

APPENDIX C

RESRAD-BUILD DOSE PROGRAM OUTPUT REPORTS

RESRAD-BUILD Dose Program Output Reports

**Commercial Occupancy of the Building Scenario
3% Enriched Uranium**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	9
Receptor-Source Dose Summary.....	12
Dose by Pathway Detail.....	13
Dose by Nuclide Detail.....	14
Full Summary.....	17

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RESRAD-BUILD Input Parameters

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Number of Sources : 6
 Number of Receptors: 2
 Total Time : 3.650000E+02 days
 Fraction Inside : 2.191780E-01

===== Receptor Information =====

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion(Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	1.80E+01	1.00E-04
2	1	3.000	3.000	1.000	1.000	1.80E+01	1.00E-04

===== Receptor-Source Shielding Relationship =====

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information ====

Building Air Exchange Rate: 8.00E-01 1/hr

Height[m]	Area [m2]	Air Exchanges [m3/hr]

		* * *
		* * *
		* * *
H1: 6.000		* Room 1 <=Q01: 2.40E+04
		* Q10 : 2.40E+04
		* LAMBDA: 8.00E-01
Area5000.000		* * *

Deposition velocity: 1.00E-02 [m/s] Resuspension Rate: 5.00E-07 [1/s]

==== Source Information ====

Source: 1
 Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::
 Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05
U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y

Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05
U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x

Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]

Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y

Pathway ::

Direct Ingestion Rate: 0.000E+00 [1/hr]

Fraction released to air: 1.000E-01

Removable fraction: 1.000E-01

Time to Remove: 7.300E+03 [day]

Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

	[dpm/m2]	Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05
U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05
U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	1.470E+06	1.210E-04	5.317E-02	7.191E-05

U-235	2.880E+05	1.204E-04	5.541E-02	4.063E-04
U-234	5.710E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Title : Building 3 High Bay, COMMERCIAL, 3%U
 Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld
 Evaluation Time: 0.00000000E+00 years

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Assessment for Time: 1
Time =0.00E+00 yr
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===== Source Information =====

Source: 1
 Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 2
 Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06

Title : Building 3 High Bay, COMMERCIAL, 3%U
 Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld
 Evaluation Time: 0.00000000E+00 years

PA-231	0.000E+00
TH-230	0.000E+00
AC-227	0.000E+00
RA-226	0.000E+00
PB-210	0.000E+00

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Evaluation Time: 0.00000000E+00 years

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 1.000E-01
Removable fraction: 1.000E-01
Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 1.000E-01
Removable fraction: 1.000E-01
Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	1.470E+06
	U-235	2.880E+05
	U-234	5.710E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

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RESRAD-BUILD Dose Tables

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Source Contributions to Receptor Doses

[mrem]

	Source 1	Source 2	Source 3	Source 4	Source 5	Source 6	Total
Receptor 1	4.53E-01	9.17E-01	4.53E-01	9.17E-01	8.31E+00	7.93E+00	1.90E+01
Receptor 2	5.69E-01	9.02E-01	4.49E-01	9.93E-01	7.99E+00	7.69E+00	1.86E+01
Total	1.02E+00	1.82E+00	9.02E-01	1.91E+00	1.63E+01	1.56E+01	3.76E+01

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Evaluation Time: 0.00000000E+00 years

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	4.51E-03	8.39E-05	3.52E-08	4.46E-01	7.19E-17	2.58E-03
2	1.21E-01	8.39E-05	3.52E-08	4.46E-01	7.19E-17	2.58E-03
Total	1.26E-01	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.03E-02	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03
2	6.04E-03	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03
Total	2.63E-02	3.36E-04	1.41E-07	1.78E+00	2.88E-16	1.03E-02

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	4.51E-03	8.39E-05	3.52E-08	4.46E-01	7.19E-17	2.58E-03
2	1.12E-03	8.39E-05	3.52E-08	4.46E-01	7.19E-17	2.58E-03
Total	5.62E-03	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.03E-02	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03
2	9.64E-02	1.68E-04	7.05E-08	8.91E-01	1.44E-16	5.15E-03
Total	1.17E-01	3.36E-04	1.41E-07	1.78E+00	2.88E-16	1.03E-02

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	8.43E-01	1.40E-03	5.87E-07	7.43E+00	1.20E-15	4.29E-02
2	5.17E-01	1.40E-03	5.87E-07	7.43E+00	1.20E-15	4.29E-02
Total	1.36E+00	2.80E-03	1.17E-06	1.49E+01	2.40E-15	8.59E-02

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	4.60E-01	1.40E-03	5.87E-07	7.43E+00	1.20E-15	4.29E-02
2	2.20E-01	1.40E-03	5.87E-07	7.43E+00	1.20E-15	4.29E-02
Total	6.80E-01	2.80E-03	1.17E-06	1.49E+01	2.40E-15	8.59E-02

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Evaluation Time: 0.00000000E+00 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor		Total
	1	2	
U-238	8.29E-02	1.37E-01	2.20E-01
U-234	1.28E-07	1.30E-07	2.58E-07
TH-230	9.44E-13	9.51E-13	1.90E-12
RA-226	4.56E-17	1.27E-15	1.31E-15
PB-210	5.44E-20	7.94E-20	1.34E-19
U-235	1.89E-02	7.39E-02	9.27E-02
PA-231	1.85E-06	2.00E-06	3.84E-06
AC-227	9.91E-08	1.13E-07	2.12E-07
U-234	3.51E-01	3.59E-01	7.10E-01
TH-230	3.89E-06	3.92E-06	7.82E-06
RA-226	2.51E-10	6.97E-09	7.22E-09
PB-210	3.72E-13	5.44E-13	9.16E-13

Source: 2

Nuclide	Receptor		Total
	1	2	
U-238	1.71E-01	1.64E-01	3.36E-01
U-234	2.55E-07	2.55E-07	5.10E-07
TH-230	1.89E-12	1.89E-12	3.78E-12
RA-226	2.08E-16	6.37E-17	2.72E-16
PB-210	1.12E-19	1.08E-19	2.20E-19
U-235	4.34E-02	3.62E-02	7.96E-02
PA-231	3.71E-06	3.69E-06	7.40E-06
AC-227	2.00E-07	1.98E-07	3.98E-07
U-234	7.02E-01	7.02E-01	1.40E+00
TH-230	7.79E-06	7.79E-06	1.56E-05
RA-226	1.14E-09	3.50E-10	1.49E-09
PB-210	7.63E-13	7.41E-13	1.50E-12

