

Summary : Hematite - Surface CSM

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Dose Conversion Factor (and Related) Parameter Summary  
 Dose Library: Hematite Plus FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-225 (Source: FGR 12)	6.371E-02	6.371E-02	DCF1 ( 1)
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1 ( 2)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1 ( 3)
A-1	Am-241 (Source: FGR 12)	4.372E-02	4.372E-02	DCF1 ( 4)
A-1	At-217 (Source: FGR 12)	1.773E-03	1.773E-03	DCF1 ( 5)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1 ( 6)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1 ( 7)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1 ( 8)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1 ( 9)
A-1	Bi-213 (Source: FGR 12)	7.660E-01	7.660E-01	DCF1 ( 10)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1 ( 11)
A-1	Fr-221 (Source: FGR 12)	1.536E-01	1.536E-01	DCF1 ( 12)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1 ( 13)
A-1	Np-237 (Source: FGR 12)	7.790E-02	7.790E-02	DCF1 ( 14)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1 ( 15)
A-1	Pa-233 (Source: FGR 12)	1.020E+00	1.020E+00	DCF1 ( 16)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1 ( 17)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1 ( 18)
A-1	Pb-209 (Source: FGR 12)	7.734E-04	7.734E-04	DCF1 ( 19)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1 ( 20)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1 ( 21)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1 ( 22)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1 ( 23)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1 ( 24)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1 ( 25)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1 ( 26)
A-1	Po-213 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1 ( 27)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1 ( 28)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1 ( 29)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1 ( 30)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1 ( 31)
A-1	Pu-239 (Source: FGR 12)	2.952E-04	2.952E-04	DCF1 ( 32)
A-1	Pu-240 (Source: FGR 12)	1.467E-04	1.467E-04	DCF1 ( 33)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1 ( 34)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1 ( 35)
A-1	Ra-225 (Source: FGR 12)	1.102E-02	1.102E-02	DCF1 ( 36)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1 ( 37)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1 ( 38)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1 ( 39)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1 ( 40)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1 ( 41)
A-1	Tc-99 (Source: FGR 12)	1.255E-04	1.255E-04	DCF1 ( 42)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1 ( 43)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1 ( 44)
A-1	Th-229 (Source: FGR 12)	3.213E-01	3.213E-01	DCF1 ( 45)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1 ( 46)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1 ( 47)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1 ( 48)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1 ( 49)

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Dose Conversion Factor (and Related) Parameter Summary (continued)  
 Dose Library: Hematite Plus FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1 ( 50)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1 ( 51)
A-1	Tl-209 (Source: FGR 12)	1.293E+01	1.293E+01	DCF1 ( 52)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1 ( 53)
A-1	U-233 (Source: FGR 12)	1.397E-03	1.397E-03	DCF1 ( 54)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1 ( 55)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1 ( 56)
A-1	U-236 (Source: FGR 12)	2.148E-04	2.148E-04	DCF1 ( 57)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1 ( 58)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2 ( 1)
B-1	Am-241	4.440E-01	4.440E-01	DCF2 ( 2)
B-1	Np-237+D	5.400E-01	5.400E-01	DCF2 ( 3)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2 ( 4)
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2 ( 5)
B-1	Pu-239	4.290E-01	4.290E-01	DCF2 ( 6)
B-1	Pu-240	4.290E-01	4.290E-01	DCF2 ( 7)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2 ( 9)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2 ( 10)
B-1	Tc-99	8.320E-06	8.320E-06	DCF2 ( 11)
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2 ( 12)
B-1	Th-229+D	2.169E+00	2.150E+00	DCF2 ( 13)
B-1	Th-230	3.260E-01	3.260E-01	DCF2 ( 14)
B-1	Th-232	1.640E+00	1.640E+00	DCF2 ( 15)
B-1	U-233	1.350E-01	1.350E-01	DCF2 ( 16)
B-1	U-234	1.320E-01	1.320E-01	DCF2 ( 17)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2 ( 18)
B-1	U-236	1.250E-01	1.250E-01	DCF2 ( 19)
B-1	U-238	1.180E-01	1.180E-01	DCF2 ( 20)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2 ( 21)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3 ( 1)
D-1	Am-241	3.640E-03	3.640E-03	DCF3 ( 2)
D-1	Np-237+D	4.444E-03	4.440E-03	DCF3 ( 3)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3 ( 4)
D-1	Pb-210+D	7.276E-03	5.370E-03	DCF3 ( 5)
D-1	Pu-239	3.540E-03	3.540E-03	DCF3 ( 6)
D-1	Pu-240	3.540E-03	3.540E-03	DCF3 ( 7)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3 ( 9)
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3 ( 10)
D-1	Tc-99	1.460E-06	1.460E-06	DCF3 ( 11)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3 ( 12)
D-1	Th-229+D	4.027E-03	3.530E-03	DCF3 ( 13)
D-1	Th-230	5.480E-04	5.480E-04	DCF3 ( 14)
D-1	Th-232	2.730E-03	2.730E-03	DCF3 ( 15)
D-1	U-233	2.890E-04	2.890E-04	DCF3 ( 16)
D-1	U-234	2.830E-04	2.830E-04	DCF3 ( 17)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3 ( 18)

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Dose Conversion Factor (and Related) Parameter Summary (continued)  
 Dose Library: Hematite Plus FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-1	U-236	2.690E-04	2.690E-04	DCF3 ( 19)
D-1	U-238	2.550E-04	2.550E-04	DCF3 ( 20)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3 ( 21)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	1.000E-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-06	2.000E-05	RTF( 1,3)
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	Np-237+D , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF( 3,1)
D-34	Np-237+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF( 3,2)
D-34	Np-237+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-05	5.000E-06	RTF( 3,3)
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-02	RTF( 4,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-06	5.000E-03	RTF( 4,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.900E-06	5.000E-06	RTF( 4,3)
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	7.400E-03	1.000E-02	RTF( 5,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF( 5,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.570E-04	3.000E-04	RTF( 5,3)
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF( 6,1)
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF( 6,2)
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	9.900E-07	1.000E-06	RTF( 6,3)
D-34	Pu-240 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF( 7,1)
D-34	Pu-240 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF( 7,2)
D-34	Pu-240 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	9.900E-07	1.000E-06	RTF( 7,3)
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	7.400E-02	4.000E-02	RTF( 9,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF( 9,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-04	1.000E-03	RTF( 9,3)
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	7.400E-02	4.000E-02	RTF( 10,1)
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF( 10,2)
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-04	1.000E-03	RTF( 10,3)
D-34	Tc-99 , plant/soil concentration ratio, dimensionless	9.270E+00	5.000E+00	RTF( 11,1)
D-34	Tc-99 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	9.900E-05	1.000E-04	RTF( 11,2)
D-34	Tc-99 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF( 11,3)
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	9.930E-04	1.000E-03	RTF( 12,1)
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	9.900E-05	1.000E-04	RTF( 12,2)
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.900E-06	5.000E-06	RTF( 12,3)

