

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

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Iteration Log for Computation of the Time of Maximum Ra-226 Dose/Source Ratio
Pathway: Radon (water independent)

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	DSR(t) (mrem/yr)/(pCi/g)	Step Size (years)	Step Type
0	3.16228E+03	1.23044E-04		
1	3.20439E+03	1.25441E-04	4.21159E+01	parabolic
2	3.24831E+03	1.23000E-04	4.39181E+01	parabolic
3	3.20760E+03	1.25261E-04	7.05635E-01	parabolic
4	3.19474E+03	1.25371E-04	-9.64932E+00	parabolic
5	3.20071E+03	1.25648E-04	-3.68575E+00	golden section

- Notes:
- 1) Step size always from t with current largest DSR(t) .
 - 2) Parabolic step based on parabola maximum through the current best triplet.
 - 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
 - 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but DSR(t) was smaller than the previous value.

Iteration Log for Computation of the Time of Maximum Ra-226 Dose/Source Ratio
All Pathways Summed

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	DSR(t) (mrem/yr)/(pCi/g)	Step Size (years)	Step Type
0	3.16228E+03	1.23044E-04		
1	3.20439E+03	1.25441E-04	4.21159E+01	parabolic
2	3.24831E+03	1.23000E-04	4.39181E+01	parabolic
3	3.20760E+03	1.25261E-04	7.05635E-01	parabolic
4	3.19474E+03	1.25371E-04	-9.64932E+00	parabolic
5	3.20071E+03	1.25648E-04	-3.68575E+00	golden section

Notes:

- 1) Step size always from t with current largest DSR(t) .
- 2) Parabolic step based on parabola maximum through the current best triplet.
- 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
- 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but DSR(t) was smaller than the previous value.

Iteration Log for Computation of the Time of Maximum Th-230 Dose/Source Ratio
Pathway: Radon (water independent)

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	DSR(t) (mrem/yr)/(pCi/g)	Step Size (years)	Step Type
0	6.84500E+03	4.33297E-04		
1	6.99208E+03	4.33341E-04	1.47077E+02	parabolic
2	6.97960E+03	4.33341E-04	-1.24757E+01	parabolic
3	6.99907E+03	4.33340E-04	6.99208E+00	parabolic
4	6.99208E+03	4.33341E-04	0.00000E+00	direct

Notes:

- 1) Step size always from t with current largest DSR(t) .
- 2) Parabolic step based on parabola maximum through the current best triplet.
- 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
- 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but DSR(t) was smaller than the previous value.

Iteration Log for Computation of the Time of Maximum Th-230 Dose/Source Ratio
All Pathways Summed

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	DSR(t) (mrem/yr)/(pCi/g)	Step Size (years)	Step Type
0	6.84500E+03	4.33297E-04		
1	6.99208E+03	4.33341E-04	1.47077E+02	parabolic
2	6.97960E+03	4.33341E-04	-1.24757E+01	parabolic
3	6.99907E+03	4.33340E-04	6.99208E+00	parabolic
4	6.99208E+03	4.33341E-04	0.00000E+00	direct

Notes:

- 1) Step size always from t with current largest DSR(t) .
- 2) Parabolic step based on parabola maximum through the current best triplet.
- 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
- 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but DSR(t) was smaller than the previous value.

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Iteration Log for Computation of the Time of Maximum Total Dose
Pathway: Radon (water independent)

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	TDOSE(t) (mrem/yr)	Step Size (years)	Step Type
0	6.84500E+03	2.22579E+01		
1	6.85185E+03	2.22579E+01	5.83345E+00	parabolic
2	6.83815E+03	2.22579E+01	-6.84500E+00	parabolic
3	6.84500E+03	2.22579E+01	0.00000E+00	direct

Notes:

- 1) Step size always from t with current largest TDOSE(t).
- 2) Parabolic step based on parabola maximum through the current best triplet.
- 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
- 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but TDOSE(t) was smaller than the previous value.

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Iteration Log for Computation of the Time of Maximum Total Dose
All Pathways Summed

Tolerance for tmax = 1.0E-03 (fractional accuracy)

Iteration Number	t (years)	TDOSE(t) (mrem/yr)	Step Size (years)	Step Type
0	6.84500E+03	2.22579E+01		
1	6.85185E+03	2.22579E+01	5.83345E+00	parabolic
2	6.83815E+03	2.22579E+01	-6.84500E+00	parabolic
3	6.84500E+03	2.22579E+01	0.00000E+00	direct

Notes:

- 1) Step size always from t with current largest TDOSE(t).
- 2) Parabolic step based on parabola maximum through the current best triplet.
- 3) Golden section step, $0.5*(3-\text{SQRT}(5))$ of larger interval bracketing maximum, taken only if trial parabolic step fails.
- 4) Direct step to a previous t only on last iteration and only if prior iteration met convergence test but TDOSE(t) was smaller than the previous value.