Title : Building 3 High Bay, COMMERCIAL, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld

Evaluation Time: 0.00000000E+00 years

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
U-238	8.29E-02	8.14E-02	1.64E-01
U-234	1.28E-07	1.28E-07	2.55E-07
TH-230	9.44E-13	9.44E-13	1.89E-12
RA-226	4.56E-17	1.49E-17	6.05E-17
PB-210	5.44E-20	5.37E-20	1.08E-19
U-235	1.89E-02	1.71E-02	3.59E-02
PA-231	1.85E-06	1.84E-06	3.69E-06
AC-227	9.91E-08	9.87E-08	1.98E-07
U-234	3.51E-01	3.51E-01	7.02E-01
TH-230	3.89E-06	3.89E-06	7.79E-06
RA-226	2.51E-10	8.17E-11	3.32E-10
PB-210	3.72E-13	3.68E-13	7.40E-13

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
U-238	1.71E-01	2.06E-01	3.78E-01
U-234	2.55E-07	2.57E-07	5.12E-07
TH-230	1.89E-12	1.89E-12	3.78E-12
RA-226	2.08E-16	1.01E-15	1.22E-15
PB-210	1.12E-19	1.28E-19	2.39E-19
U-235	4.34E-02	7.93E-02	1.23E-01
PA-231	3.71E-06	3.80E-06	7.51E-06
AC-227	2.00E-07	2.09E-07	4.09E-07
U-234	7.02E-01	7.07E-01	1.41E+00
TH-230	7.79E-06	7.81E-06	1.56E-05
RA-226	1.14E-09	5.56E-09	6.70E-09
PB-210	7.63E-13	8.73E-13	1.64E-12

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
U-238	1.74E+00	1.58E+00	3.32E+00
U-234	2.14E-06	2.14E-06	4.28E-06
TH-230	1.58E-11	1.58E-11	3.16E-11
RA-226	8.77E-15	5.30E-15	1.41E-14

Title : Building 3 High Bay, COMMERCIAL, 3%U
 Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,COMMERCIAL,U3.bld
 Evaluation Time: 0.00000000E+00 years

PB-210	1.08E-18	1.01E-18	2.09E-18
U-235	6.78E-01	5.19E-01	1.20E+00
PA-231	3.17E-05	3.13E-05	6.31E-05
AC-227	1.74E-06	1.70E-06	3.45E-06
U-234	5.90E+00	5.88E+00	1.18E+01
TH-230	6.51E-05	6.50E-05	1.30E-04
RA-226	4.82E-08	2.92E-08	7.74E-08
PB-210	7.40E-12	6.91E-12	1.43E-11

Source: 6

Nuclide	Receptor		Total
	1	2	
U-238	1.57E+00	1.45E+00	3.02E+00
U-234	2.13E-06	2.13E-06	4.26E-06
TH-230	1.58E-11	1.57E-11	3.15E-11
RA-226	4.89E-15	2.33E-15	7.22E-15
PB-210	9.93E-19	9.38E-19	1.93E-18
U-235	5.03E-01	3.84E-01	8.87E-01
PA-231	3.12E-05	3.10E-05	6.22E-05
AC-227	1.70E-06	1.67E-06	3.37E-06
U-234	5.86E+00	5.85E+00	1.17E+01
TH-230	6.50E-05	6.49E-05	1.30E-04
RA-226	2.69E-08	1.28E-08	3.97E-08
PB-210	6.79E-12	6.42E-12	1.32E-11

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1 1.90E+01

2 1.86E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1 1.90E+01

2 1.86E+01

RESRAD-BUILD Dose Program Output Reports

**Commercial Occupancy of the Building Scenario
90% Enriched Uranium**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	9
Receptor-Source Dose Summary.....	12
Dose by Pathway Detail.....	13
Dose by Nuclide Detail.....	14
Full Summary.....	17

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RESRAD-BUILD Input Parameters

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Number of Sources : 6
 Number of Receptors: 2
 Total Time : 3.650000E+02 days
 Fraction Inside : 2.191780E-01

===== Receptor Information =====

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion (Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	1.80E+01	1.00E-04
2	1	3.000	3.000	1.000	1.000	1.80E+01	1.00E-04

===== Receptor-Source Shielding Relationship =====

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information ====

Building Air Exchange Rate: 8.00E-01 1/hr

Height [m]	Area [m2]	Air Exchanges [m3/hr]

		* * *
		* * *
		* * *
H1: 6.000		* Room 1 * <=Q01: 2.40E+04
		* LAMBDA: 8.00E-01 * Q10 : 2.40E+04
Area5000.000		* * *
		* * *

Deposition velocity: 1.00E-02 [m/s] Resuspension Rate: 5.00E-07 [1/s]

==== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

	[dpm/m2]	Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05
U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05
U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05

U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

	[dpm/m2]	Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05
U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05
U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.570E+03	1.210E-04	5.317E-02	7.191E-05

U-235	2.300E+05	1.204E-04	5.541E-02	4.063E-04
U-234	7.380E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

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=====
Assessment for Time: 1
Time =0.00E+00 yr
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===== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06

PA-231	0.000E+00
TH-230	0.000E+00
AC-227	0.000E+00
RA-226	0.000E+00
PB-210	0.000E+00

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.570E+03
	U-235	2.300E+05
	U-234	7.380E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

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RESRAD-BUILD Dose Tables

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Source Contributions to Receptor Doses

[mrem]

	Source	Source	Source	Source	Source	Source	Total
	1	2	3	4	5	6	
Receptor 1	4.69E-01	9.42E-01	4.69E-01	9.42E-01	8.17E+00	7.98E+00	1.90E+01
Receptor 2	5.23E-01	9.36E-01	4.67E-01	9.78E-01	8.02E+00	7.88E+00	1.88E+01
Total	9.92E-01	1.88E+00	9.36E-01	1.92E+00	1.62E+01	1.59E+01	3.78E+01