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Dose Conversion Factor (and Related) Parameter Summary (continued)  
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Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-229D , plant/soil concentration ratio, dimensionless	9.930E-04	1.000E-03	RTF( 13,1)
D-34	Th-229D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	9.900E-05	1.000E-04	RTF( 13,2)
D-34	Th-229D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.900E-06	5.000E-06	RTF( 13,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	9.930E-04	1.000E-03	RTF( 14,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	9.900E-05	1.000E-04	RTF( 14,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.900E-06	5.000E-06	RTF( 14,3)
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	9.930E-04	1.000E-03	RTF( 15,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	9.900E-05	1.000E-04	RTF( 15,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	4.900E-06	5.000E-06	RTF( 15,3)
D-34				
D-34	U-233 , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 16,1)
D-34	U-233 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 16,2)
D-34	U-233 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 16,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 17,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 17,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 17,3)
D-34				
D-34	U-235D , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 18,1)
D-34	U-235D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 18,2)
D-34	U-235D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 18,3)
D-34				
D-34	U-236 , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 19,1)
D-34	U-236 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 19,2)
D-34	U-236 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 19,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 20,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 20,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 20,3)
D-34				
D-34	U-238D , plant/soil concentration ratio, dimensionless	3.700E-03	2.500E-03	RTF( 21,1)
D-34	U-238D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.300E-03	3.400E-04	RTF( 21,2)
D-34	U-238D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 21,3)
D-34				
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227D , fish	1.480E+01	1.500E+01	BIOFAC( 1,1)
D-5	Ac-227D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC( 1,2)
D-5				
D-5	Am-241 , fish	2.970E+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				
D-5	Np-237D , fish	2.940E+01	3.000E+01	BIOFAC( 3,1)
D-5	Np-237D , crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC( 3,2)
D-5				
D-5	Pa-231 , fish	9.900E+00	1.000E+01	BIOFAC( 4,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC( 4,2)
D-5				

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Dose Conversion Factor (and Related) Parameter Summary (continued)

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Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Pb-210D , fish	2.930E+02	3.000E+02	BIOFAC( 5,1)
D-5	Pb-210D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC( 5,2)
D-5				
D-5	Pu-239 , fish	2.980E+01	3.000E+01	BIOFAC( 6,1)
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC( 6,2)
D-5				
D-5	Pu-240 , fish	2.980E+01	3.000E+01	BIOFAC( 7,1)
D-5	Pu-240 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC( 7,2)
D-5				
D-5	Ra-226D , fish	4.930E+01	5.000E+01	BIOFAC( 9,1)
D-5	Ra-226D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC( 9,2)
D-5				
D-5	Ra-228D , fish	4.930E+01	5.000E+01	BIOFAC( 10,1)
D-5	Ra-228D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC( 10,2)
D-5				
D-5	Tc-99 , fish	2.000E+01	2.000E+01	BIOFAC( 11,1)
D-5	Tc-99 , crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC( 11,2)
D-5				
D-5	Th-228D , fish	9.030E+01	1.000E+02	BIOFAC( 12,1)
D-5	Th-228D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC( 12,2)
D-5				
D-5	Th-229D , fish	9.030E+01	1.000E+02	BIOFAC( 13,1)
D-5	Th-229D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC( 13,2)
D-5				
D-5	Th-230 , fish	9.030E+01	1.000E+02	BIOFAC( 14,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC( 14,2)
D-5				
D-5	Th-232 , fish	9.030E+01	1.000E+02	BIOFAC( 15,1)
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC( 15,2)
D-5				
D-5	U-233 , fish	9.900E+00	1.000E+01	BIOFAC( 16,1)
D-5	U-233 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 16,2)
D-5				
D-5	U-234 , fish	9.900E+00	1.000E+01	BIOFAC( 17,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 17,2)
D-5				
D-5	U-235D , fish	9.900E+00	1.000E+01	BIOFAC( 18,1)
D-5	U-235D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 18,2)
D-5				
D-5	U-236 , fish	9.900E+00	1.000E+01	BIOFAC( 19,1)
D-5	U-236 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 19,2)
D-5				
D-5	U-238 , fish	9.900E+00	1.000E+01	BIOFAC( 20,1)
D-5	U-238 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 20,2)
D-5				
D-5	U-238D , fish	9.900E+00	1.000E+01	BIOFAC( 21,1)
D-5	U-238D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 21,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.

\*Base Case means Default.Lib w/o Associate Nuclide contributions.

Summary : Hematite - Surface CSM

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## 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)	1.534E+05	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.500E-01	2.000E+00	---	THICKO
R011	Length parallel to aquifer flow (m)	2.910E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+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+00	3.000E+00	---	T( 3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T( 4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T( 5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T( 6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T( 7)
R011	Times for calculations (yr)	1.000E+03	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+00	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Np-237	1.000E+00	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Pu-239	1.000E+00	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Pu-240	1.000E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Tc-99	1.000E+00	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-234	1.000E+00	0.000E+00	---	S1(17)
R012	Initial principal radionuclide (pCi/g): U-235	1.000E+00	0.000E+00	---	S1(18)
R012	Initial principal radionuclide (pCi/g): U-238	1.000E+00	0.000E+00	---	S1(20)
R012	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	---	W1( 2)
R012	Concentration in groundwater (pCi/L): Np-237	not used	0.000E+00	---	W1( 3)
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	---	W1( 6)
R012	Concentration in groundwater (pCi/L): Pu-240	not used	0.000E+00	---	W1( 7)
R012	Concentration in groundwater (pCi/L): Tc-99	not used	0.000E+00	---	W1(11)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(17)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(18)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(20)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVERO
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)	1.690E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	6.000E-04	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.500E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	1.700E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.456E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	9.900E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.300E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	8.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.010E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	1.400E-01	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	4.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	9.989E+05	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS

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## Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Density of saturated zone (g/cm**3)	1.510E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	4.300E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	3.800E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	1.500E-01	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	2.520E+03	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	1.100E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	0.000E+00	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	2.500E+00	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	3.338E+03	2.500E+02	---	UW
R015	Number of unsaturated zone strata	1	1	---	NS
R015	Unsat. zone 1, thickness (m)	8.950E+00	4.000E+00	---	H (1)
R015	Unsat. zone 1, soil density (g/cm**3)	1.690E+00	1.500E+00	---	DENSUZ (1)
R015	Unsat. zone 1, total porosity	4.500E-01	4.000E-01	---	TPUZ (1)
R015	Unsat. zone 1, effective porosity	2.900E-01	2.000E-01	---	EPUZ (1)
R015	Unsat. zone 1, field capacity	1.700E-01	2.000E-01	---	FCUZ (1)
R015	Unsat. zone 1, soil-specific b parameter	9.900E+00	5.300E+00	---	BUZ (1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.456E+01	1.000E+01	---	HCUZ (1)
R016	Distribution coefficients for Am-241				
R016	Contaminated zone (cm**3/g)	8.400E+03	2.000E+01	---	DCNUCC ( 2)
R016	Unsaturated zone 1 (cm**3/g)	8.400E+03	2.000E+01	---	DCNUCU ( 2,1)
R016	Saturated zone (cm**3/g)	1.900E+03	2.000E+01	---	DCNUCS ( 2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.006E-05	ALEACH ( 2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 2)
R016	Distribution coefficients for Np-237				
R016	Contaminated zone (cm**3/g)	2.500E+01	-1.000E+00	---	DCNUCC ( 3)
R016	Unsaturated zone 1 (cm**3/g)	2.500E+01	-1.000E+00	---	DCNUCU ( 3,1)
R016	Saturated zone (cm**3/g)	5.000E+00	-1.000E+00	---	DCNUCS ( 3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.334E-02	ALEACH ( 3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 3)
R016	Distribution coefficients for Pu-239				
R016	Contaminated zone (cm**3/g)	1.200E+03	2.000E+03	---	DCNUCC ( 6)
R016	Unsaturated zone 1 (cm**3/g)	1.200E+03	2.000E+03	---	DCNUCU ( 6,1)
R016	Saturated zone (cm**3/g)	5.500E+02	2.000E+03	---	DCNUCS ( 6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.904E-04	ALEACH ( 6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 6)
R016	Distribution coefficients for Pu-240				
R016	Contaminated zone (cm**3/g)	1.200E+03	2.000E+03	---	DCNUCC ( 7)
R016	Unsaturated zone 1 (cm**3/g)	1.200E+03	2.000E+03	---	DCNUCU ( 7,1)
R016	Saturated zone (cm**3/g)	5.500E+02	2.000E+03	---	DCNUCS ( 7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.904E-04	ALEACH ( 7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 7)