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Source Factors for Ingrowth and Decay

Radioactivity Factors Only

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	ID(j,t) = CUMBRF(j)*S1(j,t)/S1(i,0)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	3.169E-14	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	1.000E+00	6.484E-01	5.154E-02	1.314E-02
Ra-226	Pb-210	1.000E+00	0.000E+00	6.576E-01	5.227E-02	1.332E-02
Th-230	Th-230	1.000E+00	1.000E+00	9.910E-01	9.402E-01	9.139E-01
Th-230	Ra-226	1.000E+00	0.000E+00	3.499E-01	9.076E-01	9.199E-01
Th-230	Pb-210	1.000E+00	0.000E+00	3.408E-01	9.071E-01	9.200E-01

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

Source Factors for Ingrowth and Decay

Combined Radioactivity and Leaching Factors

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	SF(j,t) = CUMBRF(j)*S1(j,t)/S1(i,0)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	3.145E-14	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	1.000E+00	6.393E-01	4.677E-02	1.140E-02
Ra-226	Pb-210	1.000E+00	0.000E+00	6.485E-01	4.745E-02	1.157E-02
Th-230	Th-230	1.000E+00	1.000E+00	9.771E-01	8.533E-01	7.931E-01
Th-230	Ra-226	1.000E+00	0.000E+00	3.450E-01	8.236E-01	7.983E-01
Th-230	Pb-210	1.000E+00	0.000E+00	3.361E-01	8.234E-01	7.985E-01

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

The effect of volatilization was also considered when computing the source factors for H-3 and C-14.

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Parameters Used for Calculating Cover Depth and Contaminated Zone Thicknesses

Cover Erosion rate (vcv): 0.001000 m/yr
 Contaminated Zone Erosion rate (vcz): 0.001000 m/yr
 Water Table Drop rate (vwt): 0.001000 m/yr
 Precipitation rate (Pr): 0.200000 m/yr
 Cover Removal Time (Tc): 3.200E+03 yr
 Overhead irrigation rate (Irr): 0.000 m/yr
 Evapotranspiration coeff. (Ce): 0.500
 Bulk soil density (rhob): 1.800 g/cm**3

Runoff coefficient (Cr): 0.969
 Infiltration rate (In): 0.003 m/yr
 Effective porosity (pe): 0.000

Radio-nuclide (i)	Distribution Coefficient Kd(i), cm**3/g	Leaching Ratio q(i)
Pb-210	1.900000E+01	6.416E-03
Ra-226	1.000000E+01	1.212E-02
Th-230	1.000000E+01	1.212E-02

Time Dependence of Source Geometry

Time Dependence of Cover Depth [Cd(i,t)]

Nuclide (i)	Cd(i,t) (meters)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	3.2000E+00	2.2000E+00	0.0000E+00	0.0000E+00
Ra-226	3.2000E+00	2.2000E+00	0.0000E+00	0.0000E+00
Th-230	3.2000E+00	2.2000E+00	0.0000E+00	0.0000E+00

Time Dependence of Contaminated Zone Thicknesses [T(i,t)]

Nuclide (i)	T(i,t) (meters)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	1.2000E+01	1.2000E+01	8.3550E+00	5.2000E+00
Ra-226	1.2000E+01	1.2000E+01	8.3550E+00	5.2000E+00
Th-230	1.2000E+01	1.2000E+01	8.3550E+00	5.2000E+00

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Occupancy, Cover/Depth, and Area Factors for Ground Pathway

Occupancy Factor (FO1): 0.000
 Area (A): 324. sq. meters
 Initial cover depth (Cd): 3.200 meters
 Initial contaminated zone thickness (T): 12.000 meters

Time Dependence of Cover/Depth Factor [FCTR_COV_DEPTH(i,t)]

Nuclide (i)	FCTR_COV_DEPTH(i,t) (dimensionless)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Time Dependence of Area Factor [FCTR_AREA(i,t)]

Nuclide (i)	FCTR_AREA(i,t) (dimensionless)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Dose Conversion and Environmental Transport Factors for the Ground Pathway (p=1)

Parent (i)	Product (j)	DCF(j,1)*	ETF(j,1,t) (dimensionless)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	6.120E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.120E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	6.120E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.210E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.120E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	6.120E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are (mrem/yr)/(pCi/g) at infinite depth and area.

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Dose/Source Ratios for External Radiation from the Ground (p=1)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,1,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

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Dose/Source Ratios for Inhalation Pathway, Excluding Radon (p=2)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,2,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Pathway Factors for the Inhalation Pathway (radon excluded)

Area (A):	3.2400E+02 m**2	Occupancy Factor (FO2):	1.0000E+00
Area Factor (FA2):	1.1841E-01	Annual Air Intake (F12):	8.4000E+03 m**3/yr
Cover Depth [Cd(0)]:	3.2000E+00 m	Mass Loading (ASR2):	1.0000E-04 g/m**3
Contaminated Zone Thickness [T(0)]:	1.2000E+01 m	FA2 * FO2 * F12 * ASR2:	9.9462E-02 g/yr

Nuclide (i)	Depth Factor [FD(i,2,t)] (dimensionless)	t=			
		0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210+D	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00	
Ra-226+D	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00	
Th-230	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00	

