

Potential Dose Distributions at Proposed Surface Radioactivity Clearance Levels Resulting from Occupational Scenarios

Environmental Science Division

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ACRONYMS AND ABBREVIATIONS

CD compact disc

DCF dose conversion factor(s)

DOE U.S. Department of Energy

ED effective dose

EDE effective dose equivalent

FGR Federal Guidance Report

ICRP International Commission on Radiological Protection

Units of Measure

d day(s)

dpm disintegration per minute

h hour(s)

in. inch(es)

m meter(s)

m² square meter(s)

m³ cubic meter(s)

mrem millirem(s)

pCi picocuries

Rn Radon

s second

yr year(s)

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S. Kamboj, C. Yu, and J. Rabovsky

1 INTRODUCTION

The purpose of this report is to evaluate the potential dose distribution resulting from surface radioactivity, using occupational radiation exposure scenarios. The surface radioactivity clearance values considered in this analysis may ultimately replace those currently specified in the U.S. Department of Energy (DOE) requirements and guidance for radiological protection of workers, the public and the environment. The surface contamination values apply to radioactive contamination deposited on a surface (i.e., not incorporated into the interior of the material).

For these calculations, the dose coefficients for intake of radionuclides were taken from ICRP Publication 68 (ICRP 1994), and external exposure dose coefficients were taken from the compact disc (CD) that accompanied Federal Guidance Report (FGR) 13 (Eckerman et al. 1999). The ICRP Publication 68 dose coefficients were based on ICRP Publication 60 (ICRP 1990) and were used specifically for worker dose calculations. The calculated dose in this analysis is the “effective dose” (ED), rather than the “effective dose equivalent” (EDE).

2 SCENARIO DESCRIPTION

Two scenarios were considered in calculating the dose distribution for thirteen selected radionuclides. The first scenario assumes the use of a contaminated building by workers, and the second scenario assumes use of a contaminated desk in an office setting. The 13 radionuclides analyzed are Am-241, C-14, Co-60, Cs-137, Fe-55, I-129, Po-210, Pu-239, Ra-226, S-35, Sr-90, Tc-99, and U-238. The RESRAD-BUILD code (Yu et al. 2003) was used to calculate the dose distribution from surface contamination for these radionuclides. The surface radioactivity clearance levels were kept at the values considered as possible guidance in the DOE Order 458.1 (DOE 2011). Table 1 lists the surface radioactivity levels used in this analysis. However, the results of these calculations may be scaled to assess the doses resulting from other surface radioactivity clearance values. It is assumed that short-lived progeny (i.e., those with a half-life less than 30 days) are in equilibrium with the parent radionuclide. For example, Y-90 is assumed to be in equilibrium with Sr-90.

The RESRAD-BUILD computer code is a pathway analysis model developed to evaluate the potential radiation dose incurred by an individual who works or lives in a building contaminated with radioactive material. The contamination could be (1) on the surface of the floors, walls, or ceiling; (2) within the building material, such as drywall, concrete floors, steel I-beams, metal pipes, or wires; or (3) accumulated inside the building on different objects, such as desks and file cabinets. A single run of the RESRAD-BUILD code can simulate up to 10 distinct sources and 10 receptors.

TABLE 1 Surface Radioactivity Levels Used for Different Radionuclides

Radionuclides in Different Groups	Surface Radioactivity (dpm ¹ /100 square centimeters (cm ²))
Group 1: Am-241 and Pu-239	600
Group 2: Co-60, Cs-137, I-129, Po-210, Ra-226, Sr-90, and U-238	6,000
Group 3: C-14 and Tc-99	60,000
Group 4: Fe-55, and S-35	600,000

¹ dpm = disintegration per minute.

2.1 Description of the Building Scenario

In order to account for the differences in the building characteristics, two buildings (a large warehouse and a small office) with different building dimensions were analyzed. The building characteristics used in the analysis are listed in Table 2. Contamination was assumed to exist on the surfaces of interior floor and inside of the four surrounding walls. The contamination levels on all surfaces were assumed to be equal. A worker inside a contaminated building was assumed to incur radiation doses through (1) external radiation from the floor and interior walls; (2) inhalation of contaminated particles suspended from the contamination on the floor and interior walls; (3) ingestion of deposited dust particles; (4) external radiation from submersion in contaminated air; and (5) external radiation from deposited dust particles. For Ra-226 contamination, inhalation of radon released from the floor and interior walls was also included.

To account for uncertainty in the type of receptor and in the receptor's activities, a probabilistic approach was used to quantify the distribution of potential radiation doses. The RESRAD-BUILD parameters that were identified as being sensitive in terms of having great influence on the dose results were assigned distribution functions obtained from NUREG/CR-6697 (Yu et al. 2000).

- The indoor time fraction that a worker would spend in the buildings per work day was assigned a continuous distribution, as recommended in NUREG/CR-6697. According to the distribution, the 50th-percentile value is 0.365, corresponding to 8.76 hours (h)/day (d). The office workers were further assumed to work 250 days per year (yr).
- The breathing (inhalation) rate of the worker in a large warehouse was assumed to have a triangular distribution ranging from 12 to 46 cubic meters (m³)/d (0.5 to 1.92 m³/h), with a mode at 33.6 m³/d (1.4 m³/h), which is characteristic for a typical worker (EPA 1997). The breathing rate of the worker in a small office was assumed to have a triangular distribution ranging from 12 to 38.4 m³/d (0.5 [representative of sedentary activities] to 1.6 m³/h [representative of moderate activities]), with a mode at 24 m³/d (1.0 m³/h [representative of light activity]) (NUREG/CR-6697).

TABLE 2 Building Characteristics Used in the Dose Analysis

Parameter	Building Types	
	Large Warehouse	Small Office
Floor area, m ²	900	36
Room height, m	3.7	2.4
Air exchange rate, h	1	1.52
Source lifetime, y	3	3
Air release fraction	0.1	0.1
Removable fraction	1	1

- The indirect ingestion rate of deposited dust particles was assigned a loguniform distribution with a minimum of 2.8E-5 m²/d and maximum of 2.9E-4 m²/d (Yu et al. 2000). According to the distribution, the average ingestion rate of deposited dust particles is 1.1 cm²/h, which is very close to the rate of 1 cm²/h reported in different studies (Healy 1971; Kennedy et al. 1981; ANSI/HPS 1999).

The removable fraction was *kept fixed at 1*, which means that 100% of the contaminants will be removed within the “lifetime” of the source. Although the receptors may stay at any location inside the building, for external dose calculations, they were assumed to be at the center of the building, where the receptor will receive the greatest external exposure.

The building air exchange rate, fraction of removable material released to air, and source lifetime were adjusted to result in a resuspension factor of 1E-6 m⁻¹. It was assumed that the source lifetime is 3 years (i.e., in 3 years, all of the contamination would be removed) and that 10% (0.1) of the removable contamination is released into the air and available for inhalation by the workers. The air exchange rate for a small office is 1.52 h⁻¹, and for the large warehouse, it is 1.00 h⁻¹ (typical values observed).

Table 3 lists the parameter distribution functions used in the analyses. The other parameters were assigned the RESRAD-BUILD default values. Table 4 lists the dose coefficients for the 13 radionuclides and their decay products used to calculate the potential dose distributions from external exposure, ingestion, inhalation, and submersion pathways. Table A.1 in Appendix A lists parameters used in the analysis.

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TABLE 3 Parameter Distribution Functions Assigned to RESRAD-BUILD Parameters for the Building Occupancy Scenario

Parameters	Distribution Function ^a
Indoor time fraction	Continuous linear ^b
Deposition velocity, meters per second (m/s)	Loguniform (2.7E-06, 2.7E-03)
Resuspension rate, 1/s	Loguniform (2.8E-10, 1.4E-05)
Indirect ingestion rate of deposited particles, m ² /d	Loguniform (2.8E-5, 2.9E-04)
Breathing rate of receptor in large warehouse, m ³ /d	Triangular (12, 33.6, 46)
Breathing rate of receptor in small office, m ³ /d	Triangular (12, 24, 38.4)

^a The parameters assigned to different distribution functions are as follows:

- Loguniform (minimum, maximum); and
- Triangular (minimum, mode, maximum).

^b The parameter values for the continuous linear function are (0.003, 0), (0.0347, 0.05), (0.306, 0.25), (0.365, 0.5), (0.403, 0.75), (0.469, 0.9), (0.542, 0.98), and (0.692, 1), where the first number in parenthesis is value, and the second number in parenthesis is cumulative probability.

2.2 Description of the Desk Scenario

In this scenario, it is assumed that the top of a desk (72 inches [in.] × 36 in. × 28-in. high) is uniformly contaminated. The receptor (worker) is sitting at a distance of 18 inches from the center of the desk. It is assumed that the receptor center of mass is at 25 in. high for external dose calculations. The receptor is directly exposed to the radiation from the contaminated surface. There is no shielding between the contaminated surface and the receptor. The contamination level on the desk was assumed to be uniform. A worker was assumed to incur radiation doses through (1) external radiation from the top of the desk; (2) inhalation of contaminated particles suspended from the contamination on the desk; (3) ingestion of deposited dust particles; (4) external radiation from submersion in contaminated air; and (5) external radiation from deposited dust particles. To account for uncertainties in the type of receptor and the receptor's activities, the same parameters are assumed to have the probabilistic distribution as described in the office building scenario. The desk contamination could be in both types of buildings. Therefore, two scenarios, one in small office and another in a large warehouse, were analyzed. Table A.1 in Appendix A lists all the parameters used in the analysis.

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TABLE 4 Effective Dose Coefficients Used in the Analysis^a

Radionuclide	External (millirems [mrem]/yr per picocuries [pCi]/gram)	Inhalation (mrem/pCi)	Ingestion (mrem/pCi)	Submersion (mrem/yr per pCi/m ³)
Am-241	3.72E-02	9.99E-02	7.40E-04	7.91E-05
C-14	1.11E-05	2.15E-06	2.146E-06	3.04E-07
Co-60	15.4	6.29E-05	1.258E-05	1.39E-02
Cs-137	3.2	2.48E-05	4.810E-05	2.98E-03
Fe-55	0	3.40E-06	1.221E-06	0
I-129	9.61E-03	1.89E-04	4.070E-04	3.31E-05
Po-210	4.93E-05	8.14E-03	4.440E-03	4.54E-08
Pu-239	2.64E-04	1.18E-01	9.250E-04	4.08E-07
Ra-226+D	10.6	4.45E-02	1.037E-03	9.79E-03
S-35	1.23E-5	4.07E-06	2.849E-6	3.63E-07
Sr-90+D	4.10E-02	2.91E-04	1.136E-04	1.04E-04
Tc-99	1.086E-4	1.184E-05	2.368E-6	3.35E-06
U-238+D	0.156	2.11E-02	1.791E-04	2.092E-04
Np-237+D ^b	1.012	5.551E-02	4.102E-4	1.104E-03
U-233 ^b	1.265E-3	2.553E-02	1.887E-4	1.66E-06
Th-229+D ^b	1.408	2.973E-01	2.269E-3	1.630E-03
Ac-227+D ^b	1.868	4.884E-02	4.473E-3	2.037E-03
Pa-231 ^b	1.762E-1	3.293E-01	2.627E-3	1.830E-04
Pb-210+D ^b	7.457E-03	4.292E-03	2.558E-3	3.537E-05
U-235+D ^b	0.6918	2.257E-02	1.752E-4	8.106E-04
U-234 ^b	3.439E-4	2.516E-02	1.813E-4	7.160E-07
Th-230 ^b	1.071E-3	1.036E-01	7.770E-4	1.740E-06

^a Internal dose conversion factors (or DCFs) are taken from ICRP Publication 68 (ICRP 1994) for a particle size of 5 micron, and external exposure dose coefficients were taken from the CD that accompanied FGR 13 (Eckerman et al. 1999).

