APPENDICES

Appendix A

D and D Version 2.1.0 Computer Runs for Nuclides

Appendix A
DandD Version 2.1.0
Computer Runs for Nuclides
Not Listed in NUREG 1757 Appendix B Screening Values

Zn-65 Building Occupancy – Building Surfaces
Eu-152 Building Occupancy – Building Surfaces
Eu-154 Building Occupancy – Building Surfaces
Eu-155 Building Occupancy – Building Surfaces
Zn-65 Residential – Soil Screening
Eu-155 Residential – Soil Screening

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SUMMARY

This appendix provides the results of DandD Version 2.1.0 computer runs to generate screening values for building surfaces and surface soil equivalent to 25 mrem/yr dose criteria.

The Federal Register (Volume 65, No 114, June 13, 2000, page 3718) allows for the use of the latest version of the DandD code without modification to the default settings when a screening value is not listed. The DandD code was used to calculate screening values for Zn-65, Eu-152, Eu-154, and Eu-155 for building surfaces and for Zn-65 and Eu-155 for surface soil because values were not available NUREG 1757 Appendix B.

Building Surfaces

Co-60 was run using the DandD default settings to verify the results. The results from Co-60 are compared to the screening values published in NUREG 1757 Appendix B and NUREG/CR-5512 Table 5.19. The results show good comparison. DandD runs for Zn-65, Eu-152, Eu-154, and Eu-155 were made using an input of 1000 dpm/100cm^2 and a screening value equivalent to 25 mrem/yr obtained. The DandD Building Occupancy Scenario run results are shown in Table 1.

Table 1
Building Occupancy - Building Surface Screening Values Using DandD

Radionuclide	Surface Screening Value (dpm/100cm2) Equivalent to 25 mrem/yr		
	DandD	Appendix B of NUREG 1757	NUREG/CR-5512 Table 5.19 (Pcrit = 0.90)
Co-60	7.04 E3	7.1 E3	7.05 E3
Zn-65	4.81 E4	NA	4.81 E4
Eu-152	1.27 E4	NA	1.27 E4
Eu-154	1.15E4	NA	1.15 E4
Eu-155	1.56 E5	NA	1.57 E5

NA: not available

Residential Surface Soil

Co-60 was run using the DandD default settings to verify the results. The results from Co-60 are compared to the screening values published in NUREG 1757 Appendix B and NUREG/CR-5512 Table 6.91. The results show good comparison. DandD runs for Zn-65, and Eu-155 were made using an input of 10 pCi/g and a screening value equivalent to 25 mrem/yr obtained. The DandD residential scenario results are shown in Table 2.

Table 2
Residential Scenario - Surface Soil Screening Values Using DandD

Radionuclide	Soil Screening Value (pCi/g) Equivalent to 25 mrem/yr		
	DandD	Appendix B of NUREG 1757	NUREG/CR-5512 Table 6.91 (Pcrit = 0.10)
Co-60	3.8	3.8	3.8
Zn-65	11.7	NA	10.8
Eu-155	285	NA	284

NA: not available

The computer runs for the evaluations tabulated above are found in the pages that follow.

REFERENCES

Federal Register Volume 65, No. 114, Tuesday, June 13, 2000, page 37186, Nuclear Regulatory Commission, *Use of Screening Values to Demonstrate Compliance with the Final Rule on Radiological Criteria for License Termination*

NUREG-1757, Volume 1, *Consolidated MSS Decommissioning Guidance, Decommissioning Process for Materials Licenses*, September 2003

NUREG/CR-5512, Volume 3, SAND99-2148, *Residual Radioactive Contamination From Decommissioning Parameter Analysis*, USNRC October 1999

Co-60
DandD Building Occupancy (verification run)

DandD Results

$$\frac{1000\ dpm/100\ cm^2}{3.55\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 7{,}042\ dpm/100\ cm^2$$

Appendix B of NUREG 1757 screening value
Co-60 = 7.1 E3 dpm/100 cm^2

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Co-60 = 7.05 E3 dpm/100cm^2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 1/13/04 8:43:09 AM
Site Name: Pathfinder
Description: Co-60 building surfaces
FileName:C:\DandD_Docs\Co60.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
60Co	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: establish DCGL		Value 1.00E+03

Chain Data:

Number of chains: **1**

Chain No. 1: **60Co**
Nuclides in chain: **1**

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))
60Co	1	1.93E+03					7.28E-09	5.91E-08	2.03E-10	6.26E-12

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)
60Co	1.00E+03

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Default value used		Value 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * Fl	DERIVED(1/m)
Default value used		
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * Fl	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 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)
Default value used		Value 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Default value used		Value 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value 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)
Default value used		Value 1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value 1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)

Default value used		Value / Probability 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)
Default value used		Value 1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 3.55E+00 mrem/year .
The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 3.50E+00 to 3.61E+00 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)
60Co	9.37E+02

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
3.61E+00	3.09E+00	4.87E-01	2.93E-02

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
60Co	3.61E+00
All Nuclides	3.61E+00

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
60Co	3.09E+00	4.87E-01	2.93E-02

Zn-65
DandD Building Occupancy

DandD Results

$$\frac{1000\ dpm/100\ cm^2}{5.20E-1 mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 48{,}077\ dpm/100 cm^2$$

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Zn-65 = 4.81 E4 dpm/100cm^2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 1/13/04 4:29:33 PM
Site Name: Pathfinder
Description: To generate a DCGL screening value for Zn-65
FileName:C:\DandD_Docs\Pathfinder Zn65.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
65Zn	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: To generate Zn-65 DCGL screening value		Value 1.00E+03

Chain Data:

Number of chains: 1

Chain No. 1: **65Zn**
Nuclides in chain: 1

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))
65Zn	1	2.44E+02					3.90E-09	5.51E-09	4.78E-11	1.45E-12

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)
65Zn	1.00E+03

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Default value used		Value 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * Fl	DERIVED(1/m)
Default value used		
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * Fl	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 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)
Default value used		Value 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Default value used		Value 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value 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)
Default value used		Value 1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value 1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)

Default value used		Value Probability 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)
Default value used		Value 1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% **of the** 100 **calculated TEDE values are <** 5.20E-01 **mrem/year .**
The 95 % Confidence Interval for the 0.9 **quantile value of TEDE is** 5.17E-01 **to** 5.24E-01 **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)
65Zn	6.22E+02

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
5.24E-01	4.83E-01	3.02E-02	1.04E-02

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
65Zn	5.24E-01
All Nuclides	5.24E-01

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
65Zn	4.83E-01	3.02E-02	1.04E-02

Eu-152
DandD Building Occupancy

DandD Results

$$\frac{1000\ dpm/100\ cm^2}{1.97\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 12{,}690\ dpm/100\,cm^2$$

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Eu-152 = 1.27 E4 dpm/100cm^2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 1/13/04 4:03:38 PM
Site Name: Pathfinder
Description: To develop a DCGL screening value
FileName:C:\DandD_Docs\Pathfinder Eu152.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
152Eu	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: unit concentration to develop Eu-152 DCGL screening value		Value 1.00E+03

Chain Data:

Number of chains: **1**

Chain No. 1: **152Eu**
Nuclides in chain: **2**

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))
152Eu	1	4.87E+03					1.75E-09	5.97E-08	9.53E-11	2.78E-12
152Gd	2	3.94E+16	1	0.2792			4.34E-08	1.01E-06	0.00E+00	0.00E+00

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)
152Eu	1.00E+03
152Gd	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)
Default value used		Value 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * Fl	DERIVED(1/m)
Default value used		
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * Fl	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 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)
Default value used		Value 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Default value used		Value 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value 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)
Default value used		Value 1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value 1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose material	CONTINUOUS LOGARITHMIC(1/m)

Default value used		Value	Probability
		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)	
Default value used		Value	1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 1.97E+00 mrem/year .
The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.92E+00 to 2.03E+00 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)
152Eu	9.74E+02
152Gd	8.82E-13

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
2.03E+00	1.51E+00	5.12E-01	7.32E-03

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
152Eu	2.03E+00
152Gd	8.00E-15
All Nuclides	2.03E+00

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
152Eu	1.51E+00	5.12E-01	7.32E-03
152Gd	0.00E+00	7.84E-16	1.64E-16

Eu-154
DandD Building Occupancy

DandD Results

$$\frac{1000\ dpm/100\ cm^2}{2.18\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 11{,}468\ dpm/100\,cm^2$$

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Eu-154 = 1.15 E4 dpm/100cm^2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 1/13/04 4:05:49 PM
Site Name: Pathfinder
Description: To generate a DCGL screening value
FileName:C:\DandD_Docs\Pathfinder Eu154.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
154Eu	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: unit concentration to generate a DCGL screeninv value for Eu-154		Value 1.00E+03

Chain Data:

Number of chains: 1

Chain No. 1: **154Eu**
Nuclides in chain: 1

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))
154Eu	1	3.21E+03					2.58E-09	7.73E-08	1.02E-10	3.04E-12

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)
154Eu	1.00E+03

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Default value used		Value 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * Fl	DERIVED(1/m)
Default value used		
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * Fl	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 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)
Default value used		Value 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Default value used		Value 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value 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)
Default value used		Value 1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value 1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)

Default value used		Value Probability 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)
Default value used		Value 1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% **of the** 100 **calculated TEDE values are <** 2.18E+00 **mrem/year .**
The 95 % Confidence Interval for the 0.9 **quantile value of TEDE is** 2.12E+00 **to** 2.26E+00 **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)
154Eu	9.62E+02

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
2.26E+00	1.59E+00	6.54E-01	1.06E-02

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways *Dose*
154Eu	2.26E+00
All Nuclides	2.26E+00

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
154Eu	1.59E+00	6.54E-01	1.06E-02

Eu-155
DandD Building Occupancy

DandD Results

$$\frac{1000\ dpm/100\ cm^2}{1.60E-1\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 156{,}250\ dpm/100 cm^2$$

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Eu-155 = 1.57 E5 dpm/100cm^2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 1/13/04 4:08:17 PM
Site Name: Pathfinder
Description: To create a DCGL screening value for Eu-155
FileName:C:\DandD_Docs\Pathfinder Eu155.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
155Eu	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: To generate a DCGL screening value for Eu-155		Value 1.00E+03

Chain Data:

Number of chains: 1

Chain No. 1: **155Eu**
Nuclides in chain: 1

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))
155Eu	1	1.81E+03					4.13E-10	1.12E-08	5.10E-12	8.42E-14

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)
155Eu	1.00E+03

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Default value used		Value 4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value 3.65E+02
Vo:Breathing Rate	The average volumetric breathing rate during building occupancy for an 8-hour work day	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * Fl	DERIVED(1/m)
Default value used		
GO*:Ingestion Rate	Effective secondary ingestion transfer rate of removable surface activity from building surfaces to the mouth during building occupancy = GO * Fl	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 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)
Default value used		Value 1.00E+00
AOExt:External Exposure Area	Minimum surface area to which occupant is exposed via external radiation during occupancy period	CONSTANT(m**2)
Default value used		Value 1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value 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)
Default value used		Value 1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
Fl:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value 1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)

Default value used		Value Probability 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)
Default value used		Value 1.10E-04

Correlation Coefficients:

None

Summary Results:

90.00% **of the** 100 **calculated TEDE values are <** 1.60E-01 **mrem/year .**
The 95 % Confidence Interval for the 0.9 **quantile value of TEDE is** 1.51E-01 **to** 1.71E-01 **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)
155Eu	9.33E+02

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	External	Inhalation	Secondary Ingestion
1.71E-01	7.73E-02	9.20E-02	1.65E-03

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
155Eu	1.71E-01
All Nuclides	1.71E-01

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	External	Inhalation	Secondary Ingestion
155Eu	7.73E-02	9.20E-02	1.65E-03

Co-60
DandD Residential Scenario (verification run)

DandD Results

$$\frac{10\ pCi/g}{66\ mrem/yr_{0.9Quantile}} \times 25\ mrem/yr = 3.788\ pCi/g$$

Appendix B of NUREG 1757 screening value
Co-60 = 3.8 pCi/g

NUREG/CR 5512, Volume 3, Table 6.91 (Pcrit = 0.90)
Co-60 = 3.8 pCi/g

DandD Residential Scenario

DandD Version: 2.1.0
Run Date/Time: 1/23/04 11:19:10 AM
Site Name: Pathfinder
Description: Co-60 screening value for soils
FileName:C:\DandD_Docs\Pathfinder soil Co60.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON
Agricultural Pathway is ON
Drinking Water Pathway is ON
Irrigation Pathway is ON
Surface Water Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
60Co	UNLIMITED	CONSTANT(pCi/g)
Justification for concentration: To establish screening level DCGL		Value 1.00E+01

Chain Data:

Number of chains: 1

Chain No. 1: **60Co**
Nuclides in chain: 1

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))
60Co	1	1.93E+03					7.28E-09	5.91E-08	2.03E-10	6.26E-12

Initial Concentrations:

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

Nuclide	Soil Concentration (pCi/g)
60Co	1.00E+01

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
Tv (1):Translocation:Leafy	Translocation factor for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E+00
Tv(2):Translocation:Root	Translocation factor for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (3):Translocation:Fruit	Translocation factor for fruit	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (4):Translocation:Grain	Translocation factor for grain	CONSTANT(none)
Default value used		Value 1.00E-01
Tf(1):Translocation:Beef Forage	Translocation factor for forage consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (2):Translocation:Poultry Forage	Translocation factor for forage consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E+00
Tf(3):Translocation:Milk Cow	Translocatioin factor for forage consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (4):Translocation:Layer Hen Forage	Translocation factor for forage consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
Tg(1):Translocation:Beef Grain	Translocation factor for stored grain consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (2):Translocation:Poultry Grain	Translocation factor for stored grain consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E-01
Tg(3):Translocation:Milk Cow Grain	Translocation factor for stored grain consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (4):Translocation:Layer Hen Grain	Translocation factor for stored grain consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E-01
Th(1):Translocation:Beef Hay	Translocation factor for stored hay consumed by beef cattle	CONSTANT(none)

Default value used		Value 1.00E+00
Th (2):Translocation:Poultry Hay	Translocation factor for stored hay consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E+00
Th (3):Translocation:Milk Cow Hay	Translocation factor for stored hay consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Th (4):Translocation:Layer Hen Hay	Translocation factor for stored hay consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
fca(1):Beef Carbon Fraction	Mass fraction of beef cattle that is carbon	CONSTANT(none)
Default value used		Value 3.60E-01
fca(2):Poultry Carbon Fraction	Mass fraction of poultry that is carbon	CONSTANT(none)
Default value used		Value 1.80E-01
fca(3):Milk Carbon Fraction	Mass fraction of milk that is carbon	CONSTANT(none)
Default value used		Value 6.00E-02
fca(4):Eggs Carbon Fraction	Mass fraction of an egg that is carbon	CONSTANT(none)
Default value used		Value 1.60E-01
fcf(1):Beef Forage Carbon Fraction	Mass fraction of wet forage consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(2):Poultry Forage Carbon Fraction	Mass fraction of wet forage consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(3):Milk Cow Forage Carbon Fraction	Mass fraction of wet forage consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(4):Layer Hen Forage Carbon Fraction	Mass fraction of wet forage consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcg(1):Beef Grain Carbon Fraction	Mass fraction of wet stored grain consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(2):Poultry Grain Carbon Fraction	Mass fraction of wet stored grain consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(3):Milk Cow Grain Carbon Fraction	Mass fraction of wet stored grain consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(4):Layer Hen Grain Carbon Fraction	Mass fraction of wet stored grain consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fch(1):Beef Hay Carbon Fraction	Mass fraction of wet stored hay consumed by beef cattle that is carbon	CONSTANT(none)

Default value used		Value 7.00E-02
fch(2):Poultry Hay Carbon Fraction	Mass fraction of wet stored hay consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(3):Milk Cow Hay Carbon Fraction	Mass fraction of wet stored hay consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(4):Layer Hen Hay Carbon Fraction	Mass fraction of wet stored hay consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fCd:Soil Carbon Fraction	Mass fraction of dry soil that is carbon	CONSTANT(none)
Default value used		Value 3.00E-02
SATac:Animal Product Specific Activity	Specific activity equivalence of animal product and specific activity of animal feed, forage, and soil	CONSTANT(none)
Default value used		Value 1.00E+00
xf(1):Beef Forage Contaminated Fraction	Fraction of forage consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(2):Poultry Forage Contaminated Fraction	Fraction of forage consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(3):Milk Cow Forage Contaminated Fraction	Fraction of forage consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(4):Layer Hen Forage Contaminated Fraction	Fraction of forage consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(1):Beef Grain Contaminated Fraction	Fraction of stored grain consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(2):Poultry Grain Contaminated Fraction	Fraction of stored grain consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(3):Milk Cow Grain Contaminated Fraction	Fraction of stored grain consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(4):Layer Hen Grain Contaminated Fraction	Fraction of stored grain that is consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(1):Beef Hay Contaminated Fraction	Fraction of stored hay consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(2):Poultry Hay Contaminated Fraction	Fraction of stored hay consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(3):Milk Cow Hay Contaminated Fraction	Fraction of stored hay consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00

xh(4):Layer Hen Hay Contaminated Fraction	Fraction of stored hay consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(1):Beef Water Contaminated Fraction	Fraction of water that is consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(2):Poultry Water Contaminated Fraction	Fraction of water consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(3):Milk Cow Water Contaminated Fraction	Fraction of water consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(4):Layer Hen Water Contaminated Fraction	Fraction of water consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
DIET:Garden Diet	Fraction of human diet grown onsite	CONSTANT(none)
Default value used		Value 1.00E+00
Uv(1):Diet - Leafy	Yearly human consumption of leafy vegetables	CONSTANT(kg/y)
Default value used		Value 2.14E+01
Uv(2):Diet - Roots	Yearly human consumption of other vegetables	CONSTANT(kg/y)
Default value used		Value 4.46E+01
Uv(3):Diet - Fruit	Yearly human consumption of fruits	CONSTANT(kg/y)
Default value used		Value 5.28E+01
Uv(4):Diet - Grain	Yearly human consumption of grains	CONSTANT(kg/y)
Default value used		Value 1.44E+01
Ua(1):Diet - Beef	Yearly human consumption of beef	CONSTANT(kg/y)
Default value used		Value 3.98E+01
Ua(2):Diet - Poultry	Yearly human consumption of poultry	CONSTANT(kg/y)
Default value used		Value 2.53E+01
Ua(3):Diet - Milk	Yearly human consumption of milk	CONSTANT(L/y)
Default value used		Value 2.33E+02
Ua(4):Diet - Egg	Yearly human consumption of eggs	CONSTANT(kg/y)
Default value used		Value 1.91E+01
Uf:Diet - Fish	Yearly human consumption of fish produced from an onsite pond	CONSTANT(kg/y)
Default value used		Value 2.06E+01
tf:Consumption Period	Consumption period for fish	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(1):Consumption Period - Leafy	Food consumption period for leafy vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(2):Consumption Period - Roots	Food consumption period for other vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(3):Consumption Period - Fruit	Food consumption period for fruits	CONSTANT(days)

Default value used		Value 3.65E+02
tcv(4):Consumption Period - Grain	Food consumption period for grains	CONSTANT(days)
Default value used		Value 3.65E+02
tca(1):Consumption Period - Beef	Food consumption period for beef	CONSTANT(days)
Default value used		Value 3.65E+02
tca(2):Consumption Period - Poultry	Food consumption period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
tca(3):Consumption Period - Milk	Food consumption period for milk	CONSTANT(days)
Default value used		Value 3.65E+02
tca(4):Consumption Period - Egg	Food consumption period for eggs	CONSTANT(days)
Default value used		Value 3.65E+02
Nunsat:Number of Unsaturated Layers	Number of model layers used to represent the unsaturated zone	CONSTANT(none)
Default value used		Value 1.00E+01
TstartR:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
TendR:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+05
dtR:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 3.65E+02
PstepR:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Default value used		Value 1.00E+00
TI:Indoor Exposure Period	The time the resident spends indoors	CONSTANT(days/year)
Default value used		Value 2.40E+02
TX:Outdoor Exposure Period	The time the resident spends outdoors	CONSTANT(days/year)
Default value used		Value 4.02E+01
TG:Gardening Period	The time the resident spends gardening	CONSTANT(days/year)
Default value used		Value 2.92E+00
TTR:Total time in period	Total time in the one year exposure period	CONSTANT(days/year)
Default value used		Value 3.65E+02
SFI:Indoor Shielding Factor	Shielding factor for the residence	CONSTANT(none)
Default value used		Value 5.52E-01
SFO:Outdoor Shielding Factor	Shielding factor for the cover soil	CONSTANT(none)
Default value used		Value 1.00E+00
PD:Floor dust loading	Floor dust loading	UNIFORM(g/m**2)
Default value used		Lower Limit 2.00E-02 Upper Limit 3.00E-01

RFR:Indoor Resuspension Factor	Resuspension factor for indoor dust	LOGUNIFORM(1/m)
Default value used		Lower Limit 1.00E-07 Upper Limit 8.00E-05
CDO:Outdoor Dust Loading	Average dust loading outdoors	LOGUNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-07 Upper Limit 1.00E-04
CDI:Indoor Dust Loading	Average dust loading indoors	DERIVED(g/m**3)
Default value used		
PF:Indoor/Outdoor Penetration Factor	Fraction of outdoor dust in indoor air	UNIFORM(none)
Default value used		Lower Limit 2.00E-01 Upper Limit 7.00E-01
CDG:Gardening Dust Loading	Average dust loading while gardening	UNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-04 Upper Limit 7.00E-04
VR:Indoor Breathing Rate	Breathing rate while indoors	CONSTANT(m**3/hr)
Default value used		Value 9.00E-01
VX:Outdoor Breathing Rate	Breathing rate while outdoors	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
VG:Gardening Breathing Rate	Breathing rate while gardening	CONSTANT(m**3/hr)
Default value used		Value 1.70E+00
GR:Soil Ingestion Transfer Rate	Average rate of soil ingestion	CONSTANT(g/d)
Default value used		Value 5.00E-02
UW:Diet - Water	Drinking water ingestion rate	CONSTANT(L/d)
Default value used		Value 1.26E+00
H1:Surface Soil Thickness	Thickness of the surface soil layer	CONSTANT(m)
Default value used		Value 1.50E-01
H2:Unsaturated Zone Thickness	Thickness of the unsaturated zone	CONTINUOUS LINEAR(m)
Default value used		Value / Probability 3.05E-01 / 0.00E+00 6.68E-01 / 4.76E-03 8.11E-01 / 9.52E-03 9.21E-01 / 1.43E-02 9.94E-01 / 1.91E-02 1.03E+00 / 2.38E-02 1.07E+00 / 2.86E-02 1.14E+00 / 3.33E-02 1.21E+00 / 3.81E-02 1.30E+00 / 4.29E-02 1.31E+00 / 4.76E-02 1.32E+00 / 5.24E-02 1.56E+00 / 5.71E-02 1.58E+00 / 6.19E-02 1.61E+00 / 6.67E-02