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.95E-03	4.03E-05	1.51E-08	4.64E-01	9.29E-17	2.65E-03
2	5.61E-02	4.03E-05	1.51E-08	4.64E-01	9.29E-17	2.65E-03
Total	5.80E-02	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	8.62E-03	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03
2	2.63E-03	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03
Total	1.12E-02	1.61E-04	6.05E-08	1.86E+00	3.72E-16	1.06E-02

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.95E-03	4.03E-05	1.51E-08	4.64E-01	9.29E-17	2.65E-03
2	4.56E-04	4.03E-05	1.51E-08	4.64E-01	9.29E-17	2.65E-03
Total	2.40E-03	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	8.62E-03	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03
2	4.42E-02	8.05E-05	3.03E-08	9.28E-01	1.86E-16	5.31E-03
Total	5.28E-02	1.61E-04	6.05E-08	1.86E+00	3.72E-16	1.06E-02

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.86E-01	6.71E-04	2.52E-07	7.74E+00	1.55E-15	4.42E-02
2	2.43E-01	6.71E-04	2.52E-07	7.74E+00	1.55E-15	4.42E-02
Total	6.29E-01	1.34E-03	5.04E-07	1.55E+01	3.10E-15	8.85E-02

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.00E-01	6.71E-04	2.52E-07	7.74E+00	1.55E-15	4.42E-02
2	9.63E-02	6.71E-04	2.52E-07	7.74E+00	1.55E-15	4.42E-02
Total	2.97E-01	1.34E-03	5.04E-07	1.55E+01	3.10E-15	8.85E-02

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor	Receptor	Total
	1	2	
U-238	2.01E-04	3.32E-04	5.34E-04
U-234	3.10E-10	3.17E-10	6.27E-10
TH-230	2.29E-15	2.31E-15	4.60E-15
RA-226	1.11E-19	3.08E-18	3.19E-18
PB-210	1.32E-22	1.93E-22	3.25E-22
U-235	1.51E-02	5.90E-02	7.41E-02
PA-231	1.47E-06	1.59E-06	3.07E-06
AC-227	7.92E-08	9.03E-08	1.69E-07
U-234	4.53E-01	4.64E-01	9.17E-01
TH-230	5.03E-06	5.07E-06	1.01E-05
RA-226	3.24E-10	9.01E-09	9.33E-09
PB-210	4.81E-13	7.03E-13	1.18E-12

Source: 2

Nuclide	Receptor	Receptor	Total
	1	2	
U-238	4.16E-04	3.99E-04	8.16E-04
U-234	6.20E-10	6.20E-10	1.24E-09
TH-230	4.59E-15	4.59E-15	9.17E-15
RA-226	5.05E-19	1.55E-19	6.60E-19
PB-210	2.71E-22	2.63E-22	5.34E-22
U-235	3.46E-02	2.89E-02	6.36E-02
PA-231	2.96E-06	2.95E-06	5.91E-06
AC-227	1.60E-07	1.58E-07	3.18E-07
U-234	9.07E-01	9.07E-01	1.81E+00
TH-230	1.01E-05	1.01E-05	2.01E-05
RA-226	1.48E-09	4.52E-10	1.93E-09
PB-210	9.87E-13	9.57E-13	1.94E-12

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
U-238	2.01E-04	1.98E-04	3.99E-04
U-234	3.10E-10	3.10E-10	6.20E-10
TH-230	2.29E-15	2.29E-15	4.59E-15
RA-226	1.11E-19	3.61E-20	1.47E-19
PB-210	1.32E-22	1.30E-22	2.63E-22
U-235	1.51E-02	1.36E-02	2.87E-02
PA-231	1.47E-06	1.47E-06	2.95E-06
AC-227	7.92E-08	7.89E-08	1.58E-07
U-234	4.53E-01	4.53E-01	9.07E-01
TH-230	5.03E-06	5.03E-06	1.01E-05
RA-226	3.24E-10	1.06E-10	4.30E-10
PB-210	4.81E-13	4.75E-13	9.57E-13

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
U-238	4.16E-04	5.01E-04	9.17E-04
U-234	6.20E-10	6.24E-10	1.24E-09
TH-230	4.59E-15	4.60E-15	9.19E-15
RA-226	5.05E-19	2.46E-18	2.96E-18
PB-210	2.71E-22	3.10E-22	5.80E-22
U-235	3.46E-02	6.34E-02	9.80E-02
PA-231	2.96E-06	3.04E-06	6.00E-06
AC-227	1.60E-07	1.67E-07	3.26E-07
U-234	9.07E-01	9.14E-01	1.82E+00
TH-230	1.01E-05	1.01E-05	2.02E-05
RA-226	1.48E-09	7.18E-09	8.66E-09
PB-210	9.87E-13	1.13E-12	2.11E-12

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
U-238	4.22E-03	3.85E-03	8.07E-03
U-234	5.21E-09	5.20E-09	1.04E-08
TH-230	3.83E-14	3.83E-14	7.66E-14
RA-226	2.13E-17	1.29E-17	3.42E-17

PB-210	2.62E-21	2.45E-21	5.07E-21
U-235	5.42E-01	4.15E-01	9.56E-01
PA-231	2.53E-05	2.50E-05	5.04E-05
AC-227	1.39E-06	1.36E-06	2.75E-06
U-234	7.62E+00	7.60E+00	1.52E+01
TH-230	8.41E-05	8.40E-05	1.68E-04
RA-226	6.23E-08	3.77E-08	1.00E-07
PB-210	9.56E-12	8.93E-12	1.85E-11

Source: 6

Nuclide	Receptor	Receptor	Total
	1	2	
U-238	3.80E-03	3.52E-03	7.33E-03
U-234	5.18E-09	5.17E-09	1.03E-08
TH-230	3.83E-14	3.82E-14	7.65E-14
RA-226	1.19E-17	5.65E-18	1.75E-17
PB-210	2.41E-21	2.28E-21	4.69E-21
U-235	4.01E-01	3.07E-01	7.08E-01
PA-231	2.49E-05	2.47E-05	4.97E-05
AC-227	1.36E-06	1.33E-06	2.69E-06
U-234	7.58E+00	7.57E+00	1.51E+01
TH-230	8.40E-05	8.39E-05	1.68E-04
RA-226	3.47E-08	1.65E-08	5.13E-08
PB-210	8.78E-12	8.30E-12	1.71E-11

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1	1.90E+01
2	1.88E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1	1.90E+01
2	1.88E+01