^b Decay product.

3 ANALYSIS AND DOSE RESULTS

The Latin hypercube sampling technique, one of two options included in the RESRAD-BUILD code, was used in sampling input parameter values. The dose calculation for each scenario was repeated 1,500 times (i.e., 500 observations and 3 repetitions). The results for the two different buildings and the desk scenarios were analyzed for statistical distributions.

Table 5 presents the all-pathways dose percentile values and all-pathways mean dose received by a worker for different radionuclides in the large contaminated warehouse at surface concentration levels shown in Table 1. Tables B.1a–B.13b in Appendix B include the individual pathway dose percentiles and individual pathway mean dose levels received by a worker from an individual radionuclide for a warehouse building scenario. Figure 1 shows the dose distribution of different radionuclides for a worker in the large contaminated warehouse.

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For the warehouse building scenario, the following is observed at the all-pathways mean dose:

- For C-14, Cs-137, Fe-55, I-129, Po-210, S-35, Sr-90, and Tc-99, surface contamination results in a mean dose of less than 5 mrem/yr;
- For Am-241, Co-60, and Pu-239, surface contamination results in a mean dose of between 5 and 10 mrem/yr;
- For Ra-226 and U-238, mean dose is greater than 10 mrem/yr;
- For Am-241, Po-210, Pu-239, S-35, and U-238, inhalation is a dominant pathway;
- For C-14 and I-129, ingestion is a dominant pathway;
- For Co-60 and Cs-137, external exposure is a significant pathway;
- For Fe-55 and Tc-99, inhalation and ingestion both are significant exposure pathways; and
- For Ra-226 and Sr-90, inhalation, ingestion, and direct external exposure are significant exposure pathways.

Table 6 presents the all-pathways dose percentile values and all-pathways mean dose levels received by a worker for different radionuclides in the small contaminated office at surface concentration levels shown in Table 1. Tables B.14a–B.26b in Appendix B include the individual pathway dose percentiles and individual pathway mean dose received by a worker from an individual radionuclide for a small office building scenario. Figure 2 shows the dose distribution of different radionuclides for a worker in the small contaminated office.

For a small office building scenario, the following is observed at the all-pathways mean dose:

- For C-14, Cs-137, Fe-55, I-129, Po-210, S-35, Sr-90, and Tc-99, surface contamination results in a mean dose of less than 5 mrem/yr;
- For Am-241, Co-60, and Pu-239, surface contamination results in a mean dose of between 5 and 10 mrem/yr;
- For Ra-226 and U-238, mean dose is greater than 10 mrem/yr;
- For Am-241, Pu-239, S-35, and U-238, inhalation is a dominant pathway;
- For C-14 and I-129, ingestion is a dominant pathway;
- For Co-60 and Cs-137, external exposure is a dominant pathway;
- For Fe-55, Po-210, and Tc-99, inhalation and ingestion both are significant exposure pathways; and
- For Ra-226 and Sr-90, inhalation, ingestion, and direct external exposure are significant exposure pathways.

Table 7 provides the all-pathways dose percentile values and all-pathways mean dose levels received by worker from different radionuclides in a desk scenario at surface concentration levels shown in Table 1 when the desk was located in a small office. Tables B.27a–B.39b in Appendix B include the individual pathway dose percentiles and individual pathway mean dose received by a worker from an individual radionuclide for a small

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office desk scenario. Figure 3 shows the dose distribution of different radionuclides in the desk scenario for a worker when the contaminated desk is located in a small office.

For a small office desk scenario, the following is observed at the all-pathways mean dose:

- For all radionuclides, surface contamination results in a mean dose of less than 5 mrem/yr;
- For Am-241 and Pu-239, inhalation is a dominant pathway;
- For C-14, ingestion is a dominant pathway;
- For Co-60 and Cs-137, external exposure is a dominant pathway;
- For Fe-55, Po-210, and Tc-99, inhalation and ingestion both are significant exposure pathways;
- For I-129 and Sr-90, ingestion and direct external exposure are two significant exposure pathways; and
- For Ra-226, S-35, and U-238, external exposure and inhalation are two significant exposure pathways.

Table 8 provides the all-pathways dose percentile values and all-pathways mean dose levels obtained for different radionuclides in desk scenarios at surface concentration levels shown in Table 1 when the contaminated desk is located in a large warehouse. Tables B.40a–B.52b in Appendix B include the individual pathway dose percentiles and individual pathway mean dose levels received by a worker from an individual radionuclide for a warehouse desk scenario. Figure 4 shows the dose distribution of different radionuclides in the desk scenario for a worker when the contaminated desk is located in a large warehouse.

For a warehouse desk scenario, the following is observed at the all-pathways mean dose:

- For all radionuclides, surface contamination results in a mean dose of less than 5 mrem/yr;
- For Am-241, S-35, and U-238, external exposure and inhalation are two significant pathways;
- For Po-210 and Pu-239, inhalation is a dominant pathway;
- For C-14 and Tc-99, external exposure and ingestion are two significant exposure pathways;
- For Co-60, Cs-137, I-129, Ra-226, and Sr-90, external exposure is a dominant pathway; and
- For Fe-55, inhalation and ingestion both are significant exposure pathways.

Figures 5–17 show the dose distribution for a worker from surface contamination at levels shown in Table 1 of individual radionuclides in different scenarios. In most cases, the warehouse building scenario resulted in higher doses as compared to a small office building scenario, because the external exposure from a large contaminated area resulted in a higher external exposure in the warehouse building scenario as compared to a small office building scenario. The inhalation pathway doses were also higher because of the higher breathing rate of the receptor in the warehouse building scenario as compared to the breathing rate of the receptor

in a small office (see Table 3). For all radionuclides, the contaminated desk in a small office resulted in a higher dose as compared to the contaminated desk in a large warehouse. For external radiation dominant radionuclides (Co-60 and Cs-137), there was practically no difference in doses when the desk was located in a small office or a large warehouse because source and receptor configuration were the same. When the desk was located in a large warehouse, the removable concentration from the desk was mixed with a much larger volume that resulted in a reduced air concentration as compared to the situation when the desk was located in a small office, and hence the lower inhalation and indirect ingestion doses.

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TABLE 5 Dose Distributions for a Worker in a Large Warehouse at Surface Concentration Levels in Table 1

Percentile	Dose (mrem/yr)												
	Am-241	C-14	Co-60	Cs-137	Fe-55	I-129	Po-210	Pu-239	Ra-226	S-35	Sr-90	Tc-99	U-238
2.5%	4.02E-01	1.17E-03	4.67E-01	1.26E-01	1.32E-02	2.41E-02	1.43E-01	4.76E-01	2.35E+00	5.24E-03	2.94E-02	5.88E-03	8.84E-01
5%	7.39E-01	2.75E-03	8.45E-01	2.47E-01	2.59E-02	5.63E-02	2.35E-01	8.76E-01	4.62E+00	8.54E-03	6.55E-02	1.29E-02	1.60E+00
10%	2.17E+00	7.56E-03	2.51E+00	6.90E-01	7.37E-02	1.53E-01	7.43E-01	2.59E+00	1.29E+01	2.73E-02	1.69E-01	3.63E-02	4.79E+00
15%	3.37E+00	1.12E-02	4.16E+00	1.12E+00	1.11E-01	2.46E-01	1.21E+00	3.99E+00	2.09E+01	4.45E-02	2.69E-01	5.37E-02	7.47E+00
20%	4.48E+00	1.32E-02	5.87E+00	1.56E+00	1.40E-01	2.88E-01	1.61E+00	5.33E+00	2.69E+01	5.89E-02	3.51E-01	6.39E-02	9.83E+00
25%	5.22E+00	1.48E-02	7.42E+00	1.92E+00	1.63E-01	3.14E-01	1.85E+00	6.19E+00	3.12E+01	6.69E-02	3.98E-01	7.18E-02	1.15E+01
30%	5.75E+00	1.62E-02	7.74E+00	2.01E+00	1.81E-01	3.32E-01	2.05E+00	6.85E+00	3.42E+01	7.45E-02	4.27E-01	7.97E-02	1.27E+01
35%	6.28E+00	1.74E-02	8.07E+00	2.10E+00	1.99E-01	3.50E-01	2.22E+00	7.48E+00	3.67E+01	8.09E-02	4.52E-01	8.53E-02	1.38E+01
40%	6.70E+00	1.87E-02	8.36E+00	2.18E+00	2.12E-01	3.67E-01	2.40E+00	7.95E+00	3.87E+01	8.69E-02	4.69E-01	9.04E-02	1.47E+01
45%	7.06E+00	2.00E-02	8.67E+00	2.27E+00	2.24E-01	3.89E-01	2.54E+00	8.38E+00	4.08E+01	9.19E-02	4.86E-01	9.62E-02	1.55E+01
50%	7.48E+00	2.16E-02	8.90E+00	2.33E+00	2.38E-01	4.09E-01	2.66E+00	8.90E+00	4.27E+01	9.57E-02	5.03E-01	1.02E-01	1.64E+01
55%	7.88E+00	2.34E-02	9.11E+00	2.38E+00	2.50E-01	4.38E-01	2.78E+00	9.38E+00	4.48E+01	1.00E-01	5.28E-01	1.07E-01	1.73E+01
60%	8.22E+00	2.55E-02	9.29E+00	2.43E+00	2.64E-01	4.71E-01	2.92E+00	9.77E+00	4.70E+01	1.05E-01	5.49E-01	1.15E-01	1.81E+01
65%	8.64E+00	2.77E-02	9.49E+00	2.49E+00	2.80E-01	5.20E-01	3.06E+00	1.03E+01	4.91E+01	1.10E-01	5.77E-01	1.22E-01	1.90E+01
70%	9.10E+00	3.11E-02	9.66E+00	2.59E+00	2.96E-01	5.77E-01	3.23E+00	1.08E+01	5.17E+01	1.17E-01	6.07E-01	1.32E-01	1.99E+01
75%	9.59E+00	3.80E-02	9.98E+00	2.71E+00	3.13E-01	7.39E-01	3.41E+00	1.15E+01	5.41E+01	1.23E-01	6.55E-01	1.44E-01	2.10E+01
80%	1.01E+01	5.84E-02	1.04E+01	2.85E+00	3.35E-01	1.10E+00	3.60E+00	1.20E+01	5.75E+01	1.29E-01	7.22E-01	1.62E-01	2.22E+01
85%	1.09E+01	9.99E-02	1.10E+01	3.04E+00	3.64E-01	1.98E+00	3.82E+00	1.30E+01	6.17E+01	1.37E-01	8.08E-01	1.94E-01	2.39E+01
90%	1.18E+01	2.11E-01	1.17E+01	3.30E+00	4.12E-01	4.09E+00	4.09E+00	1.41E+01	6.91E+01	1.47E-01	1.12E+00	3.15E-01	2.60E+01
95%	1.37E+01	7.11E-01	1.25E+01	4.00E+00	5.25E-01	1.36E+01	4.54E+00	1.64E+01	8.59E+01	1.63E-01	2.18E+00	8.60E-01	3.00E+01
97.5%	1.54E+01	1.55E+00	1.32E+01	4.80E+00	6.77E-01	3.01E+01	5.05E+00	1.94E+01	1.37E+02	1.79E-01	3.59E+00	1.80E+00	3.69E+01
Mean	7.48E+00	1.71E-01	8.17E+00	2.28E+00	2.56E-01	3.32E+00	2.60E+00	9.03E+00	4.71E+01	9.37E-02	7.21E-01	2.60E-01	1.67E+01
Minimum	4.26E-02	1.23E-04	8.16E-02	2.18E-02	1.59E-03	2.93E-03	1.90E-02	5.05E-02	2.89E-01	6.62E-04	4.02E-03	6.58E-04	9.58E-02
Maximum	4.23E+01	1.36E+01	1.80E+01	1.31E+01	2.14E+00	2.66E+02	9.40E+00	6.79E+01	6.83E+02	2.91E-01	1.66E+01	1.55E+01	1.34E+02

