09	0.211E+03	0.155E+03
4	1625	0.168E-13	0.352E-09	0.185E+03	0.135E+03

4	1700	0.155E-13	0.326E-09	0.172E+03	0.125E+03
4	1800	0.141E-13	0.297E-09	0.156E+03	0.113E+03
4	2000	0.117E-13	0.249E-09	0.131E+03	0.936E+02
4	2200	0.991E-14	0.214E-09	0.112E+03	0.796E+02
4	2500	0.796E-14	0.174E-09	0.915E+02	0.639E+02
4	5000	0.262E-14	0.617E-10	0.324E+02	0.211E+02
5	1300	0.506E-13	0.103E-08	0.540E+03	0.406E+03
5	1400	0.444E-13	0.908E-09	0.477E+03	0.357E+03
5	1500	0.392E-13	0.807E-09	0.424E+03	0.315E+03
5	1625	0.342E-13	0.708E-09	0.372E+03	0.274E+03
5	1700	0.316E-13	0.657E-09	0.345E+03	0.254E+03
5	1800	0.286E-13	0.597E-09	0.314E+03	0.230E+03
5	2000	0.237E-13	0.500E-09	0.263E+03	0.190E+03
5	2200	0.201E-13	0.429E-09	0.225E+03	0.162E+03
5	2500	0.162E-13	0.349E-09	0.183E+03	0.130E+03
5	5000	0.531E-14	0.123E-09	0.645E+02	0.427E+02
6	1300	0.377E-13	0.811E-09	0.426E+03	0.303E+03
6	1400	0.332E-13	0.720E-09	0.378E+03	0.266E+03
6	1500	0.294E-13	0.644E-09	0.338E+03	0.236E+03
6	1625	0.257E-13	0.567E-09	0.298E+03	0.206E+03
6	1700	0.238E-13	0.527E-09	0.277E+03	0.191E+03
6	1800	0.215E-13	0.481E-09	0.253E+03	0.173E+03
6	2000	0.179E-13	0.407E-09	0.214E+03	0.144E+03
6	2200	0.153E-13	0.351E-09	0.184E+03	0.122E+03
6	2500	0.123E-13	0.287E-09	0.151E+03	0.985E+02
6	5000	0.411E-14	0.106E-09	0.556E+02	0.330E+02
7	1300	0.206E-13	0.444E-09	0.233E+03	0.166E+03
7	1400	0.181E-13	0.393E-09	0.207E+03	0.146E+03
7	1500	0.161E-13	0.351E-09	0.185E+03	0.129E+03
7	1625	0.140E-13	0.309E-09	0.163E+03	0.112E+03
7	1700	0.130E-13	0.288E-09	0.151E+03	0.104E+03
7	1800	0.117E-13	0.263E-09	0.138E+03	0.943E+02
7	2000	0.977E-14	0.222E-09	0.116E+03	0.784E+02
7	2200	0.831E-14	0.191E-09	0.100E+03	0.667E+02
7	2500	0.668E-14	0.157E-09	0.823E+02	0.536E+02
7	5000	0.222E-14	0.574E-10	0.302E+02	0.178E+02
8	1300	0.203E-13	0.427E-09	0.224E+03	0.163E+03
8	1400	0.179E-13	0.378E-09	0.198E+03	0.143E+03
8	1500	0.158E-13	0.337E-09	0.177E+03	0.127E+03
8	1625	0.138E-13	0.296E-09	0.156E+03	0.111E+03
8	1700	0.128E-13	0.275E-09	0.145E+03	0.102E+03
8	1800	0.115E-13	0.251E-09	0.132E+03	0.927E+02
8	2000	0.960E-14	0.211E-09	0.111E+03	0.771E+02
8	2200	0.817E-14	0.182E-09	0.956E+02	0.656E+02
8	2500	0.657E-14	0.149E-09	0.781E+02	0.527E+02
8	5000	0.218E-14	0.539E-10	0.283E+02	0.175E+02
9	1300	0.176E-13	0.379E-09	0.199E+03	0.141E+03
9	1400	0.155E-13	0.337E-09	0.177E+03	0.125E+03
9	1500	0.138E-13	0.301E-09	0.158E+03	0.111E+03
9	1625	0.120E-13	0.266E-09	0.140E+03	0.965E+02
9	1700	0.111E-13	0.247E-09	0.130E+03	0.894E+02
9	1800	0.101E-13	0.226E-09	0.119E+03	0.810E+02
9	2000	0.842E-14	0.191E-09	0.100E+03	0.676E+02
9	2200	0.717E-14	0.165E-09	0.866E+02	0.575E+02
9	2500	0.577E-14	0.135E-09	0.711E+02	0.464E+02
9	5000	0.195E-14	0.503E-10	0.264E+02	0.157E+02
10	1300	0.372E-13	0.779E-09	0.409E+03	0.298E+03
10	1400	0.327E-13	0.690E-09	0.362E+03	0.262E+03
10	1500	0.289E-13	0.615E-09	0.323E+03	0.232E+03
10	1625	0.252E-13	0.541E-09	0.284E+03	0.202E+03
10	1700	0.233E-13	0.503E-09	0.264E+03	0.187E+03
10	1800	0.211E-13	0.458E-09	0.241E+03	0.170E+03
10	2000	0.176E-13	0.385E-09	0.202E+03	0.141E+03
10	2200	0.149E-13	0.332E-09	0.174E+03	0.120E+03
10	2500	0.120E-13	0.271E-09	0.142E+03	0.964E+02

10	5000	0.399E-14	0.981E-10	0.515E+02	0.321E+02
11	1300	0.887E-13	0.177E-08	0.932E+03	0.712E+03
11	1400	0.778E-13	0.156E-08	0.821E+03	0.625E+03
11	1500	0.687E-13	0.139E-08	0.729E+03	0.552E+03
11	1625	0.598E-13	0.121E-08	0.638E+03	0.480E+03
11	1700	0.553E-13	0.113E-08	0.592E+03	0.444E+03
11	1800	0.500E-13	0.102E-08	0.537E+03	0.401E+03
11	2000	0.414E-13	0.864E-09	0.449E+03	0.332E+03
11	2200	0.351E-13	0.732E-09	0.384E+03	0.282E+03
11	2500	0.282E-13	0.594E-09	0.312E+03	0.226E+03
11	5000	0.923E-14	0.206E-09	0.108E+03	0.741E+02
12	1300	0.115E-12	0.228E-08	0.120E+04	0.920E+03
12	1400	0.101E-12	0.201E-08	0.106E+04	0.807E+03
12	1500	0.888E-13	0.179E-08	0.938E+03	0.713E+03
12	1625	0.773E-13	0.156E-08	0.821E+03	0.621E+03
12	1700	0.715E-13	0.145E-08	0.761E+03	0.574E+03
12	1800	0.646E-13	0.132E-08	0.691E+03	0.519E+03
12	2000	0.535E-13	0.110E-08	0.577E+03	0.430E+03
12	2200	0.455E-13	0.941E-09	0.494E+03	0.365E+03
12	2500	0.365E-13	0.763E-09	0.401E+03	0.293E+03
12	5000	0.120E-13	0.265E-09	0.139E+03	0.963E+02
13	1300	0.103E-12	0.209E-08	0.110E+04	0.825E+03
13	1400	0.902E-13	0.184E-08	0.969E+03	0.724E+03
13	1500	0.798E-13	0.164E-08	0.862E+03	0.641E+03
13	1625	0.696E-13	0.144E-08	0.756E+03	0.559E+03
13	1700	0.643E-13	0.134E-08	0.702E+03	0.517E+03
13	1800	0.582E-13	0.122E-08	0.639E+03	0.468E+03
13	2000	0.483E-13	0.102E-08	0.536E+03	0.388E+03
13	2200	0.411E-13	0.875E-09	0.460E+03	0.330E+03
13	2500	0.330E-13	0.712E-09	0.374E+03	0.265E+03
13	5000	0.110E-13	0.253E-09	0.133E+03	0.882E+02
14	1300	0.107E-12	0.219E-08	0.115E+04	0.861E+03
14	1400	0.943E-13	0.194E-08	0.102E+04	0.757E+03
14	1500	0.835E-13	0.172E-08	0.906E+03	0.670E+03
14	1625	0.727E-13	0.151E-08	0.795E+03	0.584E+03
14	1700	0.673E-13	0.140E-08	0.738E+03	0.540E+03
14	1800	0.609E-13	0.128E-08	0.672E+03	0.489E+03
14	2000	0.506E-13	0.107E-08	0.564E+03	0.406E+03
14	2200	0.430E-13	0.921E-09	0.484E+03	0.346E+03
14	2500	0.346E-13	0.750E-09	0.394E+03	0.278E+03
14	5000	0.115E-13	0.268E-09	0.141E+03	0.927E+02
15	1300	0.868E-13	0.183E-08	0.960E+03	0.697E+03
15	1400	0.764E-13	0.162E-08	0.851E+03	0.614E+03
15	1500	0.678E-13	0.145E-08	0.760E+03	0.545E+03
15	1625	0.592E-13	0.127E-08	0.669E+03	0.475E+03
15	1700	0.548E-13	0.118E-08	0.622E+03	0.440E+03
15	1800	0.497E-13	0.108E-08	0.568E+03	0.399E+03
15	2000	0.414E-13	0.912E-09	0.479E+03	0.332E+03
15	2200	0.352E-13	0.785E-09	0.413E+03	0.283E+03
15	2500	0.284E-13	0.643E-09	0.338E+03	0.228E+03
15	5000	0.960E-14	0.236E-09	0.124E+03	0.771E+02
16	1300	0.607E-13	0.129E-08	0.677E+03	0.487E+03
16	1400	0.535E-13	0.114E-08	0.601E+03	0.429E+03
16	1500	0.475E-13	0.102E-08	0.537E+03	0.381E+03
16	1625	0.414E-13	0.900E-09	0.473E+03	0.333E+03
16	1700	0.384E-13	0.838E-09	0.440E+03	0.308E+03
16	1800	0.348E-13	0.765E-09	0.402E+03	0.279E+03
16	2000	0.290E-13	0.646E-09	0.339E+03	0.233E+03
16	2200	0.247E-13	0.557E-09	0.293E+03	0.198E+03
16	2500	0.199E-13	0.457E-09	0.240E+03	0.160E+03
16	5000	0.677E-14	0.169E-09	0.888E+02	0.544E+02

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES

0

TH-230	SUBM AIR	0.1769E-09	0.00	100.00
	SURFACE	0.3480E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2411E+00	99.73	100.00
	INGEST.	0.6570E-03	0.27	100.00
	VEGET.	0.6565E-03	* 0.27	* 99.93
	MEAT	0.9312E-07	* 0.00	* 0.01
	MILK	0.3834E-06	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.1167E-09	0.00	100.00
	SURFACE	0.2296E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2383E+00	99.46	100.00
	INGEST.	0.1283E-02	0.54	100.00
	VEGET.	0.1282E-02	* 0.53	* 99.93
	MEAT	0.1818E-06	* 0.00	* 0.01
	MILK	0.7486E-06	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2752E-09	0.00	100.00
	SURFACE	0.5414E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2963E+01	99.46	100.00
	INGEST.	0.1594E-01	0.54	100.00
	VEGET.	0.1593E-01	* 0.53	* 99.93
	MEAT	0.2260E-05	* 0.00	* 0.01
	MILK	0.9306E-05	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2371E-09	0.00	100.00
	SURFACE	0.4664E-06	0.08	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5853E-03	99.41	100.00
	INGEST.	0.3021E-05	0.51	100.00
	VEGET.	0.3019E-05	* 0.51	* 99.93
	MEAT	0.4282E-09	* 0.00	* 0.01
	MILK	0.1763E-08	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.3858E-09	0.00	100.00
	SURFACE	0.7589E-06	0.13	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5853E-03	99.36	100.00
	INGEST.	0.3021E-05	0.51	100.00
	VEGET.	0.3019E-05	* 0.51	* 99.93
	MEAT	0.4282E-09	* 0.00	* 0.01
	MILK	0.1763E-08	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.1622E-09	0.00	100.00
	SURFACE	0.3190E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1021E+01	100.00	100.00
	INGEST.	0.3022E-05	0.00	100.00
	VEGET.	0.3020E-05	* 0.00	* 99.93
	MEAT	0.4284E-09	* 0.00	* 0.01
	MILK	0.1764E-08	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

```
0
        TH-230     SUBM AIR     0.1388E-09        0.00          100.00
                  SURFACE      0.2731E-06        0.05          100.00
                  SWIMMING     0.0000E+00        0.00            0.00
                  INHAL.      0.5942E-03       98.64          100.00
                  INGEST.      0.7929E-05        1.32          100.00
                   VEGET.      0.7923E-05      * 1.32        * 99.93
                   MEAT        0.1124E-08      * 0.00        * 0.01
                   MILK       0.4628E-08      * 0.00        * 0.06
1                  PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-230     SUBM AIR     0.1327E-09        0.00          100.00
                  SURFACE      0.2610E-06        0.03          100.00
                  SWIMMING     0.0000E+00        0.00            0.00
                  INHAL.      0.6444E-03       84.29          100.00
                  INGEST.      0.1198E-03       15.67          100.00
                   VEGET.      0.1197E-03      * 15.66        * 99.93
                   MEAT        0.1698E-07      * 0.00        * 0.01
                   MILK       0.6992E-07      * 0.01        * 0.06
1                  PERCENT OF LIVER   DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-230     SUBM AIR     0.1450E-09        0.00          100.00
                  SURFACE      0.2852E-06        0.01          100.00
                  SWIMMING     0.0000E+00        0.00            0.00
                  INHAL.      0.5032E-02       99.48          100.00
                  INGEST.      0.2617E-04        0.52          100.00
                   VEGET.      0.2615E-04      * 0.52        * 99.93
                   MEAT        0.3709E-08      * 0.00        * 0.01
                   MILK       0.1527E-07      * 0.00        * 0.06
1                  PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-230     SUBM AIR     0.1057E-09        0.00          100.00
                  SURFACE      0.2078E-06        0.03          100.00
                  SWIMMING     0.0000E+00        0.00            0.00
                  INHAL.      0.5951E-03       99.45          100.00
                  INGEST.      0.3094E-05        0.52          100.00
                   VEGET.      0.3092E-05      * 0.52        * 99.93
                   MEAT        0.4386E-09      * 0.00        * 0.01
                   MILK       0.1806E-08      * 0.00        * 0.06
1                  PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        TH-230     SUBM AIR     0.1524E-09        0.00          100.00
                  SURFACE      0.2997E-06        0.05          100.00
                  SWIMMING     0.0000E+00        0.00            0.00
                  INHAL.      0.5950E-03       99.43          100.00
                  INGEST.      0.3094E-05        0.52          100.00
                   VEGET.      0.3092E-05      * 0.52        * 99.93
                   MEAT        0.4386E-09      * 0.00        * 0.01
                   MILK       0.1806E-08      * 0.00        * 0.06
0                    CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.1769E-09                     0.0000
0      SURFACE                     0.3480E-06                     0.0001
0      SWIMMING                    0.1000E-24                     0.0000
0      INHAL.                     0.2411E+00                     99.7281
0      INGEST.                     0.6570E-03                     0.2717
0       VEGET.                    *0.6565E-03                   * 0.2715
0       MEAT                      *0.9312E-07                   * 0.0000
0       MILK                      *0.3834E-06                   * 0.0002
0                    CONTRIBUTION OF EXPOSURE MODES TO R MAR   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
```

0	SUBM AIR	0.1167E-09	0.0000
0	SURFACE	0.2296E-06	0.0001
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2383E+00	99.4646
0	INGEST.	0.1283E-02	0.5363
0	VEGET.	*0.1282E-02	* 0.5349
0	MEAT	*0.1818E-06	* 0.0001
0	MILK	*0.7486E-06	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2752E-09	0.0000
0	SURFACE	0.5414E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2963E+01	99.4648
0	INGEST.	0.1594E-01	0.5352
0	VEGET.	*0.1593E-01	* 0.5348
0	MEAT	*0.2260E-05	* 0.0001
0	MILK	*0.9306E-05	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2371E-09	0.0000
0	SURFACE	0.4664E-06	0.0792
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5853E-03	99.4076
0	INGEST.	0.3021E-05	0.5131
0	VEGET.	*0.3019E-05	* 0.5128
0	MEAT	*0.4282E-09	* 0.0001
0	MILK	*0.1763E-08	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.3858E-09	0.0001
0	SURFACE	0.7589E-06	0.1288
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5853E-03	99.3682
0	INGEST.	0.3021E-05	0.5129
0	VEGET.	*0.3019E-05	* 0.5125
0	MEAT	*0.4282E-09	* 0.0001
0	MILK	*0.1763E-08	* 0.0003
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1622E-09	0.0000
0	SURFACE	0.3190E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1021E+01	99.9997
0	INGEST.	0.3022E-05	0.0003
0	VEGET.	*0.3020E-05	* 0.0003
0	MEAT	*0.4284E-09	* 0.0000
0	MILK	*0.1764E-08	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1388E-09	0.0000
0	SURFACE	0.2731E-06	0.0453
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5942E-03	98.6384
0	INGEST.	0.7929E-05	1.3163
0	VEGET.	*0.7923E-05	* 1.3153
0	MEAT	*0.1124E-08	* 0.0002
0	MILK	*0.4628E-08	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1327E-09	0.0000
0	SURFACE	0.2610E-06	0.0341
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6444E-03	84.2940
0	INGEST.	0.1198E-03	15.6718

```
0        VEGET.                    *0.1197E-03                    *  15.5605
0        MEAT                      *0.1698E-07                    *   0.0022
0        MILK                      *0.6992E-07                    *   0.0091
0                        CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1450E-09                       0.0000
0      SURFACE                    0.2852E-06                       0.0056
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.5032E-02                      99.4770
0      INGEST.                    0.2617E-04                       0.5174
0        VEGET.                   *0.2615E-04                    *   0.5170
0        MEAT                     *0.3709E-08                    *   0.0001
0        MILK                     *0.1527E-07                    *   0.0003
0                        CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1057E-09                       0.0000
0      SURFACE                    0.2078E-06                       0.0347
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.5951E-03                      99.4482
0      INGEST.                    0.3094E-05                       0.5171
0        VEGET.                   *0.3092E-05                    *   0.5167
0        MEAT                     *0.4386E-09                    *   0.0001
0        MILK                     *0.1806E-08                    *   0.0003
0                        CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                   0.1524E-09                       0.0000
0      SURFACE                    0.2997E-06                       0.0501
0      SWIMMING                   0.1000E-24                       0.0000
0      INHAL.                     0.5950E-03                      99.4328
0      INGEST.                    0.3094E-05                       0.5171
0        VEGET.                   *0.3092E-05                    *   0.5167
0        MEAT                     *0.4386E-09                    *   0.0001
0        MILK                     *0.1806E-08                    *   0.0003
1                        TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                      ORGAN                        DOSE(REMS)
0                      W BODY                       0.2418E+00
0                      R MAR                       0.2396E+00
0                      ENDOST                       0.2979E+01
0                      THYROID                      0.5887E-03
0                      BREAST                       0.5890E-03
0                      *PUL*                       0.1021E+01
0                      S WALL                       0.6024E-03
0                      INT WALL                     0.7645E-03
0                      LIVER                       0.5058E-02
0                      PANCREAS                       0.5984E-03
0                      KIDNEYS                      0.5984E-03
1                          CONTRIBUTORS TO ORGAN DOSES
0                                        PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 TH-230   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                              ANNUAL DOSES(REMS)
0          NUCLIDE        ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN   ROW
0          TH-230         W BODY       0.2418E+00                12      7
0          TH-230         R MAR       0.2396E+00                12      7
0          TH-230         ENDOST       0.2979E+01                12      7
0          TH-230         THYROID      0.5887E-03                12      7
0          TH-230         BREAST       0.5890E-03                12      7
0          TH-230         *PUL*       0.1021E+01                12      7
0          TH-230         S WALL       0.6024E-03                12      7
0          TH-230         INT WALL     0.7645E-03                12      7
0          TH-230         LIVER       0.5058E-02                12      7
0          TH-230         PANCREAS       0.5984E-03                12      7
```

0	TH-230	KIDNEYS	0.5984E-03	12	7

Building 68

Uranium-233

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=7,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA


 &RADI NUC='U-233',ISOL=Y,AMAD=1.0,REL=4.1 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(1615)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR BLDG. 68 WITH 10% RELEASE
DOSE CALCULATED AT 1300 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	U-233	0.410E+01

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
U-233	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)

WIND TOWARD	DISTANCE (METERS)					
0						
1	1300	U-233	3.28E-07	1.89E-08	3.22E-09	2.21E-08	7.18E+03
1	1400	U-233	2.89E-07	1.66E-08	2.99E-09	1.96E-08	7.17E+03
1	1500	U-233	2.57E-07	1.48E-08	2.78E-09	1.76E-08	7.16E+03
1	1625	U-233	2.24E-07	1.29E-08	2.56E-09	1.55E-08	7.15E+03
1	1700	U-233	2.08E-07	1.20E-08	2.45E-09	1.44E-08	7.14E+03
1	1800	U-233	1.89E-07	1.09E-08	2.31E-09	1.32E-08	7.13E+03
1	2000	U-233	1.57E-07	9.06E-09	2.07E-09	1.11E-08	7.11E+03
1	2200	U-233	1.34E-07	7.72E-09	1.88E-09	9.60E-09	7.10E+03
1	2500	U-233	1.08E-07	6.22E-09	1.65E-09	7.87E-09	7.08E+03
1	5000	U-233	3.70E-08	2.13E-09	7.98E-10	2.93E-09	6.92E+03
2	1300	U-233	2.16E-07	1.24E-08	2.14E-09	1.45E-08	3.49E+03
2	1400	U-233	1.90E-07	1.09E-08	1.98E-09	1.29E-08	3.49E+03
2	1500	U-233	1.69E-07	9.70E-09	1.84E-09	1.15E-08	3.48E+03
2	1625	U-233	1.47E-07	8.47E-09	1.70E-09	1.02E-08	3.47E+03
2	1700	U-233	1.36E-07	7.85E-09	1.62E-09	9.47E-09	3.47E+03
2	1800	U-233	1.24E-07	7.12E-09	1.53E-09	8.64E-09	3.46E+03
2	2000	U-233	1.03E-07	5.94E-09	1.37E-09	7.31E-09	3.45E+03

2	2200	U-233	8.78E-08	5.06E-09	1.24E-09	6.30E-09	3.44E+03
2	2500	U-233	7.08E-08	4.07E-09	1.09E-09	5.16E-09	3.43E+03
2	5000	U-233	2.40E-08	1.38E-09	5.25E-10	1.91E-09	3.32E+03
3	1300	U-233	1.67E-07	9.60E-09	1.43E-09	1.10E-08	1.88E+03
3	1400	U-233	1.47E-07	8.44E-09	1.32E-09	9.76E-09	1.88E+03
3	1500	U-233	1.30E-07	7.47E-09	1.23E-09	8.70E-09	1.87E+03
3	1625	U-233	1.13E-07	6.51E-09	1.13E-09	7.64E-09	1.87E+03
3	1700	U-233	1.06E-07	6.02E-09	1.08E-09	7.10E-09	1.86E+03
3	1800	U-233	9.47E-08	5.45E-09	1.02E-09	6.47E-09	1.86E+03
3	2000	U-233	7.87E-08	4.53E-09	9.11E-10	5.44E-09	1.85E+03
3	2200	U-233	6.69E-08	3.85E-09	8.25E-10	4.68E-09	1.84E+03
3	2500	U-233	5.38E-08	3.09E-09	7.23E-10	3.82E-09	1.83E+03
3	5000	U-233	1.78E-08	1.03E-09	3.46E-10	1.37E-09	1.76E+03
4	1300	U-233	2.55E-07	1.47E-08	1.91E-09	1.66E-08	2.35E+03
4	1400	U-233	2.24E-07	1.29E-08	1.77E-09	1.46E-08	2.34E+03
4	1500	U-233	1.98E-07	1.14E-08	1.64E-09	1.30E-08	2.33E+03
4	1625	U-233	1.72E-07	9.91E-09	1.51E-09	1.14E-08	2.32E+03
4	1700	U-233	1.59E-07	9.16E-09	1.44E-09	1.06E-08	2.32E+03
4	1800	U-233	1.44E-07	8.29E-09	1.36E-09	9.65E-09	2.31E+03
4	2000	U-233	1.19E-07	6.88E-09	1.21E-09	8.09E-09	2.30E+03
4	2200	U-233	1.02E-07	5.85E-09	1.10E-09	6.95E-09	2.29E+03
4	2500	U-233	8.16E-08	4.69E-09	9.63E-10	5.66E-09	2.28E+03
4	5000	U-233	2.69E-08	1.55E-09	4.57E-10	2.00E-09	2.17E+03
5	1300	U-233	5.18E-07	2.98E-08	3.57E-09	3.34E-08	4.82E+03
5	1400	U-233	4.55E-07	2.62E-08	3.31E-09	2.95E-08	4.80E+03
5	1500	U-233	4.02E-07	2.32E-08	3.07E-09	2.62E-08	4.78E+03
5	1625	U-233	3.50E-07	2.02E-08	2.82E-09	2.30E-08	4.77E+03
5	1700	U-233	3.24E-07	1.86E-08	2.69E-09	2.13E-08	4.76E+03
5	1800	U-233	2.93E-07	1.69E-08	2.54E-09	1.94E-08	4.74E+03
5	2000	U-233	2.43E-07	1.40E-08	2.27E-09	1.62E-08	4.71E+03
5	2200	U-233	2.06E-07	1.19E-08	2.05E-09	1.39E-08	4.70E+03
5	2500	U-233	1.66E-07	9.54E-09	1.80E-09	1.13E-08	4.67E+03
5	5000	U-233	5.45E-08	3.14E-09	8.52E-10	3.99E-09	4.45E+03
6	1300	U-233	3.87E-07	2.22E-08	4.11E-09	2.64E-08	7.41E+03
6	1400	U-233	3.40E-07	1.96E-08	3.81E-09	2.34E-08	7.39E+03
6	1500	U-233	3.02E-07	1.74E-08	3.54E-09	2.09E-08	7.38E+03
6	1625	U-233	2.63E-07	1.51E-08	3.26E-09	1.84E-08	7.36E+03
6	1700	U-233	2.43E-07	1.40E-08	3.12E-09	1.71E-08	7.35E+03
6	1800	U-233	2.21E-07	1.27E-08	2.94E-09	1.56E-08	7.34E+03
6	2000	U-233	1.84E-07	1.06E-08	2.63E-09	1.32E-08	7.32E+03
6	2200	U-233	1.56E-07	9.00E-09	2.39E-09	1.14E-08	7.30E+03
6	2500	U-233	1.26E-07	7.24E-09	2.09E-09	9.33E-09	7.28E+03
6	5000	U-233	4.21E-08	2.43E-09	1.01E-09	3.44E-09	7.09E+03
7	1300	U-233	2.11E-07	1.22E-08	2.25E-09	1.44E-08	4.06E+03
7	1400	U-233	1.86E-07	1.07E-08	2.08E-09	1.28E-08	4.06E+03
7	1500	U-233	1.65E-07	9.48E-09	1.94E-09	1.14E-08	4.05E+03
7	1625	U-233	1.44E-07	8.26E-09	1.79E-09	1.00E-08	4.04E+03
7	1700	U-233	1.33E-07	7.65E-09	1.71E-09	9.35E-09	4.03E+03
7	1800	U-233	1.20E-07	6.93E-09	1.61E-09	8.53E-09	4.03E+03
7	2000	U-233	1.00E-07	5.76E-09	1.44E-09	7.20E-09	4.02E+03
7	2200	U-233	8.51E-08	4.90E-09	1.31E-09	6.21E-09	4.01E+03
7	2500	U-233	6.85E-08	3.94E-09	1.15E-09	5.09E-09	4.00E+03
7	5000	U-233	2.27E-08	1.31E-09	5.55E-10	1.86E-09	3.89E+03
8	1300	U-233	2.08E-07	1.20E-08	1.88E-09	1.39E-08	3.71E+03
8	1400	U-233	1.83E-07	1.05E-08	1.74E-09	1.23E-08	3.71E+03
8	1500	U-233	1.62E-07	9.33E-09	1.62E-09	1.09E-08	3.70E+03
8	1625	U-233	1.41E-07	8.13E-09	1.49E-09	9.62E-09	3.69E+03
8	1700	U-233	1.31E-07	7.52E-09	1.42E-09	8.95E-09	3.69E+03
8	1800	U-233	1.18E-07	6.81E-09	1.34E-09	8.16E-09	3.68E+03
8	2000	U-233	9.84E-08	5.66E-09	1.20E-09	6.87E-09	3.67E+03
8	2200	U-233	8.37E-08	4.82E-09	1.09E-09	5.91E-09	3.66E+03
8	2500	U-233	6.73E-08	3.87E-09	9.56E-10	4.83E-09	3.65E+03
8	5000	U-233	2.24E-08	1.29E-09	4.62E-10	1.75E-09	3.55E+03
9	1300	U-233	1.81E-07	1.04E-08	1.93E-09	1.23E-08	4.68E+03
9	1400	U-233	1.59E-07	9.15E-09	1.79E-09	1.09E-08	4.67E+03

