Los Alamos
NATIONAL LABORATORY

(23)

#73705

Memorandum

Risk Reduction & Environmental Stewardship (RRES)
Remediation (R) Program, MS M992

To/MS: Risk Assessment Team
From/MS: R. Mirenda, RRES-R, MS M992
Phone/FAX: 5-6953/5-4747
Symbol: ER2002-0830
Date: December 3, 2002

SUBJECT: UPDATES TO THE RADIONUCLIDE SCREENING ACTION LEVELS (SALs) BASED ON RESRAD 6.21.

The attachments to this memo are the updates to the radionuclide SALs based on RESRAD 6.21. These values should be used to screen radionuclide Chemicals Of Potential Concerns in all reports starting December 1.

If you should have any questions please contact me at (505) 665-6953 or rmirenda@lanl.gov.

RM/am

Attachment: 1.) Radionuclide screening action
2.) RESRAD version 6.21

Cy (w attach.)
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RADIONUCLIDE SCREENING ACTION LEVELS
(RESRAD Version 6.21)
November 2002

Analyte Code	Radionuclide	SAL Value (pCi/g)	SAL Value w/o Indoor Radon Inhalation[a] Pathway (pCi/g)	SAL Value w/o Plant Ingestion Pathway[a] (pCi/g)	Time at Which SAL Value Applies[b] (year)
AM-241	americium-241	39	39	85	0.0
CO-60	cobalt-60	1.2	1.2	1.2	0.0
CS-137	cesium-137+D[c]	5.3	5.3	5.5	0.0
EU-152	europium-152	2.7	2.7	2.7	0.0
EU-154	europium-154	2.5	2.5	2.5	0.0
EU-155	europium-155	110	110	110	0.0
H-3	tritium	890	880	6 900	0.0
I-129	iodine-129	45	45	740	0.0
K-40	potassium-40	13	13	18	0.0
NA-22	sodium-22	1.5	1.5	1.5	0.0
NP-237	neptunium-237+D	2.4	2.4	14	0.0
PU-238	plutonium-238	49	49	120	0.0
PU-239	plutonium-239[d]	44	44	110	0.0
RA-226	radium-226+D[e]	5	n.a.	n.a.	n.a.
RA-228	radium-228+D[e]	5	n.a.	n.a.	n.a.
RU-106	ruthenium-106+D	19	19	20.	0.0
SR-90	strontium-90+D	5.7	5.7	600	0.0
TC-99	technetium-99	36	36	98 000	0.0
TH-228	thorium-228+D	2.0	2.2	2.0	0.0
TH-230	thorium-230[e]	5	n.a.	n.a.	n.a.
TH-232	thorium-232[e]	5	n.a.	n.a.	n.a.
U-234	uranium-234	63	180	81	1 000
U-235	uranium-235+D	17	17	22	1 000
U-238	uranium-238+D	86	86	110	0.0

[a]This information is provided to assist users in evaluating the contribution to SAL values of pathways that may not be applicable at some sites.
[b]Modeling period is 1 000 years.
[c]Includes contribution to dose of radionuclide daughters.
[d]Plutonium-239 and plutonium-240 are typically unresolved in laboratory analysis. SAL values for the two isotopes are identical.
[e]SAL is the generic soil guideline published in DOE Order 5400.5. Five pCi/g applies to the concentration averaged over the first 15 cm of soil below the surface, for subsequent 15-cm-thick layers the generic soil guideline is 15 pCi/g. If both thorium-230 and radium-226 or both thorium-232 and radium-228 are present and not in secular equilibrium, or if other mixtures of radionuclides occur, refer to DOE Order 5400.5 for guidance.
n.a. – Not applicable, SAL value is not calculated with RESRAD.

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Dose Conversion Factor (and Related) Parameter Summary
File: HEAST 1995 Morbidity

0 Menu	Parameter	Current Value	Default	Parameter Name
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF2(1)
B-1	Am-241	4.440E-01	4.440E-01	DCF2(2)
B-1	Co-60	2.190E-04	2.190E-04	DCF2(3)
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF2(4)
B-1	Eu-152	2.210E-04	2.210E-04	DCF2(5)
B-1	Eu-154	2.860E-04	2.860E-04	DCF2(7)
B-1	Eu-155	4.140E-05	4.140E-05	DCF2(8)
B-1	Gd-152	2.430E-01	2.430E-01	DCF2(9)
B-1	H-3	6.400E-08	6.400E-08	DCF2(10)
B-1	I-129	1.740E-04	1.740E-04	DCF2(11)
B-1	K-40	1.240E-05	1.240E-05	DCF2(12)
B-1	Na-22	7.660E-06	7.660E-06	DCF2(13)
B-1	Np-237+D	5.400E-01	5.400E-01	DCF2(14)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(15)
B-1	Pb-210+D	2.320E-02	2.320E-02	DCF2(16)
B-1	Pu-238	3.920E-01	3.920E-01	DCF2(17)
B-1	Pu-239	4.290E-01	4.290E-01	DCF2(18)
B-1	Pu-240	4.290E-01	4.290E-01	DCF2(19)
B-1	Ra-226+D	8.600E-03	8.600E-03	DCF2(20)
B-1	Ra-228+D	5.080E-03	5.080E-03	DCF2(21)
B-1	Ru-106+D	4.770E-04	4.770E-04	DCF2(22)
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF2(23)
B-1	Tc-99	8.330E-06	8.330E-06	DCF2(24)
B-1	Th-228+D	3.450E-01	3.450E-01	DCF2(25)
B-1	Th-229+D	2.160E+00	2.160E+00	DCF2(26)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(27)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(28)
B-1	U-233	1.350E-01	1.350E-01	DCF2(29)
B-1	U-234	1.320E-01	1.320E-01	DCF2(30)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(31)
B-1	U-236	1.250E-01	1.250E-01	DCF2(32)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(33)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF3(1)
D-1	Am-241	3.640E-03	3.640E-03	DCF3(2)
D-1	Co-60	2.690E-05	2.690E-05	DCF3(3)
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF3(4)
D-1	Eu-152	6.480E-06	6.480E-06	DCF3(5)
D-1	Eu-154	9.550E-06	9.550E-06	DCF3(7)
D-1	Eu-155	1.530E-06	1.530E-06	DCF3(8)
D-1	Gd-152	1.610E-04	1.610E-04	DCF3(9)
D-1	H-3	6.400E-08	6.400E-08	DCF3(10)
D-1	I-129	2.760E-04	2.760E-04	DCF3(11)
D-1	K-40	1.860E-05	1.860E-05	DCF3(12)
D-1	Na-22	1.150E-05	1.150E-05	DCF3(13)
D-1	Np-237+D	4.440E-03	4.440E-03	DCF3(14)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(15)
D-1	Pb-210+D	7.270E-03	7.270E-03	DCF3(16)
D-1	Pu-238	3.200E-03	3.200E-03	DCF3(17)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter	Current Value	Default	Parameter Name
D-1	Pu-239	3.540E-03	3.540E-03	DCF3(18)
D-1	Pu-240	3.540E-03	3.540E-03	DCF3(19)
D-1	Ra-226+D	1.330E-03	1.330E-03	DCF3(20)
D-1	Ra-228+D	1.440E-03	1.440E-03	DCF3(21)
D-1	Ru-106+D	2.740E-05	2.740E-05	DCF3(22)
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF3(23)
D-1	Tc-99	1.460E-06	1.460E-06	DCF3(24)
D-1	Th-228+D	8.080E-04	8.080E-04	DCF3(25)
D-1	Th-229+D	4.030E-03	4.030E-03	DCF3(26)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(27)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(28)
D-1	U-233	2.890E-04	2.890E-04	DCF3(29)
D-1	U-234	2.830E-04	2.830E-04	DCF3(30)
D-1	U-235+D	2.670E-04	2.670E-04	DCF3(31)
D-1	U-236	2.690E-04	2.690E-04	DCF3(32)
D-1	U-238+D	2.690E-04	2.690E-04	DCF3(33)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Am-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(2,1)
D-34	Am-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF(2,2)
D-34	Am-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(2,3)
D-34				
D-34	Co-60 , plant/soil concentration ratio, dimensionless	8.000E-02	8.000E-02	RTF(3,1)
D-34	Co-60 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(3,2)
D-34	Co-60 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(3,3)
D-34				
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(4,1)
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF(4,2)
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF(4,3)
D-34				
D-34	Eu-152 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(5,1)
D-34	Eu-152 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(5,2)
D-34	Eu-152 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(5,3)
D-34				
D-34	Eu-154 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(7,1)
D-34	Eu-154 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(7,2)
D-34	Eu-154 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(7,3)
D-34				
D-34	Eu-155 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(8,1)
D-34	Eu-155 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(8,2)
D-34	Eu-155 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(8,3)
D-34				
D-34	Gd-152 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	Gd-152 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(9,2)
D-34	Gd-152 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(9,3)
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter	Current Value	Default	Parameter Name
D-34	H-3 , plant/soil concentration ratio, dimensionless	4.800E+00	4.800E+00	RTF(10,1)
D-34	H-3 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.200E-02	1.200E-02	RTF(10,2)
D-34	H-3 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-02	1.000E-02	RTF(10,3)
D-34				
D-34	I-129 , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(11,1)
D-34	I-129 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	7.000E-03	7.000E-03	RTF(11,2)
D-34	I-129 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-02	1.000E-02	RTF(11,3)
D-34				
D-34	K-40 , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF(12,1)
D-34	K-40 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(12,2)
D-34	K-40 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	7.000E-03	7.000E-03	RTF(12,3)
D-34				
D-34	Na-22 , plant/soil concentration ratio, dimensionless	5.000E-02	5.000E-02	RTF(13,1)
D-34	Na-22 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-02	8.000E-02	RTF(13,2)
D-34	Na-22 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.000E-02	4.000E-02	RTF(13,3)
D-34				
D-34	Np-237+D , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(14,1)
D-34	Np-237+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(14,2)
D-34	Np-237+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(14,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(15,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(15,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(15,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(16,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(16,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(16,3)
D-34				
D-34	Pu-238 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(17,1)
D-34	Pu-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(17,2)
D-34	Pu-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(17,3)
D-34				
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(18,1)
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(18,2)
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(18,3)
D-34				
D-34	Pu-240 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(19,1)
D-34	Pu-240 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(19,2)
D-34	Pu-240 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(19,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(20,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(20,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(20,3)
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(21,1)
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(21,2)
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(21,3)
D-34				
D-34	Ru-106+D , plant/soil concentration ratio, dimensionless	3.000E-02	3.000E-02	RTF(22,1)
D-34	Ru-106+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(22,2)
D-34	Ru-106+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.300E-06	3.300E-06	RTF(22,3)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter		Current Value	Default	Parameter Name
D-34	Sr-90+D	plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF(23,1)
D-34	Sr-90+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF(23,2)
D-34	Sr-90+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(23,3)
D-34					
D-34	Tc-99	plant/soil concentration ratio, dimensionless	5.000E+00	5.000E+00	RTF(24,1)
D-34	Tc-99	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(24,2)
D-34	Tc-99	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(24,3)
D-34					
D-34	Th-228+D	plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(25,1)
D-34	Th-228+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(25,2)
D-34	Th-228+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(25,3)
D-34					
D-34	Th-229+D	plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(26,1)
D-34	Th-229+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(26,2)
D-34	Th-229+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(26,3)
D-34					
D-34	Th-230	plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(27,1)
D-34	Th-230	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(27,2)
D-34	Th-230	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(27,3)
D-34					
D-34	Th-232	plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(28,1)
D-34	Th-232	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(28,2)
D-34	Th-232	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(28,3)
D-34					
D-34	U-233	plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(29,1)
D-34	U-233	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(29,2)
D-34	U-233	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(29,3)
D-34					
D-34	U-234	plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(30,1)
D-34	U-234	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(30,2)
D-34	U-234	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(30,3)
D-34					
D-34	U-235+D	plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(31,1)
D-34	U-235+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(31,2)
D-34	U-235+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(31,3)
D-34					
D-34	U-236	plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(32,1)
D-34	U-236	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(32,2)
D-34	U-236	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(32,3)
D-34					
D-34	U-238+D	plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(33,1)
D-34	U-238+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(33,2)
D-34	U-238+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(33,3)
D-5	Bioaccumulation factors, fresh water, L/kg:				
D-5	Ac-227+D	fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D	crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5					
D-5	Am-241	fish	3.000E+01	3.000E+01	BIOFAC(2,1)
D-5	Am-241	crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(2,2)
D-5					