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## Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Tc-99				
R016	Contaminated zone (cm**3/g)	1.060E+02	0.000E+00	---	DCNUCC (11)
R016	Unsaturated zone 1 (cm**3/g)	1.060E+02	0.000E+00	---	DCNUCU (11,1)
R016	Saturated zone (cm**3/g)	1.000E-01	0.000E+00	---	DCNUCS (11)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.541E-03	ALEACH (11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (11)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCC (17)
R016	Unsaturated zone 1 (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCU (17,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS (17)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.359E-03	ALEACH (17)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (17)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCC (18)
R016	Unsaturated zone 1 (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCU (18,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS (18)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.359E-03	ALEACH (18)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (18)
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCC (20)
R016	Unsaturated zone 1 (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCU (20,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS (20)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.359E-03	ALEACH (20)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (20)
R016	Distribution coefficients for daughter Ac-227				
R016	Contaminated zone (cm**3/g)	1.500E+03	2.000E+01	---	DCNUCC ( 1)
R016	Unsaturated zone 1 (cm**3/g)	1.500E+03	2.000E+01	---	DCNUCU ( 1,1)
R016	Saturated zone (cm**3/g)	4.500E+02	2.000E+01	---	DCNUCS ( 1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.923E-04	ALEACH ( 1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 1)
R016	Distribution coefficients for daughter Pa-231				
R016	Contaminated zone (cm**3/g)	1.800E+03	5.000E+01	---	DCNUCC ( 4)
R016	Unsaturated zone 1 (cm**3/g)	1.800E+03	5.000E+01	---	DCNUCU ( 4,1)
R016	Saturated zone (cm**3/g)	5.500E+02	5.000E+01	---	DCNUCS ( 4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.269E-04	ALEACH ( 4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 4)
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	5.500E+02	1.000E+02	---	DCNUCC ( 5)
R016	Unsaturated zone 1 (cm**3/g)	5.500E+02	1.000E+02	---	DCNUCU ( 5,1)
R016	Saturated zone (cm**3/g)	2.700E+02	1.000E+02	---	DCNUCS ( 5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.070E-03	ALEACH ( 5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 5)

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## 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 Ra-226				
R016	Contaminated zone (cm**3/g)	9.100E+03	7.000E+01	---	DCNUCC ( 9)
R016	Unsaturated zone 1 (cm**3/g)	9.100E+03	7.000E+01	---	DCNUCU ( 9,1)
R016	Saturated zone (cm**3/g)	5.000E+02	7.000E+01	---	DCNUCS ( 9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.468E-05	ALEACH ( 9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK ( 9)
R016	Distribution coefficients for daughter Ra-228				
R016	Contaminated zone (cm**3/g)	9.100E+03	7.000E+01	---	DCNUCC (10)
R016	Unsaturated zone 1 (cm**3/g)	9.100E+03	7.000E+01	---	DCNUCU (10,1)
R016	Saturated zone (cm**3/g)	5.000E+02	7.000E+01	---	DCNUCS (10)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.468E-05	ALEACH (10)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (10)
R016	Distribution coefficients for daughter Th-228				
R016	Contaminated zone (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCC (12)
R016	Unsaturated zone 1 (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCU (12,1)
R016	Saturated zone (cm**3/g)	3.200E+03	6.000E+04	---	DCNUCS (12)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.783E-04	ALEACH (12)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (12)
R016	Distribution coefficients for daughter Th-229				
R016	Contaminated zone (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCC (13)
R016	Unsaturated zone 1 (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCU (13,1)
R016	Saturated zone (cm**3/g)	3.200E+03	6.000E+04	---	DCNUCS (13)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.783E-04	ALEACH (13)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (13)
R016	Distribution coefficients for daughter Th-230				
R016	Contaminated zone (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCC (14)
R016	Unsaturated zone 1 (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCU (14,1)
R016	Saturated zone (cm**3/g)	3.200E+03	6.000E+04	---	DCNUCS (14)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.783E-04	ALEACH (14)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (14)
R016	Distribution coefficients for daughter Th-232				
R016	Contaminated zone (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCC (15)
R016	Unsaturated zone 1 (cm**3/g)	3.300E+03	6.000E+04	---	DCNUCU (15,1)
R016	Saturated zone (cm**3/g)	3.200E+03	6.000E+04	---	DCNUCS (15)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.783E-04	ALEACH (15)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (15)
R016	Distribution coefficients for daughter U-233				
R016	Contaminated zone (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCC (16)
R016	Unsaturated zone 1 (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCU (16,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS (16)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.359E-03	ALEACH (16)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (16)

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## 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 U-236				
R016	Contaminated zone (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCC (19)
R016	Unsaturated zone 1 (cm**3/g)	1.750E+02	5.000E+01	---	DCNUCU (19,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS (19)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.359E-03	ALEACH (19)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK (19)
R017	Inhalation rate (m**3/yr)	8.400E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	2.300E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	5.500E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	2.000E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	6.600E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	1.200E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
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)	1.120E+02	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	2.100E+01	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	2.330E+02	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	6.500E+01	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	2.100E+01	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	9.000E-01	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	1.820E+01	3.650E+01	---	SOIL

Summary : Hematite - Surface CSM

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## Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R018	Drinking water intake (L/yr)	4.600E+02	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	1.000E+00	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	1.000E+00	5.000E-01	---	FR9
R018	Contamination fraction of plant food	-1	-1	0.500E+00	FPLANT
R018	Contamination fraction of meat	-1	-1	0.100E+01	FMEAT
R018	Contamination fraction of milk	-1	-1	0.100E+01	FMILK
R019	Livestock fodder intake for meat (kg/day)	1.200E+01	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	9.000E+00	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	3.700E+01	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	1.050E+02	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	4.500E-01	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	2.300E-05	1.000E-04	---	MLFD
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	1.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	1.000E+00	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)	1.750E+00	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)	1.100E+00	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	2.600E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	1.700E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	2.100E-01	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	1.000E+00	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	2.500E-01	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	6.000E-01	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	3.300E+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

Summary : Hematite - Surface CSM

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## Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	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)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	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	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	128	---	---	NPTS
TITL	Maximum number of integration points for dose	5	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	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	active
5 -- milk ingestion	active
6 -- aquatic foods	active
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Summary : Hematite - Surface CSM

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Contaminated Zone Dimensions	Initial Soil Concentrations, pCi/g	
Area: 153375.00 square meters	Am-241	1.000E+00
Thickness: 0.15 meters	Np-237	1.000E+00
Cover Depth: 0.00 meters	Pu-239	1.000E+00
	Pu-240	1.000E+00
	Tc-99	1.000E+00
	U-234	1.000E+00
	U-235	1.000E+00
	U-238	1.000E+00

Total Dose TDOSE(t), mrem/yr

Basic Radiation Dose Limit = 2.500E+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+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.273E+00	2.230E+00	2.147E+00	1.886E+00	1.337E+00	5.242E-01	0.000E+00	0.000E+00
M(t):	9.093E-02	8.921E-02	8.590E-02	7.546E-02	5.347E-02	2.097E-02	0.000E+00	0.000E+00