RESRAD-BUILD Dose Program Output Reports

**Commercial Occupancy of the Building Scenario
Reactor Byproduct**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	7
Receptor-Source Dose Summary.....	10
Dose by Pathway Detail.....	11
Dose by Nuclide Detail.....	12
Full Summary.....	14

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RESRAD-BUILD Input Parameters
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Number of Sources : 6
Number of Receptors: 2
Total Time : 3.650000E+02 days
Fraction Inside : 2.191780E-01
  
```

```

===== Receptor Information =====
  
```

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion (Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	1.80E+01	1.00E-04
2	1	3.000	3.000	1.000	1.000	1.80E+01	1.00E-04

```

===== Receptor-Source Shielding Relationship =====
  
```

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information =====

Building Air Exchange Rate: 8.00E-01 1/hr

Height [m]	Area [m2]	Air Exchanges [m3/hr]

		* * *
		* * *
		* * *
H1: 6.000		* Room 1 * <=Q01: 2.40E+04
		* LAMBDA: 8.00E-01 * Q10 : 2.40E+04
Area5000.000		* * *
		* * *

Deposition velocity: 1.00E-02 [m/s] Resuspension Rate: 5.00E-07 [1/s]

==== Source Information ====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide	Concentration [dpm/m2]	Dose Conversion Factor (Library: FGR 11)		
		Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
CO-60	6.980E+05	1.212E-05	9.865E-05	6.629E-03

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide	Concentration [dpm/m2]	Dose Conversion Factor (Library: FGR 11)		
		Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
CO-60	6.980E+05	1.212E-05	9.865E-05	6.629E-03

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 6.980E+05	1.212E-05	9.865E-05	6.629E-03

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 6.980E+05	1.212E-05	9.865E-05	6.629E-03

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 6.980E+05	1.212E-05	9.865E-05	6.629E-03

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 6.980E+05	1.212E-05	9.865E-05	6.629E-03

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Assessment for Time: 1
Time =0.00E+00 yr
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===== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	6.980E+05

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	6.980E+05

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	6.980E+05

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	6.980E+05

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 1.000E-01
 Removable fraction: 1.000E-01
 Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	6.980E+05

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 1.000E-01
Removable fraction: 1.000E-01
Time to Remove: 7.300E+03 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	CO-60	6.980E+05

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RESRAD-BUILD Dose Tables

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Source Contributions to Receptor Doses

[mrem]

	Source	Source	Source	Source	Source	Source	Total
	1	2	3	4	5	6	
Receptor 1	5.53E-02	2.68E-01	5.53E-02	2.68E-01	1.18E+01	6.53E+00	1.90E+01
Receptor 2	1.72E+00	7.41E-02	1.40E-02	1.36E+00	7.13E+00	3.06E+00	1.34E+01
Total	1.78E+00	3.42E-01	6.94E-02	1.63E+00	1.90E+01	9.59E+00	3.24E+01

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	5.42E-02	1.09E-03	6.39E-07	6.24E-05	0.00E+00	2.03E-05
2	1.72E+00	1.09E-03	6.39E-07	6.24E-05	0.00E+00	2.03E-05
Total	1.78E+00	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.66E-01	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05
2	7.18E-02	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05
Total	3.38E-01	4.37E-03	2.56E-06	2.50E-04	0.00E+00	8.11E-05

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	5.42E-02	1.09E-03	6.39E-07	6.24E-05	0.00E+00	2.03E-05
2	1.28E-02	1.09E-03	6.39E-07	6.24E-05	0.00E+00	2.03E-05
Total	6.70E-02	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.66E-01	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05
2	1.36E+00	2.18E-03	1.28E-06	1.25E-04	0.00E+00	4.06E-05
Total	1.62E+00	4.37E-03	2.56E-06	2.50E-04	0.00E+00	8.11E-05

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.18E+01	1.82E-02	1.07E-05	1.04E-03	0.00E+00	3.38E-04
2	7.11E+00	1.82E-02	1.07E-05	1.04E-03	0.00E+00	3.38E-04
Total	1.89E+01	3.64E-02	2.13E-05	2.08E-03	0.00E+00	6.76E-04

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	6.51E+00	1.82E-02	1.07E-05	1.04E-03	0.00E+00	3.38E-04
2	3.04E+00	1.82E-02	1.07E-05	1.04E-03	0.00E+00	3.38E-04
Total	9.55E+00	3.64E-02	2.13E-05	2.08E-03	0.00E+00	6.76E-04

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Receptor 2	Total
CO-60	5.53E-02	1.72E+00	1.78E+00

Source: 2

Nuclide	Receptor 1	Receptor 2	Total
CO-60	2.68E-01	7.41E-02	3.42E-01

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
CO-60	5.53E-02	1.40E-02	6.94E-02

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
CO-60	2.68E-01	1.36E+00	1.63E+00

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
CO-60	1.18E+01	7.13E+00	1.90E+01

Source: 6

Nuclide	Receptor 1	Receptor 2	Total
CO-60	6.53E+00	3.06E+00	9.59E+00

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1 1.90E+01
2 1.34E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1 1.90E+01
2 1.34E+01

RESRAD-BUILD Dose Program Output Reports

**Building Remodel/Demolition Scenario
3% Enriched Uranium**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	9
Receptor-Source Dose Summary.....	12
Dose by Pathway Detail.....	13
Dose by Nuclide Detail.....	14
Full Summary.....	17

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RESRAD-BUILD Input Parameters

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Number of Sources : 6
 Number of Receptors: 2
 Total Time : 6.000000E+01 days
 Fraction Inside : 4.200000E-01

===== Receptor Information =====

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion (Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	2.00E+01	5.00E-03
2	1	3.000	3.000	1.000	1.000	2.00E+01	5.00E-03

===== Receptor-Source Shielding Relationship =====

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information =====

Building Air Exchange Rate: 5.00E+00 1/hr

Height [m]	Air Exchanges [m3/hr]	
Area [m2]		

	*	*
	*	*
	*	<=Q01: 1.50E+05
H1: 6.000	* Room 1	* Q10 : 1.50E+05
	* LAMBDA: 5.00E+00	*
Area5000.000	*	*
	*	*

Deposition velocity: 1.00E-03 [m/s] Resuspension Rate: 5.00E-05 [1/s]

==== Source Information ====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05
U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05
U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05

U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

	[dpm/m2]	Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05
U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05
U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	3.800E+05	1.210E-04	5.317E-02	7.191E-05

U-235	7.470E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.480E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

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=====
Assessment for Time: 1
Time =0.00E+00 yr
=====
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=====
  