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter	Current Value	Default	Parameter Name
D-5	Co-60 , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Co-60 , crustacea and mollusks	2.000E+02	2.000E+02	BIOFAC(3,2)
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIOFAC(4,1)
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(4,2)
D-5	Eu-152 , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Eu-152 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(5,2)
D-5	Eu-154 , fish	5.000E+01	5.000E+01	BIOFAC(7,1)
D-5	Eu-154 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(7,2)
D-5	Eu-155 , fish	5.000E+01	5.000E+01	BIOFAC(8,1)
D-5	Eu-155 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(8,2)
D-5	Gd-152 , fish	2.500E+01	2.500E+01	BIOFAC(9,1)
D-5	Gd-152 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(9,2)
D-5	H-3 , fish	1.000E+00	1.000E+00	BIOFAC(10,1)
D-5	H-3 , crustacea and mollusks	1.000E+00	1.000E+00	BIOFAC(10,2)
D-5	I-129 , fish	4.000E+01	4.000E+01	BIOFAC(11,1)
D-5	I-129 , crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC(11,2)
D-5	K-40 , fish	1.000E+03	1.000E+03	BIOFAC(12,1)
D-5	K-40 , crustacea and mollusks	2.000E+02	2.000E+02	BIOFAC(12,2)
D-5	Na-22 , fish	2.000E+01	2.000E+01	BIOFAC(13,1)
D-5	Na-22 , crustacea and mollusks	2.000E+02	2.000E+02	BIOFAC(13,2)
D-5	Np-237+D , fish	3.000E+01	3.000E+01	BIOFAC(14,1)
D-5	Np-237+D , crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC(14,2)
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(15,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(15,2)
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(16,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(16,2)
D-5	Pu-238 , fish	3.000E+01	3.000E+01	BIOFAC(17,1)
D-5	Pu-238 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(17,2)
D-5	Pu-239 , fish	3.000E+01	3.000E+01	BIOFAC(18,1)
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(18,2)
D-5	Pu-240 , fish	3.000E+01	3.000E+01	BIOFAC(19,1)
D-5	Pu-240 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(19,2)
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(20,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(20,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

0 Menu	Parameter	Current Value	Default	Parameter Name
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(21,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(21,2)
D-5	Ru-106+D , fish	1.000E+01	1.000E+01	BIOFAC(22,1)
D-5	Ru-106+D , crustacea and mollusks	3.000E+02	3.000E+02	BIOFAC(22,2)
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIOFAC(23,1)
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(23,2)
D-5	Tc-99 , fish	2.000E+01	2.000E+01	BIOFAC(24,1)
D-5	Tc-99 , crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC(24,2)
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(25,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(25,2)
D-5	Th-229+D , fish	1.000E+02	1.000E+02	BIOFAC(26,1)
D-5	Th-229+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(26,2)
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(27,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(27,2)
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIOFAC(28,1)
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(28,2)
D-5	U-233 , fish	1.000E+01	1.000E+01	BIOFAC(29,1)
D-5	U-233 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(29,2)
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(30,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(30,2)
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(31,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(31,2)
D-5	U-236 , fish	1.000E+01	1.000E+01	BIOFAC(32,1)
D-5	U-236 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(32,2)
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(33,1)
D-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(33,2)

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	4.050E+05	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	2.000E+00	2.000E+00	---	THICK0
R011	Length parallel to aquifer flow (m)	1.000E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	2.500E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+01	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+02	1.000E+01	---	T(4)
R011	Times for calculations (yr)	1.000E+03	3.000E+01	---	T(5)
R011	Times for calculations (yr)	not used	1.000E+02	---	T(6)
R011	Times for calculations (yr)	not used	3.000E+02	---	T(7)
R011	Times for calculations (yr)	not used	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Am-241	1.000E+01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Co-60	1.000E+01	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Cs-137	1.000E+01	0.000E+00	---	S1(4)
R012	Initial principal radionuclide (pCi/g): Eu-152	1.000E+01	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Eu-154	1.000E+01	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Eu-155	1.000E+01	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): H-3	1.000E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): I-129	1.000E+01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): K-40	1.000E+01	0.000E+00	---	S1(12)
R012	Initial principal radionuclide (pCi/g): Na-22	1.000E+01	0.000E+00	---	S1(13)
R012	Initial principal radionuclide (pCi/g): Np-237	1.000E+01	0.000E+00	---	S1(14)
R012	Initial principal radionuclide (pCi/g): Pu-238	1.000E+01	0.000E+00	---	S1(17)
R012	Initial principal radionuclide (pCi/g): Pu-239	1.000E+01	0.000E+00	---	S1(18)
R012	Initial principal radionuclide (pCi/g): Pu-240	1.000E+01	0.000E+00	---	S1(19)
R012	Initial principal radionuclide (pCi/g): Ra-226	1.000E+01	0.000E+00	---	S1(20)
R012	Initial principal radionuclide (pCi/g): Ra-228	1.000E+01	0.000E+00	---	S1(21)
R012	Initial principal radionuclide (pCi/g): Ru-106	1.000E+01	0.000E+00	---	S1(22)
R012	Initial principal radionuclide (pCi/g): Sr-90	1.000E+01	0.000E+00	---	S1(23)
R012	Initial principal radionuclide (pCi/g): Tc-99	1.000E+01	0.000E+00	---	S1(24)
R012	Initial principal radionuclide (pCi/g): Th-228	1.000E+01	0.000E+00	---	S1(25)
R012	Initial principal radionuclide (pCi/g): Th-230	1.000E+01	0.000E+00	---	S1(27)
R012	Initial principal radionuclide (pCi/g): Th-232	1.000E+01	0.000E+00	---	S1(28)
R012	Initial principal radionuclide (pCi/g): U-234	1.000E+01	0.000E+00	---	S1(30)
R012	Initial principal radionuclide (pCi/g): U-235	1.000E+01	0.000E+00	---	S1(31)
R012	Initial principal radionuclide (pCi/g): U-238	1.000E+01	0.000E+00	---	S1(33)
R012	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	---	W1(2)
R012	Concentration in groundwater (pCi/L): Co-60	not used	0.000E+00	---	W1(3)
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	---	W1(4)
R012	Concentration in groundwater (pCi/L): Eu-152	not used	0.000E+00	---	W1(5)
R012	Concentration in groundwater (pCi/L): Eu-154	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): Eu-155	not used	0.000E+00	---	W1(8)
R012	Concentration in groundwater (pCi/L): H-3	not used	0.000E+00	---	W1(10)
R012	Concentration in groundwater (pCi/L): I-129	not used	0.000E+00	---	W1(11)
R012	Concentration in groundwater (pCi/L): K-40	not used	0.000E+00	---	W1(12)
R012	Concentration in groundwater (pCi/L): Na-22	not used	0.000E+00	---	W1(13)
R012	Concentration in groundwater (pCi/L): Np-237	not used	0.000E+00	---	W1(14)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R012	Concentration in groundwater (pCi/L): Pu-238	not used	0.000E+00	---	W1(17)
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	---	W1(18)
R012	Concentration in groundwater (pCi/L): Pu-240	not used	0.000E+00	---	W1(19)
R012	Concentration in groundwater (pCi/L): Ra-226	not used	0.000E+00	---	W1(20)
R012	Concentration in groundwater (pCi/L): Ra-228	not used	0.000E+00	---	W1(21)
R012	Concentration in groundwater (pCi/L): Ru-106	not used	0.000E+00	---	W1(22)
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	---	W1(23)
R012	Concentration in groundwater (pCi/L): Tc-99	not used	0.000E+00	---	W1(24)
R012	Concentration in groundwater (pCi/L): Th-228	not used	0.000E+00	---	W1(25)
R012	Concentration in groundwater (pCi/L): Th-230	not used	0.000E+00	---	W1(27)
R012	Concentration in groundwater (pCi/L): Th-232	not used	0.000E+00	---	W1(28)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(30)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(31)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(33)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.600E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	0.000E+00	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	3.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	5.550E+00	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	9.990E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	4.760E-01	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	4.000E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	2.000E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	2.000E-01	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	1.000E+02	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	2.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	5.300E+00	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	1.000E-03	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	1.000E+01	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	---	UW
R015	Number of unsaturated zone strata	1	1	---	NS