Dose Conversion and Environmental Transport Factors for the Inhalation Pathway, Excluding Radon (p=2)

Parent (i)	Product (j)	DCF(j,2)*	ETF(j,2,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	2.320E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	8.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	2.320E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	3.260E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	8.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	2.320E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

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Parameters Used for Calculating Indoor and Outdoor Radon Flux

	*Floor Material	Cover Material	Contaminated Zone
Radon Diffusion Coefficient (m**2/s)	3.000E-07	2.000E-06	2.000E-06
Total Porosity	1.000E-01	4.000E-01	4.000E-01
Volumetric Water Content	3.000E-02	5.000E-02	2.208E-01
Bulk Density (g/cm**3)	2.400E+00	1.500E+00	1.800E+00
Rn-222 Emanation Coefficient	2.500E-01	2.500E-01	2.500E-01
Initial Thickness (m)	1.500E-01	3.200E+00	1.200E+01

Building Depth Below Ground Surface *(DMFL): -1.000E+00 (m)

Negative DMFL shows building depth adjusted (if necessary) for no penetration of contaminated zone. Actual values used *(DMFLACT), m:

t= 0.0000E+00 1.0000E+03 6.8450E+03 1.0000E+04

DMFLACT= 1.0000E+00 1.0000E+00 0.0000E+00 0.0000E+00

Building indoor area factor *(FAI): 0.000E+00

FAI <= 0.0 shows calculated time-dependent value based on amount of wall area extending into the contaminated zone. Actual values used *(FAIACT):

t= 0.0000E+00 1.0000E+03 6.8450E+03 1.0000E+04

FAIACT = 1.0000E+00 1.0000E+00 1.0000E+00 1.0000E+00

* - Parameters are used only for indoor radon flux

Time Dependence of Outdoor Radon Flux [FLUXO(i,t)]

Nuclide (i)	t=	FLUXO(i,t) (pCi/m**2/s)			
		0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226		1.0328E+02	1.8383E+02	1.2805E+02	3.1203E+01
Th-230		0.0000E+00	1.7100E+03	3.8870E+04	3.7660E+04

Time Dependence of Indoor Radon Flux [FLUXI(i,t)]

Nuclide (i)	t=	FLUXI(i,t) (pCi/m**2/s)			
		0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226		5.4446E+01	9.6942E+01	2.4227E+01	5.9054E+00
Th-230		0.0000E+00	9.0178E+02	7.3542E+03	7.1275E+03

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Parameters Used for Calculating Indoor and Outdoor Radon Concentration

Radon Vertical Dimension of Mixing (HMIX): 2.000E+00 (m)
 Average Annual Wind Speed (WIND): 2.000E+00 (m/sec)
 Building Room Height (HRM): 2.500E+00 (m)
 Building Air Exchange Rate (REXG): 5.000E-01 (1/hr)

Time Dependence of Outdoor Radon Concentration [CRNO(i,t)]

Nuclide (i)	t=	CRNO(i,t) (pCi/m**3)			
		0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226	2.3237E+02	4.1362E+02	2.8811E+02	7.0206E+01	
Th-230	0.0000E+00	3.8476E+03	8.7457E+04	8.4735E+04	

Time Dependence of Indoor Radon Concentration [HCONC(i,r)]

Nuclide (i)	t=	HCONC(i,t) (pCi/m**3)			
		0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226	1.5470E+05	2.7544E+05	6.9019E+04	1.6823E+04	
Th-230	0.0000E+00	2.5622E+06	2.0951E+07	2.0305E+07	

Outdoor Working Levels of Radon [WLOTD(i,t)]

Nuclide		WLOTD(i,t) (WL)			
(i)	t=	0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226	2.0347E-06	3.6218E-06	2.5228E-06	6.1475E-07	
Th-230	0.0000E+00	3.3690E-05	7.6580E-04	7.4197E-04	

Indoor Working Levels of Radon [WLIND(i,t)]

Nuclide		WLIND(i,t) (WL)			
(i)	t=	0.000E+00	1.000E+03	6.845E+03	1.000E+04
Ra-226	1.0667E+00	1.8993E+00	4.7593E-01	1.1601E-01	
Th-230	0.0000E+00	1.7668E+01	1.4447E+02	1.4001E+02	

Fraction of Time Spent Outdoors (FOTD): 1.000E+00
Fraction of Time Spent Indoors (FIND): 0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Radon Pathway (p=9)

Subpathway: Outdoor and Indoor Radon Flux

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,9,t) - DSRRNW(j,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	1.985E-05	3.534E-05	2.460E-05	5.995E-06
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		1.985E-05	3.534E-05	2.460E-05	5.995E-06
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	4.301E-09	1.908E-05	4.333E-04	4.198E-04
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		4.301E-09	1.908E-05	4.333E-04	4.198E-04

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

Dose/Source Ratios for Radon Pathway (p=9)

Subpathway: Indoor Radon from Water Usage

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSRRNW(j,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Transport Time Parameters for Unsaturated Zone Stratum No. 1