9	1500	U-233	1.41E-07	8.12E-09	1.67E-09	9.79E-09	4.66E+03
9	1625	U-233	1.23E-07	7.09E-09	1.54E-09	8.63E-09	4.66E+03
9	1700	U-233	1.14E-07	6.57E-09	1.47E-09	8.03E-09	4.65E+03
9	1800	U-233	1.03E-07	5.95E-09	1.38E-09	7.24E-09	4.65E+03
9	2000	U-233	8.63E-08	4.97E-09	1.24E-09	6.21E-09	4.64E+03
9	2200	U-233	7.35E-08	4.23E-09	1.13E-09	5.35E-09	4.63E+03
9	2500	U-233	5.92E-08	3.41E-09	9.89E-10	4.39E-09	4.62E+03
9	5000	U-233	2.00E-08	1.15E-09	4.81E-10	1.63E-09	4.53E+03
10	1300	U-233	3.81E-07	2.19E-08	3.39E-09	2.53E-08	6.86E+03
10	1400	U-233	3.35E-07	1.93E-08	3.14E-09	2.24E-08	6.85E+03
10	1500	U-233	2.97E-07	1.71E-08	2.92E-09	2.00E-08	6.83E+03
10	1625	U-233	2.58E-07	1.49E-08	2.69E-09	1.76E-08	6.82E+03
10	1700	U-233	2.39E-07	1.38E-08	2.56E-09	1.63E-08	6.81E+03
10	1800	U-233	2.16E-07	1.25E-08	2.42E-09	1.49E-08	6.80E+03
10	2000	U-233	1.80E-07	1.04E-08	2.16E-09	1.25E-08	6.78E+03
10	2200	U-233	1.53E-07	8.81E-09	1.96E-09	1.08E-08	6.77E+03
10	2500	U-233	1.23E-07	7.08E-09	1.72E-09	8.80E-09	6.75E+03
10	5000	U-233	4.09E-08	2.36E-09	8.30E-10	3.19E-09	6.57E+03
11	1300	U-233	9.09E-07	5.23E-08	5.29E-09	5.76E-08	9.35E+03
11	1400	U-233	7.97E-07	4.59E-08	4.89E-09	5.08E-08	9.31E+03
11	1500	U-233	7.04E-07	4.05E-08	4.54E-09	4.51E-08	9.28E+03
11	1625	U-233	6.13E-07	3.53E-08	4.17E-09	3.95E-08	9.25E+03
11	1700	U-233	5.66E-07	3.26E-08	3.98E-09	3.66E-08	9.23E+03
11	1800	U-233	5.12E-07	2.95E-08	3.74E-09	3.32E-08	9.21E+03
11	2000	U-233	4.24E-07	2.44E-08	3.34E-09	2.77E-08	9.16E+03
11	2200	U-233	3.60E-07	2.07E-08	3.03E-09	2.38E-08	9.13E+03
11	2500	U-233	2.89E-07	1.66E-08	2.65E-09	1.93E-08	9.09E+03
11	5000	U-233	9.46E-08	5.44E-09	1.25E-09	6.70E-09	8.72E+03
12	1300	U-233	1.17E-06	6.76E-08	6.52E-09	7.41E-08	1.11E+04
12	1400	U-233	1.03E-06	5.93E-08	6.03E-09	6.53E-08	1.11E+04
12	1500	U-233	9.10E-07	5.24E-08	5.59E-09	5.80E-08	1.10E+04
12	1625	U-233	7.92E-07	4.56E-08	5.14E-09	5.08E-08	1.10E+04
12	1700	U-233	7.32E-07	4.22E-08	4.90E-09	4.71E-08	1.10E+04
12	1800	U-233	6.62E-07	3.81E-08	4.61E-09	4.27E-08	1.09E+04
12	2000	U-233	5.49E-07	3.16E-08	4.12E-09	3.57E-08	1.09E+04
12	2200	U-233	4.66E-07	2.68E-08	3.73E-09	3.08E-08	1.08E+04
12	2500	U-233	3.74E-07	2.15E-08	3.26E-09	2.48E-08	1.08E+04
12	5000	U-233	1.23E-07	7.07E-09	1.54E-09	8.61E-09	1.03E+04
13	1300	U-233	1.05E-06	6.06E-08	7.26E-09	6.78E-08	1.30E+04
13	1400	U-233	9.25E-07	5.32E-08	6.71E-09	5.99E-08	1.30E+04
13	1500	U-233	8.18E-07	4.71E-08	6.24E-09	5.33E-08	1.29E+04
13	1625	U-233	7.13E-07	4.10E-08	5.74E-09	4.68E-08	1.29E+04
13	1700	U-233	6.59E-07	3.79E-08	5.47E-09	4.34E-08	1.29E+04
13	1800	U-233	5.97E-07	3.44E-08	5.15E-09	3.95E-08	1.29E+04
13	2000	U-233	4.95E-07	2.85E-08	4.61E-09	3.31E-08	1.28E+04
13	2200	U-233	4.21E-07	2.43E-08	4.18E-09	2.84E-08	1.28E+04
13	2500	U-233	3.39E-07	1.95E-08	3.66E-09	2.31E-08	1.27E+04
13	5000	U-233	1.13E-07	6.48E-09	1.74E-09	8.22E-09	1.23E+04
14	1300	U-233	1.10E-06	6.33E-08	7.86E-09	7.12E-08	1.23E+04
14	1400	U-233	9.66E-07	5.56E-08	7.27E-09	6.29E-08	1.22E+04
14	1500	U-233	8.55E-07	4.92E-08	6.76E-09	5.60E-08	1.22E+04
14	1625	U-233	7.46E-07	4.29E-08	6.22E-09	4.91E-08	1.21E+04
14	1700	U-233	6.90E-07	3.97E-08	5.93E-09	4.56E-08	1.21E+04
14	1800	U-233	6.24E-07	3.59E-08	5.58E-09	4.15E-08	1.21E+04
14	2000	U-233	5.19E-07	2.99E-08	4.99E-09	3.49E-08	1.20E+04
14	2200	U-233	4.41E-07	2.54E-08	4.52E-09	2.99E-08	1.20E+04
14	2500	U-233	3.55E-07	2.04E-08	3.96E-09	2.44E-08	1.19E+04
14	5000	U-233	1.18E-07	6.81E-09	1.89E-09	8.70E-09	1.14E+04
15	1300	U-233	8.90E-07	5.12E-08	8.14E-09	5.94E-08	1.47E+04
15	1400	U-233	7.83E-07	4.51E-08	7.54E-09	5.26E-08	1.47E+04
15	1500	U-233	6.95E-07	4.00E-08	7.01E-09	4.70E-08	1.46E+04
15	1625	U-233	6.07E-07	3.49E-08	6.46E-09	4.14E-08	1.46E+04
15	1700	U-233	5.62E-07	3.23E-08	6.17E-09	3.85E-08	1.46E+04
15	1800	U-233	5.09E-07	2.93E-08	5.81E-09	3.51E-08	1.46E+04
15	2000	U-233	4.24E-07	2.44E-08	5.21E-09	2.96E-08	1.45E+04

15	2200	U-233	3.81E-07	2.08E-08	4.72E-09	2.55E-08	1.45E+04
15	2500	U-233	2.91E-07	1.67E-08	4.14E-09	2.09E-08	1.44E+04
15	5000	U-233	9.84E-08	5.66E-09	2.00E-09	7.86E-09	1.40E+04
16	1300	U-233	6.22E-07	3.58E-08	6.04E-09	4.18E-08	1.45E+04
16	1400	U-233	5.48E-07	3.15E-08	5.59E-09	3.71E-08	1.45E+04
16	1500	U-233	4.86E-07	2.80E-08	5.21E-09	3.32E-08	1.45E+04
16	1625	U-233	4.25E-07	2.44E-08	4.80E-09	2.92E-08	1.45E+04
16	1700	U-233	3.93E-07	2.26E-08	4.58E-09	2.72E-08	1.44E+04
16	1800	U-233	3.57E-07	2.05E-08	4.32E-09	2.48E-08	1.44E+04
16	2000	U-233	2.97E-07	1.71E-08	3.87E-09	2.10E-08	1.44E+04
16	2200	U-233	2.53E-07	1.46E-08	3.51E-09	1.81E-08	1.44E+04
16	2500	U-233	2.04E-07	1.17E-08	3.08E-09	1.48E-08	1.43E+04
16	5000	U-233	6.94E-08	3.99E-09	1.50E-09	5.49E-09	1.40E+04

1 GROUND-LEVEL CHI/Q VALUES FOR U-233 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1300	0.252E-05	0.166E-05	0.128E-05	0.196E-05	0.399E-05	0.297E-05	0.162E-05	0.160E-05
1400	0.222E-05	0.146E-05	0.113E-05	0.172E-05	0.350E-05	0.262E-05	0.143E-05	0.141E-05
1500	0.197E-05	0.130E-05	0.998E-06	0.152E-05	0.309E-05	0.232E-05	0.127E-05	0.125E-05
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

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	S	SSE	SE	ESE	E	ENE	NE	NNE
1300	0.139E-05	0.293E-05	0.699E-05	0.903E-05	0.810E-05	0.846E-05	0.685E-05	0.479E-05
1400	0.122E-05	0.258E-05	0.613E-05	0.793E-05	0.711E-05	0.743E-05	0.603E-05	0.421E-05
1500	0.109E-05	0.228E-05	0.542E-05	0.700E-05	0.629E-05	0.658E-05	0.535E-05	0.374E-05
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

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0 SUMMARY OF AREA SURROUNDING PLANT

0

AREA COLUMN	AREA ROW	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS (SQUARE METERS)	WATER AREA	POPULATION
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0

0.4200E-02

(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)

0 GI UPTAKE FRACTION (INHALATION) 0.2000E-02

0 GI UPTAKE FRACTION (INGESTION) 0.2000E-02

0 PARTICLE SIZE (MICRONS) 0.1000E+01

0 SOLUBILITY CLASS Y

0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.135E+03	0.266E-01	0.111E+00	0.102E-03	0.276E-03
R MAR	0.273E+00	0.109E-01	0.849E-01	0.780E-04	0.211E-03
ENDOST	0.429E+01	0.171E+00	0.167E+00	0.154E-03	0.415E-03
THYROID	0.999E-02	0.389E-03	0.143E+00	0.131E-03	0.354E-03
BREAST	0.101E-01	0.389E-03	0.221E+00	0.203E-03	0.548E-03
PUL	0.112E+04	0.389E-03	0.101E+00	0.931E-04	0.251E-03
S WALL	0.995E+00	0.396E-03	0.893E-01	0.821E-04	0.222E-03
INT WALL	0.679E-01	0.995E-01	0.880E-01	0.809E-04	0.219E-03
LIVER	0.101E-01	0.390E-03	0.905E-01	0.832E-04	0.225E-03
PANCREAS	0.100E-01	0.390E-03	0.736E-01	0.676E-04	0.183E-03
KIDNEYS	0.172E+01	0.670E-01	0.918E-01	0.844E-04	0.228E-03

1 CONCENTRATIONS AND INTAKE RATES FOR U-233

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1300	0.328E-12	0.697E-08	0.373E+04	0.263E+04
1	1400	0.289E-12	0.619E-08	0.331E+04	0.232E+04
1	1500	0.257E-12	0.554E-08	0.297E+04	0.206E+04
1	1625	0.224E-12	0.488E-08	0.261E+04	0.180E+04
1	1700	0.208E-12	0.455E-08	0.243E+04	0.167E+04
1	1800	0.189E-12	0.415E-08	0.222E+04	0.151E+04
1	2000	0.157E-12	0.351E-08	0.188E+04	0.126E+04
1	2200	0.134E-12	0.303E-08	0.162E+04	0.108E+04
1	2500	0.108E-12	0.248E-08	0.133E+04	0.868E+03
1	5000	0.370E-13	0.923E-09	0.494E+03	0.297E+03
2	1300	0.216E-12	0.459E-08	0.246E+04	0.173E+04
2	1400	0.190E-12	0.407E-08	0.218E+04	0.152E+04
2	1500	0.169E-12	0.364E-08	0.195E+04	0.135E+04
2	1625	0.147E-12	0.321E-08	0.172E+04	0.118E+04
2	1700	0.136E-12	0.299E-08	0.160E+04	0.109E+04
2	1800	0.124E-12	0.273E-08	0.146E+04	0.993E+03
2	2000	0.103E-12	0.231E-08	0.123E+04	0.828E+03
2	2200	0.878E-13	0.199E-08	0.106E+04	0.705E+03
2	2500	0.708E-13	0.163E-08	0.872E+03	0.568E+03
2	5000	0.240E-13	0.602E-09	0.322E+03	0.193E+03
3	1300	0.167E-12	0.348E-08	0.186E+04	0.134E+04
3	1400	0.147E-12	0.308E-08	0.165E+04	0.118E+04
3	1500	0.130E-12	0.274E-08	0.147E+04	0.104E+04
3	1625	0.113E-12	0.241E-08	0.129E+04	0.908E+03
3	1700	0.105E-12	0.224E-08	0.120E+04	0.840E+03
3	1800	0.947E-13	0.204E-08	0.109E+04	0.760E+03
3	2000	0.787E-13	0.172E-08	0.919E+03	0.632E+03
3	2200	0.669E-13	0.148E-08	0.790E+03	0.537E+03
3	2500	0.538E-13	0.120E-08	0.645E+03	0.432E+03
3	5000	0.178E-13	0.433E-09	0.232E+03	0.143E+03
4	1300	0.255E-12	0.523E-08	0.280E+04	0.204E+04
4	1400	0.224E-12	0.462E-08	0.247E+04	0.179E+04
4	1500	0.198E-12	0.411E-08	0.220E+04	0.159E+04
4	1625	0.172E-12	0.360E-08	0.193E+04	0.138E+04

4	1700	0.159E-12	0.335E-08	0.179E+04	0.128E+04
4	1800	0.144E-12	0.304E-08	0.163E+04	0.116E+04
4	2000	0.119E-12	0.255E-08	0.137E+04	0.980E+03
4	2200	0.102E-12	0.219E-08	0.117E+04	0.816E+03
4	2500	0.816E-13	0.178E-08	0.958E+03	0.658E+03
4	5000	0.269E-13	0.632E-09	0.339E+03	0.216E+03
5	1300	0.518E-12	0.105E-07	0.565E+04	0.416E+04
5	1400	0.455E-12	0.931E-08	0.498E+04	0.365E+04
5	1500	0.402E-12	0.828E-08	0.443E+04	0.323E+04
5	1625	0.350E-12	0.725E-08	0.388E+04	0.281E+04
5	1700	0.324E-12	0.673E-08	0.360E+04	0.260E+04
5	1800	0.293E-12	0.612E-08	0.328E+04	0.235E+04
5	2000	0.243E-12	0.513E-08	0.274E+04	0.195E+04
5	2200	0.206E-12	0.440E-08	0.235E+04	0.166E+04
5	2500	0.166E-12	0.358E-08	0.191E+04	0.133E+04
5	5000	0.545E-13	0.126E-08	0.674E+03	0.437E+03
6	1300	0.387E-12	0.832E-08	0.445E+04	0.310E+04
6	1400	0.340E-12	0.738E-08	0.395E+04	0.273E+04
6	1500	0.302E-12	0.660E-08	0.353E+04	0.242E+04
6	1625	0.263E-12	0.581E-08	0.311E+04	0.211E+04
6	1700	0.243E-12	0.541E-08	0.289E+04	0.196E+04
6	1800	0.221E-12	0.493E-08	0.264E+04	0.177E+04
6	2000	0.184E-12	0.417E-08	0.223E+04	0.148E+04
6	2200	0.156E-12	0.359E-08	0.192E+04	0.126E+04
6	2500	0.126E-12	0.294E-08	0.158E+04	0.101E+04
6	5000	0.421E-13	0.109E-08	0.581E+03	0.338E+03
7	1300	0.211E-12	0.455E-08	0.243E+04	0.170E+04
7	1400	0.186E-12	0.403E-08	0.216E+04	0.149E+04
7	1500	0.165E-12	0.360E-08	0.193E+04	0.132E+04
7	1625	0.144E-12	0.317E-08	0.170E+04	0.115E+04
7	1700	0.133E-12	0.295E-08	0.158E+04	0.107E+04
7	1800	0.120E-12	0.269E-08	0.144E+04	0.966E+03
7	2000	0.100E-12	0.227E-08	0.122E+04	0.804E+03
7	2200	0.851E-13	0.196E-08	0.105E+04	0.684E+03
7	2500	0.685E-13	0.161E-08	0.859E+03	0.550E+03
7	5000	0.227E-13	0.588E-09	0.315E+03	0.183E+03
8	1300	0.208E-12	0.437E-08	0.234E+04	0.167E+04
8	1400	0.183E-12	0.387E-08	0.207E+04	0.147E+04
8	1500	0.162E-12	0.345E-08	0.185E+04	0.130E+04
8	1625	0.141E-12	0.304E-08	0.163E+04	0.113E+04
8	1700	0.131E-12	0.282E-08	0.151E+04	0.105E+04
8	1800	0.118E-12	0.257E-08	0.138E+04	0.951E+03
8	2000	0.984E-13	0.217E-08	0.116E+04	0.790E+03
8	2200	0.837E-13	0.186E-08	0.998E+03	0.672E+03
8	2500	0.673E-13	0.152E-08	0.816E+03	0.540E+03
8	5000	0.224E-13	0.552E-09	0.296E+03	0.180E+03
9	1300	0.181E-12	0.389E-08	0.208E+04	0.145E+04
9	1400	0.159E-12	0.345E-08	0.185E+04	0.128E+04
9	1500	0.141E-12	0.309E-08	0.165E+04	0.113E+04
9	1625	0.123E-12	0.272E-08	0.146E+04	0.989E+03
9	1700	0.114E-12	0.254E-08	0.136E+04	0.916E+03
9	1800	0.103E-12	0.232E-08	0.124E+04	0.831E+03
9	2000	0.863E-13	0.196E-08	0.105E+04	0.693E+03
9	2200	0.735E-13	0.169E-08	0.905E+03	0.590E+03
9	2500	0.592E-13	0.139E-08	0.742E+03	0.475E+03
9	5000	0.200E-13	0.515E-09	0.276E+03	0.161E+03
10	1300	0.381E-12	0.799E-08	0.428E+04	0.306E+04
10	1400	0.335E-12	0.707E-08	0.379E+04	0.269E+04
10	1500	0.297E-12	0.631E-08	0.338E+04	0.238E+04
10	1625	0.258E-12	0.554E-08	0.297E+04	0.208E+04
10	1700	0.239E-12	0.515E-08	0.276E+04	0.192E+04
10	1800	0.216E-12	0.469E-08	0.251E+04	0.174E+04
10	2000	0.180E-12	0.395E-08	0.212E+04	0.144E+04
10	2200	0.153E-12	0.340E-08	0.182E+04	0.123E+04
10	2500	0.123E-12	0.278E-08	0.149E+04	0.988E+03

10	5000	0.409E-13	0.101E-08	0.536E+03	0.329E+03
11	1300	0.909E-12	0.182E-07	0.973E+04	0.730E+04
11	1400	0.797E-12	0.160E-07	0.858E+04	0.640E+04
11	1500	0.704E-12	0.142E-07	0.761E+04	0.566E+04
11	1625	0.613E-12	0.124E-07	0.666E+04	0.492E+04
11	1700	0.566E-12	0.115E-07	0.618E+04	0.455E+04
11	1800	0.512E-12	0.105E-07	0.561E+04	0.411E+04
11	2000	0.424E-12	0.876E-08	0.469E+04	0.340E+04
11	2200	0.360E-12	0.750E-08	0.401E+04	0.289E+04
11	2500	0.289E-12	0.609E-08	0.326E+04	0.232E+04
11	5000	0.946E-13	0.211E-08	0.113E+04	0.759E+03
12	1300	0.117E-11	0.234E-07	0.125E+05	0.943E+04
12	1400	0.103E-11	0.206E-07	0.110E+05	0.827E+04
12	1500	0.910E-12	0.183E-07	0.980E+04	0.731E+04
12	1625	0.792E-12	0.160E-07	0.857E+04	0.636E+04
12	1700	0.732E-12	0.148E-07	0.795E+04	0.588E+04
12	1800	0.662E-12	0.135E-07	0.722E+04	0.532E+04
12	2000	0.549E-12	0.113E-07	0.603E+04	0.441E+04
12	2200	0.466E-12	0.964E-08	0.516E+04	0.374E+04
12	2500	0.374E-12	0.782E-08	0.419E+04	0.300E+04
12	5000	0.123E-12	0.272E-08	0.145E+04	0.987E+03
13	1300	0.105E-11	0.214E-07	0.115E+05	0.845E+04
13	1400	0.925E-12	0.189E-07	0.101E+05	0.742E+04
13	1500	0.818E-12	0.168E-07	0.901E+04	0.657E+04
13	1625	0.713E-12	0.148E-07	0.790E+04	0.572E+04
13	1700	0.659E-12	0.137E-07	0.734E+04	0.529E+04
13	1800	0.597E-12	0.125E-07	0.667E+04	0.479E+04
13	2000	0.495E-12	0.105E-07	0.560E+04	0.398E+04
13	2200	0.421E-12	0.897E-08	0.480E+04	0.338E+04
13	2500	0.339E-12	0.730E-08	0.391E+04	0.272E+04
13	5000	0.113E-12	0.259E-08	0.139E+04	0.904E+03
14	1300	0.110E-11	0.225E-07	0.120E+05	0.883E+04
14	1400	0.966E-12	0.198E-07	0.106E+05	0.776E+04
14	1500	0.855E-12	0.177E-07	0.946E+04	0.687E+04
14	1625	0.746E-12	0.155E-07	0.830E+04	0.599E+04
14	1700	0.690E-12	0.144E-07	0.771E+04	0.554E+04
14	1800	0.624E-12	0.131E-07	0.702E+04	0.501E+04
14	2000	0.519E-12	0.110E-07	0.589E+04	0.417E+04
14	2200	0.441E-12	0.944E-08	0.505E+04	0.354E+04
14	2500	0.355E-12	0.769E-08	0.412E+04	0.285E+04
14	5000	0.118E-12	0.274E-08	0.147E+04	0.950E+03
15	1300	0.890E-12	0.187E-07	0.100E+05	0.715E+04
15	1400	0.783E-12	0.166E-07	0.889E+04	0.629E+04
15	1500	0.695E-12	0.148E-07	0.794E+04	0.558E+04
15	1625	0.607E-12	0.131E-07	0.699E+04	0.487E+04
15	1700	0.562E-12	0.121E-07	0.650E+04	0.451E+04
15	1800	0.509E-12	0.111E-07	0.593E+04	0.409E+04
15	2000	0.424E-12	0.935E-08	0.500E+04	0.341E+04
15	2200	0.361E-12	0.805E-08	0.431E+04	0.290E+04
15	2500	0.291E-12	0.659E-08	0.353E+04	0.234E+04
15	5000	0.984E-13	0.242E-08	0.129E+04	0.790E+03
16	1300	0.622E-12	0.132E-07	0.707E+04	0.500E+04
16	1400	0.548E-12	0.117E-07	0.627E+04	0.440E+04
16	1500	0.486E-12	0.105E-07	0.561E+04	0.391E+04
16	1625	0.425E-12	0.923E-08	0.494E+04	0.341E+04
16	1700	0.393E-12	0.859E-08	0.460E+04	0.316E+04
16	1800	0.357E-12	0.784E-08	0.420E+04	0.286E+04
16	2000	0.297E-12	0.662E-08	0.355E+04	0.239E+04
16	2200	0.253E-12	0.571E-08	0.306E+04	0.203E+04
16	2500	0.204E-12	0.468E-08	0.251E+04	0.164E+04
16	5000	0.694E-13	0.173E-08	0.927E+03	0.557E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH
1 PERCENT OF W BODY DOSE BY EACH PATHWAY
0 NUCLIDE PATHWAY DOSE(REMS) PERCENT OF TOTAL PERCENT OF DOSE FROM ALL NUCLIDES
0

U-233	SUBM AIR	0.1146E-08	0.00	100.00
	SURFACE	0.2096E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1273E+01	99.97	100.00
	INGEST.	0.3331E-03	0.03	100.00
	VEGET.	0.3277E-03	* 0.03	* 98.38
	MEAT	0.4637E-07	* 0.00	* 0.01
	MILK	0.5347E-05	* 0.00	* 1.61

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 U-233	SUBM AIR	0.8734E-09	0.00	100.00
	SURFACE	0.1599E-05	0.06	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2575E-02	94.91	100.00
	INGEST.	0.1366E-03	5.04	100.00
	VEGET.	0.1344E-03	* 4.95	* 98.38
	MEAT	0.1902E-07	* 0.00	* 0.01
	MILK	0.2193E-05	* 0.08	* 1.61

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 U-233	SUBM AIR	0.1721E-08	0.00	100.00
	SURFACE	0.3150E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4046E-01	94.97	100.00
	INGEST.	0.2141E-02	5.03	100.00
	VEGET.	0.2107E-02	* 4.94	* 98.38
	MEAT	0.2981E-06	* 0.00	* 0.01
	MILK	0.3437E-04	* 0.08	* 1.61

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 U-233	SUBM AIR	0.1469E-08	0.00	100.00
	SURFACE	0.2688E-05	2.64	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9423E-04	92.57	100.00
	INGEST.	0.4871E-05	4.79	100.00
	VEGET.	0.4792E-05	* 4.71	* 98.38
	MEAT	0.6782E-09	* 0.00	* 0.01
	MILK	0.7819E-07	* 0.08	* 1.61

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 U-233	SUBM AIR	0.2271E-08	0.00	100.00
	SURFACE	0.4157E-05	3.99	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.9527E-04	91.34	100.00
	INGEST.	0.4871E-05	4.67	100.00
	VEGET.	0.4792E-05	* 4.59	* 98.38
	MEAT	0.6782E-09	* 0.00	* 0.01
	MILK	0.7819E-07	* 0.07	* 1.61

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 U-233	SUBM AIR	0.1042E-08	0.00	100.00
	SURFACE	0.1907E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1056E+02	100.00	100.00
	INGEST.	0.4871E-05	0.00	100.00
	VEGET.	0.4792E-05	* 0.00	* 98.38
	MEAT	0.6782E-09	* 0.00	* 0.01
	MILK	0.7819E-07	* 0.00	* 1.61

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES

```
0
        U-233     SUBM AIR     0.9187E-09      0.00          100.00
                  SURFACE      0.1682E-05      0.02          100.00
                  SWIMMING     0.0000E+00      0.00            0.00
                  INHAL.       0.9388E-02     99.93          100.00
                  INGEST.      0.4969E-05      0.05          100.00
                   VEGET.      0.4879E-05    * 0.05        * 98.38
                   MEAT        0.6904E-09    * 0.00        * 0.01
                   MILK        0.7960E-07    * 0.00        * 1.61
1                  PERCENT OF INT WALL DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        U-233     SUBM AIR     0.9058E-09      0.00          100.00
                  SURFACE      0.1658E-05      0.09          100.00
                  SWIMMING     0.0000E+00      0.00            0.00
                  INHAL.       0.6408E-03     33.93          100.00
                  INGEST.      0.1246E-02     65.98          100.00
                   VEGET.      0.1226E-02    * 64.91        * 98.38
                   MEAT        0.1735E-06    * 0.01        * 0.01
                   MILK        0.2000E-04    * 1.06        * 1.61
1                  PERCENT OF LIVER   DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        U-233     SUBM AIR     0.9317E-09      0.00          100.00
                  SURFACE      0.1705E-05      1.68          100.00
                  SWIMMING     0.0000E+00      0.00            0.00
                  INHAL.       0.9508E-04     93.52          100.00
                  INGEST.      0.4881E-05      4.80          100.00
                   VEGET.      0.4802E-05    * 4.72        * 98.38
                   MEAT        0.6796E-09    * 0.00        * 0.01
                   MILK        0.7835E-07    * 0.08        * 1.61
1                  PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        U-233     SUBM AIR     0.7570E-09      0.00          100.00
                  SURFACE      0.1388E-05      1.37          100.00
                  SWIMMING     0.0000E+00      0.00            0.00
                  INHAL.       0.9470E-04     93.79          100.00
                  INGEST.      0.4883E-05      4.84          100.00
                   VEGET.      0.4803E-05    * 4.76        * 98.38
                   MEAT        0.6797E-09    * 0.00        * 0.01
                   MILK        0.7837E-07    * 0.08        * 1.61
1                  PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0       NUCLIDE     PATHWAY      DOSE(REMS)     PERCENT OF TOTAL   PERCENT OF DOSE FROM ALL NUCLIDES
0
        U-233     SUBM AIR     0.9446E-09      0.00          100.00
                  SURFACE      0.1729E-05      0.01          100.00
                  SWIMMING     0.0000E+00      0.00            0.00
                  INHAL.       0.1618E-01     95.06          100.00
                  INGEST.      0.8394E-03      4.93          100.00
                   VEGET.      0.8258E-03    * 4.85        * 98.38
                   MEAT        0.1169E-06    * 0.00        * 0.01
                   MILK        0.1347E-04    * 0.08        * 1.61
0                     CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.1145E-08                       0.0000
0      SURFACE                     0.2096E-05                       0.0002
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.1273E+01                      99.9737
0      INGEST.                     0.3331E-03                       0.0262
0       VEGET.                    *0.3277E-03                     * 0.0257
0       MEAT                      *0.4637E-07                     * 0.0000
0       MILK                      *0.5347E-05                     * 0.0004
0                     CONTRIBUTION OF EXPOSURE MODES TO R MAR   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
```

0	SUBM AIR	0.8734E-09	0.0000
0	SURFACE	0.1599E-05	0.0589
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.2575E-02	94.9057
0	INGEST.	0.1366E-03	5.0354
0	VEGET.	*0.1344E-03	* 4.9538
0	MEAT	*0.1902E-07	* 0.0007
0	MILK	*0.2193E-06	* 0.0808
0	CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1721E-08	0.0000
0	SURFACE	0.3150E-05	0.0074
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4046E-01	94.9570
0	INGEST.	0.2141E-02	5.0256
0	VEGET.	*0.2107E-02	* 4.9442
0	MEAT	*0.2981E-06	* 0.0007
0	MILK	*0.3437E-04	* 0.0807
0	CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1469E-08	0.0014
0	SURFACE	0.2688E-05	2.6412
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.9423E-04	92.5718
0	INGEST.	0.4871E-05	4.7856
0	VEGET.	*0.4792E-05	* 4.7081
0	MEAT	*0.6782E-09	* 0.0007
0	MILK	*0.7819E-07	* 0.0768
0	CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2271E-08	0.0022
0	SURFACE	0.4157E-05	3.9858
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.9527E-04	91.3415
0	INGEST.	0.4871E-05	4.6706
0	VEGET.	*0.4792E-05	* 4.5950
0	MEAT	*0.6782E-09	* 0.0007
0	MILK	*0.7819E-07	* 0.0750
0	CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1042E-08	0.0000
0	SURFACE	0.1907E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.1056E+02	99.9999
0	INGEST.	0.4871E-05	0.0000
0	VEGET.	*0.4792E-05	* 0.0000
0	MEAT	*0.6782E-09	* 0.0000
0	MILK	*0.7819E-07	* 0.0000
0	CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.9187E-09	0.0000
0	SURFACE	0.1682E-05	0.0179
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.9385E-02	99.9293
0	INGEST.	0.4959E-05	0.0528
0	VEGET.	*0.4879E-05	* 0.0519
0	MEAT	*0.6904E-09	* 0.0000
0	MILK	*0.7960E-07	* 0.0008
0	CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES		
0	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.9058E-09	0.0000
0	SURFACE	0.1658E-05	0.0878
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.6408E-03	33.9336
0	INGEST.	0.1246E-02	65.9786