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Am-241				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.913E-06	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for Co-60				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.190E-07	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for Cs-137				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.190E-07	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R016	Distribution coefficients for Eu-152				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.442E-07	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for Eu-154				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.442E-07	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for Eu-155				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.442E-07	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for H-3				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(10)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(10,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(10)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.520E-04	ALEACH(10)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(10)
R016	Distribution coefficients for I-129				
R016	Contaminated zone (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCC(11)
R016	Unsaturated zone 1 (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCU(11,1)
R016	Saturated zone (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCS(11)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.289E-04	ALEACH(11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(11)
R016	Distribution coefficients for K-40				
R016	Contaminated zone (cm**3/g)	5.500E+00	5.500E+00	---	DCNUCC(12)
R016	Unsaturated zone 1 (cm**3/g)	5.500E+00	5.500E+00	---	DCNUCU(12,1)
R016	Saturated zone (cm**3/g)	5.500E+00	5.500E+00	---	DCNUCS(12)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.116E-05	ALEACH(12)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(12)
R016	Distribution coefficients for Na-22				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(13)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCU(13,1)
R016	Saturated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCS(13)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.175E-05	ALEACH(13)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(13)
R016	Distribution coefficients for Np-237				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCC(14)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCU(14,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCS(14)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.620E-07	ALEACH(14)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(14)
R016	Distribution coefficients for Pu-238				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(17)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(17,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(17)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.950E-08	ALEACH(17)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(17)
R016	Distribution coefficients for Pu-239				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(18)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(18,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(18)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.950E-08	ALEACH(18)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(18)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Pu-240				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(19)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(19,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(19)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.950E-08	ALEACH(19)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(19)
R016	Distribution coefficients for Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(20)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(20,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(20)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.697E-06	ALEACH(20)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(20)
R016	Distribution coefficients for Ra-228				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(21)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(21,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(21)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.697E-06	ALEACH(21)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(21)
R016	Distribution coefficients for Ru-106				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(22)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(22,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(22)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.520E-04	ALEACH(22)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(22)
R016	Distribution coefficients for Sr-90				
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCC(23)
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCU(23,1)
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCS(23)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.950E-06	ALEACH(23)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(23)
R016	Distribution coefficients for Tc-99				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(24)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(24,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(24)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.520E-04	ALEACH(24)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(24)
R016	Distribution coefficients for Th-228				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(25)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(25,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(25)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.983E-09	ALEACH(25)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(25)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(27)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(27,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(27)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.983E-09	ALEACH(27)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(27)
R016	Distribution coefficients for Th-232				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(28)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(28,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(28)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.983E-09	ALEACH(28)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(28)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(30)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(30,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(30)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(30)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(30)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(31)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(31,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(31)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(31)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(31)
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(33)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(33,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(33)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(33)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(33)
R016	Distribution coefficients for daughter Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.913E-06	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for daughter Gd-152				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.442E-07	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(15)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(15,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(15)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(15)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(15)
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(16)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCU(16,1)
R016	Saturated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCS(16)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.188E-06	ALEACH(16)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(16)
R016	Distribution coefficients for daughter Th-229				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(26)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(26,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(26)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.983E-09	ALEACH(26)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(26)
R016	Distribution coefficients for daughter U-233				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(29)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(29,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(29)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(29)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(29)
R016	Distribution coefficients for daughter U-236				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(32)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(32,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(32)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.374E-06	ALEACH(32)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(32)
R017	Inhalation rate (m**3/yr)	7.300E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	2.000E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	1.000E+00	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	8.000E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	7.190E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	2.400E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	5.700E+01	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	0.000E+00	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	1.000E+00	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	0.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	1.000E+00	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	1.000E-04	1.000E-04	---	MLFD

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	9.000E-01	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	1.000E+00	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
C14	DCF correction factor for gaseous forms of C14	not used	8.894E+01	---	CO2F
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.000E+00	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	1.500E-01	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	2.400E+00	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	1.000E-01	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R021	Volumetric water content of the foundation	3.000E-02	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	3.000E-07	3.000E-07	---	DIFFL
R021	in contaminated zone soil	2.000E-06	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	2.000E+00	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	5.000E-01	5.000E-01	---	REXG
R021	Height of the building (room) (m)	2.500E+00	2.500E+00	---	HRM
R021	Building interior area factor	0.000E+00	0.000E+00	code computed (time dependent)	FAI
R021	Building depth below ground surface (m)	0.000E+00	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	2.500E-01	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	1.500E-01	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	5	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	active
Find peak pathway doses	active

Contaminated Zone Dimensions	
Area:	405000.00 square meters
Thickness:	2.00 meters
Cover Depth:	0.00 meters

Initial Soil Concentrations, pCi/g	
Am-241	1.000E+01
Co-60	1.000E+01
Cs-137	1.000E+01
Eu-152	1.000E+01
Eu-154	1.000E+01
Eu-155	1.000E+01
H-3	1.000E+01
I-129	1.000E+01
K-40	1.000E+01
Na-22	1.000E+01
Np-237	1.000E+01
Pu-238	1.000E+01
Pu-239	1.000E+01
Pu-240	1.000E+01
Ra-226	1.000E+01
Ra-228	1.000E+01
Ru-106	1.000E+01
Sr-90	1.000E+01
Tc-99	1.000E+01
Th-228	1.000E+01
Th-230	1.000E+01
Th-232	1.000E+01
U-234	1.000E+01
U-235	1.000E+01
U-238	1.000E+01

0

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
TDOSE(t):	1.717E+03	1.667E+03	1.389E+03	1.362E+03	1.351E+03
M(t):	1.144E+02	1.111E+02	9.262E+01	9.077E+01	9.005E+01

0Maximum TDOSE(t): 1.717E+03 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
Water Independent Pathways (Inhalation excludes radon)

0
0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.558E-01	0.0002	1.326E-01	0.0001	0.000E+00	0.0000	2.076E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.273E+00	0.0007
Co-60	1.223E+02	0.0712	6.134E-05	0.0000	0.000E+00	0.0000	1.149E+00	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	8.823E-03	0.0000
Cs-137	2.717E+01	0.0158	9.425E-06	0.0000	0.000E+00	0.0000	1.127E+00	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	1.730E-02	0.0000
Eu-152	5.510E+01	0.0321	6.437E-05	0.0000	0.000E+00	0.0000	9.002E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.210E-03	0.0000
Eu-154	5.952E+01	0.0347	8.220E-05	0.0000	0.000E+00	0.0000	1.309E-02	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.215E-03	0.0000
Eu-155	1.383E+00	0.0008	1.155E-05	0.0000	0.000E+00	0.0000	2.036E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.998E-04	0.0000
H-3	0.000E+00	0.0000	2.165E-02	0.0000	0.000E+00	0.0000	1.471E-01	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	1.410E-05	0.0000
I-129	1.051E-01	0.0001	5.199E-05	0.0000	0.000E+00	0.0000	3.147E+00	0.0018	0.000E+00	0.0000	0.000E+00	0.0000	9.658E-02	0.0001
K-40	8.379E+00	0.0049	3.706E-06	0.0000	0.000E+00	0.0000	3.181E+00	0.0019	0.000E+00	0.0000	0.000E+00	0.0000	6.511E-03	0.0000
Na-22	9.695E+01	0.0565	2.010E-06	0.0000	0.000E+00	0.0000	2.877E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	3.534E-03	0.0000
Np-237	8.908E+00	0.0052	1.614E-01	0.0001	0.000E+00	0.0000	5.062E+01	0.0295	0.000E+00	0.0000	0.000E+00	0.0000	1.554E+00	0.0009
Pu-238	1.226E-03	0.0000	1.167E-01	0.0001	4.216E-13	0.0000	1.819E+00	0.0011	0.000E+00	0.0000	0.000E+00	0.0000	1.116E+00	0.0006
Pu-239	2.394E-03	0.0000	1.282E-01	0.0001	0.000E+00	0.0000	2.020E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.239E+00	0.0007
Pu-240	1.198E-03	0.0000	1.282E-01	0.0001	3.861E-21	0.0000	2.020E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.239E+00	0.0007
Ra-226	9.025E+01	0.0526	2.677E-03	0.0000	9.165E+02	0.5339	3.096E+01	0.0180	0.000E+00	0.0000	0.000E+00	0.0000	5.046E-01	0.0003
Ra-228	5.812E+01	0.0339	1.738E-02	0.0000	1.216E+00	0.0007	3.102E+01	0.0181	0.000E+00	0.0000	0.000E+00	0.0000	5.186E-01	0.0003
Ru-106	7.529E+00	0.0044	1.031E-04	0.0000	0.000E+00	0.0000	3.387E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	6.933E-03	0.0000
Sr-90	1.961E-01	0.0001	3.869E-04	0.0000	0.000E+00	0.0000	2.585E+01	0.0151	0.000E+00	0.0000	0.000E+00	0.0000	5.292E-02	0.0000
Tc-99	1.023E-03	0.0000	2.489E-06	0.0000	0.000E+00	0.0000	4.159E+00	0.0024	0.000E+00	0.0000	0.000E+00	0.0000	5.108E-04	0.0000
Th-228	6.889E+01	0.0401	8.650E-02	0.0001	6.596E+00	0.0038	3.868E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	2.373E-01	0.0001
Th-230	2.939E-02	0.0000	9.744E-02	0.0001	1.985E-01	0.0001	3.194E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	1.919E-01	0.0001
Th-232	3.328E+00	0.0019	4.909E-01	0.0003	5.084E-02	0.0000	3.455E+00	0.0020	0.000E+00	0.0000	0.000E+00	0.0000	9.866E-01	0.0006
U-234	3.274E-03	0.0000	3.945E-02	0.0000	5.958E-07	0.0000	4.035E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.906E-02	0.0001
U-235	6.138E+00	0.0036	3.677E-02	0.0000	0.000E+00	0.0000	3.813E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.350E-02	0.0001
U-238	1.228E+00	0.0007	3.527E-02	0.0000	4.223E-13	0.0000	3.835E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.416E-02	0.0001
Total	6.159E+02	0.3588	1.496E+00	0.0009	9.246E+02	0.5386	1.653E+02	0.0963	0.000E+00	0.0000	0.000E+00	0.0000	9.346E+00	0.0054