1.69E+00	7.62E-02
1.78E+00	8.57E-02
1.80E+00	9.05E-02
1.81E+00	9.52E-02
1.84E+00	1.00E-01
1.87E+00	1.05E-01
1.92E+00	1.10E-01
2.04E+00	1.14E-01
2.10E+00	1.19E-01
2.11E+00	1.24E-01
2.32E+00	1.29E-01
2.36E+00	1.33E-01
2.37E+00	1.38E-01
2.39E+00	1.43E-01
2.44E+00	1.48E-01
2.44E+00	1.52E-01
2.45E+00	1.57E-01
2.59E+00	1.62E-01
2.63E+00	1.67E-01
2.69E+00	1.71E-01
2.79E+00	1.76E-01
2.81E+00	1.81E-01
2.90E+00	1.86E-01
2.95E+00	1.91E-01
3.07E+00	1.95E-01
3.18E+00	2.00E-01
3.22E+00	2.05E-01
3.30E+00	2.10E-01
3.34E+00	2.14E-01
3.37E+00	2.19E-01
3.44E+00	2.24E-01
3.58E+00	2.29E-01
3.62E+00	2.33E-01
3.66E+00	2.38E-01
3.74E+00	2.43E-01
3.86E+00	2.48E-01
3.88E+00	2.52E-01
4.17E+00	2.57E-01
4.26E+00	2.62E-01
4.44E+00	2.71E-01
4.63E+00	2.76E-01
4.87E+00	2.81E-01
5.13E+00	2.86E-01
5.18E+00	2.91E-01
5.54E+00	2.95E-01
5.83E+00	3.00E-01
5.86E+00	3.05E-01
5.86E+00	3.10E-01
5.90E+00	3.14E-01
6.06E+00	3.19E-01
6.13E+00	3.24E-01
6.17E+00	3.29E-01
6.22E+00	3.33E-01
6.31E+00	3.38E-01
6.36E+00	3.43E-01
6.40E+00	3.48E-01
6.46E+00	3.52E-01
6.51E+00	3.57E-01
6.55E+00	3.62E-01
6.60E+00	3.67E-01
6.86E+00	3.71E-01
6.93E+00	3.76E-01
6.95E+00	3.86E-01
6.97E+00	3.91E-01

7.09E+00	3.95E-01
7.18E+00	4.00E-01
7.35E+00	4.05E-01
7.36E+00	4.10E-01
7.40E+00	4.14E-01
7.43E+00	4.19E-01
7.46E+00	4.24E-01
7.59E+00	4.29E-01
7.60E+00	4.33E-01
7.64E+00	4.38E-01
7.87E+00	4.43E-01
8.10E+00	4.48E-01
8.28E+00	4.52E-01
8.35E+00	4.57E-01
8.71E+00	4.62E-01
8.71E+00	4.67E-01
8.73E+00	4.71E-01
8.79E+00	4.76E-01
8.80E+00	4.81E-01
8.82E+00	4.86E-01
8.85E+00	4.91E-01
8.89E+00	4.95E-01
8.90E+00	5.00E-01
8.99E+00	5.05E-01
9.00E+00	5.10E-01
9.13E+00	5.14E-01
9.14E+00	5.19E-01
9.21E+00	5.24E-01
9.31E+00	5.29E-01
9.55E+00	5.33E-01
9.60E+00	5.38E-01
9.63E+00	5.43E-01
9.86E+00	5.48E-01
1.05E+01	5.52E-01
1.07E+01	5.57E-01
1.13E+01	5.62E-01
1.15E+01	5.67E-01
1.17E+01	5.71E-01
1.20E+01	5.76E-01
1.26E+01	5.81E-01
1.26E+01	5.86E-01
1.28E+01	5.91E-01
1.32E+01	5.95E-01
1.32E+01	6.00E-01
1.34E+01	6.05E-01
1.34E+01	6.10E-01
1.36E+01	6.14E-01
1.37E+01	6.19E-01
1.38E+01	6.24E-01
1.41E+01	6.29E-01
1.45E+01	6.33E-01
1.51E+01	6.38E-01
1.52E+01	6.43E-01
1.61E+01	6.48E-01
1.62E+01	6.52E-01
1.65E+01	6.57E-01
1.66E+01	6.62E-01
1.69E+01	6.67E-01
1.74E+01	6.71E-01
1.82E+01	6.76E-01
1.84E+01	6.81E-01
1.84E+01	6.86E-01
1.87E+01	6.91E-01
1.95E+01	6.95E-01

1.93E+01	6.95E-01
2.01E+01	7.00E-01
2.07E+01	7.05E-01
2.08E+01	7.10E-01
2.17E+01	7.14E-01
2.24E+01	7.19E-01
2.27E+01	7.24E-01
2.29E+01	7.29E-01
2.29E+01	7.33E-01
2.40E+01	7.38E-01
2.47E+01	7.43E-01
2.60E+01	7.48E-01
2.65E+01	7.52E-01
2.72E+01	7.57E-01
2.73E+01	7.62E-01
2.76E+01	7.67E-01
2.77E+01	7.71E-01
2.78E+01	7.76E-01
2.80E+01	7.81E-01
2.86E+01	7.86E-01
2.94E+01	7.91E-01
3.01E+01	7.95E-01
3.03E+01	8.00E-01
3.06E+01	8.10E-01
3.08E+01	8.14E-01
3.11E+01	8.19E-01
3.17E+01	8.24E-01
3.17E+01	8.29E-01
3.17E+01	8.33E-01
3.22E+01	8.38E-01
3.39E+01	8.43E-01
3.48E+01	8.48E-01
3.54E+01	8.52E-01
3.60E+01	8.57E-01
3.68E+01	8.62E-01
4.03E+01	8.67E-01
4.07E+01	8.71E-01
4.24E+01	8.76E-01
4.29E+01	8.81E-01
4.42E+01	8.86E-01
4.72E+01	8.91E-01
4.97E+01	8.95E-01
5.12E+01	9.00E-01
6.13E+01	9.05E-01
6.19E+01	9.10E-01
6.23E+01	9.14E-01
6.32E+01	9.19E-01
6.59E+01	9.24E-01
6.73E+01	9.29E-01
7.47E+01	9.33E-01
7.92E+01	9.38E-01
8.12E+01	9.43E-01
8.28E+01	9.48E-01
8.47E+01	9.52E-01
8.96E+01	9.57E-01
9.47E+01	9.62E-01
1.08E+02	9.67E-01
1.13E+02	9.71E-01
1.15E+02	9.76E-01
1.42E+02	9.81E-01
1.77E+02	9.86E-01
1.78E+02	9.91E-01
1.80E+02	9.95E-01
3.16E+02	1.00E+00

N1:Surface Soil Porosity	Porosity of the surface soil layer	DERIVED(none)
Default value used		
N2:Unsaturated Zone Porosity	Porosity of the unsaturated zone	DERIVED(none)
Default value used		
F1:Surface Soil Saturation	Saturation ratio of the surface soil layer	DERIVED(none)
Default value used		
F2:Unsaturated Zone Saturation	Saturation ratio of the unsaturated zone	DERIVED(none)
Default value used		
INFIL:Infiltration Rate	*Net rate of infiltration to aquifer*	DERIVED(m/y)
Default value used		
SCSST:Soil Classification	SCS soil classification ID	DISCRETE CUMULATIVE(none)
Default value used		Value / Probability 1.00E+00 1.00E-04 2.00E+00 1.34E-03 3.00E+00 1.06E-02 4.00E+00 2.51E-02 5.00E+00 6.17E-02 6.00E+00 1.09E-01 7.00E+00 1.62E-01 8.00E+00 2.12E-01 9.00E+00 2.85E-01 1.00E+01 5.10E-01 1.10E+01 7.58E-01 1.20E+01 1.00E+00
NDEV:Porosity Probability	Relative porosity value within the distribution for this soil type	UNIFORM(none)
Default value used		Lower Limit 0.00E+00 Upper Limit 1.00E+00
KSDEV:Permeability Probability	Relative permeability value within the distribution for this soil type	UNIFORM(none)
Default value used		Lower Limit 0.00E+00 Upper Limit 1.00E+00
BDEV:Parameter "b" Probability	Relative value of "b" parameter within the distribution for this soil type	UNIFORM(none)
Default value used		Lower Limit 0.00E+00 Upper Limit 1.00E+00
AP:Water Application Rate	Total water application rate on cultivated area	CONTINUOUS LINEAR(m/y)
Default value used		Value / Probability 6.07E-01 0.00E+00 6.10E-01 4.62E-01 6.35E-01 4.76E-01 7.62E-01 5.40E-01 8.89E-01 6.29E-01 1.02E+00 7.05E-01 1.14E+00 8.04E-01 1.27E+00 8.79E-01 1.40E+00 9.41E-01 1.52E+00 9.82E-01 1.65E+00 9.98E-01 1.78E+00 1.00E+00
IR:Irrigation Rate	Annual average irrigation rate	CONSTANT(L/m**2-d)

Default value used		Value 1.29E+00
RHO1:Surface Soil Density	Bulk density of soil in the surface soil layer	DERIVED(g/mL)
Default value used		
RHO2:Unsaturated Zone Density	Bulk density of soil in the unsaturated zone	DERIVED(g/mL)
Default value used		
Ksat1:Surface Soil Permeabiliy	Saturated permeability of the surface soil layer	DERIVED(cm/sec)
Default value used		
VDR:Volume of Water Consumed	Volume of water withdrawn for consumptive use	CONSTANT(L)
Default value used		Value 1.18E+05
VSW:Volume of Water in Pond	Volume of water in the pond	CONSTANT(L)
Default value used		Value 1.30E+06
AR:Cultivated Area	Area of land cultivated	DERIVED(m**2)
Default value used		
sh:Soil Moisture Content	Moisture content of soil	DERIVED(none)
Default value used		
TTG:Gardening Period	Total time in gardening period	CONSTANT(days)
Default value used		Value 9.00E+01
TD:Drinking-water consumption period	Drinking-water consumption period	CONSTANT(days)
Default value used		Value 3.65E+02
THV(1):Holdup Period : Leafy	Holdup period for leafy vegetables	CONSTANT(days)
Default value used		Value 1.00E+00
THV(2):Holdup Period : Other vegetables	Holdup period for other vegetables	CONSTANT(days)
Default value used		Value 1.40E+01
THV(3):Holdup Period : Fruits	Holdup period for fruits	CONSTANT(days)
Default value used		Value 1.40E+01
THV(4):Holdup Period : Grains	Holdup period for grains	CONSTANT(days)
Default value used		Value 1.40E+01
THA(1):Holdup Period : Beef	Holdup period for beef	CONSTANT(days)
Default value used		Value 2.00E+01
THA(2):Holdup Period : Poultry	Holdup period for poultry	CONSTANT(days)
Default value used		Value 1.00E+00
THA(3):Holdup Period : Milk	Holdup period for milk	CONSTANT(days)
Default value used		Value 1.00E+00
THA(4):Holdup Period : Eggs	Holdup period for eggs	CONSTANT(days)
Default value used		Value 1.00E+00

TGV(1):Growing Period : Leafy	Minimum growing period for leafy vegetables	CONSTANT(days)
Default value used		Value 4.50E+01
TGV(2):Growing Period : Other vegetables	Minimum growing period for other vegetables	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(3):Growing Period : Fruits	Minimum growing period for fruits	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(4):Growing Period : Grains	Minimum growing period for grains	CONSTANT(days)
Default value used		Value 9.00E+01
TGF(1):Growing Period : Beef Forage	Minimum growing period for forage consumed by beef cattle	CONSTANT(days)
Default value used		Value 3.00E+01
TGF(2):Growing Period : Poultry Forage	Minimum growing period for forage consumed by poultry	DERIVED(days)
Default value used		
TGF(3):Growing Period : Milk Cow Forage	Minimum growing period for forage consumed by milk cows	DERIVED(days)
Default value used		
TGF(4):Growing Period : Layer Hen Forage	Minimum growing period for forage consumed by layer hens	DERIVED(days)
Default value used		
TGG(1):Growing Period : Beef Cow Grain	Minimum growing period for stored grain consumed by beef cattle	CONSTANT(days)
Default value used		Value 9.00E+01
TGG(2):Growing Period : Poultry Grain	Minimum growing period for stored grain consumed by poultry	DERIVED(days)
Default value used		
TGG(3):Growing Period : Milk Cow Grain	Minimum growing period for stored grain consumed by milk cows	DERIVED(days)
Default value used		
TGG(4):Growing Period : Layer Hen Grain	Minimum growing period for stored grain consumed by layer hens	DERIVED(days)
Default value used		
TGH(1):Growing Period : Beef Cow Hay	Minimum growing period for stored hay consumed by beef cattle	CONSTANT(days)
Default value used		Value 4.50E+01
TGH(2):Growing Period : Poultry Hay	Minimum growing period for stored hay consumed by poultry	DERIVED(days)
Default value used		
TGH(3):Growing Period : Milk Cow Hay	Minimum growing period for stored hay consumed by milk cows	DERIVED(days)
Default value used		
TGH(4):Growing Period : Layer Hen Hay	Minimum growing period for stored hay consumed by layer hens	DERIVED(days)
Default value used		
RV(1):Interception Fraction : Leafy	Interception fraction for leafy vegetables	UNIFORM(none)

Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(2):Interception Fraction : Other vegetables	Interception fraction for other vegetables	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(3):Interception Fraction : Fruits	Interception fraction for fruits	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(4):Interception Fraction : Grains	Interception fraction for grains	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(1):Interception Fraction : Beef Forage	Interception fraction for beef cattle forage	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(2):Interception Fraction : Poultry forage	Interception fraction for poultry forage	DERIVED(none)
Default value used		
RF(3):Interception Fraction : Milk Cow Forage	Interception fraction for milk cow forage	DERIVED(none)
Default value used		
RF(4):Interception Fraction : Layer Hen Forage	Interception fraction for layer hen forage	DERIVED(none)
Default value used		
RG(1):Interception Fraction : Beef Cow Grain	Interception fraction for beef cattle grain	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RG(2):Interception Fraction : Poultry Grain	Interception fraction for poultry grain	DERIVED(none)
Default value used		
RG(3):Interception Fraction : Milk Cow Grain	Interception fraction for milk cow grain	DERIVED(none)
Default value used		
RG(4):Interception Fraction : Layer Hen Grain	Interception fraction for layer hen grain	DERIVED(none)
Default value used		
RH(1):Interception Fraction : Beef Cow Hay	Interception fraction for beef cattle hay	DERIVED(none)
Default value used		
RH(2):Interception Fraction : Poultry Hay	Interception fraction for poultry hay	DERIVED(none)
Default value used		
RH(3):Interception Fraction : Milk Cow Hay	Interception fraction for milk cow hay	DERIVED(none)

Default value used		
RH(4):Interception Fraction : Layer Hen Hay	Interception fraction for layer hen hay	DERIVED(none)
Default value used		
YV(1):Crop Yield : Leafy	Crop yield for leafy vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used

Value	Probability
2.70E+00	0.00E+00
2.71E+00	1.60E-03
2.74E+00	6.00E-03
2.76E+00	1.76E-02
2.78E+00	4.36E-02
2.80E+00	8.48E-02
2.82E+00	1.56E-01
2.85E+00	2.57E-01
2.87E+00	3.64E-01
2.89E+00	5.00E-01
2.91E+00	6.39E-01
2.93E+00	7.46E-01
2.96E+00	8.42E-01
2.98E+00	9.09E-01
3.00E+00	9.60E-01
3.02E+00	9.84E-01
3.04E+00	9.94E-01
3.07E+00	9.97E-01
3.09E+00	9.99E-01
3.11E+00	1.00E+00
3.13E+00	1.00E+00
3.15E+00	1.00E+00

YV(2):Crop Yield : Other	Crop yield for other vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used

Value	Probability
2.26E+00	0.00E+00
2.29E+00	8.00E-04
2.30E+00	1.20E-03
2.31E+00	6.40E-03
2.33E+00	1.52E-02
2.34E+00	3.28E-02
2.35E+00	7.44E-02
2.36E+00	1.40E-01
2.38E+00	2.49E-01
2.39E+00	3.80E-01
2.40E+00	5.30E-01
2.42E+00	6.61E-01
2.43E+00	7.88E-01
2.44E+00	8.86E-01
2.45E+00	9.42E-01
2.47E+00	9.75E-01
2.48E+00	9.88E-01
2.49E+00	9.96E-01
2.51E+00	9.97E-01
2.52E+00	9.99E-01
2.53E+00	1.00E+00
2.54E+00	1.00E+00

YV(3):Crop Yield : Fruits	Crop yield for fruits	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used		Value Probability 2.17E+00 0.00E+00 2.20E+00 1.20E-03 2.21E+00 2.40E-03 2.23E+00 6.80E-03 2.25E+00 1.80E-02 2.27E+00 4.36E-02 2.29E+00 7.64E-02 2.31E+00 1.38E-01 2.32E+00 2.14E-01 2.34E+00 3.27E-01 2.36E+00 4.50E-01 2.38E+00 5.76E-01 2.40E+00 6.87E-01 2.42E+00 7.88E-01 2.43E+00 8.68E-01 2.45E+00 9.25E-01 2.47E+00 9.60E-01 2.49E+00 9.81E-01 2.51E+00 9.92E-01 2.53E+00 9.98E-01 2.54E+00 1.00E+00 2.56E+00 1.00E+00
YV(4):Crop Yield : Grains	Crop yield for grains	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value Probability 2.85E-01 0.00E+00 2.90E-01 6.00E-04 3.02E-01 2.80E-03 3.14E-01 9.40E-03 3.26E-01 2.14E-02 3.38E-01 5.42E-02 3.50E-01 1.08E-01 3.62E-01 2.02E-01 3.74E-01 3.15E-01 3.86E-01 4.50E-01 3.98E-01 5.92E-01 4.10E-01 7.20E-01 4.23E-01 8.26E-01 4.35E-01 9.03E-01 4.47E-01 9.51E-01 4.59E-01 9.77E-01 4.71E-01 9.91E-01 4.83E-01 9.96E-01 4.95E-01 9.99E-01 5.07E-01 1.00E+00 5.19E-01 1.00E+00 5.31E-01 1.00E+00
YF(1):Crop Yield : Beef Forage	Crop yield for beef cattle forage	BETA(kg dry wt forage/m**2)
Default value used		Lower Limit 3.70E-01 Upper Limit 5.24E-01 p 2.36E+00 q 1.40E+00
YF(2):Crop Yield : Poultry Forage	Crop yield for poultry forage	DERIVED(kg wet wt forage/m**2)
Default value used		
YF(3):Crop Yield : Milk Cow Forage	Crop yield for milk cow forage	DERIVED(kg wet wt forage/m**2)
Default value used		

YF(4):Crop Yield : Layer Hen Forage	Crop yield for layer hen forage	DERIVED(kg wet wt forage/m**2)
Default value used		
YG(1):Crop Yield : Beef Cow Grain	Crop yield for beef cattle grain	NORMAL(kg dry wt grain /m**2)
Default value used		Mean 5.78E-01 Standard Deviation 7.77E-02
YG(2):Crop Yield : Poultry Grain	Crop yield for poultry grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(3):Crop Yield : Milk Cow Grain	Crop yield for milk cow grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(4):Crop Yield : Layer Hen Grain	Crop yield for layer hen grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YH(1):Crop Yield : Beef Cow Hay	Crop yield for beef cattle hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(2):Crop Yield : Poultry Hay	Crop yield for poultry hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(3):Crop Yield : Milk Cow Hay	Crop yield for milk cow hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(4):Crop Yield : Layer Hen Hay	Crop yield for layer hen hay	DERIVED(kg wet wt/m**2)
Default value used		
WV(1):Wet/dry : Leafy Vegetables	Wet/dry conversion factor for leafy vegetables	CONTINUOUS LINEAR(none)

Default value used

Value	Probability
3.32E-02	0.00E+00
4.89E-02	3.45E-02
5.47E-02	6.91E-02
5.96E-02	1.04E-01
6.36E-02	1.38E-01
6.70E-02	1.73E-01
7.05E-02	2.07E-01
7.38E-02	2.42E-01
7.48E-02	2.50E-01
7.72E-02	2.76E-01
8.03E-02	3.11E-01
8.34E-02	3.45E-01
8.66E-02	3.80E-01
9.00E-02	4.15E-01
9.36E-02	4.49E-01
9.73E-02	4.84E-01
9.91E-02	4.99E-01
1.01E-01	5.18E-01
1.05E-01	5.53E-01
1.09E-01	5.87E-01
1.13E-01	6.22E-01
1.18E-01	6.56E-01
1.23E-01	6.91E-01
1.29E-01	7.25E-01
1.33E-01	7.50E-01
1.35E-01	7.60E-01

1.42E-01	7.94E-01
1.50E-01	8.29E-01
1.59E-01	8.64E-01
1.70E-01	8.98E-01
1.85E-01	9.33E-01
2.10E-01	9.67E-01
2.56E-01	9.91E-01
3.24E-01	1.00E+00

WV(2):Wet/dry : Other Vegetables	Wet/dry conversion factor for other vegetables	CONTINUOUS LINEAR(none)

Default value used

Value	Probability
3.58E-02	0.00E+00
4.87E-02	3.45E-02
5.46E-02	6.91E-02
5.90E-02	1.04E-01
6.29E-02	1.38E-01
6.69E-02	1.73E-01
7.02E-02	2.07E-01
7.34E-02	2.42E-01
7.41E-02	2.50E-01
7.65E-02	2.76E-01
7.99E-02	3.11E-01
8.32E-02	3.45E-01
8.66E-02	3.80E-01
9.05E-02	4.15E-01
9.41E-02	4.49E-01
9.82E-02	4.84E-01
9.98E-02	4.99E-01
1.02E-01	5.18E-01
1.06E-01	5.53E-01
1.09E-01	5.87E-01
1.14E-01	6.22E-01
1.19E-01	6.56E-01
1.24E-01	6.91E-01
1.29E-01	7.25E-01
1.33E-01	7.50E-01
1.35E-01	7.60E-01
1.42E-01	7.94E-01
1.50E-01	8.29E-01
1.59E-01	8.64E-01
1.70E-01	8.98E-01
1.87E-01	9.33E-01
2.12E-01	9.67E-01
2.62E-01	9.91E-01
3.13E-01	1.00E+00

WV(3):Wet/dry : Fruit	Wet/dry conversion factor for fruits	CONTINUOUS LINEAR(none)

Default value used

Value	Probability
3.66E-02	0.00E+00
4.87E-02	3.45E-02
5.45E-02	6.91E-02
5.93E-02	1.04E-01
6.31E-02	1.38E-01
6.72E-02	1.73E-01
7.10E-02	2.07E-01
7.44E-02	2.42E-01
7.52E-02	2.50E-01
7.78E-02	2.76E-01
8.13E-02	3.11E-01
8.45E-02	3.45E-01
8.78E-02	3.80E-01
9.11E-02	4.15E-01
9.46E-02	4.49E-01

	9.82E-02 4.84E-01 9.97E-02 4.99E-01 1.02E-01 5.18E-01 1.06E-01 5.53E-01 1.10E-01 5.87E-01 1.14E-01 6.22E-01 1.19E-01 6.56E-01 1.24E-01 6.91E-01 1.29E-01 7.25E-01 1.34E-01 7.50E-01 1.35E-01 7.60E-01 1.42E-01 7.94E-01 1.49E-01 8.29E-01 1.58E-01 8.64E-01 1.70E-01 8.98E-01 1.87E-01 9.33E-01 2.14E-01 9.67E-01 2.58E-01 9.91E-01 3.25E-01 1.00E+00
WV(4):Wet/dry : Grain Wet/dry conversion factor for grains	CONSTANT(none)
Default value used	Value 8.80E-01
WF(1):Wet/dry : Beef Cow Forage Wet/dry conversion factor for beef cattle forage	BETA(none)
Default value used	Lower Limit 1.83E-01 Upper Limit 3.23E-01 p 1.15E+00 q 1.18E+00
WF(2):Wet/dry : Poultry Forage Wet/dry conversion factor for poultry forage	DERIVED(none)
Default value used	
WF(3):Wet/dry : Milk Cow Forage Wet/dry conversion factor for milk cow forage	DERIVED(none)
Default value used	
WF(4):Wet/dry : Layer Hen Forage Wet/dry conversion factor for layer hen forage	DERIVED(none)
Default value used	
WG(1):Wet/dry : Beef Cow Grain Wet/dry conversion factor for beef cattle grain	CONSTANT(none)
Default value used	Value 8.80E-01
WG(2):Wet/dry : Poultry Grain Wet/dry conversion factor for poultry grain	DERIVED(none)
Default value used	
WG(3):Wet/dry : Milk Cow Grain Wet/dry conversion factor for milk cow grain	DERIVED(none)
Default value used	
WG(4):Wet/dry : Layer Hen Grain Wet/dry conversion factor for layer hen grain	DERIVED(none)
Default value used	
WH(1):Wet/dry : Beef Cow Hay Wet/dry conversion factor for beef cattle hay	DERIVED(none)
Default value used	
WH(2):Wet/dry : Poultry Hay Wet/dry conversion factor for poultry hay	DERIVED(none)
Default value used	