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0        VEGET.                    *0.1226E-02                    *  84.9103
0        MEAT                      *0.1735E-06                    *   0.0092
0        MILK                      *0.2000E-04                    *   1.0590
0                        CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.9317E-09                       0.0009
0      SURFACE                     0.1706E-05                       1.6775
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.9508E-04                      93.5202
0      INGEST.                     0.4881E-05                       4.8013
0        VEGET.                    *0.4802E-05                    *   4.7236
0        MEAT                      *0.6796E-09                    *   0.0007
0        MILK                      *0.7835E-07                    *   0.0771
0                        CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.7570E-09                       0.0007
0      SURFACE                     0.1386E-05                       1.3724
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.9470E-04                      93.7912
0      INGEST.                     0.4883E-05                       4.8357
0        VEGET.                    *0.4803E-05                    *   4.7574
0        MEAT                      *0.6797E-09                    *   0.0007
0        MILK                      *0.7837E-07                    *   0.0776
0                        CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0     EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0      SUBM AIR                    0.9446E-09                       0.0000
0      SURFACE                     0.1729E-05                       0.0102
0      SWIMMING                    0.1000E-24                       0.0000
0      INHAL.                      0.1618E-01                      95.0573
0      INGEST.                     0.8394E-03                       4.9325
0        VEGET.                    *0.8258E-03                    *   4.8526
0        MEAT                      *0.1169E-06                    *   0.0007
0        MILK                      *0.1347E-04                    *   0.0792
1                        TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                     ORGAN                      DOSE(REMS)
0                     W BODY                     0.1274E+01
0                     R MAR                      0.2713E-02
0                     ENDOST                     0.4261E-01
0                     THYROID                    0.1018E-03
0                     BREAST                     0.1043E-03
0                     *PUL*                      0.1056E+02
0                     S WALL                     0.9392E-02
0                     INT WALL                   0.1888E-02
0                     LIVER                      0.1017E-03
0                     PANCREAS                   0.1010E-03
0                     KIDNEYS                    0.1702E-01
1                          CONTRIBUTORS TO ORGAN DOSES
0                                          PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 U-233    100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                                ANNUAL DOSES(REMS)
0          NUCLIDE        ORGAN        DOSE                    MAXIMUM LOCATION
0                                                        COLUMN    ROW
0          U-233          W BODY       0.1274E+01                 12      7
0          U-233          R MAR        0.2713E-02                 12      7
0          U-233          ENDOST       0.4261E-01                 12      7
0          U-233          THYROID      0.1018E-03                 12      7
0          U-233          BREAST       0.1043E-03                 12      7
0          U-233          *PUL*        0.1056E+02                 12      7
0          U-233          S WALL       0.9392E-02                 12      7
0          U-233          INT WALL     0.1888E-02                 12      7
0          U-233          LIVER        0.1017E-03                 12      7
0          U-233          PANCREAS     0.1010E-03                 12      7
```

0	U-233	KIDNEYS	0.1702E-01	12	7

All Buildings

Thorium-232

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC='TH-232',ISOL=Y,AMAD=1.0,REL=11.7 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR ALL BLDG. WITH 10% RELEASE
DOSE CALCULATED AT 1625 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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1
0

OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–
RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS
0
1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—
0
0
0 AVERAGE AIR TEMPERATURE (DEG K) 285.0
0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)
0 IN STABILITY CLASS E 0.0728
0 IN STABILITY CLASS F 0.1090
0 IN STABILITY CLASS G 0.1455
0 RAINFALL RATE (CM/YEAR) 102.00
0 HEIGHT OF LID (METERS) 1000
0 NUMBER OF STACKS IN THE PLANT 1
0
0
0 STACK INFORMATION–
0
0 STACK NUMBER
0 1 2 3 4 5 6
0 HEIGHT (METERS) 0.0000
0 DIAMETER (METERS) 0.0000
0 EFFLUENT VELOCITY (METERS/SEC) 0.0000
0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00
1 RELEASE RATES FOR RADIONUCLIDES
0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-232	0.117E+02

0
1 PLUME DEPLETION AND DEPOSITION PARAMETERS
0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-232	0.000	0.00058	0.341E-05	0.000E+00

0
1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION
0
0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS
0 A B C D E F G
0

1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS
0
0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)
0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.08	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.87	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.85	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1	1625	TH-232	6.40E-07	3.68E-08	7.31E-09	4.42E-08	2.04E+04
1	1	1700	TH-232	5.93E-07	3.41E-08	6.98E-09	4.11E-08	2.04E+04
1	1	1800	TH-232	5.38E-07	3.10E-08	6.58E-09	3.75E-08	2.03E+04
1	1	2000	TH-232	4.49E-07	2.59E-08	5.90E-09	3.18E-08	2.03E+04
1	1	2200	TH-232	3.83E-07	2.20E-08	5.35E-09	2.74E-08	2.03E+04
1	1	2500	TH-232	3.09E-07	1.78E-08	4.69E-09	2.25E-08	2.02E+04
1	1	5000	TH-232	1.05E-07	6.07E-09	2.28E-09	8.35E-09	1.97E+04
2	2	1625	TH-232	4.20E-07	2.42E-08	4.85E-09	2.90E-08	9.90E+03
2	2	1700	TH-232	3.89E-07	2.24E-08	4.63E-09	2.70E-08	9.89E+03
2	2	1800	TH-232	3.53E-07	2.03E-08	4.36E-09	2.47E-08	9.87E+03
2	2	2000	TH-232	2.94E-07	1.69E-08	3.91E-09	2.08E-08	9.83E+03
2	2	2200	TH-232	2.51E-07	1.44E-08	3.54E-09	1.80E-08	9.81E+03
2	2	2500	TH-232	2.02E-07	1.16E-08	3.11E-09	1.47E-08	9.78E+03
2	2	5000	TH-232	6.85E-08	3.94E-09	1.50E-09	5.44E-09	9.47E+03
3	3	1625	TH-232	3.23E-07	1.86E-08	3.23E-09	2.18E-08	5.32E+03
3	3	1700	TH-232	2.98E-07	1.72E-08	3.08E-09	2.03E-08	5.31E+03
3	3	1800	TH-232	2.70E-07	1.56E-08	2.90E-09	1.85E-08	5.30E+03

3	2000	TH-232	2.25E-07	1.29E-08	2.80E-09	1.55E-08	5.27E+03
3	2200	TH-232	1.91E-07	1.10E-08	2.36E-09	1.33E-08	5.26E+03
3	2500	TH-232	1.53E-07	8.83E-09	2.06E-09	1.09E-08	5.23E+03
3	5000	TH-232	5.09E-08	2.93E-09	9.86E-10	3.91E-09	5.02E+03
4	1625	TH-232	4.91E-07	2.83E-08	4.32E-09	3.26E-08	6.63E+03
4	1700	TH-232	4.54E-07	2.61E-08	4.12E-09	3.03E-08	6.61E+03
4	1800	TH-232	4.11E-07	2.37E-08	3.88E-09	2.75E-08	6.60E+03
4	2000	TH-232	3.41E-07	1.96E-08	3.46E-09	2.31E-08	6.55E+03
4	2200	TH-232	2.90E-07	1.67E-08	3.14E-09	1.98E-08	6.53E+03
4	2500	TH-232	2.33E-07	1.34E-08	2.75E-09	1.61E-08	6.50E+03
4	5000	TH-232	7.67E-08	4.42E-09	1.30E-09	5.72E-09	6.18E+03
5	1625	TH-232	1.00E-06	5.75E-08	8.06E-09	6.56E-08	1.36E+04
5	1700	TH-232	9.24E-07	5.32E-08	7.69E-09	6.09E-08	1.36E+04
5	1800	TH-232	8.36E-07	4.81E-08	7.24E-09	5.54E-08	1.35E+04
5	2000	TH-232	6.93E-07	3.99E-08	6.47E-09	4.64E-08	1.34E+04
5	2200	TH-232	5.89E-07	3.39E-08	5.86E-09	3.98E-08	1.34E+04
5	2500	TH-232	4.73E-07	2.72E-08	5.13E-09	3.23E-08	1.33E+04
5	5000	TH-232	1.55E-07	8.95E-09	2.43E-09	1.14E-08	1.27E+04
6	1625	TH-232	7.51E-07	4.32E-08	9.32E-09	5.25E-08	2.10E+04
6	1700	TH-232	6.95E-07	4.00E-08	8.89E-09	4.89E-08	2.10E+04
6	1800	TH-232	6.30E-07	3.62E-08	8.38E-09	4.46E-08	2.10E+04
6	2000	TH-232	5.24E-07	3.02E-08	7.51E-09	3.77E-08	2.09E+04
6	2200	TH-232	4.46E-07	2.57E-08	6.82E-09	3.25E-08	2.08E+04
6	2500	TH-232	3.59E-07	2.07E-08	5.98E-09	2.66E-08	2.08E+04
6	5000	TH-232	1.20E-07	6.92E-09	2.89E-09	9.82E-09	2.02E+04
7	1625	TH-232	4.10E-07	2.36E-08	5.10E-09	2.87E-08	1.15E+04
7	1700	TH-232	3.79E-07	2.18E-08	4.87E-09	2.67E-08	1.15E+04
7	1800	TH-232	3.43E-07	1.98E-08	4.59E-09	2.44E-08	1.15E+04
7	2000	TH-232	2.86E-07	1.64E-08	4.11E-09	2.06E-08	1.15E+04
7	2200	TH-232	2.43E-07	1.40E-08	3.73E-09	1.77E-08	1.14E+04
7	2500	TH-232	1.95E-07	1.12E-08	3.27E-09	1.45E-08	1.14E+04
7	5000	TH-232	6.49E-08	3.74E-09	1.59E-09	5.32E-09	1.11E+04
8	1625	TH-232	4.03E-07	2.32E-08	4.26E-09	2.75E-08	1.05E+04
8	1700	TH-232	3.73E-07	2.15E-08	4.06E-09	2.55E-08	1.05E+04
8	1800	TH-232	3.38E-07	1.94E-08	3.83E-09	2.33E-08	1.05E+04
8	2000	TH-232	2.81E-07	1.62E-08	3.43E-09	1.96E-08	1.05E+04
8	2200	TH-232	2.39E-07	1.37E-08	3.11E-09	1.69E-08	1.04E+04
8	2500	TH-232	1.92E-07	1.11E-08	2.73E-09	1.38E-08	1.04E+04
8	5000	TH-232	6.39E-08	3.68E-09	1.32E-09	4.99E-09	1.01E+04
9	1625	TH-232	3.52E-07	2.02E-08	4.39E-09	2.46E-08	1.33E+04
9	1700	TH-232	3.26E-07	1.87E-08	4.19E-09	2.29E-08	1.33E+04
9	1800	TH-232	2.95E-07	1.70E-08	3.95E-09	2.09E-08	1.33E+04
9	2000	TH-232	2.46E-07	1.42E-08	3.54E-09	1.77E-08	1.32E+04
9	2200	TH-232	2.10E-07	1.21E-08	3.22E-09	1.53E-08	1.32E+04
9	2500	TH-232	1.69E-07	9.72E-09	2.82E-09	1.25E-08	1.32E+04
9	5000	TH-232	5.71E-08	3.29E-09	1.37E-09	4.66E-09	1.29E+04
10	1625	TH-232	7.37E-07	4.24E-08	7.67E-09	5.01E-08	1.95E+04
10	1700	TH-232	6.82E-07	3.93E-08	7.32E-09	4.66E-08	1.94E+04
10	1800	TH-232	6.18E-07	3.56E-08	6.90E-09	4.25E-08	1.94E+04
10	2000	TH-232	5.13E-07	2.96E-08	6.18E-09	3.57E-08	1.93E+04
10	2200	TH-232	4.37E-07	2.51E-08	5.60E-09	3.07E-08	1.93E+04
10	2500	TH-232	3.51E-07	2.02E-08	4.91E-09	2.51E-08	1.93E+04
10	5000	TH-232	1.17E-07	6.72E-09	2.37E-09	9.09E-09	1.87E+04
11	1625	TH-232	1.75E-06	1.01E-07	1.19E-08	1.13E-07	2.64E+04
11	1700	TH-232	1.62E-06	9.30E-08	1.14E-08	1.04E-07	2.64E+04
11	1800	TH-232	1.46E-06	8.41E-08	1.07E-08	9.48E-08	2.63E+04
11	2000	TH-232	1.21E-06	6.96E-08	9.54E-09	7.92E-08	2.61E+04
11	2200	TH-232	1.03E-06	5.92E-08	8.64E-09	6.78E-08	2.61E+04
11	2500	TH-232	8.25E-07	4.75E-08	7.56E-09	5.50E-08	2.60E+04
11	5000	TH-232	2.70E-07	1.55E-08	3.57E-09	1.91E-08	2.49E+04
12	1625	TH-232	2.26E-06	1.30E-07	1.47E-08	1.45E-07	3.14E+04
12	1700	TH-232	2.09E-06	1.20E-07	1.40E-08	1.34E-07	3.13E+04
12	1800	TH-232	1.89E-06	1.09E-07	1.32E-08	1.22E-07	3.12E+04
12	2000	TH-232	1.57E-06	9.01E-08	1.17E-08	1.02E-07	3.10E+04
12	2200	TH-232	1.33E-06	7.66E-08	1.06E-08	8.72E-08	3.09E+04

12	2500	TH-232	1.07E-06	6.15E-08	9.31E-09	7.08E-08	3.08E+04
12	5000	TH-232	3.51E-07	2.02E-08	4.38E-09	2.46E-08	2.94E+04
13	1625	TH-232	2.03E-06	1.17E-07	1.84E-08	1.33E-07	3.68E+04
13	1700	TH-232	1.88E-06	1.08E-07	1.56E-08	1.24E-07	3.68E+04
13	1800	TH-232	1.70E-06	9.80E-08	1.47E-08	1.13E-07	3.67E+04
13	2000	TH-232	1.41E-06	8.14E-08	1.32E-08	9.45E-08	3.65E+04
13	2200	TH-232	1.20E-06	6.92E-08	1.19E-08	8.11E-08	3.64E+04
13	2500	TH-232	9.66E-07	5.56E-08	1.04E-08	6.60E-08	3.63E+04
13	5000	TH-232	3.21E-07	1.85E-08	4.97E-09	2.35E-08	3.50E+04
14	1625	TH-232	2.13E-06	1.22E-07	1.77E-08	1.40E-07	3.46E+04
14	1700	TH-232	1.97E-06	1.13E-07	1.69E-08	1.30E-07	3.46E+04
14	1800	TH-232	1.78E-06	1.03E-07	1.59E-08	1.19E-07	3.45E+04
14	2000	TH-232	1.48E-06	8.52E-08	1.42E-08	9.95E-08	3.43E+04
14	2200	TH-232	1.26E-06	7.25E-08	1.29E-08	8.54E-08	3.42E+04
14	2500	TH-232	1.01E-06	5.82E-08	1.13E-08	6.96E-08	3.40E+04
14	5000	TH-232	3.38E-07	1.94E-08	5.38E-09	2.48E-08	3.27E+04
15	1625	TH-232	1.73E-06	9.96E-08	1.84E-08	1.18E-07	4.17E+04
15	1700	TH-232	1.60E-06	9.23E-08	1.76E-08	1.10E-07	4.16E+04
15	1800	TH-232	1.45E-06	8.36E-08	1.66E-08	1.00E-07	4.15E+04
15	2000	TH-232	1.21E-06	6.97E-08	1.49E-08	8.45E-08	4.14E+04
15	2200	TH-232	1.03E-06	5.93E-08	1.35E-08	7.28E-08	4.13E+04
15	2500	TH-232	8.30E-07	4.78E-08	1.18E-08	5.96E-08	4.12E+04
15	5000	TH-232	2.81E-07	1.62E-08	5.70E-09	2.19E-08	3.99E+04
16	1625	TH-232	1.21E-06	6.98E-08	1.37E-08	8.34E-08	4.13E+04
16	1700	TH-232	1.12E-06	6.46E-08	1.31E-08	7.77E-08	4.12E+04
16	1800	TH-232	1.02E-06	5.86E-08	1.23E-08	7.09E-08	4.12E+04
16	2000	TH-232	8.49E-07	4.89E-08	1.10E-08	5.99E-08	4.11E+04
16	2200	TH-232	7.23E-07	4.16E-08	1.00E-08	5.16E-08	4.10E+04
16	2500	TH-232	5.82E-07	3.35E-08	8.79E-09	4.23E-08	4.09E+04
16	5000	TH-232	1.98E-07	1.14E-08	4.27E-09	1.57E-08	4.00E+04

1 GROUND-LEVEL CHI/Q VALUES FOR TH-232 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0
0
0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1350E-12
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-06
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-06
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.115E+04	0.273E+01	0.817E-01	0.934E-04	0.206E-03
R MAR	0.148E+04	0.548E+01	0.445E-01	0.508E-04	0.112E-03
ENDOST	0.185E+05	0.685E+02	0.119E+00	0.136E-03	0.300E-03
THYROID	0.222E+01	0.448E-02	0.101E+00	0.116E-03	0.256E-03
BREAST	0.227E+01	0.466E-02	0.229E+00	0.261E-03	0.577E-03
PUL	0.348E+04	0.463E-02	0.682E-01	0.780E-04	0.172E-03
S WALL	0.131E+01	0.573E-02	0.569E-01	0.650E-04	0.144E-03
INT WALL	0.140E+01	0.853E-01	0.538E-01	0.615E-04	0.136E-03
LIVER	0.805E+01	0.190E-01	0.600E-01	0.686E-04	0.151E-03
PANCREAS	0.132E+01	0.229E-02	0.424E-01	0.485E-04	0.107E-03
KIDNEYS	0.131E+01	0.226E-02	0.641E-01	0.733E-04	0.162E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-232

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1625	0.640E-12	0.139E-07	0.732E+04	0.514E+04
1	1700	0.593E-12	0.130E-07	0.681E+04	0.476E+04
1	1800	0.538E-12	0.118E-07	0.622E+04	0.432E+04
1	2000	0.449E-12	0.100E-07	0.526E+04	0.361E+04
1	2200	0.383E-12	0.864E-08	0.454E+04	0.307E+04
1	2500	0.309E-12	0.708E-08	0.372E+04	0.248E+04
1	5000	0.105E-12	0.263E-08	0.138E+04	0.847E+03
2	1625	0.420E-12	0.916E-08	0.481E+04	0.337E+04
2	1700	0.389E-12	0.852E-08	0.448E+04	0.312E+04
2	1800	0.353E-12	0.778E-08	0.409E+04	0.283E+04
2	2000	0.294E-12	0.658E-08	0.346E+04	0.236E+04
2	2200	0.251E-12	0.567E-08	0.298E+04	0.201E+04
2	2500	0.202E-12	0.465E-08	0.244E+04	0.162E+04
2	5000	0.685E-13	0.172E-08	0.902E+03	0.550E+03
3	1625	0.323E-12	0.688E-08	0.361E+04	0.259E+04
3	1700	0.298E-12	0.639E-08	0.336E+04	0.240E+04
3	1800	0.270E-12	0.582E-08	0.306E+04	0.217E+04
3	2000	0.225E-12	0.490E-08	0.257E+04	0.180E+04
3	2200	0.191E-12	0.421E-08	0.221E+04	0.153E+04
3	2500	0.153E-12	0.344E-08	0.181E+04	0.123E+04
3	5000	0.509E-13	0.123E-08	0.649E+03	0.408E+03
4	1625	0.491E-12	0.103E-07	0.540E+04	0.395E+04
4	1700	0.454E-12	0.955E-08	0.502E+04	0.365E+04

4	1800	0.411E-12	0.869E-08	0.458E+04	0.330E+04
4	2000	0.341E-12	0.729E-08	0.383E+04	0.274E+04
4	2200	0.290E-12	0.625E-08	0.329E+04	0.233E+04
4	2500	0.233E-12	0.509E-08	0.268E+04	0.187E+04
4	5000	0.767E-13	0.180E-08	0.948E+03	0.616E+03
5	1625	0.100E-11	0.207E-07	0.109E+05	0.803E+04
5	1700	0.924E-12	0.192E-07	0.101E+05	0.742E+04
5	1800	0.836E-12	0.175E-07	0.918E+04	0.671E+04
5	2000	0.693E-12	0.146E-07	0.768E+04	0.566E+04
5	2200	0.589E-12	0.125E-07	0.659E+04	0.473E+04
5	2500	0.473E-12	0.102E-07	0.536E+04	0.380E+04
5	5000	0.155E-12	0.359E-08	0.189E+04	0.125E+04
6	1625	0.751E-12	0.166E-07	0.871E+04	0.603E+04
6	1700	0.695E-12	0.154E-07	0.810E+04	0.558E+04
6	1800	0.630E-12	0.141E-07	0.740E+04	0.506E+04
6	2000	0.524E-12	0.119E-07	0.625E+04	0.421E+04
6	2200	0.446E-12	0.103E-07	0.539E+04	0.358E+04
6	2500	0.359E-12	0.840E-08	0.441E+04	0.288E+04
6	5000	0.120E-12	0.310E-08	0.163E+04	0.966E+03
7	1625	0.410E-12	0.905E-08	0.475E+04	0.329E+04
7	1700	0.379E-12	0.842E-08	0.442E+04	0.304E+04
7	1800	0.343E-12	0.768E-08	0.404E+04	0.276E+04
7	2000	0.286E-12	0.649E-08	0.341E+04	0.229E+04
7	2200	0.243E-12	0.559E-08	0.294E+04	0.195E+04
7	2500	0.195E-12	0.458E-08	0.241E+04	0.157E+04
7	5000	0.649E-13	0.168E-08	0.882E+03	0.521E+03
8	1625	0.403E-12	0.867E-08	0.455E+04	0.324E+04
8	1700	0.373E-12	0.806E-08	0.423E+04	0.300E+04
8	1800	0.338E-12	0.734E-08	0.386E+04	0.271E+04
8	2000	0.281E-12	0.618E-08	0.325E+04	0.226E+04
8	2200	0.239E-12	0.532E-08	0.279E+04	0.192E+04
8	2500	0.192E-12	0.435E-08	0.228E+04	0.154E+04
8	5000	0.639E-13	0.158E-08	0.828E+03	0.513E+03
9	1625	0.352E-12	0.777E-08	0.408E+04	0.282E+04
9	1700	0.326E-12	0.723E-08	0.380E+04	0.261E+04
9	1800	0.295E-12	0.661E-08	0.347E+04	0.237E+04
9	2000	0.246E-12	0.559E-08	0.294E+04	0.198E+04
9	2200	0.210E-12	0.482E-08	0.253E+04	0.168E+04
9	2500	0.169E-12	0.396E-08	0.208E+04	0.136E+04
9	5000	0.571E-13	0.147E-08	0.772E+03	0.458E+03
10	1625	0.737E-12	0.158E-07	0.831E+04	0.592E+04
10	1700	0.682E-12	0.147E-07	0.772E+04	0.548E+04
10	1800	0.618E-12	0.134E-07	0.704E+04	0.496E+04
10	2000	0.513E-12	0.113E-07	0.592E+04	0.412E+04
10	2200	0.437E-12	0.970E-08	0.510E+04	0.351E+04
10	2500	0.351E-12	0.792E-08	0.416E+04	0.282E+04
10	5000	0.117E-12	0.287E-08	0.151E+04	0.938E+03
11	1625	0.175E-11	0.355E-07	0.187E+05	0.140E+05
11	1700	0.162E-11	0.329E-07	0.173E+05	0.130E+05
11	1800	0.146E-11	0.299E-07	0.157E+05	0.117E+05
11	2000	0.121E-11	0.250E-07	0.131E+05	0.972E+04
11	2200	0.103E-11	0.214E-07	0.112E+05	0.826E+04
11	2500	0.825E-12	0.174E-07	0.912E+04	0.662E+04
11	5000	0.270E-12	0.603E-08	0.317E+04	0.217E+04
12	1625	0.226E-11	0.457E-07	0.240E+05	0.182E+05
12	1700	0.209E-11	0.424E-07	0.223E+05	0.168E+05
12	1800	0.189E-11	0.385E-07	0.202E+05	0.152E+05
12	2000	0.157E-11	0.321E-07	0.169E+05	0.126E+05
12	2200	0.133E-11	0.275E-07	0.145E+05	0.107E+05
12	2500	0.107E-11	0.223E-07	0.117E+05	0.857E+04
12	5000	0.351E-12	0.775E-08	0.407E+04	0.282E+04
13	1625	0.203E-11	0.421E-07	0.221E+05	0.163E+05
13	1700	0.188E-11	0.391E-07	0.205E+05	0.151E+05
13	1800	0.170E-11	0.356E-07	0.187E+05	0.137E+05
13	2000	0.141E-11	0.298E-07	0.157E+05	0.114E+05

13	2200	0.120E-11	0.256E-07	0.134E+05	0.968E+04
13	2500	0.966E-12	0.208E-07	0.109E+05	0.776E+04
13	5000	0.321E-12	0.740E-08	0.389E+04	0.258E+04
14	1625	0.213E-11	0.442E-07	0.232E+05	0.171E+05
14	1700	0.197E-11	0.411E-07	0.216E+05	0.158E+05
14	1800	0.178E-11	0.374E-07	0.196E+05	0.143E+05
14	2000	0.148E-11	0.314E-07	0.165E+05	0.119E+05
14	2200	0.126E-11	0.269E-07	0.142E+05	0.101E+05
14	2500	0.101E-11	0.219E-07	0.115E+05	0.813E+04
14	5000	0.338E-12	0.783E-08	0.411E+04	0.271E+04
15	1625	0.173E-11	0.373E-07	0.196E+05	0.139E+05
15	1700	0.160E-11	0.347E-07	0.182E+05	0.129E+05
15	1800	0.145E-11	0.316E-07	0.166E+05	0.117E+05
15	2000	0.121E-11	0.267E-07	0.140E+05	0.972E+04
15	2200	0.103E-11	0.230E-07	0.121E+05	0.828E+04
15	2500	0.830E-12	0.188E-07	0.988E+04	0.667E+04
15	5000	0.281E-12	0.690E-08	0.362E+04	0.225E+04
16	1625	0.121E-11	0.263E-07	0.138E+05	0.973E+04
16	1700	0.112E-11	0.245E-07	0.129E+05	0.901E+04
16	1800	0.102E-11	0.224E-07	0.118E+05	0.817E+04
16	2000	0.849E-12	0.189E-07	0.993E+04	0.682E+04
16	2200	0.723E-12	0.163E-07	0.856E+04	0.581E+04
16	2500	0.582E-12	0.134E-07	0.701E+04	0.468E+04
16	5000	0.198E-12	0.494E-08	0.260E+04	0.159E+04

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.1618E-08	0.00	100.00
	SURFACE	0.3738E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2068E+02	99.69	100.00
	INGEST.	0.6554E-01	0.31	100.00
	VEGET.	0.6549E-01	* 0.31	* 99.93
	MEAT	0.9290E-05	* 0.00	* 0.01
	MILK	0.3825E-04	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.8808E-09	0.00	100.00
	SURFACE	0.2035E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2688E+02	99.51	100.00
	INGEST.	0.1316E+00	0.49	100.00
	VEGET.	0.1315E+00	* 0.49	* 99.93
	MEAT	0.1865E-04	* 0.00	* 0.01
	MILK	0.7678E-04	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.2356E-08	0.00	100.00
	SURFACE	0.5442E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.3359E+03	99.51	100.00
	INGEST.	0.1645E+01	0.49	100.00
	VEGET.	0.1643E+01	* 0.49	* 99.93
	MEAT	0.2331E-03	* 0.00	* 0.01
	MILK	0.9598E-03	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
TH-232	SUBM AIR	0.2007E-08	0.00	100.00
	SURFACE	0.4637E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4031E-01	99.72	100.00

	INGEST.	0.1076E-03	0.27	100.00
	VEGET.	0.1075E-03	* 0.27	* 99.93
	MEAT	0.1524E-07	* 0.00	* 0.01
	MILK	0.6277E-07	* 0.00	* 0.06

1
0 PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.4527E-08	0.00	100.00
	SURFACE	0.1046E-04	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4122E-01	99.70	100.00
	INGEST.	0.1119E-03	0.27	100.00
	VEGET.	0.1118E-03	* 0.27	* 99.93
	MEAT	0.1586E-07	* 0.00	* 0.01
	MILK	0.6529E-07	* 0.00	* 0.06

0

1
0 PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1352E-08	0.00	100.00
	SURFACE	0.3123E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6319E+02	100.00	100.00
	INGEST.	0.1112E-03	0.00	100.00
	VEGET.	0.1111E-03	* 0.00	* 99.93
	MEAT	0.1576E-07	* 0.00	* 0.01
	MILK	0.6487E-07	* 0.00	* 0.06

0

1
0 PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1127E-08	0.00	100.00
	SURFACE	0.2603E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2377E-01	99.41	100.00
	INGEST.	0.1375E-03	0.57	100.00
	VEGET.	0.1374E-03	* 0.57	* 99.93
	MEAT	0.1948E-07	* 0.00	* 0.01
	MILK	0.8023E-07	* 0.00	* 0.06

0

1
0 PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1065E-08	0.00	100.00
	SURFACE	0.2461E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2548E-01	92.55	100.00
	INGEST.	0.2049E-02	7.44	100.00
	VEGET.	0.2047E-02	* 7.44	* 99.93
	MEAT	0.2904E-06	* 0.00	* 0.01
	MILK	0.1196E-05	* 0.00	* 0.06

0

1
0 PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.1188E-08	0.00	100.00
	SURFACE	0.2744E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1462E+00	99.69	100.00
	INGEST.	0.4561E-03	0.31	100.00
	VEGET.	0.4558E-03	* 0.31	* 99.93
	MEAT	0.6465E-07	* 0.00	* 0.01
	MILK	0.2662E-06	* 0.00	* 0.06

0

1
0 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-232	SUBM AIR	0.8398E-09	0.00	100.00
	SURFACE	0.1940E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00

0

	INHAL	0.2388E-01	99.76	100.00
	INGEST.	0.5498E-04	0.23	100.00
	VEGET.	0.5494E-04	* 0.23	* 99.93
	MEAT	0.7792E-08	* 0.00	* 0.01
	MILK	0.3209E-07	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

	NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0					
	TH-232	SUBM AIR	0.1270E-08	0.00	100.00
		SURFACE	0.2934E-05	0.01	100.00
		SWIMMING	0.0000E+00	0.00	0.00
		INHAL	0.2386E-01	99.76	100.00
		INGEST.	0.5431E-04	0.23	100.00
		VEGET.	0.5427E-04	* 0.23	* 99.93
		MEAT	0.7697E-08	* 0.00	* 0.01
		MILK	0.3169E-07	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1618E-08	0.0000
0	SURFACE	0.3738E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2088E+02	99.6871
0	INGEST.	0.6554E-01	0.3129
0	VEGET.	*0.6549E-01	* 0.3126
0	MEAT	*0.9290E-05	* 0.0000
0	MILK	*0.3825E-04	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.8808E-09	0.0000
0	SURFACE	0.2035E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.2688E+02	99.5128
0	INGEST.	0.1316E+00	0.4871
0	VEGET.	*0.1315E+00	* 0.4868
0	MEAT	*0.1865E-04	* 0.0001
0	MILK	*0.7678E-04	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2356E-08	0.0000
0	SURFACE	0.5442E-05	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.3359E+03	99.5129
0	INGEST.	0.1645E+01	0.4871
0	VEGET.	*0.1643E+01	* 0.4868
0	MEAT	*0.2331E-03	* 0.0001
0	MILK	*0.9598E-03	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.2007E-08	0.0000
0	SURFACE	0.4637E-05	0.0115
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.4031E-01	99.7225
0	INGEST.	0.1076E-03	0.2661
0	VEGET.	*0.1075E-03	* 0.2659
0	MEAT	*0.1524E-07	* 0.0000
0	MILK	*0.6277E-07	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.4527E-08	0.0000
0	SURFACE	0.1046E-04	0.0253
0	SWIMMING	0.1000E-24	0.0000
0	INHAL	0.4122E-01	99.7041
0	INGEST.	0.1119E-03	0.2706
0	VEGET.	*0.1118E-03	* 0.2704
0	MEAT	*0.1586E-07	* 0.0000

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0    MILK                    *0.6529E-07                 *  0.0002
0                  CONTRIBUTION OF EXPOSURE MODES TO *PUL*  DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.1352E-08                    0.0000
0    SURFACE                  0.3123E-05                    0.0000
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.6319E+02                   99.9998
0    INGEST.                  0.1112E-03                    0.0002
0      VEGET.                *0.1111E-03                 *  0.0002
0      MEAT                  *0.1576E-07                 *  0.0000
0      MILK                  *0.6487E-07                 *  0.0000
0                  CONTRIBUTION OF EXPOSURE MODES TO S WALL  DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.1127E-08                    0.0000
0    SURFACE                  0.2803E-05                    0.0109
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.2377E-01                   99.4142
0    INGEST.                  0.1375E-03                    0.5749
0      VEGET.                *0.1374E-03                 *  0.5745
0      MEAT                  *0.1948E-07                 *  0.0001
0      MILK                  *0.8023E-07                 *  0.0003
0                  CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.1065E-08                    0.0000
0    SURFACE                  0.2461E-05                    0.0089
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.2548E-01                   92.5493
0    INGEST.                  0.2049E-02                    7.4417
0      VEGET.                *0.2047E-02                 *  7.4363
0      MEAT                  *0.2904E-06                 *  0.0011
0      MILK                  *0.1196E-05                 *  0.0043
0                  CONTRIBUTION OF EXPOSURE MODES TO LIVER  DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.1188E-08                    0.0000
0    SURFACE                  0.2744E-05                    0.0019