Stratum thickness [h(1)]: 0.600000 m
 Bulk soil material density [rhob(1)]: 1.800000 g/cm**3
 Effective porosity [peuz(1)]: 0.200000
 Hydraulic conductivity [Khuz(1)]: 0.300000 m/yr
 Total porosity [ptuz(1)]: 0.400000
 Soil specific b parameter [buz(1)]: 5.300000
 Saturation ratio [sruz(1)]: 0.714477

Radio-nuclide (i)	Distribution Coefficient Kduz(i,1), cm**3/g	Retardation Factor Rduz(i,1)	Transport Time Dtuz(i,1), yr
Pb-210	1.9000E+01	1.2067E+02	3.3373E+03
Ra-226	1.0000E+01	6.3983E+01	1.7696E+03
Th-230	1.0000E+01	6.3983E+01	1.7696E+03

Transport Time Parameters for Unsaturated Zone Stratum No. 2

Stratum thickness [h(2)]: 4.430000 m
 Bulk soil material density [rhob(2)]: 1.570000 g/cm**3
 Effective porosity [peuz(2)]: 0.200000
 Hydraulic conductivity [Khuz(2)]: 429.000000 m/yr
 Total porosity [ptuz(2)]: 0.400000
 Soil specific b parameter [buz(2)]: 5.300000
 Saturation ratio [sruz(2)]: 0.500000

Radio-nuclide (i)	Distribution Coefficient Kduz(i,2), cm**3/g	Retardation Factor Rduz(i,2)	Transport Time Dtuz(i,2), yr
Pb-210	1.9000E+01	1.5015E+02	2.1457E+04
Ra-226	1.0000E+01	7.9500E+01	1.1361E+04
Th-230	1.0000E+01	7.9500E+01	1.1361E+04

Transport Time Parameters for Unsaturated Zone created by the Falling Water Table

Water table drop rate [vwt]: 0.001000 m/yr
 Bulk soil material density [rhobaq]: 1.500000 g/cm**3
 Effective porosity [peaq]: 0.290000
 Hydraulic conductivity [Khaq]: 239.000000 m/yr
 Total porosity [ptaq]: 0.400000
 Soil specific b parameter [baq]: 5.300000
 Saturation ratio [sruaq]: 0.500000

Radio-nuclide	Distribution Coefficient	Retardation Factor	Minimum Transport Time
(i)	Kdaq(i), cm**3/g	Rduaq(i)	Dtuaq(i), yr
Pb-210	1.9000E+01	1.4350E+02	Infinite
Ra-226	1.0000E+01	7.6000E+01	Infinite
Th-230	1.0000E+01	7.6000E+01	Infinite

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dilution Factor and Rise Time Parameters for Nondispersion (ND) Model

Aquifer contamination depth at well (z): 2.33473E-01 m
 Depth of water intake below water table (dw): 1.00000E+01 m
 Infiltration rate (In): 3.10000E-03 m/yr
 Aquifer water flow rate (Vwfr): 2.39000E-01 m/yr
 Hydraulic gradient (J): 1.00000E-03
 Hydraulic conductivity of aquifer (Kszh): 2.39000E+02 m/yr
 Contaminated zone extent parallel to gradient (l): 1.80000E+01 m
 Distance below contaminated zone to water table (h): 0.50300E+01 m
 Initial thickness of uncontaminated cover (Cd): 0.32000E+01 m
 Initial thickness of contaminated zone (T): 0.12000E+02 m
 Effective porosity of saturated zone (pesz): 0.29000E+00

Radio-nuclide (i)	Dilution Factor f(i)	Retardation Factor Rdsz(i)	Horizontal Transport Time Onsite Tauh(i), yr	Rise Time dt(i), yr	Decay Time Parameter 1/lamda(i), yr
Pb-210	4.018E-03	7.225E+01	1.578E+03	1.578E+03	3.217E+01
Ra-226	4.018E-03	3.850E+01	8.409E+02	8.409E+02	2.308E+03
Th-230	4.018E-03	3.850E+01	8.409E+02	8.409E+02	1.111E+05

Primary Parameters Used for Calculating Water/Soil Concentration Ratios for Groundwater Pathway Segment

Model used: Nondispersion (ND)

Bulk soil density in contaminated zone (rhob): 1.800 g/cm³

Radio-nuclide (i)	Dilution Factor f(i)	Retardation Factor Rdcz(i)	Breakthrough Time Chain year	Single Nuclide Dt(i), yr	Rise Time dt(i), yr
Pb-210	4.018E-03	1.559E+02	Infinite	Infinite	1.578E+03
Ra-226	4.018E-03	8.251E+01	Infinite	Infinite	8.409E+02
Th-230	4.018E-03	8.251E+01	Infinite	Infinite	8.409E+02

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Water/Soil Concentration Ratios [WSR(j,1,t)] for Groundwater Pathway Segment

Parent (i)	Product (j)	Branch Fraction*	WSR(j,1,t) in (pCi/L)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water/Soil Concentration Ratios [WSR(j,2,t)] for Surface Water Pathway Segment

Watershed Area (Aw) = 1.0000E+06 m**2
 Contaminated Zone Area (A) = 3.2400E+02 m**2
 Dilution Factor (f') = 3.2400E-04
 Soil Density (rhob) = 1.8000E+00 kg/m**3

Parent (i)	Product (j)	Branch Fraction*	WSR(j,2,t) in (pCi/L)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Times For Contaminated Foodstuffs

k	Food Item	STOR_T(k), days
1	non-leafy plants	14.
2	leafy plants	1.
3	milk	1.
4	meat	20.
5	fish	7.
6	crustacea	7.
7	well water	1.
8	surface water	1.
9	livestock fodder	45.