WH(3):Wet/dry : Milk Cow Hay	Wet/dry conversion factor for milk cow hay	DERIVED(none)
Default value used		
WH(4):Wet/dry : Layer Hen Hay	Wet/dry conversion factor for layer hen hay	DERIVED(none)
Default value used		
QF(1):Ingestion Rate : Beef Cow Forage	Ingestion rate for beef cattle forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QF(2):Ingestion Rate : Poultry Forage	Ingestion rate for poultry forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 3.48E-03 Upper Limit 2.82E-02 p 1.51E+00 q 1.41E+00
QF(3):Ingestion Rate : Milk Cow Forage	Ingestion rate for milk cow forage	CONTINUOUS LINEAR(kg dry wt forage/d)
Default value used		Value / Probability 6.35E+00 0.00E+00 6.77E+00 3.45E-02 6.96E+00 6.91E-02 7.10E+00 1.04E-01 7.24E+00 1.38E-01 7.35E+00 1.73E-01 7.47E+00 2.07E-01 7.57E+00 2.42E-01 7.60E+00 2.50E-01 7.67E+00 2.76E-01 7.77E+00 3.11E-01 7.87E+00 3.45E-01 7.98E+00 3.80E-01 8.08E+00 4.15E-01 8.18E+00 4.49E-01 8.31E+00 4.84E-01 8.37E+00 4.99E-01 8.42E+00 5.18E-01 8.54E+00 5.53E-01 8.67E+00 5.87E-01 8.81E+00 6.22E-01 8.95E+00 6.56E-01 9.10E+00 6.91E-01 9.26E+00 7.25E-01 9.38E+00 7.50E-01 9.45E+00 7.60E-01 9.68E+00 7.94E-01 9.93E+00 8.29E-01 1.02E+01 8.64E-01 1.06E+01 8.98E-01 1.11E+01 9.33E-01 1.20E+01 9.67E-01 1.33E+01 9.91E-01 1.53E+01 1.00E+00
QF(4):Ingestion Rate : Layer Hen Forage	Ingestion rate for layer hen forage	BETA(kg dry wt forage/d)

Default value used		Lower Limit 1.19E-02 Upper Limit 2.22E-02 p 1.45E+00 q 7.92E-01
QG(1):Ingestion Rate : Beef Cattle Grain	Ingestion rate for beef cattle grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QG(2):Ingestion Rate : Poultry Grain	Ingestion rate for poultry grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.04E-02 Upper Limit 8.45E-02 p 1.51E+00 q 1.41E+00
QG(3):Ingestion Rate : Milk Cow Grain	Ingestion rate for milk cow grain	NORMAL(kg dry wt grain/d)
Default value used		Mean 1.71E+00 Standard Deviation 2.62E-01
QG(4):Ingestion Rate : Layer Hen Grain	Ingestion rate for layer hen grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 3.58E-02 Upper Limit 6.67E-02 p 1.43E+00 q 7.92E-01
QH(1):Ingestion Rate : Beef Cattle Hay	Ingestion rate for beef cattle hay	BETA(kg dry wt hay/d)
Default value used		Lower Limit 3.38E+00 Upper Limit 4.58E+00 p 1.99E+00 q 9.11E-01
QH(2):Ingestion Rate : Poultry Hay	Ingestion rate for poultry hay	CONSTANT(kg dry wt hay/d)
Default value used		Value 0.00E+00
QH(3):Ingestion Rate : Milk Cow Hay	Ingestion rate for milk cow hay	CONTINUOUS LINEAR(kg dry wt hay/d)
Default value used		Value / Probability 5.12E+00 / 0.00E+00 5.43E+00 / 3.45E-02 5.57E+00 / 6.91E-02 5.68E+00 / 1.04E-01 5.79E+00 / 1.38E-01 5.89E+00 / 1.73E-01 5.98E+00 / 2.07E-01 6.06E+00 / 2.42E-01 6.08E+00 / 2.50E-01 6.14E+00 / 2.76E-01 6.22E+00 / 3.11E-01 6.30E+00 / 3.45E-01 6.38E+00 / 3.80E-01 6.46E+00 / 4.15E-01 6.54E+00 / 4.49E-01 6.63E+00 / 4.84E-01 6.67E+00 / 4.99E-01 6.72E+00 / 5.18E-01 6.81E+00 / 5.53E-01 6.92E+00 / 5.87E-01

	7.03E+00 6.22E-01 7.13E+00 6.56E-01 7.26E+00 6.91E-01 7.39E+00 7.25E-01 7.49E+00 7.50E-01 7.56E+00 7.60E-01 7.70E+00 7.94E-01 7.89E+00 8.29E-01 8.11E+00 8.64E-01 8.39E+00 8.98E-01 8.75E+00 9.33E-01 9.44E+00 9.67E-01 1.05E+01 9.91E-01 1.27E+01 1.00E+00
QH(4):Ingestion Rate : Layer Hen Hay	Ingestion rate for layer hen hay
	CONSTANT(kg dry wt hay/d)
Default value used	Value 0.00E+00
QW(1):Water Rate : Beef Cattle	Water ingestion rate for beef cattle
	CONSTANT(L/d)
Default value used	Value 5.00E+01
QW(2):Water Rate : Poultry	Water ingestion rate for poultry
	CONSTANT(L/d)
Default value used	Value 3.00E-01
QW(3):Water Rate : Milk Cows	Water ingestion rate for milk cows
	CONSTANT(L/d)
Default value used	Value 6.00E+01
QW(4):Water Rate : Layer Hens	Water ingestion rate for layer hens
	CONSTANT(L/d)
Default value used	Value 3.00E-01
QD(1):Soil Fraction : Beef Cattle	Soil intake fraction for beef cattle
	CONSTANT(none)
Default value used	Value 2.00E-02
QD(2):Soil Fraction : Poultry	Soil intake fraction for poultry
	CONSTANT(none)
Default value used	Value 1.00E-01
QD(3):Soil Fraction : Milk Cows	Soil intake fraction for milk cows
	CONSTANT(none)
Default value used	Value 2.00E-02
QD(4):Soil Fraction : Layer Hens	Soil intake fraction for layer hens
	CONSTANT(none)
Default value used	Value 1.00E-01
MLV(1):Mass-Loading : Leafy Vegetables	Mass-loading factor for leafy vegetables
	CONSTANT(none)
Default value used	Value 1.00E-01
MLV(2):Mass-Loading : Other Vegetables	Mass-loading factor for other vegetables
	CONSTANT(none)
Default value used	Value 1.00E-01
MLV(3):Mass-Loading : Fruits	Mass-loading factor for fruits
	CONSTANT(none)
Default value used	Value 1.00E-01
MLV(4):Mass-Loading : Grains	Mass-loading factor for grains
	CONSTANT(none)

Default value used		Value 1.00E-01
LAMBDW:Weathering Rate	Weathering rate for activity removal from plants	CONSTANT(1/d)
Default value used		Value 4.95E-02
MLF(1):Mass-Loading : Beef Cow Forage	Mass-loading factor for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(2):Mass-Loading : Poultry Forage	Mass-loading factor for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(3):Mass-Loading : Milk Cow Forage	Mass-loading factor for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(4):Mass-Loading : Layer Hen Forage	Mass-loading factor for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(1):Mass-Loading : Beef Cattle Grain	Mass-loading factor for beef cattle grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(2):Mass-Loading : Poultry Grain	Mass-loading factor for poultry grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(3):Mass-Loading : Milk Cow Grain	Mass-loading factor for milk cow grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(4):Mass-Loading : Layer Hen Grain	Mass-loading factor for layer hen grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(1):Mass-Loading : Beef Cattle Hay	Mass-loading factor for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(2):Mass-Loading : Poultry Hay	Mass-loading factor for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(3):Mass-Loading : Milk Cow Hay	Mass-loading factor for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(4):Mass-Loading : Layer Hen Hay	Mass-loading factor for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
TFF(1):Feeding Period : Beef Cow Forage	Feeding period for beef cattle forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(2):Feeding Period : Poultry Forage	Feeding period for poultry forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(3):Feeding Period : Milk Cow Forage	Feeding period for milk cow forage	CONSTANT(days)
Default value used		Value 3.65E+02

TFF(4):Feeding Period : Layer Hen Forage	Feeding period for layer hen forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(1):Feeding Period : Beef Cattle Grain	Feeding period for beef cattle grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(2):Feeding Period : Poultry Grain	Feeding period for poultry grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(3):Feeding Period : Milk Cow Grain	Feeding period for milk cow grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(4):Feeding Period : Layer Hen Grain	Feeding period for layer hen grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(1):Feeding Period : Beef Cattle Hay	Feeding period for beef cattle hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(2):Feeding Period : Poultry Hay	Feeding period for poultry hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(3):Feeding Period : Milk Cow Hay	Feeding period for milk cow hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(4):Feeding Period : Layer Hen Hay	Feeding period for layer hen hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(1):Water Period : Beef Cattle	Water ingestion period for beef cattle	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(2):Water Period : Poultry	Water ingestion period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(3):Water Period : Milk Cows	Water ingestion period for milk cows	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(4):Water Period : Layer Hens	Water ingestion period for layer hens	CONSTANT(days)
Default value used		Value 3.65E+02
fha(1):Hydrogen Fraction : Beef Cattle	Hydrogen fraction for beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
fha(2):Hydrogen Fraction : Poultry	Hydrogen fraction for poultry	CONSTANT(none)
Default value used		Value 1.00E-01
fha(3):Hydrogen Fraction : Milk Cows	Hydrogen fraction for milk cows	CONSTANT(none)
Default value used		Value 1.10E-01
fha(4):Hydrogen Fraction : Eggs	Hydrogen fraction for eggs	CONSTANT(none)

Default value used		Value 1.10E-01
fhv(1):Hydrogen Fraction : Leafy Vegetables	Hydrogen fraction for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(2):Hydrogen Fraction : Other Vegetables	Hydrogen fraction for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(3):Hydrogen Fraction : Fruits	Hydrogen fraction for fruits	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(4):Hydrogen Fraction : Grains	Hydrogen fraction for grains	CONSTANT(none)
Default value used		Value 6.80E-02
fhf(1):Hydrogen Fraction : Beef Cow Forage	Hydrogen fraction for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(2):Hydrogen Fraction : Poultry Forage	Hydrogen fraction for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(3):Hydrogen Fraction : Milk Cow Forage	Hydrogen fraction for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(4):Hydrogen Fraction : Layer Hen Forage	Hydrogen fraction for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(1):Hydrogen Fraction : Beef Cattle Hay	Hydrogen fraction for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(2):Hydrogen Fraction : Poultry Hay	Hydrogen fraction for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(3):Hydrogen Fraction : Milk Cow Hay	Hydrogen fraction for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(4):Hydrogen Fraction : Layer Hen Hay	Hydrogen fraction for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhg(1):Hydrogen Fraction : Beef Cattle Grain	Hydrogen fraction for beef cattle grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(2):Hydrogen Fraction : Poultry Grain	Hydrogen fraction for poultry grain	CONSTANT(none)
Default value used		Value 6.80E-02

fhg(3):Hydrogen Fraction : Milk Cow Grain	Hydrogen fraction for milk cow grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(4):Hydrogen Fraction : Layer Hen Grain	Hydrogen fraction for layer hen grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhd016:Hydrogen Fraction : Soil	Fraction of hydrogen in soil	DERIVED(none)
Default value used		
sasvh:Tritium Equivalence: Plant/Soil	Tritium equivalence: plant/soil	CONSTANT(none)
Default value used		Value 1.00E+00
sawvh:Tritium Equivalence: Plant/Water	Tritium equivalence: plant/water	CONSTANT(none)
Default value used		Value 1.00E+00
satah:Tritium Equivalence: Animal Products	Tritium equivalence: animal product intake	CONSTANT(none)
Default value used		Value 1.00E+00
YA(1):Animal Product Yield : Beef Cattle	Annual yield of beef per individual animal	CONSTANT(kg/y)
Default value used		Value 2.09E+02
YA(2):Animal Product Yield : Poultry	Annual yield of chicken per individual animal	CONSTANT(kg/y)
Default value used		Value 1.53E+00
YA(3):Animal Product Yield : Milk Cows	Annual yield of milk per individual animal	CONSTANT(L/y)
Default value used		Value 7.41E+03
YA(4):Animal Product Yield : Layer Hens	Annual yield of eggs per individual animal	CONSTANT(kg/y)
Default value used		Value 1.26E+01
ARExt:External Exposure Area	Minimum surface area to which resident is exposed via external radiation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARInh:Inhalation Exposure Area	Minimum surface area to which resident is exposed via inhalation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARIng:Secondary Ingestion Exposure Area	Minimum surface area to which resident is exposed via secondary ingestion during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARAgr:Agricultural Exposure Area	Minimum surface area to which resident is exposed via any agricultural product during residential period	DERIVED(m**2)
Default value used		
ARH2O:Groundwater Exposure Area	Minimum surface area to which resident is exposed via groundwater during residential period	DERIVED(m**2)

Default value used		
ARAll:Exposure Area	Minimum surface area to which resident is exposed via any pathway during the residential period	DERIVED(m**2)
Default value used		

Element Dependant Parameters

Parameter Name	Description	Distribution
Co:Coefficient	Partition coefficient for Co	CONTINUOUS LINEAR(Log10(mL/g))
Default value used		Value / Probability -2.47E+00 0.00E+00 1.95E-01 3.45E-02 7.70E-01 6.91E-02 1.13E+00 1.04E-01 1.39E+00 1.38E-01 1.59E+00 1.73E-01 1.77E+00 2.07E-01 1.91E+00 2.42E-01 1.95E+00 2.50E-01 2.04E+00 2.76E-01 2.16E+00 3.11E-01 2.28E+00 3.45E-01 2.38E+00 3.80E-01 2.47E+00 4.15E-01 2.56E+00 4.49E-01 2.65E+00 4.84E-01 2.69E+00 4.99E-01 2.73E+00 5.18E-01 2.82E+00 5.53E-01 2.90E+00 5.87E-01 2.97E+00 6.22E-01 3.05E+00 6.56E-01 3.13E+00 6.91E-01 3.21E+00 7.25E-01 3.28E+00 7.50E-01 3.30E+00 7.60E-01 3.39E+00 7.94E-01 3.48E+00 8.29E-01 3.58E+00 8.64E-01 3.70E+00 8.98E-01 3.84E+00 9.33E-01 4.03E+00 9.67E-01 4.30E+00 9.91E-01 4.65E+00 1.00E+00
Co:Leafy	Leafy plant concentration factor for Co	LOGNORMAL-N(pCi/kg dry-wt leafy per pCi/kg soil)
Default value used		Mean of Ln(X) -2.43E+00 Standard Deviation of Ln 1.55E+00
Co:Root	Root plant concentration factor for Co	LOGNORMAL-N(pCi/kg wet-wt roots per pCi/kg soil)
Default value used		Mean of Ln(X) -4.20E+00 Standard Deviation of Ln 1.19E+00
Co:Fruit	Fruit concentration factor for Co	LOGNORMAL-N(pCi/kg wet-wt fruit per pCi/kg soil)
Default value used		Mean of Ln(X) -4.20E+00 Standard Deviation of Ln 1.19E+00

Co:Grain	Grain concentration factor for Co	LOGNORMAL-N(pCi/kg wet-wt grain per pCi/kg soil)
Default value used		Mean of Ln(X) -4.20E+00 Standard Deviation of Ln 1.19E+00
Co:Beef	Beef transfer factor for Co	CONSTANT(d/kg)
Default value used		Value 2.00E-02
Co:Poultry	Poultry transfer factor for Co	CONSTANT(d/kg)
Default value used		Value 5.00E-01
Co:Milk	Milk transfer factor for Co	CONSTANT(d/L)
Default value used		Value 2.00E-03
Co:Eggs	Egg transfer factor for Co	CONSTANT(d/kg)
Default value used		Value 1.00E-01
Co:Factor	Bioaccumulation factor for Co in fish	CONSTANT(pCi/kg wet-wt fish per pCi/L water)
Default value used		Value 3.30E+02

Correlation Coefficients:

Parameter One	Parameter Two	Correlation Coefficient
KSDEV:Permeability Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		
NDEV:Porosity Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		

Summary Results:

90.00% **of the** 100 **calculated TEDE values are <** 6.60E+01 **mrem/year .**
The 95 % Confidence Interval for the 0.9 **quantile value of TEDE is** 6.55E+01 **to** 6.68E+01 **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	Soil Concentration (pCi/g)	Water Concentration (pCi/g)
60Co	1.00E+01	6.73E-16

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
6.68E+01	4.84E+00	8.37E-18	5.97E-17	6.20E+01	7.42E-04	3.57E-03	4.89E-17

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
60Co	6.68E+01
All Nuclides	6.68E+01

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
60Co	4.84E+00	8.37E-18	5.97E-17	6.20E+01	7.42E-04	3.57E-03	4.89E-17

Zn-65
DandD Residential Scenario

DandD Results

$$\frac{10\ pCi/g}{2.14E1\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 11.68\ pCi/g$$

NUREG/CR 5512, Volume 3, Table 6.91 (Pcrit = 0.90)
Zn-65 = 1.08 E1 pCi/g

DandD Residential Scenario

DandD Version: 2.1.0
Run Date/Time: 1/23/04 11:51:58 AM
Site Name: Pathfinder
Description: Zn-65 screening value for soils
FileName:C:\DandD_Docs\Pathfinder soil Zn65.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON
Agricultural Pathway is ON
Drinking Water Pathway is ON
Irrigation Pathway is ON
Surface Water Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
65Zn	UNLIMITED	CONSTANT(pCi/g)
Justification for concentration: Develop DCGL screening value for Zn-65		Value 1.00E+01

Chain Data:

Number of chains: 1

Chain No. 1: **65Zn**
Nuclides in chain: **1**

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))
65Zn	1	2.44E+02					3.90E-09	5.51E-09	4.78E-11	1.45E-12

Initial Concentrations:

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

Nuclide	Soil Concentration (pCi/g)
65Zn	1.00E+01

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
Tv (1):Translocation:Leafy	Translocation factor for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E+00
Tv(2):Translocation:Root	Translocation factor for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (3):Translocation:Fruit	Translocation factor for fruit	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (4):Translocation:Grain	Translocation factor for grain	CONSTANT(none)
Default value used		Value 1.00E-01
Tf(1):Translocation:Beef Forage	Translocation factor for forage consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (2):Translocation:Poultry Forage	Translocation factor for forage consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E+00
Tf(3):Translocation:Milk Cow	Translocatioin factor for forage consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (4):Translocation:Layer Hen Forage	Translocation factor for forage consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
Tg(1):Translocation:Beef Grain	Translocation factor for stored grain consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (2):Translocation:Poultry Grain	Translocation factor for stored grain consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E-01
Tg(3):Translocation:Milk Cow Grain	Translocation factor for stored grain consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (4):Translocation:Layer Hen Grain	Translocation factor for stored grain consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E-01
Th(1):Translocation:Beef Hay	Translocation factor for stored hay consumed by beef cattle	CONSTANT(none)

Default value used		Value 1.00E+00
Th (2):Translocation:Poultry Hay	*Translocation factor for stored hay consumed by poultry*	CONSTANT(none)
Default value used		Value 1.00E+00
Th (3):Translocation:Milk Cow Hay	Translocation factor for stored hay consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Th (4):Translocation:Layer Hen Hay	Translocation factor for stored hay consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
fca(1):Beef Carbon Fraction	Mass fraction of beef cattle that is carbon	CONSTANT(none)
Default value used		Value 3.60E-01
fca(2):Poultry Carbon Fraction	*Mass fraction of poultry that is carbon*	CONSTANT(none)
Default value used		Value 1.80E-01
fca(3):Milk Carbon Fraction	Mass fraction of milk that is carbon	CONSTANT(none)
Default value used		Value 6.00E-02
fca(4):Eggs Carbon Fraction	Mass fraction of an egg that is carbon	CONSTANT(none)
Default value used		Value 1.60E-01
fcf(1):Beef Forage Carbon Fraction	Mass fraction of wet forage consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(2):Poultry Forage Carbon Fraction	Mass fraction of wet forage consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(3):Milk Cow Forage Carbon Fraction	Mass fraction of wet forage consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(4):Layer Hen Forage Carbon Fraction	Mass fraction of wet forage consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcg(1):Beef Grain Carbon Fraction	Mass fraction of wet stored grain consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(2):Poultry Grain Carbon Fraction	Mass fraction of wet stored grain consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(3):Milk Cow Grain Carbon Fraction	Mass fraction of wet stored grain consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(4):Layer Hen Grain Carbon Fraction	Mass fraction of wet stored grain consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fch(1):Beef Hay Carbon Fraction	Mass fraction of wet stored hay consumed by beef cattle that is carbon	CONSTANT(none)

Default value used		Value 7.00E-02
fch(2):Poultry Hay Carbon Fraction	Mass fraction of wet stored hay consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(3):Milk Cow Hay Carbon Fraction	Mass fraction of wet stored hay consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(4):Layer Hen Hay Carbon Fraction	Mass fraction of wet stored hay consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fCd:Soil Carbon Fraction	Mass fraction of dry soil that is carbon	CONSTANT(none)
Default value used		Value 3.00E-02
SATac:Animal Product Specific Activity	Specific activity equivalence of animal product and specific activity of animal feed, forage, and soil	CONSTANT(none)
Default value used		Value 1.00E+00
xf(1):Beef Forage Contaminated Fraction	Fraction of forage consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(2):Poultry Forage Contaminated Fraction	Fraction of forage consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(3):Milk Cow Forage Contaminated Fraction	Fraction of forage consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(4):Layer Hen Forage Contaminated Fraction	Fraction of forage consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(1):Beef Grain Contaminated Fraction	Fraction of stored grain consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(2):Poultry Grain Contaminated Fraction	Fraction of stored grain consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(3):Milk Cow Grain Contaminated Fraction	Fraction of stored grain consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(4):Layer Hen Grain Contaminated Fraction	Fraction of stored grain that is consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(1):Beef Hay Contaminated Fraction	Fraction of stored hay consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(2):Poultry Hay Contaminated Fraction	Fraction of stored hay consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(3):Milk Cow Hay Contaminated Fraction	Fraction of stored hay consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00

xh(4):Layer Hen Hay Contaminated Fraction	Fraction of stored hay consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(1):Beef Water Contaminated Fraction	Fraction of water that is consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(2):Poultry Water Contaminated Fraction	Fraction of water consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(3):Milk Cow Water Contaminated Fraction	Fraction of water consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(4):Layer Hen Water Contaminated Fraction	Fraction of water consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
DIET:Garden Diet	Fraction of human diet grown onsite	CONSTANT(none)
Default value used		Value 1.00E+00
Uv(1):Diet - Leafy	Yearly human consumption of leafy vegetables	CONSTANT(kg/y)
Default value used		Value 2.14E+01
Uv(2):Diet - Roots	Yearly human consumption of other vegetables	CONSTANT(kg/y)
Default value used		Value 4.46E+01
Uv(3):Diet - Fruit	Yearly human consumption of fruits	CONSTANT(kg/y)
Default value used		Value 5.28E+01
Uv(4):Diet - Grain	Yearly human consumption of grains	CONSTANT(kg/y)
Default value used		Value 1.44E+01
Ua(1):Diet - Beef	Yearly human consumption of beef	CONSTANT(kg/y)
Default value used		Value 3.98E+01
Ua(2):Diet - Poultry	Yearly human consumption of poultry	CONSTANT(kg/y)
Default value used		Value 2.53E+01
Ua(3):Diet - Milk	Yearly human consumption of milk	CONSTANT(L/y)
Default value used		Value 2.33E+02
Ua(4):Diet - Egg	Yearly human consumption of eggs	CONSTANT(kg/y)
Default value used		Value 1.91E+01
Uf:Diet - Fish	Yearly human consumption of fish produced from an onsite pond	CONSTANT(kg/y)
Default value used		Value 2.06E+01
tf:Consumption Period	Consumption period for fish	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(1):Consumption Period - Leafy	Food consumption period for leafy vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(2):Consumption Period - Roots	Food consumption period for other vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(3):Consumption Period - Fruit	Food consumption period for fruits	CONSTANT(days)