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.1462E+00                   99.6872
0    INGEST.                  0.4561E-03                    0.3110
0      VEGET.                *0.4558E-03                 *  0.3107
0      MEAT                  *0.6465E-07                 *  0.0000
0      MILK                  *0.2662E-06                 *  0.0002
0                  CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.8398E-09                    0.0000
0    SURFACE                  0.1940E-05                    0.0081
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.2388E-01                   99.7622
0    INGEST.                  0.5498E-04                    0.2297
0      VEGET.                *0.5494E-04                 *  0.2295
0      MEAT                  *0.7792E-08                 *  0.0000
0      MILK                  *0.3209E-07                 *  0.0001
0                  CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0  EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                 0.1270E-08                    0.0000
0    SURFACE                  0.2934E-05                    0.0123
0    SWIMMING                  0.1000E-24                    0.0000
0    INHAL.                  0.2386E-01                   99.7607
0    INGEST.                  0.5431E-04                    0.2270
0      VEGET.                *0.5427E-04                 *  0.2269
0      MEAT                  *0.7697E-08                 *  0.0000
0      MILK                  *0.3169E-07                 *  0.0001
1                  TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                ORGAN                    DOSE(REMS)
0                W BODY                   0.2095E+02
0                R MAR                    0.2701E+02
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0 ENDOST 0.3376E+03
0 THYROID 0.4043E-01
0 BREAST 0.4134E-01
0 *PUL* 0.6319E+02
0 S WALL 0.2391E-01
0 INT WALL 0.2753E-01
0 LIVER 0.1467E+00
0 PANCREAS 0.2394E-01
0 KIDNEYS 0.2392E-01
1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-232	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-232	W BODY	0.2095E+02	12	10
0	TH-232	R MAR	0.2701E+02	12	10
0	TH-232	ENDOST	0.3376E+03	12	10
0	TH-232	THYROID	0.4043E-01	12	10
0	TH-232	BREAST	0.4134E-01	12	10
0	TH-232	*PUL*	0.6319E+02	12	10
0	TH-232	S WALL	0.2391E-01	12	10
0	TH-232	INT WALL	0.2753E-01	12	10
0	TH-232	LIVER	0.1467E+00	12	10
0	TH-232	PANCREAS	0.2394E-01	12	10
0	TH-232	KIDNEYS	0.2392E-01	12	10

All Buildings

Radium-228

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OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC= Ra 228,ISOL=Y,AMAD=1.0,REL=11.7 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR ALL BLDG. WITH 10% RELEASE
DOSE CALCULATED AT 1625 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY
RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES
PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

AVERAGE AIR TEMPERATURE (DEG K)	285.0
AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)	
IN STABILITY CLASS E	0.0728
IN STABILITY CLASS F	0.1090
IN STABILITY CLASS G	0.1455
RAINFALL RATE (CM/YEAR)	102.00
HEIGHT OF LID (METERS)	1000
NUMBER OF STACKS IN THE PLANT	1

STACK INFORMATION–

	STACK NUMBER 1	2	3	4	5	6
HEIGHT (METERS)	0.0000					
DIAMETER (METERS)	0.0000					
EFFLUENT VELOCITY (METERS/SEC)	0.0000					
RATE OF HEAT EMISSION (CAL/SECOND)	0.00E+00					

RELEASE RATES FOR RADIONUCLIDES

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	RA-228	0.117E+02

PLUME DEPLETION AND DEPOSITION PARAMETERS

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
RA-228	0.000	0.00058	0.341E-05	0.000E+00

FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC) A	B	C	D	E	F	G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1625	RA-228	6.40E-07	3.68E-08	7.31E-09	4.42E-08	2.04E+04
1	1700	RA-228	5.93E-07	3.41E-08	6.98E-09	4.11E-08	2.04E+04
1	1800	RA-228	5.38E-07	3.10E-08	6.58E-09	3.75E-08	2.03E+04
1	2000	RA-228	4.49E-07	2.59E-08	5.90E-09	3.18E-08	2.03E+04
1	2200	RA-228	3.83E-07	2.20E-08	5.35E-09	2.74E-08	2.03E+04
1	2500	RA-228	3.09E-07	1.78E-08	4.69E-09	2.25E-08	2.02E+04
1	5000	RA-228	1.05E-07	6.07E-09	2.28E-09	8.35E-09	1.97E+04
2	1625	RA-228	4.20E-07	2.42E-08	4.85E-09	2.90E-08	9.90E+03
2	1700	RA-228	3.89E-07	2.24E-08	4.63E-09	2.70E-08	9.89E+03
2	1800	RA-228	3.53E-07	2.03E-08	4.36E-09	2.47E-08	9.87E+03
2	2000	RA-228	2.94E-07	1.69E-08	3.91E-09	2.08E-08	9.83E+03
2	2200	RA-228	2.51E-07	1.44E-08	3.54E-09	1.80E-08	9.81E+03
2	2500	RA-228	2.02E-07	1.16E-08	3.11E-09	1.47E-08	9.78E+03
2	5000	RA-228	6.85E-08	3.94E-09	1.50E-09	5.44E-09	9.47E+03
3	1625	RA-228	3.23E-07	1.86E-08	3.23E-09	2.18E-08	5.32E+03
3	1700	RA-228	2.98E-07	1.72E-08	3.08E-09	2.03E-08	5.31E+03
3	1800	RA-228	2.70E-07	1.56E-08	2.90E-09	1.85E-08	5.30E+03

3	2000	RA-228	2.25E-07	1.29E-08	2.60E-09	1.55E-08	5.27E+03
3	2200	RA-228	1.91E-07	1.10E-08	2.36E-09	1.33E-08	5.26E+03
3	2500	RA-228	1.53E-07	8.83E-09	2.06E-09	1.09E-08	5.23E+03
3	5000	RA-228	5.09E-08	2.93E-09	9.86E-10	3.91E-09	5.02E+03
4	1625	RA-228	4.91E-07	2.83E-08	4.32E-09	3.26E-08	6.63E+03
4	1700	RA-228	4.54E-07	2.61E-08	4.12E-09	3.03E-08	6.61E+03
4	1800	RA-228	4.11E-07	2.37E-08	3.88E-09	2.75E-08	6.60E+03
4	2000	RA-228	3.41E-07	1.96E-08	3.46E-09	2.31E-08	6.55E+03
4	2200	RA-228	2.90E-07	1.67E-08	3.14E-09	1.98E-08	6.53E+03
4	2500	RA-228	2.33E-07	1.34E-08	2.75E-09	1.61E-08	6.50E+03
4	5000	RA-228	7.67E-08	4.42E-09	1.30E-09	5.72E-09	6.18E+03
5	1625	RA-228	1.00E-06	5.75E-08	8.06E-09	6.56E-08	1.36E+04
5	1700	RA-228	9.24E-07	5.32E-08	7.69E-09	6.09E-08	1.36E+04
5	1800	RA-228	8.36E-07	4.81E-08	7.24E-09	5.54E-08	1.35E+04
5	2000	RA-228	6.93E-07	3.99E-08	6.47E-09	4.64E-08	1.34E+04
5	2200	RA-228	5.89E-07	3.39E-08	5.86E-09	3.98E-08	1.34E+04
5	2500	RA-228	4.73E-07	2.72E-08	5.13E-09	3.23E-08	1.33E+04
5	5000	RA-228	1.55E-07	8.95E-09	2.43E-09	1.14E-08	1.27E+04
6	1625	RA-228	7.51E-07	4.32E-08	9.32E-09	5.25E-08	2.10E+04
6	1700	RA-228	6.95E-07	4.00E-08	8.89E-09	4.89E-08	2.10E+04
6	1800	RA-228	6.30E-07	3.62E-08	8.38E-09	4.46E-08	2.10E+04
6	2000	RA-228	5.24E-07	3.02E-08	7.51E-09	3.77E-08	2.09E+04
6	2200	RA-228	4.46E-07	2.57E-08	6.82E-09	3.25E-08	2.08E+04
6	2500	RA-228	3.59E-07	2.07E-08	5.98E-09	2.66E-08	2.08E+04
6	5000	RA-228	1.20E-07	6.92E-09	2.89E-09	9.82E-09	2.02E+04
7	1625	RA-228	4.10E-07	2.36E-08	5.10E-09	2.87E-08	1.15E+04
7	1700	RA-228	3.79E-07	2.18E-08	4.87E-09	2.67E-08	1.15E+04
7	1800	RA-228	3.43E-07	1.98E-08	4.59E-09	2.44E-08	1.15E+04
7	2000	RA-228	2.86E-07	1.64E-08	4.11E-09	2.06E-08	1.15E+04
7	2200	RA-228	2.43E-07	1.40E-08	3.73E-09	1.77E-08	1.14E+04
7	2500	RA-228	1.95E-07	1.12E-08	3.27E-09	1.45E-08	1.14E+04
7	5000	RA-228	6.49E-08	3.74E-09	1.59E-09	5.32E-09	1.11E+04
8	1625	RA-228	4.03E-07	2.32E-08	4.26E-09	2.75E-08	1.05E+04
8	1700	RA-228	3.73E-07	2.16E-08	4.06E-09	2.55E-08	1.05E+04
8	1800	RA-228	3.38E-07	1.94E-08	3.83E-09	2.33E-08	1.05E+04
8	2000	RA-228	2.81E-07	1.62E-08	3.43E-09	1.96E-08	1.05E+04
8	2200	RA-228	2.39E-07	1.37E-08	3.11E-09	1.69E-08	1.04E+04
8	2500	RA-228	1.92E-07	1.11E-08	2.73E-09	1.38E-08	1.04E+04
8	5000	RA-228	6.39E-08	3.68E-09	1.32E-09	4.99E-09	1.01E+04
9	1625	RA-228	3.52E-07	2.02E-08	4.39E-09	2.46E-08	1.33E+04
9	1700	RA-228	3.26E-07	1.87E-08	4.19E-09	2.29E-08	1.33E+04
9	1800	RA-228	2.95E-07	1.70E-08	3.95E-09	2.09E-08	1.33E+04
9	2000	RA-228	2.46E-07	1.42E-08	3.54E-09	1.77E-08	1.32E+04
9	2200	RA-228	2.10E-07	1.21E-08	3.22E-09	1.53E-08	1.32E+04
9	2500	RA-228	1.69E-07	9.72E-09	2.82E-09	1.25E-08	1.32E+04
9	5000	RA-228	5.71E-08	3.29E-09	1.37E-09	4.66E-09	1.29E+04
10	1625	RA-228	7.37E-07	4.24E-08	7.67E-09	5.01E-08	1.95E+04
10	1700	RA-228	6.82E-07	3.93E-08	7.32E-09	4.66E-08	1.94E+04
10	1800	RA-228	6.18E-07	3.56E-08	6.90E-09	4.25E-08	1.94E+04
10	2000	RA-228	5.13E-07	2.96E-08	6.18E-09	3.57E-08	1.93E+04
10	2200	RA-228	4.37E-07	2.51E-08	5.60E-09	3.07E-08	1.93E+04
10	2500	RA-228	3.51E-07	2.02E-08	4.91E-09	2.51E-08	1.93E+04
10	5000	RA-228	1.17E-07	6.72E-09	2.37E-09	9.09E-09	1.87E+04
11	1625	RA-228	1.75E-06	1.01E-07	1.19E-08	1.13E-07	2.64E+04
11	1700	RA-228	1.62E-06	9.30E-08	1.14E-08	1.04E-07	2.64E+04
11	1800	RA-228	1.46E-06	8.41E-08	1.07E-08	9.48E-08	2.63E+04
11	2000	RA-228	1.21E-06	6.96E-08	9.54E-09	7.92E-08	2.61E+04
11	2200	RA-228	1.03E-06	5.92E-08	8.64E-09	6.78E-08	2.61E+04
11	2500	RA-228	8.25E-07	4.75E-08	7.56E-09	5.50E-08	2.60E+04
11	5000	RA-228	2.70E-07	1.55E-08	3.57E-09	1.91E-08	2.49E+04
12	1625	RA-228	2.26E-06	1.30E-07	1.47E-08	1.45E-07	3.14E+04
12	1700	RA-228	2.09E-06	1.20E-07	1.40E-08	1.34E-07	3.13E+04
12	1800	RA-228	1.89E-06	1.09E-07	1.32E-08	1.22E-07	3.12E+04
12	2000	RA-228	1.57E-06	9.01E-08	1.17E-08	1.02E-07	3.10E+04
12	2200	RA-228	1.33E-06	7.66E-08	1.06E-08	8.72E-08	3.09E+04

12	2500	RA-228	1.07E-06	6.15E-08	9.31E-09	7.08E-08	3.08E+04
12	5000	RA-228	3.51E-07	2.02E-08	4.38E-09	2.46E-08	2.94E+04
13	1625	RA-228	2.03E-06	1.17E-07	1.64E-08	1.33E-07	3.68E+04
13	1700	RA-228	1.88E-06	1.08E-07	1.56E-08	1.24E-07	3.68E+04
13	1800	RA-228	1.70E-06	9.80E-08	1.47E-08	1.13E-07	3.67E+04
13	2000	RA-228	1.41E-06	8.14E-08	1.32E-08	9.45E-08	3.65E+04
13	2200	RA-228	1.20E-06	6.92E-08	1.19E-08	8.11E-08	3.64E+04
13	2500	RA-228	9.66E-07	5.56E-08	1.04E-08	6.60E-08	3.63E+04
13	5000	RA-228	3.21E-07	1.85E-08	4.97E-09	2.35E-08	3.50E+04
14	1625	RA-228	2.13E-06	1.22E-07	1.77E-08	1.40E-07	3.46E+04
14	1700	RA-228	1.97E-06	1.13E-07	1.69E-08	1.30E-07	3.46E+04
14	1800	RA-228	1.78E-06	1.03E-07	1.59E-08	1.19E-07	3.45E+04
14	2000	RA-228	1.48E-06	8.52E-08	1.42E-08	9.95E-08	3.43E+04
14	2200	RA-228	1.26E-06	7.25E-08	1.29E-08	8.54E-08	3.42E+04
14	2500	RA-228	1.01E-06	5.82E-08	1.13E-08	6.96E-08	3.40E+04
14	5000	RA-228	3.38E-07	1.94E-08	5.38E-09	2.48E-08	3.27E+04
15	1625	RA-228	1.73E-06	9.96E-08	1.84E-08	1.18E-07	4.17E+04
15	1700	RA-228	1.60E-06	9.23E-08	1.76E-08	1.10E-07	4.16E+04
15	1800	RA-228	1.45E-06	8.36E-08	1.66E-08	1.00E-07	4.15E+04
15	2000	RA-228	1.21E-06	6.97E-08	1.49E-08	8.45E-08	4.14E+04
15	2200	RA-228	1.03E-06	5.93E-08	1.35E-08	7.28E-08	4.13E+04
15	2500	RA-228	8.30E-07	4.78E-08	1.18E-08	5.96E-08	4.12E+04
15	5000	RA-228	2.81E-07	1.62E-08	5.70E-09	2.19E-08	3.99E+04
16	1625	RA-228	1.21E-06	6.98E-08	1.37E-08	8.34E-08	4.13E+04
16	1700	RA-228	1.12E-06	6.46E-08	1.31E-08	7.77E-08	4.12E+04
16	1800	RA-228	1.02E-06	5.86E-08	1.23E-08	7.09E-08	4.12E+04
16	2000	RA-228	8.49E-07	4.89E-08	1.10E-08	5.99E-08	4.11E+04
16	2200	RA-228	7.23E-07	4.16E-08	1.00E-08	5.16E-08	4.10E+04
16	2500	RA-228	5.82E-07	3.35E-08	8.79E-09	4.23E-08	4.09E+04
16	5000	RA-228	1.98E-07	1.14E-08	4.27E-09	1.57E-08	4.00E+04

1 GROUND-LEVEL CHI/Q VALUES FOR RA-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.868E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.3301E-03
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5900E-03
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.5000E-03
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.1000E+00
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.2000E-01
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E+00
0 GI UPTAKE FRACTION (INGESTION) 0.2000E+00
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS W
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.477E+01	0.144E+01	0.284E-07	0.295E-10	0.712E-10
R MAR	0.273E+01	0.242E+01	0.000E+00	0.000E+00	0.000E+00
ENDOST	0.241E+02	0.215E+02	0.355E-08	0.369E-11	0.890E-11
THYROID	0.677E+00	0.581E+00	0.000E+00	0.000E+00	0.000E+00
BREAST	0.681E+00	0.581E+00	0.206E-06	0.214E-09	0.516E-09
PUL	0.267E+02	0.581E+00	0.355E-08	0.369E-11	0.890E-11
S WALL	0.677E+00	0.585E+00	0.000E+00	0.000E+00	0.000E+00
INT WALL	0.488E+00	0.369E+00	0.000E+00	0.000E+00	0.000E+00
LIVER	0.859E+00	0.395E+00	0.000E+00	0.000E+00	0.000E+00
PANCREAS	0.451E+00	0.332E+00	0.000E+00	0.000E+00	0.000E+00
KIDNEYS	0.460E+00	0.338E+00	0.000E+00	0.000E+00	0.000E+00

1 CONCENTRATIONS AND INTAKE RATES FOR RA-228

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1625	0.640E-12	0.131E-07	0.817E+04	0.514E+04
1	1700	0.593E-12	0.122E-07	0.761E+04	0.476E+04
1	1800	0.538E-12	0.112E-07	0.695E+04	0.432E+04
1	2000	0.449E-12	0.944E-08	0.588E+04	0.361E+04
1	2200	0.383E-12	0.814E-08	0.507E+04	0.307E+04
1	2500	0.309E-12	0.667E-08	0.416E+04	0.248E+04
1	5000	0.105E-12	0.248E-08	0.154E+04	0.847E+03
2	1625	0.420E-12	0.863E-08	0.537E+04	0.337E+04
2	1700	0.389E-12	0.803E-08	0.500E+04	0.312E+04
2	1800	0.353E-12	0.733E-08	0.457E+04	0.283E+04
2	2000	0.294E-12	0.620E-08	0.386E+04	0.236E+04
2	2200	0.251E-12	0.534E-08	0.333E+04	0.201E+04
2	2500	0.202E-12	0.438E-08	0.273E+04	0.162E+04
2	5000	0.685E-13	0.162E-08	0.101E+04	0.550E+03
3	1625	0.323E-12	0.648E-08	0.404E+04	0.259E+04
3	1700	0.298E-12	0.602E-08	0.375E+04	0.240E+04
3	1800	0.270E-12	0.549E-08	0.342E+04	0.217E+04
3	2000	0.225E-12	0.461E-08	0.287E+04	0.180E+04
3	2200	0.191E-12	0.397E-08	0.247E+04	0.153E+04
3	2500	0.153E-12	0.324E-08	0.202E+04	0.123E+04
3	5000	0.509E-13	0.116E-08	0.724E+03	0.408E+03
4	1625	0.491E-12	0.969E-08	0.603E+04	0.395E+04
4	1700	0.454E-12	0.900E-08	0.560E+04	0.365E+04

4	1800	0.411E-12	0.819E-08	0.510E+04	0.330E+04
4	2000	0.341E-12	0.686E-08	0.427E+04	0.274E+04
4	2200	0.290E-12	0.589E-08	0.367E+04	0.233E+04
4	2500	0.233E-12	0.480E-08	0.299E+04	0.187E+04
4	5000	0.767E-13	0.170E-08	0.106E+04	0.616E+03
5	1625	0.100E-11	0.196E-07	0.121E+05	0.803E+04
5	1700	0.924E-12	0.181E-07	0.113E+05	0.742E+04
5	1800	0.836E-12	0.165E-07	0.102E+05	0.671E+04
5	2000	0.693E-12	0.138E-07	0.858E+04	0.566E+04
5	2200	0.589E-12	0.118E-07	0.736E+04	0.473E+04
5	2500	0.473E-12	0.961E-08	0.599E+04	0.380E+04
5	5000	0.155E-12	0.338E-08	0.211E+04	0.125E+04
6	1625	0.751E-12	0.156E-07	0.972E+04	0.603E+04
6	1700	0.695E-12	0.145E-07	0.905E+04	0.558E+04
6	1800	0.630E-12	0.133E-07	0.826E+04	0.506E+04
6	2000	0.524E-12	0.112E-07	0.697E+04	0.421E+04
6	2200	0.446E-12	0.966E-08	0.601E+04	0.358E+04
6	2500	0.359E-12	0.792E-08	0.493E+04	0.288E+04
6	5000	0.120E-12	0.292E-08	0.182E+04	0.966E+03
7	1625	0.410E-12	0.852E-08	0.531E+04	0.329E+04
7	1700	0.379E-12	0.793E-08	0.494E+04	0.304E+04
7	1800	0.343E-12	0.724E-08	0.451E+04	0.276E+04
7	2000	0.286E-12	0.611E-08	0.380E+04	0.229E+04
7	2200	0.243E-12	0.527E-08	0.328E+04	0.195E+04
7	2500	0.195E-12	0.431E-08	0.269E+04	0.157E+04
7	5000	0.649E-13	0.158E-08	0.985E+03	0.521E+03
8	1625	0.403E-12	0.816E-08	0.508E+04	0.324E+04
8	1700	0.373E-12	0.759E-08	0.473E+04	0.300E+04
8	1800	0.338E-12	0.692E-08	0.431E+04	0.271E+04
8	2000	0.281E-12	0.582E-08	0.363E+04	0.226E+04
8	2200	0.239E-12	0.501E-08	0.312E+04	0.192E+04
8	2500	0.192E-12	0.410E-08	0.255E+04	0.154E+04
8	5000	0.639E-13	0.148E-08	0.924E+03	0.513E+03
9	1625	0.352E-12	0.732E-08	0.456E+04	0.282E+04
9	1700	0.326E-12	0.682E-08	0.424E+04	0.261E+04
9	1800	0.295E-12	0.623E-08	0.388E+04	0.237E+04
9	2000	0.246E-12	0.526E-08	0.328E+04	0.198E+04
9	2200	0.210E-12	0.454E-08	0.283E+04	0.168E+04
9	2500	0.169E-12	0.373E-08	0.232E+04	0.136E+04
9	5000	0.571E-13	0.138E-08	0.862E+03	0.458E+03
10	1625	0.737E-12	0.149E-07	0.927E+04	0.592E+04
10	1700	0.682E-12	0.138E-07	0.862E+04	0.548E+04
10	1800	0.618E-12	0.126E-07	0.786E+04	0.496E+04
10	2000	0.513E-12	0.106E-07	0.661E+04	0.412E+04
10	2200	0.437E-12	0.914E-08	0.569E+04	0.351E+04
10	2500	0.351E-12	0.747E-08	0.465E+04	0.282E+04
10	5000	0.117E-12	0.270E-08	0.168E+04	0.938E+03
11	1625	0.175E-11	0.335E-07	0.208E+05	0.140E+05
11	1700	0.162E-11	0.310E-07	0.193E+05	0.130E+05
11	1800	0.146E-11	0.282E-07	0.175E+05	0.117E+05
11	2000	0.121E-11	0.235E-07	0.147E+05	0.972E+04
11	2200	0.103E-11	0.202E-07	0.125E+05	0.826E+04
11	2500	0.825E-12	0.164E-07	0.102E+05	0.662E+04
11	5000	0.270E-12	0.568E-08	0.354E+04	0.217E+04
12	1625	0.226E-11	0.431E-07	0.268E+05	0.182E+05
12	1700	0.209E-11	0.399E-07	0.249E+05	0.168E+05
12	1800	0.189E-11	0.363E-07	0.226E+05	0.152E+05
12	2000	0.157E-11	0.303E-07	0.189E+05	0.126E+05
12	2200	0.133E-11	0.259E-07	0.161E+05	0.107E+05
12	2500	0.107E-11	0.210E-07	0.131E+05	0.857E+04
12	5000	0.351E-12	0.730E-08	0.455E+04	0.282E+04
13	1625	0.203E-11	0.397E-07	0.247E+05	0.163E+05
13	1700	0.188E-11	0.368E-07	0.229E+05	0.151E+05
13	1800	0.170E-11	0.335E-07	0.209E+05	0.137E+05
13	2000	0.141E-11	0.281E-07	0.175E+05	0.114E+05

13	2200	0.120E-11	0.241E-07	0.150E+05	0.965E+04
13	2500	0.966E-12	0.196E-07	0.122E+05	0.776E+04
13	5000	0.321E-12	0.697E-08	0.434E+04	0.258E+04
14	1625	0.213E-11	0.417E-07	0.259E+05	0.171E+05
14	1700	0.197E-11	0.387E-07	0.241E+05	0.158E+05
14	1800	0.178E-11	0.352E-07	0.219E+05	0.143E+05
14	2000	0.148E-11	0.296E-07	0.184E+05	0.119E+05
14	2200	0.126E-11	0.254E-07	0.158E+05	0.101E+05
14	2500	0.101E-11	0.207E-07	0.129E+05	0.813E+04
14	5000	0.338E-12	0.738E-08	0.459E+04	0.271E+04
15	1625	0.173E-11	0.351E-07	0.219E+05	0.139E+05
15	1700	0.160E-11	0.327E-07	0.203E+05	0.129E+05
15	1800	0.145E-11	0.296E-07	0.185E+05	0.117E+05
15	2000	0.121E-11	0.251E-07	0.156E+05	0.972E+04
15	2200	0.103E-11	0.216E-07	0.135E+05	0.828E+04
15	2500	0.830E-12	0.177E-07	0.110E+05	0.667E+04
15	5000	0.281E-12	0.650E-08	0.404E+04	0.225E+04
16	1625	0.121E-11	0.248E-07	0.154E+05	0.973E+04
16	1700	0.112E-11	0.231E-07	0.144E+05	0.901E+04
16	1800	0.102E-11	0.211E-07	0.131E+05	0.817E+04
16	2000	0.849E-12	0.178E-07	0.111E+05	0.682E+04
16	2200	0.723E-12	0.153E-07	0.956E+04	0.581E+04
16	2500	0.582E-12	0.126E-07	0.783E+04	0.468E+04
16	5000	0.198E-12	0.468E-08	0.290E+04	0.159E+04

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.5624E-15	0.00	100.00
	SURFACE	0.1114E-11	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8662E-01	69.18	100.00
	INGEST.	0.3860E-01	30.82	100.00
	VEGET.	0.3478E-01	* 27.78	* 90.11
	MEAT	0.1488E-02	* 1.19	* 3.86
	MILK	0.2327E-02	* 1.86	* 6.03

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4957E-01	43.32	100.00
	INGEST.	0.6486E-01	56.68	100.00
	VEGET.	0.5845E-01	* 51.08	* 90.11
	MEAT	0.2501E-02	* 2.19	* 3.86
	MILK	0.3911E-02	* 3.42	* 6.03

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.7030E-16	0.00	100.00
	SURFACE	0.1393E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4376E+00	43.15	100.00
	INGEST.	0.5765E+00	56.85	100.00
	VEGET.	0.5195E+00	* 51.23	* 90.11
	MEAT	0.2223E-01	* 2.19	* 3.86
	MILK	0.3477E-01	* 3.43	* 6.03

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1229E-01	44.12	100.00

	INGEST.	0.1557E-01	55.88	100.00
	VEGET.	0.1403E-01	* 50.36	* 90.11
	MEAT	0.6004E-03	* 2.15	* 3.86
	MILK	0.9390E-03	* 3.37	* 6.03

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.4078E-14	0.00	100.00
	SURFACE	0.8078E-11	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1237E-01	44.26	100.00
	INGEST.	0.1557E-01	55.74	100.00
	VEGET.	0.1403E-01	* 50.23	* 90.11
	MEAT	0.6004E-03	* 2.15	* 3.86
	MILK	0.9390E-03	* 3.36	* 6.03

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.7030E-16	0.00	100.00
	SURFACE	0.1393E-12	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4849E+00	96.89	100.00
	INGEST.	0.1557E-01	3.11	100.00
	VEGET.	0.1403E-01	* 2.80	* 90.11
	MEAT	0.6004E-03	* 0.12	* 3.86
	MILK	0.9390E-03	* 0.19	* 6.03

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1229E-01	43.95	100.00
	INGEST.	0.1568E-01	56.05	100.00
	VEGET.	0.1413E-01	* 50.51	* 90.11
	MEAT	0.6045E-03	* 2.16	* 3.86
	MILK	0.9455E-03	* 3.38	* 6.03

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8871E-02	47.26	100.00
	INGEST.	0.9898E-02	52.74	100.00
	VEGET.	0.8920E-02	* 47.52	* 90.11
	MEAT	0.3816E-03	* 2.03	* 3.86
	MILK	0.5969E-03	* 3.18	* 6.03

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1559E-01	59.58	100.00
	INGEST.	0.1058E-01	40.42	100.00
	VEGET.	0.9531E-02	* 36.42	* 90.11
	MEAT	0.4078E-03	* 1.56	* 3.86
	MILK	0.6378E-03	* 2.44	* 6.03

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00

	INHAL.	0.8197E-02	47.93	100.00
	INGEST.	0.8907E-02	52.07	100.00
	VEGET.	0.8026E-02	* 46.93	* 90.11
	MEAT	0.3434E-03	* 2.01	* 3.86
	MILK	0.5371E-03	* 3.14	* 6.03

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
RA-228	SUBM AIR	0.0000E+00	0.00	0.00
	SURFACE	0.0000E+00	0.00	0.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8360E-02	48.00	100.00
	INGEST.	0.9057E-02	52.00	100.00
	VEGET.	0.8162E-02	* 46.86	* 90.11
	MEAT	0.3492E-03	* 2.00	* 3.86
	MILK	0.5461E-03	* 3.14	* 6.03

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.5624E-15	0.0000
0 SURFACE	0.1114E-11	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.8662E-01	69.1759
0 INGEST.	0.3860E-01	30.8241
0 VEGET.	*0.3478E-01	* 27.7770
0 MEAT	*0.1488E-02	* 1.1884
0 MILK	*0.2327E-02	* 1.8587

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.1000E-24	0.0000
0 SURFACE	0.1000E-24	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.4957E-01	43.3199
0 INGEST.	0.6486E-01	56.6801
0 VEGET.	*0.5845E-01	* 51.0771
0 MEAT	*0.2501E-02	* 2.1852
0 MILK	*0.3911E-02	* 3.4178

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.7030E-16	0.0000
0 SURFACE	0.1393E-12	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.4376E+00	43.1520
0 INGEST.	0.5765E+00	56.8480
0 VEGET.	*0.5195E+00	* 51.2284
0 MEAT	*0.2223E-01	* 2.1917
0 MILK	*0.3477E-01	* 3.4280

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.1000E-24	0.0000
0 SURFACE	0.1000E-24	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.1229E-01	44.1167
0 INGEST.	0.1557E-01	55.8833
0 VEGET.	*0.1403E-01	* 50.3590
0 MEAT	*0.6004E-03	* 2.1545
0 MILK	*0.9390E-03	* 3.3698

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

0 EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0 SUBM AIR	0.4078E-14	0.0000
0 SURFACE	0.8078E-11	0.0000
0 SWIMMING	0.1000E-24	0.0000
0 INHAL.	0.1237E-01	44.2620
0 INGEST.	0.1557E-01	55.7380
0 VEGET.	*0.1403E-01	* 50.2281
0 MEAT	*0.6004E-03	* 2.1489

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0      MILK                    *0.9390E-03                    *  3.3610
0                    CONTRIBUTION OF EXPOSURE MODES TO *PUL*  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                  0.7030E-16                       0.0000
0     SURFACE                   0.1393E-12                       0.0000
0     SWIMMING                   0.1000E-24                       0.0000
0     INHAL.                   0.4849E+00                      96.8881
0     INGEST.                   0.1557E-01                       3.1119
0      VEGET.                  *0.1403E-01                    *  2.8043
0      MEAT                    *0.6004E-03                    *  0.1200
0      MILK                    *0.9390E-03                    *  0.1876
0                    CONTRIBUTION OF EXPOSURE MODES TO S WALL  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                   0.1000E-24                       0.0000
0     SURFACE                    0.1000E-24                       0.0000
0     SWIMMING                    0.1000E-24                       0.0000
0     INHAL.                    0.1229E-01                      43.9477
0     INGEST.                   0.1568E-01                      56.0523
0      VEGET.                  *0.1413E-01                    *  50.5114
0      MEAT                    *0.6045E-03                    *  2.1610
0      MILK                    *0.9455E-03                    *  3.3800
0                    CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                   0.1000E-24                       0.0000
0     SURFACE                    0.1000E-24                       0.0000
0     SWIMMING                    0.1000E-24                       0.0000
0     INHAL.                    0.8871E-02                      47.2623
0     INGEST.                   0.9898E-02                      52.7377
0      VEGET.                  *0.8920E-02                    *  47.5244
0      MEAT                    *0.3816E-03                    *  2.0332
0      MILK                    *0.5969E-03                    *  3.1801
0                    CONTRIBUTION OF EXPOSURE MODES TO LIVER   DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                   0.1000E-24                       0.0000
0     SURFACE                    0.1000E-24                       0.0000
0     SWIMMING                    0.1000E-24                       0.0000
0     INHAL.                    0.1559E-01                      59.5850
0     INGEST.                   0.1058E-01                      40.4151
0      VEGET.                  *0.9531E-02                    *  36.4199
0      MEAT                    *0.4078E-03                    *  1.5581
0      MILK                    *0.6378E-03                    *  2.4370
0                    CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                   0.1000E-24                       0.0000
0     SURFACE                    0.1000E-24                       0.0000
0     SWIMMING                    0.1000E-24                       0.0000
0     INHAL.                    0.8197E-02                      47.9254
0     INGEST.                   0.8907E-02                      52.0746
0      VEGET.                  *0.8026E-02                    *  46.9268
0      MEAT                    *0.3434E-03                    *  2.0076
0      MILK                    *0.5371E-03                    *  3.1401
0                    CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0     SUBM AIR                   0.1000E-24                       0.0000
0     SURFACE                    0.1000E-24                       0.0000
0     SWIMMING                    0.1000E-24                       0.0000
0     INHAL.                    0.8360E-02                      48.0010
0     INGEST.                   0.9057E-02                      51.9989
0      VEGET.                  *0.8162E-02                    *  46.8587
0      MEAT                    *0.3492E-03                    *  2.0047
0      MILK                    *0.5461E-03                    *  3.1356
1                    TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                 ORGAN                    DOSE(REMS)
0                 W BODY                   0.1252E+00
0                 R MAR                    0.1144E+00
```

