RESRAD, Version 6.22   T½ Limit = 0.5 year   08/25/2006 13:14 Page   1
Detailed: RESRAD Default Parameters
File   : Silo3_radon_low_Kd_HIC_HC_0.00055.RAD

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Part II: Source Terms, Factors, and Parameters for Individual Pathways
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Part II: Source Terms, Factors, and Parameters for Individual Pathways
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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	t	DSR(t)	Step Size	Step Type
Number	(years)	(mrem/yr)/(pCi/g)	(years)	
0	5.84341E+03	3.85190E-05		
1	5.70260E+03	3.84480E-05	-1.40819E+02	parabolic
2	5.80103E+03	3.88897E-05	-4.23868E+01	parabolic
3	5.77569E+03	3.87755E-05	-2.53399E+01	parabolic
4	5.79523E+03	3.88635E-05	-1.15396E+00	parabolic
5	5.81722E+03	3.89628E-05	1.61903E+01	golden section
6	5.82722E+03	3.87990E-05	1.00061E+01	golden section
7	5.81103E+03	3.89349E-05	-6.18419E+00	golden section
8	5.81722E+03	3.89628E-05	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-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.

Detailed: RESRAD Default Parameters
File   : Silo3_radon_low_Kd_HIC_HC_0.00055.RAD

 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	5.84341E+03	3.85190E-05		
1	5.70260E+03	3.84480E-05	-1.40819E+02	parabolic
2	5.80103E+03	3.88897E-05	-4.23868E+01	parabolic
3	5.77569E+03	3.87755E-05	-2.53399E+01	parabolic
4	5.79523E+03	3.88635E-05	-1.15396E+00	parabolic
5	5.81722E+03	3.89628E-05	1.61903E+01	golden section
6	5.82722E+03	3.87990E-05	1.00061E+01	golden section
7	5.81103E+03	3.89349E-05	-6.18419E+00	golden section
8	5.81722E+03	3.89628E-05	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-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	6.84200E+03	4.33372E-04		
1	6.98575E+03	4.33414E-04	1.43753E+02	parabolic
2	6.97633E+03	4.33415E-04	-9.41907E+00	parabolic
3	6.96895E+03	4.33415E-04	-7.38117E+00	parabolic
4	6.96198E+03	4.33414E-04	-6.96895E+00	parabolic
5	6.96895E+03	4.33415E-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-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.

Detailed: RESRAD Default Parameters
File   : Silo3_radon_low_Kd_HIC_HC_0.00055.RAD

 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	6.84200E+03	4.33372E-04		
1	6.98575E+03	4.33414E-04	1.43753E+02	parabolic
2	6.97633E+03	4.33415E-04	-9.41907E+00	parabolic
3	6.96895E+03	4.33415E-04	-7.38117E+00	parabolic
4	6.96198E+03	4.33414E-04	-6.96895E+00	parabolic
5	6.96895E+03	4.33415E-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-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.

Detailed: RESRAD Default Parameters
File   : Silo3_radon_low_Kd_HIC_HC_0.00055.RAD

          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	6.84200E+03	2.22618E+01		
1	6.84884E+03	2.22618E+01	1.47249E-01	parabolic
2	6.85569E+03	2.22618E+01	6.84884E+00	parabolic
3	6.84884E+03	2.22618E+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-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.

           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	6.84200E+03	2.22618E+01		
1	6.84884E+03	2.22618E+01	1.47249E-01	parabolic
2	6.85569E+03	2.22618E+01	6.84884E+00	parabolic
3	6.84884E+03	2.22618E+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-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.

Source Factors for Ingrowth and Decay
Radioactivity Factors Only
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction* t=	ID(j,t) = CUMBRF(j)*S1(j,t)/S1(i,0) 0.000E+00	1.000E+03	6.842E+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	5.161E-02	1.314E-02
Ra-226	Pb-210	1.000E+00	0.000E+00	6.576E-01	5.234E-02	1.332E-02
Th-230	Th-230	1.000E+00	1.000E+00	9.910E-01	9.403E-01	9.139E-01
Th-230	Ra-226	1.000E+00	0.000E+00	3.499E-01	9.075E-01	9.199E-01
Th-230	Pb-210	1.000E+00	0.000E+00	3.408E-01	9.070E-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* t=	SF(j,t) = CUMBRF(j)*S1(j,t)/S1(i,0) 0.000E+00	1.000E+03	6.842E+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	4.684E-02	1.140E-02
Ra-226	Pb-210	1.000E+00	0.000E+00	6.485E-01	4.751E-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.