Storage Time Ingrowth and Decay Factors

Storage Time for k'th Foodstuff: $t = \text{STOR_T}(k)$, days

Parent (i)	Product (j)	Branch Fraction	$\text{STOR_ID}(i,j,t) = \text{CONCE}(i,j,t)/\text{CONCE}(i,i,0)$																		
			t=	1.400E+01	1.000E+00	1.000E+00	2.000E+01	7.000E+00	7.000E+00	1.000E+00	1.000E+00	1.000E+00									
Pb-210	Pb-210	1.000E+00	9.988E-01	9.999E-01	9.999E-01	9.983E-01	9.994E-01	9.994E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.191E-03	8.510E-05	8.510E-05	1.701E-03	5.955E-04	5.955E-04	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05	8.510E-05
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.661E-05	1.186E-06	1.186E-06	2.372E-05	8.303E-06	8.303E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06	1.186E-06
Th-230	Pb-210	1.000E+00	9.888E-09	5.047E-11	5.047E-11	2.018E-08	2.472E-09	2.472E-09	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11	5.047E-11

$\text{CONCE}(i,j,t)/\text{CONCE}(i,i,0)$ is the concentration ratio of Product(j) at time t to Parent(i) at start of

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Time Correction Factors

Drinking Water from Well and/or Surface

Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CFWW(j,t,1)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors

Irrigation Water for Nonleafy Plants from Well and/or Surface

Harvest Time = t - 4.11E-02 yr; Consumption Time = t - 3.83E-02 yr

Parent (i)	Product (j)	Branch Fraction*	CFWW(j,t,2)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Time Correction Factors

Irrigation Water for Leafy Plants from Well and/or Surface

Harvest Time = t - 5.48E-03 yr; Consumption Time = t - 2.74E-03 yr

Parent (i)	Product (j)	Branch Fraction*	t=	CFWW(j,t,3)#		
				0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors

Irrigation Water for Livestock (Milk) Fodder from Well and/or Surface

Harvest Time = t - 1.29E-01 yr; Consumption Time = t - 1.26E-01 yr

Parent (i)	Product (j)	Branch Fraction*	t=	CFWW(j,t,5)#		
				0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Time Correction Factors

Irrigation Water for Livestock (Meat) Fodder from Well and/or Surface

Harvest Time = t - 1.81E-01 yr; Consumption Time = t - 1.78E-01 yr

Parent (i)	Product (j)	Branch Fraction*	t=	CFWW(j,t,7)#		
				0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors

Livestock (Milk) Water from Well and/or Surface

Harvest Time = t - 5.48E-03 yr; Consumption Time = t - 2.74E-03 yr

Parent (i)	Product (j)	Branch Fraction*	t=	CFWW(j,t,4)#		
				0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Time Correction Factors

Livestock (Meat) Water from Well and/or Surface

Harvest Time = t - 5.75E-02 yr; Consumption Time = t - 5.48E-02 yr

Parent (i)	Product (j)	Branch Fraction*	CFWW(j,t,6)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Nonleafy Plants

Harvest Time = t - 3.83E-02 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CF3(j,1,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.988E-01	9.988E-01	9.988E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Leafy Plants

Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CF3(j,2,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

Detailed: RESRAD Default Parameters

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Storage Time Correction Factors for Leafy Plants

Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CF3(j,2,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Livestock (Meat) Fodder

Harvest Time = t - 1.78E-01 yr; Consumption Time = t - 5.48E-02 yr

Parent (i)	Product (j)	Branch Fraction*	CFLF(j,1,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.962E-01	9.962E-01	9.962E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.011E+00	1.011E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	9.999E-01	9.999E-01
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.011E+00	1.011E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Livestock (Milk) Fodder

Harvest Time = t - 1.26E-01 yr; Consumption Time = t - 2.74E-03 yr

Parent (i)	Product (j)	Branch Fraction*	CFLF(j,2,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.962E-01	9.962E-01	9.962E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.011E+00	1.011E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	9.999E-01	9.999E-01
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.011E+00	1.011E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Storage Time Correction Factors for Meat

Harvest Time = t - 5.48E-02 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CF45(j,1,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.983E-01	9.983E-01	9.983E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.004E+00	1.004E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.004E+00	1.004E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Milk

Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CF45(j,2,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.999E-01	9.999E-01	9.999E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.001E+00	1.001E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.001E+00	1.001E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Storage Time Correction Factors for Fish & Crustacea

Harvest Time = t - 1.92E-02 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	CFF(j,1,t)#			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	1.000E+00	9.994E-01	9.994E-01	9.994E-01
Ra-226	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Ra-226	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Th-230	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Ra-226	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
Th-230	Pb-210	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BR

#Correction factor = (concentration in media at consumption time)/(concentration at harvest time).