C 04

0 ENDOST 0.1014E+01
0 THYROID 0.2787E-01
0 BREAST 0.2794E-01
0 *PUL* 0.5004E+00
0 S WALL 0.2797E-01
0 INT WALL 0.1877E-01
0 LIVER 0.2617E-01
0 PANCREAS 0.1710E-01
0 KIDNEYS 0.1742E-01
1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
RA-228	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	RA-228	W BODY	0.1252E+00	12	10
0	RA-228	R MAR	0.1144E+00	12	10
0	RA-228	ENDOST	0.1014E+01	12	10
0	RA-228	THYROID	0.2787E-01	12	10
0	RA-228	BREAST	0.2794E-01	12	10
0	RA-228	*PUL*	0.5004E+00	12	10
0	RA-228	S WALL	0.2797E-01	12	10
0	RA-228	INT WALL	0.1877E-01	12	10
0	RA-228	LIVER	0.2617E-01	12	10
0	RA-228	PANCREAS	0.1710E-01	12	10
0	RA-228	KIDNEYS	0.1742E-01	12	10

All Buildings

Thorium-228

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3
 &RADI NUC='TH-228',ISOL=Y,AMAD=1.0,REL=11.7 &END


AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR ALL BLDG. WITH 10% RELEASE
DOSE CALCULATED AT 1625 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K)

285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS)

1000

0 NUMBER OF STACKS IN THE PLANT

1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5

6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-228	0.117E+02

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-228	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0

0

SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383

15	0.0311	0.0191	0.0502	0.2806	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1
0
0 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

STABILITY CLASS	WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH (METERS/SEC)					
0			A	B	C	D	E	F
0	1	0.058	2.57	1.31	2.00	1.88	1.49	0.81
0.77	2	0.029	1.46	0.00	1.19	1.27	1.06	0.77
0.77	3	0.016	0.77	0.77	0.77	0.99	0.83	0.77
0.77	4	0.020	0.89	1.00	2.57	0.84	0.77	0.77
0.77	5	0.041	1.05	1.32	0.77	1.07	0.83	0.77
0.77	6	0.060	1.14	2.57	1.16	1.52	1.01	0.77
0.77	7	0.033	1.62	1.00	1.86	1.32	1.01	0.77
0.77	8	0.030	0.77	0.00	2.17	1.58	1.20	0.77
0.77	9	0.038	1.92	2.86	1.67	2.18	1.17	0.94
0.77	10	0.056	1.35	1.99	1.49	1.80	1.07	0.81
0.77	11	0.078	2.57	2.43	1.88	1.63	1.13	0.77
0.77	12	0.094	1.45	2.25	1.46	1.90	1.16	0.77
0.77	13	0.108	1.86	2.03	2.43	1.62	1.21	0.78
0.77	14	0.103	1.59	1.98	1.60	1.30	1.03	0.79
0.77	15	0.120	1.82	2.01	2.33	1.44	1.14	0.82
0.77	16	0.117	2.83	2.49	2.96	1.92	1.58	0.80
0.77								

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1
0
0 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

STABILITY CLASS	WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH (METERS/SEC)					
0			A	B	C	D	E	F
0	1	0.058	2.57	2.57	2.35	2.83	2.19	0.88
0.77	2	0.029	1.98	0.00	1.67	1.86	1.52	0.77
0.77	3	0.016	0.77	0.77	0.77	1.34	0.95	0.77
0.77	4	0.020	1.13	1.36	2.57	0.98	0.77	0.77
0.77	5	0.041	1.45	2.05	0.77	1.49	0.96	0.77
0.77	6	0.060	1.60	2.57	1.72	2.22	1.38	0.77
0.77	7	0.033	2.12	1.36	2.57	2.01	1.41	0.77

8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.066	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 WIND TOWARD	AREA EFF REL RATE	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	(PCI/S)
0								
1	1625	TH-228	6.40E-07	3.68E-08	7.31E-09	4.42E-08	2.04E+04	
1	1700	TH-228	5.93E-07	3.41E-08	6.98E-09	4.11E-08	2.04E+04	
1	1800	TH-228	5.38E-07	3.10E-08	6.58E-09	3.75E-08	2.03E+04	
1	2000	TH-228	4.49E-07	2.59E-08	5.90E-09	3.18E-08	2.03E+04	
1	2200	TH-228	3.83E-07	2.20E-08	5.36E-09	2.74E-08	2.03E+04	
1	2500	TH-228	3.09E-07	1.78E-08	4.69E-09	2.25E-08	2.02E+04	
1	5000	TH-228	1.05E-07	6.07E-09	2.28E-09	8.35E-09	1.97E+04	
2	1625	TH-228	4.20E-07	2.42E-08	4.85E-09	2.90E-08	9.90E+03	
2	1700	TH-228	3.89E-07	2.24E-08	4.63E-09	2.70E-08	9.89E+03	
2	1800	TH-228	3.53E-07	2.03E-08	4.36E-09	2.47E-08	9.87E+03	
2	2000	TH-228	2.94E-07	1.69E-08	3.91E-09	2.08E-08	9.83E+03	
2	2200	TH-228	2.51E-07	1.44E-08	3.54E-09	1.80E-08	9.81E+03	
2	2500	TH-228	2.02E-07	1.16E-08	3.11E-09	1.47E-08	9.78E+03	
2	5000	TH-228	6.85E-08	3.94E-09	1.50E-09	5.44E-09	9.47E+03	
3	1625	TH-228	3.23E-07	1.86E-08	3.23E-09	2.18E-08	5.32E+03	
3	1700	TH-228	2.98E-07	1.72E-08	3.08E-09	2.03E-08	5.31E+03	
3	1800	TH-228	2.70E-07	1.56E-08	2.90E-09	1.85E-08	5.30E+03	
3	2000	TH-228	2.25E-07	1.29E-08	2.60E-09	1.55E-08	5.27E+03	
3	2200	TH-228	1.91E-07	1.10E-08	2.36E-09	1.33E-08	5.26E+03	

3	2500	TH-228	1.53E-07	8.83E-09	2.06E-09	1.09E-08
5.23E+03						
3	5000	TH-228	5.09E-08	2.93E-09	9.86E-10	3.91E-09
5.02E+03						
4	1625	TH-228	4.91E-07	2.83E-08	4.32E-09	3.26E-08
6.63E+03						
4	1700	TH-228	4.54E-07	2.61E-08	4.12E-09	3.03E-08
6.61E+03						
4	1800	TH-228	4.11E-07	2.37E-08	3.88E-09	2.75E-08
6.60E+03						
4	2000	TH-228	3.41E-07	1.96E-08	3.46E-09	2.31E-08
6.55E+03						
4	2200	TH-228	2.90E-07	1.67E-08	3.14E-09	1.98E-08
6.53E+03						
4	2500	TH-228	2.33E-07	1.34E-08	2.75E-09	1.61E-08
6.50E+03						
4	5000	TH-228	7.67E-08	4.42E-09	1.30E-09	5.72E-09
6.18E+03						
5	1625	TH-228	1.00E-08	5.75E-08	8.06E-09	6.56E-08
1.36E+04						
5	1700	TH-228	9.24E-07	5.32E-08	7.69E-09	6.09E-08
1.36E+04						
5	1800	TH-228	8.36E-07	4.81E-08	7.24E-09	5.54E-08
1.35E+04						
5	2000	TH-228	6.93E-07	3.99E-08	6.47E-09	4.64E-08
1.34E+04						
5	2200	TH-228	5.89E-07	3.39E-08	5.86E-09	3.98E-08
1.34E+04						
5	2500	TH-228	4.73E-07	2.72E-08	5.13E-09	3.23E-08
1.33E+04						
5	5000	TH-228	1.55E-07	8.95E-09	2.43E-09	1.14E-08
1.27E+04						
6	1625	TH-228	7.51E-07	4.32E-08	9.32E-09	5.25E-08
2.10E+04						
6	1700	TH-228	6.95E-07	4.00E-08	8.69E-09	4.89E-08
2.10E+04						
6	1800	TH-228	6.30E-07	3.62E-08	8.38E-09	4.46E-08
2.10E+04						
6	2000	TH-228	5.24E-07	3.02E-08	7.51E-09	3.77E-08
2.09E+04						
6	2200	TH-228	4.46E-07	2.57E-08	6.82E-09	3.25E-08
2.08E+04						
6	2500	TH-228	3.59E-07	2.07E-08	5.98E-09	2.66E-08
2.08E+04						
6	5000	TH-228	1.20E-07	6.92E-09	2.89E-09	9.82E-09
2.02E+04						
7	1625	TH-228	4.10E-07	2.36E-08	5.10E-09	2.87E-08
1.15E+04						
7	1700	TH-228	3.79E-07	2.18E-08	4.87E-09	2.67E-08
1.15E+04						
7	1800	TH-228	3.43E-07	1.98E-08	4.59E-09	2.44E-08
1.15E+04						
7	2000	TH-228	2.86E-07	1.64E-08	4.11E-09	2.06E-08
1.15E+04						
7	2200	TH-228	2.43E-07	1.40E-08	3.73E-09	1.77E-08
1.14E+04						
7	2500	TH-228	1.95E-07	1.12E-08	3.27E-09	1.45E-08
1.14E+04						
7	5000	TH-228	6.49E-08	3.74E-09	1.59E-09	5.32E-09
1.11E+04						
8	1625	TH-228	4.03E-07	2.32E-08	4.26E-09	2.75E-08
1.05E+04						
8	1700	TH-228	3.73E-07	2.15E-08	4.06E-09	2.55E-08
1.05E+04						
8	1800	TH-228	3.38E-07	1.94E-08	3.83E-09	2.33E-08

1.06E+04						
8	2000	TH-228	2.81E-07	1.62E-08	3.43E-09	1.96E-08
1.06E+04						
8	2200	TH-228	2.39E-07	1.37E-08	3.11E-09	1.69E-08
1.04E+04						
8	2500	TH-228	1.92E-07	1.11E-08	2.73E-09	1.38E-08
1.04E+04						
8	5000	TH-228	6.39E-08	3.68E-09	1.32E-09	4.99E-09
1.01E+04						
9	1625	TH-228	3.52E-07	2.02E-08	4.39E-09	2.46E-08
1.33E+04						
9	1700	TH-228	3.26E-07	1.87E-08	4.19E-09	2.29E-08
1.33E+04						
9	1800	TH-228	2.95E-07	1.70E-08	3.95E-09	2.09E-08
1.33E+04						
9	2000	TH-228	2.46E-07	1.42E-08	3.54E-09	1.77E-08
1.32E+04						
9	2200	TH-228	2.10E-07	1.21E-08	3.22E-09	1.53E-08
1.32E+04						
9	2500	TH-228	1.69E-07	9.72E-09	2.82E-09	1.25E-08
1.32E+04						
9	5000	TH-228	5.71E-08	3.29E-09	1.37E-09	4.66E-09
1.29E+04						
10	1625	TH-228	7.37E-07	4.24E-08	7.67E-09	5.01E-08
1.95E+04						
10	1700	TH-228	6.82E-07	3.93E-08	7.32E-09	4.66E-08
1.94E+04						
10	1800	TH-228	6.18E-07	3.56E-08	6.90E-09	4.25E-08
1.94E+04						
10	2000	TH-228	5.13E-07	2.96E-08	6.18E-09	3.57E-08
1.93E+04						
10	2200	TH-228	4.37E-07	2.51E-08	5.60E-09	3.07E-08
1.93E+04						
10	2500	TH-228	3.51E-07	2.02E-08	4.91E-09	2.51E-08
1.93E+04						
10	5000	TH-228	1.17E-07	6.72E-09	2.37E-09	9.09E-09
1.87E+04						
11	1625	TH-228	1.75E-06	1.01E-07	1.19E-08	1.13E-07
2.64E+04						
11	1700	TH-228	1.62E-06	9.30E-08	1.14E-08	1.04E-07
2.64E+04						
11	1800	TH-228	1.46E-06	8.41E-08	1.07E-08	9.48E-08
2.63E+04						
11	2000	TH-228	1.21E-06	6.96E-08	9.54E-09	7.92E-08
2.61E+04						
11	2200	TH-228	1.03E-06	5.92E-08	8.64E-09	6.78E-08
2.61E+04						
11	2500	TH-228	8.25E-07	4.75E-08	7.56E-09	5.50E-08
2.60E+04						
11	5000	TH-228	2.70E-07	1.55E-08	3.57E-09	1.91E-08
2.49E+04						
12	1625	TH-228	2.26E-06	1.30E-07	1.47E-08	1.45E-07
3.14E+04						
12	1700	TH-228	2.09E-06	1.20E-07	1.40E-08	1.34E-07
3.13E+04						
12	1800	TH-228	1.89E-06	1.09E-07	1.32E-08	1.22E-07
3.12E+04						
12	2000	TH-228	1.57E-06	9.01E-08	1.17E-08	1.02E-07
3.10E+04						
12	2200	TH-228	1.33E-06	7.66E-08	1.06E-08	8.72E-08
3.09E+04						
12	2500	TH-228	1.07E-06	6.15E-08	9.31E-09	7.08E-08
3.08E+04						
12	5000	TH-228	3.51E-07	2.02E-08	4.38E-09	2.46E-08
2.94E+04						

13	1625	TH-228	2.03E-06	1.17E-07	1.64E-08	1.33E-07
3.68E+04						
13	1700	TH-228	1.88E-06	1.08E-07	1.56E-08	1.24E-07
3.68E+04						
13	1800	TH-228	1.70E-06	9.80E-08	1.47E-08	1.13E-07
3.67E+04						
13	2000	TH-228	1.41E-06	8.14E-08	1.32E-08	9.45E-08
3.65E+04						
13	2200	TH-228	1.20E-06	6.92E-08	1.19E-08	8.11E-08
3.64E+04						
13	2500	TH-228	9.66E-07	5.56E-08	1.04E-08	6.60E-08
3.63E+04						
13	5000	TH-228	3.21E-07	1.85E-08	4.97E-09	2.35E-08
3.50E+04						
14	1625	TH-228	2.13E-06	1.22E-07	1.77E-08	1.40E-07
3.46E+04						
14	1700	TH-228	1.97E-06	1.13E-07	1.69E-08	1.30E-07
3.46E+04						
14	1800	TH-228	1.78E-06	1.03E-07	1.59E-08	1.19E-07
3.45E+04						
14	2000	TH-228	1.48E-06	8.52E-08	1.42E-08	9.95E-08
3.43E+04						
14	2200	TH-228	1.26E-06	7.25E-08	1.29E-08	8.54E-08
3.42E+04						
14	2500	TH-228	1.01E-06	5.82E-08	1.13E-08	6.96E-08
3.40E+04						
14	5000	TH-228	3.38E-07	1.94E-08	5.38E-09	2.48E-08
3.27E+04						
15	1625	TH-228	1.73E-06	9.96E-08	1.84E-08	1.18E-07
4.17E+04						
15	1700	TH-228	1.60E-06	9.23E-08	1.76E-08	1.10E-07
4.16E+04						
15	1800	TH-228	1.45E-06	8.36E-08	1.66E-08	1.00E-07
4.15E+04						
15	2000	TH-228	1.21E-06	6.97E-08	1.49E-08	8.45E-08
4.14E+04						
15	2200	TH-228	1.03E-06	5.93E-08	1.35E-08	7.28E-08
4.13E+04						
15	2500	TH-228	8.30E-07	4.78E-08	1.18E-08	5.96E-08
4.12E+04						
15	5000	TH-228	2.81E-07	1.62E-08	5.70E-09	2.19E-08
3.99E+04						
16	1625	TH-228	1.21E-06	6.98E-08	1.37E-08	8.34E-08
4.13E+04						
16	1700	TH-228	1.12E-06	6.46E-08	1.31E-08	7.77E-08
4.12E+04						
16	1800	TH-228	1.02E-06	5.86E-08	1.23E-08	7.09E-08
4.12E+04						
16	2000	TH-228	8.49E-07	4.89E-08	1.10E-08	5.99E-08
4.11E+04						
16	2200	TH-228	7.23E-07	4.16E-08	1.00E-08	5.16E-08
4.10E+04						
16	2500	TH-228	5.82E-07	3.35E-08	8.79E-09	4.23E-08
4.09E+04						
16	5000	TH-228	1.98E-07	1.14E-08	4.27E-09	1.57E-08
4.00E+04						

1 GROUND-LEVEL CHI/Q VALUES FOR TH-228 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

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DISTANCE (METERS)	CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)							
	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05

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1700	0.160E-06	0.105E-06	0.805E-06	0.122E-05	0.249E-06	0.187E-06	0.102E-06	0.101E-06
1800	0.145E-06	0.951E-06	0.728E-06	0.111E-05	0.225E-06	0.170E-06	0.925E-06	0.911E-06
2000	0.121E-06	0.793E-06	0.605E-06	0.919E-06	0.187E-06	0.141E-06	0.770E-06	0.757E-06
2200	0.103E-06	0.676E-06	0.515E-06	0.781E-06	0.159E-06	0.120E-06	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-06	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

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0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.868E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS
0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL.
TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.
ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.
DOSE SUMMARY TABLES ARE PRINTED
WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM
ORGAN NAMES ARE INPUT

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0 SUMMARY OF AREA SURROUNDING PLANT

0	AREA	NO. MEAT ANIMALS	NO. MILK CATTLE	FOOD CROPS	WATER AREA (SQUARE METERS)	POPULATION
0 COLUMN	ROW					
0						
1	1	0	0	0.000E+00	0	6469.0
1	2	0	1	0.144E+04	0	0.0
1	3	0	1	0.133E+04	0	0.0
1	4	1	2	0.461E+04	0	4165.0
1	5	2	3	0.646E+04	0	346.0
1	6	6	8	0.185E+05	0	0.0
1	7	8	12	0.258E+05	0	0.0
1	8	10	15	0.332E+05	0	0.0
1	9	45	66	0.144E+06	0	5474.0
1	10	41	61	0.133E+06	0	4090.0
1	11	143	210	0.461E+06	0	35581.0
1	12	200	294	0.646E+06	0	107426.0
1	13	572	840	0.185E+07	0	188076.0
1	14	801	1177	0.258E+07	0	118527.0
1	15	1030	1513	0.332E+07	0	116816.0
1	16	4464	6555	0.144E+08	0	110128.0
2	1	0	0	0.000E+00	0	0.0
2	2	0	1	0.144E+04	0	0.0
2	3	0	1	0.133E+04	0	0.0
2	4	1	2	0.461E+04	0	

(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION)
0.2000E-03
0 GI UPTAKE FRACTION (INGESTION)
0.2000E-03
0 PARTICLE SIZE (MICRONS)
0.1000E+01
0 SOLUBILITY CLASS
Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.342E+03	0.396E+00	0.928E+00	0.510E-03	0.221E-02
R MAR	0.692E+02	0.714E+00	0.741E+00	0.408E-03	0.177E-02
ENDOST	0.847E+03	0.877E+01	0.144E+01	0.791E-03	0.343E-02
THYROID	0.851E+00	0.851E-02	0.126E+01	0.692E-03	0.300E-02
BREAST	0.858E+00	0.862E-02	0.156E+01	0.860E-03	0.373E-02
PUL	0.256E+04	0.855E-02	0.889E+00	0.489E-03	0.212E-02
S WALL	0.836E+00	0.936E-02	0.783E+00	0.431E-03	0.187E-02
INT WALL	0.261E+01	0.242E+00	0.764E+00	0.420E-03	0.182E-02
LIVER	0.368E+01	0.343E-01	0.811E+00	0.446E-03	0.193E-02
PANCREAS	0.832E+00	0.784E-02	0.633E+00	0.348E-03	0.151E-02
KIDNEYS	0.138E+01	0.955E-02	0.830E+00	0.457E-03	0.198E-02

1 CONCENTRATIONS AND INTAKE RATES FOR TH-228

0 DIRECTION	AREA DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1625	0.640E-12	0.117E-07	0.712E+04	0.514E+04
1	1700	0.593E-12	0.109E-07	0.663E+04	0.476E+04
1	1800	0.538E-12	0.994E-08	0.606E+04	0.432E+04
1	2000	0.449E-12	0.840E-08	0.512E+04	0.361E+04
1	2200	0.383E-12	0.725E-08	0.442E+04	0.307E+04
1	2500	0.309E-12	0.594E-08	0.362E+04	0.248E+04
1	5000	0.105E-12	0.221E-08	0.135E+04	0.847E+03
2	1625	0.420E-12	0.768E-08	0.468E+04	0.337E+04
2	1700	0.389E-12	0.715E-08	0.436E+04	0.312E+04
2	1800	0.353E-12	0.653E-08	0.398E+04	0.283E+04
2	2000	0.294E-12	0.552E-08	0.336E+04	0.236E+04
2	2200	0.251E-12	0.476E-08	0.290E+04	0.201E+04
2	2500	0.202E-12	0.390E-08	0.238E+04	0.162E+04

2	5000	0.685E-13	0.144E-08	0.878E+03
0.550E+03				
3	1625	0.323E-12	0.577E-08	0.352E+04
0.259E+04				
3	1700	0.298E-12	0.536E-08	0.327E+04
0.240E+04				
3	1800	0.270E-12	0.489E-08	0.298E+04
0.217E+04				
3	2000	0.225E-12	0.411E-08	0.250E+04
0.180E+04				
3	2200	0.191E-12	0.353E-08	0.215E+04
0.153E+04				
3	2500	0.153E-12	0.288E-08	0.176E+04
0.123E+04				
3	5000	0.509E-13	0.104E-08	0.631E+03
0.408E+03				
4	1625	0.491E-12	0.863E-08	0.526E+04
0.395E+04				
4	1700	0.454E-12	0.801E-08	0.488E+04
0.365E+04				
4	1800	0.411E-12	0.729E-08	0.444E+04
0.330E+04				
4	2000	0.341E-12	0.611E-08	0.373E+04
0.274E+04				
4	2200	0.290E-12	0.525E-08	0.320E+04
0.233E+04				
4	2500	0.233E-12	0.427E-08	0.260E+04
0.187E+04				
4	5000	0.767E-13	0.151E-08	0.923E+03
0.616E+03				
5	1625	0.100E-11	0.174E-07	0.106E+05
0.803E+04				
5	1700	0.924E-12	0.161E-07	0.982E+04
0.742E+04				
5	1800	0.836E-12	0.147E-07	0.893E+04
0.671E+04				
5	2000	0.693E-12	0.123E-07	0.748E+04
0.556E+04				
5	2200	0.589E-12	0.105E-07	0.641E+04
0.473E+04				
5	2500	0.473E-12	0.856E-08	0.522E+04
0.380E+04				
5	5000	0.155E-12	0.301E-08	0.184E+04
0.125E+04				
6	1625	0.751E-12	0.139E-07	0.847E+04
0.603E+04				
6	1700	0.695E-12	0.129E-07	0.789E+04
0.558E+04				
6	1800	0.630E-12	0.118E-07	0.720E+04
0.506E+04				
6	2000	0.524E-12	0.998E-08	0.608E+04
0.421E+04				
6	2200	0.446E-12	0.860E-08	0.524E+04
0.358E+04				
6	2500	0.359E-12	0.705E-08	0.430E+04
0.288E+04				
6	5000	0.120E-12	0.260E-08	0.158E+04
0.966E+03				
7	1625	0.410E-12	0.759E-08	0.463E+04
0.329E+04				
7	1700	0.379E-12	0.706E-08	0.430E+04
0.304E+04				
7	1800	0.343E-12	0.645E-08	0.393E+04
0.276E+04				
7	2000	0.286E-12	0.544E-08	0.332E+04

0.229E+04				
7	2200	0.243E-12	0.469E-08	0.286E+04
0.195E+04				
7	2500	0.195E-12	0.384E-08	0.234E+04
0.157E+04				
7	5000	0.649E-13	0.141E-08	0.858E+03
0.521E+03				
8	1625	0.403E-12	0.727E-08	0.443E+04
0.324E+04				
8	1700	0.373E-12	0.676E-08	0.412E+04
0.300E+04				
8	1800	0.338E-12	0.616E-08	0.375E+04
0.271E+04				
8	2000	0.281E-12	0.519E-08	0.316E+04
0.226E+04				
8	2200	0.239E-12	0.446E-08	0.272E+04
0.192E+04				
8	2500	0.192E-12	0.365E-08	0.222E+04
0.154E+04				
8	5000	0.639E-13	0.132E-08	0.805E+03
0.513E+03				
9	1625	0.352E-12	0.652E-08	0.397E+04
0.282E+04				
9	1700	0.326E-12	0.607E-08	0.370E+04
0.261E+04				
9	1800	0.295E-12	0.554E-08	0.338E+04
0.237E+04				
9	2000	0.246E-12	0.469E-08	0.286E+04
0.198E+04				
9	2200	0.210E-12	0.404E-08	0.246E+04
0.168E+04				
9	2500	0.169E-12	0.332E-08	0.202E+04
0.136E+04				
9	5000	0.571E-13	0.123E-08	0.751E+03
0.458E+03				
10	1625	0.737E-12	0.133E-07	0.808E+04
0.592E+04				
10	1700	0.682E-12	0.123E-07	0.752E+04
0.548E+04				
10	1800	0.618E-12	0.112E-07	0.685E+04
0.496E+04				
10	2000	0.513E-12	0.946E-08	0.576E+04
0.412E+04				
10	2200	0.437E-12	0.814E-08	0.496E+04
0.351E+04				
10	2500	0.351E-12	0.665E-08	0.405E+04
0.282E+04				
10	5000	0.117E-12	0.241E-08	0.147E+04
0.938E+03				
11	1625	0.175E-11	0.298E-07	0.182E+05
0.140E+05				
11	1700	0.162E-11	0.276E-07	0.168E+05
0.130E+05				
11	1800	0.146E-11	0.251E-07	0.153E+05
0.117E+05				
11	2000	0.121E-11	0.210E-07	0.128E+05
0.972E+04				
11	2200	0.103E-11	0.179E-07	0.109E+05
0.826E+04				
11	2500	0.825E-12	0.146E-07	0.888E+04
0.662E+04				
11	5000	0.270E-12	0.506E-08	0.308E+04
0.217E+04				
12	1625	0.226E-11	0.383E-07	0.234E+05
0.182E+05				

