



DandD Building Occupancy Scenario

DandD Version: 2.4.0

Run Date/Time: 11/5/2021 5:14:37 PM

Site Name: Any

Description: Screening Value using NR-1720 Resuspension Factor

FileName: C:\Users\dculp.CHASEENV\DandD_Docs\U-238 NR1720.mcd

Options:

Implicit progeny doses included with explicit parent doses

Nuclide concentrations are NOT distributed among all progeny

Number of simulations: 100

Seed for Random Generation: 8718721

Averages of sampled values used for behavioral and metabolic type parameters

Averages of sampled values not used for derived behavioral or metabolic parameters

External Pathway is ON

Inhalation Pathway is ON

Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m ²)	Distribution
238U	UNLIMITED	CONSTANT(dpm/100 cm**2)
<u>Justification for concentration:</u> Screening Value Determination		<u>Value</u> 1.00E+00

Chain Data:

Number of chains: 1

Chain No. 1: 238U

Nuclides in chain: 9

Nuclide	Chain Position	Half Life	First Parent	Fractional Yield	Second Parent	Fractional Yield	Ingestion CEDE Factor (Sv/Bq)	Inhalation CEDE Factor (Sv/Bq)	Surface Dose Rate Factor ((Sv/d)/(Bq/m ²))	15 cm Dose Rate Factor ((Sv/d)/(Bq/m ³))
238U	1	1.63E+12					6.88E-08	3.20E-05	4.76E-14	4.76E-17
234Th	2	2.41E+01	1	1	0	0	3.69E-09	9.47E-09	7.18E-13	1.12E-14
234U	3	8.93E+07	2	1	0	0	7.66E-08	3.58E-05	6.46E-14	1.85E-16
230Th	4	2.81E+07	3	1	0	0	1.48E-07	8.80E-05	6.48E-14	5.52E-16
226Ra	5	5.84E+05	4	1	0	0	3.58E-07	2.32E-06	5.56E-13	1.42E-14
222Rn	6	3.82E+00	5	1	0	0	0.00E+00	0.00E+00	3.41E-14	9.81E-16
210Pb	7	8.15E+03	6	1	0	0	1.45E-06	3.67E-06	2.14E-13	1.13E-15
210Bi	8	5.01E+00	7	1	0	0	1.73E-09	5.29E-08	9.06E-14	1.61E-15
210Po	9	1.38E+02	8	1	0	0	5.14E-07	2.54E-06	7.16E-16	2.11E-17

Initial Concentrations:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Nuclide	Surface Concentration (dpm/100 cm**2)
238U	1.00E+00
234Th	0.00E+00
234U	0.00E+00
230Th	0.00E+00
226Ra	0.00E+00
222Rn	0.00E+00
210Pb	0.00E+00
210Bi	0.00E+00
210Po	0.00E+00

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Behavioral category: <u>Default value used</u>		<u>Value</u> 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Behavioral category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Metabolic category: <u>Default value used</u>		<u>Value</u> 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * FI	CONSTANT(1/m)
Physical category: <u>Justification for modification</u> : NUREG 1720 recommended value.		<u>Value</u> 1.00E-06
		<u>Default</u> DERIVED(1/m)
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * FI	DERIVED(m**2/hr)
Behavioral category: <u>Default value used</u>		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Pstep:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Program Control category: <u>Default value used</u>		<u>Value</u> 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during	CONSTANT(m**2)

	occupancy period															
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01														
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)														
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01														
AOIng:Secondary Ingestion Exposure Area	Minimum surface area to which occupant is exposed via secondary ingestion during occupancy period	CONSTANT(m**2)														
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01														
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)														
Behavioral category: <u>Default value used</u>																
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)														
Physical category: <u>Default value used</u>		<u>Value</u> 1.00E-01														
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)														
Physical category: <u>Default value used</u>		<table border="1"> <thead> <tr> <th><u>Value</u></th> <th><u>Probability</u></th> </tr> </thead> <tbody> <tr> <td>9.12E-06</td> <td>0.00E+00</td> </tr> <tr> <td>1.10E-04</td> <td>7.67E-01</td> </tr> <tr> <td>1.46E-04</td> <td>9.09E-01</td> </tr> <tr> <td>1.62E-04</td> <td>9.50E-01</td> </tr> <tr> <td>1.85E-04</td> <td>9.90E-01</td> </tr> <tr> <td>1.90E-04</td> <td>1.00E+00</td> </tr> </tbody> </table>	<u>Value</u>	<u>Probability</u>	9.12E-06	0.00E+00	1.10E-04	7.67E-01	1.46E-04	9.09E-01	1.62E-04	9.50E-01	1.85E-04	9.90E-01	1.90E-04	1.00E+00
<u>Value</u>	<u>Probability</u>															
9.12E-06	0.00E+00															
1.10E-04	7.67E-01															
1.46E-04	9.09E-01															
1.62E-04	9.50E-01															
1.85E-04	9.90E-01															
1.90E-04	1.00E+00															
GO:Loose Ingestion Rate	The secondary ingestion transfer rate of loose removable surface activity from building surfaces to the mouth during building occupancy	CONSTANT(m**2/hr)														
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.10E-04														