Maximum TDOSE(t): 2.273E+00 mrem/yr at t = 0.000E+00 years

Summary : Hematite - Surface CSM

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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)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.100E-02	0.0048	4.378E-03	0.0019	0.000E+00	0.0000	4.026E-02	0.0177	5.333E-03	0.0023	7.637E-04	0.0003	5.153E-02	0.0227
Np-237	2.602E-01	0.1145	5.267E-03	0.0023	0.000E+00	0.0000	9.725E-01	0.4278	1.398E-01	0.0615	4.904E-03	0.0022	6.223E-02	0.0274
Pu-239	7.211E-05	0.0000	4.232E-03	0.0019	0.000E+00	0.0000	3.917E-02	0.0172	1.038E-02	0.0046	3.679E-04	0.0002	5.014E-02	0.0221
Pu-240	3.687E-05	0.0000	4.232E-03	0.0019	0.000E+00	0.0000	3.917E-02	0.0172	1.038E-02	0.0046	3.678E-04	0.0002	5.014E-02	0.0221
Tc-99	3.131E-05	0.0000	8.187E-08	0.0000	0.000E+00	0.0000	1.493E-01	0.0657	1.778E-04	0.0001	4.865E-03	0.0021	2.063E-05	0.0000
U-234	1.003E-04	0.0000	1.300E-03	0.0006	0.000E+00	0.0000	1.157E-02	0.0051	1.090E-02	0.0048	1.796E-02	0.0079	4.003E-03	0.0018
U-235	1.846E-01	0.0812	1.212E-03	0.0005	0.000E+00	0.0000	1.093E-02	0.0048	1.030E-02	0.0045	1.696E-02	0.0075	3.783E-03	0.0017
U-238	3.495E-02	0.0154	1.163E-03	0.0005	0.000E+00	0.0000	1.098E-02	0.0048	1.035E-02	0.0046	1.705E-02	0.0075	3.801E-03	0.0017
Total	4.909E-01	0.2160	2.178E-02	0.0096	0.000E+00	0.0000	1.274E+00	0.5604	1.977E-01	0.0870	6.324E-02	0.0278	2.256E-01	0.0993

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 Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	1.133E-01	0.0498
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	1.445E+00	0.6356
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	1.044E-01	0.0459
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	1.043E-01	0.0459
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	1.544E-01	0.0679
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	4.583E-02	0.0202
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	2.277E-01	0.1002
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	7.830E-02	0.0344
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	2.273E+00	1.0000

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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

## Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.098E-02	0.0049	4.353E-03	0.0020	0.000E+00	0.0000	4.003E-02	0.0179	5.303E-03	0.0024	7.594E-04	0.0003	5.123E-02	0.0230
Np-237	2.540E-01	0.1139	5.125E-03	0.0023	0.000E+00	0.0000	9.463E-01	0.4243	1.361E-01	0.0610	4.772E-03	0.0021	6.055E-02	0.0271
Pu-239	7.205E-05	0.0000	4.213E-03	0.0019	0.000E+00	0.0000	3.900E-02	0.0175	1.033E-02	0.0046	3.662E-04	0.0002	4.991E-02	0.0224
Pu-240	3.685E-05	0.0000	4.213E-03	0.0019	0.000E+00	0.0000	3.899E-02	0.0175	1.033E-02	0.0046	3.662E-04	0.0002	4.991E-02	0.0224
Tc-99	3.113E-05	0.0000	8.110E-08	0.0000	0.000E+00	0.0000	1.479E-01	0.0663	1.762E-04	0.0001	4.819E-03	0.0022	2.043E-05	0.0000
U-234	9.993E-05	0.0000	1.291E-03	0.0006	0.000E+00	0.0000	1.148E-02	0.0051	1.082E-02	0.0049	1.783E-02	0.0080	3.973E-03	0.0018
U-235	1.839E-01	0.0824	1.203E-03	0.0005	0.000E+00	0.0000	1.085E-02	0.0049	1.022E-02	0.0046	1.684E-02	0.0076	3.758E-03	0.0017
U-238	3.481E-02	0.0156	1.154E-03	0.0005	0.000E+00	0.0000	1.090E-02	0.0049	1.028E-02	0.0046	1.693E-02	0.0076	3.773E-03	0.0017
Total	4.839E-01	0.2170	2.155E-02	0.0097	0.000E+00	0.0000	1.245E+00	0.5584	1.936E-01	0.0868	6.267E-02	0.0281	2.231E-01	0.1000

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

## Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	1.127E-01	0.0505
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	1.407E+00	0.6308
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	1.039E-01	0.0466
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	1.038E-01	0.0466
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	1.530E-01	0.0686
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	4.549E-02	0.0204
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	2.267E-01	0.1017
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	7.784E-02	0.0349
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	2.230E+00	1.0000

\*Sum of all water independent and dependent pathways.



Summary : Hematite - Surface CSM

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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+00 years

## Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.094E-02	0.0051	4.303E-03	0.0020	0.000E+00	0.0000	3.957E-02	0.0184	5.243E-03	0.0024	7.507E-04	0.0003	5.065E-02	0.0236
Np-237	2.422E-01	0.1128	4.852E-03	0.0023	0.000E+00	0.0000	8.959E-01	0.4172	1.288E-01	0.0600	4.518E-03	0.0021	5.732E-02	0.0267
Pu-239	7.192E-05	0.0000	4.175E-03	0.0019	0.000E+00	0.0000	3.864E-02	0.0180	1.024E-02	0.0048	3.629E-04	0.0002	4.946E-02	0.0230
Pu-240	3.680E-05	0.0000	4.174E-03	0.0019	0.000E+00	0.0000	3.863E-02	0.0180	1.024E-02	0.0048	3.628E-04	0.0002	4.945E-02	0.0230
Tc-99	3.078E-05	0.0000	7.956E-08	0.0000	0.000E+00	0.0000	1.451E-01	0.0676	1.728E-04	0.0001	4.728E-03	0.0022	2.004E-05	0.0000
U-234	9.929E-05	0.0000	1.272E-03	0.0006	0.000E+00	0.0000	1.131E-02	0.0053	1.066E-02	0.0050	1.756E-02	0.0082	3.915E-03	0.0018
U-235	1.825E-01	0.0850	1.186E-03	0.0006	0.000E+00	0.0000	1.070E-02	0.0050	1.007E-02	0.0047	1.659E-02	0.0077	3.710E-03	0.0017
U-238	3.452E-02	0.0161	1.137E-03	0.0005	0.000E+00	0.0000	1.074E-02	0.0050	1.013E-02	0.0047	1.668E-02	0.0078	3.717E-03	0.0017
Total	4.704E-01	0.2190	2.110E-02	0.0098	0.000E+00	0.0000	1.191E+00	0.5544	1.856E-01	0.0864	6.156E-02	0.0287	2.182E-01	0.1016

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+00 years

## Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	1.115E-01	0.0519
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	1.334E+00	0.6210
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	1.030E-01	0.0479
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	1.029E-01	0.0479
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	1.501E-01	0.0699
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	4.483E-02	0.0209
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	2.248E-01	0.1047
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	7.692E-02	0.0358
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	2.147E+00	1.0000

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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+01 years

## Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.081E-02	0.0057	4.133E-03	0.0022	0.000E+00	0.0000	3.800E-02	0.0201	5.035E-03	0.0027	7.209E-04	0.0004	4.864E-02	0.0258
Np-237	2.048E-01	0.1086	4.004E-03	0.0021	0.000E+00	0.0000	7.392E-01	0.3919	1.063E-01	0.0564	3.728E-03	0.0020	4.730E-02	0.0251
Pu-239	7.147E-05	0.0000	4.042E-03	0.0021	0.000E+00	0.0000	3.741E-02	0.0198	9.912E-03	0.0053	3.513E-04	0.0002	4.788E-02	0.0254
Pu-240	3.664E-05	0.0000	4.038E-03	0.0021	0.000E+00	0.0000	3.738E-02	0.0198	9.904E-03	0.0053	3.510E-04	0.0002	4.784E-02	0.0254
Tc-99	2.960E-05	0.0000	7.435E-08	0.0000	0.000E+00	0.0000	1.356E-01	0.0719	1.615E-04	0.0001	4.419E-03	0.0023	1.873E-05	0.0000
U-234	9.738E-05	0.0001	1.207E-03	0.0006	0.000E+00	0.0000	1.074E-02	0.0057	1.012E-02	0.0054	1.667E-02	0.0088	3.716E-03	0.0020
U-235	1.777E-01	0.0942	1.129E-03	0.0006	0.000E+00	0.0000	1.017E-02	0.0054	9.561E-03	0.0051	1.575E-02	0.0083	3.548E-03	0.0019
U-238	3.352E-02	0.0178	1.079E-03	0.0006	0.000E+00	0.0000	1.019E-02	0.0054	9.609E-03	0.0051	1.583E-02	0.0084	3.528E-03	0.0019
Total	4.271E-01	0.2264	1.963E-02	0.0104	0.000E+00	0.0000	1.019E+00	0.5400	1.606E-01	0.0851	5.781E-02	0.0306	2.025E-01	0.1073

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+01 years

## Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	1.073E-01	0.0569
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	1.105E+00	0.5860
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	9.967E-02	0.0528
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	9.955E-02	0.0528
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	1.402E-01	0.0743
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	4.255E-02	0.0226
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	2.179E-01	0.1155
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	7.376E-02	0.0391
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	1.886E+00	1.0000

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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

## Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.046E-02	0.0078	3.663E-03	0.0027	0.000E+00	0.0000	3.369E-02	0.0252	4.463E-03	0.0033	6.390E-04	0.0005	4.311E-02	0.0323
Np-237	1.266E-01	0.0947	2.301E-03	0.0017	0.000E+00	0.0000	4.248E-01	0.3178	6.109E-02	0.0457	2.143E-03	0.0016	2.718E-02	0.0203
Pu-239	7.006E-05	0.0001	3.666E-03	0.0027	0.000E+00	0.0000	3.393E-02	0.0254	8.991E-03	0.0067	3.186E-04	0.0002	4.343E-02	0.0325
Pu-240	3.618E-05	0.0000	3.657E-03	0.0027	0.000E+00	0.0000	3.385E-02	0.0253	8.970E-03	0.0067	3.179E-04	0.0002	4.333E-02	0.0324
Tc-99	2.643E-05	0.0000	6.099E-08	0.0000	0.000E+00	0.0000	1.113E-01	0.0832	1.325E-04	0.0001	3.625E-03	0.0027	1.537E-05	0.0000
U-234	9.444E-05	0.0001	1.035E-03	0.0008	0.000E+00	0.0000	9.203E-03	0.0069	8.672E-03	0.0065	1.428E-02	0.0107	3.185E-03	0.0024
U-235	1.646E-01	0.1231	9.836E-04	0.0007	0.000E+00	0.0000	8.787E-03	0.0066	8.196E-03	0.0061	1.350E-02	0.0101	3.129E-03	0.0023
U-238	3.074E-02	0.0230	9.250E-04	0.0007	0.000E+00	0.0000	8.737E-03	0.0065	8.235E-03	0.0062	1.356E-02	0.0101	3.023E-03	0.0023
Total	3.326E-01	0.2489	1.623E-02	0.0121	0.000E+00	0.0000	6.643E-01	0.4970	1.088E-01	0.0814	4.839E-02	0.0362	1.664E-01	0.1245

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

## Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	9.602E-02	0.0718
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	6.442E-01	0.4819
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	9.041E-02	0.0676
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	9.016E-02	0.0675
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	1.150E-01	0.0861
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	3.647E-02	0.0273
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	1.992E-01	0.1490
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	6.523E-02	0.0488
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	1.337E+00	1.0000

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	9.243E-03	0.0176	2.219E-03	0.0042	0.000E+00	0.0000	2.041E-02	0.0389	2.705E-03	0.0052	3.871E-04	0.0007	2.612E-02	0.0498
Np-237	2.252E-02	0.0430	3.060E-04	0.0006	0.000E+00	0.0000	5.648E-02	0.1078	8.124E-03	0.0155	2.863E-04	0.0005	3.614E-03	0.0069
Pu-239	6.315E-05	0.0001	2.408E-03	0.0046	0.000E+00	0.0000	2.229E-02	0.0425	5.906E-03	0.0113	2.093E-04	0.0004	2.852E-02	0.0544
Pu-240	3.441E-05	0.0001	2.389E-03	0.0046	0.000E+00	0.0000	2.211E-02	0.0422	5.860E-03	0.0112	2.077E-04	0.0004	2.830E-02	0.0540
Tc-99	1.749E-05	0.0000	2.818E-08	0.0000	0.000E+00	0.0000	5.140E-02	0.0981	6.124E-05	0.0001	1.675E-03	0.0032	7.100E-06	0.0000
U-234	1.045E-04	0.0002	5.582E-04	0.0011	0.000E+00	0.0000	4.970E-03	0.0095	4.671E-03	0.0089	7.691E-03	0.0147	1.718E-03	0.0033
U-235	1.212E-01	0.2312	5.830E-04	0.0011	0.000E+00	0.0000	4.930E-03	0.0094	4.420E-03	0.0084	7.273E-03	0.0139	1.939E-03	0.0037
U-238	2.168E-02	0.0414	4.981E-04	0.0010	0.000E+00	0.0000	4.705E-03	0.0090	4.435E-03	0.0085	7.304E-03	0.0139	1.628E-03	0.0031
Total	1.749E-01	0.3336	8.961E-03	0.0171	0.000E+00	0.0000	1.873E-01	0.3573	3.618E-02	0.0690	2.503E-02	0.0478	9.185E-02	0.1752

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 Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	6.108E-02	0.1165
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	9.133E-02	0.1742
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	5.940E-02	0.1133
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	5.891E-02	0.1124
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	5.316E-02	0.1014
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	1.971E-02	0.0376
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	1.403E-01	0.2677
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	4.025E-02	0.0768
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	5.242E-01	1.0000

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	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	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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>

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+02 years

Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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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)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	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	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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>

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 Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	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	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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
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	0.000E+00	0.0000
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>

\*Sum of all water independent and dependent pathways.