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0
0 Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.837E+00	0.0022
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.235E+02	0.0719
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.832E+01	0.0165
Eu-152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.511E+01	0.0321
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.954E+01	0.0347
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.386E+00	0.0008
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.688E-01	0.0001
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.349E+00	0.0020
K-40	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.157E+01	0.0067
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.724E+01	0.0566
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.124E+01	0.0357
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.053E+00	0.0018
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.390E+00	0.0020
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.389E+00	0.0020
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.038E+03	0.6048
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.089E+01	0.0529
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.874E+00	0.0046
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.610E+01	0.0152
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.161E+00	0.0024
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.620E+01	0.0444
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.367E-01	0.0005
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.311E+00	0.0048
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.453E-01	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.650E+00	0.0039
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.741E+00	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.717E+03	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Radio-														
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.552E-01	0.0002	1.324E-01	0.0001	0.000E+00	0.0000	2.072E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.271E+00	0.0008
Co-60	1.072E+02	0.0643	5.378E-05	0.0000	0.000E+00	0.0000	1.008E+00	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	7.736E-03	0.0000
Cs-137	2.655E+01	0.0159	9.210E-06	0.0000	0.000E+00	0.0000	1.101E+00	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	1.691E-02	0.0000
Eu-152	5.231E+01	0.0314	6.110E-05	0.0000	0.000E+00	0.0000	8.546E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.098E-03	0.0000
Eu-154	5.501E+01	0.0330	7.598E-05	0.0000	0.000E+00	0.0000	1.210E-02	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.971E-03	0.0000
Eu-155	1.203E+00	0.0007	1.004E-05	0.0000	0.000E+00	0.0000	1.770E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.346E-04	0.0000
H-3	0.000E+00	0.0000	7.886E-03	0.0000	0.000E+00	0.0000	5.364E-02	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.138E-06	0.0000
I-129	1.051E-01	0.0001	5.197E-05	0.0000	0.000E+00	0.0000	3.146E+00	0.0019	0.000E+00	0.0000	0.000E+00	0.0000	9.653E-02	0.0001
K-40	8.379E+00	0.0050	3.706E-06	0.0000	0.000E+00	0.0000	3.181E+00	0.0019	0.000E+00	0.0000	0.000E+00	0.0000	6.510E-03	0.0000
Na-22	7.428E+01	0.0446	1.540E-06	0.0000	0.000E+00	0.0000	2.204E-01	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	2.707E-03	0.0000
Np-237	8.908E+00	0.0053	1.614E-01	0.0001	0.000E+00	0.0000	5.062E+01	0.0304	0.000E+00	0.0000	0.000E+00	0.0000	1.554E+00	0.0009
Pu-238	1.216E-03	0.0000	1.158E-01	0.0001	6.313E-12	0.0000	1.805E+00	0.0011	0.000E+00	0.0000	0.000E+00	0.0000	1.107E+00	0.0007
Pu-239	2.394E-03	0.0000	1.282E-01	0.0001	0.000E+00	0.0000	2.020E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.239E+00	0.0007
Pu-240	1.198E-03	0.0000	1.282E-01	0.0001	1.106E-19	0.0000	2.020E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.239E+00	0.0007
Ra-226	9.021E+01	0.0541	2.884E-03	0.0000	9.161E+02	0.5495	3.220E+01	0.0193	0.000E+00	0.0000	0.000E+00	0.0000	5.810E-01	0.0003
Ra-228	7.117E+01	0.0427	4.008E-02	0.0000	2.960E+00	0.0018	2.761E+01	0.0166	0.000E+00	0.0000	0.000E+00	0.0000	5.274E-01	0.0003
Ru-106	3.782E+00	0.0023	5.177E-05	0.0000	0.000E+00	0.0000	1.701E-01	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	3.482E-03	0.0000
Sr-90	1.915E-01	0.0001	3.778E-04	0.0000	0.000E+00	0.0000	2.525E+01	0.0151	0.000E+00	0.0000	0.000E+00	0.0000	5.168E-02	0.0000
Tc-99	1.022E-03	0.0000	2.486E-06	0.0000	0.000E+00	0.0000	4.155E+00	0.0025	0.000E+00	0.0000	0.000E+00	0.0000	5.103E-04	0.0000
Th-228	4.795E+01	0.0288	6.021E-02	0.0000	4.592E+00	0.0028	2.692E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	1.651E-01	0.0001
Th-230	6.848E-02	0.0000	9.744E-02	0.0001	5.955E-01	0.0004	3.330E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	1.922E-01	0.0001
Th-232	1.121E+01	0.0067	4.945E-01	0.0003	3.119E-01	0.0002	6.983E+00	0.0042	0.000E+00	0.0000	0.000E+00	0.0000	1.050E+00	0.0006
U-234	3.275E-03	0.0000	3.945E-02	0.0000	4.170E-06	0.0000	4.035E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.906E-02	0.0001
U-235	6.138E+00	0.0037	3.678E-02	0.0000	0.000E+00	0.0000	3.826E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.358E-02	0.0001
U-238	1.228E+00	0.0007	3.527E-02	0.0000	6.333E-12	0.0000	3.835E-01	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	9.416E-02	0.0001
Total	5.663E+02	0.3397	1.481E+00	0.0009	9.246E+02	0.5546	1.654E+02	0.0992	0.000E+00	0.0000	0.000E+00	0.0000	9.404E+00	0.0056

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

0
0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	Water Dependent Pathways													
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.831E+00	0.0023
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.083E+02	0.0649
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.767E+01	0.0166
Eu-152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.232E+01	0.0314
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.503E+01	0.0330
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.205E+00	0.0007
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.153E-02	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.347E+00	0.0020
K-40	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.157E+01	0.0069
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.450E+01	0.0447
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.124E+01	0.0367
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.029E+00	0.0018
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.390E+00	0.0020
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.388E+00	0.0020
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.039E+03	0.6233
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.023E+02	0.0614
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.955E+00	0.0024
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.549E+01	0.0153
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.157E+00	0.0025
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.304E+01	0.0318
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.287E+00	0.0008
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.005E+01	0.0120
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.453E-01	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.651E+00	0.0040
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.741E+00	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.667E+03	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0 Water Independent Pathways (Inhalation excludes radon)
0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.391E-01	0.0002	1.264E-01	0.0001	0.000E+00	0.0000	1.978E+00	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	1.213E+00	0.0009
Co-60	2.367E+00	0.0017	1.187E-06	0.0000	0.000E+00	0.0000	2.224E-02	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.707E-04	0.0000
Cs-137	1.359E+01	0.0098	4.713E-06	0.0000	0.000E+00	0.0000	5.635E-01	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	8.651E-03	0.0000
Eu-152	1.158E+01	0.0083	1.353E-05	0.0000	0.000E+00	0.0000	1.892E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.645E-04	0.0000
Eu-154	5.603E+00	0.0040	7.738E-06	0.0000	0.000E+00	0.0000	1.233E-03	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.026E-04	0.0000
Eu-155	2.090E-02	0.0000	1.745E-07	0.0000	0.000E+00	0.0000	3.076E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.552E-06	0.0000
H-3	0.000E+00	0.0000	1.511E-15	0.0000	0.000E+00	0.0000	1.028E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.847E-19	0.0000
I-129	1.035E-01	0.0001	5.117E-05	0.0000	0.000E+00	0.0000	3.098E+00	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	9.506E-02	0.0001
K-40	8.374E+00	0.0060	3.704E-06	0.0000	0.000E+00	0.0000	3.179E+00	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	6.506E-03	0.0000
Na-22	3.278E-02	0.0000	6.796E-10	0.0000	0.000E+00	0.0000	9.729E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.195E-06	0.0000
Np-237	8.908E+00	0.0064	1.614E-01	0.0001	0.000E+00	0.0000	5.062E+01	0.0364	0.000E+00	0.0000	0.000E+00	0.0000	1.554E+00	0.0011
Pu-238	9.675E-04	0.0000	9.208E-02	0.0001	4.503E-08	0.0000	1.435E+00	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	8.803E-01	0.0006
Pu-239	2.393E-03	0.0000	1.281E-01	0.0001	0.000E+00	0.0000	2.018E+00	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	1.238E+00	0.0009
Pu-240	1.194E-03	0.0000	1.278E-01	0.0001	2.578E-15	0.0000	2.014E+00	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	1.235E+00	0.0009
Ra-226	8.911E+01	0.0641	6.751E-03	0.0000	9.046E+02	0.6512	5.513E+01	0.0397	0.000E+00	0.0000	0.000E+00	0.0000	2.006E+00	0.0014
Ra-228	4.335E+00	0.0031	3.949E-03	0.0000	2.982E-01	0.0002	8.493E-01	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	2.349E-02	0.0000
Ru-106	8.053E-09	0.0000	1.102E-13	0.0000	0.000E+00	0.0000	3.623E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.416E-12	0.0000
Sr-90	9.600E-02	0.0001	1.894E-04	0.0000	0.000E+00	0.0000	1.266E+01	0.0091	0.000E+00	0.0000	0.000E+00	0.0000	2.591E-02	0.0000
Tc-99	9.945E-04	0.0000	2.418E-06	0.0000	0.000E+00	0.0000	4.042E+00	0.0029	0.000E+00	0.0000	0.000E+00	0.0000	4.964E-04	0.0000
Th-228	1.311E-03	0.0000	1.646E-06	0.0000	1.255E-04	0.0000	7.361E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.515E-06	0.0000
Th-230	1.195E+00	0.0009	9.748E-02	0.0001	1.203E+01	0.0087	9.036E-01	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	2.097E-01	0.0002
Th-232	1.260E+02	0.0907	5.909E-01	0.0004	7.565E+00	0.0054	3.401E+01	0.0245	0.000E+00	0.0000	0.000E+00	0.0000	1.719E+00	0.0012
U-234	3.439E-03	0.0000	3.947E-02	0.0000	1.655E-03	0.0000	4.036E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.910E-02	0.0001
U-235	6.143E+00	0.0044	3.747E-02	0.0000	0.000E+00	0.0000	4.245E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.705E-02	0.0001
U-238	1.228E+00	0.0009	3.527E-02	0.0000	4.777E-08	0.0000	3.835E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.416E-02	0.0001
Total	2.790E+02	0.2009	1.447E+00	0.0010	9.245E+02	0.6655	1.737E+02	0.1251	0.000E+00	0.0000	0.000E+00	0.0000	1.051E+01	0.0076

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0
0

	Water Dependent Pathways													
	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Radio-Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.657E+00	0.0026
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.389E+00	0.0017
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.416E+01	0.0102
Eu-152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.158E+01	0.0083
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.605E+00	0.0040
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.094E-02	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.179E-14	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.296E+00	0.0024
K-40	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.156E+01	0.0083
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.288E-02	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.124E+01	0.0441
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.408E+00	0.0017
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.387E+00	0.0024
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.378E+00	0.0024
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.051E+03	0.7564
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.510E+00	0.0040
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.423E-09	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.278E+01	0.0092
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.043E+00	0.0029
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.450E-03	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.444E+01	0.0104
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.699E+02	0.1223
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.472E-01	0.0004
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.702E+00	0.0048
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.741E+00	0.0013
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.389E+03	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
Water Independent Pathways (Inhalation excludes radon)