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Area and Depth Factors for Plant (p=3), Meat (p=4), and Milk (p=5) Pathways
 Root Uptake from Contaminated Soil (q=1)

Area Factor for Plant Foods [FA(3)] = 0.16

Nuclide (i)	Depth Factor FD(i,1,t) (dimensionless)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00
Ra-226	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00
Th-230	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00

Area and Depth Factors for Plant (p=3), Meat (p=4), and Milk (p=5) Pathways
 Foliar Uptake from Contaminated Dust (q=2)

Area Factor for Plant Foods [FA(3)] = 0.16

Nuclide (i)	Depth Factor FD(i,2,t) (dimensionless)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00
Ra-226	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00
Th-230	0.0000E+00	0.0000E+00	1.0000E+00	1.0000E+00

Area and Depth Factors for Plant (p=3), Meat (p=4), and Milk (p=5) Pathways
 Ditch Irrigation (q=3)

Area Factor for Plant Foods [FA(3)] = 0.16

Nuclide (i)	Depth Factor FD(i,3,t) (dimensionless)			
	t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
Ra-226	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
Th-230	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00

Detailed: RESRAD Default Parameters

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Area and Depth Factors for Plant (p=3), Meat (p=4), and Milk (p=5) Pathways
Overhead Irrigation (q=4)

Area Factor for Plant Foods [FA(3)] = 0.16

The Depth Factor Value

FD(i,p,q,t) = 1.0000E+00

is applicable for all radionuclides(i) and times(t).

Area and Depth Factors for Meat (p=4) and Milk (p=5) Pathways
Transfer from Livestock Water (q=5) and Soil (q=6) Intake

Area Factor for Meat and Milk [FA(p),p=4,5] = 0.02

The livestock water subpathway (q=5) and livestock soil intake subpathway (q=6)
occur only for the meat (p=4) and milk (p=5) pathways.

Area and Depth Factors for Meat (p=4) and Milk (p=5) Pathways
Transfer from Livestock Water (q=5) and Soil (q=6) Intake

Area Factor for Meat and Milk [FA(p),p=4,5] = 0.02

The livestock water subpathway (q=5) and livestock soil intake subpathway (q=6)
occur only for the meat (p=4) and milk (p=5) pathways.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Plant Food Pathway (p=3)

Subpathway: Root Uptake from Contaminated Soil (q=1)

Parent (i)	Product (j)	DCF(j,3)*	ETF(j,3,1,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Plant Food Pathway (p=3)

Subpathway: Foliar Uptake from Contaminated Dust (q=2)

Parent (i)	Product (j)	DCF(j,3)*	ETF(j,3,2,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Plant Food Pathway (p=3)

Subpathway: Ditch Irrigation (q=3)

Parent (i)	Product (j)	DCF(j,3)*	ETF(j,3,3,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Plant Food Pathway (p=3)
 Subpathway: Overhead Irrigation (q=4)

Parent (i)	Product (j)	DCF(j,3)*	ETF(j,3,4,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)

Subpathway: Fodder Root Uptake from Contaminated Soil (q=1)

Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,1,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)

Subpathway: Fodder Foliar Uptake from Contaminated Dust (q=2)

Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,2,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)

Subpathway: Ditch Irrigation (q=3)

Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,3,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)
 Subpathway: Overhead Irrigation (q=4)

Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,4,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)
 Subpathway: Livestock Water (q=5)

Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,5,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Milk Pathway (p=5)
 Subpathway: Fodder Root Uptake from Contaminated Soil (q=1)

Parent (i)	Product (j)	DCF(j,5)*	ETF(j,5,1,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Milk Pathway (p=5)
 Subpathway: Fodder Foliar Uptake from Contaminated Dust (q=2)

Parent (i)	Product (j)	DCF(j,5)*	ETF(j,5,2,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Milk Pathway (p=5)
 Subpathway: Ditch Irrigation (q=3)

Parent (i)	Product (j)	DCF(j,5)*	ETF(j,5,3,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Milk Pathway (p=5)
 Subpathway: Overhead Irrigation (q=4)

Parent (i)	Product (j)	DCF(j,5)*	ETF(j,5,4,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Milk Pathway (p=5)
 Subpathway: Livestock Water (q=5)

Parent (i)	Product (j)	DCF(j,5)*	ETF(j,5,5,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose Conversion and Environmental Transport Factors for the Fish Pathway (p=6)

Parent (i)	Product (j)	DCF(j,6)*	ETF(j,6,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Dose Conversion and Environmental Transport Factors for the Drinking Water Pathway (p=7)

Parent (i)	Product (j)	DCF(j,7)*	ETF(j,7,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Internal Radiation from Ingestion of Plant Foods (p=3)

Subpathway: Root Uptake from Contaminated Soil (q=1)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,3,1,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Plant Foods (p=3)