          Parameters Used for Calculating Cover Depth and Contaminated Zone Thicknesses

              Cover Erosion rate (vcv): 0.000550 m/yr
Contaminated Zone Erosion rate (vcz): 0.000550 m/yr
         Water Table Drop rate (vwt): 0.001000 m/yr
              Precipitation rate (Pr): 0.200000 m/yr
             Cover Removal Time (Tc): 5.818E+03 yr
Overhead irrigation rate (Irr): 0.000 m/yr   Runoff coefficient (Cr): 0.969
Evapotranspiration coeff. (Ce): 0.500   Infiltration rate (In): 0.003 m/yr
       Bulk soil density (rhob): 1.800 g/cm**3   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) t=	Cd(i,t) (meters) 0.000E+00	1.000E+03	6.842E+03	1.000E+04
Pb-210	3.2000E+00	2.6500E+00	0.0000E+00	0.0000E+00
Ra-226	3.2000E+00	2.6500E+00	0.0000E+00	0.0000E+00
Th-230	3.2000E+00	2.6500E+00	0.0000E+00	0.0000E+00

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

Nuclide (i) t=	T(i,t) (meters) 0.000E+00	1.000E+03	6.842E+03	1.000E+04
Pb-210	1.2000E+01	1.2000E+01	1.1437E+01	9.7000E+00
Ra-226	1.2000E+01	1.2000E+01	1.1437E+01	9.7000E+00
Th-230	1.2000E+01	1.2000E+01	1.1437E+01	9.7000E+00

  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   FCTR_COV_DEPTH(i,t) (dimensionless)
  (i)   t= 0.000E+00 1.000E+03 6.842E+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
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        Time Dependence of Area Factor [FCTR_AREA(i,t)]

Nuclide   FCTR_AREA(i,t) (dimensionless)
  (i)   t= 0.000E+00 1.000E+03 6.842E+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
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Dose Conversion and Environmental Transport Factors for the Ground Pathway (p=1)

Parent Product DCF(j,1)*   ETF(j,1,t) (dimensionless)
 (i)   (j)   t= 0.000E+00 1.000E+03 6.842E+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
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* - The dose conversion factor units are (mrem/yr)/(pCi/g) at infinite depth and area.

 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	6.842E+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 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	6.842E+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	6.842E+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	6.842E+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.

             Parameters Used for Calculating Indoor and Outdoor Radon Flux

                                          *Floor   Cover   Contaminated
                                          Material   Material   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 6.8420E+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 6.8420E+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   FLUXO(i,t) (pCi/m**2/s)
  (i)   t= 0.000E+00   1.000E+03   6.842E+03   1.000E+04
_____   _____   _____   _____   _____

Ra-226   1.0328E+02 1.1600E+02 1.2825E+02 3.1217E+01
Th-230   0.0000E+00 1.0790E+03 3.8877E+04 3.7677E+04
_____   _____   _____   _____   _____

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

Nuclide   FLUXI(i,t) (pCi/m**2/s)
  (i)   t= 0.000E+00   1.000E+03   6.842E+03   1.000E+04
_____   _____   _____   _____   _____

Ra-226   5.4446E+01 6.1236E+01 2.4261E+01 5.9060E+00
Th-230   0.0000E+00 5.6963E+02 7.3545E+03 7.1281E+03
_____   _____   _____   _____   _____

       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   CRNO(i,t) (pCi/m**3)
   (i)   t= 0.000E+00   1.000E+03   6.842E+03   1.000E+04
   ___   _____   _____   _____   _____

Ra-226   2.3237E+02 2.6099E+02 2.8855E+02 7.0237E+01
Th-230   0.0000E+00 2.4278E+03 8.7472E+04 8.4772E+04
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 Time Dependence of Indoor Radon Concentration [HCONC(i,r)]

Nuclide   HCONC(i,t) (pCi/m**3)
   (i)   t= 0.000E+00   1.000E+03   6.842E+03   1.000E+04
   ___   _____   _____   _____   _____

Ra-226   1.5470E+05 1.7399E+05 6.9114E+04 1.6825E+04
Th-230   0.0000E+00 1.6185E+06 2.0952E+07 2.0307E+07
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Outdoor Working Levels of Radon [WLOTD(i,t)]

Nuclide		WLOTD(i,t) (WL)		
(i)	t= 0.000E+00	1.000E+03	6.842E+03	1.000E+04
Ra-226	2.0347E-06	2.2853E-06	2.5266E-06	6.1502E-07
Th-230	0.0000E+00	2.1258E-05	7.6593E-04	7.4229E-04

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

Nuclide		WLIND(i,t) (WL)		
(i)	t= 0.000E+00	1.000E+03	6.842E+03	1.000E+04
Ra-226	1.0667E+00	1.1998E+00	4.7659E-01	1.1602E-01
Th-230	0.0000E+00	1.1160E+01	1.4447E+02	1.4003E+02

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

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	6.842E+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	2.229E-05	2.464E-05	5.998E-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	2.229E-05	2.464E-05	5.998E-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	4.300E-09	1.204E-05	4.334E-04	4.200E-04
Th-230	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DSR(j)		4.300E-09	1.204E-05	4.334E-04	4.200E-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	6.842E+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.