12	1700	0.209E-11	0.355E-07	0.217E+05
0.168E+05				
12	1800	0.189E-11	0.323E-07	0.197E+05
0.152E+05				
12	2000	0.157E-11	0.270E-07	0.164E+05
0.126E+05				
12	2200	0.133E-11	0.231E-07	0.141E+05
0.107E+05				
12	2500	0.107E-11	0.187E-07	0.114E+05
0.857E+04				
12	5000	0.351E-12	0.650E-08	0.396E+04
0.282E+04				
13	1625	0.203E-11	0.353E-07	0.215E+05
0.163E+05				
13	1700	0.188E-11	0.328E-07	0.200E+05
0.151E+05				
13	1800	0.170E-11	0.298E-07	0.182E+05
0.137E+05				
13	2000	0.141E-11	0.250E-07	0.152E+05
0.114E+05				
13	2200	0.120E-11	0.215E-07	0.131E+05
0.965E+04				
13	2500	0.966E-12	0.175E-07	0.107E+05
0.776E+04				
13	5000	0.321E-12	0.621E-08	0.378E+04
0.258E+04				
14	1625	0.213E-11	0.371E-07	0.226E+05
0.171E+05				
14	1700	0.197E-11	0.345E-07	0.210E+05
0.158E+05				
14	1800	0.178E-11	0.314E-07	0.191E+05
0.143E+05				
14	2000	0.148E-11	0.263E-07	0.160E+05
0.119E+05				
14	2200	0.126E-11	0.226E-07	0.138E+05
0.101E+05				
14	2500	0.101E-11	0.184E-07	0.112E+05
0.813E+04				
14	5000	0.338E-12	0.657E-08	0.400E+04
0.271E+04				
15	1625	0.173E-11	0.313E-07	0.190E+05
0.139E+05				
15	1700	0.160E-11	0.291E-07	0.177E+05
0.129E+05				
15	1800	0.145E-11	0.265E-07	0.162E+05
0.117E+05				
15	2000	0.121E-11	0.224E-07	0.136E+05
0.972E+04				
15	2200	0.103E-11	0.193E-07	0.117E+05
0.828E+04				
15	2500	0.830E-12	0.158E-07	0.961E+04
0.667E+04				
15	5000	0.281E-12	0.578E-08	0.353E+04
0.225E+04				
16	1625	0.121E-11	0.221E-07	0.135E+05
0.973E+04				
16	1700	0.112E-11	0.206E-07	0.125E+05
0.901E+04				
16	1800	0.102E-11	0.188E-07	0.114E+05
0.817E+04				
16	2000	0.849E-12	0.159E-07	0.966E+04
0.682E+04				
16	2200	0.723E-12	0.137E-07	0.833E+04
0.581E+04				
16	2500	0.582E-12	0.112E-07	0.683E+04

```
0.468E+04
  16      5000          0.198E-12          0.415E-08          0.253E+04
0.159E+04
0        DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH
1                                PERCENT OF W BODY   DOSE BY EACH PATHWAY
0                NUCLIDE         PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                 TH-228          SUBM AIR         0.1837E-07              0.00                100.00
                                 SURFACE          0.1713E-04              0.00                100.00
                                 SWIMMING         0.0000E+00              0.00                  0.00
                                 INHAL.   0.6210E+01              99.85              100.00
                                 INGEST.          0.9252E-02              0.15                100.00
                                  VEGET.          0.9245E-02            * 0.15              * 99.93
                                  MEAT    0.1215E-06            * 0.00            *   0.01
                                  MILK    0.5094E-06            * 0.00            *   0.06
1                                PERCENT OF R MAR    DOSE BY EACH PATHWAY
0                NUCLIDE         PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                 TH-228          SUBM AIR         0.1469E-07              0.00                100.00
                                 SURFACE          0.1369E-04              0.00                100.00
                                 SWIMMING         0.0000E+00              0.00                  0.00
                                 INHAL.   0.1257E+01              98.69              100.00
                                 INGEST.          0.1668E-01              1.31                100.00
                                  VEGET.          0.1667E-01            * 1.31              * 99.93
                                  MEAT    0.2191E-05            * 0.00            *   0.01
                                  MILK    0.9185E-05            * 0.00            *   0.06
1                                PERCENT OF ENDOST   DOSE BY EACH PATHWAY
0                NUCLIDE         PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                 TH-228          SUBM AIR         0.2850E-07              0.00                100.00
                                 SURFACE          0.2656E-04              0.00                100.00
                                 SWIMMING         0.0000E+00              0.00                  0.00
                                 INHAL.   0.1538E+02              98.69              100.00
                                 INGEST.          0.2049E+00              1.31                100.00
                                  VEGET.          0.2048E+00            * 1.31              * 99.93
                                  MEAT    0.2692E-04            * 0.00            *   0.01
                                  MILK    0.1128E-03            * 0.00            *   0.06
1                                PERCENT OF THYROID  DOSE BY EACH PATHWAY
0                NUCLIDE         PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                 TH-228          SUBM AIR         0.2492E-07              0.00                100.00
                                 SURFACE          0.2323E-04              0.15                100.00
                                 SWIMMING         0.0000E+00              0.00                  0.00
                                 INHAL.   0.1545E-01              98.58              100.00
                                 INGEST.          0.1988E-03              1.27                100.00
                                  VEGET.          0.1987E-03            * 1.27              * 99.93
                                  MEAT    0.2612E-07            * 0.00            *   0.01
                                  MILK    0.1095E-06            * 0.00            *   0.06
1                                PERCENT OF BREAST   DOSE BY EACH PATHWAY
0                NUCLIDE         PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                 TH-228          SUBM AIR         0.3097E-07              0.00                100.00
                                 SURFACE          0.2887E-04              0.18                100.00
                                 SWIMMING         0.0000E+00              0.00                  0.00
                                 INHAL.   0.1558E-01              98.54              100.00
                                 INGEST.          0.2014E-03              1.27                100.00
                                  VEGET.          0.2013E-03            * 1.27              * 99.93
                                  MEAT    0.2645E-07            * 0.00            *   0.01
                                  MILK    0.1109E-06            * 0.00            *   0.06
1                                PERCENT OF *PUL*   DOSE BY EACH PATHWAY
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0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1760E-07                0.00                100.00
                                    SURFACE          0.1641E-04                0.00                100.00
                                    SWIMMING         0.0000E+00                0.00                  0.00
                                    INHAL.   0.4649E+02              100.00              100.00
                                    INGEST.          0.1998E-03                0.00                100.00
                                     VEGET.          0.1996E-03              * 0.00              * 99.93
                                     MEAT    0.2624E-07             * 0.00              *   0.01
                                     MILK    0.1100E-06             * 0.00              *   0.06
1                                   PERCENT OF S WALL   DOSE BY EACH PATHWAY
0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1551E-07                0.00                100.00
                                    SURFACE          0.1446E-04                0.09                100.00
                                    SWIMMING         0.0000E+00                0.00                  0.00
                                    INHAL.   0.1518E-01               98.49              100.00
                                    INGEST.          0.2187E-03                1.42                100.00
                                     VEGET.          0.2185E-03              * 1.42              * 99.93
                                     MEAT    0.2873E-07             * 0.00              *   0.01
                                     MILK    0.1204E-06             * 0.00              *   0.06
1                                   PERCENT OF INT WALL DOSE BY EACH PATHWAY
0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1513E-07                0.00                100.00
                                    SURFACE          0.1410E-04                0.03                100.00
                                    SWIMMING         0.0000E+00                0.00                  0.00
                                    INHAL.   0.4738E-01               89.30              100.00
                                    INGEST.          0.5661E-02               10.67                100.00
                                     VEGET.          0.5657E-02              * 10.66              * 99.93
                                     MEAT    0.7436E-06             * 0.00              *   0.01
                                     MILK    0.3117E-05             * 0.01              *   0.06
1                                   PERCENT OF LIVER    DOSE BY EACH PATHWAY
0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1606E-07                0.00                100.00
                                    SURFACE          0.1497E-04                0.02                100.00
                                    SWIMMING         0.0000E+00                0.00                  0.00
                                    INHAL.   0.6679E-01               98.79              100.00
                                    INGEST.          0.8011E-03                1.18                100.00
                                     VEGET.          0.8006E-03              * 1.18              * 99.93
                                     MEAT    0.1052E-06             * 0.00              *   0.01
                                     MILK    0.4411E-06             * 0.00              *   0.06
1                                   PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1254E-07                0.00                100.00
                                    SURFACE          0.1169E-04                0.08                100.00
                                    SWIMMING         0.0000E+00                0.00                  0.00
                                    INHAL.   0.1511E-01               98.73              100.00
                                    INGEST.          0.1832E-03                1.20                100.00
                                     VEGET.          0.1831E-03              * 1.20              * 99.93
                                     MEAT    0.2406E-07             * 0.00              *   0.01
                                     MILK    0.1009E-06             * 0.00              *   0.06
1                                   PERCENT OF KIDNEYS  DOSE BY EACH PATHWAY
0                    NUCLIDE        PATHWAY          DOSE(REMS)        PERCENT OF TOTAL      PERCENT OF DOSE
FROM ALL NUCLIDES
0
                     TH-228         SUBM AIR         0.1645E-07                0.00                100.00
                                    SURFACE          0.1533E-04                0.08                100.00
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                                  SWIMMING        0.0000E+00          0.00                0.00
                                  INHAL.   0.2508E-01          99.06          100.00
                                  INGEST.         0.2230E-03          0.88          100.00
                                   VEGET.         0.2229E-03        * 0.88          * 99.93
                                   MEAT   0.2930E-07          * 0.00          *   0.01
                                   MILK   0.1228E-06          * 0.00          *   0.06
0                                CONTRIBUTION OF EXPOSURE MODES TO W BODY   DOSES
0          EXPOSURE MODE                          ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                        0.1837E-07
 0.0000
0          SURFACE                         0.1713E-04
 0.0003
0          SWIMMING                        0.1000E-24
 0.0000
0          INHAL.                  0.6210E+01                                    99.8510
0          INGEST.                         0.9252E-02
 0.1487
0           VEGET.                         *0.9245E-02                            * 0.1486
0           MEAT                           *0.1215E-05                            * 0.0000
0           MILK                    *0.5094E-05                            *  0.0001
0                                CONTRIBUTION OF EXPOSURE MODES TO R MAR   DOSES
0          EXPOSURE MODE                          ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                        0.1469E-07
 0.0000
0          SURFACE                         0.1369E-04
 0.0011
0          SWIMMING                        0.1000E-24
 0.0000
0          INHAL.                  0.1257E+01                                    96.6889
0          INGEST.                         0.1668E-01
 1.3101
0           VEGET.                         *0.1667E-01                            * 1.3092
0           MEAT                           *0.2191E-05                            * 0.0002
0           MILK                    *0.9185E-05                            *  0.0007
0                                CONTRIBUTION OF EXPOSURE MODES TO ENDOST   DOSES
0          EXPOSURE MODE                          ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                        0.2850E-07
 0.0000
0          SURFACE                         0.2656E-04
 0.0002
0          SWIMMING                        0.1000E-24
 0.0000
0          INHAL.                  0.1538E+02                                    98.6852
0          INGEST.                         0.2049E+00
 1.3146
0           VEGET.                         *0.2048E+00                            * 1.3137
0           MEAT                           *0.2692E-04                            * 0.0002
0           MILK                    *0.1128E-03                            *  0.0007
0                                CONTRIBUTION OF EXPOSURE MODES TO THYROID  DOSES
0          EXPOSURE MODE                          ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                        0.2492E-07
 0.0002
0          SURFACE                         0.2323E-04
 0.1482
0          SWIMMING                        0.1000E-24
 0.0000
0          INHAL.                  0.1545E-01                                    98.5833
0          INGEST.                         0.1988E-03
 1.2683
0           VEGET.                         *0.1987E-03                            * 1.2675
0           MEAT                           *0.2612E-07                            * 0.0002
```

0 MILK *0.1095E-06 * 0.0007
0
0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES
0 EXPOSURE MODE ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0 SUBM AIR 0.3097E-07
0.0002
0 SURFACE 0.2887E-04
0.1826
0 SWIMMING 0.1000E-24
0.0000
0 INHAL. 0.1558E-01 98.5435
0 INGEST. 0.2014E-03
1.2737
0 VEGET. *0.2013E-03 * 1.2729
0 MEAT *0.2645E-07 * 0.0002
0 MILK *0.1109E-06 * 0.0007
0
0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES
0 EXPOSURE MODE ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0 SUBM AIR 0.1760E-07
0.0000
0 SURFACE 0.1641E-04
0.0000
0 SWIMMING 0.1000E-24
0.0000
0 INHAL. 0.4649E+02 99.9995
0 INGEST. 0.1998E-03
0.0004
0 VEGET. *0.1996E-03 * 0.0004
0 MEAT *0.2624E-07 * 0.0000
0 MILK *0.1100E-06 * 0.0000
0
0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES
0 EXPOSURE MODE ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0 SUBM AIR 0.1551E-07
0.0001
0 SURFACE 0.1446E-04
0.0938
0 SWIMMING 0.1000E-24
0.0000
0 INHAL. 0.1518E-01 98.4874
0 INGEST. 0.2187E-03
1.4187
0 VEGET. *0.2185E-03 * 1.4177
0 MEAT *0.2873E-07 * 0.0002
0 MILK *0.1204E-06 * 0.0008
0
0 CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0 EXPOSURE MODE ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0 SUBM AIR 0.1513E-07
0.0000
0 SURFACE 0.1410E-04
0.0266
0 SWIMMING 0.1000E-24
0.0000
0 INHAL. 0.4738E-01 89.3031
0 INGEST. 0.5661E-02
10.6703
0 VEGET. *0.5657E-02 *
10.6631
0 MEAT *0.7436E-06 * 0.0014
0 MILK *0.3117E-05 * 0.0059
0
0 CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES
0 EXPOSURE MODE ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE

```
0          SUBM AIR                                  0.1808E-07
 0.0000
0          SURFACE                                   0.1497E-04
 0.0221
0          SWIMMING                                  0.1000E-24
 0.0000
0          INHAL                              0.6679E-01                                    98.7928
0          INGEST.                                   0.8011E-03
 1.1850
0           VEGET.                                   *0.8006E-03                            * 1.1842
0           MEAT                                     *0.1052E-06                            * 0.0002
0           MILK                              *0.4411E-06                          *  0.0007
0                                   CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0        EXPOSURE MODE                                   ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                                  0.1254E-07
 0.0001
0          SURFACE                                   0.1169E-04
 0.0764
0          SWIMMING                                  0.1000E-24
 0.0000
0          INHAL                              0.1511E-01                                    98.7263
0          INGEST.                                   0.1832E-03
 1.1972
0           VEGET.                                   *0.1831E-03                            * 1.1964
0           MEAT                                     *0.2406E-07                            * 0.0002
0           MILK                              *0.1009E-06                          *  0.0007
0                                   CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0        EXPOSURE MODE                                   ANNUAL DOSE(REMS)
PERCENT OF TOTAL DOSE
0          SUBM AIR                                  0.1645E-07
 0.0001
0          SURFACE                                   0.1533E-04
 0.0606
0          SWIMMING                                  0.1000E-24
 0.0000
0          INHAL                              0.2508E-01                                    99.0583
0          INGEST.                                   0.2230E-03
 0.8810
0           VEGET.                                   *0.2229E-03                            * 0.8804
0           MEAT                                     *0.2930E-07                            * 0.0001
0           MILK                              *0.1228E-06                          *  0.0005
1                                   TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                                 ORGAN                                   DOSE(REMS)
0                                 W BODY                                  0.6220E+01
0                                 R MAR                                   0.1273E+01
0                                 ENDOST                                  0.1559E+02
0                                 THYROID                                 0.1568E-01
0                                 BREAST                                  0.1581E-01
0                                 *PUL*                           0.4649E+02
0                                 S WALL                                  0.1541E-01
0                                 INT WALL                                0.5305E-01
0                                 LIVER                           0.6761E-01
0                                 PANCREAS                                0.1530E-01
0                                 KIDNEYS                                 0.2532E-01
1                                          CONTRIBUTORS TO ORGAN DOSES
0                                                                    PERCENT
0NUCLIDE   W BODY    R MAR       ENDOST    THYROID     BREAST    *PUL*    S WALL        INT WALL   LIVER
  PANCREAS  KIDNEYS

 TH-228   100.0000  100.0000  100.0000  100.0000    100.0000  100.0000  100.0000      100.0000  100.0000  100.0000
 100.0000
1                                          ANNUAL DOSES(REMS)
0                NUCLIDE            ORGAN                DOSE                          MAXIMUM LOCATION
0                                                                                        COLUMN
```

ROW					
0	TH-228	W BODY	0.6220E+01	12	10
0	TH-228	R MAR	0.1273E+01	12	10
0	TH-228	ENDOST	0.1559E+02	12	10
0	TH-228	THYROID	0.1568E-01	12	10
0	TH-228	BREAST	0.1581E-01	12	10
0	TH-228	*PUL*	0.4649E+02	12	10
0	TH-228	S WALL	0.1541E-01	12	10
0	TH-228	INT WALL	0.5305E-01	12	10
0	TH-228	LIVER	0.6761E-01	12	10
0	TH-228	PANCREAS	0.1530E-01	12	10
0	TH-228	KIDNEYS	0.2532E-01	12	10

All Buildings

Thorium-230

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,3000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,RR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
-

 &RADI NUC='TH-230',ISOL=Y,AMAD=1.0,REL=1.2 &END

AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR ALL BLDG. WITH 10% RELEASE
DOSE CALCULATED AT 1625 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
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1 OUTPUT OF AIRDOS-EPA COMPUTER CODE

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OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

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1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

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0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	TH-230	0.120E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

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NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
TH-230	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

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SECTOR	FRACTION OF TIME IN EACH STABILITY CLASS						
	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

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WIND TOWARD	FREQUENCY	WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)						
		A	B	C	D	E	F	G

0

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.87	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.85	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

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AREA	WIND TOWARD	DISTANCE (METERS)	NUCLIDE	AIR CONCEN (PCI/CM**3)	DRY DEP RATE (PCI/CM**2/S)	WET DEP RATE (PCI/CM**2/S)	GND DEP RATE (PCI/CM**2/S)	EFF REL RATE (PCI/S)
1	1625		TH-230	6.56E-08	3.78E-09	7.50E-10	4.53E-09	2.09E+03
1	1700		TH-230	6.08E-08	3.50E-09	7.16E-10	4.22E-09	2.09E+03
1	1800		TH-230	5.52E-08	3.18E-09	6.75E-10	3.85E-09	2.09E+03
1	2000		TH-230	4.61E-08	2.65E-09	6.05E-10	3.26E-09	2.08E+03
1	2200		TH-230	3.93E-08	2.26E-09	5.49E-10	2.81E-09	2.08E+03
1	2500		TH-230	3.16E-08	1.82E-09	4.81E-10	2.30E-09	2.07E+03
1	5000		TH-230	1.08E-08	6.22E-10	2.34E-10	8.56E-10	2.02E+03
2	1625		TH-230	4.31E-08	2.48E-09	4.97E-10	2.98E-09	1.02E+03
2	1700		TH-230	3.99E-08	2.30E-09	4.75E-10	2.77E-09	1.01E+03
2	1800		TH-230	3.62E-08	2.08E-09	4.47E-10	2.53E-09	1.01E+03
2	2000		TH-230	3.02E-08	1.74E-09	4.01E-10	2.14E-09	1.01E+03
2	2200		TH-230	2.57E-08	1.48E-09	3.63E-10	1.84E-09	1.01E+03
2	2500		TH-230	2.07E-08	1.19E-09	3.19E-10	1.51E-09	1.00E+03
2	5000		TH-230	7.03E-09	4.05E-10	1.54E-10	5.58E-10	9.72E+02
3	1625		TH-230	3.31E-08	1.91E-09	3.31E-10	2.24E-09	5.46E+02
3	1700		TH-230	3.06E-08	1.76E-09	3.16E-10	2.08E-09	5.45E+02
3	1800		TH-230	2.77E-08	1.60E-09	2.98E-10	1.89E-09	5.44E+02

3	2000	TH-230	2.30E-08	1.33E-09	2.67E-10	1.59E-09	5.41E+02
3	2200	TH-230	1.96E-08	1.13E-09	2.42E-10	1.37E-09	5.39E+02
3	2500	TH-230	1.57E-08	9.06E-10	2.12E-10	1.12E-09	5.37E+02
3	5000	TH-230	5.22E-09	3.00E-10	1.01E-10	4.01E-10	5.14E+02
4	1625	TH-230	5.04E-08	2.90E-09	4.43E-10	3.34E-09	6.80E+02
4	1700	TH-230	4.66E-08	2.68E-09	4.22E-10	3.10E-09	6.78E+02
4	1800	TH-230	4.22E-08	2.43E-09	3.98E-10	2.82E-09	6.76E+02
4	2000	TH-230	3.50E-08	2.01E-09	3.55E-10	2.37E-09	6.72E+02
4	2200	TH-230	2.97E-08	1.71E-09	3.22E-10	2.03E-09	6.70E+02
4	2500	TH-230	2.39E-08	1.37E-09	2.82E-10	1.66E-09	6.66E+02
4	5000	TH-230	7.87E-09	4.53E-10	1.34E-10	5.87E-10	6.34E+02
5	1625	TH-230	1.03E-07	5.90E-09	8.27E-10	6.73E-09	1.39E+03
5	1700	TH-230	9.48E-08	5.46E-09	7.88E-10	6.24E-09	1.39E+03
5	1800	TH-230	8.57E-08	4.94E-09	7.42E-10	5.68E-09	1.39E+03
5	2000	TH-230	7.11E-08	4.09E-09	6.63E-10	4.75E-09	1.38E+03
5	2200	TH-230	6.04E-08	3.48E-09	6.01E-10	4.08E-09	1.37E+03
5	2500	TH-230	4.85E-08	2.79E-09	5.26E-10	3.32E-09	1.37E+03
5	5000	TH-230	1.59E-08	9.18E-10	2.49E-10	1.17E-09	1.30E+03
6	1625	TH-230	7.70E-08	4.43E-09	9.55E-10	5.39E-09	2.15E+03
6	1700	TH-230	7.13E-08	4.10E-09	9.12E-10	5.01E-09	2.15E+03
6	1800	TH-230	6.46E-08	3.72E-09	8.60E-10	4.58E-09	2.15E+03
6	2000	TH-230	5.38E-08	3.09E-09	7.71E-10	3.87E-09	2.14E+03
6	2200	TH-230	4.58E-08	2.63E-09	6.99E-10	3.33E-09	2.14E+03
6	2500	TH-230	3.68E-08	2.12E-09	6.13E-10	2.73E-09	2.13E+03
6	5000	TH-230	1.23E-08	7.10E-10	2.97E-10	1.01E-09	2.08E+03
7	1625	TH-230	4.20E-08	2.42E-09	5.23E-10	2.94E-09	1.18E+03
7	1700	TH-230	3.89E-08	2.24E-09	4.99E-10	2.74E-09	1.18E+03
7	1800	TH-230	3.52E-08	2.03E-09	4.70E-10	2.50E-09	1.18E+03
7	2000	TH-230	2.93E-08	1.69E-09	4.22E-10	2.11E-09	1.18E+03
7	2200	TH-230	2.49E-08	1.43E-09	3.83E-10	1.82E-09	1.17E+03
7	2500	TH-230	2.00E-08	1.15E-09	3.35E-10	1.49E-09	1.17E+03
7	5000	TH-230	6.66E-09	3.83E-10	1.63E-10	5.46E-10	1.14E+03
8	1625	TH-230	4.14E-08	2.38E-09	4.37E-10	2.82E-09	1.08E+03
8	1700	TH-230	3.83E-08	2.20E-09	4.17E-10	2.62E-09	1.08E+03
8	1800	TH-230	3.46E-08	1.99E-09	3.93E-10	2.39E-09	1.08E+03
8	2000	TH-230	2.88E-08	1.66E-09	3.52E-10	2.01E-09	1.07E+03
8	2200	TH-230	2.45E-08	1.41E-09	3.19E-10	1.73E-09	1.07E+03
8	2500	TH-230	1.97E-08	1.13E-09	2.80E-10	1.41E-09	1.07E+03
8	5000	TH-230	6.55E-09	3.77E-10	1.35E-10	5.12E-10	1.04E+03
9	1625	TH-230	3.61E-08	2.08E-09	4.50E-10	2.53E-09	1.36E+03
9	1700	TH-230	3.34E-08	1.92E-09	4.30E-10	2.35E-09	1.36E+03
9	1800	TH-230	3.03E-08	1.74E-09	4.05E-10	2.15E-09	1.36E+03
9	2000	TH-230	2.52E-08	1.45E-09	3.63E-10	1.82E-09	1.36E+03
9	2200	TH-230	2.15E-08	1.24E-09	3.30E-10	1.57E-09	1.35E+03
9	2500	TH-230	1.73E-08	9.97E-10	2.89E-10	1.29E-09	1.35E+03
9	5000	TH-230	5.85E-09	3.37E-10	1.41E-10	4.78E-10	1.33E+03
10	1625	TH-230	7.56E-08	4.35E-09	7.87E-10	5.14E-09	2.00E+03
10	1700	TH-230	7.00E-08	4.03E-09	7.51E-10	4.78E-09	1.99E+03
10	1800	TH-230	6.34E-08	3.65E-09	7.07E-10	4.35E-09	1.99E+03
10	2000	TH-230	5.27E-08	3.03E-09	6.34E-10	3.66E-09	1.98E+03
10	2200	TH-230	4.48E-08	2.58E-09	5.75E-10	3.15E-09	1.98E+03
10	2500	TH-230	3.60E-08	2.07E-09	5.04E-10	2.58E-09	1.97E+03
10	5000	TH-230	1.20E-08	6.90E-10	2.43E-10	9.33E-10	1.92E+03
11	1625	TH-230	1.79E-07	1.03E-08	1.22E-09	1.15E-08	2.71E+03
11	1700	TH-230	1.66E-07	9.54E-09	1.16E-09	1.07E-08	2.70E+03
11	1800	TH-230	1.50E-07	8.63E-09	1.10E-09	9.72E-09	2.70E+03
11	2000	TH-230	1.24E-07	7.14E-09	9.78E-10	8.12E-09	2.68E+03
11	2200	TH-230	1.05E-07	6.07E-09	8.86E-10	6.96E-09	2.67E+03
11	2500	TH-230	8.46E-08	4.87E-09	7.76E-10	5.64E-09	2.66E+03
11	5000	TH-230	2.77E-08	1.59E-09	3.66E-10	1.96E-09	2.55E+03
12	1625	TH-230	2.32E-07	1.34E-08	1.50E-09	1.49E-08	3.22E+03
12	1700	TH-230	2.14E-07	1.23E-08	1.43E-09	1.38E-08	3.21E+03
12	1800	TH-230	1.94E-07	1.12E-08	1.35E-09	1.25E-08	3.20E+03
12	2000	TH-230	1.61E-07	9.24E-09	1.20E-09	1.04E-08	3.18E+03
12	2200	TH-230	1.36E-07	7.85E-09	1.09E-09	8.95E-09	3.17E+03

12	2500	TH-230	1.10E-07	6.30E-09	9.55E-10	7.28E-09	3.16E+03
12	5000	TH-230	3.60E-08	2.07E-09	4.49E-10	2.52E-09	3.02E+03
13	1625	TH-230	2.09E-07	1.20E-08	1.68E-09	1.37E-08	3.78E+03
13	1700	TH-230	1.93E-07	1.11E-08	1.60E-09	1.27E-08	3.77E+03
13	1800	TH-230	1.75E-07	1.01E-08	1.51E-09	1.16E-08	3.76E+03
13	2000	TH-230	1.45E-07	8.35E-09	1.35E-09	9.70E-09	3.75E+03
13	2200	TH-230	1.23E-07	7.10E-09	1.22E-09	8.32E-09	3.74E+03
13	2500	TH-230	9.91E-08	5.70E-09	1.07E-09	6.77E-09	3.72E+03
13	5000	TH-230	3.29E-08	1.90E-09	5.10E-10	2.41E-09	3.59E+03
14	1625	TH-230	2.18E-07	1.26E-08	1.82E-09	1.44E-08	3.55E+03
14	1700	TH-230	2.02E-07	1.16E-08	1.74E-09	1.34E-08	3.54E+03
14	1800	TH-230	1.83E-07	1.05E-08	1.63E-09	1.22E-08	3.54E+03
14	2000	TH-230	1.52E-07	8.74E-09	1.46E-09	1.02E-08	3.52E+03
14	2200	TH-230	1.29E-07	7.43E-09	1.32E-09	8.76E-09	3.51E+03
14	2500	TH-230	1.04E-07	5.97E-09	1.16E-09	7.13E-09	3.49E+03
14	5000	TH-230	3.46E-08	1.99E-09	5.52E-10	2.56E-09	3.35E+03
15	1625	TH-230	1.78E-07	1.02E-08	1.89E-09	1.21E-08	4.27E+03
15	1700	TH-230	1.64E-07	9.46E-09	1.80E-09	1.13E-08	4.27E+03
15	1800	TH-230	1.49E-07	8.58E-09	1.70E-09	1.03E-08	4.26E+03
15	2000	TH-230	1.24E-07	7.15E-09	1.52E-09	8.67E-09	4.24E+03
15	2200	TH-230	1.06E-07	6.09E-09	1.38E-09	7.47E-09	4.23E+03
15	2500	TH-230	8.51E-08	4.90E-09	1.21E-09	6.11E-09	4.22E+03
15	5000	TH-230	2.88E-08	1.66E-09	5.84E-10	2.24E-09	4.10E+03
16	1625	TH-230	1.24E-07	7.15E-09	1.40E-09	8.56E-09	4.23E+03
16	1700	TH-230	1.15E-07	6.63E-09	1.34E-09	7.97E-09	4.23E+03
16	1800	TH-230	1.04E-07	6.01E-09	1.26E-09	7.27E-09	4.22E+03
16	2000	TH-230	8.71E-08	5.01E-09	1.13E-09	6.14E-09	4.21E+03
16	2200	TH-230	7.42E-08	4.27E-09	1.03E-09	5.30E-09	4.21E+03
16	2500	TH-230	5.97E-08	3.44E-09	9.02E-10	4.34E-09	4.20E+03
16	5000	TH-230	2.03E-08	1.17E-09	4.38E-10	1.61E-09	4.11E+03

1 GROUND-LEVEL CHI/Q VALUES FOR TH-230 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.2464E-07
0 ENVIRONMENTAL DECAY CONSTANT–SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT–WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.5000E-05
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.6300E-02
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.3500E-03
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-03
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-03
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.262E+03	0.548E+00	0.176E+00	0.174E-03	0.441E-03
R MAR	0.259E+03	0.107E+01	0.116E+00	0.115E-03	0.291E-03
ENDOST	0.322E+04	0.133E+02	0.274E+00	0.271E-03	0.686E-03
THYROID	0.636E+00	0.252E-02	0.236E+00	0.233E-03	0.591E-03
BREAST	0.636E+00	0.252E-02	0.384E+00	0.380E-03	0.962E-03
PUL	0.111E+04	0.252E-02	0.162E+00	0.160E-03	0.404E-03
S WALL	0.646E+00	0.661E-02	0.138E+00	0.137E-03	0.346E-03
INT WALL	0.700E+00	0.999E-01	0.132E+00	0.131E-03	0.331E-03
LIVER	0.547E+01	0.218E-01	0.144E+00	0.143E-03	0.362E-03
PANCREAS	0.647E+00	0.258E-02	0.105E+00	0.104E-03	0.264E-03
KIDNEYS	0.647E+00	0.258E-02	0.152E+00	0.150E-03	0.380E-03

1 CONCENTRATIONS AND INTAKE RATES FOR TH-230

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1625	0.656E-13	0.143E-08	0.751E+03	0.527E+03
1	1700	0.608E-13	0.133E-08	0.699E+03	0.488E+03
1	1800	0.552E-13	0.122E-08	0.638E+03	0.443E+03
1	2000	0.461E-13	0.103E-08	0.540E+03	0.370E+03
1	2200	0.393E-13	0.886E-09	0.466E+03	0.315E+03
1	2500	0.316E-13	0.727E-09	0.382E+03	0.254E+03
1	5000	0.108E-13	0.270E-09	0.142E+03	0.868E+02
2	1625	0.431E-13	0.939E-09	0.493E+03	0.346E+03
2	1700	0.399E-13	0.874E-09	0.459E+03	0.320E+03
2	1800	0.362E-13	0.798E-09	0.419E+03	0.291E+03
2	2000	0.302E-13	0.675E-09	0.354E+03	0.242E+03
2	2200	0.257E-13	0.582E-09	0.306E+03	0.206E+03
2	2500	0.207E-13	0.477E-09	0.250E+03	0.166E+03
2	5000	0.703E-14	0.176E-09	0.925E+02	0.564E+02
3	1625	0.331E-13	0.706E-09	0.371E+03	0.266E+03
3	1700	0.306E-13	0.656E-09	0.344E+03	0.246E+03
3	1800	0.277E-13	0.597E-09	0.314E+03	0.223E+03
3	2000	0.230E-13	0.502E-09	0.264E+03	0.185E+03
3	2200	0.196E-13	0.432E-09	0.227E+03	0.157E+03
3	2500	0.157E-13	0.353E-09	0.185E+03	0.126E+03
3	5000	0.522E-14	0.127E-09	0.665E+02	0.419E+02
4	1625	0.504E-13	0.105E-08	0.554E+03	0.405E+03
4	1700	0.466E-13	0.979E-09	0.515E+03	0.374E+03

4	1800	0.422E-13	0.891E-09	0.468E+03	0.339E+03
4	2000	0.350E-13	0.747E-09	0.393E+03	0.281E+03
4	2200	0.297E-13	0.641E-09	0.337E+03	0.239E+03
4	2500	0.239E-13	0.522E-09	0.274E+03	0.192E+03
4	5000	0.787E-14	0.185E-09	0.972E+02	0.632E+02
5	1625	0.103E-12	0.212E-08	0.112E+04	0.823E+03
5	1700	0.948E-13	0.197E-08	0.103E+04	0.761E+03
5	1800	0.857E-13	0.179E-08	0.941E+03	0.689E+03
5	2000	0.711E-13	0.150E-08	0.788E+03	0.571E+03
5	2200	0.604E-13	0.129E-08	0.676E+03	0.485E+03
5	2500	0.485E-13	0.105E-08	0.550E+03	0.389E+03
5	5000	0.159E-13	0.368E-09	0.193E+03	0.128E+03
6	1625	0.770E-13	0.170E-08	0.893E+03	0.618E+03
6	1700	0.713E-13	0.158E-08	0.831E+03	0.572E+03
6	1800	0.646E-13	0.144E-08	0.759E+03	0.519E+03
6	2000	0.538E-13	0.122E-08	0.641E+03	0.432E+03
6	2200	0.458E-13	0.105E-08	0.552E+03	0.367E+03
6	2500	0.368E-13	0.862E-09	0.453E+03	0.296E+03
6	5000	0.123E-13	0.318E-09	0.167E+03	0.990E+02
7	1625	0.420E-13	0.928E-09	0.488E+03	0.337E+03
7	1700	0.389E-13	0.864E-09	0.454E+03	0.312E+03
7	1800	0.352E-13	0.788E-09	0.414E+03	0.283E+03
7	2000	0.293E-13	0.665E-09	0.349E+03	0.235E+03
7	2200	0.249E-13	0.573E-09	0.301E+03	0.200E+03
7	2500	0.200E-13	0.470E-09	0.247E+03	0.161E+03
7	5000	0.666E-14	0.172E-09	0.905E+02	0.535E+02
8	1625	0.414E-13	0.889E-09	0.467E+03	0.332E+03
8	1700	0.383E-13	0.826E-09	0.434E+03	0.307E+03
8	1800	0.346E-13	0.753E-09	0.396E+03	0.278E+03
8	2000	0.288E-13	0.634E-09	0.333E+03	0.231E+03
8	2200	0.245E-13	0.546E-09	0.287E+03	0.197E+03
8	2500	0.197E-13	0.446E-09	0.234E+03	0.158E+03
8	5000	0.655E-14	0.162E-09	0.849E+02	0.526E+02
9	1625	0.361E-13	0.797E-09	0.419E+03	0.290E+03
9	1700	0.334E-13	0.742E-09	0.390E+03	0.268E+03
9	1800	0.303E-13	0.678E-09	0.356E+03	0.243E+03
9	2000	0.252E-13	0.573E-09	0.301E+03	0.203E+03
9	2200	0.215E-13	0.495E-09	0.260E+03	0.173E+03
9	2500	0.173E-13	0.406E-09	0.213E+03	0.139E+03
9	5000	0.585E-14	0.151E-09	0.792E+02	0.470E+02
10	1625	0.756E-13	0.162E-08	0.852E+03	0.607E+03
10	1700	0.700E-13	0.151E-08	0.792E+03	0.562E+03
10	1800	0.634E-13	0.137E-08	0.722E+03	0.509E+03
10	2000	0.527E-13	0.116E-08	0.607E+03	0.423E+03
10	2200	0.448E-13	0.995E-09	0.523E+03	0.360E+03
10	2500	0.360E-13	0.813E-09	0.427E+03	0.289E+03
10	5000	0.120E-13	0.294E-09	0.155E+03	0.962E+02
11	1625	0.179E-12	0.364E-08	0.191E+04	0.144E+04
11	1700	0.166E-12	0.338E-08	0.177E+04	0.133E+04
11	1800	0.150E-12	0.307E-08	0.161E+04	0.120E+04
11	2000	0.124E-12	0.256E-08	0.135E+04	0.997E+03
11	2200	0.105E-12	0.219E-08	0.115E+04	0.847E+03
11	2500	0.846E-13	0.178E-08	0.936E+03	0.679E+03
11	5000	0.277E-13	0.618E-09	0.325E+03	0.222E+03
12	1625	0.232E-12	0.469E-08	0.246E+04	0.186E+04
12	1700	0.214E-12	0.435E-08	0.228E+04	0.172E+04
12	1800	0.194E-12	0.395E-08	0.207E+04	0.156E+04
12	2000	0.161E-12	0.330E-08	0.173E+04	0.129E+04
12	2200	0.136E-12	0.282E-08	0.148E+04	0.110E+04
12	2500	0.110E-12	0.229E-08	0.120E+04	0.879E+03
12	5000	0.360E-13	0.795E-09	0.418E+03	0.289E+03
13	1625	0.209E-12	0.432E-08	0.227E+04	0.168E+04
13	1700	0.193E-12	0.401E-08	0.211E+04	0.155E+04
13	1800	0.175E-12	0.365E-08	0.192E+04	0.140E+04
13	2000	0.145E-12	0.306E-08	0.161E+04	0.116E+04