0
0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.031E-01	0.0002	1.129E-01	0.0001	0.000E+00	0.0000	1.768E+00	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	1.084E+00	0.0008
Co-60	2.379E-04	0.0000	1.193E-10	0.0000	0.000E+00	0.0000	2.236E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.716E-08	0.0000
Cs-137	2.696E+00	0.0020	9.351E-07	0.0000	0.000E+00	0.0000	1.118E-01	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	1.716E-03	0.0000
Eu-152	3.040E-01	0.0002	3.551E-07	0.0000	0.000E+00	0.0000	4.967E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.219E-05	0.0000
Eu-154	2.259E-02	0.0000	3.119E-08	0.0000	0.000E+00	0.0000	4.969E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.220E-06	0.0000
Eu-155	1.180E-06	0.0000	9.848E-12	0.0000	0.000E+00	0.0000	1.736E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.262E-10	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	9.972E-02	0.0001	4.931E-05	0.0000	0.000E+00	0.0000	2.985E+00	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	9.161E-02	0.0001
K-40	8.362E+00	0.0061	3.698E-06	0.0000	0.000E+00	0.0000	3.174E+00	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	6.497E-03	0.0000
Na-22	2.611E-10	0.0000	5.414E-18	0.0000	0.000E+00	0.0000	7.750E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.518E-15	0.0000
Np-237	8.907E+00	0.0065	1.614E-01	0.0001	0.000E+00	0.0000	5.062E+01	0.0372	0.000E+00	0.0000	0.000E+00	0.0000	1.554E+00	0.0011
Pu-238	5.571E-04	0.0000	5.297E-02	0.0000	1.405E-06	0.0000	8.256E-01	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	5.064E-01	0.0004
Pu-239	2.388E-03	0.0000	1.279E-01	0.0001	0.000E+00	0.0000	2.014E+00	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	1.236E+00	0.0009
Pu-240	1.185E-03	0.0000	1.269E-01	0.0001	4.622E-14	0.0000	1.999E+00	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	1.226E+00	0.0009
Ra-226	8.646E+01	0.0635	8.883E-03	0.0000	8.775E+02	0.6445	6.742E+01	0.0495	0.000E+00	0.0000	0.000E+00	0.0000	2.803E+00	0.0021
Ra-228	9.385E-04	0.0000	8.550E-07	0.0000	6.457E-05	0.0000	1.838E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.084E-06	0.0000
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	1.814E-02	0.0000	3.578E-05	0.0000	0.000E+00	0.0000	2.391E+00	0.0018	0.000E+00	0.0000	0.000E+00	0.0000	4.895E-03	0.0000
Tc-99	9.302E-04	0.0000	2.262E-06	0.0000	0.000E+00	0.0000	3.780E+00	0.0028	0.000E+00	0.0000	0.000E+00	0.0000	4.643E-04	0.0000
Th-228	1.268E-14	0.0000	1.592E-17	0.0000	1.214E-15	0.0000	7.117E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.365E-17	0.0000
Th-230	3.855E+00	0.0028	9.766E-02	0.0001	3.903E+01	0.0287	2.834E+00	0.0021	0.000E+00	0.0000	0.000E+00	0.0000	2.870E-01	0.0002
Th-232	1.303E+02	0.0957	5.948E-01	0.0004	7.863E+00	0.0058	3.486E+01	0.0256	0.000E+00	0.0000	0.000E+00	0.0000	1.742E+00	0.0013
U-234	5.033E-03	0.0000	3.952E-02	0.0000	1.779E-02	0.0000	4.046E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.922E-02	0.0001
U-235	6.164E+00	0.0045	4.055E-02	0.0000	0.000E+00	0.0000	5.403E-01	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	1.090E-01	0.0001
U-238	1.228E+00	0.0009	3.527E-02	0.0000	1.695E-06	0.0000	3.835E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.417E-02	0.0001
Total	2.488E+02	0.1827	1.399E+00	0.0010	9.244E+02	0.6790	1.761E+02	0.1293	0.000E+00	0.0000	0.000E+00	0.0000	1.085E+01	0.0080

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

0
0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	Water Dependent Pathways													
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.268E+00	0.0024
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.401E-04	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.809E+00	0.0021
Eu-152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.041E-01	0.0002
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.259E-02	0.0000
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.182E-06	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.177E+00	0.0023
K-40	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.154E+01	0.0085
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.619E-10	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.124E+01	0.0450
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.385E+00	0.0010
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.380E+00	0.0025
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.353E+00	0.0025
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.034E+03	0.7596
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.193E-03	0.0000
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.414E+00	0.0018
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.782E+00	0.0028
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.402E-14	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.611E+01	0.0339
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.754E+02	0.1288
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.661E-01	0.0004
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.854E+00	0.0050
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.741E+00	0.0013
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.362E+03	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
Water Independent Pathways (Inhalation excludes radon)

0
0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	7.257E-02	0.0001	2.654E-02	0.0000	0.000E+00	0.0000	4.232E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	2.548E-01	0.0002
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	2.510E-09	0.0000	8.708E-16	0.0000	0.000E+00	0.0000	1.041E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.598E-12	0.0000
Eu-152	1.439E-21	0.0000	2.502E-15	0.0000	0.000E+00	0.0000	7.909E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.942E-15	0.0000
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	6.195E-02	0.0000	3.064E-05	0.0000	0.000E+00	0.0000	1.855E+00	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	5.691E-02	0.0000
K-40	8.204E+00	0.0061	3.629E-06	0.0000	0.000E+00	0.0000	3.114E+00	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	6.374E-03	0.0000
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	8.904E+00	0.0066	1.616E-01	0.0001	0.000E+00	0.0000	5.058E+01	0.0374	0.000E+00	0.0000	0.000E+00	0.0000	1.554E+00	0.0012
Pu-238	4.487E-05	0.0000	5.763E-05	0.0000	4.387E-04	0.0000	8.523E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.509E-04	0.0000
Pu-239	2.332E-03	0.0000	1.246E-01	0.0001	0.000E+00	0.0000	1.963E+00	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	1.204E+00	0.0009
Pu-240	1.078E-03	0.0000	1.153E-01	0.0001	5.426E-12	0.0000	1.817E+00	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	1.114E+00	0.0008
Ra-226	5.845E+01	0.0433	6.215E-03	0.0000	5.933E+02	0.4392	4.683E+01	0.0347	0.000E+00	0.0000	0.000E+00	0.0000	1.972E+00	0.0015
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	8.978E-12	0.0000	1.771E-14	0.0000	0.000E+00	0.0000	1.184E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.423E-12	0.0000
Tc-99	3.937E-04	0.0000	9.574E-07	0.0000	0.000E+00	0.0000	1.600E+00	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	1.965E-04	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	3.160E+01	0.0234	9.983E-02	0.0001	3.206E+02	0.2374	2.504E+01	0.0185	0.000E+00	0.0000	0.000E+00	0.0000	1.220E+00	0.0009
Th-232	1.303E+02	0.0965	5.948E-01	0.0004	7.863E+00	0.0058	3.486E+01	0.0258	0.000E+00	0.0000	0.000E+00	0.0000	1.742E+00	0.0013
U-234	1.559E-01	0.0001	4.013E-02	0.0000	1.548E+00	0.0011	5.213E-01	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	1.051E-01	0.0001
U-235	6.486E+00	0.0048	8.533E-02	0.0001	0.000E+00	0.0000	2.070E+00	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	2.757E-01	0.0002
U-238	1.225E+00	0.0009	3.530E-02	0.0000	1.516E-03	0.0000	3.839E-01	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	9.422E-02	0.0001
Total	2.455E+02	0.1818	1.290E+00	0.0010	9.233E+02	0.6835	1.711E+02	0.1266	0.000E+00	0.0000	0.000E+00	0.0000	9.599E+00	0.0071

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

0
0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	Water Dependent Pathways													
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.771E-01	0.0006
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.616E-09	0.0000
Eu-152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.235E-14	0.0000
Eu-154	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Eu-155	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.973E+00	0.0015
K-40	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.132E+01	0.0084
Na-22	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Np-237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.120E+01	0.0453
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.844E-03	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.293E+00	0.0024
Pu-240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.047E+00	0.0023
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.005E+02	0.5186
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ru-106	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.195E-09	0.0000
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.601E+00	0.0012
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.786E+02	0.2803
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.754E+02	0.1298
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.370E+00	0.0018
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.916E+00	0.0066
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.740E+00	0.0013
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.351E+03	1.0000