Default value used		Value 3.65E+02
tcv(4):Consumption Period - Grain	Food consumption period for grains	CONSTANT(days)
Default value used		Value 3.65E+02
tca(1):Consumption Period - Beef	Food consumption period for beef	CONSTANT(days)
Default value used		Value 3.65E+02
tca(2):Consumption Period - Poultry	Food consumption period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
tca(3):Consumption Period - Milk	Food consumption period for milk	CONSTANT(days)
Default value used		Value 3.65E+02
tca(4):Consumption Period - Egg	Food consumption period for eggs	CONSTANT(days)
Default value used		Value 3.65E+02
Nunsat:Number of Unsaturated Layers	Number of model layers used to represent the unsaturated zone	CONSTANT(none)
Default value used		Value 1.00E+01
TstartR:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
TendR:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+05
dtR:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 3.65E+02
PstepR:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Default value used		Value 1.00E+00
TI:Indoor Exposure Period	The time the resident spends indoors	CONSTANT(days/year)
Default value used		Value 2.40E+02
TX:Outdoor Exposure Period	The time the resident spends outdoors	CONSTANT(days/year)
Default value used		Value 4.02E+01
TG:Gardening Period	The time the resident spends gardening	CONSTANT(days/year)
Default value used		Value 2.92E+00
TTR:Total time in period	Total time in the one year exposure period	CONSTANT(days/year)
Default value used		Value 3.65E+02
SFI:Indoor Shielding Factor	Shielding factor for the residence	CONSTANT(none)
Default value used		Value 5.52E-01
SFO:Outdoor Shielding Factor	Shielding factor for the cover soil	CONSTANT(none)
Default value used		Value 1.00E+00
PD:Floor dust loading	Floor dust loading	UNIFORM(g/m**2)
Default value used		Lower Limit 2.00E-02 Upper Limit 3.00E-01

RFR:Indoor Resuspension Factor	Resuspension factor for indoor dust	LOGUNIFORM(1/m)
Default value used		Lower Limit 1.00E-07 Upper Limit 8.00E-05
CDO:Outdoor Dust Loading	Average dust loading outdoors	LOGUNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-07 Upper Limit 1.00E-04
CDI:Indoor Dust Loading	Average dust loading indoors	DERIVED(g/m**3)
Default value used		
PF:Indoor/Outdoor Penetration Factor	Fraction of outdoor dust in indoor air	UNIFORM(none)
Default value used		Lower Limit 2.00E-01 Upper Limit 7.00E-01
CDG:Gardening Dust Loading	Average dust loading while gardening	UNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-04 Upper Limit 7.00E-04
VR:Indoor Breathing Rate	Breathing rate while indoors	CONSTANT(m**3/hr)
Default value used		Value 9.00E-01
VX:Outdoor Breathing Rate	Breathing rate while outdoors	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
VG:Gardening Breathing Rate	Breathing rate while gardening	CONSTANT(m**3/hr)
Default value used		Value 1.70E+00
GR:Soil Ingestion Transfer Rate	Average rate of soil ingestion	CONSTANT(g/d)
Default value used		Value 5.00E-02
UW:Diet - Water	Drinking water ingestion rate	CONSTANT(L/d)
Default value used		Value 1.26E+00
H1:Surface Soil Thickness	Thickness of the surface soil layer	CONSTANT(m)
Default value used		Value 1.50E-01
H2:Unsaturated Zone Thickness	Thickness of the unsaturated zone	CONTINUOUS LINEAR(m)

Default value used

Value	Probability
3.05E-01	0.00E+00
6.68E-01	4.76E-03
8.11E-01	9.52E-03
9.21E-01	1.43E-02
9.94E-01	1.91E-02
1.03E+00	2.38E-02
1.07E+00	2.86E-02
1.14E+00	3.33E-02
1.21E+00	3.81E-02
1.30E+00	4.29E-02
1.31E+00	4.76E-02
1.32E+00	5.24E-02
1.56E+00	5.71E-02
1.58E+00	6.19E-02
1.61E+00	6.67E-02

1.69E+00	7.62E-02
1.78E+00	8.57E-02
1.80E+00	9.05E-02
1.81E+00	9.52E-02
1.84E+00	1.00E-01
1.87E+00	1.05E-01
1.92E+00	1.10E-01
2.04E+00	1.14E-01
2.10E+00	1.19E-01
2.11E+00	1.24E-01
2.32E+00	1.29E-01
2.36E+00	1.33E-01
2.37E+00	1.38E-01
2.39E+00	1.43E-01
2.44E+00	1.48E-01
2.44E+00	1.52E-01
2.45E+00	1.57E-01
2.59E+00	1.62E-01
2.63E+00	1.67E-01
2.69E+00	1.71E-01
2.79E+00	1.76E-01
2.81E+00	1.81E-01
2.90E+00	1.86E-01
2.95E+00	1.91E-01
3.07E+00	1.95E-01
3.18E+00	2.00E-01
3.22E+00	2.05E-01
3.30E+00	2.10E-01
3.34E+00	2.14E-01
3.37E+00	2.19E-01
3.44E+00	2.24E-01
3.58E+00	2.29E-01
3.62E+00	2.33E-01
3.66E+00	2.38E-01
3.74E+00	2.43E-01
3.86E+00	2.48E-01
3.88E+00	2.52E-01
4.17E+00	2.57E-01
4.26E+00	2.62E-01
4.44E+00	2.71E-01
4.63E+00	2.76E-01
4.87E+00	2.81E-01
5.13E+00	2.86E-01
5.18E+00	2.91E-01
5.54E+00	2.95E-01
5.83E+00	3.00E-01
5.86E+00	3.05E-01
5.86E+00	3.10E-01
5.90E+00	3.14E-01
6.06E+00	3.19E-01
6.13E+00	3.24E-01
6.17E+00	3.29E-01
6.22E+00	3.33E-01
6.31E+00	3.38E-01
6.36E+00	3.43E-01
6.40E+00	3.48E-01
6.46E+00	3.52E-01
6.51E+00	3.57E-01
6.55E+00	3.62E-01
6.60E+00	3.67E-01
6.86E+00	3.71E-01
6.93E+00	3.76E-01
6.95E+00	3.86E-01
6.97E+00	3.91E-01

7.09E+00	3.95E-01
7.18E+00	4.00E-01
7.35E+00	4.05E-01
7.36E+00	4.10E-01
7.40E+00	4.14E-01
7.43E+00	4.19E-01
7.46E+00	4.24E-01
7.59E+00	4.29E-01
7.60E+00	4.33E-01
7.64E+00	4.38E-01
7.87E+00	4.43E-01
8.10E+00	4.48E-01
8.28E+00	4.52E-01
8.35E+00	4.57E-01
8.71E+00	4.62E-01
8.71E+00	4.67E-01
8.73E+00	4.71E-01
8.79E+00	4.76E-01
8.80E+00	4.81E-01
8.82E+00	4.86E-01
8.85E+00	4.91E-01
8.89E+00	4.95E-01
8.90E+00	5.00E-01
8.99E+00	5.05E-01
9.00E+00	5.10E-01
9.13E+00	5.14E-01
9.14E+00	5.19E-01
9.21E+00	5.24E-01
9.31E+00	5.29E-01
9.55E+00	5.33E-01
9.60E+00	5.38E-01
9.63E+00	5.43E-01
9.86E+00	5.48E-01
1.05E+01	5.52E-01
1.07E+01	5.57E-01
1.13E+01	5.62E-01
1.15E+01	5.67E-01
1.17E+01	5.71E-01
1.20E+01	5.76E-01
1.26E+01	5.81E-01
1.26E+01	5.86E-01
1.28E+01	5.91E-01
1.32E+01	5.95E-01
1.32E+01	6.00E-01
1.34E+01	6.05E-01
1.34E+01	6.10E-01
1.36E+01	6.14E-01
1.37E+01	6.19E-01
1.38E+01	6.24E-01
1.41E+01	6.29E-01
1.45E+01	6.33E-01
1.51E+01	6.38E-01
1.52E+01	6.43E-01
1.61E+01	6.48E-01
1.62E+01	6.52E-01
1.65E+01	6.57E-01
1.66E+01	6.62E-01
1.69E+01	6.67E-01
1.74E+01	6.71E-01
1.82E+01	6.76E-01
1.84E+01	6.81E-01
1.84E+01	6.86E-01
1.87E+01	6.91E-01

1.95E+01	6.95E-01
2.01E+01	7.00E-01
2.07E+01	7.05E-01
2.08E+01	7.10E-01
2.17E+01	7.14E-01
2.24E+01	7.19E-01
2.27E+01	7.24E-01
2.29E+01	7.29E-01
2.29E+01	7.33E-01
2.40E+01	7.38E-01
2.47E+01	7.43E-01
2.60E+01	7.48E-01
2.65E+01	7.52E-01
2.72E+01	7.57E-01
2.73E+01	7.62E-01
2.76E+01	7.67E-01
2.77E+01	7.71E-01
2.78E+01	7.76E-01
2.80E+01	7.81E-01
2.86E+01	7.86E-01
2.94E+01	7.91E-01
3.01E+01	7.95E-01
3.03E+01	8.00E-01
3.06E+01	8.10E-01
3.08E+01	8.14E-01
3.11E+01	8.19E-01
3.17E+01	8.24E-01
3.17E+01	8.29E-01
3.17E+01	8.33E-01
3.22E+01	8.38E-01
3.39E+01	8.43E-01
3.48E+01	8.48E-01
3.54E+01	8.52E-01
3.60E+01	8.57E-01
3.68E+01	8.62E-01
4.03E+01	8.67E-01
4.07E+01	8.71E-01
4.24E+01	8.76E-01
4.29E+01	8.81E-01
4.42E+01	8.86E-01
4.72E+01	8.91E-01
4.97E+01	8.95E-01
5.12E+01	9.00E-01
6.13E+01	9.05E-01
6.19E+01	9.10E-01
6.23E+01	9.14E-01
6.32E+01	9.19E-01
6.59E+01	9.24E-01
6.73E+01	9.29E-01
7.47E+01	9.33E-01
7.92E+01	9.38E-01
8.12E+01	9.43E-01
8.28E+01	9.48E-01
8.47E+01	9.52E-01
8.96E+01	9.57E-01
9.47E+01	9.62E-01
1.08E+02	9.67E-01
1.13E+02	9.71E-01
1.15E+02	9.76E-01
1.42E+02	9.81E-01
1.77E+02	9.86E-01
1.78E+02	9.91E-01
1.80E+02	9.95E-01
3.16E+02	1.00E+00

N1:Surface Soil Porosity	Porosity of the surface soil layer	DERIVED(none)
Default value used		
N2:Unsaturated Zone Porosity	Porosity of the unsaturated zone	DERIVED(none)
Default value used		
F1:Surface Soil Saturation	Saturation ratio of the surface soil layer	DERIVED(none)
Default value used		
F2:Unsaturated Zone Saturation	Saturation ratio of the unsaturated zone	DERIVED(none)
Default value used		
INFIL:Infiltration Rate	Net rate of infiltration to aquifer	DERIVED(m/y)
Default value used		
SCSST:Soil Classification	SCS soil classification ID	DISCRETE CUMULATIVE(none)

Default value used

Value	Probability
1.00E+00	1.00E-04
2.00E+00	1.34E-03
3.00E+00	1.06E-02
4.00E+00	2.51E-02
5.00E+00	6.17E-02
6.00E+00	1.09E-01
7.00E+00	1.62E-01
8.00E+00	2.12E-01
9.00E+00	2.85E-01
1.00E+01	5.10E-01
1.10E+01	7.58E-01
1.20E+01	1.00E+00

NDEV:Porosity Probability	Relative porosity value within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

KSDEV:Permeability Probability	Relative permeability value within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

BDEV:Parameter "b" Probability	Relative value of "b" parameter within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

AP:Water Application Rate	Total water application rate on cultivated area	CONTINUOUS LINEAR(m/y)

Default value used

Value	Probability
6.07E-01	0.00E+00
6.10E-01	4.62E-01
6.35E-01	4.76E-01
7.62E-01	5.40E-01
8.89E-01	6.29E-01
1.02E+00	7.05E-01
1.14E+00	8.04E-01
1.27E+00	8.79E-01
1.40E+00	9.41E-01
1.52E+00	9.82E-01
1.65E+00	9.98E-01
1.78E+00	1.00E+00

IR:Irrigation Rate	Annual average irrigation rate	CONSTANT(L/m**2-d)

Default value used		Value 1.29E+00
RHO1:Surface Soil Density	Bulk density of soil in the surface soil layer	DERIVED(g/mL)
Default value used		
RHO2:Unsaturated Zone Density	Bulk density of soil in the unsaturated zone	DERIVED(g/mL)
Default value used		
Ksat1:Surface Soil Permeabiliy	Saturated permeability of the surface soil layer	DERIVED(cm/sec)
Default value used		
VDR:Volume of Water Consumed	Volume of water withdrawn for consumptive use	CONSTANT(L)
Default value used		Value 1.18E+05
VSW:Volume of Water in Pond	Volume of water in the pond	CONSTANT(L)
Default value used		Value 1.30E+06
AR:Cultivated Area	Area of land cultivated	DERIVED(m**2)
Default value used		
sh:Soil Moisture Content	Moisture content of soil	DERIVED(none)
Default value used		
TTG:Gardening Period	Total time in gardening period	CONSTANT(days)
Default value used		Value 9.00E+01
TD:Drinking-water consumption period	Drinking-water consumption period	CONSTANT(days)
Default value used		Value 3.65E+02
THV(1):Holdup Period : Leafy	Holdup period for leafy vegetables	CONSTANT(days)
Default value used		Value 1.00E+00
THV(2):Holdup Period : Other vegetables	Holdup period for other vegetables	CONSTANT(days)
Default value used		Value 1.40E+01
THV(3):Holdup Period : Fruits	Holdup period for fruits	CONSTANT(days)
Default value used		Value 1.40E+01
THV(4):Holdup Period : Grains	Holdup period for grains	CONSTANT(days)
Default value used		Value 1.40E+01
THA(1):Holdup Period : Beef	Holdup period for beef	CONSTANT(days)
Default value used		Value 2.00E+01
THA(2):Holdup Period : Poultry	Holdup period for poultry	CONSTANT(days)
Default value used		Value 1.00E+00
THA(3):Holdup Period : Milk	Holdup period for milk	CONSTANT(days)
Default value used		Value 1.00E+00
THA(4):Holdup Period : Eggs	Holdup period for eggs	CONSTANT(days)
Default value used		Value 1.00E+00

TGV(1):Growing Period : Leafy	Minimum growing period for leafy vegetables	CONSTANT(days)
Default value used		Value 4.50E+01
TGV(2):Growing Period : Other vegetables	Minimum growing period for other vegetables	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(3):Growing Period : Fruits	Minimum growing period for fruits	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(4):Growing Period : Grains	Minimum growing period for grains	CONSTANT(days)
Default value used		Value 9.00E+01
TGF(1):Growing Period : Beef Forage	Minimum growing period for forage consumed by beef cattle	CONSTANT(days)
Default value used		Value 3.00E+01
TGF(2):Growing Period : Poultry Forage	Minimum growing period for forage consumed by poultry	DERIVED(days)
Default value used		
TGF(3):Growing Period : Milk Cow Forage	Minimum growing period for forage consumed by milk cows	DERIVED(days)
Default value used		
TGF(4):Growing Period : Layer Hen Forage	Minimum growing period for forage consumed by layer hens	DERIVED(days)
Default value used		
TGG(1):Growing Period : Beef Cow Grain	Minimum growing period for stored grain consumed by beef cattle	CONSTANT(days)
Default value used		Value 9.00E+01
TGG(2):Growing Period : Poultry Grain	Minimum growing period for stored grain consumed by poultry	DERIVED(days)
Default value used		
TGG(3):Growing Period : Milk Cow Grain	Minimum growing period for stored grain consumed by milk cows	DERIVED(days)
Default value used		
TGG(4):Growing Period : Layer Hen Grain	Minimum growing period for stored grain consumed by layer hens	DERIVED(days)
Default value used		
TGH(1):Growing Period : Beef Cow Hay	Minimum growing period for stored hay consumed by beef cattle	CONSTANT(days)
Default value used		Value 4.50E+01
TGH(2):Growing Period : Poultry Hay	Minimum growing period for stored hay consumed by poultry	DERIVED(days)
Default value used		
TGH(3):Growing Period : Milk Cow Hay	Minimum growing period for stored hay consumed by milk cows	DERIVED(days)
Default value used		
TGH(4):Growing Period : Layer Hen Hay	Minimum growing period for stored hay consumed by layer hens	DERIVED(days)
Default value used		
RV(1):Interception Fraction : Leafy	Interception fraction for leafy vegetables	UNIFORM(none)

Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(2):Interception Fraction : Other vegetables	Interception fraction for other vegetables	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(3):Interception Fraction : Fruits	Interception fraction for fruits	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(4):Interception Fraction : Grains	Interception fraction for grains	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(1):Interception Fraction : Beef Forage	Interception fraction for beef cattle forage	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(2):Interception Fraction : Poultry forage	Interception fraction for poultry forage	DERIVED(none)
Default value used		
RF(3):Interception Fraction : Milk Cow Forage	Interception fraction for milk cow forage	DERIVED(none)
Default value used		
RF(4):Interception Fraction : Layer Hen Forage	Interception fraction for layer hen forage	DERIVED(none)
Default value used		
RG(1):Interception Fraction : Beef Cow Grain	Interception fraction for beef cattle grain	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RG(2):Interception Fraction : Poultry Grain	Interception fraction for poultry grain	DERIVED(none)
Default value used		
RG(3):Interception Fraction : Milk Cow Grain	Interception fraction for milk cow grain	DERIVED(none)
Default value used		
RG(4):Interception Fraction : Layer Hen Grain	Interception fraction for layer hen grain	DERIVED(none)
Default value used		
RH(1):Interception Fraction : Beef Cow Hay	Interception fraction for beef cattle hay	DERIVED(none)
Default value used		
RH(2):Interception Fraction : Poultry Hay	Interception fraction for poultry hay	DERIVED(none)
Default value used		
RH(3):Interception Fraction : Milk Cow Hay	Interception fraction for milk cow hay	DERIVED(none)

Default value used		
RH(4):Interception Fraction : Layer Hen Hay	Interception fraction for layer hen hay	DERIVED(none)
Default value used		
YV(1):Crop Yield : Leafy	Crop yield for leafy vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value / Probability 2.70E+00 0.00E+00 2.71E+00 1.60E-03 2.74E+00 6.00E-03 2.76E+00 1.76E-02 2.78E+00 4.36E-02 2.80E+00 8.48E-02 2.82E+00 1.56E-01 2.85E+00 2.57E-01 2.87E+00 3.64E-01 2.89E+00 5.00E-01 2.91E+00 6.39E-01 2.93E+00 7.46E-01 2.96E+00 8.42E-01 2.98E+00 9.09E-01 3.00E+00 9.60E-01 3.02E+00 9.84E-01 3.04E+00 9.94E-01 3.07E+00 9.97E-01 3.09E+00 9.99E-01 3.11E+00 1.00E+00 3.13E+00 1.00E+00 3.15E+00 1.00E+00
YV(2):Crop Yield : Other	Crop yield for other vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value / Probability 2.26E+00 0.00E+00 2.29E+00 8.00E-04 2.30E+00 1.20E-03 2.31E+00 6.40E-03 2.33E+00 1.52E-02 2.34E+00 3.28E-02 2.35E+00 7.44E-02 2.36E+00 1.40E-01 2.38E+00 2.49E-01 2.39E+00 3.80E-01 2.40E+00 5.30E-01 2.42E+00 6.61E-01 2.43E+00 7.88E-01 2.44E+00 8.86E-01 2.45E+00 9.42E-01 2.47E+00 9.75E-01 2.48E+00 9.88E-01 2.49E+00 9.96E-01 2.51E+00 9.97E-01 2.52E+00 9.99E-01 2.53E+00 1.00E+00 2.54E+00 1.00E+00
YV(3):Crop Yield : Fruits	Crop yield for fruits	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used		Value Probability 2.17E+00 0.00E+00 2.20E+00 1.20E-03 2.21E+00 2.40E-03 2.23E+00 6.80E-03 2.25E+00 1.80E-02 2.27E+00 4.36E-02 2.29E+00 7.64E-02 2.31E+00 1.38E-01 2.32E+00 2.14E-01 2.34E+00 3.27E-01 2.36E+00 4.50E-01 2.38E+00 5.76E-01 2.40E+00 6.87E-01 2.42E+00 7.88E-01 2.43E+00 8.68E-01 2.45E+00 9.25E-01 2.47E+00 9.60E-01 2.49E+00 9.81E-01 2.51E+00 9.92E-01 2.53E+00 9.98E-01 2.54E+00 1.00E+00 2.56E+00 1.00E+00
YV(4):Crop Yield : Grains	Crop yield for grains	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value Probability 2.85E-01 0.00E+00 2.90E-01 6.00E-04 3.02E-01 2.80E-03 3.14E-01 9.40E-03 3.26E-01 2.14E-02 3.38E-01 5.42E-02 3.50E-01 1.08E-01 3.62E-01 2.02E-01 3.74E-01 3.15E-01 3.86E-01 4.50E-01 3.98E-01 5.92E-01 4.10E-01 7.20E-01 4.23E-01 8.26E-01 4.35E-01 9.03E-01 4.47E-01 9.51E-01 4.59E-01 9.77E-01 4.71E-01 9.91E-01 4.83E-01 9.96E-01 4.95E-01 9.99E-01 5.07E-01 1.00E+00 5.19E-01 1.00E+00 5.31E-01 1.00E+00
YF(1):Crop Yield : Beef Forage	Crop yield for beef cattle forage	BETA(kg dry wt forage/m**2)
Default value used		Lower Limit 3.70E-01 Upper Limit 5.24E-01 p 2.36E+00 q 1.40E+00
YF(2):Crop Yield : Poultry Forage	Crop yield for poultry forage	DERIVED(kg wet wt forage/m**2)
Default value used		
YF(3):Crop Yield : Milk Cow Forage	Crop yield for milk cow forage	DERIVED(kg wet wt forage/m**2)
Default value used		