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TABLE 6 Dose Distributions for a Worker in a Small Office at Surface Concentration Levels in Table 1

Percentile	Dose (mrem/yr)												
	Am-241	C-14	Co-60	Cs-137	Fe-55	I-129	Po-210	Pu-239	Ra-226	S-35	Sr-90	Tc-99	U-238
2.5%	3.25E-01	9.90E-04	3.08E-01	8.52E-02	1.08E-02	1.81E-02	1.18E-01	3.93E-01	1.89E+00	4.27E-03	2.17E-02	4.83E-03	7.18E-01
5%	6.01E-01	2.32E-03	5.67E-01	1.65E-01	2.21E-02	4.25E-02	2.07E-01	7.13E-01	3.72E+00	7.27E-03	5.03E-02	1.09E-02	1.30E+00
10%	1.83E+00	6.45E-03	1.67E+00	4.63E-01	6.17E-02	1.14E-01	6.34E-01	2.19E+00	1.07E+01	2.30E-02	1.32E-01	3.05E-02	4.04E+00
15%	2.93E+00	9.79E-03	2.76E+00	7.49E-01	9.71E-02	1.86E-01	1.04E+00	3.49E+00	1.74E+01	3.73E-02	2.02E-01	4.50E-02	6.47E+00
20%	3.84E+00	1.12E-02	3.90E+00	1.04E+00	1.21E-01	2.18E-01	1.37E+00	4.54E+00	2.29E+01	4.92E-02	2.69E-01	5.48E-02	8.38E+00
25%	4.49E+00	1.23E-02	4.98E+00	1.29E+00	1.39E-01	2.34E-01	1.62E+00	5.31E+00	2.63E+01	5.75E-02	3.00E-01	6.11E-02	9.76E+00
30%	4.91E+00	1.34E-02	5.18E+00	1.35E+00	1.54E-01	2.46E-01	1.75E+00	5.84E+00	2.88E+01	6.28E-02	3.18E-01	6.65E-02	1.08E+01
35%	5.25E+00	1.42E-02	5.40E+00	1.41E+00	1.66E-01	2.59E-01	1.88E+00	6.24E+00	3.01E+01	6.81E-02	3.35E-01	7.05E-02	1.15E+01
40%	5.54E+00	1.52E-02	5.61E+00	1.47E+00	1.77E-01	2.74E-01	2.02E+00	6.58E+00	3.19E+01	7.24E-02	3.48E-01	7.46E-02	1.21E+01
45%	5.85E+00	1.64E-02	5.81E+00	1.52E+00	1.86E-01	2.92E-01	2.12E+00	6.93E+00	3.35E+01	7.60E-02	3.62E-01	7.88E-02	1.27E+01
50%	6.14E+00	1.79E-02	5.96E+00	1.56E+00	1.96E-01	3.08E-01	2.21E+00	7.30E+00	3.48E+01	7.92E-02	3.77E-01	8.40E-02	1.34E+01
55%	6.45E+00	1.94E-02	6.10E+00	1.59E+00	2.08E-01	3.33E-01	2.32E+00	7.68E+00	3.63E+01	8.30E-02	3.98E-01	8.86E-02	1.41E+01
60%	6.76E+00	2.11E-02	6.22E+00	1.63E+00	2.21E-01	3.65E-01	2.43E+00	8.07E+00	3.85E+01	8.65E-02	4.15E-01	9.47E-02	1.48E+01
65%	7.05E+00	2.36E-02	6.35E+00	1.67E+00	2.33E-01	4.05E-01	2.55E+00	8.41E+00	4.02E+01	9.08E-02	4.37E-01	1.01E-01	1.54E+01
70%	7.47E+00	2.72E-02	6.46E+00	1.75E+00	2.48E-01	4.85E-01	2.68E+00	8.90E+00	4.23E+01	9.55E-02	4.62E-01	1.09E-01	1.63E+01
75%	7.88E+00	3.46E-02	6.65E+00	1.82E+00	2.63E-01	6.42E-01	2.82E+00	9.38E+00	4.43E+01	1.01E-01	5.03E-01	1.20E-01	1.71E+01
80%	8.37E+00	5.54E-02	6.96E+00	1.93E+00	2.82E-01	1.03E+00	2.97E+00	9.92E+00	4.74E+01	1.07E-01	5.62E-01	1.40E-01	1.82E+01
85%	9.01E+00	9.82E-02	7.36E+00	2.06E+00	3.08E-01	1.89E+00	3.16E+00	1.08E+01	5.05E+01	1.13E-01	6.53E-01	1.70E-01	1.97E+01
90%	9.73E+00	2.11E-01	7.76E+00	2.21E+00	3.52E-01	4.00E+00	3.44E+00	1.17E+01	5.72E+01	1.22E-01	9.78E-01	2.93E-01	2.13E+01
95%	1.13E+01	7.17E-01	8.41E+00	2.76E+00	4.88E-01	1.37E+01	3.79E+00	1.37E+01	7.52E+01	1.35E-01	2.09E+00	8.51E-01	2.50E+01
97.5%	1.34E+01	1.57E+00	8.78E+00	3.43E+00	6.57E-01	3.04E+01	4.24E+00	1.75E+01	1.24E+02	1.49E-01	3.43E+00	1.81E+00	3.28E+01
Mean	6.25E+00	1.70E-01	5.46E+00	1.54E+00	2.21E-01	3.27E+00	2.18E+00	7.57E+00	3.97E+01	7.77E-02	6.07E-01	2.47E-01	1.39E+01
Minimum	4.04E-02	1.04E-04	5.40E-02	1.46E-02	1.37E-03	2.15E-03	1.60E-02	4.79E-02	2.57E-01	5.48E-04	2.98E-03	5.60E-04	8.93E-02
Maximum	4.01E+01	1.38E+01	1.18E+01	1.05E+01	2.12E+00	2.70E+02	7.96E+00	6.72E+01	6.66E+02	2.61E-01	1.63E+01	1.57E+01	1.32E+02

TABLE 7 Dose Distributions for a Worker from Contaminated Desk at Surface Concentration Levels in Table 1 in a Small Office