```

===== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06

PA-231	0.000E+00
TH-230	0.000E+00
AC-227	0.000E+00
RA-226	0.000E+00
PB-210	0.000E+00

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	3.800E+05
	U-235	7.470E+04
	U-234	1.480E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

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RESRAD-BUILD Dose Tables

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Source Contributions to Receptor Doses

[mrem]

	Source 1	Source 2	Source 3	Source 4	Source 5	Source 6	Total
Receptor 1	4.82E-01	9.64E-01	4.82E-01	9.64E-01	8.09E+00	8.06E+00	1.90E+01
Receptor 2	4.91E-01	9.63E-01	4.81E-01	9.71E-01	8.06E+00	8.04E+00	1.90E+01
Total	9.73E-01	1.93E+00	9.63E-01	1.93E+00	1.62E+01	1.61E+01	3.81E+01

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.64E-04	8.16E-08	3.42E-08	4.81E-01	3.28E-19	1.25E-04
2	9.78E-03	8.16E-08	3.42E-08	4.81E-01	3.28E-19	1.25E-04
Total	1.01E-02	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.64E-03	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04
2	4.88E-04	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04
Total	2.13E-03	3.26E-07	1.37E-07	1.93E+00	1.31E-18	5.01E-04

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.64E-04	8.16E-08	3.42E-08	4.81E-01	3.28E-19	1.25E-04
2	9.01E-05	8.16E-08	3.42E-08	4.81E-01	3.28E-19	1.25E-04
Total	4.54E-04	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.64E-03	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04
2	7.78E-03	1.63E-07	6.85E-08	9.63E-01	6.56E-19	2.51E-04
Total	9.42E-03	3.26E-07	1.37E-07	1.93E+00	1.31E-18	5.01E-04

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	6.81E-02	1.36E-06	5.71E-07	8.02E+00	5.47E-18	2.09E-03
2	4.17E-02	1.36E-06	5.71E-07	8.02E+00	5.47E-18	2.09E-03
Total	1.10E-01	2.72E-06	1.14E-06	1.60E+01	1.09E-17	4.18E-03

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.72E-02	1.36E-06	5.71E-07	8.02E+00	5.47E-18	2.09E-03
2	1.77E-02	1.36E-06	5.71E-07	8.02E+00	5.47E-18	2.09E-03
Total	5.49E-02	2.72E-06	1.14E-06	1.60E+01	1.09E-17	4.18E-03

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor		Total
	1	2	
U-238	8.67E-02	9.11E-02	1.78E-01
U-234	2.24E-08	2.24E-08	4.48E-08
TH-230	2.68E-14	2.68E-14	5.35E-14
RA-226	2.71E-20	4.62E-19	4.89E-19
PB-210	2.07E-23	2.21E-23	4.28E-23
U-235	1.79E-02	2.24E-02	4.03E-02
PA-231	3.14E-07	3.16E-07	6.30E-07
AC-227	2.80E-09	2.83E-09	5.64E-09
U-234	3.77E-01	3.78E-01	7.55E-01
TH-230	6.74E-07	6.74E-07	1.35E-06
RA-226	9.09E-13	1.55E-11	1.64E-11
PB-210	8.66E-16	9.27E-16	1.79E-15

Source: 2

Nuclide	Receptor		Total
	1	2	
U-238	1.74E-01	1.73E-01	3.47E-01
U-234	4.48E-08	4.48E-08	8.96E-08
TH-230	5.35E-14	5.35E-14	1.07E-13
RA-226	9.58E-20	4.44E-20	1.40E-19
PB-210	4.15E-23	4.13E-23	8.27E-23
U-235	3.63E-02	3.57E-02	7.20E-02
PA-231	6.28E-07	6.28E-07	1.26E-06
AC-227	5.61E-09	5.61E-09	1.12E-08
U-234	7.54E-01	7.54E-01	1.51E+00
TH-230	1.35E-06	1.35E-06	2.70E-06
RA-226	3.22E-12	1.49E-12	4.71E-12
PB-210	1.74E-15	1.73E-15	3.47E-15

Title : Building 3 High Bay, DEMO, 3%U

Input File : C:\RESRAD_Family\BUILD\ABB,BLDG3 High Bay,DEMO,U3.bld

Evaluation Time: 0.00000000E+00 years

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
U-238	8.67E-02	8.66E-02	1.73E-01
U-234	2.24E-08	2.24E-08	4.48E-08
TH-230	2.68E-14	2.68E-14	5.35E-14
RA-226	2.71E-20	1.62E-20	4.33E-20
PB-210	2.07E-23	2.06E-23	4.13E-23
U-235	1.79E-02	1.78E-02	3.57E-02
PA-231	3.14E-07	3.14E-07	6.28E-07
AC-227	2.80E-09	2.80E-09	5.61E-09
U-234	3.77E-01	3.77E-01	7.54E-01
TH-230	6.74E-07	6.74E-07	1.35E-06
RA-226	9.09E-13	5.42E-13	1.45E-12
PB-210	8.66E-16	8.64E-16	1.73E-15

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
U-238	1.74E-01	1.77E-01	3.51E-01
U-234	4.48E-08	4.48E-08	8.96E-08
TH-230	5.35E-14	5.35E-14	1.07E-13
RA-226	9.58E-20	3.82E-19	4.77E-19
PB-210	4.15E-23	4.24E-23	8.39E-23
U-235	3.63E-02	3.92E-02	7.55E-02
PA-231	6.28E-07	6.29E-07	1.26E-06
AC-227	5.61E-09	5.63E-09	1.12E-08
U-234	7.54E-01	7.55E-01	1.51E+00
TH-230	1.35E-06	1.35E-06	2.70E-06
RA-226	3.22E-12	1.28E-11	1.60E-11
PB-210	1.74E-15	1.78E-15	3.52E-15

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
U-238	1.47E+00	1.46E+00	2.94E+00
U-234	3.74E-07	3.74E-07	7.47E-07
TH-230	4.46E-13	4.46E-13	8.92E-13
RA-226	3.30E-18	2.07E-18	5.37E-18