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 1.78E-02 mrem/year .

The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.78E-02 to 1.78E-02 mrem/year

Detailed Results:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Concentration at Time of Peak Dose:

Nuclide	Surface Concentration (dpm/100 cm**2)
238U	1.00E+00
234Th	9.05E-01
234U	1.17E-06
230Th	3.25E-12
226Ra	3.47E-16
222Rn	2.25E-16
210Pb	0.00E+00
210Bi	9.67E-18

210Po	1.82E-16
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Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
1.78E-02	3.54E-05	1.75E-02	3.10E-04

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
238U	1.78E-02
234Th	5.36E-05
234U	2.33E-08
230Th	1.58E-13
226Ra	9.75E-19
222Rn	5.25E-19
210Pb	0.00E+00
210Bi	3.65E-22
210Po	6.54E-19
All Nuclides	1.78E-02

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
238U	7.73E-07	1.75E-02	2.95E-04
234Th	3.46E-05	4.68E-06	1.43E-05
234U	1.23E-12	2.29E-08	3.86E-10
230Th	3.42E-18	1.56E-13	2.06E-15
226Ra	3.13E-21	4.39E-19	5.33E-19
222Rn	5.24E-19	4.79E-22	2.37E-22
210Pb	0.00E+00	0.00E+00	0.00E+00
210Bi	1.42E-23	2.79E-22	7.18E-23
210Po	2.12E-24	2.53E-19	4.02E-19



DandD Building Occupancy Scenario

DandD Version: 2.4.0

Run Date/Time: 11/5/2021 5:00:27 PM

Site Name: Any

Description: Screening Value using NR-1720 Resuspension Factor

FileName: C:\Users\dculp.CHASEENV\DandD_Docs\U-235 NR1720.mcd

Options:

Implicit progeny doses included with explicit parent doses

Nuclide concentrations are NOT distributed among all progeny

Number of simulations: 100

Seed for Random Generation: 8718721

Averages of sampled values used for behavioral and metabolic type parameters

Averages of sampled values not used for derived behavioral or metabolic parameters

External Pathway is ON

Inhalation Pathway is ON

Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m ²)	Distribution
235U	UNLIMITED	CONSTANT(dpm/100 cm**2)
<u>Justification for concentration:</u> Screening Value Determination		<u>Value</u> 1.00E+00

Chain Data:

Number of chains: 1

Chain No. 1: 235U

Nuclides in chain: 6

Nuclide	Chain Position	Half Life	First Parent	Fractional Yield	Second Parent	Fractional Yield	Ingestion CEDE Factor (Sv/Bq)	Inhalation CEDE Factor (Sv/Bq)	Surface Dose Rate Factor ((Sv/d)/(Bq/m ²))	15 cm Dose Rate Factor ((Sv/d)/(Bq/m ³))
235U	1	2.57E+11					7.19E-08	3.32E-05	1.28E-11	3.24E-13
231Th	2	1.06E+00	1	1	0	0	3.65E-10	2.37E-10	1.60E-12	1.68E-14
231Pa	3	1.20E+07	2	1	0	0	2.86E-06	3.47E-04	3.52E-12	8.30E-14
227Ac	4	7.95E+03	3	1	0	0	3.80E-06	1.81E-03	1.36E-14	2.26E-16
227Th	5	1.87E+01	4	0.9862	0	0	1.03E-08	4.37E-06	8.94E-12	2.29E-13
223Ra	6	1.14E+01	5	1	4	0.0138	1.78E-07	2.12E-06	1.11E-11	2.67E-13

Initial Concentrations:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Nuclide	Surface Concentration (dpm/100 cm**2)
235U	1.00E+00
231Th	0.00E+00
231Pa	0.00E+00
227Ac	0.00E+00
227Th	0.00E+00
223Ra	0.00E+00