Percentile	Dose (mrem/yr)												
	Am-241	C-14	Co-60	Cs-137	Fe-55	I-129	Po-210	Pu-239	Ra-226	S-35	Sr-90	Tc-99	U-238
2.5%	1.61E-02	6.93E-05	1.91E-01	4.86E-02	5.55E-04	5.18E-03	5.52E-03	1.90E-02	2.35E-01	2.60E-04	6.85E-03	3.00E-04	4.47E-02
5%	3.08E-02	1.52E-04	3.62E-01	9.27E-02	1.07E-03	1.16E-02	1.10E-02	3.60E-02	4.61E-01	4.87E-04	1.26E-02	6.59E-04	8.48E-02
10%	8.54E-02	3.64E-04	1.05E+00	2.67E-01	2.61E-03	2.77E-02	2.85E-02	9.93E-02	1.23E+00	1.35E-03	3.39E-02	1.57E-03	2.40E-01
15%	1.39E-01	5.83E-04	1.72E+00	4.37E-01	4.37E-03	4.33E-02	4.82E-02	1.62E-01	2.02E+00	2.26E-03	5.67E-02	2.56E-03	3.92E-01
20%	1.77E-01	7.31E-04	2.41E+00	6.16E-01	5.41E-03	6.45E-02	6.07E-02	2.05E-01	2.83E+00	2.95E-03	8.05E-02	3.22E-03	5.17E-01
25%	2.01E-01	8.22E-04	3.08E+00	7.86E-01	6.38E-03	7.14E-02	7.02E-02	2.34E-01	3.39E+00	3.44E-03	9.72E-02	3.76E-03	6.01E-01
30%	2.27E-01	8.89E-04	3.21E+00	8.20E-01	7.03E-03	7.56E-02	7.86E-02	2.64E-01	3.66E+00	3.83E-03	1.02E-01	4.07E-03	6.62E-01
35%	2.42E-01	9.41E-04	3.32E+00	8.50E-01	7.58E-03	7.94E-02	8.53E-02	2.81E-01	3.81E+00	4.10E-03	1.08E-01	4.29E-03	6.99E-01
40%	2.56E-01	9.92E-04	3.44E+00	8.81E-01	8.07E-03	8.21E-02	9.02E-02	2.98E-01	3.95E+00	4.29E-03	1.12E-01	4.51E-03	7.37E-01
45%	2.70E-01	1.05E-03	3.56E+00	9.15E-01	8.49E-03	8.50E-02	9.52E-02	3.14E-01	4.07E+00	4.48E-03	1.15E-01	4.73E-03	7.64E-01
50%	2.82E-01	1.11E-03	3.68E+00	9.40E-01	8.92E-03	8.75E-02	9.98E-02	3.28E-01	4.21E+00	4.66E-03	1.18E-01	4.96E-03	7.98E-01
55%	2.97E-01	1.19E-03	3.75E+00	9.62E-01	9.33E-03	9.04E-02	1.04E-01	3.44E-01	4.34E+00	4.87E-03	1.22E-01	5.24E-03	8.30E-01
60%	3.09E-01	1.29E-03	3.83E+00	9.81E-01	9.90E-03	9.47E-02	1.10E-01	3.61E-01	4.48E+00	5.08E-03	1.24E-01	5.53E-03	8.63E-01
65%	3.25E-01	1.40E-03	3.91E+00	1.00E+00	1.06E-02	9.95E-02	1.15E-01	3.80E-01	4.61E+00	5.26E-03	1.27E-01	5.89E-03	9.06E-01
70%	3.44E-01	1.59E-03	3.98E+00	1.02E+00	1.12E-02	1.06E-01	1.21E-01	4.03E-01	4.75E+00	5.50E-03	1.33E-01	6.22E-03	9.49E-01
75%	3.64E-01	1.98E-03	4.07E+00	1.05E+00	1.19E-02	1.14E-01	1.28E-01	4.24E-01	4.95E+00	5.76E-03	1.38E-01	6.70E-03	9.90E-01
80%	3.81E-01	3.03E-03	4.28E+00	1.10E+00	1.28E-02	1.26E-01	1.35E-01	4.49E-01	5.18E+00	6.03E-03	1.45E-01	7.61E-03	1.04E+00
85%	4.10E-01	4.76E-03	4.50E+00	1.15E+00	1.39E-02	1.57E-01	1.43E-01	4.83E-01	5.49E+00	6.33E-03	1.57E-01	9.30E-03	1.10E+00
90%	4.52E-01	1.07E-02	4.72E+00	1.21E+00	1.57E-02	2.67E-01	1.55E-01	5.27E-01	5.91E+00	6.81E-03	1.67E-01	1.50E-02	1.21E+00
95%	5.08E-01	2.91E-02	5.18E+00	1.33E+00	2.15E-02	6.29E-01	1.76E-01	6.20E-01	6.79E+00	7.57E-03	2.00E-01	3.71E-02	1.40E+00
97.5%	5.92E-01	7.04E-02	5.41E+00	1.38E+00	3.03E-02	1.42E+00	1.90E-01	7.16E-01	8.17E+00	8.31E-03	2.70E-01	8.20E-02	1.58E+00
Mean	2.86E-01	7.55E-03	3.35E+00	8.60E-01	1.00E-02	2.03E-01	9.83E-02	3.39E-01	4.13E+00	4.49E-03	1.17E-01	1.17E-02	7.99E-01
Minimum	2.48E-03	9.17E-06	3.26E-02	9.10E-03	7.21E-05	8.01E-04	8.96E-04	2.84E-03	3.93E-02	4.45E-05	1.11E-03	4.23E-05	7.28E-03
Maximum	1.68E+00	6.16E-01	6.91E+00	1.76E+00	7.53E-02	1.22E+01	2.87E-01	3.06E+00	3.21E+01	1.07E-02	6.26E-01	7.09E-01	6.22E+00

TABLE 8 Dose Distributions for a Worker from Contaminated Desk at Surface Concentration Levels in Table 1 in a Large Warehouse

Percentile	Dose (mrem/yr)												
	Am-241	C-14	Co-60	Cs-137	Fe-55	I-129	Po-210	Pu-239	Ra-226	S-35	Sr-90	Tc-99	U-238
2.5%	1.11E-03	2.21E-05	1.91E-01	4.85E-02	2.55E-05	4.08E-03	2.60E-04	9.19E-04	1.52E-01	7.16E-05	5.55E-03	8.39E-05	1.26E-02
5%	2.15E-03	4.66E-05	3.62E-01	9.19E-02	4.86E-05	8.15E-03	5.14E-04	1.77E-03	2.88E-01	1.38E-04	1.06E-02	1.54E-04	2.40E-02
10%	5.74E-03	1.08E-04	1.05E+00	2.67E-01	1.26E-04	2.19E-02	1.38E-03	4.76E-03	8.30E-01	3.96E-04	3.05E-02	4.01E-04	6.87E-02
15%	9.96E-03	1.83E-04	1.72E+00	4.37E-01	2.02E-04	3.60E-02	2.27E-03	7.71E-03	1.37E+00	6.41E-04	4.99E-02	6.77E-04	1.12E-01
20%	1.29E-02	2.61E-04	2.41E+00	6.13E-01	2.52E-04	5.12E-02	2.84E-03	9.74E-03	1.92E+00	8.89E-04	7.03E-02	9.52E-04	1.56E-01
25%	1.48E-02	3.01E-04	3.08E+00	7.83E-01	2.95E-04	6.38E-02	3.22E-03	1.11E-02	2.45E+00	1.12E-03	8.95E-02	1.15E-03	1.97E-01
30%	1.65E-02	3.19E-04	3.20E+00	8.15E-01	3.31E-04	6.69E-02	3.64E-03	1.27E-02	2.55E+00	1.18E-03	9.34E-02	1.21E-03	2.08E-01
35%	1.76E-02	3.35E-04	3.32E+00	8.44E-01	3.62E-04	6.95E-02	3.99E-03	1.37E-02	2.65E+00	1.23E-03	9.67E-02	1.27E-03	2.16E-01
40%	1.85E-02	3.47E-04	3.44E+00	8.75E-01	3.87E-04	7.24E-02	4.31E-03	1.47E-02	2.74E+00	1.27E-03	1.00E-01	1.32E-03	2.24E-01
45%	1.93E-02	3.59E-04	3.56E+00	9.05E-01	4.10E-04	7.49E-02	4.58E-03	1.55E-02	2.84E+00	1.31E-03	1.04E-01	1.36E-03	2.31E-01
50%	2.01E-02	3.71E-04	3.67E+00	9.34E-01	4.32E-04	7.70E-02	4.83E-03	1.62E-02	2.93E+00	1.35E-03	1.07E-01	1.40E-03	2.37E-01
55%	2.09E-02	3.81E-04	3.75E+00	9.54E-01	4.50E-04	7.88E-02	5.04E-03	1.71E-02	2.99E+00	1.38E-03	1.10E-01	1.44E-03	2.44E-01
60%	2.17E-02	3.95E-04	3.83E+00	9.74E-01	4.78E-04	8.05E-02	5.32E-03	1.80E-02	3.05E+00	1.42E-03	1.12E-01	1.47E-03	2.49E-01
65%	2.27E-02	4.11E-04	3.90E+00	9.93E-01	5.10E-04	8.21E-02	5.57E-03	1.89E-02	3.12E+00	1.45E-03	1.14E-01	1.52E-03	2.55E-01
70%	2.36E-02	4.29E-04	3.98E+00	1.01E+00	5.36E-04	8.46E-02	5.83E-03	1.99E-02	3.18E+00	1.48E-03	1.16E-01	1.57E-03	2.61E-01
75%	2.46E-02	4.56E-04	4.06E+00	1.03E+00	5.68E-04	8.84E-02	6.14E-03	2.11E-02	3.25E+00	1.52E-03	1.19E-01	1.66E-03	2.68E-01
80%	2.55E-02	4.94E-04	4.28E+00	1.09E+00	6.05E-04	9.26E-02	6.53E-03	2.21E-02	3.43E+00	1.58E-03	1.25E-01	1.74E-03	2.79E-01
85%	2.70E-02	5.50E-04	4.50E+00	1.14E+00	6.50E-04	9.70E-02	6.84E-03	2.36E-02	3.58E+00	1.66E-03	1.31E-01	1.88E-03	2.93E-01
90%	2.95E-02	7.41E-04	4.72E+00	1.20E+00	7.30E-04	1.05E-01	7.47E-03	2.60E-02	3.78E+00	1.75E-03	1.38E-01	2.03E-03	3.11E-01
95%	3.30E-02	1.49E-03	5.18E+00	1.32E+00	9.15E-04	1.17E-01	8.30E-03	2.96E-02	4.13E+00	1.93E-03	1.51E-01	2.71E-03	3.39E-01
97.5%	3.61E-02	3.09E-03	5.41E+00	1.38E+00	1.26E-03	1.40E-01	9.04E-03	3.41E-02	4.31E+00	2.02E-03	9.78E-02	4.50E-03	3.57E-01
Mean	1.94E-02	5.81E-04	3.35E+00	8.53E-01	4.62E-04	7.38E-02	4.69E-03	1.65E-02	2.67E+00	1.24E-03	9.78E-02	1.53E-03	2.19E-01
Minimum	1.85E-04	3.40E-06	3.23E-02	8.29E-03	3.25E-06	7.34E-04	4.05E-05	1.32E-04	2.83E-02	1.20E-05	1.04E-03	1.31E-05	2.28E-03
Maximum	7.53E-02	2.46E-02	6.91E+00	1.76E+00	3.06E-03	5.55E-01	1.22E-02	1.25E-01	5.51E+00	2.62E-03	2.01E-01	2.92E-02	4.81E-01

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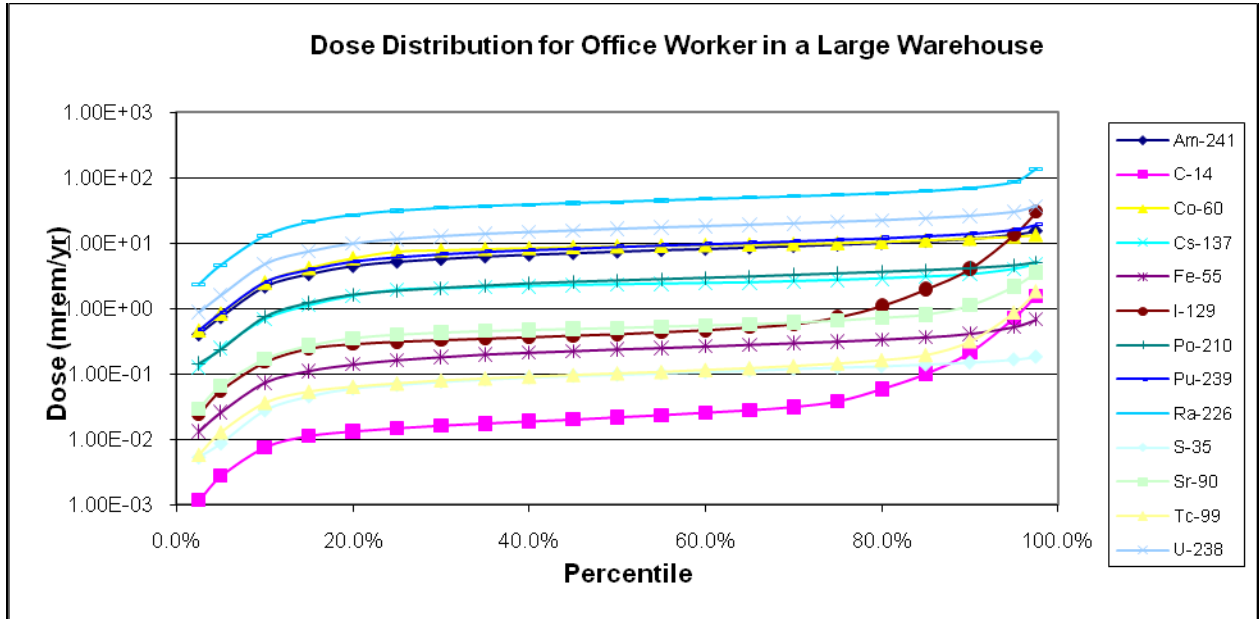