PB-210	3.54E-22	3.50E-22	7.05E-22
U-235	3.28E-01	3.15E-01	6.43E-01
PA-231	5.24E-06	5.24E-06	1.05E-05
AC-227	4.69E-08	4.68E-08	9.38E-08
U-234	6.29E+00	6.29E+00	1.26E+01
TH-230	1.12E-05	1.12E-05	2.25E-05
RA-226	1.11E-10	6.94E-11	1.80E-10
PB-210	1.49E-14	1.47E-14	2.95E-14

Source: 6

Nuclide	Receptor		Total
	1	2	
U-238	1.46E+00	1.45E+00	2.91E+00
U-234	3.73E-07	3.73E-07	7.47E-07
TH-230	4.46E-13	4.46E-13	8.92E-13
RA-226	1.92E-18	1.01E-18	2.93E-18
PB-210	3.49E-22	3.46E-22	6.95E-22
U-235	3.14E-01	3.04E-01	6.18E-01
PA-231	5.24E-06	5.23E-06	1.05E-05
AC-227	4.68E-08	4.68E-08	9.36E-08
U-234	6.29E+00	6.29E+00	1.26E+01
TH-230	1.12E-05	1.12E-05	2.25E-05
RA-226	6.45E-11	3.39E-11	9.84E-11
PB-210	1.46E-14	1.45E-14	2.92E-14

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1	1.90E+01
2	1.90E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1	1.16E+02
2	1.16E+02

RESRAD-BUILD Dose Program Output Reports

**Building Remodel/Demolition Scenario
90% Enriched Uranium**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	9
Receptor-Source Dose Summary.....	12
Dose by Pathway Detail.....	13
Dose by Nuclide Detail.....	14
Full Summary.....	17

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RESRAD-BUILD Input Parameters

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Number of Sources : 6
 Number of Receptors: 2
 Total Time : 6.000000E+01 days
 Fraction Inside : 4.200000E-01

===== Receptor Information =====

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion (Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	2.00E+01	5.00E-03
2	1	3.000	3.000	1.000	1.000	2.00E+01	5.00E-03

===== Receptor-Source Shielding Relationship =====

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information =====

Building Air Exchange Rate: 5.00E+00 1/hr

Height [m]	Air Exchanges [m3/hr]	
Area [m2]		

	*	*
	*	*
	*	<=Q01: 1.50E+05
H1: 6.000	* Room 1	* Q10 : 1.50E+05
	* LAMBDA: 5.00E+00	*
Area5000.000	*	*
	*	*

Deposition velocity: 1.00E-03 [m/s] Resuspension Rate: 5.00E-05 [1/s]

==== Source Information ====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05
U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05
U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05

U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

	[dpm/m2]	Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05
U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05
U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]
 Radon Release Fraction: 0.000E+00

Contamination::

Nuclide Concentration Dose Conversion Factor (Library: FGR 11)

		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
U-238	8.880E+02	1.210E-04	5.317E-02	7.191E-05

U-235	5.740E+04	1.204E-04	5.541E-02	4.063E-04
U-234	1.840E+06	1.275E-04	5.946E-02	4.014E-07
PA-231	0.000E+00	4.775E-03	5.766E-01	9.049E-05
TH-230	0.000E+00	2.468E-04	1.468E-01	9.155E-07
AC-227	0.000E+00	6.665E-03	3.029E+00	9.734E-04
RA-226	0.000E+00	5.950E-04	3.871E-03	4.663E-03
PB-210	0.000E+00	2.422E-03	6.214E-03	4.698E-06

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=====
Assessment for Time: 1
Time =0.00E+00 yr
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===== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06

PA-231	0.000E+00
TH-230	0.000E+00
AC-227	0.000E+00
RA-226	0.000E+00
PB-210	0.000E+00

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	U-238	8.880E+02
	U-235	5.740E+04
	U-234	1.840E+06
	PA-231	0.000E+00
	TH-230	0.000E+00
	AC-227	0.000E+00
	RA-226	0.000E+00
	PB-210	0.000E+00

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RESRAD-BUILD Dose Tables

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Source Contributions to Receptor Doses

[mrem]

	Source	Source	Source	Source	Source	Source	Total
	1	2	3	4	5	6	
Receptor 1	4.83E-01	9.66E-01	4.83E-01	9.66E-01	8.07E+00	8.06E+00	1.90E+01
Receptor 2	4.87E-01	9.65E-01	4.83E-01	9.69E-01	8.06E+00	8.05E+00	1.90E+01
Total	9.70E-01	1.93E+00	9.65E-01	1.93E+00	1.61E+01	1.61E+01	3.80E+01

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.52E-04	3.77E-08	1.42E-08	4.83E-01	4.08E-19	1.24E-04
2	4.36E-03	3.77E-08	1.42E-08	4.83E-01	4.08E-19	1.24E-04
Total	4.51E-03	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	6.71E-04	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04
2	2.05E-04	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04
Total	8.75E-04	1.51E-07	5.67E-08	1.93E+00	1.63E-18	4.97E-04

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.52E-04	3.77E-08	1.42E-08	4.83E-01	4.08E-19	1.24E-04
2	3.55E-05	3.77E-08	1.42E-08	4.83E-01	4.08E-19	1.24E-04
Total	1.87E-04	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	6.71E-04	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04
2	3.44E-03	7.54E-08	2.83E-08	9.65E-01	8.16E-19	2.48E-04
Total	4.11E-03	1.51E-07	5.67E-08	1.93E+00	1.63E-18	4.97E-04

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.00E-02	6.28E-07	2.36E-07	8.04E+00	6.80E-18	2.07E-03
2	1.89E-02	6.28E-07	2.36E-07	8.04E+00	6.80E-18	2.07E-03
Total	4.89E-02	1.26E-06	4.72E-07	1.61E+01	1.36E-17	4.14E-03

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.56E-02	6.28E-07	2.36E-07	8.04E+00	6.80E-18	2.07E-03
2	7.50E-03	6.28E-07	2.36E-07	8.04E+00	6.80E-18	2.07E-03
Total	2.31E-02	1.26E-06	4.72E-07	1.61E+01	1.36E-17	4.14E-03