Subpathway: Foliar Uptake from Contaminated Dust (q=2)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,3,2,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Plant Foods (p=3)
 Subpathway: Ditch Irrigation (q=3)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,3,3,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Plant Foods (p=3)
 Subpathway: Overhead Irrigation (q=4)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,3,4,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

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Dose/Source Ratios for Internal Radiation from Ingestion of Plant Foods (p=3)

Total for All Subpathways

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,3,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Subpathway: Fodder Root Uptake from Contaminated Soil (q=1)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,1,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Subpathway: Fodder Foliar Uptake from Contaminated Dust (q=2)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,2,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

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Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Subpathway: Ditch Irrigation (q=3)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,3,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Subpathway: Overhead Irrigation (q=4)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,4,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

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Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Subpathway: Livestock Water (q=5)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,5,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Meat (p=4)

Total for All Subpathways

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,4,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Subpathway: Fodder Root Uptake from Contaminated Soil (q=1)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,1,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Subpathway: Fodder Foliar Uptake from Contaminated Dust (q=2)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,2,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Subpathway: Ditch Irrigation (q=3)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,3,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Subpathway: Overhead Irrigation (q=4)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,4,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

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Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Subpathway: Livestock Water (q=5)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,5,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from Ingestion of Milk (p=5)

Total for All Subpathways

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,5,t) (mrem/yr)/(pCi/g)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from the Ingestion of Fish (p=6)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,6,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose/Source Ratios for Internal Radiation from the Ingestion of Drinking Water (p=7)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,7,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Plant/Air and Plant/Water Concentration Ratios

Mass loading [ASR(3)]: 1.000E-04 g/m**3

Area Factor for Mass Loading [FA(2)]: 1.184E-01

Nuclide (i)	FAR(i,3,2,1) m**3/g	FAR(i,3,2,2) m**3/g	FWR(i,3,3,1) L/g	FWR(i,3,3,2) L/g	FWR(i,3,4,1) L/g	FWR(i,3,4,2) L/g
Pb-210	5.4545E-02	2.6156E-01	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Ra-226	5.4545E-02	2.6156E-01	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Th-230	5.4545E-02	2.6156E-01	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

FAR(i,p,q,k) is the plant/air concentration ratio for airborne contaminated dust,
and FWR(i,p,q,k) is the plant/water concentration ratio. See groundwater displays
for water/soil concentration ratios.

Plant/Soil Concentration Ratios, FSR(i,3,q,k,t)

Root Uptake (q=1) and Foliar Dust Deposition (q=2)
Nonleafy (k=1) and/or Leafy (k=2) Vegetables

Nuclide (i)		FSR(i,3,1,k)	FSR(i,3,2,1)	FSR(i,3,2,2)
Parent	Product			
Pb-210	Pb-210	1.0000E-02	6.4586E-07	3.0970E-06
Ra-226	Ra-226	4.0000E-02	6.4586E-07	3.0970E-06
Ra-226	Pb-210	1.0000E-02	6.4586E-07	3.0970E-06
Th-230	Th-230	1.0000E-03	6.4586E-07	3.0970E-06
Th-230	Ra-226	4.0000E-02	6.4586E-07	3.0970E-06
Th-230	Pb-210	1.0000E-02	6.4586E-07	3.0970E-06

Plant/Soil Concentration Ratio, FSR(j,3,q,k,t)

Ditch Irrigation (q=3)

Parent (i)	Product (j)	Branch Fraction*	t=	FSR(j,3,3,k,t)			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Plant/Soil Concentration Ratio, FSR(j,3,q,k,t)
Overhead Irrigation (q=4) and Nonleafy Vegetables (k=1)

Parent (i)	Product (j)	Branch Fraction*	FSR(j,3,4,1,t) * SF(j,t)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Plant/Soil Concentration Ratio, FSR(j,3,q,k,t)
Overhead Irrigation (q=4) and Leafy Vegetables (k=2)

Parent (i)	Product (j)	Branch Fraction*	FSR(j,3,4,2,t) * SF(j,t)			
			t=	0.000E+00	1.000E+03	6.845E+03
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Meat/Fodder, Milk/Fodder, Fodder/Air and Fodder/Water Concentration Ratios

FI(4,q): 68.0 kg/day FI(5,q): 55.0 kg/day q=1,2,3,4
 FI(4,q): 50.0 L/day FI(5,q): 160.0 L/day q=5
 FI(4,q): 0.5 kg/day FI(5,q):

Nuclide (i)	FQR(i,4) d/kg	FQR(i,5) d/kg	FAR(i,3,2,3) m**3/g	FWR(i,3,3,3) L/g	FWR(i,3,4,3) L/g
Pb-210	8.0000E-04	3.0000E-04	2.8659E-01	0.0000E+00	0.0000E+00
Ra-226	1.0000E-03	1.0000E-03	2.8659E-01	0.0000E+00	0.0000E+00
Th-230	1.0000E-04	5.0000E-06	2.8659E-01	0.0000E+00	0.0000E+00

FI(p,q) are the fodder (q=1,2,3,4), livestock water (q=5) and soil (q=6) intake rates;
 FQR(i,p) are the transfer coefficients from contaminated fodder of livestock
 water to meat (p=4) or milk (p=5). FAR(i,3,2,3) are the fodder/air
 concentration ratios, and FWR(i,3,3,3) and FWR(i,3,4,3) are the fodder/
 water concentration ratios for ditch and overhead irrigation, respectively.