YF(4):Crop Yield : Layer Hen Forage	Crop yield for layer hen forage	DERIVED(kg wet wt forage/m**2)
Default value used		
YG(1):Crop Yield : Beef Cow Grain	Crop yield for beef cattle grain	NORMAL(kg dry wt grain /m**2)
Default value used		Mean 5.78E-01 Standard Deviation 7.77E-02
YG(2):Crop Yield : Poultry Grain	Crop yield for poultry grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(3):Crop Yield : Milk Cow Grain	Crop yield for milk cow grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(4):Crop Yield : Layer Hen Grain	Crop yield for layer hen grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YH(1):Crop Yield : Beef Cow Hay	Crop yield for beef cattle hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(2):Crop Yield : Poultry Hay	Crop yield for poultry hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(3):Crop Yield : Milk Cow Hay	Crop yield for milk cow hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(4):Crop Yield : Layer Hen Hay	Crop yield for layer hen hay	DERIVED(kg wet wt/m**2)
Default value used		
WV(1):Wet/dry : Leafy Vegetables	Wet/dry conversion factor for leafy vegetables	CONTINUOUS LINEAR(none)
Default value used		Value / Probability 3.32E-02 / 0.00E+00 4.89E-02 / 3.45E-02 5.47E-02 / 6.91E-02 5.96E-02 / 1.04E-01 6.36E-02 / 1.38E-01 6.70E-02 / 1.73E-01 7.05E-02 / 2.07E-01 7.38E-02 / 2.42E-01 7.48E-02 / 2.50E-01 7.72E-02 / 2.76E-01 8.03E-02 / 3.11E-01 8.34E-02 / 3.45E-01 8.66E-02 / 3.80E-01 9.00E-02 / 4.15E-01 9.36E-02 / 4.49E-01 9.73E-02 / 4.84E-01 9.91E-02 / 4.99E-01 1.01E-01 / 5.18E-01 1.05E-01 / 5.53E-01 1.09E-01 / 5.87E-01 1.13E-01 / 6.22E-01 1.18E-01 / 6.56E-01 1.23E-01 / 6.91E-01 1.29E-01 / 7.25E-01 1.33E-01 / 7.50E-01 1.35E-01 / 7.60E-01

1.42E-01	7.94E-01
1.50E-01	8.29E-01
1.59E-01	8.64E-01
1.70E-01	8.98E-01
1.85E-01	9.33E-01
2.10E-01	9.67E-01
2.56E-01	9.91E-01
3.24E-01	1.00E+00

WV(2):Wet/dry : Other Vegetables	Wet/dry conversion factor for other vegetables	CONTINUOUS LINEAR(none)

Default value used

Value	Probability
3.58E-02	0.00E+00
4.87E-02	3.45E-02
5.46E-02	6.91E-02
5.90E-02	1.04E-01
6.29E-02	1.38E-01
6.69E-02	1.73E-01
7.02E-02	2.07E-01
7.34E-02	2.42E-01
7.41E-02	2.50E-01
7.65E-02	2.76E-01
7.99E-02	3.11E-01
8.32E-02	3.45E-01
8.66E-02	3.80E-01
9.05E-02	4.15E-01
9.41E-02	4.49E-01
9.82E-02	4.84E-01
9.98E-02	4.99E-01
1.02E-01	5.18E-01
1.06E-01	5.53E-01
1.09E-01	5.87E-01
1.14E-01	6.22E-01
1.19E-01	6.56E-01
1.24E-01	6.91E-01
1.29E-01	7.25E-01
1.33E-01	7.50E-01
1.35E-01	7.60E-01
1.42E-01	7.94E-01
1.50E-01	8.29E-01
1.59E-01	8.64E-01
1.70E-01	8.98E-01
1.87E-01	9.33E-01
2.12E-01	9.67E-01
2.62E-01	9.91E-01
3.13E-01	1.00E+00

WV(3):Wet/dry : Fruit	Wet/dry conversion factor for fruits	CONTINUOUS LINEAR(none)

Default value used

Value	Probability
3.66E-02	0.00E+00
4.87E-02	3.45E-02
5.45E-02	6.91E-02
5.93E-02	1.04E-01
6.31E-02	1.38E-01
6.72E-02	1.73E-01
7.10E-02	2.07E-01
7.44E-02	2.42E-01
7.52E-02	2.50E-01
7.78E-02	2.76E-01
8.13E-02	3.11E-01
8.45E-02	3.45E-01
8.78E-02	3.80E-01
9.11E-02	4.15E-01
9.46E-02	4.49E-01

	9.82E-02 4.84E-01 9.97E-02 4.99E-01 1.02E-01 5.18E-01 1.06E-01 5.53E-01 1.10E-01 5.87E-01 1.14E-01 6.22E-01 1.19E-01 6.56E-01 1.24E-01 6.91E-01 1.29E-01 7.25E-01 1.34E-01 7.50E-01 1.35E-01 7.60E-01 1.42E-01 7.94E-01 1.49E-01 8.29E-01 1.58E-01 8.64E-01 1.70E-01 8.98E-01 1.87E-01 9.33E-01 2.14E-01 9.67E-01 2.58E-01 9.91E-01 3.25E-01 1.00E+00
WV(4):Wet/dry : Grain Wet/dry conversion factor for grains	CONSTANT(none)
Default value used	Value 8.80E-01
WF(1):Wet/dry : Beef Cow Forage Wet/dry conversion factor for beef cattle forage	BETA(none)
Default value used	Lower Limit 1.83E-01 Upper Limit 3.23E-01 p 1.15E+00 q 1.18E+00
WF(2):Wet/dry : Poultry Forage Wet/dry conversion factor for poultry forage	DERIVED(none)
Default value used	
WF(3):Wet/dry : Milk Cow Forage Wet/dry conversion factor for milk cow forage	DERIVED(none)
Default value used	
WF(4):Wet/dry : Layer Hen Forage Wet/dry conversion factor for layer hen forage	DERIVED(none)
Default value used	
WG(1):Wet/dry : Beef Cow Grain Wet/dry conversion factor for beef cattle grain	CONSTANT(none)
Default value used	Value 8.80E-01
WG(2):Wet/dry : Poultry Grain Wet/dry conversion factor for poultry grain	DERIVED(none)
Default value used	
WG(3):Wet/dry : Milk Cow Grain Wet/dry conversion factor for milk cow grain	DERIVED(none)
Default value used	
WG(4):Wet/dry : Layer Hen Grain Wet/dry conversion factor for layer hen grain	DERIVED(none)
Default value used	
WH(1):Wet/dry : Beef Cow Hay Wet/dry conversion factor for beef cattle hay	DERIVED(none)
Default value used	
WH(2):Wet/dry : Poultry Hay Wet/dry conversion factor for poultry hay	DERIVED(none)
Default value used	

WH(3):Wet/dry : Milk Cow Hay	Wet/dry conversion factor for milk cow hay	DERIVED(none)
Default value used		
WH(4):Wet/dry : Layer Hen Hay	Wet/dry conversion factor for layer hen hay	DERIVED(none)
Default value used		
QF(1):Ingestion Rate : Beef Cow Forage	Ingestion rate for beef cattle forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QF(2):Ingestion Rate : Poultry Forage	Ingestion rate for poultry forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 3.48E-03 Upper Limit 2.82E-02 p 1.51E+00 q 1.41E+00
QF(3):Ingestion Rate : Milk Cow Forage	Ingestion rate for milk cow forage	CONTINUOUS LINEAR(kg dry wt forage/d)
Default value used		Value / Probability 6.35E+00 0.00E+00 6.77E+00 3.45E-02 6.96E+00 6.91E-02 7.10E+00 1.04E-01 7.24E+00 1.38E-01 7.35E+00 1.73E-01 7.47E+00 2.07E-01 7.57E+00 2.42E-01 7.60E+00 2.50E-01 7.67E+00 2.76E-01 7.77E+00 3.11E-01 7.87E+00 3.45E-01 7.98E+00 3.80E-01 8.08E+00 4.15E-01 8.18E+00 4.49E-01 8.31E+00 4.84E-01 8.37E+00 4.99E-01 8.42E+00 5.18E-01 8.54E+00 5.53E-01 8.67E+00 5.87E-01 8.81E+00 6.22E-01 8.95E+00 6.56E-01 9.10E+00 6.91E-01 9.26E+00 7.25E-01 9.38E+00 7.50E-01 9.45E+00 7.60E-01 9.68E+00 7.94E-01 9.93E+00 8.29E-01 1.02E+01 8.64E-01 1.06E+01 8.98E-01 1.11E+01 9.33E-01 1.20E+01 9.67E-01 1.33E+01 9.91E-01 1.53E+01 1.00E+00
QF(4):Ingestion Rate : Layer Hen Forage	Ingestion rate for layer hen forage	BETA(kg dry wt forage/d)

Default value used		Lower Limit 1.19E-02 Upper Limit 2.22E-02 p 1.45E+00 q 7.92E-01
QG(1):Ingestion Rate : Beef Cattle Grain	Ingestion rate for beef cattle grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QG(2):Ingestion Rate : Poultry Grain	Ingestion rate for poultry grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.04E-02 Upper Limit 8.45E-02 p 1.51E+00 q 1.41E+00
QG(3):Ingestion Rate : Milk Cow Grain	Ingestion rate for milk cow grain	NORMAL(kg dry wt grain/d)
Default value used		Mean 1.71E+00 Standard Deviation 2.62E-01
QG(4):Ingestion Rate : Layer Hen Grain	Ingestion rate for layer hen grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 3.58E-02 Upper Limit 6.67E-02 p 1.43E+00 q 7.92E-01
QH(1):Ingestion Rate : Beef Cattle Hay	Ingestion rate for beef cattle hay	BETA(kg dry wt hay/d)
Default value used		Lower Limit 3.38E+00 Upper Limit 4.58E+00 p 1.99E+00 q 9.11E-01
QH(2):Ingestion Rate : Poultry Hay	Ingestion rate for poultry hay	CONSTANT(kg dry wt hay/d)
Default value used		Value 0.00E+00
QH(3):Ingestion Rate : Milk Cow Hay	Ingestion rate for milk cow hay	CONTINUOUS LINEAR(kg dry wt hay/d)
Default value used		Value / Probability 5.12E+00 / 0.00E+00 5.43E+00 / 3.45E-02 5.57E+00 / 6.91E-02 5.68E+00 / 1.04E-01 5.79E+00 / 1.38E-01 5.89E+00 / 1.73E-01 5.98E+00 / 2.07E-01 6.06E+00 / 2.42E-01 6.08E+00 / 2.50E-01 6.14E+00 / 2.76E-01 6.22E+00 / 3.11E-01 6.30E+00 / 3.45E-01 6.38E+00 / 3.80E-01 6.46E+00 / 4.15E-01 6.54E+00 / 4.49E-01 6.63E+00 / 4.84E-01 6.67E+00 / 4.99E-01 6.72E+00 / 5.18E-01 6.81E+00 / 5.53E-01 6.92E+00 / 5.87E-01

7.03E+00	6.22E-01
7.13E+00	6.56E-01
7.26E+00	6.91E-01
7.39E+00	7.25E-01
7.49E+00	7.50E-01
7.56E+00	7.60E-01
7.70E+00	7.94E-01
7.89E+00	8.29E-01
8.11E+00	8.64E-01
8.39E+00	8.98E-01
8.75E+00	9.33E-01
9.44E+00	9.67E-01
1.05E+01	9.91E-01
1.27E+01	1.00E+00

QH(4):Ingestion Rate : Layer Hen Hay	Ingestion rate for layer hen hay	CONSTANT(kg dry wt hay/d)
Default value used		Value 0.00E+00
QW(1):Water Rate : Beef Cattle	Water ingestion rate for beef cattle	CONSTANT(L/d)
Default value used		Value 5.00E+01
QW(2):Water Rate : Poultry	Water ingestion rate for poultry	CONSTANT(L/d)
Default value used		Value 3.00E-01
QW(3):Water Rate : Milk Cows	Water ingestion rate for milk cows	CONSTANT(L/d)
Default value used		Value 6.00E+01
QW(4):Water Rate : Layer Hens	Water ingestion rate for layer hens	CONSTANT(L/d)
Default value used		Value 3.00E-01
QD(1):Soil Fraction : Beef Cattle	Soil intake fraction for beef cattle	CONSTANT(none)
Default value used		Value 2.00E-02
QD(2):Soil Fraction : Poultry	Soil intake fraction for poultry	CONSTANT(none)
Default value used		Value 1.00E-01
QD(3):Soil Fraction : Milk Cows	Soil intake fraction for milk cows	CONSTANT(none)
Default value used		Value 2.00E-02
QD(4):Soil Fraction : Layer Hens	Soil intake fraction for layer hens	CONSTANT(none)
Default value used		Value 1.00E-01
MLV(1):Mass-Loading : Leafy Vegetables	Mass-loading factor for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
MLV(2):Mass-Loading : Other Vegetables	Mass-loading factor for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
MLV(3):Mass-Loading : Fruits	Mass-loading factor for fruits	CONSTANT(none)
Default value used		Value 1.00E-01
MLV(4):Mass-Loading : Grains	Mass-loading factor for grains	CONSTANT(none)

Default value used		Value 1.00E-01
LAMBDW:Weathering Rate	Weathering rate for activity removal from plants	CONSTANT(1/d)
Default value used		Value 4.95E-02
MLF(1):Mass-Loading : Beef Cow Forage	Mass-loading factor for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(2):Mass-Loading : Poultry Forage	Mass-loading factor for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(3):Mass-Loading : Milk Cow Forage	Mass-loading factor for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(4):Mass-Loading : Layer Hen Forage	Mass-loading factor for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(1):Mass-Loading : Beef Cattle Grain	Mass-loading factor for beef cattle grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(2):Mass-Loading : Poultry Grain	Mass-loading factor for poultry grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(3):Mass-Loading : Milk Cow Grain	Mass-loading factor for milk cow grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(4):Mass-Loading : Layer Hen Grain	Mass-loading factor for layer hen grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(1):Mass-Loading : Beef Cattle Hay	Mass-loading factor for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(2):Mass-Loading : Poultry Hay	Mass-loading factor for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(3):Mass-Loading : Milk Cow Hay	Mass-loading factor for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(4):Mass-Loading : Layer Hen Hay	Mass-loading factor for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
TFF(1):Feeding Period : Beef Cow Forage	Feeding period for beef cattle forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(2):Feeding Period : Poultry Forage	Feeding period for poultry forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(3):Feeding Period : Milk Cow Forage	Feeding period for milk cow forage	CONSTANT(days)
Default value used		Value 3.65E+02

TFF(4):Feeding Period : Layer Hen Forage	Feeding period for layer hen forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(1):Feeding Period : Beef Cattle Grain	Feeding period for beef cattle grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(2):Feeding Period : Poultry Grain	Feeding period for poultry grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(3):Feeding Period : Milk Cow Grain	Feeding period for milk cow grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(4):Feeding Period : Layer Hen Grain	Feeding period for layer hen grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(1):Feeding Period : Beef Cattle Hay	Feeding period for beef cattle hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(2):Feeding Period : Poultry Hay	Feeding period for poultry hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(3):Feeding Period : Milk Cow Hay	Feeding period for milk cow hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(4):Feeding Period : Layer Hen Hay	Feeding period for layer hen hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(1):Water Period : Beef Cattle	Water ingestion period for beef cattle	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(2):Water Period : Poultry	Water ingestion period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(3):Water Period : Milk Cows	Water ingestion period for milk cows	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(4):Water Period : Layer Hens	Water ingestion period for layer hens	CONSTANT(days)
Default value used		Value 3.65E+02
fha(1):Hydrogen Fraction : Beef Cattle	Hydrogen fraction for beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
fha(2):Hydrogen Fraction : Poultry	Hydrogen fraction for poultry	CONSTANT(none)
Default value used		Value 1.00E-01
fha(3):Hydrogen Fraction : Milk Cows	Hydrogen fraction for milk cows	CONSTANT(none)
Default value used		Value 1.10E-01
fha(4):Hydrogen Fraction : Eggs	Hydrogen fraction for eggs	CONSTANT(none)

Default value used		Value 1.10E-01
fhv(1):Hydrogen Fraction : Leafy Vegetables	Hydrogen fraction for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(2):Hydrogen Fraction : Other Vegetables	Hydrogen fraction for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(3):Hydrogen Fraction : Fruits	Hydrogen fraction for fruits	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(4):Hydrogen Fraction : Grains	Hydrogen fraction for grains	CONSTANT(none)
Default value used		Value 6.80E-02
fhf(1):Hydrogen Fraction : Beef Cow Forage	Hydrogen fraction for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(2):Hydrogen Fraction : Poultry Forage	Hydrogen fraction for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(3):Hydrogen Fraction : Milk Cow Forage	Hydrogen fraction for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(4):Hydrogen Fraction : Layer Hen Forage	Hydrogen fraction for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(1):Hydrogen Fraction : Beef Cattle Hay	Hydrogen fraction for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(2):Hydrogen Fraction : Poultry Hay	Hydrogen fraction for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(3):Hydrogen Fraction : Milk Cow Hay	Hydrogen fraction for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(4):Hydrogen Fraction : Layer Hen Hay	Hydrogen fraction for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhg(1):Hydrogen Fraction : Beef Cattle Grain	Hydrogen fraction for beef cattle grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(2):Hydrogen Fraction : Poultry Grain	Hydrogen fraction for poultry grain	CONSTANT(none)
Default value used		Value 6.80E-02

fhg(3):Hydrogen Fraction : Milk Cow Grain	Hydrogen fraction for milk cow grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(4):Hydrogen Fraction : Layer Hen Grain	Hydrogen fraction for layer hen grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhd016:Hydrogen Fraction : Soil	Fraction of hydrogen in soil	DERIVED(none)
Default value used		
sasvh:Tritium Equivalence: Plant/Soil	Tritium equivalence: plant/soil	CONSTANT(none)
Default value used		Value 1.00E+00
sawvh:Tritium Equivalence: Plant/Water	Tritium equivalence: plant/water	CONSTANT(none)
Default value used		Value 1.00E+00
satah:Tritium Equivalence: Animal Products	Tritium equivalence: animal product intake	CONSTANT(none)
Default value used		Value 1.00E+00
YA(1):Animal Product Yield : Beef Cattle	Annual yield of beef per individual animal	CONSTANT(kg/y)
Default value used		Value 2.09E+02
YA(2):Animal Product Yield : Poultry	Annual yield of chicken per individual animal	CONSTANT(kg/y)
Default value used		Value 1.53E+00
YA(3):Animal Product Yield : Milk Cows	Annual yield of milk per individual animal	CONSTANT(L/y)
Default value used		Value 7.41E+03
YA(4):Animal Product Yield : Layer Hens	Annual yield of eggs per individual animal	CONSTANT(kg/y)
Default value used		Value 1.26E+01
AREXt:External Exposure Area	Minimum surface area to which resident is exposed via external radiation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARInh:Inhalation Exposure Area	Minimum surface area to which resident is exposed via inhalation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARIng:Secondary Ingestion Exposure Area	Minimum surface area to which resident is exposed via secondary ingestion during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARAgr:Agricultural Exposure Area	Minimum surface area to which resident is exposed via any agricultural product during residential period	DERIVED(m**2)
Default value used		
ARH2O:Groundwater Exposure Area	Minimum surface area to which resident is exposed via groundwater during residential period	DERIVED(m**2)

Default value used		
ARAll:Exposure Area	Minimum surface area to which resident is exposed via any pathway during the residential period	DERIVED(m**2)
Default value used		

Element Dependant Parameters

Parameter Name	Description	Distribution
Zn:Coefficient	Partition coefficient for Zn	NORMAL(Log10(mL/g))
Default value used		Mean 3.03E+00 Standard Deviation 1.93E+00
Zn:Leafy	Leafy plant concentration factor for Zn	LOGNORMAL-N(pCi/kg dry-wt leafy per pCi/kg soil)
Default value used		Mean of Ln(X) -5.45E-01 Standard Deviation of Ln 9.56E-01
Zn:Root	Root plant concentration factor for Zn	LOGNORMAL-N(pCi/kg wet-wt roots per pCi/kg soil)
Default value used		Mean of Ln(X) -2.21E+00 Standard Deviation of Ln 1.36E+00
Zn:Fruit	Fruit concentration factor for Zn	LOGNORMAL-N(pCi/kg wet-wt fruit per pCi/kg soil)
Default value used		Mean of Ln(X) -2.21E+00 Standard Deviation of Ln 1.36E+00
Zn:Grain	Grain concentration factor for Zn	LOGNORMAL-N(pCi/kg wet-wt grain per pCi/kg soil)
Default value used		Mean of Ln(X) -2.21E+00 Standard Deviation of Ln 1.36E+00
Zn:Beef	Beef transfer factor for Zn	CONSTANT(d/kg)
Default value used		Value 1.00E-01
Zn:Poultry	Poultry transfer factor for Zn	CONSTANT(d/kg)
Default value used		Value 6.50E+00
Zn:Milk	Milk transfer factor for Zn	CONSTANT(d/L)
Default value used		Value 1.00E-02
Zn:Eggs	Egg transfer factor for Zn	CONSTANT(d/kg)
Default value used		Value 2.60E+00
Zn:Factor	Bioaccumulation factor for Zn in fish	CONSTANT(pCi/kg wet-wt fish per pCi/L water)
Default value used		Value 2.50E+03

Correlation Coefficients:

Parameter One	Parameter Two	Correlation Coefficient
KSDEV:Permeability Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		
NDEV:Porosity Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		

Summary Results:

90.00% of the 100 calculated TEDE values are < 2.14E+01 mrem/year .
The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.96E+01 to 2.46E+01 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	Soil Concentration (pCi/g)	Water Concentration (pCi/g)
65Zn	1.00E+01	3.05E-16

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
2.46E+01	1.50E+01	2.03E-18	1.18E-16	9.59E+00	4.88E-05	1.27E-03	2.03E-17

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
65Zn	2.46E+01
All Nuclides	2.46E+01

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
65Zn	1.50E+01	2.03E-18	1.18E-16	9.59E+00	4.88E-05	1.27E-03	2.03E-17

Eu-155
DandD Residential Scenario

DandD Results

$$\frac{10\ pCi/g}{8.78E-1\ mrem/yr_{\ 0.9Quantile}} \times 25\ mrem/yr = 284.7\ pCi/g$$

NUREG/CR 5512, Volume 3, Table 6.91 (Pcrit = 0.90)
Eu-155 = 2.84 E2 pCi/g

DandD Residential Scenario

DandD Version: 2.1.0
Run Date/Time: 1/23/04 11:42:56 AM
Site Name: Pathfinder
Description: To establish screening level DCGL
FileName:C:\DandD_Docs\Pathfinder soil Eu155.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 100
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON
Agricultural Pathway is ON
Drinking Water Pathway is ON
Irrigation Pathway is ON
Surface Water Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
155Eu	UNLIMITED	CONSTANT(pCi/g)
Justification for concentration: To establish screening level DCGL		Value 1.00E+01

Chain Data:

Number of chains: 1

Chain No. 1: **155Eu**
Nuclides in chain: 1

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))
155Eu	1	1.81E+03					4.13E-10	1.12E-08	5.10E-12	8.42E-14

Initial Concentrations:

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

Nuclide	Soil Concentration (pCi/g)
155Eu	1.00E+01

Model Parameters:

General Parameters:

Parameter Name	Description	Distribution
Tv (1):Translocation:Leafy	Translocation factor for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E+00
Tv(2):Translocation:Root	Translocation factor for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (3):Translocation:Fruit	Translocation factor for fruit	CONSTANT(none)
Default value used		Value 1.00E-01
Tv (4):Translocation:Grain	Translocation factor for grain	CONSTANT(none)
Default value used		Value 1.00E-01
Tf(1):Translocation:Beef Forage	Translocation factor for forage consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (2):Translocation:Poultry Forage	Translocation factor for forage consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E+00
Tf(3):Translocation:Milk Cow	Translocatioin factor for forage consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Tf (4):Translocation:Layer Hen Forage	Translocation factor for forage consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
Tg(1):Translocation:Beef Grain	Translocation factor for stored grain consumed by beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (2):Translocation:Poultry Grain	Translocation factor for stored grain consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E-01
Tg(3):Translocation:Milk Cow Grain	Translocation factor for stored grain consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E-01
Tg (4):Translocation:Layer Hen Grain	Translocation factor for stored grain consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E-01
Th(1):Translocation:Beef Hay	Translocation factor for stored hay consumed by beef cattle	CONSTANT(none)

Default value used		Value 1.00E+00
Th (2):Translocation:Poultry Hay	Translocation factor for stored hay consumed by poultry	CONSTANT(none)
Default value used		Value 1.00E+00
Th (3):Translocation:Milk Cow Hay	Translocation factor for stored hay consumed by milk cows	CONSTANT(none)
Default value used		Value 1.00E+00
Th (4):Translocation:Layer Hen Hay	Translocation factor for stored hay consumed by layer hens	CONSTANT(none)
Default value used		Value 1.00E+00
fca(1):Beef Carbon Fraction	Mass fraction of beef cattle that is carbon	CONSTANT(none)
Default value used		Value 3.60E-01
fca(2):Poultry Carbon Fraction	Mass fraction of poultry that is carbon	CONSTANT(none)
Default value used		Value 1.80E-01
fca(3):Milk Carbon Fraction	Mass fraction of milk that is carbon	CONSTANT(none)
Default value used		Value 6.00E-02
fca(4):Eggs Carbon Fraction	Mass fraction of an egg that is carbon	CONSTANT(none)
Default value used		Value 1.60E-01
fcf(1):Beef Forage Carbon Fraction	Mass fraction of wet forage consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(2):Poultry Forage Carbon Fraction	Mass fraction of wet forage consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(3):Milk Cow Forage Carbon Fraction	Mass fraction of wet forage consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcf(4):Layer Hen Forage Carbon Fraction	Mass fraction of wet forage consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 1.10E-01
fcg(1):Beef Grain Carbon Fraction	Mass fraction of wet stored grain consumed by beef cattle that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(2):Poultry Grain Carbon Fraction	Mass fraction of wet stored grain consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(3):Milk Cow Grain Carbon Fraction	Mass fraction of wet stored grain consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fcg(4):Layer Hen Grain Carbon Fraction	Mass fraction of wet stored grain consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 4.00E-01
fch(1):Beef Hay Carbon Fraction	Mass fraction of wet stored hay consumed by beef cattle that is carbon	CONSTANT(none)

Default value used		Value 7.00E-02
fch(2):Poultry Hay Carbon Fraction	Mass fraction of wet stored hay consumed by poultry that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(3):Milk Cow Hay Carbon Fraction	Mass fraction of wet stored hay consumed by milk cows that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fch(4):Layer Hen Hay Carbon Fraction	Mass fraction of wet stored hay consumed by layer hens that is carbon	CONSTANT(none)
Default value used		Value 7.00E-02
fCd:Soil Carbon Fraction	Mass fraction of dry soil that is carbon	CONSTANT(none)
Default value used		Value 3.00E-02
SATac:Animal Product Specific Activity	Specific activity equivalence of animal product and specific activity of animal feed, forage, and soil	CONSTANT(none)
Default value used		Value 1.00E+00
xf(1):Beef Forage Contaminated Fraction	Fraction of forage consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(2):Poultry Forage Contaminated Fraction	Fraction of forage consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(3):Milk Cow Forage Contaminated Fraction	Fraction of forage consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xf(4):Layer Hen Forage Contaminated Fraction	Fraction of forage consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(1):Beef Grain Contaminated Fraction	Fraction of stored grain consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(2):Poultry Grain Contaminated Fraction	Fraction of stored grain consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(3):Milk Cow Grain Contaminated Fraction	Fraction of stored grain consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xg(4):Layer Hen Grain Contaminated Fraction	Fraction of stored grain that is consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(1):Beef Hay Contaminated Fraction	Fraction of stored hay consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(2):Poultry Hay Contaminated Fraction	Fraction of stored hay consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xh(3):Milk Cow Hay Contaminated Fraction	Fraction of stored hay consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00

xh(4):Layer Hen Hay Contaminated Fraction	Fraction of stored hay consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(1):Beef Water Contaminated Fraction	Fraction of water that is consumed by beef cattle that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(2):Poultry Water Contaminated Fraction	Fraction of water consumed by poultry that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(3):Milk Cow Water Contaminated Fraction	Fraction of water consumed by milk cows that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
xw(4):Layer Hen Water Contaminated Fraction	Fraction of water consumed by layer hens that is contaminated	CONSTANT(none)
Default value used		Value 1.00E+00
DIET:Garden Diet	Fraction of human diet grown onsite	CONSTANT(none)
Default value used		Value 1.00E+00
Uv(1):Diet - Leafy	Yearly human consumption of leafy vegetables	CONSTANT(kg/y)
Default value used		Value 2.14E+01
Uv(2):Diet - Roots	Yearly human consumption of other vegetables	CONSTANT(kg/y)
Default value used		Value 4.46E+01
Uv(3):Diet - Fruit	Yearly human consumption of fruits	CONSTANT(kg/y)
Default value used		Value 5.28E+01
Uv(4):Diet - Grain	Yearly human consumption of grains	CONSTANT(kg/y)
Default value used		Value 1.44E+01
Ua(1):Diet - Beef	Yearly human consumption of beef	CONSTANT(kg/y)
Default value used		Value 3.98E+01
Ua(2):Diet - Poultry	Yearly human consumption of poultry	CONSTANT(kg/y)
Default value used		Value 2.53E+01
Ua(3):Diet - Milk	Yearly human consumption of milk	CONSTANT(L/y)
Default value used		Value 2.33E+02
Ua(4):Diet - Egg	Yearly human consumption of eggs	CONSTANT(kg/y)
Default value used		Value 1.91E+01
Uf:Diet - Fish	Yearly human consumption of fish produced from an onsite pond	CONSTANT(kg/y)
Default value used		Value 2.06E+01
tf:Consumption Period	Consumption period for fish	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(1):Consumption Period - Leafy	Food consumption period for leafy vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(2):Consumption Period - Roots	Food consumption period for other vegetables	CONSTANT(days)
Default value used		Value 3.65E+02
tcv(3):Consumption Period - Fruit	Food consumption period for fruits	CONSTANT(days)

Default value used		Value 3.65E+02
tcv(4):Consumption Period - Grain	Food consumption period for grains	CONSTANT(days)
Default value used		Value 3.65E+02
tca(1):Consumption Period - Beef	Food consumption period for beef	CONSTANT(days)
Default value used		Value 3.65E+02
tca(2):Consumption Period - Poultry	Food consumption period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
tca(3):Consumption Period - Milk	Food consumption period for milk	CONSTANT(days)
Default value used		Value 3.65E+02
tca(4):Consumption Period - Egg	Food consumption period for eggs	CONSTANT(days)
Default value used		Value 3.65E+02
Nunsat:Number of Unsaturated Layers	Number of model layers used to represent the unsaturated zone	CONSTANT(none)
Default value used		Value 1.00E+01
TstartR:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value 0.00E+00
TendR:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value 3.65E+05
dtR:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value 3.65E+02
PstepR:Print Step Size	The time steps for the history file. Doses will be written to the history file every n time steps	CONSTANT(none)
Default value used		Value 1.00E+00
TI:Indoor Exposure Period	The time the resident spends indoors	CONSTANT(days/year)
Default value used		Value 2.40E+02
TX:Outdoor Exposure Period	The time the resident spends outdoors	CONSTANT(days/year)
Default value used		Value 4.02E+01
TG:Gardening Period	The time the resident spends gardening	CONSTANT(days/year)
Default value used		Value 2.92E+00
TTR:Total time in period	Total time in the one year exposure period	CONSTANT(days/year)
Default value used		Value 3.65E+02
SFI:Indoor Shielding Factor	Shielding factor for the residence	CONSTANT(none)
Default value used		Value 5.52E-01
SFO:Outdoor Shielding Factor	Shielding factor for the cover soil	CONSTANT(none)
Default value used		Value 1.00E+00
PD:Floor dust loading	Floor dust loading	UNIFORM(g/m**2)
Default value used		Lower Limit 2.00E-02 Upper Limit 3.00E-01

RFR:Indoor Resuspension Factor	Resuspension factor for indoor dust	LOGUNIFORM(1/m)
Default value used		Lower Limit 1.00E-07 Upper Limit 8.00E-05
CDO:Outdoor Dust Loading	Average dust loading outdoors	LOGUNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-07 Upper Limit 1.00E-04
CDI:Indoor Dust Loading	Average dust loading indoors	DERIVED(g/m**3)
Default value used		
PF:Indoor/Outdoor Penetration Factor	Fraction of outdoor dust in indoor air	UNIFORM(none)
Default value used		Lower Limit 2.00E-01 Upper Limit 7.00E-01
CDG:Gardening Dust Loading	Average dust loading while gardening	UNIFORM(g/m**3)
Default value used		Lower Limit 1.00E-04 Upper Limit 7.00E-04
VR:Indoor Breathing Rate	Breathing rate while indoors	CONSTANT(m**3/hr)
Default value used		Value 9.00E-01
VX:Outdoor Breathing Rate	Breathing rate while outdoors	CONSTANT(m**3/hr)
Default value used		Value 1.40E+00
VG:Gardening Breathing Rate	Breathing rate while gardening	CONSTANT(m**3/hr)
Default value used		Value 1.70E+00
GR:Soil Ingestion Transfer Rate	Average rate of soil ingestion	CONSTANT(g/d)
Default value used		Value 5.00E-02
UW:Diet - Water	Drinking water ingestion rate	CONSTANT(L/d)
Default value used		Value 1.26E+00
H1:Surface Soil Thickness	Thickness of the surface soil layer	CONSTANT(m)
Default value used		Value 1.50E-01
H2:Unsaturated Zone Thickness	Thickness of the unsaturated zone	CONTINUOUS LINEAR(m)
Default value used		Value / Probability 3.05E-01 / 0.00E+00 6.68E-01 / 4.76E-03 8.11E-01 / 9.52E-03 9.21E-01 / 1.43E-02 9.94E-01 / 1.91E-02 1.03E+00 / 2.38E-02 1.07E+00 / 2.86E-02 1.14E+00 / 3.33E-02 1.21E+00 / 3.81E-02 1.30E+00 / 4.29E-02 1.31E+00 / 4.76E-02 1.32E+00 / 5.24E-02 1.56E+00 / 5.71E-02 1.58E+00 / 6.19E-02 1.61E+00 / 6.67E-02

1.69E+00	7.62E-02
1.78E+00	8.57E-02
1.80E+00	9.05E-02
1.81E+00	9.52E-02
1.84E+00	1.00E-01
1.87E+00	1.05E-01
1.92E+00	1.10E-01
2.04E+00	1.14E-01
2.10E+00	1.19E-01
2.11E+00	1.24E-01
2.32E+00	1.29E-01
2.36E+00	1.33E-01
2.37E+00	1.38E-01
2.39E+00	1.43E-01
2.44E+00	1.48E-01
2.44E+00	1.52E-01
2.45E+00	1.57E-01
2.59E+00	1.62E-01
2.63E+00	1.67E-01
2.69E+00	1.71E-01
2.79E+00	1.76E-01
2.81E+00	1.81E-01
2.90E+00	1.86E-01
2.95E+00	1.91E-01
3.07E+00	1.95E-01
3.18E+00	2.00E-01
3.22E+00	2.05E-01
3.30E+00	2.10E-01
3.34E+00	2.14E-01
3.37E+00	2.19E-01
3.44E+00	2.24E-01
3.58E+00	2.29E-01
3.62E+00	2.33E-01
3.66E+00	2.38E-01
3.74E+00	2.43E-01
3.86E+00	2.48E-01
3.88E+00	2.52E-01
4.17E+00	2.57E-01
4.26E+00	2.62E-01
4.44E+00	2.71E-01
4.63E+00	2.76E-01
4.87E+00	2.81E-01
5.13E+00	2.86E-01
5.18E+00	2.91E-01
5.54E+00	2.95E-01
5.83E+00	3.00E-01
5.86E+00	3.05E-01
5.86E+00	3.10E-01
5.90E+00	3.14E-01
6.06E+00	3.19E-01
6.13E+00	3.24E-01
6.17E+00	3.29E-01
6.22E+00	3.33E-01
6.31E+00	3.38E-01
6.36E+00	3.43E-01
6.40E+00	3.48E-01
6.46E+00	3.52E-01
6.51E+00	3.57E-01
6.55E+00	3.62E-01
6.60E+00	3.67E-01
6.86E+00	3.71E-01
6.93E+00	3.76E-01
6.95E+00	3.86E-01
6.97E+00	3.91E-01

7.09E+00	3.95E-01
7.18E+00	4.00E-01
7.35E+00	4.05E-01
7.36E+00	4.10E-01
7.40E+00	4.14E-01
7.43E+00	4.19E-01
7.46E+00	4.24E-01
7.59E+00	4.29E-01
7.60E+00	4.33E-01
7.64E+00	4.38E-01
7.87E+00	4.43E-01
8.10E+00	4.48E-01
8.28E+00	4.52E-01
8.35E+00	4.57E-01
8.71E+00	4.62E-01
8.71E+00	4.67E-01
8.73E+00	4.71E-01
8.79E+00	4.76E-01
8.80E+00	4.81E-01
8.82E+00	4.86E-01
8.85E+00	4.91E-01
8.89E+00	4.95E-01
8.90E+00	5.00E-01
8.99E+00	5.05E-01
9.00E+00	5.10E-01
9.13E+00	5.14E-01
9.14E+00	5.19E-01
9.21E+00	5.24E-01
9.31E+00	5.29E-01
9.55E+00	5.33E-01
9.60E+00	5.38E-01
9.63E+00	5.43E-01
9.86E+00	5.48E-01
1.05E+01	5.52E-01
1.07E+01	5.57E-01
1.13E+01	5.62E-01
1.15E+01	5.67E-01
1.17E+01	5.71E-01
1.20E+01	5.76E-01
1.26E+01	5.81E-01
1.26E+01	5.86E-01
1.28E+01	5.91E-01
1.32E+01	5.95E-01
1.32E+01	6.00E-01
1.34E+01	6.05E-01
1.34E+01	6.10E-01
1.36E+01	6.14E-01
1.37E+01	6.19E-01
1.38E+01	6.24E-01
1.41E+01	6.29E-01
1.45E+01	6.33E-01
1.51E+01	6.38E-01
1.52E+01	6.43E-01
1.61E+01	6.48E-01
1.62E+01	6.52E-01
1.65E+01	6.57E-01
1.66E+01	6.62E-01
1.69E+01	6.67E-01
1.74E+01	6.71E-01
1.82E+01	6.76E-01
1.84E+01	6.81E-01
1.84E+01	6.86E-01
1.87E+01	6.91E-01
1.95E+01	6.95E-01

1.95E+01	6.95E-01
2.01E+01	7.00E-01
2.07E+01	7.05E-01
2.08E+01	7.10E-01
2.17E+01	7.14E-01
2.24E+01	7.19E-01
2.27E+01	7.24E-01
2.29E+01	7.29E-01
2.29E+01	7.33E-01
2.40E+01	7.38E-01
2.47E+01	7.43E-01
2.60E+01	7.48E-01
2.65E+01	7.52E-01
2.72E+01	7.57E-01
2.73E+01	7.62E-01
2.76E+01	7.67E-01
2.77E+01	7.71E-01
2.78E+01	7.76E-01
2.80E+01	7.81E-01
2.86E+01	7.86E-01
2.94E+01	7.91E-01
3.01E+01	7.95E-01
3.03E+01	8.00E-01
3.06E+01	8.10E-01
3.08E+01	8.14E-01
3.11E+01	8.19E-01
3.17E+01	8.24E-01
3.17E+01	8.29E-01
3.17E+01	8.33E-01
3.22E+01	8.38E-01
3.39E+01	8.43E-01
3.48E+01	8.48E-01
3.54E+01	8.52E-01
3.60E+01	8.57E-01
3.68E+01	8.62E-01
4.03E+01	8.67E-01
4.07E+01	8.71E-01
4.24E+01	8.76E-01
4.29E+01	8.81E-01
4.42E+01	8.86E-01
4.72E+01	8.91E-01
4.97E+01	8.95E-01
5.12E+01	9.00E-01
6.13E+01	9.05E-01
6.19E+01	9.10E-01
6.23E+01	9.14E-01
6.32E+01	9.19E-01
6.59E+01	9.24E-01
6.73E+01	9.29E-01
7.47E+01	9.33E-01
7.92E+01	9.38E-01
8.12E+01	9.43E-01
8.28E+01	9.48E-01
8.47E+01	9.52E-01
8.96E+01	9.57E-01
9.47E+01	9.62E-01
1.08E+02	9.67E-01
1.13E+02	9.71E-01
1.15E+02	9.76E-01
1.42E+02	9.81E-01
1.77E+02	9.86E-01
1.78E+02	9.91E-01
1.80E+02	9.95E-01
3.16E+02	1.00E+00

N1:Surface Soil Porosity	Porosity of the surface soil layer	DERIVED(none)
Default value used		
N2:Unsaturated Zone Porosity	Porosity of the unsaturated zone	DERIVED(none)
Default value used		
F1:Surface Soil Saturation	Saturation ratio of the surface soil layer	DERIVED(none)
Default value used		
F2:Unsaturated Zone Saturation	Saturation ratio of the unsaturated zone	DERIVED(none)
Default value used		
INFIL:Infiltration Rate	Net rate of infiltration to aquifer	DERIVED(m/y)
Default value used		
SCSST:Soil Classification	SCS soil classification ID	DISCRETE CUMULATIVE(none)

Default value used

Value	Probability
1.00E+00	1.00E-04
2.00E+00	1.34E-03
3.00E+00	1.06E-02
4.00E+00	2.51E-02
5.00E+00	6.17E-02
6.00E+00	1.09E-01
7.00E+00	1.62E-01
8.00E+00	2.12E-01
9.00E+00	2.85E-01
1.00E+01	5.10E-01
1.10E+01	7.58E-01
1.20E+01	1.00E+00

NDEV:Porosity Probability	Relative porosity value within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

KSDEV:Permeability Probability	Relative permeability value within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

BDEV:Parameter "b" Probability	Relative value of "b" parameter within the distribution for this soil type	UNIFORM(none)

Default value used

Lower Limit	0.00E+00
Upper Limit	1.00E+00

AP:Water Application Rate	Total water application rate on cultivated area	CONTINUOUS LINEAR(m/y)

Default value used

Value	Probability
6.07E-01	0.00E+00
6.10E-01	4.62E-01
6.35E-01	4.76E-01
7.62E-01	5.40E-01
8.89E-01	6.29E-01
1.02E+00	7.05E-01
1.14E+00	8.04E-01
1.27E+00	8.79E-01
1.40E+00	9.41E-01
1.52E+00	9.82E-01
1.65E+00	9.98E-01
1.78E+00	1.00E+00

IR:Irrigation Rate	Annual average irrigation rate	CONSTANT(L/m**2-d)

Default value used		Value 1.29E+00
RHO1:Surface Soil Density	Bulk density of soil in the surface soil layer	DERIVED(g/mL)
Default value used		
RHO2:Unsaturated Zone Density	Bulk density of soil in the unsaturated zone	DERIVED(g/mL)
Default value used		
Ksat1:Surface Soil Permeabiliy	Saturated permeability of the surface soil layer	DERIVED(cm/sec)
Default value used		
VDR:Volume of Water Consumed	Volume of water withdrawn for consumptive use	CONSTANT(L)
Default value used		Value 1.18E+05
VSW:Volume of Water in Pond	Volume of water in the pond	CONSTANT(L)
Default value used		Value 1.30E+06
AR:Cultivated Area	Area of land cultivated	DERIVED(m**2)
Default value used		
sh:Soil Moisture Content	Moisture content of soil	DERIVED(none)
Default value used		
TTG:Gardening Period	Total time in gardening period	CONSTANT(days)
Default value used		Value 9.00E+01
TD:Drinking-water consumption period	Drinking-water consumption period	CONSTANT(days)
Default value used		Value 3.65E+02
THV(1):Holdup Period : Leafy	Holdup period for leafy vegetables	CONSTANT(days)
Default value used		Value 1.00E+00
THV(2):Holdup Period : Other vegetables	Holdup period for other vegetables	CONSTANT(days)
Default value used		Value 1.40E+01
THV(3):Holdup Period : Fruits	Holdup period for fruits	CONSTANT(days)
Default value used		Value 1.40E+01
THV(4):Holdup Period : Grains	Holdup period for grains	CONSTANT(days)
Default value used		Value 1.40E+01
THA(1):Holdup Period : Beef	Holdup period for beef	CONSTANT(days)
Default value used		Value 2.00E+01
THA(2):Holdup Period : Poultry	Holdup period for poultry	CONSTANT(days)
Default value used		Value 1.00E+00
THA(3):Holdup Period : Milk	Holdup period for milk	CONSTANT(days)
Default value used		Value 1.00E+00
THA(4):Holdup Period : Eggs	Holdup period for eggs	CONSTANT(days)
Default value used		Value 1.00E+00

TGV(1):Growing Period : Leafy	Minimum growing period for leafy vegetables	CONSTANT(days)
Default value used		Value 4.50E+01
TGV(2):Growing Period : Other vegetables	Minimum growing period for other vegetables	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(3):Growing Period : Fruits	Minimum growing period for fruits	CONSTANT(days)
Default value used		Value 9.00E+01
TGV(4):Growing Period : Grains	Minimum growing period for grains	CONSTANT(days)
Default value used		Value 9.00E+01
TGF(1):Growing Period : Beef Forage	Minimum growing period for forage consumed by beef cattle	CONSTANT(days)
Default value used		Value 3.00E+01
TGF(2):Growing Period : Poultry Forage	Minimum growing period for forage consumed by poultry	DERIVED(days)
Default value used		
TGF(3):Growing Period : Milk Cow Forage	Minimum growing period for forage consumed by milk cows	DERIVED(days)
Default value used		
TGF(4):Growing Period : Layer Hen Forage	Minimum growing period for forage consumed by layer hens	DERIVED(days)
Default value used		
TGG(1):Growing Period : Beef Cow Grain	Minimum growing period for stored grain consumed by beef cattle	CONSTANT(days)
Default value used		Value 9.00E+01
TGG(2):Growing Period : Poultry Grain	Minimum growing period for stored grain consumed by poultry	DERIVED(days)
Default value used		
TGG(3):Growing Period : Milk Cow Grain	Minimum growing period for stored grain consumed by milk cows	DERIVED(days)
Default value used		
TGG(4):Growing Period : Layer Hen Grain	Minimum growing period for stored grain consumed by layer hens	DERIVED(days)
Default value used		
TGH(1):Growing Period : Beef Cow Hay	Minimum growing period for stored hay consumed by beef cattle	CONSTANT(days)
Default value used		Value 4.50E+01
TGH(2):Growing Period : Poultry Hay	Minimum growing period for stored hay consumed by poultry	DERIVED(days)
Default value used		
TGH(3):Growing Period : Milk Cow Hay	Minimum growing period for stored hay consumed by milk cows	DERIVED(days)
Default value used		
TGH(4):Growing Period : Layer Hen Hay	Minimum growing period for stored hay consumed by layer hens	DERIVED(days)
Default value used		
RV(1):Interception Fraction : Leafy	Interception fraction for leafy vegetables	UNIFORM(none)

Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(2):Interception Fraction : Other vegetables	Interception fraction for other vegetables	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(3):Interception Fraction : Fruits	Interception fraction for fruits	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RV(4):Interception Fraction : Grains	Interception fraction for grains	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(1):Interception Fraction : Beef Forage	Interception fraction for beef cattle forage	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RF(2):Interception Fraction : Poultry forage	Interception fraction for poultry forage	DERIVED(none)
Default value used		
RF(3):Interception Fraction : Milk Cow Forage	Interception fraction for milk cow forage	DERIVED(none)
Default value used		
RF(4):Interception Fraction : Layer Hen Forage	Interception fraction for layer hen forage	DERIVED(none)
Default value used		
RG(1):Interception Fraction : Beef Cow Grain	Interception fraction for beef cattle grain	UNIFORM(none)
Default value used		Lower Limit 1.00E-01 Upper Limit 6.00E-01
RG(2):Interception Fraction : Poultry Grain	Interception fraction for poultry grain	DERIVED(none)
Default value used		
RG(3):Interception Fraction : Milk Cow Grain	Interception fraction for milk cow grain	DERIVED(none)
Default value used		
RG(4):Interception Fraction : Layer Hen Grain	Interception fraction for layer hen grain	DERIVED(none)
Default value used		
RH(1):Interception Fraction : Beef Cow Hay	Interception fraction for beef cattle hay	DERIVED(none)
Default value used		
RH(2):Interception Fraction : Poultry Hay	Interception fraction for poultry hay	DERIVED(none)
Default value used		
RH(3):Interception Fraction : Milk Cow Hay	Interception fraction for milk cow hay	DERIVED(none)

Default value used		
RH(4):Interception Fraction : Layer Hen Hay	Interception fraction for layer hen hay	DERIVED(none)
Default value used		
YV(1):Crop Yield : Leafy	Crop yield for leafy vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value / Probability 2.70E+00 0.00E+00 2.71E+00 1.60E-03 2.74E+00 6.00E-03 2.76E+00 1.76E-02 2.78E+00 4.36E-02 2.80E+00 8.48E-02 2.82E+00 1.56E-01 2.85E+00 2.57E-01 2.87E+00 3.64E-01 2.89E+00 5.00E-01 2.91E+00 6.39E-01 2.93E+00 7.46E-01 2.96E+00 8.42E-01 2.98E+00 9.09E-01 3.00E+00 9.60E-01 3.02E+00 9.84E-01 3.04E+00 9.94E-01 3.07E+00 9.97E-01 3.09E+00 9.99E-01 3.11E+00 1.00E+00 3.13E+00 1.00E+00 3.15E+00 1.00E+00
YV(2):Crop Yield : Other	Crop yield for other vegetables	CONTINUOUS LINEAR(kg wet wt/m**2)
Default value used		Value / Probability 2.26E+00 0.00E+00 2.29E+00 8.00E-04 2.30E+00 1.20E-03 2.31E+00 6.40E-03 2.33E+00 1.52E-02 2.34E+00 3.28E-02 2.35E+00 7.44E-02 2.36E+00 1.40E-01 2.38E+00 2.49E-01 2.39E+00 3.80E-01 2.40E+00 5.30E-01 2.42E+00 6.61E-01 2.43E+00 7.88E-01 2.44E+00 8.86E-01 2.45E+00 9.42E-01 2.47E+00 9.75E-01 2.48E+00 9.88E-01 2.49E+00 9.96E-01 2.51E+00 9.97E-01 2.52E+00 9.99E-01 2.53E+00 1.00E+00 2.54E+00 1.00E+00
YV(3):Crop Yield : *Fruits*	Crop yield for fruits	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used	Value	Probability
	2.17E+00	0.00E+00
	2.20E+00	1.20E-03
	2.21E+00	2.40E-03
	2.23E+00	6.80E-03
	2.25E+00	1.80E-02
	2.27E+00	4.36E-02
	2.29E+00	7.64E-02
	2.31E+00	1.38E-01
	2.32E+00	2.14E-01
	2.34E+00	3.27E-01
	2.36E+00	4.50E-01
	2.38E+00	5.76E-01
	2.40E+00	6.87E-01
	2.42E+00	7.88E-01
	2.43E+00	8.68E-01
	2.45E+00	9.25E-01
	2.47E+00	9.60E-01
	2.49E+00	9.81E-01
	2.51E+00	9.92E-01
	2.53E+00	9.98E-01
	2.54E+00	1.00E+00
	2.56E+00	1.00E+00

YV(4):Crop Yield : Grains	Crop yield for grains	CONTINUOUS LINEAR(kg wet wt/m**2)

Default value used	Value	Probability
	2.85E-01	0.00E+00
	2.90E-01	6.00E-04
	3.02E-01	2.80E-03
	3.14E-01	9.40E-03
	3.26E-01	2.14E-02
	3.38E-01	5.42E-02
	3.50E-01	1.08E-01
	3.62E-01	2.02E-01
	3.74E-01	3.15E-01
	3.86E-01	4.50E-01
	3.98E-01	5.92E-01
	4.10E-01	7.20E-01
	4.23E-01	8.26E-01
	4.35E-01	9.03E-01
	4.47E-01	9.51E-01
	4.59E-01	9.77E-01
	4.71E-01	9.91E-01
	4.83E-01	9.96E-01
	4.95E-01	9.99E-01
	5.07E-01	1.00E+00
	5.19E-01	1.00E+00
	5.31E-01	1.00E+00

YF(1):Crop Yield : Beef Forage	Crop yield for beef cattle forage	BETA(kg dry wt forage/m**2)

Default value used		
	Lower Limit	3.70E-01
	Upper Limit	5.24E-01
	p	2.36E+00
	q	1.40E+00

YF(2):Crop Yield : Poultry Forage	Crop yield for poultry forage	DERIVED(kg wet wt forage/m**2)

Default value used	

YF(3):Crop Yield : Milk Cow Forage	Crop yield for milk cow forage	DERIVED(kg wet wt forage/m**2)

Default value used	

YF(4):Crop Yield : Layer Hen Forage	Crop yield for layer hen forage	DERIVED(kg wet wt forage/m**2)
Default value used		
YG(1):Crop Yield : Beef Cow Grain	Crop yield for beef cattle grain	NORMAL(kg dry wt grain /m**2)
Default value used		Mean 5.78E-01 Standard Deviation 7.77E-02
YG(2):Crop Yield : Poultry Grain	Crop yield for poultry grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(3):Crop Yield : Milk Cow Grain	Crop yield for milk cow grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YG(4):Crop Yield : Layer Hen Grain	Crop yield for layer hen grain	DERIVED(kg wet wt grain /m**2)
Default value used		
YH(1):Crop Yield : Beef Cow Hay	Crop yield for beef cattle hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(2):Crop Yield : Poultry Hay	Crop yield for poultry hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(3):Crop Yield : Milk Cow Hay	Crop yield for milk cow hay	DERIVED(kg wet wt/m**2)
Default value used		
YH(4):Crop Yield : Layer Hen Hay	Crop yield for layer hen hay	DERIVED(kg wet wt/m**2)
Default value used		
WV(1):Wet/dry : Leafy Vegetables	Wet/dry conversion factor for leafy vegetables	CONTINUOUS LINEAR(none)
Default value used		Value / Probability 3.32E-02 0.00E+00 4.89E-02 3.45E-02 5.47E-02 6.91E-02 5.96E-02 1.04E-01 6.36E-02 1.38E-01 6.70E-02 1.73E-01 7.05E-02 2.07E-01 7.38E-02 2.42E-01 7.48E-02 2.50E-01 7.72E-02 2.76E-01 8.03E-02 3.11E-01 8.34E-02 3.45E-01 8.66E-02 3.80E-01 9.00E-02 4.15E-01 9.36E-02 4.49E-01 9.73E-02 4.84E-01 9.91E-02 4.99E-01 1.01E-01 5.18E-01 1.05E-01 5.53E-01 1.09E-01 5.87E-01 1.13E-01 6.22E-01 1.18E-01 6.56E-01 1.23E-01 6.91E-01 1.29E-01 7.25E-01 1.33E-01 7.50E-01 1.35E-01 7.60E-01

		1.42E-01 7.94E-01 1.50E-01 8.29E-01 1.59E-01 8.64E-01 1.70E-01 8.98E-01 1.85E-01 9.33E-01 2.10E-01 9.67E-01 2.56E-01 9.91E-01 3.24E-01 1.00E+00
WV(2):Wet/dry : Other Vegetables	Wet/dry conversion factor for other vegetables	CONTINUOUS LINEAR(none)
Default value used		Value Probability 3.58E-02 0.00E+00 4.87E-02 3.45E-02 5.46E-02 6.91E-02 5.90E-02 1.04E-01 6.29E-02 1.38E-01 6.69E-02 1.73E-01 7.02E-02 2.07E-01 7.34E-02 2.42E-01 7.41E-02 2.50E-01 7.65E-02 2.76E-01 7.99E-02 3.11E-01 8.32E-02 3.45E-01 8.66E-02 3.80E-01 9.05E-02 4.15E-01 9.41E-02 4.49E-01 9.82E-02 4.84E-01 9.98E-02 4.99E-01 1.02E-01 5.18E-01 1.06E-01 5.53E-01 1.09E-01 5.87E-01 1.14E-01 6.22E-01 1.19E-01 6.56E-01 1.24E-01 6.91E-01 1.29E-01 7.25E-01 1.33E-01 7.50E-01 1.35E-01 7.60E-01 1.42E-01 7.94E-01 1.50E-01 8.29E-01 1.59E-01 8.64E-01 1.70E-01 8.98E-01 1.87E-01 9.33E-01 2.12E-01 9.67E-01 2.62E-01 9.91E-01 3.13E-01 1.00E+00
WV(3):Wet/dry : Fruit	Wet/dry conversion factor for fruits	CONTINUOUS LINEAR(none)
Default value used		Value Probability 3.66E-02 0.00E+00 4.87E-02 3.45E-02 5.45E-02 6.91E-02 5.93E-02 1.04E-01 6.31E-02 1.38E-01 6.72E-02 1.73E-01 7.10E-02 2.07E-01 7.44E-02 2.42E-01 7.52E-02 2.50E-01 7.78E-02 2.76E-01 8.13E-02 3.11E-01 8.45E-02 3.45E-01 8.78E-02 3.80E-01 9.11E-02 4.15E-01 9.46E-02 4.49E-01

	9.82E-02 4.84E-01 9.97E-02 4.99E-01 1.02E-01 5.18E-01 1.06E-01 5.53E-01 1.10E-01 5.87E-01 1.14E-01 6.22E-01 1.19E-01 6.56E-01 1.24E-01 6.91E-01 1.29E-01 7.25E-01 1.34E-01 7.50E-01 1.35E-01 7.60E-01 1.42E-01 7.94E-01 1.49E-01 8.29E-01 1.58E-01 8.64E-01 1.70E-01 8.98E-01 1.87E-01 9.33E-01 2.14E-01 9.67E-01 2.58E-01 9.91E-01 3.25E-01 1.00E+00
WV(4):Wet/dry : Grain Wet/dry conversion factor for grains	CONSTANT(none)
Default value used	Value 8.80E-01
WF(1):Wet/dry : Beef Cow Forage Wet/dry conversion factor for beef cattle forage	BETA(none)
Default value used	Lower Limit 1.83E-01 Upper Limit 3.23E-01 p 1.15E+00 q 1.18E+00
WF(2):Wet/dry : Poultry Forage Wet/dry conversion factor for poultry forage	DERIVED(none)
Default value used	
WF(3):Wet/dry : Milk Cow Forage Wet/dry conversion factor for milk cow forage	DERIVED(none)
Default value used	
WF(4):Wet/dry : Layer Hen Forage Wet/dry conversion factor for layer hen forage	DERIVED(none)
Default value used	
WG(1):Wet/dry : Beef Cow Grain Wet/dry conversion factor for beef cattle grain	CONSTANT(none)
Default value used	Value 8.80E-01
WG(2):Wet/dry : Poultry Grain Wet/dry conversion factor for poultry grain	DERIVED(none)
Default value used	
WG(3):Wet/dry : Milk Cow Grain Wet/dry conversion factor for milk cow grain	DERIVED(none)
Default value used	
WG(4):Wet/dry : Layer Hen Grain Wet/dry conversion factor for layer hen grain	DERIVED(none)
Default value used	
WH(1):Wet/dry : Beef Cow Hay Wet/dry conversion factor for beef cattle hay	DERIVED(none)
Default value used	
WH(2):Wet/dry : Poultry Hay Wet/dry conversion factor for poultry hay	DERIVED(none)
Default value used	

WH(3):Wet/dry : Milk Cow Hay	Wet/dry conversion factor for milk cow hay	DERIVED(none)
Default value used		
WH(4):Wet/dry : Layer Hen Hay	Wet/dry conversion factor for layer hen hay	DERIVED(none)
Default value used		
QF(1):Ingestion Rate : Beef Cow Forage	Ingestion rate for beef cattle forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QF(2):Ingestion Rate : Poultry Forage	Ingestion rate for poultry forage	BETA(kg dry wt forage/d)
Default value used		Lower Limit 3.48E-03 Upper Limit 2.82E-02 p 1.51E+00 q 1.41E+00
QF(3):Ingestion Rate : Milk Cow Forage	Ingestion rate for milk cow forage	CONTINUOUS LINEAR(kg dry wt forage/d)
Default value used		Value / Probability 6.35E+00 0.00E+00 6.77E+00 3.45E-02 6.96E+00 6.91E-02 7.10E+00 1.04E-01 7.24E+00 1.38E-01 7.35E+00 1.73E-01 7.47E+00 2.07E-01 7.57E+00 2.42E-01 7.60E+00 2.50E-01 7.67E+00 2.76E-01 7.77E+00 3.11E-01 7.87E+00 3.45E-01 7.98E+00 3.80E-01 8.08E+00 4.15E-01 8.18E+00 4.49E-01 8.31E+00 4.84E-01 8.37E+00 4.99E-01 8.42E+00 5.18E-01 8.54E+00 5.53E-01 8.67E+00 5.87E-01 8.81E+00 6.22E-01 8.95E+00 6.56E-01 9.10E+00 6.91E-01 9.26E+00 7.25E-01 9.38E+00 7.50E-01 9.45E+00 7.60E-01 9.68E+00 7.94E-01 9.93E+00 8.29E-01 1.02E+01 8.64E-01 1.06E+01 8.98E-01 1.11E+01 9.33E-01 1.20E+01 9.67E-01 1.33E+01 9.91E-01 1.53E+01 1.00E+00
QF(4):Ingestion Rate : Layer Hen Forage	Ingestion rate for layer hen forage	BETA(kg dry wt forage/d)

Default value used		Lower Limit 1.19E-02 Upper Limit 2.22E-02 p 1.45E+00 q 7.92E-01
QG(1):Ingestion Rate : Beef Cattle Grain	Ingestion rate for beef cattle grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.69E+00 Upper Limit 2.29E+00 p 1.99E+00 q 9.11E-01
QG(2):Ingestion Rate : Poultry Grain	Ingestion rate for poultry grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 1.04E-02 Upper Limit 8.45E-02 p 1.51E+00 q 1.41E+00
QG(3):Ingestion Rate : Milk Cow Grain	Ingestion rate for milk cow grain	NORMAL(kg dry wt grain/d)
Default value used		Mean 1.71E+00 Standard Deviation 2.62E-01
QG(4):Ingestion Rate : Layer Hen Grain	Ingestion rate for layer hen grain	BETA(kg dry wt grain/d)
Default value used		Lower Limit 3.58E-02 Upper Limit 6.67E-02 p 1.43E+00 q 7.92E-01
QH(1):Ingestion Rate : Beef Cattle Hay	Ingestion rate for beef cattle hay	BETA(kg dry wt hay/d)
Default value used		Lower Limit 3.38E+00 Upper Limit 4.58E+00 p 1.99E+00 q 9.11E-01
QH(2):Ingestion Rate : Poultry Hay	Ingestion rate for poultry hay	CONSTANT(kg dry wt hay/d)
Default value used		Value 0.00E+00
QH(3):Ingestion Rate : Milk Cow Hay	Ingestion rate for milk cow hay	CONTINUOUS LINEAR(kg dry wt hay/d)

Default value used

Value	Probability
5.12E+00	0.00E+00
5.43E+00	3.45E-02
5.57E+00	6.91E-02
5.68E+00	1.04E-01
5.79E+00	1.38E-01
5.89E+00	1.73E-01
5.98E+00	2.07E-01
6.06E+00	2.42E-01
6.08E+00	2.50E-01
6.14E+00	2.76E-01
6.22E+00	3.11E-01
6.30E+00	3.45E-01
6.38E+00	3.80E-01
6.46E+00	4.15E-01
6.54E+00	4.49E-01
6.63E+00	4.84E-01
6.67E+00	4.99E-01
6.72E+00	5.18E-01
6.81E+00	5.53E-01
6.92E+00	5.87E-01

	7.03E+00 6.22E-01 7.13E+00 6.56E-01 7.26E+00 6.91E-01 7.39E+00 7.25E-01 7.49E+00 7.50E-01 7.56E+00 7.60E-01 7.70E+00 7.94E-01 7.89E+00 8.29E-01 8.11E+00 8.64E-01 8.39E+00 8.98E-01 8.75E+00 9.33E-01 9.44E+00 9.67E-01 1.05E+01 9.91E-01 1.27E+01 1.00E+00
QH(4):Ingestion Rate : Layer Hen Hay	Ingestion rate for layer hen hay CONSTANT(kg dry wt hay/d)
Default value used	Value 0.00E+00
QW(1):Water Rate : Beef Cattle	Water ingestion rate for beef cattle CONSTANT(L/d)
Default value used	Value 5.00E+01
QW(2):Water Rate : Poultry	Water ingestion rate for poultry CONSTANT(L/d)
Default value used	Value 3.00E-01
QW(3):Water Rate : Milk Cows	Water ingestion rate for milk cows CONSTANT(L/d)
Default value used	Value 6.00E+01
QW(4):Water Rate : Layer Hens	Water ingestion rate for layer hens CONSTANT(L/d)
Default value used	Value 3.00E-01
QD(1):Soil Fraction : Beef Cattle	Soil intake fraction for beef cattle CONSTANT(none)
Default value used	Value 2.00E-02
QD(2):Soil Fraction : Poultry	Soil intake fraction for poultry CONSTANT(none)
Default value used	Value 1.00E-01
QD(3):Soil Fraction : Milk Cows	Soil intake fraction for milk cows CONSTANT(none)
Default value used	Value 2.00E-02
QD(4):Soil Fraction : Layer Hens	Soil intake fraction for layer hens CONSTANT(none)
Default value used	Value 1.00E-01
MLV(1):Mass-Loading : Leafy Vegetables	Mass-loading factor for leafy vegetables CONSTANT(none)
Default value used	Value 1.00E-01
MLV(2):Mass-Loading : Other Vegetables	Mass-loading factor for other vegetables CONSTANT(none)
Default value used	Value 1.00E-01
MLV(3):Mass-Loading : Fruits	Mass-loading factor for fruits CONSTANT(none)
Default value used	Value 1.00E-01
MLV(4):Mass-Loading : Grains	Mass-loading factor for grains CONSTANT(none)

Default value used		Value 1.00E-01
LAMBDW:Weathering Rate	Weathering rate for activity removal from plants	CONSTANT(1/d)
Default value used		Value 4.95E-02
MLF(1):Mass-Loading : Beef Cow Forage	Mass-loading factor for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(2):Mass-Loading : Poultry Forage	Mass-loading factor for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(3):Mass-Loading : Milk Cow Forage	Mass-loading factor for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLF(4):Mass-Loading : Layer Hen Forage	Mass-loading factor for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(1):Mass-Loading : Beef Cattle Grain	Mass-loading factor for beef cattle grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(2):Mass-Loading : Poultry Grain	Mass-loading factor for poultry grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(3):Mass-Loading : Milk Cow Grain	Mass-loading factor for milk cow grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLG(4):Mass-Loading : Layer Hen Grain	Mass-loading factor for layer hen grain	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(1):Mass-Loading : Beef Cattle Hay	Mass-loading factor for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(2):Mass-Loading : Poultry Hay	Mass-loading factor for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(3):Mass-Loading : Milk Cow Hay	Mass-loading factor for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
MLH(4):Mass-Loading : Layer Hen Hay	Mass-loading factor for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
TFF(1):Feeding Period : Beef Cow Forage	Feeding period for beef cattle forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(2):Feeding Period : Poultry Forage	Feeding period for poultry forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFF(3):Feeding Period : Milk Cow Forage	Feeding period for milk cow forage	CONSTANT(days)
Default value used		Value 3.65E+02

TFF(4):Feeding Period : Layer Hen Forage	Feeding period for layer hen forage	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(1):Feeding Period : Beef Cattle Grain	Feeding period for beef cattle grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(2):Feeding Period : Poultry Grain	Feeding period for poultry grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(3):Feeding Period : Milk Cow Grain	Feeding period for milk cow grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFG(4):Feeding Period : Layer Hen Grain	Feeding period for layer hen grain	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(1):Feeding Period : Beef Cattle Hay	Feeding period for beef cattle hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(2):Feeding Period : Poultry Hay	Feeding period for poultry hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(3):Feeding Period : Milk Cow Hay	Feeding period for milk cow hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFH(4):Feeding Period : Layer Hen Hay	Feeding period for layer hen hay	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(1):Water Period : Beef Cattle	Water ingestion period for beef cattle	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(2):Water Period : Poultry	Water ingestion period for poultry	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(3):Water Period : Milk Cows	Water ingestion period for milk cows	CONSTANT(days)
Default value used		Value 3.65E+02
TFW(4):Water Period : Layer Hens	Water ingestion period for layer hens	CONSTANT(days)
Default value used		Value 3.65E+02
fha(1):Hydrogen Fraction : Beef Cattle	Hydrogen fraction for beef cattle	CONSTANT(none)
Default value used		Value 1.00E-01
fha(2):Hydrogen Fraction : Poultry	Hydrogen fraction for poultry	CONSTANT(none)
Default value used		Value 1.00E-01
fha(3):Hydrogen Fraction : Milk Cows	Hydrogen fraction for milk cows	CONSTANT(none)
Default value used		Value 1.10E-01
fha(4):Hydrogen Fraction : Eggs	Hydrogen fraction for eggs	CONSTANT(none)