Summary : Hematite - Surface CSM

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

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g)							
			0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	1.133E-01	1.127E-01	1.115E-01	1.073E-01	9.601E-02	6.107E-02	0.000E+00	0.000E+00
Am-241	Np-237+D	1.000E+00	2.230E-07	6.815E-07	1.557E-06	4.209E-06	9.006E-06	1.067E-05	0.000E+00	0.000E+00
Am-241	U-233	1.000E+00	1.212E-14	7.987E-14	4.014E-13	3.227E-12	2.076E-11	8.755E-11	0.000E+00	0.000E+00
Am-241	Th-229+D	1.000E+00	3.117E-18	4.410E-17	4.935E-16	1.216E-14	2.495E-13	4.912E-12	0.000E+00	0.000E+00
Am-241	ΣDSR (j)		1.133E-01	1.127E-01	1.115E-01	1.073E-01	9.602E-02	6.108E-02	0.000E+00	0.000E+00
Np-237+D	Np-237+D	1.000E+00	1.445E+00	1.407E+00	1.334E+00	1.105E+00	6.442E-01	9.133E-02	0.000E+00	0.000E+00
Np-237+D	U-233	1.000E+00	1.091E-07	3.089E-07	6.870E-07	1.815E-06	3.744E-06	3.832E-06	0.000E+00	0.000E+00
Np-237+D	Th-229+D	1.000E+00	3.756E-11	2.499E-10	1.272E-09	1.048E-08	7.187E-08	3.918E-07	0.000E+00	0.000E+00
Np-237+D	ΣDSR (j)		1.445E+00	1.407E+00	1.334E+00	1.105E+00	6.442E-01	9.133E-02	0.000E+00	0.000E+00
Pu-239	Pu-239	1.000E+00	1.044E-01	1.039E-01	1.030E-01	9.967E-02	9.041E-02	5.940E-02	0.000E+00	0.000E+00
Pu-239	U-235+D	1.000E+00	1.114E-10	3.348E-10	7.776E-10	2.285E-09	6.237E-09	1.593E-08	0.000E+00	0.000E+00
Pu-239	Pa-231	1.000E+00	1.481E-15	9.073E-15	4.450E-14	3.704E-13	2.777E-12	1.947E-11	0.000E+00	0.000E+00
Pu-239	Ac-227+D	1.000E+00	2.584E-17	3.802E-16	4.332E-15	1.063E-13	2.092E-12	3.640E-11	0.000E+00	0.000E+00
Pu-239	ΣDSR (j)		1.044E-01	1.039E-01	1.030E-01	9.967E-02	9.041E-02	5.940E-02	0.000E+00	0.000E+00
Pu-240	Pu-240	4.950E-08	5.164E-09	5.140E-09	5.093E-09	4.928E-09	4.463E-09	2.916E-09	0.000E+00	0.000E+00
Pu-240	Pu-240	1.000E+00	1.043E-01	1.038E-01	1.029E-01	9.955E-02	9.016E-02	5.891E-02	0.000E+00	0.000E+00
Pu-240	U-236	1.000E+00	6.204E-10	1.896E-09	4.405E-09	1.271E-08	3.259E-08	6.394E-08	0.000E+00	0.000E+00
Pu-240	Th-232	1.000E+00	2.857E-20	1.775E-19	8.771E-19	7.312E-18	5.439E-17	3.648E-16	0.000E+00	0.000E+00
Pu-240	Ra-228+D	1.000E+00	1.747E-20	2.632E-19	2.934E-18	6.362E-17	9.431E-16	1.032E-14	0.000E+00	0.000E+00
Pu-240	Th-228+D	1.000E+00	1.112E-21	3.107E-20	6.513E-19	2.913E-17	6.582E-16	9.156E-15	0.000E+00	0.000E+00
Pu-240	ΣDSR (j)		1.043E-01	1.038E-01	1.029E-01	9.955E-02	9.016E-02	5.891E-02	0.000E+00	0.000E+00
Tc-99	Tc-99	1.000E+00	1.544E-01	1.530E-01	1.501E-01	1.402E-01	1.150E-01	5.316E-02	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	4.583E-02	4.549E-02	4.483E-02	4.254E-02	3.646E-02	1.965E-02	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	1.002E-07	2.724E-07	6.083E-07	1.723E-06	4.411E-06	8.824E-06	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	2.271E-09	1.613E-08	8.537E-08	7.486E-07	5.879E-06	4.698E-05	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	9.966E-12	1.233E-10	1.249E-09	2.810E-08	5.191E-07	7.622E-06	0.000E+00	0.000E+00
U-234	ΣDSR (j)		4.583E-02	4.549E-02	4.483E-02	4.255E-02	3.647E-02	1.971E-02	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	2.277E-01	2.267E-01	2.247E-01	2.178E-01	1.988E-01	1.391E-01	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	4.180E-06	1.121E-05	2.492E-05	7.057E-05	1.818E-04	3.764E-04	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	1.041E-07	7.165E-07	3.683E-06	2.990E-05	1.928E-04	8.880E-04	0.000E+00	0.000E+00
U-235+D	ΣDSR (j)		2.277E-01	2.267E-01	2.248E-01	2.179E-01	1.992E-01	1.403E-01	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	2.226E-06	2.210E-06	2.177E-06	2.066E-06	1.771E-06	9.537E-07	0.000E+00	0.000E+00
U-238+D	U-238+D	9.999E-01	7.830E-02	7.784E-02	7.692E-02	7.375E-02	6.522E-02	4.024E-02	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	6.488E-08	1.934E-07	4.447E-07	1.266E-06	3.153E-06	5.599E-06	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	1.021E-13	6.300E-13	3.105E-12	2.573E-11	1.882E-10	1.191E-09	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	1.594E-15	2.433E-14	2.848E-13	7.391E-12	1.668E-10	4.240E-09	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	6.027E-18	1.525E-16	3.280E-15	2.148E-13	1.162E-11	5.820E-10	0.000E+00	0.000E+00
U-238+D	ΣDSR (j)		7.830E-02	7.784E-02	7.692E-02	7.376E-02	6.522E-02	4.025E-02	0.000E+00	0.000E+00

The DSR includes contributions from associated (half-life ≤ 180 days) daughters.

Summary : Hematite - Surface CSM

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## Single Radionuclide Soil Guidelines G(i,t) in pCi/g

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	2.207E+02	2.219E+02	2.243E+02	2.329E+02	2.604E+02	4.093E+02	*3.431E+12	*3.431E+12
Np-237	1.730E+01	1.777E+01	1.875E+01	2.262E+01	3.881E+01	2.737E+02	*7.047E+08	*7.047E+08
Pu-239	2.395E+02	2.406E+02	2.428E+02	2.508E+02	2.765E+02	4.209E+02	*6.214E+10	*6.214E+10
Pu-240	2.396E+02	2.407E+02	2.430E+02	2.511E+02	2.773E+02	4.244E+02	*2.278E+11	*2.278E+11
Tc-99	1.619E+02	1.634E+02	1.666E+02	1.783E+02	2.173E+02	4.702E+02	*1.697E+10	*1.697E+10
U-234	5.455E+02	5.495E+02	5.577E+02	5.876E+02	6.854E+02	1.268E+03	*6.247E+09	*6.247E+09
U-235	1.098E+02	1.103E+02	1.112E+02	1.147E+02	1.255E+02	1.781E+02	*2.161E+06	*2.161E+06
U-238	3.193E+02	3.212E+02	3.250E+02	3.389E+02	3.833E+02	6.211E+02	*3.361E+05	*3.361E+05

\*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

Nuclide (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+00	0.000E+00	1.133E-01	2.207E+02	1.133E-01	2.207E+02
Np-237	1.000E+00	0.000E+00	1.445E+00	1.730E+01	1.445E+00	1.730E+01
Pu-239	1.000E+00	0.000E+00	1.044E-01	2.395E+02	1.044E-01	2.395E+02
Pu-240	1.000E+00	0.000E+00	1.043E-01	2.396E+02	1.043E-01	2.396E+02
Tc-99	1.000E+00	0.000E+00	1.544E-01	1.619E+02	1.544E-01	1.619E+02
U-234	1.000E+00	0.000E+00	4.583E-02	5.455E+02	4.583E-02	5.455E+02
U-235	1.000E+00	0.000E+00	2.277E-01	1.098E+02	2.277E-01	1.098E+02
U-238	1.000E+00	0.000E+00	7.830E-02	3.193E+02	7.830E-02	3.193E+02