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)]:        189.000000 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

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

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

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),y
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/cm**3

Radio-nuclide (i)	Dilution Factor f(i)	Retardation Factor Rdcz(i)	Breakthrough Time		Rise Time dt(i), yr
			Chain year	Single Nuclide 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

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

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

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

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

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 = STOR_T(k), days

Parent (i)	Product (j)	Branch Fraction	t= 1.400E+01	1.000E+00	1.000E+00	2.000E+01	7.000E+00	7.000E+00	1.000E+00	1.0
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	9.9
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	1.0
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	8.5
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	1.0
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	1.1
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	5.0

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

Storage Time Correction Factors
Drinking Water from Well and/or Surface
Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent	Product	Branch			CFWW(j,t,1)#		
(i)	(j)	Fraction* t=	0.000E+00	1.000E+03	6.842E+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	Product	Branch			CFWW(j,t,2)#		
(i)	(j)	Fraction* t=	0.000E+00	1.000E+03	6.842E+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 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= 0.000E+00	CFWW(j,t,3)# 1.000E+03	6.842E+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 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= 0.000E+00	CFWW(j,t,5)# 1.000E+03	6.842E+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 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= 0.000E+00	1.000E+03	CFWW(j,t,7)# 6.842E+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
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= 0.000E+00	1.000E+03	CFWW(j,t,4)# 6.842E+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
            Livestock (Meat) Water from Well and/or Surface
 Harvest Time = t - 5.75E-02 yr; Consumption Time = t - 5.48E-02 yr