13	2200	0.123E-12	0.263E-08	0.138E+04	0.990E+03
13	2500	0.991E-13	0.214E-08	0.112E+04	0.796E+03
13	5000	0.329E-13	0.759E-09	0.399E+03	0.285E+03
14	1625	0.218E-12	0.454E-08	0.238E+04	0.175E+04
14	1700	0.202E-12	0.421E-08	0.221E+04	0.162E+04
14	1800	0.183E-12	0.384E-08	0.201E+04	0.147E+04
14	2000	0.152E-12	0.322E-08	0.169E+04	0.122E+04
14	2200	0.129E-12	0.276E-08	0.145E+04	0.104E+04
14	2500	0.104E-12	0.225E-08	0.118E+04	0.833E+03
14	5000	0.346E-13	0.803E-09	0.422E+03	0.278E+03
15	1625	0.178E-12	0.382E-08	0.201E+04	0.143E+04
15	1700	0.164E-12	0.355E-08	0.187E+04	0.132E+04
15	1800	0.149E-12	0.324E-08	0.170E+04	0.120E+04
15	2000	0.124E-12	0.274E-08	0.144E+04	0.997E+03
15	2200	0.106E-12	0.236E-08	0.124E+04	0.849E+03
15	2500	0.851E-13	0.193E-08	0.101E+04	0.684E+03
15	5000	0.288E-13	0.707E-09	0.372E+03	0.231E+03
16	1625	0.124E-12	0.270E-08	0.142E+04	0.998E+03
16	1700	0.115E-12	0.251E-08	0.132E+04	0.924E+03
16	1800	0.104E-12	0.229E-08	0.121E+04	0.838E+03
16	2000	0.871E-13	0.194E-08	0.102E+04	0.699E+03
16	2200	0.742E-13	0.167E-08	0.878E+03	0.595E+03
16	2500	0.597E-13	0.137E-08	0.719E+03	0.480E+03
16	5000	0.203E-13	0.507E-09	0.266E+03	0.163E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3581E-09	0.00	100.00
	SURFACE	0.7148E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4880E+00	99.72	100.00
	INGEST.	0.1349E-02	0.28	100.00
	VEGET.	0.1348E-02	* 0.28	* 99.93
	MEAT	0.1913E-06	* 0.00	* 0.01
	MILK	0.7875E-06	* 0.00	* 0.06

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.2362E-09	0.00	100.00
	SURFACE	0.4716E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4824E+00	99.46	100.00
	INGEST.	0.2635E-02	0.54	100.00
	VEGET.	0.2633E-02	* 0.54	* 99.93
	MEAT	0.3734E-06	* 0.00	* 0.01
	MILK	0.1538E-05	* 0.00	* 0.06

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.5571E-09	0.00	100.00
	SURFACE	0.1112E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.5997E+01	99.46	100.00
	INGEST.	0.3275E-01	0.54	100.00
	VEGET.	0.3273E-01	* 0.54	* 99.93
	MEAT	0.4642E-05	* 0.00	* 0.01
	MILK	0.1911E-04	* 0.00	* 0.06

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.4800E-09	0.00	100.00
	SURFACE	0.9581E-06	0.08	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1185E-02	99.40	100.00

	INGEST.	0.6205E-05	0.52	100.00
	VEGET.	0.6201E-05	* 0.52	* 99.93
	MEAT	0.8795E-09	* 0.00	* 0.01
	MILK	0.3621E-08	* 0.00	* 0.06

1 PERCENT OF BREAST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.7809E-09	0.00	100.00
	SURFACE	0.1559E-05	0.13	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1185E-02	99.35	100.00
	INGEST.	0.6205E-05	0.52	100.00
	VEGET.	0.6201E-05	* 0.52	* 99.93
	MEAT	0.8795E-09	* 0.00	* 0.01
	MILK	0.3621E-08	* 0.00	* 0.06

1 PERCENT OF *PUL* DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.3283E-09	0.00	100.00
	SURFACE	0.6553E-06	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2067E+01	100.00	100.00
	INGEST.	0.6208E-05	0.00	100.00
	VEGET.	0.6203E-05	* 0.00	* 99.93
	MEAT	0.8798E-09	* 0.00	* 0.01
	MILK	0.3623E-08	* 0.00	* 0.06

1 PERCENT OF S WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2810E-09	0.00	100.00
	SURFACE	0.5609E-06	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1203E-02	98.62	100.00
	INGEST.	0.1629E-04	1.34	100.00
	VEGET.	0.1627E-04	* 1.33	* 99.93
	MEAT	0.2308E-08	* 0.00	* 0.01
	MILK	0.9505E-08	* 0.00	* 0.06

1 PERCENT OF INT WALL DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2686E-09	0.00	100.00
	SURFACE	0.5361E-06	0.03	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1304E-02	84.10	100.00
	INGEST.	0.2461E-03	15.87	100.00
	VEGET.	0.2459E-03	* 15.86	* 99.93
	MEAT	0.3488E-07	* 0.00	* 0.01
	MILK	0.1436E-06	* 0.01	* 0.06

1 PERCENT OF LIVER DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2934E-09	0.00	100.00
	SURFACE	0.5858E-06	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1018E-01	99.47	100.00
	INGEST.	0.5375E-04	0.53	100.00
	VEGET.	0.5371E-04	* 0.52	* 99.93
	MEAT	0.7619E-08	* 0.00	* 0.01
	MILK	0.3137E-07	* 0.00	* 0.06

1 PERCENT OF PANCREAS DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0 TH-230	SUBM AIR	0.2139E-09	0.00	100.00
	SURFACE	0.4269E-06	0.04	100.00
	SWIMMING	0.0000E+00	0.00	0.00

	INHAL.	0.1204E-02	99.44	100.00
	INGEST.	0.6355E-05	0.52	100.00
	VEGET.	0.6351E-05	* 0.52	* 99.93
	MEAT	0.9008E-09	* 0.00	* 0.01
	MILK	0.3709E-08	* 0.00	* 0.06

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
TH-230	SUBM AIR	0.3084E-09	0.00	100.00
	SURFACE	0.6155E-06	0.05	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1204E-02	99.42	100.00
	INGEST.	0.6355E-05	0.52	100.00
	VEGET.	0.6351E-05	* 0.52	* 99.93
	MEAT	0.9008E-09	* 0.00	* 0.01
	MILK	0.3709E-08	* 0.00	* 0.06

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.3581E-09	0.0000
SURFACE	0.7148E-06	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL.	0.4880E+00	99.7241
INGEST.	0.1349E-02	0.2758
VEGET.	*0.1348E-02	* 0.2756
MEAT	*0.1913E-06	* 0.0000
MILK	*0.7875E-06	* 0.0002

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.2362E-09	0.0000
SURFACE	0.4716E-06	0.0001
SWIMMING	0.1000E-24	0.0000
INHAL.	0.4824E+00	99.4567
INGEST.	0.2635E-02	0.5432
VEGET.	*0.2633E-02	* 0.5428
MEAT	*0.3734E-06	* 0.0001
MILK	*0.1538E-05	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.5571E-09	0.0000
SURFACE	0.1112E-05	0.0000
SWIMMING	0.1000E-24	0.0000
INHAL.	0.5997E+01	99.4569
INGEST.	0.3275E-01	0.5431
VEGET.	*0.3273E-01	* 0.5427
MEAT	*0.4642E-05	* 0.0001
MILK	*0.1911E-04	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.4800E-09	0.0000
SURFACE	0.9581E-06	0.0804
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1185E-02	99.3989
INGEST.	0.6205E-05	0.5207
VEGET.	*0.6201E-05	* 0.5203
MEAT	*0.8795E-09	* 0.0001
MILK	*0.3621E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7809E-09	0.0001
SURFACE	0.1559E-05	0.1307
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1185E-02	99.3488
INGEST.	0.6205E-05	0.5204
VEGET.	*0.6201E-05	* 0.5201
MEAT	*0.8795E-09	* 0.0001

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0      MILK                    *0.3621E-08                    *  0.0003
0                    CONTRIBUTION OF EXPOSURE MODES TO *PUL*  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.3283E-09                      0.0000
0    SURFACE                    0.6663E-06                      0.0000
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.2067E+01                     99.9997
0    INGEST.                    0.6208E-05                      0.0003
0     VEGET.                   *0.6203E-05                   *  0.0003
0     MEAT                     *0.8798E-09                   *  0.0000
0     MILK                     *0.3623E-08                   *  0.0000
0                    CONTRIBUTION OF EXPOSURE MODES TO S WALL  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.2810E-09                      0.0000
0    SURFACE                    0.5609E-06                      0.0460
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.1203E-02                     98.6185
0    INGEST.                    0.1629E-04                      1.3355
0     VEGET.                   *0.1627E-04                   *  1.3345
0     MEAT                     *0.2308E-08                   *  0.0002
0     MILK                     *0.9505E-08                   *  0.0008
0                    CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.2686E-09                      0.0000
0    SURFACE                    0.5361E-06                      0.0346
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.1304E-02                     84.0983
0    INGEST.                    0.2461E-03                     15.8671
0     VEGET.                   *0.2459E-03                   *  15.8556
0     MEAT                     *0.3488E-07                   *  0.0022
0     MILK                     *0.1436E-06                   *  0.0093
0                    CONTRIBUTION OF EXPOSURE MODES TO LIVER  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.2934E-09                      0.0000
0    SURFACE                    0.5858E-06                      0.0057
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.1018E-01                     99.4693
0    INGEST.                    0.5375E-04                      0.5250
0     VEGET.                   *0.5371E-04                   *  0.5246
0     MEAT                     *0.7619E-08                   *  0.0001
0     MILK                     *0.3137E-07                   *  0.0003
0                    CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.2139E-09                      0.0000
0    SURFACE                    0.4269E-06                      0.0352
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.1204E-02                     99.4400
0    INGEST.                    0.6355E-05                      0.5247
0     VEGET.                   *0.6351E-05                   *  0.5243
0     MEAT                     *0.9008E-09                   *  0.0001
0     MILK                     *0.3709E-08                   *  0.0003
0                    CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)              PERCENT OF TOTAL DOSE
0    SUBM AIR                   0.3084E-09                      0.0000
0    SURFACE                    0.6155E-06                      0.0508
0    SWIMMING                    0.1000E-24                      0.0000
0    INHAL.                    0.1204E-02                     99.4245
0    INGEST.                    0.6355E-05                      0.5247
0     VEGET.                   *0.6351E-05                   *  0.5243
0     MEAT                     *0.9008E-09                   *  0.0001
0     MILK                     *0.3709E-08                   *  0.0003
1                    TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                 ORGAN                    DOSE(REMS)
0                 W BODY                   0.4893E+00
0                 R MAR                    0.4850E+00
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0                    ENDOST                    0.6030E+01
0                    THYROID                   0.1192E-02
0                    BREAST                    0.1192E-02
0                    *PUL*                     0.2067E+01
0                    S WALL                    0.1219E-02
0                    INT WALL                  0.1551E-02
0                    LIVER                     0.1024E-01
0                    PANCREAS                  0.1211E-02
0                    KIDNEYS                   0.1211E-02
1                         CONTRIBUTORS TO ORGAN DOSES
0                                   PERCENT
0NUCLIDE   W BODY   R MAR   ENDOST   THYROID   BREAST   *PUL*   S WALL   INT WALL   LIVER   PANCREAS
 KIDNEYS

 TH-230   100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000  100.0000
1                         ANNUAL DOSES(REMS)
0          NUCLIDE      ORGAN      DOSE                    MAXIMUM LOCATION
0                                                    COLUMN   ROW
0          TH-230       W BODY     0.4893E+00                12      10
0          TH-230       R MAR      0.4850E+00                12      10
0          TH-230       ENDOST     0.6030E+01                12      10
0          TH-230       THYROID    0.1192E-02                12      10
0          TH-230       BREAST     0.1192E-02                12      10
0          TH-230       *PUL*      0.2067E+01                12      10
0          TH-230       S WALL     0.1219E-02                12      10
0          TH-230       INT WALL   0.1551E-02                12      10
0          TH-230       LIVER      0.1024E-01                12      10
0          TH-230       PANCREAS   0.1211E-02                12      10
0          TH-230       KIDNEYS    0.1211E-02                12      10
```

All Buildings

Uranium-233

```
OPTION
 &OPTI OPTION=0,1,0,0,0,,0,0,0,
  LIPO=0,NSTB=1,NTTB=1,NUTB=1,TSUBB=1.0,GSFAC=0.5 &END
GRID
 &GRID NRL=10,NRU=16,IDIST=50,200,500,750,1000,1200,1300,
  1400,1500,1625,1700,1800,2000,2200,2500,5000 &END
PLUME RISE
 &PLUM PR=0.0 &END
METEOROLOGICAL DATA
 &METE LID=1000,BR=102,TA=285.0 &END
PHYSICAL STACK DATA
1
 &PHYS PH=0.0 &END
WIND FREQUENCY DATA
STAR
DEFAULT
RADIONUCLIDE DATA
3


 &RADI NUC='U-233',ISOL=Y,AMAD=1.0,REL=4.12 &END
AG DATA
 &AGDT FV=50.0,0,50.0,FB=50.0,0,50.0,FM=50,0,50 &END
AG ARRAYS
FILE 23FARMA.DAT
SKIP  5
USER
(16I5)
(8F10.0)
POPULATION ARRAY
FILE 24POPA.DAT
SKIP  3
USER
(8(I9,1X))
COMMENTS
ACCIDENT SCENARIO FOR ALL BLDG. WITH 10% RELEASE
DOSE CALCULATED AT 1625 METERS.
U.S. DOE FEED MATERIALS PRODUCTION CENTER
*
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11 OUTPUT OF AIRDOS-EPA COMPUTER CODE

0

OPTIONS SELECTED–

RADIONUCLIDE CONCENTRATIONS ARE LISTED FOR DIRECTION AND DISTANCE FROM FACILITY

0 RADIONUCLIDE CONCENTRATIONS LISTED ARE SECTOR-AVERAGED VALUES

PLUME RISE IS COMPUTED FOR BUOYANT PLUMES BY BRIGGS EQUATIONS

0

1 METEOROLOGICAL AND PLANT INFORMATION SUPPLIED TO PROGRAM—

0

0

0 AVERAGE AIR TEMPERATURE (DEG K) 285.0

0 AVERAGE VERTICAL TEMPERATURE GRADIENT OF THE AIR (DEG K/METER)

0 IN STABILITY CLASS E 0.0728

0 IN STABILITY CLASS F 0.1090

0 IN STABILITY CLASS G 0.1455

0 RAINFALL RATE (CM/YEAR) 102.00

0 HEIGHT OF LID (METERS) 1000

0 NUMBER OF STACKS IN THE PLANT 1

0

0

0 STACK INFORMATION–

0

0 STACK NUMBER

0 1 2 3 4 5 6

0 HEIGHT (METERS) 0.0000

0 DIAMETER (METERS) 0.0000

0 EFFLUENT VELOCITY (METERS/SEC) 0.0000

0 RATE OF HEAT EMISSION (CAL/SECOND) 0.00E+00

1 RELEASE RATES FOR RADIONUCLIDES

0

STACK	NUCLIDE	RELEASE RATE (CURIES/YEAR)
1	U-233	0.412E+01

0

1 PLUME DEPLETION AND DEPOSITION PARAMETERS

0

NUCLIDE	GRAVITATIONAL FALL VELOCITY (METERS/SEC)	DEPOSITION VELOCITY (METERS/SEC)	SCAVENGING COEFFICIENT (1/SEC)	EFFECTIVE DECAY CONSTANT IN PLUME (PER DAY)
U-233	0.000	0.00058	0.341E-05	0.000E+00

1 FREQUENCY OF ATMOSPHERIC STABILITY CLASSES FOR EACH DIRECTION

0

0 SECTOR FRACTION OF TIME IN EACH STABILITY CLASS

0

0

SECTOR	A	B	C	D	E	F	G
1	0.0084	0.0055	0.0224	0.3792	0.4551	0.0928	0.0366
2	0.0171	0.0000	0.0342	0.3576	0.4263	0.1136	0.0512
3	0.0101	0.0209	0.0310	0.3919	0.3192	0.0929	0.1340
4	0.0404	0.0245	0.0080	0.3575	0.2441	0.1383	0.1872
5	0.0318	0.0279	0.0240	0.2989	0.3028	0.1076	0.2071
6	0.0705	0.0108	0.0514	0.4737	0.2692	0.0650	0.0595
7	0.0398	0.0149	0.0498	0.5888	0.2077	0.0298	0.0692
8	0.0163	0.0000	0.0431	0.5458	0.2595	0.0488	0.0866
9	0.0392	0.0173	0.0347	0.5479	0.2693	0.0523	0.0392
10	0.0321	0.0438	0.0641	0.4973	0.1871	0.0937	0.0819
11	0.0188	0.0375	0.0625	0.3270	0.2292	0.1104	0.2146
12	0.0157	0.0156	0.0190	0.2887	0.2958	0.1391	0.2261
13	0.0439	0.0257	0.0363	0.2900	0.3187	0.1465	0.1390
14	0.0413	0.0208	0.0445	0.2368	0.3291	0.1892	0.1383
15	0.0311	0.0191	0.0502	0.2805	0.4527	0.0988	0.0677
16	0.0446	0.0265	0.0418	0.3585	0.4045	0.0823	0.0419

1 FREQUENCIES OF WIND DIRECTIONS AND RECIPROCAL-AVERAGED WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	1.31	2.00	1.88	1.49	0.81	0.77
2	0.029	1.46	0.00	1.19	1.27	1.06	0.77	0.77
3	0.016	0.77	0.77	0.77	0.99	0.83	0.77	0.77
4	0.020	0.89	1.00	2.57	0.84	0.77	0.77	0.77
5	0.041	1.05	1.32	0.77	1.07	0.83	0.77	0.77
6	0.060	1.14	2.57	1.16	1.52	1.01	0.77	0.77
7	0.033	1.62	1.00	1.86	1.32	1.01	0.77	0.77
8	0.030	0.77	0.00	2.17	1.58	1.20	0.77	0.77
9	0.038	1.92	2.86	1.67	2.18	1.17	0.94	0.77
10	0.056	1.35	1.99	1.49	1.80	1.07	0.81	0.77
11	0.078	2.57	2.43	1.88	1.63	1.13	0.77	0.77
12	0.094	1.45	2.25	1.46	1.90	1.16	0.77	0.77
13	0.108	1.86	2.03	2.43	1.62	1.21	0.78	0.77
14	0.103	1.59	1.98	1.60	1.30	1.03	0.79	0.77
15	0.120	1.82	2.01	2.33	1.44	1.14	0.82	0.77
16	0.117	2.83	2.49	2.96	1.92	1.58	0.80	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 FREQUENCIES OF WIND DIRECTIONS AND TRUE-AVERAGE WIND SPEEDS

0

0 WIND TOWARD FREQUENCY WIND SPEEDS FOR EACH STABILITY CLASS (METERS/SEC)

0 A B C D E F G

0

1	0.058	2.57	2.57	2.35	2.83	2.19	0.88	0.77
2	0.029	1.98	0.00	1.67	1.86	1.52	0.77	0.77
3	0.016	0.77	0.77	0.77	1.34	0.95	0.77	0.77
4	0.020	1.13	1.36	2.57	0.98	0.77	0.77	0.77
5	0.041	1.45	2.05	0.77	1.49	0.96	0.77	0.77
6	0.060	1.60	2.57	1.72	2.22	1.38	0.77	0.77
7	0.033	2.12	1.36	2.57	2.01	1.41	0.77	0.77
8	0.030	0.77	0.00	2.81	2.23	1.75	0.77	0.77
9	0.038	2.96	3.02	2.34	2.71	1.67	1.22	0.77
10	0.056	2.41	3.10	2.52	2.52	1.59	0.88	0.77
11	0.078	2.57	2.78	2.63	2.46	1.65	0.77	0.77
12	0.094	1.97	3.05	2.47	2.73	1.77	0.77	0.77
13	0.108	2.63	2.89	3.57	2.76	2.03	0.79	0.77
14	0.103	2.53	2.57	2.32	2.39	1.56	0.82	0.77
15	0.120	2.57	2.57	3.10	2.22	1.72	0.92	0.77
16	0.117	2.97	2.86	3.19	2.80	2.27	0.86	0.77

0 WIND DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 ESTIMATED RADIONUCLIDE CONCENTRATIONS

0 AREA	NUCLIDE	AIR CONCEN	DRY DEP RATE	WET DEP RATE	GND DEP RATE	EFF REL RATE
		(PCI/CM**3)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/CM**2/S)	(PCI/S)

WIND TOWARD	DISTANCE (METERS)					
0						
1	1625	U-233	2.25E-07	1.30E-08	2.57E-09	1.55E-08	7.18E+03
1	1700	U-233	2.09E-07	1.20E-08	2.46E-09	1.45E-08	7.17E+03
1	1800	U-233	1.89E-07	1.09E-08	2.32E-09	1.32E-08	7.16E+03
1	2000	U-233	1.58E-07	9.10E-09	2.08E-09	1.12E-08	7.14E+03
1	2200	U-233	1.35E-07	7.76E-09	1.88E-09	9.64E-09	7.13E+03
1	2500	U-233	1.09E-07	6.25E-09	1.65E-09	7.91E-09	7.11E+03
1	5000	U-233	3.71E-08	2.14E-09	8.02E-10	2.94E-09	6.95E+03
2	1625	U-233	1.48E-07	8.51E-09	1.71E-09	1.02E-08	3.49E+03
2	1700	U-233	1.37E-07	7.88E-09	1.63E-09	9.51E-09	3.48E+03
2	1800	U-233	1.24E-07	7.15E-09	1.54E-09	8.69E-09	3.48E+03
2	2000	U-233	1.04E-07	5.97E-09	1.38E-09	7.34E-09	3.46E+03
2	2200	U-233	8.83E-08	5.08E-09	1.25E-09	6.33E-09	3.46E+03
2	2500	U-233	7.11E-08	4.09E-09	1.09E-09	5.19E-09	3.44E+03
2	5000	U-233	2.41E-08	1.39E-09	5.28E-10	1.92E-09	3.34E+03
3	1625	U-233	1.14E-07	6.54E-09	1.14E-09	7.68E-09	1.87E+03
3	1700	U-233	1.05E-07	6.05E-09	1.09E-09	7.14E-09	1.87E+03
3	1800	U-233	9.52E-08	5.48E-09	1.02E-09	6.50E-09	1.87E+03

3	2000	U-233	7.91E-08	4.55E-09	9.15E-10	5.47E-09	1.86E+03
3	2200	U-233	6.72E-08	3.87E-09	8.29E-10	4.70E-09	1.85E+03
3	2500	U-233	5.40E-08	3.11E-09	7.26E-10	3.84E-09	1.84E+03
3	5000	U-233	1.79E-08	1.03E-09	3.47E-10	1.38E-09	1.77E+03
4	1625	U-233	1.73E-07	9.96E-09	1.52E-09	1.15E-08	2.33E+03
4	1700	U-233	1.60E-07	9.21E-09	1.45E-09	1.07E-08	2.33E+03
4	1800	U-233	1.45E-07	8.33E-09	1.36E-09	9.70E-09	2.32E+03
4	2000	U-233	1.20E-07	6.91E-09	1.22E-09	8.13E-09	2.31E+03
4	2200	U-233	1.02E-07	5.87E-09	1.11E-09	6.98E-09	2.30E+03
4	2500	U-233	8.19E-08	4.72E-09	9.67E-10	5.68E-09	2.29E+03
4	5000	U-233	2.70E-08	1.55E-09	4.59E-10	2.01E-09	2.18E+03
5	1625	U-233	3.52E-07	2.03E-08	2.84E-09	2.31E-08	4.79E+03
5	1700	U-233	3.25E-07	1.87E-08	2.71E-09	2.14E-08	4.78E+03
5	1800	U-233	2.94E-07	1.69E-08	2.55E-09	1.95E-08	4.77E+03
5	2000	U-233	2.44E-07	1.40E-08	2.28E-09	1.63E-08	4.73E+03
5	2200	U-233	2.07E-07	1.19E-08	2.08E-09	1.40E-08	4.72E+03
5	2500	U-233	1.66E-07	9.58E-09	1.81E-09	1.14E-08	4.70E+03
5	5000	U-233	5.47E-08	3.15E-09	8.56E-10	4.01E-09	4.47E+03
6	1625	U-233	2.64E-07	1.52E-08	3.28E-09	1.85E-08	7.40E+03
6	1700	U-233	2.45E-07	1.41E-08	3.13E-09	1.72E-08	7.39E+03
6	1800	U-233	2.22E-07	1.28E-08	2.95E-09	1.57E-08	7.38E+03
6	2000	U-233	1.85E-07	1.06E-08	2.65E-09	1.33E-08	7.35E+03
6	2200	U-233	1.57E-07	9.04E-09	2.40E-09	1.14E-08	7.34E+03
6	2500	U-233	1.26E-07	7.27E-09	2.10E-09	9.38E-09	7.32E+03
6	5000	U-233	4.23E-08	2.44E-09	1.02E-09	3.46E-09	7.13E+03
7	1625	U-233	1.44E-07	8.30E-09	1.79E-09	1.01E-08	4.06E+03
7	1700	U-233	1.33E-07	7.68E-09	1.71E-09	9.40E-09	4.05E+03
7	1800	U-233	1.21E-07	6.96E-09	1.62E-09	8.57E-09	4.05E+03
7	2000	U-233	1.01E-07	5.79E-09	1.45E-09	7.24E-09	4.04E+03
7	2200	U-233	8.56E-08	4.92E-09	1.31E-09	6.24E-09	4.03E+03
7	2500	U-233	6.88E-08	3.96E-09	1.15E-09	5.11E-09	4.02E+03
7	5000	U-233	2.29E-08	1.32E-09	5.58E-10	1.87E-09	3.91E+03
8	1625	U-233	1.42E-07	8.17E-09	1.50E-09	9.67E-09	3.71E+03
8	1700	U-233	1.31E-07	7.56E-09	1.43E-09	8.99E-09	3.70E+03
8	1800	U-233	1.19E-07	6.85E-09	1.35E-09	8.20E-09	3.70E+03
8	2000	U-233	9.89E-08	5.69E-09	1.21E-09	6.90E-09	3.68E+03
8	2200	U-233	8.41E-08	4.84E-09	1.10E-09	5.94E-09	3.68E+03
8	2500	U-233	6.76E-08	3.89E-09	9.61E-10	4.85E-09	3.67E+03
8	5000	U-233	2.25E-08	1.29E-09	4.64E-10	1.76E-09	3.57E+03
9	1625	U-233	1.24E-07	7.13E-09	1.55E-09	8.67E-09	4.68E+03
9	1700	U-233	1.15E-07	6.60E-09	1.48E-09	8.07E-09	4.68E+03
9	1800	U-233	1.04E-07	5.98E-09	1.39E-09	7.37E-09	4.67E+03
9	2000	U-233	8.67E-08	4.99E-09	1.25E-09	6.24E-09	4.66E+03
9	2200	U-233	7.38E-08	4.25E-09	1.13E-09	5.38E-09	4.65E+03
9	2500	U-233	5.95E-08	3.42E-09	9.93E-10	4.42E-09	4.64E+03
9	5000	U-233	2.01E-08	1.16E-09	4.84E-10	1.64E-09	4.55E+03
10	1625	U-233	2.60E-07	1.49E-08	2.70E-09	1.76E-08	6.85E+03
10	1700	U-233	2.40E-07	1.38E-08	2.58E-09	1.64E-08	6.85E+03
10	1800	U-233	2.18E-07	1.25E-08	2.43E-09	1.50E-08	6.84E+03
10	2000	U-233	1.81E-07	1.04E-08	2.18E-09	1.26E-08	6.81E+03
10	2200	U-233	1.54E-07	8.85E-09	1.97E-09	1.08E-08	6.80E+03
10	2500	U-233	1.24E-07	7.11E-09	1.73E-09	8.84E-09	6.78E+03
10	5000	U-233	4.11E-08	2.37E-09	8.34E-10	3.20E-09	6.60E+03
11	1625	U-233	6.16E-07	3.55E-08	4.19E-09	3.96E-08	9.30E+03
11	1700	U-233	5.69E-07	3.28E-08	4.00E-09	3.68E-08	9.28E+03
11	1800	U-233	5.15E-07	2.96E-08	3.76E-09	3.34E-08	9.26E+03
11	2000	U-233	4.26E-07	2.45E-08	3.36E-09	2.79E-08	9.20E+03
11	2200	U-233	3.62E-07	2.08E-08	3.04E-09	2.39E-08	9.18E+03
11	2500	U-233	2.90E-07	1.67E-08	2.66E-09	1.94E-08	9.14E+03
11	5000	U-233	9.50E-08	5.47E-09	1.26E-09	6.73E-09	8.76E+03
12	1625	U-233	7.96E-07	4.58E-08	5.17E-09	5.10E-08	1.11E+04
12	1700	U-233	7.36E-07	4.24E-08	4.93E-09	4.73E-08	1.10E+04
12	1800	U-233	6.66E-07	3.83E-08	4.63E-09	4.29E-08	1.10E+04
12	2000	U-233	5.51E-07	3.17E-08	4.14E-09	3.59E-08	1.09E+04
12	2200	U-233	4.68E-07	2.70E-08	3.75E-09	3.07E-08	1.09E+04

12	2500	U-233	3.76E-07	2.16E-08	3.26E-09	2.49E-08	1.08E+04
12	5000	U-233	1.24E-07	7.11E-09	1.54E-09	8.85E-09	1.04E+04
13	1625	U-233	7.16E-07	4.12E-08	5.77E-09	4.70E-08	1.30E+04
13	1700	U-233	6.63E-07	3.81E-08	5.50E-09	4.26E-08	1.29E+04
13	1800	U-233	6.00E-07	3.45E-08	5.18E-09	3.97E-08	1.29E+04
13	2000	U-233	4.98E-07	2.87E-08	4.63E-09	3.33E-08	1.29E+04
13	2200	U-233	4.23E-07	2.44E-08	4.20E-09	2.86E-08	1.28E+04
13	2500	U-233	3.40E-07	1.96E-08	3.68E-09	2.33E-08	1.28E+04
13	5000	U-233	1.13E-07	6.51E-09	1.75E-09	8.28E-09	1.23E+04
14	1625	U-233	7.49E-07	4.31E-08	6.25E-09	4.94E-08	1.22E+04
14	1700	U-233	6.93E-07	3.99E-08	5.96E-09	4.58E-08	1.22E+04
14	1800	U-233	6.27E-07	3.61E-08	5.61E-09	4.17E-08	1.21E+04
14	2000	U-233	5.21E-07	3.00E-08	5.02E-09	3.50E-08	1.21E+04
14	2200	U-233	4.43E-07	2.55E-08	4.55E-09	3.01E-08	1.20E+04
14	2500	U-233	3.56E-07	2.05E-08	3.98E-09	2.45E-08	1.20E+04
14	5000	U-233	1.19E-07	6.84E-09	1.90E-09	8.74E-09	1.15E+04
15	1625	U-233	6.10E-07	3.51E-08	6.49E-09	4.16E-08	1.47E+04
15	1700	U-233	5.64E-07	3.25E-08	6.20E-09	3.87E-08	1.47E+04
15	1800	U-233	5.12E-07	2.95E-08	5.84E-09	3.53E-08	1.46E+04
15	2000	U-233	4.26E-07	2.45E-08	5.23E-09	2.98E-08	1.46E+04
15	2200	U-233	3.63E-07	2.09E-08	4.74E-09	2.56E-08	1.45E+04
15	2500	U-233	2.92E-07	1.68E-08	4.16E-09	2.10E-08	1.45E+04
15	5000	U-233	9.89E-08	5.69E-09	2.01E-09	7.70E-09	1.41E+04
16	1625	U-233	4.27E-07	2.46E-08	4.82E-09	2.94E-08	1.45E+04
16	1700	U-233	3.95E-07	2.27E-08	4.60E-09	2.74E-08	1.45E+04
16	1800	U-233	3.58E-07	2.06E-08	4.34E-09	2.50E-08	1.45E+04
16	2000	U-233	2.99E-07	1.72E-08	3.89E-09	2.11E-08	1.45E+04
16	2200	U-233	2.55E-07	1.47E-08	3.53E-09	1.82E-08	1.44E+04
16	2500	U-233	2.05E-07	1.18E-08	3.10E-09	1.49E-08	1.44E+04
16	5000	U-233	6.97E-08	4.01E-09	1.50E-09	5.52E-09	1.41E+04

1 GROUND-LEVEL CHI/Q VALUES FOR U-233 AT VARIOUS DISTANCES IN EACH COMPASS DIRECTION

0

DISTANCE (METERS) — CHI/Q TOWARD INDICATED DIRECTION (SEC/CUBIC METER)

0

	N	NNW	NW	WNW	W	WSW	SW	SSW
1625	0.173E-05	0.113E-05	0.870E-06	0.132E-05	0.269E-05	0.202E-05	0.110E-05	0.109E-05
1700	0.160E-05	0.105E-05	0.805E-06	0.122E-05	0.249E-05	0.187E-05	0.102E-05	0.101E-05
1800	0.145E-05	0.951E-06	0.728E-06	0.111E-05	0.225E-05	0.170E-05	0.925E-06	0.911E-06
2000	0.121E-05	0.793E-06	0.605E-06	0.919E-06	0.187E-05	0.141E-05	0.770E-06	0.757E-06
2200	0.103E-05	0.676E-06	0.515E-06	0.781E-06	0.159E-05	0.120E-05	0.655E-06	0.644E-06
2500	0.832E-06	0.544E-06	0.414E-06	0.627E-06	0.127E-05	0.967E-06	0.527E-06	0.518E-06
5000	0.284E-06	0.185E-06	0.137E-06	0.207E-06	0.419E-06	0.324E-06	0.175E-06	0.172E-06

0

0

0

	S	SSE	SE	ESE	E	ENE	NE	NNE
1625	0.948E-06	0.199E-05	0.471E-05	0.610E-05	0.548E-05	0.573E-05	0.467E-05	0.327E-05
1700	0.877E-06	0.184E-05	0.436E-05	0.563E-05	0.507E-05	0.530E-05	0.432E-05	0.303E-05
1800	0.796E-06	0.167E-05	0.394E-05	0.509E-05	0.459E-05	0.480E-05	0.392E-05	0.274E-05
2000	0.663E-06	0.138E-05	0.326E-05	0.422E-05	0.381E-05	0.399E-05	0.326E-05	0.229E-05
2200	0.565E-06	0.118E-05	0.277E-05	0.359E-05	0.324E-05	0.339E-05	0.278E-05	0.195E-05
2500	0.455E-06	0.946E-06	0.222E-05	0.288E-05	0.260E-05	0.273E-05	0.224E-05	0.157E-05
5000	0.154E-06	0.315E-06	0.727E-06	0.945E-06	0.866E-06	0.910E-06	0.757E-06	0.534E-06

1 OPTIONS SELECTED FOR DOSE AND INTAKE CALCULATIONS

0 CALCULATIONS ARE MADE FOR THE MAXIMALLY-EXPOSED INDIVIDUAL

TABLES FOR EACH NUCLIDE LISTING DOSES BY ORGAN AND PATHWAY AT EACH ENVIRONMENTAL LOCATION ARE OMITTED.