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Behavioral category: <u>Default value used</u>		<u>Value</u> 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Behavioral category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Metabolic category: <u>Default value used</u>		<u>Value</u> 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * FI	CONSTANT(1/m)
Physical category: <u>Justification for modification</u> : NUREG 1720 recommended value.		<u>Value</u> 1.00E-06
		<u>Default</u> DERIVED(1/m)
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * FI	DERIVED(m**2/hr)
Behavioral category: <u>Default value used</u>		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Pstep:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Program Control category: <u>Default value used</u>		<u>Value</u> 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01
AOIng:Secondary	Minimum surface area to which occupant is	CONSTANT(m**2)

Ingestion Exposure Area	exposed via secondary ingestion during occupancy period															
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01														
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)														
Behavioral category: <u>Default value used</u>																
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)														
Physical category: <u>Default value used</u>		<u>Value</u> 1.00E-01														
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)														
Physical category: <u>Default value used</u>		<table border="1"> <thead> <tr> <th><u>Value</u></th> <th><u>Probability</u></th> </tr> </thead> <tbody> <tr> <td>9.12E-06</td> <td>0.00E+00</td> </tr> <tr> <td>1.10E-04</td> <td>7.67E-01</td> </tr> <tr> <td>1.46E-04</td> <td>9.09E-01</td> </tr> <tr> <td>1.62E-04</td> <td>9.50E-01</td> </tr> <tr> <td>1.85E-04</td> <td>9.90E-01</td> </tr> <tr> <td>1.90E-04</td> <td>1.00E+00</td> </tr> </tbody> </table>	<u>Value</u>	<u>Probability</u>	9.12E-06	0.00E+00	1.10E-04	7.67E-01	1.46E-04	9.09E-01	1.62E-04	9.50E-01	1.85E-04	9.90E-01	1.90E-04	1.00E+00
<u>Value</u>	<u>Probability</u>															
9.12E-06	0.00E+00															
1.10E-04	7.67E-01															
1.46E-04	9.09E-01															
1.62E-04	9.50E-01															
1.85E-04	9.90E-01															
1.90E-04	1.00E+00															
GO:Loose Ingestion Rate	The secondary ingestion transfer rate of loose removable surface activity from building surfaces to the mouth during building occupancy	CONSTANT(m**2/hr)														
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.10E-04														

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 1.87E-02 mrem/year .

The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.87E-02 to 1.87E-02 mrem/year

Detailed Results:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Concentration at Time of Peak Dose:

Nuclide	Surface Concentration (dpm/100 cm**2)
235U	1.00E+00
231Th	9.96E-01
231Pa	1.05E-05
227Ac	1.10E-07
227Th	8.75E-08
223Ra	7.73E-08

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
1.87E-02	2.34E-04	1.81E-02	3.10E-04

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
235U	1.86E-02
231Th	2.76E-05
231Pa	2.11E-06
227Ac	1.10E-07
227Th	2.25E-10
223Ra	1.80E-10
All Nuclides	1.87E-02

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
235U	2.08E-04	1.81E-02	3.08E-04
231Th	2.59E-05	1.29E-07	1.56E-06
231Pa	5.98E-10	1.98E-06	1.28E-07
227Ac	1.44E-13	1.08E-07	1.79E-09
227Th	1.27E-11	2.09E-10	3.87E-12
223Ra	3.08E-11	8.96E-11	5.91E-11



DandD Building Occupancy Scenario

DandD Version: 2.4.0

Run Date/Time: 11/5/2021 4:58:41 PM

Site Name: Any

Description: Screening Value using NR-1720 Resuspension Factor

FileName: C:\Users\dculp.CHASEENV\DandD_Docs\U-234 NR1720.mcd

Options:

Implicit progeny doses included with explicit parent doses

Nuclide concentrations are NOT distributed among all progeny

Number of simulations: 100

Seed for Random Generation: 8718721

Averages of sampled values used for behavioral and metabolic type parameters

Averages of sampled values not used for derived behavioral or metabolic parameters

External Pathway is ON

Inhalation Pathway is ON

Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m ²)	Distribution
234U	UNLIMITED	CONSTANT(dpm/100 cm**2)
<u>Justification for concentration:</u> Screening Value Determination		<u>Value</u> 1.00E+00

Chain Data:

Number of chains: 1

Chain No. 1: 234U

Nuclides in chain: 7

Nuclide	Chain Position	Half Life	First Parent	Fractional Yield	Second Parent	Fractional Yield	Ingestion CEDE Factor (Sv/Bq)	Inhalation CEDE Factor (Sv/Bq)	Surface Dose Rate Factor ((Sv/d)/(Bq/m ²))	15 cm Dose Rate Factor ((Sv/d)/(Bq/m ³))
234U	1	8.92E+07					7.66E-08	3.58E-05	6.46E-14	1.85E-16
230Th	2	2.81E+07	1	1	0	0	1.48E-07	8.80E-05	6.48E-14	5.52E-16
226Ra	3	5.84E+05	2	1	0	0	3.58E-07	2.32E-06	5.56E-13	1.42E-14
222Rn	4	3.82E+00	3	1	0	0	0.00E+00	0.00E+00	3.41E-14	9.81E-16
210Pb	5	8.15E+03	4	1	0	0	1.45E-06	3.67E-06	2.14E-13	1.13E-15
210Bi	6	5.01E+00	5	1	0	0	1.73E-09	5.29E-08	9.06E-14	1.61E-15
210Po	7	1.38E+02	6	1	0	0	5.14E-07	2.54E-06	7.16E-16	2.11E-17

Initial Concentrations:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Nuclide	Surface Concentration (dpm/100 cm**2)
234U	1.00E+00
230Th	0.00E+00
226Ra	0.00E+00
222Rn	0.00E+00
210Pb	0.00E+00
210Bi	0.00E+00
210Po	0.00E+00

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Behavioral category: <u>Default value used</u>		<u>Value</u> 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Behavioral category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Metabolic category: <u>Default value used</u>		<u>Value</u> 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * FI	CONSTANT(1/m)
Physical category: <u>Justification for modification</u> : NUREG 1720 recommended value.		<u>Value</u> 1.00E-06
		<u>Default</u> DERIVED(1/m)
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * FI	DERIVED(m**2/hr)
Behavioral category: <u>Default value used</u>		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Program Control category: <u>Default value used</u>		<u>Value</u> 3.65E+02
Pstep:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Program Control category: <u>Default value used</u>		<u>Value</u> 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Behavioral category: <u>Default value used</u>		<u>Value</u> 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)

Behavioral category: <u>Default value used</u>		<u>Value</u>	1.00E+01
AOIn:Secondary Ingestion Exposure Area	Minimum surface area to which occupant is exposed via secondary ingestion during occupancy period	CONSTANT(m**2)	
Behavioral category: <u>Default value used</u>		<u>Value</u>	1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)	
Behavioral category: <u>Default value used</u>			
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)	
Physical category: <u>Default value used</u>		<u>Value</u>	1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)	
Physical category: <u>Default value used</u>		<u>Value</u>	<u>Probability</u>
		9.12E-06	0.00E+00
		1.10E-04	7.67E-01
		1.46E-04	9.09E-01
		1.62E-04	9.50E-01
		1.85E-04	9.90E-01
		1.90E-04	1.00E+00
GO:Loose Ingestion Rate	The secondary ingestion transfer rate of loose removable surface activity from building surfaces to the mouth during building occupancy	CONSTANT(m**2/hr)	
Behavioral category: <u>Default value used</u>		<u>Value</u>	1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 1.99E-02 mrem/year .
 The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.99E-02 to 1.99E-02 mrem/year

Detailed Results:

Note: All reported values are the upper bound of the symmetric 95% confidence interval for the 0.9 quantile value

Concentration at Time of Peak Dose:

Nuclide	Surface Concentration (dpm/100 cm**2)
234U	1.00E+00
230Th	4.50E-06
226Ra	6.51E-10
222Rn	6.22E-10
210Pb	4.73E-12
210Bi	4.38E-12
210Po	1.19E-12

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
1.99E-02	1.05E-06	1.95E-02	3.29E-04

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
234U	1.99E-02
230Th	2.19E-07
226Ra	1.83E-12
222Rn	1.45E-12
210Pb	3.90E-14
210Bi	1.65E-16
210Po	4.27E-15
All Nuclides	1.99E-02

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
234U	1.05E-06	1.95E-02	3.29E-04
230Th	4.74E-12	2.16E-07	2.86E-09
226Ra	5.88E-15	8.25E-13	1.00E-12
222Rn	1.45E-12	1.32E-15	6.55E-16
210Pb	1.65E-17	9.49E-15	2.95E-14
210Bi	6.44E-18	1.26E-16	3.25E-17
210Po	1.38E-20	1.65E-15	2.62E-15