FIGURE 1 Dose Distribution of Different Radionuclides for a Worker in a Large Warehouse

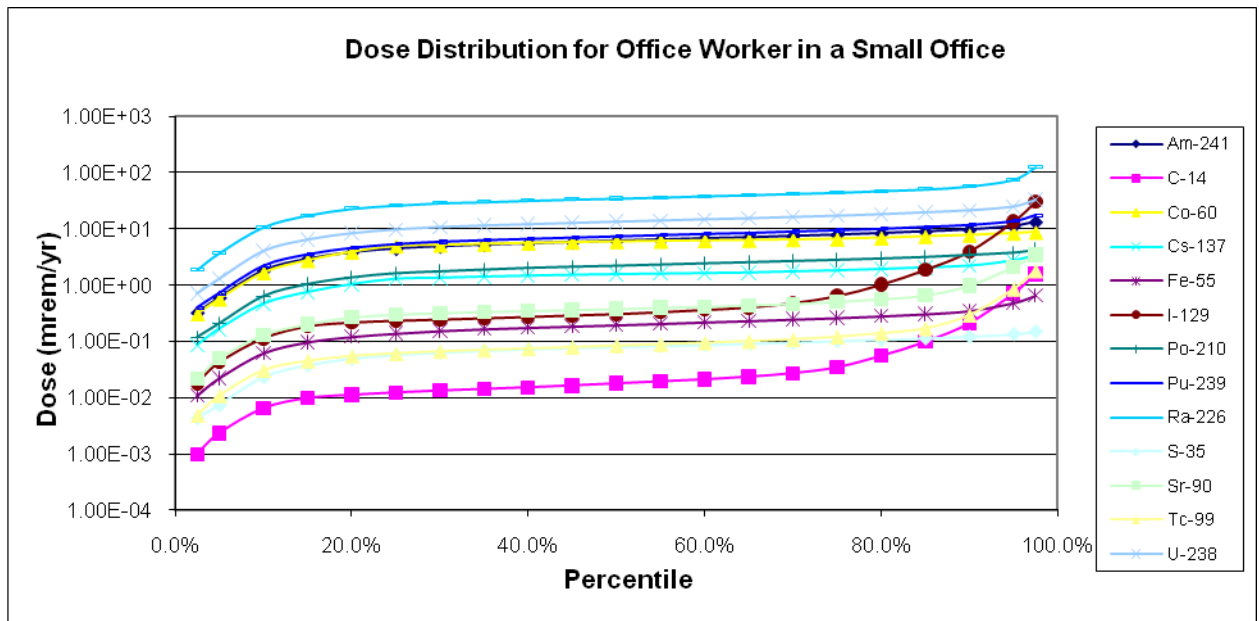


FIGURE 2 Dose Distribution of Different Radionuclides for a Worker in a Small Office

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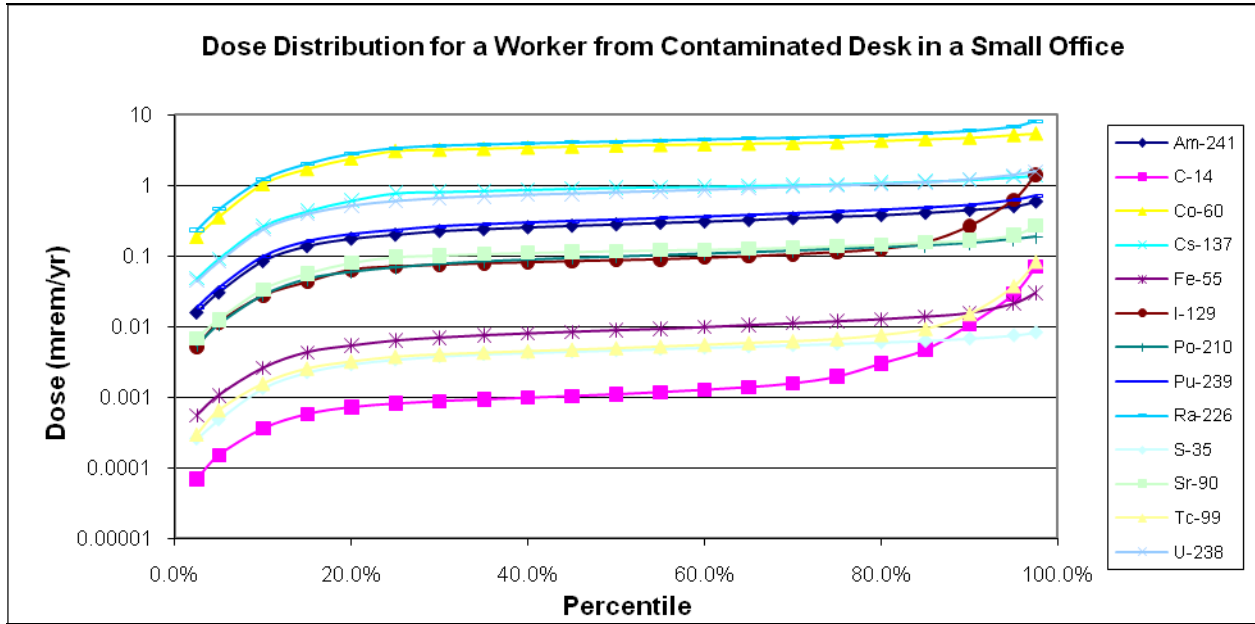


FIGURE 3 Dose Distribution of Different Radionuclides for a Worker from Contaminated Desk at Surface Concentration Levels Shown in Table 1 in a Small Office

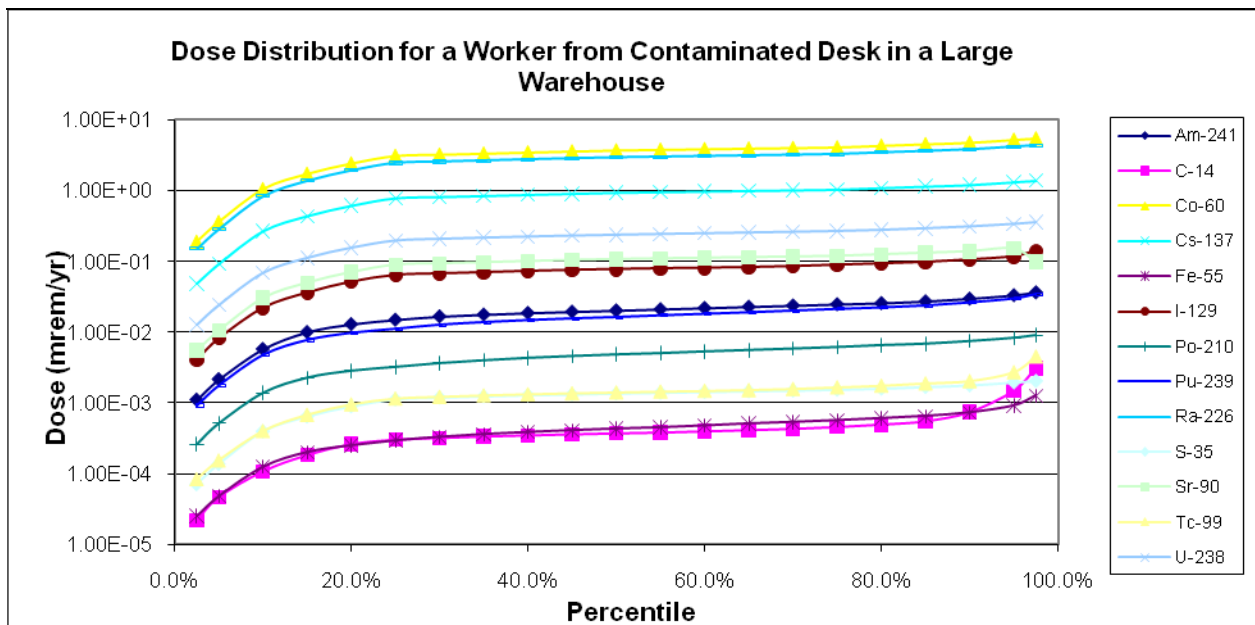


FIGURE 4 Dose Distribution of Different Radionuclides for a Worker from Contaminated Desk at Surface Concentration Levels Shown in Table 1 in a Large Warehouse