0*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	DSR(j,t) 1.000E+00	(mrem/yr)/(pCi/g) 3.000E+01	1.000E+02	1.000E+03
ÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Am-241	Am-241	1.000E+00	3.837E-01	3.831E-01	3.656E-01	3.267E-01	7.672E-02
Am-241	Np-237	1.000E+00	9.877E-07	2.967E-06	5.904E-05	1.841E-04	9.856E-04
Am-241	U-233	1.000E+00	1.388E-14	9.494E-14	3.665E-11	3.832E-10	2.495E-08
Am-241	Th-229	1.000E+00	9.661E-18	1.447E-16	1.081E-12	3.752E-11	2.627E-08
Am-241	äDSR(j)		3.837E-01	3.831E-01	3.657E-01	3.268E-01	7.771E-02
0Co-60	Co-60	1.000E+00	1.235E+01	1.083E+01	2.389E-01	2.401E-05	0.000E+00
0Cs-137	Cs-137	1.000E+00	2.832E+00	2.767E+00	1.416E+00	2.809E-01	2.616E-10
0Eu-152	Eu-152	7.208E-01	3.972E+00	3.771E+00	8.348E-01	2.192E-02	1.038E-22
0Eu-152	Eu-152	2.792E-01	1.539E+00	1.461E+00	3.233E-01	8.489E-03	4.020E-23
Eu-152	Gd-152	2.792E-01	3.157E-17	9.257E-17	9.825E-16	1.229E-15	1.235E-15
Eu-152	äDSR(j)		1.539E+00	1.461E+00	3.233E-01	8.489E-03	1.235E-15
0Eu-154	Eu-154	1.000E+00	5.954E+00	5.503E+00	5.605E-01	2.259E-03	3.688E-34
0Eu-155	Eu-155	1.000E+00	1.386E-01	1.205E-01	2.094E-03	1.182E-07	0.000E+00
0H-3	H-3	1.000E+00	1.688E-02	6.153E-03	1.179E-15	0.000E+00	0.000E+00
0I-129	I-129	1.000E+00	3.349E-01	3.347E-01	3.296E-01	3.177E-01	1.973E-01
0K-40	K-40	1.000E+00	1.157E+00	1.157E+00	1.156E+00	1.154E+00	1.132E+00
0Na-22	Na-22	1.000E+00	9.724E+00	7.450E+00	3.288E-03	2.619E-11	0.000E+00
0Np-237	Np-237	1.000E+00	6.124E+00	6.124E+00	6.124E+00	6.124E+00	6.119E+00
Np-237	U-233	1.000E+00	1.265E-07	3.740E-07	7.537E-06	2.482E-05	2.462E-04
Np-237	Th-229	1.000E+00	1.193E-10	8.341E-10	3.320E-07	3.596E-06	3.457E-04
Np-237	äDSR(j)		6.124E+00	6.124E+00	6.124E+00	6.124E+00	6.120E+00
0Pu-238	Pu-238	1.000E+00	3.053E-01	3.029E-01	2.408E-01	1.385E-01	1.132E-04
Pu-238	U-234	1.000E+00	7.693E-08	2.303E-07	4.189E-06	1.072E-05	1.947E-05
Pu-238	Th-230	1.000E+00	2.613E-13	1.819E-12	6.713E-10	6.152E-09	1.716E-07
Pu-238	Ra-226	1.000E+00	4.771E-14	7.145E-13	5.097E-09	1.591E-07	4.966E-05
Pu-238	Pb-210	1.000E+00	1.302E-17	3.932E-16	4.344E-11	3.234E-09	1.970E-06
Pu-238	äDSR(j)		3.053E-01	3.029E-01	2.408E-01	1.385E-01	1.844E-04
0Pu-239	Pu-239	1.000E+00	3.390E-01	3.390E-01	3.387E-01	3.380E-01	3.293E-01
Pu-239	U-235	1.000E+00	3.274E-10	9.822E-10	1.996E-08	6.571E-08	6.450E-07
Pu-239	Pa-231	1.000E+00	2.282E-14	1.602E-13	6.400E-11	6.940E-10	6.766E-08
Pu-239	Ac-227	1.000E+00	1.243E-16	1.837E-15	1.115E-11	2.633E-10	4.288E-08
Pu-239	äDSR(j)		3.390E-01	3.390E-01	3.387E-01	3.380E-01	3.293E-01

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0Parent (i)	Product (j)	Branch Fraction*	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Pu-240	Pu-240	1.000E+00	3.389E-01	3.388E-01	3.378E-01	3.353E-01	3.047E-01
Pu-240	U-236	1.000E+00	7.633E-10	2.293E-09	4.658E-08	1.529E-07	1.450E-06
Pu-240	Th-232	1.000E+00	7.368E-20	5.139E-19	2.041E-16	2.211E-15	2.121E-13
Pu-240	Ra-228	1.000E+00	5.816E-20	8.526E-19	3.322E-15	5.086E-14	5.657E-12
Pu-240	Th-228	1.000E+00	4.473E-21	1.279E-19	2.979E-15	5.341E-14	6.269E-12
Pu-240	äDSR(j)		3.389E-01	3.388E-01	3.378E-01	3.353E-01	3.047E-01
0Ra-226	Ra-226	1.000E+00	1.038E+02	1.037E+02	1.024E+02	9.934E+01	6.716E+01
Ra-226	Pb-210	1.000E+00	6.864E-02	2.015E-01	2.678E+00	4.080E+00	2.892E+00
Ra-226	äDSR(j)		1.038E+02	1.039E+02	1.051E+02	1.034E+02	7.005E+01
0Ra-228	Ra-228	1.000E+00	7.683E+00	6.810E+00	2.065E-01	4.468E-05	0.000E+00
Ra-228	Th-228	1.000E+00	1.406E+00	3.421E+00	3.445E-01	7.459E-05	0.000E+00
Ra-228	äDSR(j)		9.089E+00	1.023E+01	5.510E-01	1.193E-04	0.000E+00
0Ru-106	Ru-106	1.000E+00	7.874E-01	3.955E-01	8.423E-10	9.857E-31	0.000E+00
0Sr-90	Sr-90	1.000E+00	2.610E+00	2.549E+00	1.278E+00	2.414E-01	1.195E-10
0Tc-99	Tc-99	1.000E+00	4.161E-01	4.157E-01	4.043E-01	3.782E-01	1.601E-01
0Th-228	Th-228	1.000E+00	7.620E+00	5.304E+00	1.450E-04	1.402E-15	0.000E+00
0Th-230	Th-230	1.000E+00	6.118E-02	6.118E-02	6.117E-02	6.113E-02	6.063E-02
Th-230	Ra-226	1.000E+00	2.247E-02	6.741E-02	1.362E+00	4.419E+00	3.630E+01
Th-230	Pb-210	1.000E+00	1.003E-05	6.873E-05	2.051E-02	1.308E-01	1.501E+00
Th-230	äDSR(j)		8.367E-02	1.287E-01	1.444E+00	4.611E+00	3.786E+01
0Th-232	Th-232	1.000E+00	3.008E-01	3.008E-01	3.008E-01	3.008E-01	3.008E-01
Th-232	Ra-228	1.000E+00	4.715E-01	1.344E+00	7.947E+00	8.154E+00	8.154E+00
Th-232	Th-228	1.000E+00	5.883E-02	3.606E-01	8.740E+00	9.085E+00	9.085E+00
Th-232	äDSR(j)		8.311E-01	2.005E+00	1.699E+01	1.754E+01	1.754E+01
0U-234	U-234	1.000E+00	5.452E-02	5.452E-02	5.452E-02	5.450E-02	5.424E-02
U-234	Th-230	1.000E+00	2.764E-07	8.273E-07	1.680E-05	5.531E-05	5.471E-04
U-234	Ra-226	1.000E+00	6.743E-08	4.720E-07	1.874E-04	2.013E-03	1.753E-01
U-234	Pb-210	1.000E+00	2.280E-11	3.342E-10	2.019E-06	4.762E-05	7.006E-03
U-234	äDSR(j)		5.453E-02	5.453E-02	5.472E-02	5.661E-02	2.370E-01
0U-235	U-235	1.000E+00	6.649E-01	6.649E-01	6.649E-01	6.648E-01	6.633E-01
U-235	Pa-231	1.000E+00	6.967E-05	2.094E-04	4.262E-03	1.403E-02	1.381E-01
U-235	Ac-227	1.000E+00	5.021E-07	3.461E-06	1.036E-03	6.629E-03	9.023E-02
U-235	äDSR(j)		6.650E-01	6.651E-01	6.702E-01	6.854E-01	8.916E-01

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
			DSR(j,t) (mrem/yr)/(pCi/g)				
U-238	U-238	1.000E+00	1.741E-01	1.741E-01	1.741E-01	1.740E-01	1.737E-01
U-238	U-234	1.000E+00	7.729E-08	2.319E-07	4.714E-06	1.553E-05	1.541E-04
U-238	Th-230	1.000E+00	2.619E-13	1.827E-12	7.263E-10	7.881E-09	7.772E-07
U-238	Ra-226	1.000E+00	4.779E-14	7.169E-13	5.408E-09	1.919E-07	1.716E-04
U-238	Pb-210	1.000E+00	1.304E-17	3.942E-16	4.561E-11	3.806E-09	6.648E-06
U-238	ãDSR(j)		1.741E-01	1.741E-01	1.741E-01	1.741E-01	1.740E-01

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BRF(1)*BRF(2)* ... BRF(j).
The DSR includes contributions from associated (half-life ó 0.5 yr) daughters.
0

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.500E+01 mrem/yr

0Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Am-241	3.909E+01	3.916E+01	4.102E+01	4.589E+01	1.930E+02
Co-60	1.215E+00	1.386E+00	6.279E+01	6.246E+05	*1.131E+15
Cs-137	5.297E+00	5.421E+00	1.059E+01	5.339E+01	5.734E+10
Eu-152	2.722E+00	2.867E+00	1.295E+01	4.933E+02	*1.765E+14
Eu-154	2.519E+00	2.726E+00	2.676E+01	6.639E+03	*2.639E+14
Eu-155	1.082E+02	1.245E+02	7.164E+03	1.269E+08	*4.651E+14
H-3	8.886E+02	2.438E+03	*9.594E+15	*9.594E+15	*9.594E+15
I-129	4.479E+01	4.481E+01	4.550E+01	4.722E+01	7.601E+01
K-40	1.297E+01	1.297E+01	1.298E+01	1.300E+01	1.325E+01
Na-22	1.543E+00	2.013E+00	4.562E+03	5.727E+11	*6.244E+15
Np-237	2.449E+00	2.449E+00	2.449E+00	2.449E+00	2.451E+00
Pu-238	4.914E+01	4.953E+01	6.228E+01	1.083E+02	8.133E+04
Pu-239	4.425E+01	4.425E+01	4.429E+01	4.438E+01	4.555E+01
Pu-240	4.427E+01	4.427E+01	4.441E+01	4.474E+01	4.922E+01
Ra-226	1.445E-01	1.444E-01	1.427E-01	1.450E-01	2.141E-01
Ra-228	1.650E+00	1.466E+00	2.722E+01	1.258E+05	*2.726E+14
Ru-106	1.905E+01	3.792E+01	1.781E+10	*3.347E+15	*3.347E+15
Sr-90	5.746E+00	5.885E+00	1.174E+01	6.213E+01	1.255E+11
Tc-99	3.605E+01	3.609E+01	3.710E+01	3.967E+01	9.371E+01
Th-228	1.969E+00	2.828E+00	1.034E+05	*8.192E+14	*8.192E+14
Th-230	1.793E+02	1.166E+02	1.039E+01	3.253E+00	3.962E-01
Th-232	1.805E+01	7.481E+00	8.829E-01	8.552E-01	8.552E-01
U-234	2.751E+02	2.751E+02	2.741E+02	2.650E+02	6.328E+01
U-235	2.256E+01	2.255E+01	2.238E+01	2.188E+01	1.682E+01
U-238	8.616E+01	8.616E+01	8.617E+01	8.618E+01	8.620E+01