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Fodder/Soil Concentration Ratios, $QSR(i,p,q,t)$, for Meat and Milk Pathways
 Root Uptake ($q=1$) and Foliar Dust Deposition ($q=2$)

Nuclide(i)			
Parent	Product	$QSR(i,p,1)$	$QSR(i,p,2)$
Pb-210	Pb-210	1.0000E-02	3.3934E-06
Ra-226	Ra-226	4.0000E-02	3.3934E-06
Ra-226	Pb-210	1.0000E-02	3.3934E-06
Th-230	Th-230	1.0000E-03	3.3934E-06
Th-230	Ra-226	4.0000E-02	3.3934E-06
Th-230	Pb-210	1.0000E-02	3.3934E-06

Fodder/Soil Concentration Ratio, $QSR(j,p,q,t)$, for Meat and Milk Pathways
 Ditch Irrigation ($q=3$)

Parent (i)	Product (j)	Branch Fraction*	t=	$QSR(j,p,3,t) * SF(j,t)$			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Fodder/Soil Concentration Ratio, $QSR(j,p,q,t)$, for Meat and Milk Pathways
 Overhead Irrigation ($q=4$)

Parent (i)	Product (j)	Branch Fraction*	t=	$QSR(j,p,4,t) * SF(j,t)$			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Fodder/Soil Concentration Ratio, QSR(j,p,q,t), for Meat and Milk Pathways
Livestock Water (q=5)

Parent (i)	Product (j)	Branch Fraction*	QSR(j,p,5,t) * SF(j,t)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Meat/Soil Concentration Ratios, FSR(i,4,q,t)
 Root Uptake (q=1) and Foliar Dust Deposition (q=2)

Nuclide(i)			
Parent	Product	FSR(i,4,1)	FSR(i,4,2)
Pb-210	Pb-210	0.0000E+00	0.0000E+00
Ra-226	Ra-226	0.0000E+00	0.0000E+00
Ra-226	Pb-210	0.0000E+00	0.0000E+00
Th-230	Th-230	0.0000E+00	0.0000E+00
Th-230	Ra-226	0.0000E+00	0.0000E+00
Th-230	Pb-210	0.0000E+00	0.0000E+00

Meat/Soil Concentration Ratio, FSR(j,4,q,t)
 Ditch Irrigation (q=3)

Parent (i)	Product (j)	Branch Fraction*	t=	FSR(j,4,3,t) * SF(j,t)			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Meat/Soil Concentration Ratio, FSR(j,4,q,t)
 Overhead Irrigation (q=4)

Parent (i)	Product (j)	Branch Fraction*	t=	FSR(j,4,4,t) * SF(j,t)			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Meat/Soil Concentration Ratio, FSR(j,4,q,t)
 Livestock Water (q=5)

Parent (i)	Product (j)	Branch Fraction*	FSR(j,4,5,t) * SF(j,t)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Milk/Soil Concentration Ratios, FSR(i,5,q,t)
 Root Uptake (q=1) and Foliar Dust Deposition (q=2)

Nuclide(i)			
Parent	Product	FSR(i,5,1)	FSR(i,5,2)
Pb-210	Pb-210	0.0000E+00	0.0000E+00
Ra-226	Ra-226	0.0000E+00	0.0000E+00
Ra-226	Pb-210	0.0000E+00	0.0000E+00
Th-230	Th-230	0.0000E+00	0.0000E+00
Th-230	Ra-226	0.0000E+00	0.0000E+00
Th-230	Pb-210	0.0000E+00	0.0000E+00

Milk/Soil Concentration Ratio, FSR(j,5,q,t)
 Ditch Irrigation (q=3)

Parent (i)	Product (j)	Branch Fraction*	t=	FSR(j,5,3,t) * SF(j,t)			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Milk/Soil Concentration Ratio, FSR(j,5,q,t)
 Overhead Irrigation (q=4)

Parent (i)	Product (j)	Branch Fraction*	t=	FSR(j,5,4,t) * SF(j,t)			
				0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00		0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Milk/Soil Concentration Ratio, FSR(j,5,q,t)
 Livestock Water (q=5)

Parent (i)	Product (j)	Branch Fraction*	FSR(j,5,5,t) * SF(j,t)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Detailed: RESRAD Default Parameters

File : Silo3_radon_low_Kd_HIC_HC_0.001.RAD

Dose/Source Ratios for Soil Ingestion Pathway (p=8)

Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	DSR(j,8,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	ΣDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	ΣDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

Dose Conversion and Environmental Transport Factors for the Soil Ingestion Pathway (p=8)

Parent (i)	Product (j)	DCF(j,8)*	ETF(j,8,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.845E+03	1.000E+04
Pb-210	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Th-230	5.480E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226	1.330E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Pb-210	7.270E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* - The dose conversion factor units are mrem/pCi.