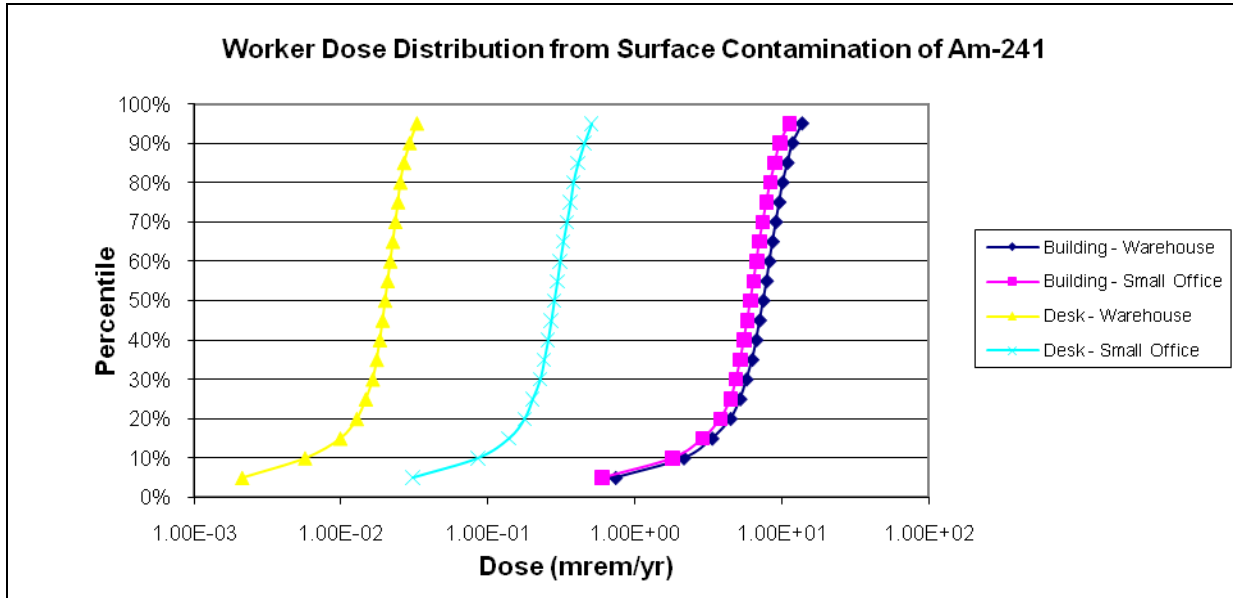


FIGURE 5 Dose Distribution for a Worker from Surface Contamination of Am-241

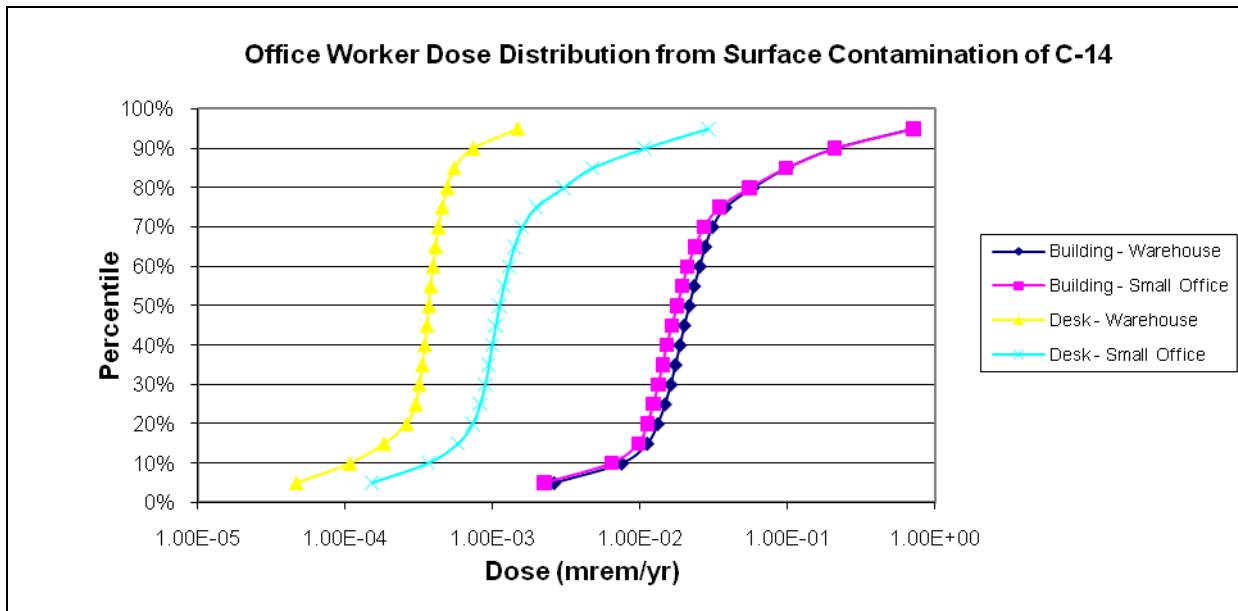


FIGURE 6 Dose Distribution for a Worker from Surface Contamination of C-14

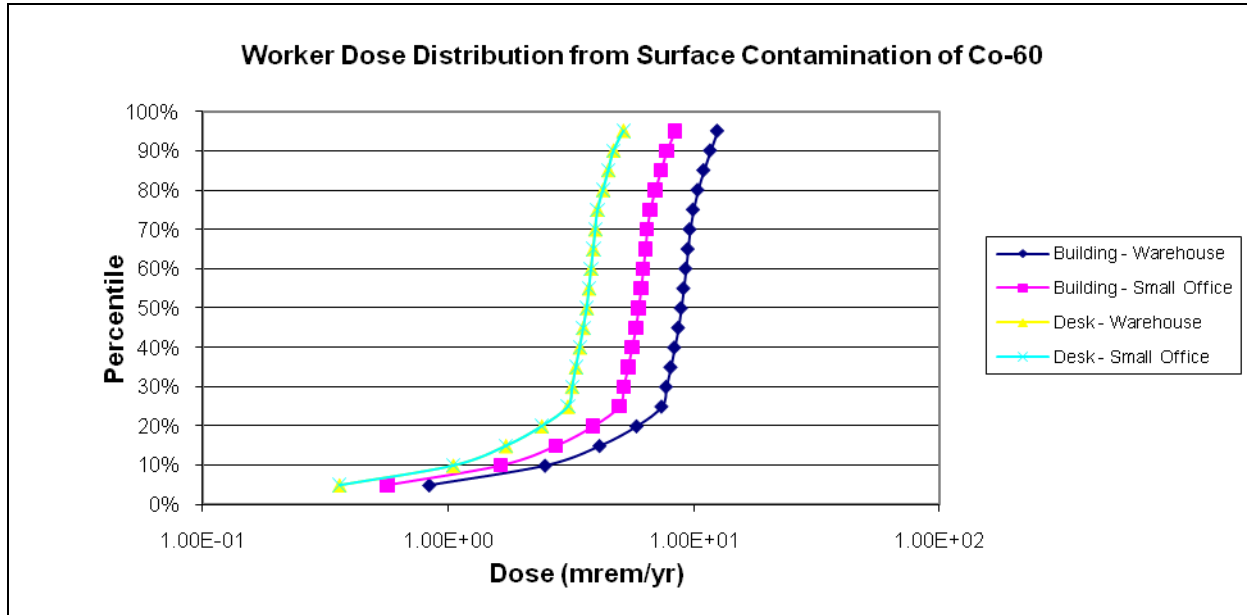


FIGURE 7 Dose Distribution for a Worker from Surface Contamination of Co-60

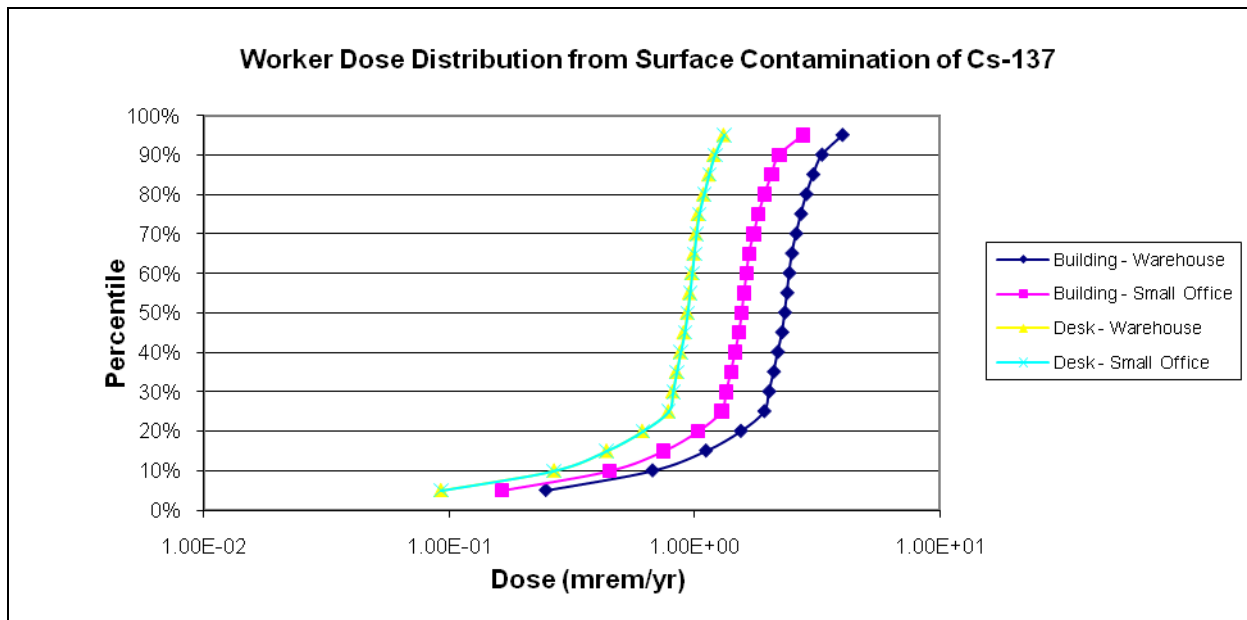


FIGURE 8 Dose Distribution for a Worker from Surface Contamination of Cs-137

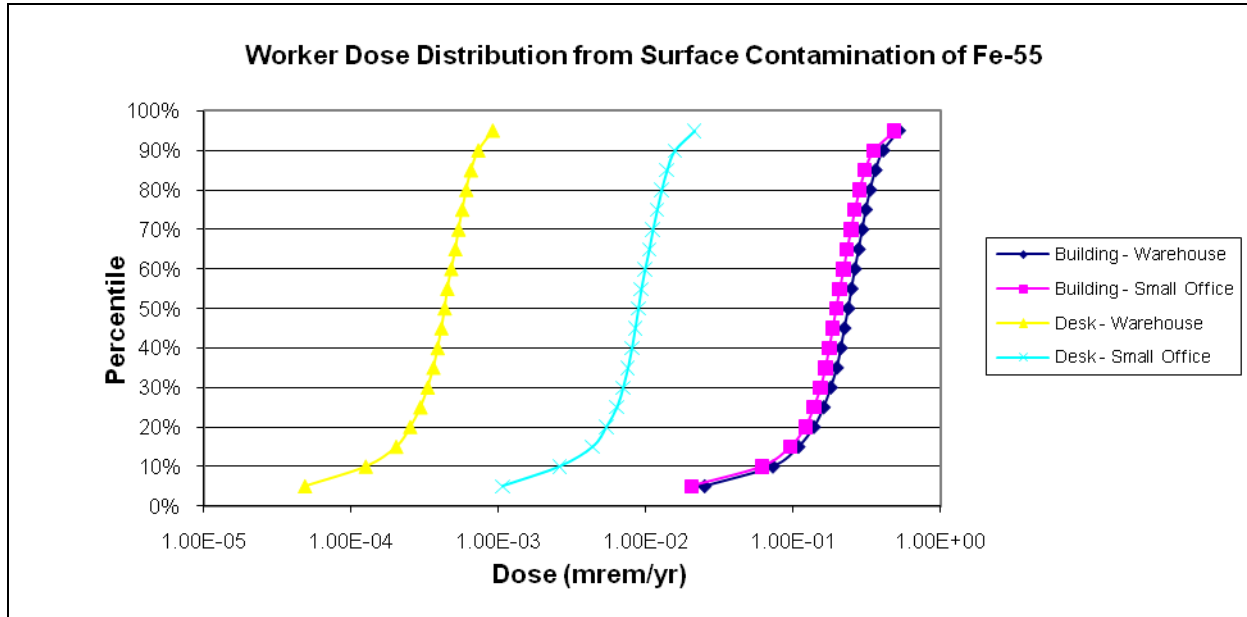