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Am-241	1.000E+01	0.000E+00	3.837E-01	3.909E+01	3.837E-01	3.909E+01
Co-60	1.000E+01	0.000E+00	1.235E+01	1.215E+00	1.235E+01	1.215E+00
Cs-137	1.000E+01	0.000E+00	2.832E+00	5.297E+00	2.832E+00	5.297E+00
Eu-152	1.000E+01	0.000E+00	5.511E+00	2.722E+00	5.511E+00	2.722E+00
Eu-154	1.000E+01	0.000E+00	5.954E+00	2.519E+00	5.954E+00	2.519E+00
Eu-155	1.000E+01	0.000E+00	1.386E-01	1.082E+02	1.386E-01	1.082E+02
H-3	1.000E+01	0.000E+00	1.688E-02	8.886E+02	1.688E-02	8.886E+02
I-129	1.000E+01	0.000E+00	3.349E-01	4.479E+01	3.349E-01	4.479E+01
K-40	1.000E+01	0.000E+00	1.157E+00	1.297E+01	1.157E+00	1.297E+01
Na-22	1.000E+01	0.000E+00	9.724E+00	1.543E+00	9.724E+00	1.543E+00
Np-237	1.000E+01	0.000E+00	6.124E+00	2.449E+00	6.124E+00	2.449E+00
Pu-238	1.000E+01	0.000E+00	3.053E-01	4.914E+01	3.053E-01	4.914E+01
Pu-239	1.000E+01	0.000E+00	3.390E-01	4.425E+01	3.390E-01	4.425E+01
Pu-240	1.000E+01	0.000E+00	3.389E-01	4.427E+01	3.389E-01	4.427E+01
Ra-226	1.000E+01	34.81 ñ 0.07	1.051E+02	1.427E-01	1.038E+02	1.445E-01
Ra-228	1.000E+01	2.128 ñ 0.004	1.059E+01	1.417E+00	9.089E+00	1.650E+00
Ru-106	1.000E+01	0.000E+00	7.874E-01	1.905E+01	7.874E-01	1.905E+01
Sr-90	1.000E+01	0.000E+00	2.610E+00	5.746E+00	2.610E+00	5.746E+00
Tc-99	1.000E+01	0.000E+00	4.161E-01	3.605E+01	4.161E-01	3.605E+01
Th-228	1.000E+01	0.000E+00	7.620E+00	1.969E+00	7.620E+00	1.969E+00
Th-230	1.000E+01	1.000E+03	3.786E+01	3.962E-01	8.367E-02	1.793E+02
Th-232	1.000E+01	148.9 ñ 0.3	1.754E+01	8.552E-01	8.311E-01	1.805E+01
U-234	1.000E+01	1.000E+03	2.370E-01	6.328E+01	5.453E-02	2.751E+02
U-235	1.000E+01	1.000E+03	8.916E-01	1.682E+01	6.650E-01	2.256E+01
U-238	1.000E+01	0.000E+00	1.741E-01	8.616E+01	1.741E-01	8.616E+01

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	3.837E+00	3.831E+00	3.656E+00	3.267E+00	7.672E-01
0Np-237	Am-241	1.000E+00	9.877E-06	2.967E-05	5.904E-04	1.841E-03	9.856E-03
Np-237	Np-237	1.000E+00	6.124E+01	6.124E+01	6.124E+01	6.124E+01	6.119E+01
Np-237	äDOSE(j)		6.124E+01	6.124E+01	6.124E+01	6.124E+01	6.120E+01
0U-233	Am-241	1.000E+00	1.388E-13	9.494E-13	3.665E-10	3.832E-09	2.495E-07
U-233	Np-237	1.000E+00	1.265E-06	3.740E-06	7.537E-05	2.482E-04	2.462E-03
U-233	äDOSE(j)		1.265E-06	3.740E-06	7.537E-05	2.482E-04	2.463E-03
0Th-229	Am-241	1.000E+00	9.661E-17	1.447E-15	1.081E-11	3.752E-10	2.627E-07
Th-229	Np-237	1.000E+00	1.193E-09	8.341E-09	3.320E-06	3.596E-05	3.457E-03
Th-229	äDOSE(j)		1.193E-09	8.341E-09	3.320E-06	3.596E-05	3.457E-03
0Co-60	Co-60	1.000E+00	1.235E+02	1.083E+02	2.389E+00	2.401E-04	0.000E+00
0Cs-137	Cs-137	1.000E+00	2.832E+01	2.767E+01	1.416E+01	2.809E+00	2.616E-09
0Eu-152	Eu-152	7.208E-01	3.972E+01	3.771E+01	8.348E+00	2.192E-01	1.038E-21
Eu-152	Eu-152	2.792E-01	1.539E+01	1.461E+01	3.233E+00	8.489E-02	4.020E-22
Eu-152	äDOSE(j)		5.511E+01	5.232E+01	1.158E+01	3.041E-01	1.440E-21
0Gd-152	Eu-152	2.792E-01	3.157E-16	9.257E-16	9.825E-15	1.229E-14	1.235E-14
0Eu-154	Eu-154	1.000E+00	5.954E+01	5.503E+01	5.605E+00	2.259E-02	0.000E+00
0Eu-155	Eu-155	1.000E+00	1.386E+00	1.205E+00	2.094E-02	1.182E-06	0.000E+00
0H-3	H-3	1.000E+00	1.688E-01	6.153E-02	1.179E-14	0.000E+00	0.000E+00
0I-129	I-129	1.000E+00	3.349E+00	3.347E+00	3.296E+00	3.177E+00	1.973E+00
0K-40	K-40	1.000E+00	1.157E+01	1.157E+01	1.156E+01	1.154E+01	1.132E+01
0Na-22	Na-22	1.000E+00	9.724E+01	7.450E+01	3.288E-02	2.619E-10	0.000E+00
0Pu-238	Pu-238	1.000E+00	3.053E+00	3.029E+00	2.408E+00	1.385E+00	1.132E-03
0U-234	Pu-238	1.000E+00	7.693E-07	2.303E-06	4.189E-05	1.072E-04	1.947E-04
U-234	U-234	1.000E+00	5.452E-01	5.452E-01	5.452E-01	5.450E-01	5.424E-01
U-234	U-238	1.000E+00	7.729E-07	2.319E-06	4.714E-05	1.553E-04	1.541E-03
U-234	äDOSE(j)		5.453E-01	5.453E-01	5.453E-01	5.452E-01	5.442E-01
0Th-230	Pu-238	1.000E+00	2.613E-12	1.819E-11	6.713E-09	6.152E-08	1.716E-06
Th-230	Th-230	1.000E+00	6.118E-01	6.118E-01	6.117E-01	6.113E-01	6.063E-01
Th-230	U-234	1.000E+00	2.764E-06	8.273E-06	1.680E-04	5.531E-04	5.471E-03
Th-230	U-238	1.000E+00	2.619E-12	1.827E-11	7.263E-09	7.881E-08	7.772E-06
Th-230	äDOSE(j)		6.118E-01	6.118E-01	6.118E-01	6.118E-01	6.118E-01

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Ra-226	Pu-238	1.000E+00	4.771E-13	7.145E-12	5.097E-08	1.591E-06	4.966E-04
Ra-226	Ra-226	1.000E+00	1.038E+03	1.037E+03	1.024E+03	9.934E+02	6.716E+02
Ra-226	Th-230	1.000E+00	2.247E-01	6.741E-01	1.362E+01	4.419E+01	3.630E+02
Ra-226	U-234	1.000E+00	6.743E-07	4.720E-06	1.874E-03	2.013E-02	1.753E+00
Ra-226	U-238	1.000E+00	4.779E-13	7.169E-12	5.408E-08	1.919E-06	1.716E-03
Ra-226	äDOSE(j)		1.038E+03	1.038E+03	1.038E+03	1.038E+03	1.036E+03
0Pb-210	Pu-238	1.000E+00	1.302E-16	3.932E-15	4.344E-10	3.234E-08	1.970E-05
Pb-210	Ra-226	1.000E+00	6.864E-01	2.015E+00	2.678E+01	4.080E+01	2.892E+01
Pb-210	Th-230	1.000E+00	1.003E-04	6.873E-04	2.051E-01	1.308E+00	1.501E+01
Pb-210	U-234	1.000E+00	2.280E-10	3.342E-09	2.019E-05	4.762E-04	7.006E-02
Pb-210	U-238	1.000E+00	1.304E-16	3.942E-15	4.561E-10	3.806E-08	6.648E-05
Pb-210	äDOSE(j)		6.865E-01	2.015E+00	2.699E+01	4.211E+01	4.400E+01
0Pu-239	Pu-239	1.000E+00	3.390E+00	3.390E+00	3.387E+00	3.380E+00	3.293E+00
0U-235	Pu-239	1.000E+00	3.274E-09	9.822E-09	1.996E-07	6.571E-07	6.450E-06
U-235	U-235	1.000E+00	6.649E+00	6.649E+00	6.649E+00	6.648E+00	6.633E+00
U-235	äDOSE(j)		6.649E+00	6.649E+00	6.649E+00	6.648E+00	6.633E+00
0Pa-231	Pu-239	1.000E+00	2.282E-13	1.602E-12	6.400E-10	6.940E-09	6.766E-07
Pa-231	U-235	1.000E+00	6.967E-04	2.094E-03	4.262E-02	1.403E-01	1.381E+00
Pa-231	äDOSE(j)		6.967E-04	2.094E-03	4.262E-02	1.403E-01	1.381E+00
0Ac-227	Pu-239	1.000E+00	1.243E-15	1.837E-14	1.115E-10	2.633E-09	4.288E-07
Ac-227	U-235	1.000E+00	5.021E-06	3.461E-05	1.036E-02	6.629E-02	9.023E-01
Ac-227	äDOSE(j)		5.021E-06	3.461E-05	1.036E-02	6.629E-02	9.023E-01
0Pu-240	Pu-240	1.000E+00	3.389E+00	3.388E+00	3.378E+00	3.353E+00	3.047E+00
0U-236	Pu-240	1.000E+00	7.633E-09	2.293E-08	4.658E-07	1.529E-06	1.450E-05
0Th-232	Pu-240	1.000E+00	7.368E-19	5.139E-18	2.041E-15	2.211E-14	2.121E-12
Th-232	Th-232	1.000E+00	3.008E+00	3.008E+00	3.008E+00	3.008E+00	3.008E+00
Th-232	äDOSE(j)		3.008E+00	3.008E+00	3.008E+00	3.008E+00	3.008E+00
0Ra-228	Pu-240	1.000E+00	5.816E-19	8.526E-18	3.322E-14	5.086E-13	5.657E-11
Ra-228	Ra-228	1.000E+00	7.683E+01	6.810E+01	2.065E+00	4.468E-04	0.000E+00
Ra-228	Th-232	1.000E+00	4.715E+00	1.344E+01	7.947E+01	8.154E+01	8.154E+01
Ra-228	äDOSE(j)		8.154E+01	8.154E+01	8.154E+01	8.154E+01	8.154E+01
0Th-228	Pu-240	1.000E+00	4.473E-20	1.279E-18	2.979E-14	5.341E-13	6.269E-11
Th-228	Ra-228	1.000E+00	1.406E+01	3.421E+01	3.445E+00	7.459E-04	0.000E+00
Th-228	Th-228	1.000E+00	7.620E+01	5.304E+01	1.450E-03	1.402E-14	0.000E+00
Th-228	Th-232	1.000E+00	5.883E-01	3.606E+00	8.740E+01	9.085E+01	9.085E+01
Th-228	äDOSE(j)		9.085E+01	9.085E+01	9.085E+01	9.085E+01	9.085E+01
0Ru-106	Ru-106	1.000E+00	7.874E+00	3.955E+00	8.423E-09	0.000E+00	0.000E+00
0Sr-90	Sr-90	1.000E+00	2.610E+01	2.549E+01	1.278E+01	2.414E+00	1.195E-09