Summary : Hematite - Surface CSM

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

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr							
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	1.133E-01	1.127E-01	1.115E-01	1.073E-01	9.601E-02	6.107E-02	0.000E+00	0.000E+00
Np-237	Am-241	1.000E+00	2.230E-07	6.815E-07	1.557E-06	4.209E-06	9.006E-06	1.067E-05	0.000E+00	0.000E+00
Np-237	Np-237	1.000E+00	1.445E+00	1.407E+00	1.334E+00	1.105E+00	6.442E-01	9.133E-02	0.000E+00	0.000E+00
Np-237	ΣDOSE(j)		1.445E+00	1.407E+00	1.334E+00	1.105E+00	6.442E-01	9.134E-02	0.000E+00	0.000E+00
U-233	Am-241	1.000E+00	1.212E-14	7.987E-14	4.014E-13	3.227E-12	2.076E-11	8.755E-11	0.000E+00	0.000E+00
U-233	Np-237	1.000E+00	1.091E-07	3.089E-07	6.870E-07	1.815E-06	3.744E-06	3.832E-06	0.000E+00	0.000E+00
U-233	ΣDOSE(j)		1.091E-07	3.089E-07	6.870E-07	1.815E-06	3.744E-06	3.832E-06	0.000E+00	0.000E+00
Th-229	Am-241	1.000E+00	3.117E-18	4.410E-17	4.935E-16	1.216E-14	2.495E-13	4.912E-12	0.000E+00	0.000E+00
Th-229	Np-237	1.000E+00	3.756E-11	2.499E-10	1.272E-09	1.048E-08	7.187E-08	3.918E-07	0.000E+00	0.000E+00
Th-229	ΣDOSE(j)		3.756E-11	2.499E-10	1.272E-09	1.048E-08	7.187E-08	3.918E-07	0.000E+00	0.000E+00
Pu-239	Pu-239	1.000E+00	1.044E-01	1.039E-01	1.030E-01	9.967E-02	9.041E-02	5.940E-02	0.000E+00	0.000E+00
U-235	Pu-239	1.000E+00	1.114E-10	3.348E-10	7.776E-10	2.285E-09	6.237E-09	1.593E-08	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	2.277E-01	2.267E-01	2.247E-01	2.178E-01	1.988E-01	1.391E-01	0.000E+00	0.000E+00
U-235	ΣDOSE(j)		2.277E-01	2.267E-01	2.247E-01	2.178E-01	1.988E-01	1.391E-01	0.000E+00	0.000E+00
Pa-231	Pu-239	1.000E+00	1.481E-15	9.073E-15	4.450E-14	3.704E-13	2.777E-12	1.947E-11	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	4.180E-06	1.121E-05	2.492E-05	7.057E-05	1.818E-04	3.764E-04	0.000E+00	0.000E+00
Pa-231	ΣDOSE(j)		4.180E-06	1.121E-05	2.492E-05	7.057E-05	1.818E-04	3.764E-04	0.000E+00	0.000E+00
Ac-227	Pu-239	1.000E+00	2.584E-17	3.802E-16	4.332E-15	1.063E-13	2.092E-12	3.640E-11	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	1.041E-07	7.165E-07	3.683E-06	2.990E-05	1.928E-04	8.880E-04	0.000E+00	0.000E+00
Ac-227	ΣDOSE(j)		1.041E-07	7.165E-07	3.683E-06	2.990E-05	1.928E-04	8.880E-04	0.000E+00	0.000E+00
Pu-240	Pu-240	4.950E-08	5.164E-09	5.140E-09	5.093E-09	4.928E-09	4.463E-09	2.916E-09	0.000E+00	0.000E+00
Pu-240	Pu-240	1.000E+00	1.043E-01	1.038E-01	1.029E-01	9.955E-02	9.016E-02	5.891E-02	0.000E+00	0.000E+00
Pu-240	ΣDOSE(j)		1.043E-01	1.038E-01	1.029E-01	9.955E-02	9.016E-02	5.891E-02	0.000E+00	0.000E+00
U-236	Pu-240	1.000E+00	6.204E-10	1.896E-09	4.405E-09	1.271E-08	3.259E-08	6.394E-08	0.000E+00	0.000E+00
Th-232	Pu-240	1.000E+00	2.857E-20	1.775E-19	8.771E-19	7.312E-18	5.439E-17	3.648E-16	0.000E+00	0.000E+00
Ra-228	Pu-240	1.000E+00	1.747E-20	2.632E-19	2.934E-18	6.362E-17	9.431E-16	1.032E-14	0.000E+00	0.000E+00
Th-228	Pu-240	1.000E+00	1.112E-21	3.107E-20	6.513E-19	2.913E-17	6.582E-16	9.156E-15	0.000E+00	0.000E+00
Tc-99	Tc-99	1.000E+00	1.544E-01	1.530E-01	1.501E-01	1.402E-01	1.150E-01	5.316E-02	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	4.583E-02	4.549E-02	4.483E-02	4.254E-02	3.646E-02	1.965E-02	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	6.488E-08	1.934E-07	4.447E-07	1.266E-06	3.153E-06	5.599E-06	0.000E+00	0.000E+00
U-234	ΣDOSE(j)		4.583E-02	4.549E-02	4.483E-02	4.254E-02	3.647E-02	1.965E-02	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	1.002E-07	2.724E-07	6.083E-07	1.723E-06	4.411E-06	8.824E-06	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	1.021E-13	6.300E-13	3.105E-12	2.573E-11	1.882E-10	1.191E-09	0.000E+00	0.000E+00
Th-230	ΣDOSE(j)		1.002E-07	2.724E-07	6.083E-07	1.723E-06	4.411E-06	8.825E-06	0.000E+00	0.000E+00

Summary : Hematite - Surface CSM

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

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr							
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-226	U-234	1.000E+00	2.271E-09	1.613E-08	8.537E-08	7.486E-07	5.879E-06	4.698E-05	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	1.594E-15	2.433E-14	2.848E-13	7.391E-12	1.668E-10	4.240E-09	0.000E+00	0.000E+00
Ra-226	ΣDOSE(j)		2.271E-09	1.613E-08	8.537E-08	7.486E-07	5.880E-06	4.698E-05	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	9.966E-12	1.233E-10	1.249E-09	2.810E-08	5.191E-07	7.622E-06	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	6.027E-18	1.525E-16	3.280E-15	2.148E-13	1.162E-11	5.820E-10	0.000E+00	0.000E+00
Pb-210	ΣDOSE(j)		9.966E-12	1.233E-10	1.249E-09	2.810E-08	5.191E-07	7.623E-06	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	2.226E-06	2.210E-06	2.177E-06	2.066E-06	1.771E-06	9.537E-07	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	7.830E-02	7.784E-02	7.692E-02	7.375E-02	6.522E-02	4.024E-02	0.000E+00	0.000E+00
U-238	ΣDOSE(j)		7.830E-02	7.784E-02	7.692E-02	7.376E-02	6.522E-02	4.024E-02	0.000E+00	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