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor		Total
	1	2	
U-238	2.03E-04	2.13E-04	4.16E-04
U-234	5.24E-11	5.24E-11	1.05E-10
TH-230	6.25E-17	6.26E-17	1.25E-16
RA-226	6.33E-23	1.08E-21	1.14E-21
PB-210	4.83E-26	5.17E-26	1.00E-25
U-235	1.38E-02	1.72E-02	3.10E-02
PA-231	2.41E-07	2.43E-07	4.84E-07
AC-227	2.15E-09	2.18E-09	4.33E-09
U-234	4.69E-01	4.70E-01	9.38E-01
TH-230	8.38E-07	8.39E-07	1.68E-06
RA-226	1.13E-12	1.93E-11	2.04E-11
PB-210	1.08E-15	1.15E-15	2.23E-15

Source: 2

Nuclide	Receptor		Total
	1	2	
U-238	4.06E-04	4.05E-04	8.12E-04
U-234	1.05E-10	1.05E-10	2.09E-10
TH-230	1.25E-16	1.25E-16	2.50E-16
RA-226	2.24E-22	1.04E-22	3.28E-22
PB-210	9.69E-26	9.64E-26	1.93E-25
U-235	2.79E-02	2.75E-02	5.53E-02
PA-231	4.83E-07	4.82E-07	9.65E-07
AC-227	4.31E-09	4.31E-09	8.62E-09
U-234	9.38E-01	9.38E-01	1.88E+00
TH-230	1.68E-06	1.68E-06	3.35E-06
RA-226	4.00E-12	1.85E-12	5.85E-12
PB-210	2.16E-15	2.15E-15	4.31E-15

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
U-238	2.03E-04	2.02E-04	4.05E-04
U-234	5.24E-11	5.24E-11	1.05E-10
TH-230	6.25E-17	6.25E-17	1.25E-16
RA-226	6.33E-23	3.77E-23	1.01E-22
PB-210	4.83E-26	4.82E-26	9.64E-26
U-235	1.38E-02	1.37E-02	2.74E-02
PA-231	2.41E-07	2.41E-07	4.82E-07
AC-227	2.15E-09	2.15E-09	4.31E-09
U-234	4.69E-01	4.69E-01	9.38E-01
TH-230	8.38E-07	8.38E-07	1.68E-06
RA-226	1.13E-12	6.74E-13	1.80E-12
PB-210	1.08E-15	1.07E-15	2.15E-15

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
U-238	4.06E-04	4.13E-04	8.19E-04
U-234	1.05E-10	1.05E-10	2.09E-10
TH-230	1.25E-16	1.25E-16	2.50E-16
RA-226	2.24E-22	8.92E-22	1.12E-21
PB-210	9.69E-26	9.91E-26	1.96E-25
U-235	2.79E-02	3.01E-02	5.80E-02
PA-231	4.83E-07	4.84E-07	9.66E-07
AC-227	4.31E-09	4.33E-09	8.64E-09
U-234	9.38E-01	9.38E-01	1.88E+00
TH-230	1.68E-06	1.68E-06	3.35E-06
RA-226	4.00E-12	1.59E-11	1.99E-11
PB-210	2.16E-15	2.21E-15	4.37E-15

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
U-238	3.45E-03	3.42E-03	6.86E-03
U-234	8.73E-10	8.73E-10	1.75E-09
TH-230	1.04E-15	1.04E-15	2.08E-15
RA-226	7.72E-21	4.83E-21	1.26E-20

PB-210	8.28E-25	8.18E-25	1.65E-24
U-235	2.52E-01	2.42E-01	4.94E-01
PA-231	4.03E-06	4.03E-06	8.06E-06
AC-227	3.61E-08	3.60E-08	7.21E-08
U-234	7.82E+00	7.82E+00	1.56E+01
TH-230	1.40E-05	1.40E-05	2.79E-05
RA-226	1.38E-10	8.63E-11	2.24E-10
PB-210	1.85E-14	1.83E-14	3.67E-14

Source: 6

Nuclide	Receptor		Total
	1	2	
U-238	3.41E-03	3.39E-03	6.80E-03
U-234	8.73E-10	8.73E-10	1.75E-09
TH-230	1.04E-15	1.04E-15	2.08E-15
RA-226	4.49E-21	2.36E-21	6.85E-21
PB-210	8.16E-25	8.09E-25	1.62E-24
U-235	2.41E-01	2.34E-01	4.75E-01
PA-231	4.02E-06	4.02E-06	8.05E-06
AC-227	3.60E-08	3.59E-08	7.19E-08
U-234	7.81E+00	7.81E+00	1.56E+01
TH-230	1.40E-05	1.40E-05	2.79E-05
RA-226	8.02E-11	4.21E-11	1.22E-10
PB-210	1.82E-14	1.80E-14	3.62E-14

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1 1.90E+01
2 1.90E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1 1.16E+02
2 1.16E+02

RESRAD-BUILD Dose Program Output Reports

**Building Remodel/Demolition Scenario
Reactor Byproduct**

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters.....	2
Building Information.....	3
Source Information.....	4
For time = 0.00E+00 yr	
Time Specific Parameters.....	7
Receptor-Source Dose Summary.....	10
Dose by Pathway Detail.....	11
Dose by Nuclide Detail.....	12
Full Summary.....	14

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RESRAD-BUILD Input Parameters

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Number of Sources : 6
 Number of Receptors: 2
 Total Time : 6.000000E+01 days
 Fraction Inside : 4.200000E-01

===== Receptor Information =====

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion (Dust) [m2/hr]
1	1	50.000	25.000	1.000	1.000	2.00E+01	5.00E-03
2	1	3.000	3.000	1.000	1.000	2.00E+01	5.00E-03

===== Receptor-Source Shielding Relationship =====

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete
2	1	2.40E+00	0.00E+00	Concrete
1	2	2.40E+00	0.00E+00	Concrete
2	2	2.40E+00	0.00E+00	Concrete
1	3	2.40E+00	0.00E+00	Concrete
2	3	2.40E+00	0.00E+00	Concrete
1	4	2.40E+00	0.00E+00	Concrete
2	4	2.40E+00	0.00E+00	Concrete
1	5	2.40E+00	0.00E+00	Concrete
2	5	2.40E+00	0.00E+00	Concrete
1	6	2.40E+00	0.00E+00	Concrete
2	6	2.40E+00	0.00E+00	Concrete