FIGURE 9 Dose Distribution for a Worker from Surface Contamination of Fe-55

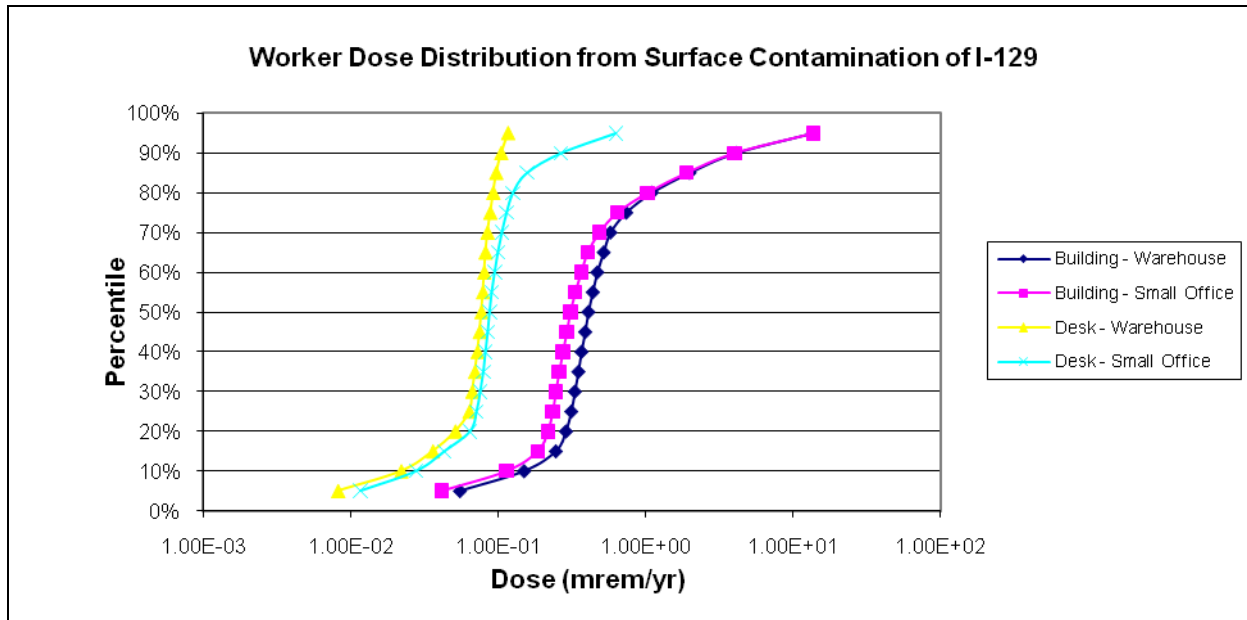


FIGURE 10 Dose Distribution for a Worker from Surface Contamination of I-129

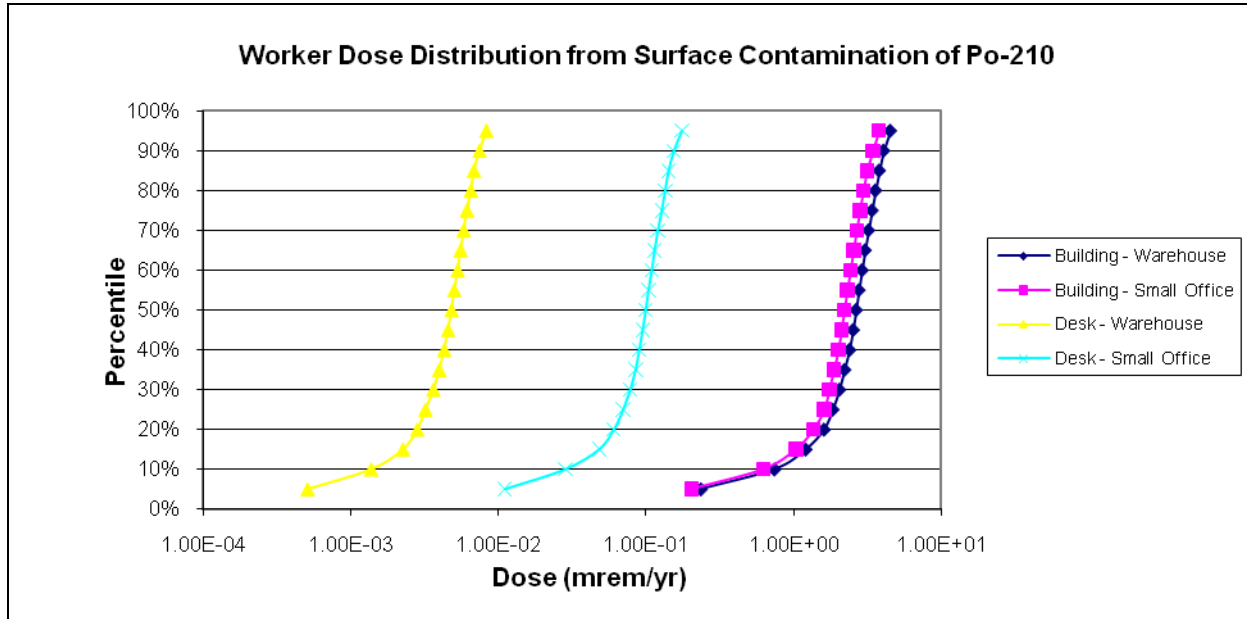


FIGURE 11 Dose Distribution for a Worker from Surface Contamination of Po-210

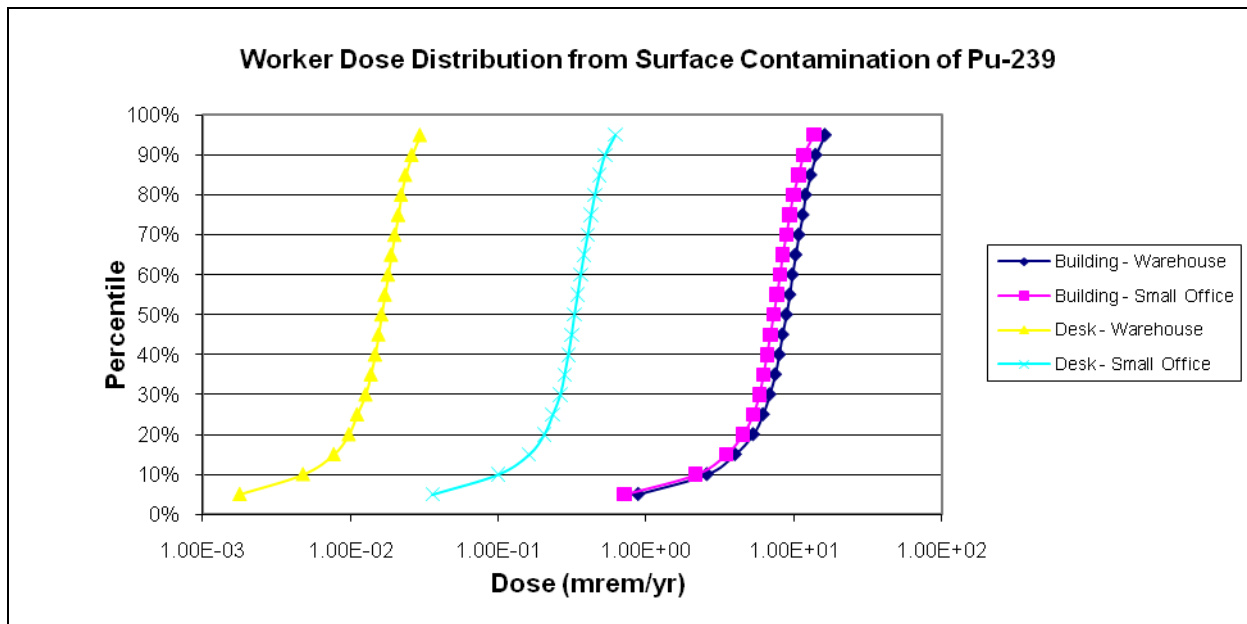


FIGURE 12 Dose Distribution for a Worker from Surface Contamination of Pu-239

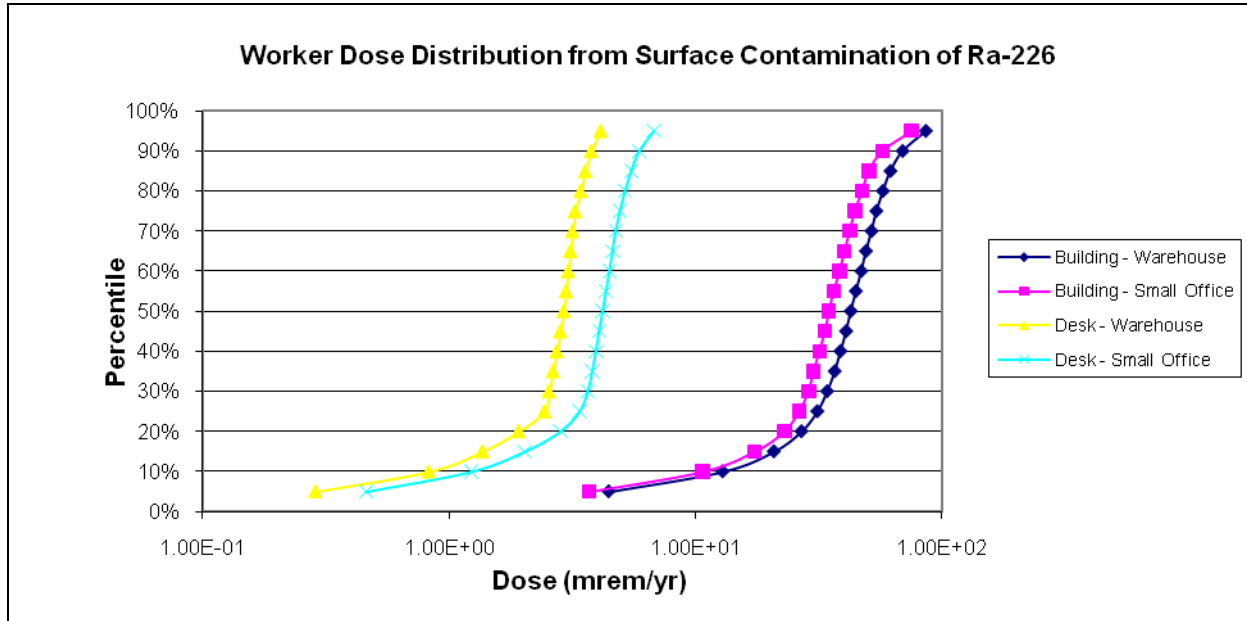


FIGURE 13 Dose Distribution for a Worker from Surface Contamination of Ra-226