ENVIRONMENTAL CONCENTRATIONS AND INTAKE RATES BY MAN FOR EACH NUCLIDE ARE WRITTEN UNFORMATTED ON UNIT 25.

DOSE SUMMARY TABLES ARE PRINTED

WORKING LEVELS ARE CALCULATED FOR RN-222 IF IT IS IN THE SOURCE TERM

ORGAN NAMES ARE INPUT

0 RADIOACTIVE DECAY CONSTANT (PER DAY) 0.1192E-07
0 ENVIRONMENTAL DECAY CONSTANT--SURFACE (PER DAY) 0.0000E+00
0 ENVIRONMENTAL DECAY CONSTANT--WATER (PER DAY) 0.0000E+00
0 AVERAGE FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH L OF MILK (DAYS/L)
0.1400E-03
0 FRACTION OF ANIMAL'S DAILY INTAKE OF NUCLIDE WHICH APPEARS IN EACH KG OF FLESH (DAYS/KG)
0.1600E-05
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL FOR PASTURE AND FORAGE
0.2100E-01
(IN PCI/KG DRY WEIGHT PER PCI/KG DRY SOIL)
0 CONCENTRATION FACTOR FOR UPTAKE OF NUCLIDE FROM SOIL BY EDIBLE PARTS OF CROPS
0.4200E-02
(IN PCI/KG WET WEIGHT PER PCI/KG DRY SOIL)
0 GI UPTAKE FRACTION (INHALATION) 0.2000E-02
0 GI UPTAKE FRACTION (INGESTION) 0.2000E-02
0 PARTICLE SIZE (MICRONS) 0.1000E+01
0 SOLUBILITY CLASS Y
0 DOSE CONVERSION FACTORS

0 ORGAN	INHALATION (REMS/MICROCURIE)	INGESTION (REMS/MICROCURIE)	SUBMERSION IN AIR (REMS-CUBIC CM/ MICROCURIE-HR)	SURFACE EXPOSURE (REMS-SQUARE CM/ MICROCURIE-HR)	SUBMERSION IN WATER (REMS-CUBIC CM/ MICROCURIE-HR)
0					
W BODY	0.135E+03	0.266E-01	0.111E+00	0.102E-03	0.276E-03
R MAR	0.273E+00	0.109E-01	0.849E-01	0.780E-04	0.211E-03
ENDOST	0.429E+01	0.171E+00	0.167E+00	0.154E-03	0.415E-03
THYROID	0.999E-02	0.389E-03	0.143E+00	0.131E-03	0.354E-03
BREAST	0.101E-01	0.389E-03	0.221E+00	0.203E-03	0.548E-03
PUL	0.112E+04	0.389E-03	0.101E+00	0.931E-04	0.251E-03
S WALL	0.995E+00	0.396E-03	0.893E-01	0.821E-04	0.222E-03
INT WALL	0.679E-01	0.995E-01	0.880E-01	0.809E-04	0.219E-03
LIVER	0.101E-01	0.390E-03	0.905E-01	0.832E-04	0.225E-03
PANCREAS	0.100E-01	0.390E-03	0.736E-01	0.676E-04	0.183E-03
KIDNEYS	0.172E+01	0.670E-01	0.918E-01	0.844E-04	0.228E-03

1 CONCENTRATIONS AND INTAKE RATES FOR U-233

0 AREA DIRECTION	DISTANCE (METERS)	AIR CONCENTRATION (CURIES/CUBIC METER)	GROUND CONCENTRATION (CURIES/SQUARE METER)	INGESTION INTAKE (PCI/YEAR)	INHALATION INTAKE (PCI/YEAR)
0					
1	1625	0.225E-12	0.491E-08	0.263E+04	0.181E+04
1	1700	0.209E-12	0.457E-08	0.245E+04	0.168E+04
1	1800	0.189E-12	0.417E-08	0.223E+04	0.152E+04
1	2000	0.158E-12	0.353E-08	0.189E+04	0.127E+04
1	2200	0.135E-12	0.304E-08	0.163E+04	0.108E+04
1	2500	0.109E-12	0.249E-08	0.134E+04	0.872E+03
1	5000	0.371E-13	0.928E-09	0.497E+03	0.298E+03
2	1625	0.148E-12	0.322E-08	0.173E+04	0.119E+04
2	1700	0.137E-12	0.300E-08	0.161E+04	0.110E+04
2	1800	0.124E-12	0.274E-08	0.147E+04	0.998E+03
2	2000	0.104E-12	0.232E-08	0.124E+04	0.832E+03
2	2200	0.883E-13	0.200E-08	0.107E+04	0.709E+03
2	2500	0.711E-13	0.164E-08	0.876E+03	0.571E+03
2	5000	0.241E-13	0.605E-09	0.324E+03	0.194E+03
3	1625	0.114E-12	0.242E-08	0.130E+04	0.912E+03
3	1700	0.105E-12	0.225E-08	0.121E+04	0.844E+03
3	1800	0.952E-13	0.205E-08	0.110E+04	0.764E+03
3	2000	0.791E-13	0.172E-08	0.923E+03	0.635E+03
3	2200	0.672E-13	0.148E-08	0.794E+03	0.540E+03
3	2500	0.540E-13	0.121E-08	0.648E+03	0.434E+03
3	5000	0.179E-13	0.435E-09	0.233E+03	0.144E+03
4	1625	0.173E-12	0.362E-08	0.194E+04	0.139E+04
4	1700	0.160E-12	0.336E-08	0.180E+04	0.128E+04

4	1800	0.148E-12	0.308E-08	0.184E+04	0.116E+04
4	2000	0.120E-12	0.257E-08	0.137E+04	0.964E+03
4	2200	0.102E-12	0.220E-08	0.118E+04	0.820E+03
4	2500	0.819E-13	0.179E-08	0.960E+03	0.658E+03
4	5000	0.270E-13	0.636E-09	0.340E+03	0.217E+03
5	1625	0.352E-12	0.729E-08	0.390E+04	0.283E+04
5	1700	0.325E-12	0.676E-08	0.362E+04	0.261E+04
5	1800	0.294E-12	0.615E-08	0.329E+04	0.236E+04
5	2000	0.244E-12	0.515E-08	0.276E+04	0.196E+04
5	2200	0.207E-12	0.442E-08	0.237E+04	0.167E+04
5	2500	0.166E-12	0.359E-08	0.192E+04	0.134E+04
5	5000	0.547E-13	0.126E-08	0.677E+03	0.440E+03
6	1625	0.264E-12	0.584E-08	0.312E+04	0.212E+04
6	1700	0.245E-12	0.543E-08	0.291E+04	0.196E+04
6	1800	0.222E-12	0.496E-08	0.265E+04	0.178E+04
6	2000	0.185E-12	0.419E-08	0.224E+04	0.148E+04
6	2200	0.157E-12	0.361E-08	0.193E+04	0.126E+04
6	2500	0.126E-12	0.296E-08	0.158E+04	0.101E+04
6	5000	0.423E-13	0.109E-08	0.584E+03	0.340E+03
7	1625	0.144E-12	0.319E-08	0.171E+04	0.116E+04
7	1700	0.133E-12	0.296E-08	0.159E+04	0.107E+04
7	1800	0.121E-12	0.271E-08	0.145E+04	0.971E+03
7	2000	0.101E-12	0.228E-08	0.122E+04	0.808E+03
7	2200	0.856E-13	0.197E-08	0.105E+04	0.687E+03
7	2500	0.688E-13	0.161E-08	0.863E+03	0.552E+03
7	5000	0.229E-13	0.591E-09	0.316E+03	0.184E+03
8	1625	0.142E-12	0.305E-08	0.163E+04	0.114E+04
8	1700	0.131E-12	0.284E-08	0.152E+04	0.105E+04
8	1800	0.119E-12	0.259E-08	0.138E+04	0.955E+03
8	2000	0.989E-13	0.218E-08	0.117E+04	0.794E+03
8	2200	0.841E-13	0.187E-08	0.100E+04	0.675E+03
8	2500	0.676E-13	0.153E-08	0.820E+03	0.543E+03
8	5000	0.225E-13	0.555E-09	0.297E+03	0.181E+03
9	1625	0.124E-12	0.274E-08	0.146E+04	0.994E+03
9	1700	0.115E-12	0.255E-08	0.136E+04	0.921E+03
9	1800	0.104E-12	0.233E-08	0.125E+04	0.835E+03
9	2000	0.867E-13	0.197E-08	0.105E+04	0.696E+03
9	2200	0.738E-13	0.170E-08	0.909E+03	0.593E+03
9	2500	0.595E-13	0.139E-08	0.746E+03	0.477E+03
9	5000	0.201E-13	0.518E-09	0.277E+03	0.161E+03
10	1625	0.260E-12	0.557E-08	0.298E+04	0.209E+04
10	1700	0.240E-12	0.518E-08	0.277E+04	0.193E+04
10	1800	0.218E-12	0.472E-08	0.253E+04	0.175E+04
10	2000	0.181E-12	0.397E-08	0.213E+04	0.145E+04
10	2200	0.154E-12	0.342E-08	0.183E+04	0.123E+04
10	2500	0.124E-12	0.279E-08	0.149E+04	0.992E+03
10	5000	0.411E-13	0.101E-08	0.541E+03	0.330E+03
11	1625	0.616E-12	0.125E-07	0.670E+04	0.495E+04
11	1700	0.569E-12	0.116E-07	0.621E+04	0.457E+04
11	1800	0.515E-12	0.105E-07	0.564E+04	0.413E+04
11	2000	0.426E-12	0.880E-08	0.471E+04	0.342E+04
11	2200	0.362E-12	0.753E-08	0.403E+04	0.291E+04
11	2500	0.290E-12	0.612E-08	0.327E+04	0.233E+04
11	5000	0.950E-13	0.212E-08	0.114E+04	0.763E+03
12	1625	0.796E-12	0.161E-07	0.862E+04	0.639E+04
12	1700	0.736E-12	0.149E-07	0.799E+04	0.591E+04
12	1800	0.666E-12	0.136E-07	0.725E+04	0.534E+04
12	2000	0.551E-12	0.113E-07	0.606E+04	0.443E+04
12	2200	0.468E-12	0.969E-08	0.519E+04	0.376E+04
12	2500	0.376E-12	0.786E-08	0.421E+04	0.302E+04
12	5000	0.124E-12	0.273E-08	0.146E+04	0.992E+03
13	1625	0.716E-12	0.148E-07	0.794E+04	0.575E+04
13	1700	0.663E-12	0.138E-07	0.737E+04	0.532E+04
13	1800	0.600E-12	0.125E-07	0.671E+04	0.482E+04
13	2000	0.498E-12	0.105E-07	0.562E+04	0.400E+04

13	2200	0.423E-12	0.901E-08	0.483E+04	0.340E+04
13	2500	0.340E-12	0.734E-08	0.393E+04	0.273E+04
13	5000	0.113E-12	0.261E-08	0.140E+04	0.908E+03
14	1625	0.749E-12	0.156E-07	0.834E+04	0.602E+04
14	1700	0.693E-12	0.145E-07	0.775E+04	0.557E+04
14	1800	0.627E-12	0.132E-07	0.705E+04	0.504E+04
14	2000	0.521E-12	0.111E-07	0.592E+04	0.419E+04
14	2200	0.443E-12	0.949E-08	0.508E+04	0.356E+04
14	2500	0.356E-12	0.773E-08	0.414E+04	0.286E+04
14	5000	0.119E-12	0.276E-08	0.148E+04	0.955E+03
15	1625	0.610E-12	0.131E-07	0.702E+04	0.490E+04
15	1700	0.564E-12	0.122E-07	0.653E+04	0.453E+04
15	1800	0.512E-12	0.111E-07	0.596E+04	0.411E+04
15	2000	0.426E-12	0.939E-08	0.503E+04	0.342E+04
15	2200	0.363E-12	0.809E-08	0.433E+04	0.292E+04
15	2500	0.292E-12	0.662E-08	0.354E+04	0.235E+04
15	5000	0.989E-13	0.243E-08	0.130E+04	0.794E+03
16	1625	0.427E-12	0.927E-08	0.496E+04	0.343E+04
16	1700	0.395E-12	0.863E-08	0.462E+04	0.317E+04
16	1800	0.358E-12	0.788E-08	0.422E+04	0.288E+04
16	2000	0.299E-12	0.666E-08	0.356E+04	0.240E+04
16	2200	0.255E-12	0.574E-08	0.307E+04	0.204E+04
16	2500	0.205E-12	0.470E-08	0.252E+04	0.165E+04
16	5000	0.697E-13	0.174E-08	0.932E+03	0.560E+03

0 DIRECTIONS ARE NUMBERED COUNTERCLOCKWISE STARTING AT 1 FOR DUE NORTH

1 PERCENT OF W BODY DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
U-233	SUBM AIR	0.7764E-09	0.00	100.00
	SURFACE	0.1442E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.8633E+00	99.97	100.00
	INGEST.	0.2292E-03	0.03	100.00
	VEGET.	0.2255E-03	* 0.03	* 98.38
	MEAT	0.3190E-07	* 0.00	* 0.01
	MILK	0.3678E-05	* 0.00	* 1.61

1 PERCENT OF R MAR DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
U-233	SUBM AIR	0.5921E-09	0.00	100.00
	SURFACE	0.1100E-05	0.06	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1746E-02	94.83	100.00
	INGEST.	0.9399E-04	5.11	100.00
	VEGET.	0.9247E-04	* 5.02	* 98.38
	MEAT	0.1309E-07	* 0.00	* 0.01
	MILK	0.1509E-05	* 0.08	* 1.61

1 PERCENT OF ENDOST DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
U-233	SUBM AIR	0.1167E-08	0.00	100.00
	SURFACE	0.2167E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.2743E-01	94.90	100.00
	INGEST.	0.1473E-02	5.10	100.00
	VEGET.	0.1449E-02	* 5.01	* 98.38
	MEAT	0.2051E-06	* 0.00	* 0.01
	MILK	0.2365E-04	* 0.08	* 1.61

1 PERCENT OF THYROID DOSE BY EACH PATHWAY

0 NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
0				
U-233	SUBM AIR	0.9957E-09	0.00	100.00
	SURFACE	0.1850E-05	2.68	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6388E-04	92.47	100.00

	INGEST.	0.3351E-05	4.85	100.00
	VEGET.	0.3297E-05	* 4.77	* 98.38
	MEAT	0.4666E-09	* 0.00	* 0.01
	MILK	0.5379E-07	* 0.08	* 1.61

1
0 PERCENT OF BREAST DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.1540E-08	0.00	100.00
	SURFACE	0.2860E-05	4.04	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6458E-04	91.22	100.00
	INGEST.	0.3351E-05	4.73	100.00
	VEGET.	0.3297E-05	* 4.66	* 98.38
	MEAT	0.4666E-09	* 0.00	* 0.01
	MILK	0.5379E-07	* 0.08	* 1.61

1
0 PERCENT OF *PUL* DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.7062E-09	0.00	100.00
	SURFACE	0.1312E-05	0.00	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.7162E+01	100.00	100.00
	INGEST.	0.3351E-05	0.00	100.00
	VEGET.	0.3297E-05	* 0.00	* 98.38
	MEAT	0.4666E-09	* 0.00	* 0.01
	MILK	0.5379E-07	* 0.00	* 1.61

1
0 PERCENT OF S WALL DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.6228E-09	0.00	100.00
	SURFACE	0.1157E-05	0.02	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6363E-02	99.93	100.00
	INGEST.	0.3412E-05	0.05	100.00
	VEGET.	0.3356E-05	* 0.05	* 98.38
	MEAT	0.4750E-09	* 0.00	* 0.01
	MILK	0.5476E-07	* 0.00	* 1.61

1
0 PERCENT OF INT WALL DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.6141E-09	0.00	100.00
	SURFACE	0.1141E-05	0.09	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.4344E-03	33.60	100.00
	INGEST.	0.8572E-03	66.31	100.00
	VEGET.	0.8433E-03	* 65.23	* 98.38
	MEAT	0.1193E-06	* 0.01	* 0.01
	MILK	0.1376E-04	* 1.06	* 1.61

1
0 PERCENT OF LIVER DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.6316E-09	0.00	100.00
	SURFACE	0.1173E-05	1.70	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.6446E-04	93.43	100.00
	INGEST.	0.3358E-05	4.87	100.00
	VEGET.	0.3304E-05	* 4.79	* 98.38
	MEAT	0.4675E-09	* 0.00	* 0.01
	MILK	0.5390E-07	* 0.08	* 1.61

1
0 PERCENT OF PANCREAS DOSE BY EACH PATHWAY
0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.5132E-09	0.00	100.00
	SURFACE	0.9533E-06	1.39	100.00
	SWIMMING	0.0000E+00	0.00	0.00

INHAL.	0.6420E-04	93.71	100.00
INGEST.	0.3359E-05	4.90	100.00
VEGET.	0.3306E-05	* 4.82	* 98.38
MEAT	0.4677E-09	* 0.00	* 0.01
MILK	0.5392E-07	* 0.08	* 1.61

1 PERCENT OF KIDNEYS DOSE BY EACH PATHWAY

0

NUCLIDE	PATHWAY	DOSE(REMS)	PERCENT OF TOTAL	PERCENT OF DOSE FROM ALL NUCLIDES
U-233	SUBM AIR	0.6404E-09	0.00	100.00
	SURFACE	0.1190E-05	0.01	100.00
	SWIMMING	0.0000E+00	0.00	0.00
	INHAL.	0.1097E-01	94.99	100.00
	INGEST.	0.5775E-03	5.00	100.00
	VEGET.	0.5681E-03	* 4.92	* 98.38
	MEAT	0.8040E-07	* 0.00	* 0.01
	MILK	0.9269E-05	* 0.08	* 1.61

0 CONTRIBUTION OF EXPOSURE MODES TO W BODY DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.7764E-09	0.0000
SURFACE	0.1442E-05	0.0002
SWIMMING	0.1000E-24	0.0000
INHAL.	0.8633E+00	99.9733
INGEST.	0.2292E-03	0.0265
VEGET.	*0.2255E-03	* 0.0261
MEAT	*0.3190E-07	* 0.0000
MILK	*0.3678E-05	* 0.0004

0 CONTRIBUTION OF EXPOSURE MODES TO R MAR DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.5921E-09	0.0000
SURFACE	0.1100E-05	0.0598
SWIMMING	0.1000E-24	0.0000
INHAL.	0.1746E-02	94.8341
INGEST.	0.9399E-04	5.1061
VEGET.	*0.9247E-04	* 5.0234
MEAT	*0.1309E-07	* 0.0007
MILK	*0.1509E-05	* 0.0820

0 CONTRIBUTION OF EXPOSURE MODES TO ENDOST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1167E-08	0.0000
SURFACE	0.2167E-05	0.0075
SWIMMING	0.1000E-24	0.0000
INHAL.	0.2743E-01	94.8962
INGEST.	0.1473E-02	5.0963
VEGET.	*0.1449E-02	* 5.0137
MEAT	*0.2051E-06	* 0.0007
MILK	*0.2365E-04	* 0.0818

0 CONTRIBUTION OF EXPOSURE MODES TO THYROID DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.9957E-09	0.0014
SURFACE	0.1850E-05	2.6774
SWIMMING	0.1000E-24	0.0000
INHAL.	0.6388E-04	92.4700
INGEST.	0.3351E-05	4.8512
VEGET.	*0.3297E-05	* 4.7726
MEAT	*0.4666E-09	* 0.0007
MILK	*0.5379E-07	* 0.0779

0 CONTRIBUTION OF EXPOSURE MODES TO BREAST DOSES

EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
SUBM AIR	0.1540E-08	0.0022
SURFACE	0.2860E-05	4.0396
SWIMMING	0.1000E-24	0.0000
INHAL.	0.6458E-04	91.2244
INGEST.	0.3351E-05	4.7337
VEGET.	*0.3297E-05	* 4.6571
MEAT	*0.4666E-09	* 0.0007

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0     MILK                    *0.5379E-07                    *  0.0780
0                   CONTRIBUTION OF EXPOSURE MODES TO *PUL*  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.7062E-09                        0.0000
0    SURFACE                   0.1312E-05                        0.0000
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.7162E+01                       99.9999
0    INGEST.                   0.3351E-05                        0.0000
0     VEGET.                  *0.3297E-05                    *  0.0000
0     MEAT                    *0.4666E-09                    *  0.0000
0     MILK                    *0.5379E-07                    *  0.0000
0                   CONTRIBUTION OF EXPOSURE MODES TO S WALL  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.6228E-09                        0.0000
0    SURFACE                   0.1157E-05                        0.0182
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.6363E-02                       99.9282
0    INGEST.                   0.3412E-05                        0.0536
0     VEGET.                  *0.3356E-05                    *  0.0527
0     MEAT                    *0.4750E-09                    *  0.0000
0     MILK                    *0.5476E-07                    *  0.0009
0                   CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.6141E-09                        0.0000
0    SURFACE                   0.1141E-05                        0.0882
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.4344E-03                       33.6046
0    INGEST.                   0.8572E-03                       66.3071
0     VEGET.                  *0.8433E-03                    *  65.2336
0     MEAT                    *0.1193E-06                    *  0.0092
0     MILK                    *0.1376E-04                    *  1.0643
0                   CONTRIBUTION OF EXPOSURE MODES TO LIVER  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.6316E-09                        0.0009
0    SURFACE                   0.1173E-05                        1.7007
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.6446E-04                       93.4305
0    INGEST.                   0.3358E-05                        4.8678
0     VEGET.                  *0.3304E-05                    *  4.7890
0     MEAT                    *0.4675E-09                    *  0.0007
0     MILK                    *0.5390E-07                    *  0.0781
0                   CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.5132E-09                        0.0007
0    SURFACE                   0.9533E-06                        1.3914
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.6420E-04                       93.7050
0    INGEST.                   0.3359E-05                        4.9028
0     VEGET.                  *0.3305E-05                    *  4.8234
0     MEAT                    *0.4677E-09                    *  0.0007
0     MILK                    *0.5392E-07                    *  0.0787
0                   CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS  DOSES
0   EXPOSURE MODE                ANNUAL DOSE(REMS)                PERCENT OF TOTAL DOSE
0    SUBM AIR                  0.6404E-09                        0.0000
0    SURFACE                   0.1190E-05                        0.0103
0    SWIMMING                   0.1000E-24                        0.0000
0    INHAL.                   0.1097E-01                       94.9878
0    INGEST.                   0.5775E-03                        5.0019
0     VEGET.                  *0.5681E-03                    *  4.9209
0     MEAT                    *0.8040E-07                    *  0.0007
0     MILK                    *0.9269E-05                    *  0.0803
1                   TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS
0                 ORGAN                    DOSE(REMS)
0                 W BODY                   0.8635E+00
0                 R MAR                    0.1841E-02
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0	ENDOST	0.2891E-01
0	THYROID	0.6908E-04
0	BREAST	0.7080E-04
0	*PUL*	0.7162E+01
0	S WALL	0.6367E-02
0	INT WALL	0.1293E-02
0	LIVER	0.6899E-04
0	PANCREAS	0.6851E-04
0	KIDNEYS	0.1155E-01

1 CONTRIBUTORS TO ORGAN DOSES

0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
U-233	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

0	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	U-233	W BODY	0.8635E+00	12	10
0	U-233	R MAR	0.1841E-02	12	10
0	U-233	ENDOST	0.2891E-01	12	10
0	U-233	THYROID	0.6908E-04	12	10
0	U-233	BREAST	0.7080E-04	12	10
0	U-233	*PUL*	0.7162E+01	12	10
0	U-233	S WALL	0.6367E-02	12	10
0	U-233	INT WALL	0.1293E-02	12	10
0	U-233	LIVER	0.6899E-04	12	10
0	U-233	PANCREAS	0.6851E-04	12	10
0	U-233	KIDNEYS	0.1155E-01	12	10

0	SURFACE	0.6514E-06	0.1282
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5048E-03	99.3612
0	INGEST.	0.2593E-05	0.5105
0	VEGET.	*0.2591E-05	* 0.5101
0	MEAT	*0.3676E-09	* 0.0001
0	MILK	*0.1513E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO *PUL* DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1399E-09	0.0000
0	SURFACE	0.2738E-06	0.0000
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.8810E+00	99.9997
0	INGEST.	0.2594E-05	0.0003
0	VEGET.	*0.2592E-05	* 0.0003
0	MEAT	*0.3677E-09	* 0.0000
0	MILK	*0.1514E-08	* 0.0000

0 CONTRIBUTION OF EXPOSURE MODES TO S WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1197E-09	0.0000
0	SURFACE	0.2344E-06	0.0451
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5125E-03	98.6447
0	INGEST.	0.6806E-05	1.3101
0	VEGET.	*0.6801E-05	* 1.3092
0	MEAT	*0.9647E-09	* 0.0002
0	MILK	*0.3972E-08	* 0.0008

0 CONTRIBUTION OF EXPOSURE MODES TO INT WALL DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1144E-09	0.0000
0	SURFACE	0.2241E-06	0.0340
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5558E-03	84.3565
0	INGEST.	0.1028E-03	15.6094
0	VEGET.	*0.1028E-03	* 15.5981
0	MEAT	*0.1458E-07	* 0.0022
0	MILK	*0.6002E-07	* 0.0091

0 CONTRIBUTION OF EXPOSURE MODES TO LIVER DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1250E-09	0.0000
0	SURFACE	0.2448E-06	0.0056
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.4340E-02	99.4794
0	INGEST.	0.2246E-04	0.5150
0	VEGET.	*0.2245E-04	* 0.5146
0	MEAT	*0.3184E-08	* 0.0001
0	MILK	*0.1311E-07	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO PANCREAS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.9113E-10	0.0000
0	SURFACE	0.1784E-06	0.0346
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5133E-03	99.4508
0	INGEST.	0.2656E-05	0.5146
0	VEGET.	*0.2654E-05	* 0.5143
0	MEAT	*0.3765E-09	* 0.0001
0	MILK	*0.1550E-08	* 0.0003

0 CONTRIBUTION OF EXPOSURE MODES TO KIDNEYS DOSES

	EXPOSURE MODE	ANNUAL DOSE(REMS)	PERCENT OF TOTAL DOSE
0	SUBM AIR	0.1314E-09	0.0000
0	SURFACE	0.2572E-06	0.0498
0	SWIMMING	0.1000E-24	0.0000
0	INHAL.	0.5132E-03	99.4355
0	INGEST.	0.2656E-05	0.5146
0	VEGET.	*0.2654E-05	* 0.5143

0 MEAT *0.3765E-09 * 0.0001
0 MILK *0.1550E-08 * 0.0003
1 TOTAL DOSE TO EACH ORGAN THROUGH ALL PATHWAYS

	ORGAN	DOSE(REMS)
0	W BODY	0.2085E+00
0	R MAR	0.2067E+00
0	ENDOST	0.2569E+01
0	THYROID	0.5078E-03
0	BREAST	0.5080E-03
0	*PUL*	0.8810E+00
0	S WALL	0.5195E-03
0	INT WALL	0.6589E-03
0	LIVER	0.4362E-02
0	PANCREAS	0.5161E-03
0	KIDNEYS	0.5161E-03

1 CONTRIBUTORS TO ORGAN DOSES
0 PERCENT

0NUCLIDE	W BODY	R MAR	ENDOST	THYROID	BREAST	*PUL*	S WALL	INT WALL	LIVER	PANCREAS	KIDNEYS
TH-230	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

1 ANNUAL DOSES(REMS)

	NUCLIDE	ORGAN	DOSE	MAXIMUM LOCATION COLUMN	ROW
0	TH-230	W BODY	0.2085E+00	12	6
0	TH-230	R MAR	0.2067E+00	12	6
0	TH-230	ENDOST	0.2569E+01	12	6
0	TH-230	THYROID	0.5078E-03	12	6
0	TH-230	BREAST	0.5080E-03	12	6
0	TH-230	*PUL*	0.8810E+00	12	6
0	TH-230	S WALL	0.5195E-03	12	6
0	TH-230	INT WALL	0.6589E-03	12	6
0	TH-230	LIVER	0.4362E-02	12	6
0	TH-230	PANCREAS	0.5161E-03	12	6
0	TH-230	KIDNEYS	0.5161E-03	12	6