==== Building Information =====

Building Air Exchange Rate: 5.00E+00 1/hr

Height [m]	Area [m2]	Air Exchanges [m3/hr]

		* * *
		* * *
		* * *
H1: 6.000		* Room 1 * <=Q01: 1.50E+05
		* LAMBDA: 5.00E+00 * Q10 : 1.50E+05
Area5000.000		* * *

Deposition velocity: 1.00E-03 [m/s] Resuspension Rate: 5.00E-05 [1/s]

==== Source Information ====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide	Concentration [dpm/m2]	Dose Conversion Factor (Library: FGR 11)		
		Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
CO-60	2.120E+06	1.212E-05	9.865E-05	6.629E-03

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide	Concentration [dpm/m2]	Dose Conversion Factor (Library: FGR 11)		
		Ingestion [mrem/dpm]	Inhalation [mrem/dpm]	Submersion [mrem/yr/ (dpm/m3)]
CO-60	2.120E+06	1.212E-05	9.865E-05	6.629E-03

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 2.120E+06	1.212E-05	9.865E-05	6.629E-03

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 2.120E+06	1.212E-05	9.865E-05	6.629E-03

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 2.120E+06	1.212E-05	9.865E-05	6.629E-03

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00[m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::

Nuclide Concentration	Dose Conversion Factor (Library: FGR 11)		
	Ingestion	Inhalation	Submersion
[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60 2.120E+06	1.212E-05	9.865E-05	6.629E-03

```

=====
=====
=====
Assessment for Time: 1
Time =0.00E+00 yr
=====
=====

```

===== Source Information =====

Source: 1

Location:: Room : 1 x: 0.00 y: 25.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	2.120E+06

Source: 2

Location:: Room : 1 x: 50.00 y: 50.00 z: 3.00 [m]
 Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
 Pathway ::
 Direct Ingestion Rate: 0.000E+00 [1/hr]
 Fraction released to air: 2.500E-01
 Removable fraction: 2.500E-02
 Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	2.120E+06

Source: 3

Location:: Room : 1 x: 100.00 y: 25.00 z: 3.00 [m]
Geometry:: Type: Area Length[m]:5.00E+01 Width[m]:6.00E+00 Direction: x
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 2.500E-01
Removable fraction: 2.500E-02
Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	2.120E+06

Source: 4

Location:: Room : 1 x: 50.00 y: 0.00 z: 3.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:6.00E+00 Direction: y
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 2.500E-01
Removable fraction: 2.500E-02
Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	2.120E+06

Source: 5

Location:: Room : 1 x: 50.00 y: 25.00 z: 0.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 2.500E-01
Removable fraction: 2.500E-02
Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration
		[dpm/m2]
	CO-60	2.120E+06

Source: 6

Location:: Room : 1 x: 50.00 y: 25.00 z: 6.00 [m]
Geometry:: Type: Area Length[m]:1.00E+02 Width[m]:5.00E+01 Direction: z
Pathway ::
Direct Ingestion Rate: 0.000E+00 [1/hr]
Fraction released to air: 2.500E-01
Removable fraction: 2.500E-02
Time to Remove: 6.000E+01 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	CO-60	2.120E+06

RESRAD-BUILD Dose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Source 2	Source 3	Source 4	Source 5	Source 6	Total
Receptor 1	5.51E-02	2.68E-01	5.51E-02	2.68E-01	1.18E+01	6.52E+00	1.90E+01
Receptor 2	1.72E+00	7.36E-02	1.38E-02	1.36E+00	7.12E+00	3.05E+00	1.33E+01
Total	1.78E+00	3.41E-01	6.88E-02	1.63E+00	1.90E+01	9.58E+00	3.23E+01

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	5.42E-02	1.41E-05	8.17E-06	8.86E-04	0.00E+00	1.31E-05
2	1.72E+00	1.41E-05	8.17E-06	8.86E-04	0.00E+00	1.31E-05
Total	1.78E+00	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05

Source: 2

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.66E-01	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05
2	7.18E-02	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05
Total	3.38E-01	5.63E-05	3.27E-05	3.55E-03	0.00E+00	5.23E-05

Source: 3

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	5.42E-02	1.41E-05	8.17E-06	8.86E-04	0.00E+00	1.31E-05
2	1.28E-02	1.41E-05	8.17E-06	8.86E-04	0.00E+00	1.31E-05
Total	6.70E-02	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05

Source: 4

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.66E-01	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05
2	1.36E+00	2.81E-05	1.63E-05	1.77E-03	0.00E+00	2.61E-05
Total	1.62E+00	5.63E-05	3.27E-05	3.55E-03	0.00E+00	5.23E-05

Source: 5

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	1.18E+01	2.35E-04	1.36E-04	1.48E-02	0.00E+00	2.18E-04
2	7.11E+00	2.35E-04	1.36E-04	1.48E-02	0.00E+00	2.18E-04
Total	1.89E+01	4.69E-04	2.72E-04	2.95E-02	0.00E+00	4.36E-04

Source: 6

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	6.51E+00	2.35E-04	1.36E-04	1.48E-02	0.00E+00	2.18E-04
2	3.04E+00	2.35E-04	1.36E-04	1.48E-02	0.00E+00	2.18E-04
Total	9.55E+00	4.69E-04	2.72E-04	2.95E-02	0.00E+00	4.36E-04

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Receptor 2	Total
CO-60	5.51E-02	1.72E+00	1.78E+00

Source: 2

Nuclide	Receptor 1	Receptor 2	Total
CO-60	2.68E-01	7.36E-02	3.41E-01

Source: 3

Nuclide	Receptor 1	Receptor 2	Total
CO-60	5.51E-02	1.38E-02	6.88E-02

Source: 4

Nuclide	Receptor 1	Receptor 2	Total
CO-60	2.68E-01	1.36E+00	1.63E+00

Source: 5

Nuclide	Receptor 1	Receptor 2	Total
CO-60	1.18E+01	7.12E+00	1.90E+01

Source: 6

Nuclide	Receptor 1	Receptor 2	Total
CO-60	6.52E+00	3.05E+00	9.58E+00

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

Evaluation Time [yr]

0.00E+00

1 1.90E+01
2 1.33E+01

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

Evaluation Time [yr]

0.00E+00

1 1.16E+02
2 8.12E+01