Parent  Product  Branch                     CFWW(j,t,6)#
 (i)      (j)    Fraction* t= 0.000E+00 1.000E+03 6.842E+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
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*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  Product  Branch                     CF3(j,1,t)#
 (i)      (j)    Fraction* t= 0.000E+00 1.000E+03 6.842E+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
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*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  Product  Branch                     CF3(j,2,t)#
 (i)      (j)    Fraction* t= 0.000E+00 1.000E+03 6.842E+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
```

          Storage Time Correction Factors for Leafy Plants
       Harvest Time = t - 2.74E-03 yr; Consumption Time = t yr

Parent Product Branch   CF3(j,2,t)#
 (i)   (j)   Fraction* t= 0.000E+00 1.000E+03 6.842E+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 Product Branch   CFLF(j,1,t)#
 (i)   (j)   Fraction* t= 0.000E+00 1.000E+03 6.842E+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 Product Branch   CFLF(j,2,t)#
 (i)   (j)   Fraction* t= 0.000E+00 1.000E+03 6.842E+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 Meat
       Harvest Time = t - 5.48E-02 yr; Consumption Time = t yr

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	CF45(j,1,t)# 1.000E+03	6.842E+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*	t= 0.000E+00	CF45(j,2,t)# 1.000E+03	6.842E+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*	t= 0.000E+00	CFF(j,1,t)# 1.000E+03	6.842E+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).

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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       Depth Factor FD(i,1,t) (dimensionless)
   (i)    t=  0.000E+00   1.000E+03    6.842E+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       Depth Factor FD(i,2,t) (dimensionless)
   (i)    t=  0.000E+00   1.000E+03    6.842E+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       Depth Factor FD(i,3,t) (dimensionless)
   (i)    t=  0.000E+00   1.000E+03    6.842E+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
 ========     =========   =========    =========   =========
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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.

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	6.842E+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	6.842E+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	6.842E+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: 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	6.842E+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 Root Uptake from Contaminated Soil (q=1)

| Parent | Product | DCF(j,4)* | | ETF(j,4,1,t) (g/yr) | | |
(i)	(j)		t= 0.000E+00	1.000E+03	6.842E+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 | Product | DCF(j,4)* | | ETF(j,4,2,t) (g/yr) | | |
(i)	(j)		t= 0.000E+00	1.000E+03	6.842E+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 | Product | DCF(j,4)* | | ETF(j,4,3,t) * SF(j,t) (g/yr) | | |
(i)	(j)		t= 0.000E+00	1.000E+03	6.842E+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.

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Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)
                Subpathway: Overhead Irrigation (q=4)
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Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,4,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.842E+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.


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Dose Conversion and Environmental Transport Factors for the Meat Pathway (p=4)
                 Subpathway: Livestock Water (q=5)
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Parent (i)	Product (j)	DCF(j,4)*	ETF(j,4,5,t) * SF(j,t) (g/yr)			
			t= 0.000E+00	1.000E+03	6.842E+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 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	6.842E+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	6.842E+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	6.842E+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: Overhead Irrigation (q=4)

| Parent | Product | DCF(j,5)* | | ETF(j,5,4,t) * SF(j,t) (g/yr) | | |
(i)	(j)		t= 0.000E+00	1.000E+03	6.842E+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 | Product | DCF(j,5)* | | ETF(j,5,5,t) * SF(j,t) (g/yr) | | |
(i)	(j)		t= 0.000E+00	1.000E+03	6.842E+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 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	6.842E+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	6.842E+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/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*	t= 0.000E+00	DSR(j,3,1,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 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*	t= 0.000E+00	DSR(j,3,2,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 Ingestion of Plant Foods (p=3)
                Subpathway: Ditch Irrigation (q=3)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	DSR(j,3,3,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 Ingestion of Plant Foods (p=3)
                Subpathway: Overhead Irrigation (q=4)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	DSR(j,3,4,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 Ingestion of Plant Foods (p=3)
                    Total for All Subpathways
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

DSR(j,3,t)   (mrem/yr)/(pCi/g)

*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 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	6.842E+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 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	6.842E+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 Ingestion of Meat (p=4)
                Subpathway: Ditch Irrigation (q=3)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction* t=	DSR(j,4,3,t) (mrem/yr)/(pCi/g)			
			0.000E+00	1.000E+03	6.842E+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 Ingestion of Meat (p=4)
                Subpathway: Overhead Irrigation (q=4)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction* t=	DSR(j,4,4,t) (mrem/yr)/(pCi/g)			
			0.000E+00	1.000E+03	6.842E+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 Ingestion of Meat (p=4)
                  Subpathway: Livestock Water (q=5)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,4,5,t) (mrem/yr)/(pCi/g)			
				0.000E+00	1.000E+03	6.842E+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 Ingestion of Meat (p=4)
                   Total for All Subpathways
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t=	DSR(j,4,t) (mrem/yr)/(pCi/g)			
				0.000E+00	1.000E+03	6.842E+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 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	6.842E+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 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	6.842E+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 Ingestion of Milk (p=5)
                Subpathway: Ditch Irrigation (q=3)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	DSR(j,5,3,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 Ingestion of Milk (p=5)
                Subpathway: Overhead Irrigation (q=4)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	DSR(j,5,4,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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 Ingestion of Milk (p=5)
                  Subpathway: Livestock Water (q=5)
 Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

DSR(j,5,5,t) (mrem/yr)/(pCi/g)

*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*	t= 0.000E+00	1.000E+03	6.842E+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

DSR(j,5,t) (mrem/yr)/(pCi/g)

*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*	t= 0.000E+00	DSR(j,6,t) (mrem/yr)/(pCi/g) 1.000E+03	6.842E+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	6.842E+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.

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) Parent	Product	FSR(i,3,1,k)	FSR(i,3,2,1)	FSR(i,3,2,2)
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= 0.000E+00	FSR(j,3,3,k,t) 1.000E+03	6.842E+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

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*	t= 0.000E+00	1.000E+03	6.842E+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

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*	t= 0.000E+00	1.000E+03	6.842E+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/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.

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

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

Parent	Product	Branch		QSR(j,p,3,t) * SF(j,t)			
(i)	(j)	Fraction*	t=	0.000E+00	1.000E+03	6.842E+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	Product	Branch		QSR(j,p,4,t) * SF(j,t)			
(i)	(j)	Fraction*	t=	0.000E+00	1.000E+03	6.842E+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
Livestock Water (q=5)

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

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

Parent  Product  Branch                FSR(j,4,3,t) * SF(j,t)
 (i)      (j)    Fraction* t= 0.000E+00 1.000E+03 6.842E+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
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             Meat/Soil Concentration Ratio, FSR(j,4,q,t)
                      Overhead Irrigation (q=4)

Parent  Product  Branch                FSR(j,4,4,t) * SF(j,t)
 (i)      (j)    Fraction* t= 0.000E+00 1.000E+03 6.842E+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
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                 Meat/Soil Concentration Ratio, FSR(j,4,q,t)
                         Livestock Water (q=5)

| Parent | Product | Branch | | FSR(j,4,5,t) * SF(j,t) | | |
(i)	(j)	Fraction* t=	0.000E+00	1.000E+03	6.842E+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 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= 0.000E+00	1.000E+03	6.842E+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= 0.000E+00	1.000E+03	6.842E+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)
                        Livestock Water (q=5)

Parent (i)	Product (j)	Branch Fraction*	t= 0.000E+00	1.000E+03	6.842E+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

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          Dose/Source Ratios for Soil Ingestion Pathway (p=8)
 Parent and Progeny Principal Radionuclide Contributions Indicated
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Parent (i)	Product (j)	Branch Fraction*	DSR(j,8,t) (mrem/yr)/(pCi/g)			
			t= 0.000E+00	1.000E+03	6.842E+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 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	6.842E+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.