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Tc-99	Tc-99	1.000E+00	4.161E+00	4.157E+00	4.043E+00	3.782E+00	1.601E+00
0U-238	U-238	1.000E+00	1.741E+00	1.741E+00	1.741E+00	1.740E+00	1.737E+00

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	1.000E+01	9.984E+00	9.529E+00	8.513E+00	2.000E+00
0Np-237	Am-241	1.000E+00	0.000E+00	3.236E-06	9.486E-05	2.992E-04	1.609E-03
Np-237	Np-237	1.000E+00	1.000E+01	1.000E+01	1.000E+01	9.999E+00	9.992E+00
Np-237	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	9.994E+00
0U-233	Am-241	1.000E+00	0.000E+00	7.079E-12	6.272E-09	6.715E-08	4.414E-06
U-233	Np-237	1.000E+00	0.000E+00	4.373E-05	1.312E-03	4.372E-03	4.357E-02
U-233	äS(j):		0.000E+00	4.373E-05	1.312E-03	4.372E-03	4.357E-02
0Th-229	Am-241	1.000E+00	0.000E+00	2.228E-16	5.943E-12	2.137E-10	1.517E-07
Th-229	Np-237	1.000E+00	0.000E+00	2.065E-09	1.857E-06	2.058E-05	1.996E-03
Th-229	äS(j):		0.000E+00	2.065E-09	1.857E-06	2.058E-05	1.996E-03
0Co-60	Co-60	1.000E+00	1.000E+01	8.768E+00	1.935E-01	1.945E-05	0.000E+00
0Cs-137	Cs-137	1.000E+00	1.000E+01	9.772E+00	5.000E+00	9.921E-01	9.239E-10
0Eu-152	Eu-152	7.208E-01	7.208E+00	6.843E+00	1.515E+00	3.977E-02	1.883E-22
Eu-152	Eu-152	2.792E-01	2.792E+00	2.651E+00	5.867E-01	1.540E-02	7.294E-23
Eu-152	äS(j):		1.000E+01	9.493E+00	2.101E+00	5.517E-02	2.612E-22
0Gd-152	Eu-152	2.792E-01	0.000E+00	1.746E-14	2.722E-13	3.427E-13	3.446E-13
0Eu-154	Eu-154	1.000E+00	1.000E+01	9.243E+00	9.414E-01	3.795E-03	6.194E-34
0Eu-155	Eu-155	1.000E+00	1.000E+01	8.696E+00	1.511E-01	8.528E-06	0.000E+00
0H-3	H-3	1.000E+00	1.000E+01	3.643E+00	6.982E-13	0.000E+00	0.000E+00
0I-129	I-129	1.000E+00	1.000E+01	9.995E+00	9.843E+00	9.485E+00	5.892E+00
0K-40	K-40	1.000E+00	1.000E+01	1.000E+01	9.994E+00	9.979E+00	9.791E+00
0Na-22	Na-22	1.000E+00	1.000E+01	7.661E+00	3.381E-03	2.693E-11	0.000E+00
0Pu-238	Pu-238	1.000E+00	1.000E+01	9.921E+00	7.890E+00	4.538E+00	3.707E-03
0U-234	Pu-238	1.000E+00	0.000E+00	2.824E-05	7.572E-04	1.959E-03	3.571E-03
U-234	U-234	1.000E+00	1.000E+01	1.000E+01	9.998E+00	9.995E+00	9.948E+00
U-234	U-238	1.000E+00	0.000E+00	2.835E-05	8.504E-04	2.834E-03	2.824E-02
U-234	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	9.980E+00
0Th-230	Pu-238	1.000E+00	0.000E+00	1.273E-10	1.063E-07	9.966E-07	2.804E-05
Th-230	Th-230	1.000E+00	1.000E+01	1.000E+01	9.997E+00	9.991E+00	9.910E+00
Th-230	U-234	1.000E+00	0.000E+00	9.002E-05	2.700E-03	8.996E-03	8.938E-02
Th-230	U-238	1.000E+00	0.000E+00	1.276E-10	1.148E-07	1.275E-06	1.269E-04
Th-230	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	1.000E+01

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
Ra-226	Pu-238	1.000E+00	0.000E+00	1.839E-14	4.678E-10	1.512E-08	4.780E-06
Ra-226	Ra-226	1.000E+00	1.000E+01	9.996E+00	9.870E+00	9.574E+00	6.473E+00
Ra-226	Th-230	1.000E+00	0.000E+00	4.331E-03	1.291E-01	4.237E-01	3.496E+00
Ra-226	U-234	1.000E+00	0.000E+00	1.950E-08	1.747E-05	1.921E-04	1.687E-02
Ra-226	U-238	1.000E+00	0.000E+00	1.842E-14	4.958E-10	1.822E-08	1.652E-05
Ra-226	äS(j):		1.000E+01	1.000E+01	9.999E+00	9.998E+00	9.986E+00
Pb-210	Pu-238	1.000E+00	0.000E+00	1.421E-16	9.249E-11	7.216E-09	4.466E-06
Pb-210	Ra-226	1.000E+00	0.000E+00	3.060E-01	6.019E+00	9.257E+00	6.565E+00
Pb-210	Th-230	1.000E+00	0.000E+00	6.663E-05	4.523E-02	2.948E-01	3.405E+00
Pb-210	U-234	1.000E+00	0.000E+00	2.004E-10	4.372E-06	1.067E-04	1.589E-02
Pb-210	U-238	1.000E+00	0.000E+00	1.423E-16	9.704E-11	8.485E-09	1.507E-05
Pb-210	äS(j):		0.000E+00	3.060E-01	6.064E+00	9.552E+00	9.986E+00
Pu-239	Pu-239	1.000E+00	1.000E+01	1.000E+01	9.991E+00	9.971E+00	9.715E+00
U-235	Pu-239	1.000E+00	0.000E+00	9.848E-09	2.953E-07	9.833E-07	9.696E-06
U-235	U-235	1.000E+00	1.000E+01	1.000E+01	9.999E+00	9.998E+00	9.976E+00
U-235	äS(j):		1.000E+01	1.000E+01	9.999E+00	9.998E+00	9.976E+00
Pa-231	Pu-239	1.000E+00	0.000E+00	1.042E-13	9.372E-11	1.040E-09	1.023E-07
Pa-231	U-235	1.000E+00	0.000E+00	2.116E-04	6.345E-03	2.113E-02	2.089E-01
Pa-231	äS(j):		0.000E+00	2.116E-04	6.345E-03	2.113E-02	2.089E-01
Ac-227	Pu-239	1.000E+00	0.000E+00	1.097E-15	2.388E-11	5.835E-10	9.612E-08
Ac-227	U-235	1.000E+00	0.000E+00	3.332E-06	2.258E-03	1.477E-02	2.023E-01
Ac-227	äS(j):		0.000E+00	3.332E-06	2.258E-03	1.477E-02	2.023E-01
Pu-240	Pu-240	1.000E+00	1.000E+01	9.999E+00	9.968E+00	9.894E+00	8.993E+00
U-236	Pu-240	1.000E+00	0.000E+00	2.960E-07	8.866E-06	2.944E-05	2.805E-04
Th-232	Pu-240	1.000E+00	0.000E+00	7.302E-18	6.565E-15	7.276E-14	7.045E-12
Th-232	Th-232	1.000E+00	1.000E+01	1.000E+01	1.000E+01	1.000E+01	1.000E+01
Th-232	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	1.000E+01
Ra-228	Pu-240	1.000E+00	0.000E+00	2.848E-19	3.912E-15	6.170E-14	6.931E-12
Ra-228	Ra-228	1.000E+00	1.000E+01	8.864E+00	2.688E-01	5.816E-05	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	1.136E+00	9.731E+00	1.000E+01	1.000E+01
Ra-228	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	1.000E+01
Th-228	Pu-240	1.000E+00	0.000E+00	2.417E-20	3.136E-15	5.814E-14	6.893E-12
Th-228	Ra-228	1.000E+00	0.000E+00	2.853E+00	4.025E-01	8.716E-05	0.000E+00
Th-228	Th-228	1.000E+00	1.000E+01	6.961E+00	1.903E-04	1.840E-15	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.864E-01	9.597E+00	1.000E+01	1.000E+01
Th-228	äS(j):		1.000E+01	1.000E+01	1.000E+01	1.000E+01	1.000E+01
Ru-106	Ru-106	1.000E+00	1.000E+01	5.023E+00	1.070E-08	1.252E-29	0.000E+00
Sr-90	Sr-90	1.000E+00	1.000E+01	9.765E+00	4.896E+00	9.249E-01	4.578E-10

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+01	1.000E+02	1.000E+03
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Tc-99	Tc-99	1.000E+00	1.000E+01	9.990E+00	9.717E+00	9.089E+00	3.847E+00
0U-238	U-238	1.000E+00	1.000E+01	1.000E+01	9.999E+00	9.998E+00	9.976E+00
ffffffff	ffffffff	ffffffffff	ffffffffff	ffffffffff	ffffffffff	ffffffffff	ffffffffff

BRF(i) is the branch fraction of the parent nuclide.
0RESCALC.EXE execution time = 5.63 seconds