Summary : Hematite - Surface CSM

File : C:\RESRAD\_FAMILY\RESRAD\USERFILES\HEMATITE - SURFACE CSM.RAD

Individual Nuclide Soil Concentration  
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g								
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03	
Am-241	Am-241	1.000E+00	1.000E+00	9.983E-01	9.950E-01	9.834E-01	9.510E-01	8.459E-01	6.052E-01	1.875E-01	
Np-237	Am-241	1.000E+00	0.000E+00	3.199E-07	9.361E-07	2.864E-06	6.795E-06	1.120E-05	9.035E-06	2.804E-06	
Np-237	Np-237	1.000E+00	1.000E+00	9.769E-01	9.324E-01	7.918E-01	4.965E-01	9.691E-02	9.102E-04	7.309E-11	
Np-237	ΣS(j):		1.000E+00	9.769E-01	9.324E-01	7.918E-01	4.965E-01	9.692E-02	9.193E-04	2.804E-06	
U-233	Am-241	1.000E+00	0.000E+00	7.016E-13	6.196E-12	6.451E-11	4.850E-10	3.067E-09	8.122E-09	5.804E-09	
U-233	Np-237	1.000E+00	0.000E+00	4.315E-06	1.261E-05	3.833E-05	8.922E-05	1.352E-04	7.961E-05	7.579E-06	
U-233	ΣS(j):		0.000E+00	4.315E-06	1.261E-05	3.833E-05	8.922E-05	1.352E-04	7.962E-05	7.584E-06	
Th-229	Am-241	1.000E+00	0.000E+00	2.213E-17	5.892E-16	2.077E-14	4.893E-13	1.178E-11	1.230E-10	5.748E-10	
Th-229	Np-237	1.000E+00	0.000E+00	2.046E-10	1.809E-09	1.890E-08	1.435E-07	9.453E-07	2.900E-06	4.178E-06	
Th-229	ΣS(j):		0.000E+00	2.046E-10	1.809E-09	1.890E-08	1.435E-07	9.453E-07	2.900E-06	4.179E-06	
Pu-239	Pu-239	1.000E+00	1.000E+00	9.995E-01	9.984E-01	9.948E-01	9.845E-01	9.494E-01	8.558E-01	5.950E-01	
U-235	Pu-239	1.000E+00	0.000E+00	9.830E-10	2.937E-09	9.660E-09	2.788E-08	8.140E-08	1.702E-07	1.943E-07	
U-235	U-235	1.000E+00	1.000E+00	9.966E-01	9.900E-01	9.670E-01	9.041E-01	7.147E-01	3.651E-01	3.477E-02	
U-235	ΣS(j):		1.000E+00	9.966E-01	9.900E-01	9.670E-01	9.041E-01	7.147E-01	3.651E-01	3.477E-02	
Pa-231	Pu-239	1.000E+00	0.000E+00	1.040E-14	9.338E-14	1.027E-12	8.991E-12	9.071E-11	6.273E-10	3.126E-09	
Pa-231	U-235	1.000E+00	0.000E+00	2.112E-05	6.312E-05	2.077E-04	6.006E-04	1.765E-03	3.765E-03	4.717E-03	
Pa-231	ΣS(j):		0.000E+00	2.112E-05	6.312E-05	2.077E-04	6.006E-04	1.765E-03	3.765E-03	4.717E-03	
Ac-227	Pu-239	1.000E+00	0.000E+00	1.096E-16	2.905E-15	1.011E-13	2.306E-12	5.169E-11	5.213E-10	2.993E-09	
Ac-227	U-235	1.000E+00	0.000E+00	3.328E-07	2.925E-06	2.995E-05	2.164E-04	1.268E-03	3.493E-03	4.685E-03	
Ac-227	ΣS(j):		0.000E+00	3.328E-07	2.925E-06	2.995E-05	2.164E-04	1.268E-03	3.493E-03	4.685E-03	
Pu-240	Pu-240	4.950E-08	4.950E-08	4.947E-08	4.941E-08	4.921E-08	4.862E-08	4.663E-08	4.139E-08	2.726E-08	
Pu-240	Pu-240	1.000E+00	1.000E+00	9.994E-01	9.982E-01	9.941E-01	9.823E-01	9.421E-01	8.362E-01	5.508E-01	
Pu-240	ΣS(j):		1.000E+00	9.994E-01	9.982E-01	9.941E-01	9.823E-01	9.421E-01	8.362E-01	5.508E-01	
U-236	Pu-240	1.000E+00	0.000E+00	2.954E-08	8.828E-08	2.902E-07	8.372E-07	2.437E-06	5.048E-06	5.529E-06	
Th-232	Pu-240	1.000E+00	0.000E+00	7.292E-19	6.545E-18	7.202E-17	6.307E-16	6.378E-15	4.441E-14	2.282E-13	
Ra-228	Pu-240	1.000E+00	0.000E+00	2.845E-20	7.232E-19	2.202E-17	3.780E-16	5.455E-15	4.242E-14	2.261E-13	
Th-228	Pu-240	1.000E+00	0.000E+00	2.415E-21	1.630E-19	1.155E-17	3.037E-16	5.155E-15	4.174E-14	2.254E-13	
Tc-99	Tc-99	1.000E+00	1.000E+00	9.945E-01	9.835E-01	9.461E-01	8.468E-01	5.744E-01	1.895E-01	3.910E-03	
U-234	U-234	1.000E+00	1.000E+00	9.966E-01	9.900E-01	9.669E-01	9.041E-01	7.145E-01	3.647E-01	3.467E-02	
U-234	U-238	9.999E-01	0.000E+00	2.825E-06	8.419E-06	2.741E-05	7.689E-05	2.026E-04	3.103E-04	9.842E-05	
U-234	ΣS(j):		1.000E+00	9.966E-01	9.900E-01	9.670E-01	9.041E-01	7.147E-01	3.651E-01	3.477E-02	
Th-230	U-234	1.000E+00	0.000E+00	8.986E-06	2.686E-05	8.844E-05	2.562E-04	7.570E-04	1.646E-03	2.253E-03	
Th-230	U-238	9.999E-01	0.000E+00	1.273E-11	1.140E-10	1.247E-09	1.072E-08	1.016E-07	5.908E-07	1.734E-06	
Th-230	ΣS(j):		0.000E+00	8.986E-06	2.686E-05	8.844E-05	2.562E-04	7.571E-04	1.647E-03	2.255E-03	

Summary : Hematite - Surface CSM

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Individual Nuclide Soil Concentration  
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g							
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-226	U-234	1.000E+00	0.000E+00	1.947E-09	1.748E-08	1.924E-07	1.686E-06	1.708E-05	1.197E-04	6.298E-04
Ra-226	U-238	9.999E-01	0.000E+00	1.839E-15	4.947E-14	1.809E-12	4.707E-11	1.535E-09	2.914E-08	3.614E-07
Ra-226	ΣS(j):		0.000E+00	1.947E-09	1.748E-08	1.924E-07	1.686E-06	1.708E-05	1.197E-04	6.301E-04
Pb-210	U-234	1.000E+00	0.000E+00	2.002E-11	5.309E-10	1.849E-08	4.222E-07	9.505E-06	9.714E-05	5.886E-04
Pb-210	U-238	9.999E-01	0.000E+00	1.421E-17	1.133E-15	1.324E-13	9.244E-12	7.209E-10	2.189E-08	3.322E-07
Pb-210	ΣS(j):		0.000E+00	2.002E-11	5.309E-10	1.849E-08	4.222E-07	9.505E-06	9.716E-05	5.889E-04
U-238	U-238	5.400E-05	5.400E-05	5.382E-05	5.346E-05	5.222E-05	4.882E-05	3.859E-05	1.971E-05	1.878E-06
U-238	U-238	9.999E-01	9.999E-01	9.966E-01	9.899E-01	9.669E-01	9.041E-01	7.147E-01	3.650E-01	3.477E-02
U-238	ΣS(j):		1.000E+00	9.966E-01	9.900E-01	9.670E-01	9.041E-01	7.147E-01	3.651E-01	3.477E-02

THF(i) is the thread fraction of the parent nuclide.

RESRAD.EXE execution time = 2.14 seconds