Default value used		Value 1.10E-01
fhv(1):Hydrogen Fraction : Leafy Vegetables	Hydrogen fraction for leafy vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(2):Hydrogen Fraction : Other Vegetables	Hydrogen fraction for other vegetables	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(3):Hydrogen Fraction : Fruits	Hydrogen fraction for fruits	CONSTANT(none)
Default value used		Value 1.00E-01
fhv(4):Hydrogen Fraction : Grains	Hydrogen fraction for grains	CONSTANT(none)
Default value used		Value 6.80E-02
fhf(1):Hydrogen Fraction : Beef Cow Forage	Hydrogen fraction for beef cattle forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(2):Hydrogen Fraction : Poultry Forage	Hydrogen fraction for poultry forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(3):Hydrogen Fraction : Milk Cow Forage	Hydrogen fraction for milk cow forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhf(4):Hydrogen Fraction : Layer Hen Forage	Hydrogen fraction for layer hen forage	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(1):Hydrogen Fraction : Beef Cattle Hay	Hydrogen fraction for beef cattle hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(2):Hydrogen Fraction : Poultry Hay	Hydrogen fraction for poultry hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(3):Hydrogen Fraction : Milk Cow Hay	Hydrogen fraction for milk cow hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhh(4):Hydrogen Fraction : Layer Hen Hay	Hydrogen fraction for layer hen hay	CONSTANT(none)
Default value used		Value 1.00E-01
fhg(1):Hydrogen Fraction : Beef Cattle Grain	Hydrogen fraction for beef cattle grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(2):Hydrogen Fraction : Poultry Grain	Hydrogen fraction for poultry grain	CONSTANT(none)
Default value used		Value 6.80E-02

fhg(3):Hydrogen Fraction : Milk Cow Grain	Hydrogen fraction for milk cow grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhg(4):Hydrogen Fraction : Layer Hen Grain	Hydrogen fraction for layer hen grain	CONSTANT(none)
Default value used		Value 6.80E-02
fhd016:Hydrogen Fraction : Soil	Fraction of hydrogen in soil	DERIVED(none)
Default value used		
sasvh:Tritium Equivalence: Plant/Soil	Tritium equivalence: plant/soil	CONSTANT(none)
Default value used		Value 1.00E+00
sawvh:Tritium Equivalence: Plant/Water	Tritium equivalence: plant/water	CONSTANT(none)
Default value used		Value 1.00E+00
satah:Tritium Equivalence: Animal Products	Tritium equivalence: animal product intake	CONSTANT(none)
Default value used		Value 1.00E+00
YA(1):Animal Product Yield : Beef Cattle	Annual yield of beef per individual animal	CONSTANT(kg/y)
Default value used		Value 2.09E+02
YA(2):Animal Product Yield : Poultry	Annual yield of chicken per individual animal	CONSTANT(kg/y)
Default value used		Value 1.53E+00
YA(3):Animal Product Yield : Milk Cows	Annual yield of milk per individual animal	CONSTANT(L/y)
Default value used		Value 7.41E+03
YA(4):Animal Product Yield : Layer Hens	Annual yield of eggs per individual animal	CONSTANT(kg/y)
Default value used		Value 1.26E+01
ARExt:External Exposure Area	Minimum surface area to which resident is exposed via external radiation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARInh:Inhalation Exposure Area	Minimum surface area to which resident is exposed via inhalation during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARIng:Secondary Ingestion Exposure Area	Minimum surface area to which resident is exposed via secondary ingestion during residential period	CONSTANT(m**2)
Default value used		Value 1.00E+02
ARAgr:Agricultural Exposure Area	Minimum surface area to which resident is exposed via any agricultural product during residential period	DERIVED(m**2)
Default value used		
ARH2O:Groundwater Exposure Area	Minimum surface area to which resident is exposed via groundwater during residential period	DERIVED(m**2)

Default value used		
ARAll:Exposure Area	Minimum surface area to which resident is exposed via any pathway during the residential period	DERIVED(m**2)
Default value used		

Element Dependant Parameters

Parameter Name	Description	Distribution
Eu:Coefficient	Partition coefficient for Eu	NORMAL(Log10(mL/g))
Default value used		Mean 2.98E+00 Standard Deviation 1.74E+00
Eu:Leafy	Leafy plant concentration factor for Eu	LOGNORMAL-N(pCi/kg dry-wt leafy per pCi/kg soil)
Default value used		Mean of Ln(X) -4.61E+00 Standard Deviation of Ln 9.04E-01
Eu:Root	Root plant concentration factor for Eu	LOGNORMAL-N(pCi/kg dry-wt roots per pCi/kg soil)
Default value used		Mean of Ln(X) -5.52E+00 Standard Deviation of Ln 9.04E-01
Eu:Fruit	Fruit concentration factor for Eu	LOGNORMAL-N(pCi/kg dry-wt fruit per pCi/kg soil)
Default value used		Mean of Ln(X) -5.52E+00 Standard Deviation of Ln 9.04E-01
Eu:Grain	Grain concentration factor for Eu	LOGNORMAL-N(pCi/kg dry-wt grain per pCi/kg soil)
Default value used		Mean of Ln(X) -5.52E+00 Standard Deviation of Ln 9.04E-01
Eu:Beef	Beef transfer factor for Eu	CONSTANT(d/kg)
Default value used		Value 5.00E-03
Eu:Poultry	Poultry transfer factor for Eu	CONSTANT(d/kg)
Default value used		Value 4.00E-03
Eu:Milk	Milk transfer factor for Eu	CONSTANT(d/L)
Default value used		Value 2.00E-05
Eu:Eggs	Egg transfer factor for Eu	CONSTANT(d/kg)
Default value used		Value 7.00E-03
Eu:Factor	Bioaccumulation factor for Eu in fish	CONSTANT(pCi/kg wet-wt fish per pCi/L water)
Default value used		Value 2.50E+01

Correlation Coefficients:

Parameter One	Parameter Two	Correlation Coefficient
KSDEV:Permeability Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		
NDEV:Porosity Probability	**BDEV:Parameter "b" Probability**	-0.35
Default value used		

Summary Results:

90.00% of the 100 calculated TEDE values are < 8.78E-01 mrem/year .
The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 8.76E-01 to 8.83E-01 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	Soil Concentration (pCi/g)	Water Concentration (pCi/g)
155Eu	1.00E+01	2.47E-17

Pathway Dose from All Nuclides (mrem)

All Pathways Dose	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
8.83E-01	5.21E-02	1.75E-20	1.00E-20	8.30E-01	1.40E-04	2.02E-04	3.07E-20

Radionuclide Dose through All Active Pathways (mrem)

Nuclide	All Pathways Dose
155Eu	8.83E-01
All Nuclides	8.83E-01

Dose from Each Nuclide through Each Active Pathway (mrem)

Nuclide	Agricultural	Drinking Water	Surface Water	External	Inhalation	Secondary Ingestion	Irrigation
155Eu	5.21E-02	1.75E-20	1.00E-20	8.30E-01	1.40E-04	2.02E-04	3.07E-20

Appendix B

RESRAD BUILD Version 3.21 Computer Runs for Ag-108m

Appendix B
RESRAD BUILD Version 3.21 Computer Runs for Ag-108m
Ag-108m is Not Listed in NUREG 1757 Appendix B Screening Values and Not Available on the DandD Version 2.1.0 Computer Program

Ag-108m Building Occupancy – Building Surfaces

Table of Contents

SUMMARY

This appendix provides the results of RESRAD BUILD Version 3.21 computer runs to generate a screening value for Ag-108m on building surfaces equivalent to 25 mrem/yr dose criteria.

The Federal Register (Volume 65, No 114, June 13, 2000, page 3718) allows for the use of DandD code with the default settings when a screening value is not listed. This Federal Register also allows for the use of NUREG/CR-5512, Volume 3 to determine acceptable screening values using Table 5.19 ($P_{crit} = 0.90$) for building surface contamination. The RESRAD code was used to calculate screening values for Ag-108m because Ag-108m was not available in DandD or NUREG 1757 Appendix B or NUREG 5512, Vol 3, Table 5.19.

RESRAD BUILD Version 3.21 was used to generate a screening value for building surfaces for Ag-108m. Some of the default parameters were modified to match the building occupancy scenario in NUREG/CR-5512. The changes to the default settings were obtained from the RESRAD Build User's manual and are listed in Table 1 below. Where parameters are not listed in Table I, the RESRAD BUILD defaults were used.

Table 1
Changes to RESRAD BUILD Default Parameters –
Consistent with NUREG/CR-5512

Input Parameter[1] (units)	RESRAD BUILD default	Change	Remarks
Time Parameter Exposure Duration (days)	365	365.25	To match the occupancy period of 362.25 days in NUREG/CR-5512 building occupancy scenario
Time Parameter Indoor Fraction (unitless)	0.5	0.267	To match the 97.5 d/yr time in building in NUREG/CR-5512 building occupancy scenario
Building Parameter Area (m^2)	36	1000	To approximate the NUREG-5512 Building Occupancy Scenario infinite source condition
Receptor Parameter Inhalation Rate (m^3/d)	18	33.6	For building occupancy scenario it matches with 1.4 m^3/hr breathing rates in NUREG/CR-5512
Source Parameter Type/Dir	Volume	Area	For the building occupancy scenario it is assumed that contamination is only on the surfaces
Source Parameter Area (m^2)	36	1000	To approximate the NUREG-5512 Building Occupancy Scenario infinite source condition

Source Parameter Air Fraction (unitless)	0.1	0.357	As described in RESRAD BUILD User's manual, this is the mean value from the parameter distribution
Source Parameter Direct Ingestion Rate (1/h)	0	3.06E-6	As described in RESRAD BUILD User's manual, this is the mean value from the distribution for the building occupancy scenario
Source Parameter Removable Fraction (unitless)	0.5	0.1	10% of the contamination is removable (NUREG-5512 building occupancy scenario default)
Source Parameter Lifetime (d)	365	10,000	As described in RESRAD BUILD User's manual, this value for the building occupancy scenario is the most likely value from the parameter distribution

[1] The printout output frequently specifies the parameter names different from the input screen.

Co-60 and Cs-137 were run using these parameters as verification of the input parameters. The results from Co-60 and Cs-137 are compared to the screening values published in NUREG 1757 Appendix B and NUREG/CR-5512 Table 5.19. The results show that the screening value calculated using RESRAD BUILD is higher than the screening value published in Appendix B of NUREG 1757. An explanation for the higher screening values is provided in NUREG/CR-5512, Volume 4, *Comparison of the Models and Assumptions used in the DandD 1.0, RESRAD 5.61, and RESRAD-Build 1.5 Computer Codes with Respect to the Residential Farmer and Industrial Occupant Scenarios Provided in NUREG/CR-5512.* NUREG/CR-5512, Volume 4 describes that the disagreement between the dose rates for cobalt-60 is largely attributable to the limited size of the contaminated zone. The low attenuation of these gamma rays by air makes a 1000 m^2 area "non-infinite" and this causes RESRAD-Build external dose rates to be smaller than those predicted by DandD. Ag-108m was run using the parameters as described and a screening value obtained. The RESRAD BUILD results are shown in Table 2.

Table 2
Building Surface Screening Value for Ag-108m

Radionuclide	**Surface Screening Value (dpm/100cm^2) Equivalent to 25 mrem/yr**		
	RESRAD BUILD	**Appendix B of NUREG 1757**	**NUREG/CR-5512 Table 5.19 (P_{crit} = 0.90)**
Co-60	1.01 E4	7.1 E3	7.05 E3
Cs-137	1.25 E4	2.8 E4	2.80 E4
Ag-108m	1.71 E4	NA	NA

NA: Not available

The computer runs for the values tabulated above are found in the pages that follow.

REFERENCES

Federal Register Volume 65, No. 114, Tuesday, June 13, 2000, page 37186, Nuclear Regulatory Commission, *Use of Screening Values to Demonstrate Compliance with the Final Rule on Radiological Criteria for License Termination*

NUREG-1757, Volume 1, *Consolidated MSS Decommissioning Guidance, Decommissioning Process for Materials Licenses*, September 2003

NUREG/CR-5512, Volume 3, SAND99-2148, *Residual Radioactive Contamination From Decommissioning Parameter Analysis*, USNRC October 1999

NUREG/CR-5512, Volume 4 SAND99-2147, *Comparison of the Models and Assumptions used in the DandD 1.0, RESRAD 5.61, and RESRAD-Build 1.50 Computer Codes with Respect to the Residential Farmer and Industiral Occupant Scenarios Provided in NUREG/CR-5512*, USNRC October 1999

ANL/EAD/03-1, User's Manual for RESRAD-BUILD Version 3, Argonne National Laboratory, USDOE, June 2003

Co-60
RESRAD BUILD V3.21 Building Occupancy (verification run)

RESRAD Build Results

$$\frac{2.22\ dpm/m^2 \times m^2/100^2 cm^2}{5.47E-5 mrem/yr} \times 100 cm^2 \times 25 mrem/yr = 10{,}146\ dpm/100 cm^2$$

Appendix B of NUREG 1757 screening value
Co-60 = 7.1 E3 dpm/100 cm^2

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Co-60 = 7.05 E3 dpm/100cm^2

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters

Number of Sources : 1
Number of Receptors: 1
Total Time : 3.652500E+02 days
Fraction Inside : 2.670000E-01

Receptor Information

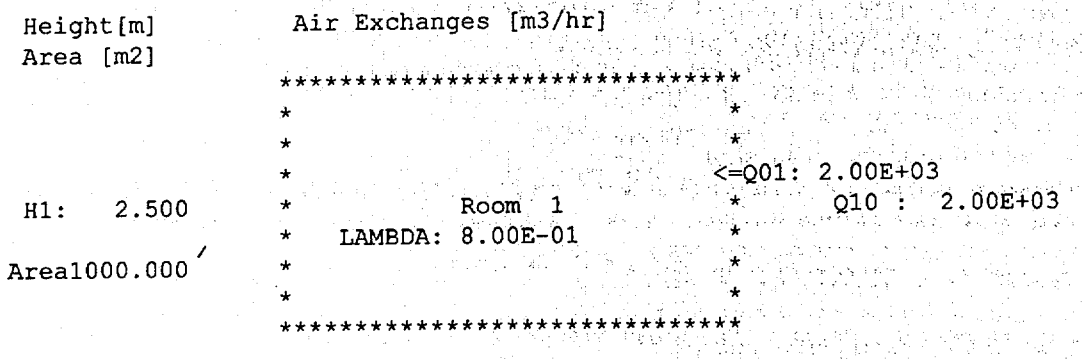
Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion(Dust) [m2/hr]
1	1	1.000	1.000	1.000	1.000	3.36E+01	1.00E-04

Receptor-Source Shielding Relationship

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete

Building Information

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



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: 0.00 z: 0.00[m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::

Nuclide	Concentration	Dose Conversion Factor (Library:		
		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CO-60	2.220E+00	1.212E-05	9.865E-05	6.622E-03

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 0.00000000E+00 years

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

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	CO-60	2.220E+00

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 0.00000000E+00 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

		Source 1	Total
Receptor	1	5.47E-05	5.47E-05
Total		5.47E-05	5.47E-05

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 0.00000000E+00 years

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.69E-05	4.75E-08	2.39E-10	4.35E-08	0.00E+00	1.77E-05
Total	3.69E-05	4.75E-08	2.39E-10	4.35E-08	0.00E+00	1.77E-05

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 0.00000000E+00 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
CO-60		
CO-60	5.47E-05	5.47E-05

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 1.00000000 years

Assessment for Time: 2
Time =1.00E+00 yr

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 9.670E-02
Time to Remove: 1.000E+04 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	CO-60	1.939E+00

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 1.00000000 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Total
Receptor 1	4.73E-05	4.73E-05
Total	4.73E-05	4.73E-05

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	3.22E-05	4.17E-08	2.09E-10	3.82E-08	0.00E+00	1.50E-05
Total	3.22E-05	4.17E-08	2.09E-10	3.82E-08	0.00E+00	1.50E-05

Title : Default Case for RESRAD-BUILD Co-60
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCo.bld
Evaluation Time: 1.00000000 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
CO-60		
CO-60	4.73E-05	4.73E-05

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	5.47E-05	4.73E-05

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	5.47E-05	4.73E-05

Cs-137
RESRAD BUILD V3.21 Building Occupancy (verification run)

RESRAD BUILD Results

$$\frac{2.22\ dpm/m^2 \times m^2/100^2 cm^2}{4.41E-5 mrem/yr} \times 100 cm^2 \times 25 mrem/yr = 12{,}472\ dpm/100 cm^2$$

Appendix B of NUREG 1757 screening value
Cs-137 = 2.8 E4 dpm/100 cm^2

NUREG/CR 5512, Volume 3, Table 5.19 (Pcrit = 0.90)
Cs-137 = 2.80 E4 dpm/100cm^2

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters

Number of Sources : 1
Number of Receptors: 1
Total Time : 3.652500E+02 days
Fraction Inside : 2.670000E-01

Receptor Information

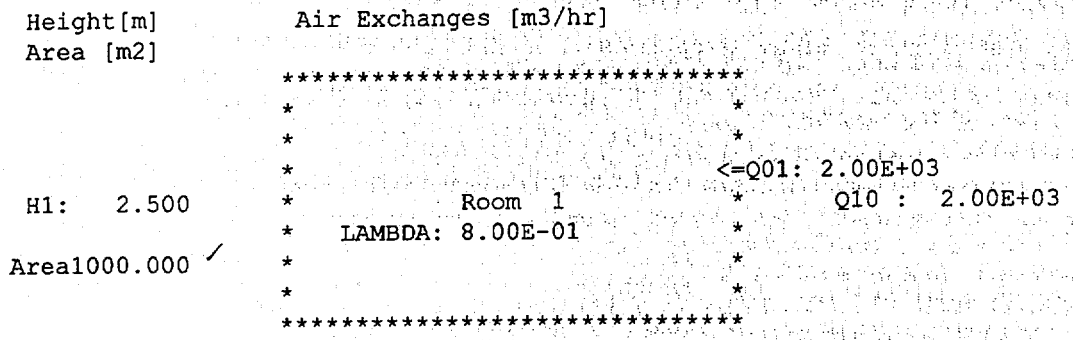
Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion(Dust) [m2/hr]
1	1	1.000	1.000	1.000	1.000	3.36E+01	1.00E-04

Receptor-Source Shielding Relationship

Receptor	Source	Density [g/cm3]	Thickness [cm]	Material
1	1	2.40E+00	0.00E+00	Concrete

Building Information

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



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: 0.00 z: 0.00[m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::

Nuclide	Concentration	Dose Conversion Factor (Library:		
		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
CS-137	2.220E+00	2.252E-05	1.437E-05	1.437E-03

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 0.00000000E+00 years

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

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	CS-137	2.220E+00

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 0.00000000E+00 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Total
Receptor 1	4.41E-05	4.41E-05
Total	4.41E-05	4.41E-05

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 0.00000000E+00 years

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	9.30E-06	1.35E-08	6.11E-11	7.49E-09	0.00E+00	3.48E-05
Total	9.30E-06	1.35E-08	6.11E-11	7.49E-09	0.00E+00	3.48E-05

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 0.00000000E+00 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
CS-137		
CS-137	4.41E-05	4.41E-05

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 1.00000000 years

Assessment for Time: 2
Time =1.00E+00 yr

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 9.670E-02
Time to Remove: 1.000E+04 [day]

Contamination:: Nuclide Concentration [dpm/m2]
CS-137 2.161E+00

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 1.00000000 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Total
Receptor 1	4.18E-05	4.18E-05
Total	4.18E-05	4.18E-05

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	9.05E-06	1.32E-08	5.97E-11	7.32E-09	0.00E+00	3.27E-05
Total	9.05E-06	1.32E-08	5.97E-11	7.32E-09	0.00E+00	3.27E-05

Title : Default Case for RESRAD-BUILD Cs-137
Input File : C:\Program Files\RESRAD_Family\BUILD\PathCs137.bld
Evaluation Time: 1.00000000 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
CS-137		
CS-137	4.18E-05	4.18E-05

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	4.41E-05	4.18E-05

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	4.41E-05	4.18E-05

Ag-108m
RESRAD BUILD V3.21 Building Occupancy

RESRAD BUILD Results

$$\frac{2.22\ dpm/m^2 \times m^2/100^2 cm^2}{3.25E-5 mrem/yr} \times 100 cm^2 \times 25 mrem/yr = 17{,}077\ dpm/100 cm^2$$

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld

RESRAD-BUILD Table of Contents

RESRAD-BUILD Input Parameters

Number of Sources : 1
Number of Receptors: 1
Total Time : 3.652500E+02 days
Fraction Inside : 2.670000E-01

Receptor Information

Receptor	Room	x [m]	y [m]	z [m]	FracTime	Inhalation [m3/day]	Ingestion(Dust) [m2/hr]
1	1	1.000	1.000	1.000	1.000	3.36E+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

Building Information

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

```
Height[m]          Air Exchanges [m3/hr]
Area [m2]
                  ********************************
                  *                              *
                  *                              *
                  *                            <=Q01: 2.00E+03
H1:    2.500      *            Room  1           *      Q10 :  2.00E+03
                  *    LAMBDA: 8.00E-01          *
Area1000.000 /    *                              *
                  *                              *
                  ********************************
```

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: 0.00 z: 0.00[m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::

Nuclide	Concentration	Dose Conversion Factor (Library:		
		Ingestion	Inhalation	Submersion
	[dpm/m2]	[mrem/dpm]	[mrem/dpm]	[mrem/yr/ (dpm/m3)]
AG-108m	2.220E+00	3.432E-06	1.275E-04	4.117E-03

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
Evaluation Time: 0.00000000E+00 years

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

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 1.000E-01
Time to Remove: 1.000E+04 [day]

Contamination::	Nuclide	Concentration [dpm/m2]
	AG-108m	2.220E+00

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
Evaluation Time: 0.00000000E+00 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Total
Receptor 1	3.26E-05	3.26E-05
Total	3.26E-05	3.26E-05

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
Evaluation Time: 0.00000000E+00 years

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.71E-05	4.02E-08	1.80E-10	6.84E-08	0.00E+00	5.35E-06
Total	2.71E-05	4.02E-08	1.80E-10	6.84E-08	0.00E+00	5.35E-06

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
AG-108		
AG-108m	3.26E-05	3.26E-05

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
Evaluation Time: 1.00000000 years

Assessment for Time: 2
Time =1.00E+00 yr

Source Information

Source: 1
Location:: Room : 1 x: 0.00 y: 0.00 z: 0.00 [m]
Geometry:: Type: Area Area:1.00E+03 [m2] Direction: x
Pathway ::
Direct Ingestion Rate: 3.060E-06 [1/hr]
Fraction released to air: 3.570E-01
Removable fraction: 9.670E-02
Time to Remove: 1.000E+04 [day]

Contamination::

Nuclide	Concentration [dpm/m2]
AG-108m	2.200E+00

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
valuation Time: 1.00000000 years

RESRAD-BUILDDose Tables

Source Contributions to Receptor Doses

[mrem]

	Source 1	Total
Receptor 1	3.21E-05	3.21E-05
Total	3.21E-05	3.21E-05

Pathway Detail of Doses

[mrem]

Source: 1

Receptor	External	Deposition	Immersion	Inhalation	Radon	Ingestion
1	2.69E-05	4.00E-08	1.79E-10	6.80E-08	0.00E+00	5.12E-06
Total	2.69E-05	4.00E-08	1.79E-10	6.80E-08	0.00E+00	5.12E-06

Title : Default Case for RESRAD-BUILD Ag-108m
Input File : C:\Program Files\RESRAD_Family\BUILD\PathAg108m.bld
Evaluation Time: 1.00000000 years

Nuclide Detail of Doses

[mrem]

Source: 1

Nuclide	Receptor 1	Total
AG-108		
AG-108m	3.21E-05	3.21E-05

RESRAD-BUILD Dose (Time) Tables

Receptor Dose Received for the Exposure Duration

(mrem)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	3.26E-05	3.21E-05

Receptor Dose/Yr Averaged Over Exposure Duration

(mrem/yr)

	Evaluation Time [yr]	
	0.00E+00	1.00E+00
1	3.26E-05	3.21E-05