



# DandD Building Occupancy Scenario

**DandD Version:** 2.1.0

**Run Date/Time:** 8/27/2007 10:53:37 AM

**Site Name:** N/A

**Description:** DSV Determination

**FileName:** C:\Documents and Settings\Dave Culp\My Documents\Ca-45 DSV.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 <sup>2</sup> )	Distribution
45Ca	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: DSV Determination		Value 1.00E+00

## Chain Data:

Number of chains: 1

Chain No. 1: **45Ca**

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 <sup>2</sup> ))	15 cm Dose Rate Factor ((Sv/d)/(Bq/m <sup>3</sup> ))
45Ca	1	1.63E+02					8.55E-10	1.79E-09	3.98E-15	2.89E-17

## Initial Concentrations:

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

Nuclide	Surface Concentration (dpm/100 cm**2)
45Ca	1.00E+00

## Model Parameters:

### General Parameters:

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Parameter Name	Description	Distribution
To:Time In Building	The time in the building during the occupancy period	CONSTANT(hr/week)
Default value used		Value4.50E+01
Tto:Occupancy Period	The duration of the occupancy exposure period	CONSTANT(days)
Default value used		Value3.65E+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		Value1.40E+00
RFo*:Resuspension Factor	Effective resuspension factor during the occupancy period = RFo * FI	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 * FI	DERIVED(m**2/hr)
Default value used		
Tstart:Start Time	The start time of the scenario in days	CONSTANT(days)
Default value used		Value0.00E+00
Tend:End Time	The ending time of the scenario in days	CONSTANT(days)
Default value used		Value3.65E+02
dt:Time Step Size	The time step size	CONSTANT(days)
Default value used		Value3.65E+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		Value1.00E+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		Value1.00E+01
AOInh:Inhalation Exposure Area	Minimum surface area to which occupant is exposed via inhalation during occupancy period	CONSTANT(m**2)
Default value used		Value1.00E+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		Value1.00E+01
AO:Exposure Area	Minimum surface area to which occupant is exposed during the occupancy period	DERIVED(m**2)
Default value used		
FI:Loose Fraction	Fraction of surface contamination available for resuspension and ingestion	CONSTANT(none)
Default value used		Value1.00E-01
Rfo:Loose Resuspension Factor	Resuspension factor for loose contamination	CONTINUOUS LOGARITHMIC(1/m)
Default value used		ValueProbability 9.12E-060.00E+00 1.10E-047.67E-01 1.46E-049.09E-01 1.62E-049.50E-01 1.85E-049.90E-01 1.90E-041.00E+00
GO:Loose Ingestion	The secondary ingestion transfer rate of loose removable surface activity from	

<b>Rate</b>	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 < 8.92E-06 mrem/year .

The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 8.15E-06 to 9.89E-06 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)
45Ca	5.08E-01

**Pathway Dose from All Nuclides (mrem)**

All Pathways Dose	External	Inhalation	Secondary Ingestion
9.89E-06	3.28E-08	8.00E-06	1.86E-06

**Radionuclide Dose through All Active Pathways (mrem)**

Nuclide	All Pathways Dose
45Ca	9.89E-06
All Nuclides	9.89E-06

**Dose from Each Nuclide through Each Active Pathway (mrem)**

Nuclide	External	Inhalation	Secondary Ingestion
45Ca	3.28E-08	8.00E-06	1.86E-06