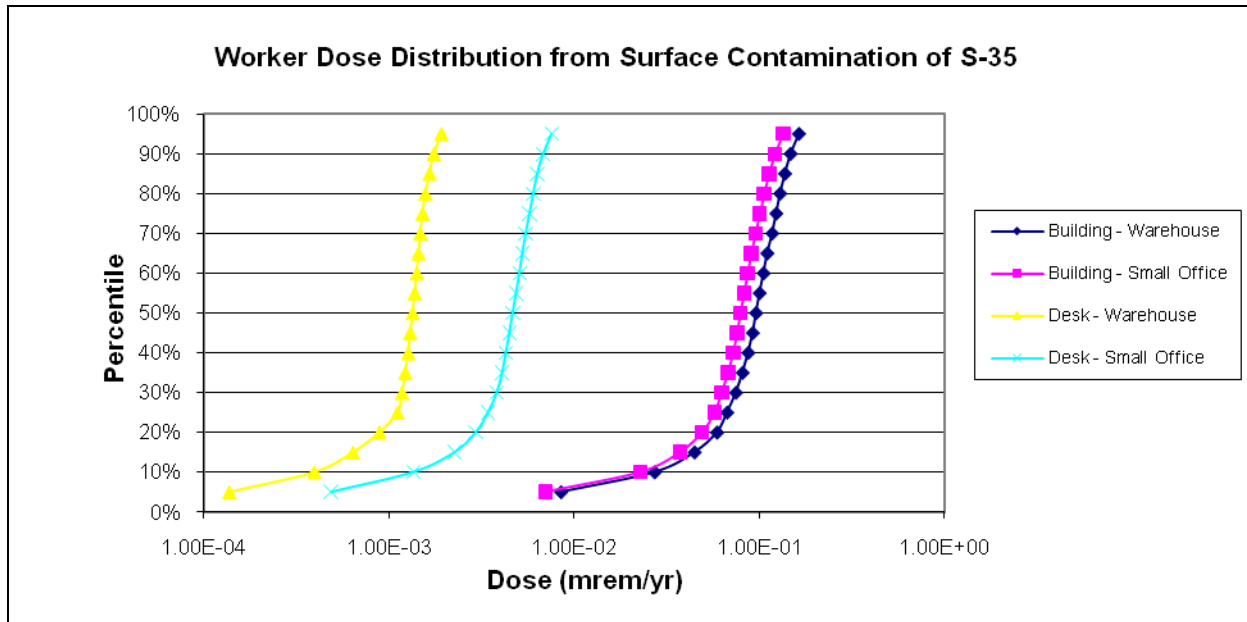


FIGURE 14 Dose Distribution for a Worker from Surface Contamination of S-35

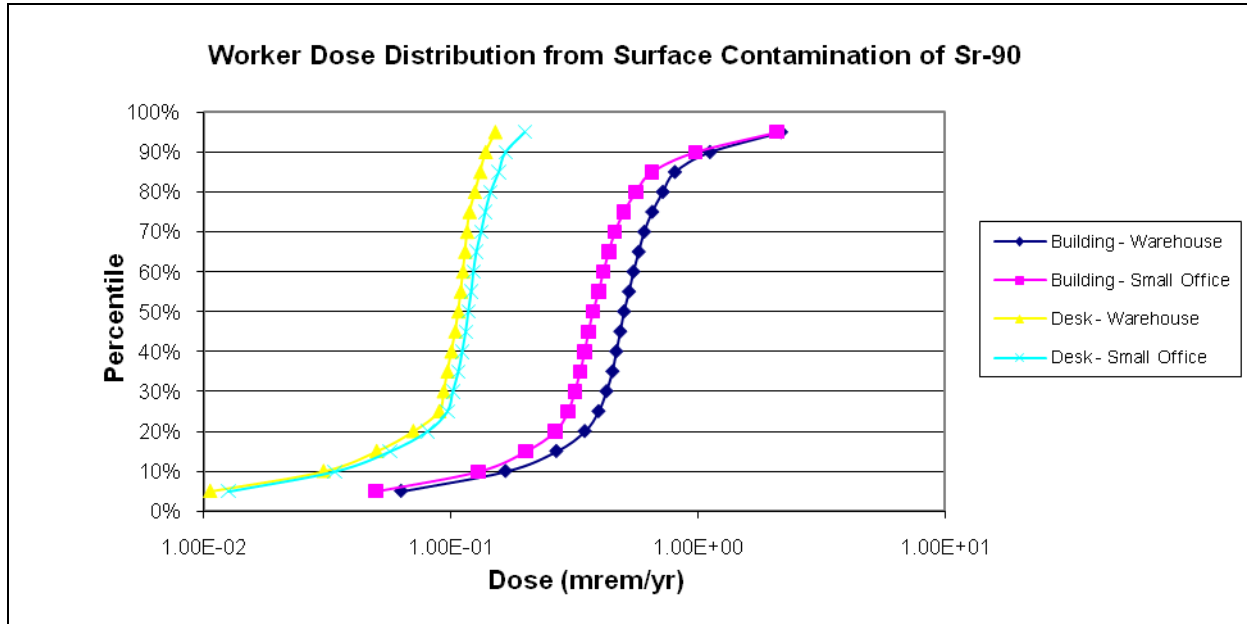


FIGURE 15 Dose Distribution for a Worker from Surface Contamination of Sr-90

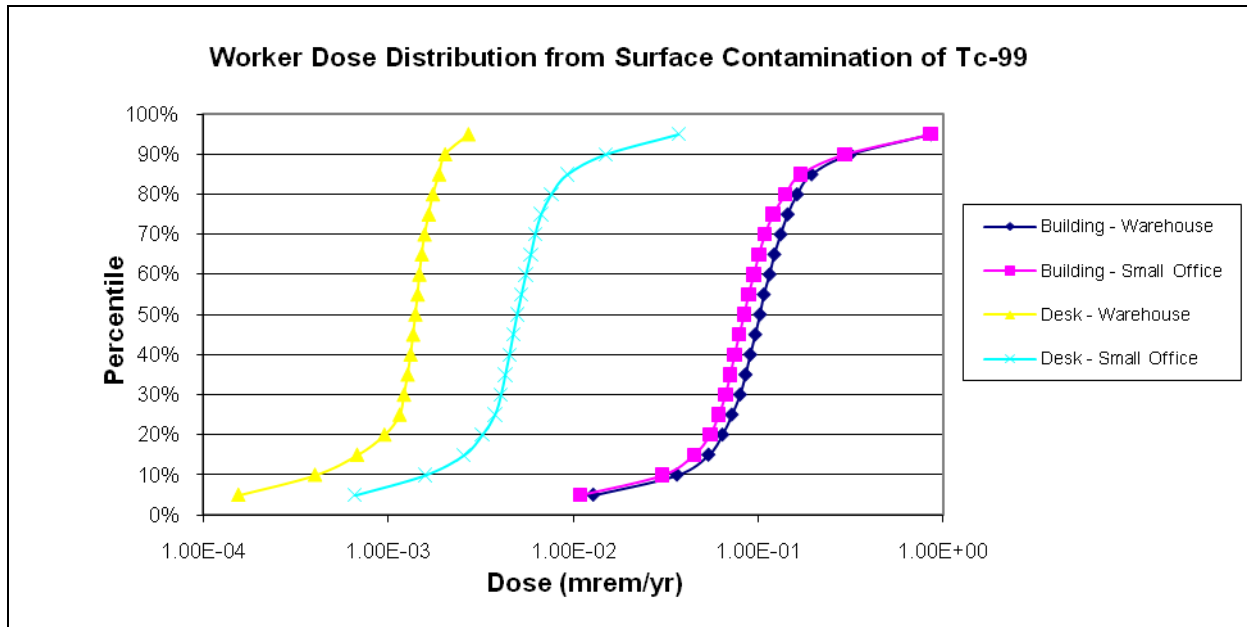


FIGURE 16 Dose Distribution for a Worker from Surface Contamination of Tc-99

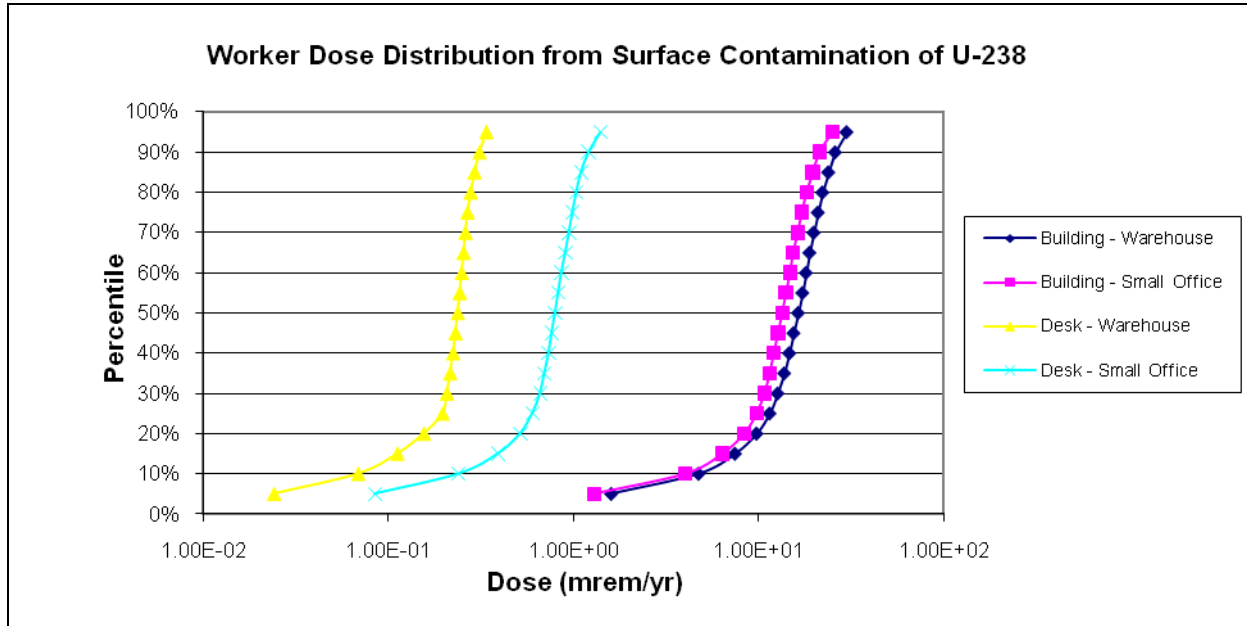


FIGURE 17 Dose Distribution for a Worker from Surface Contamination of U-238

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APPENDIX A

Table A.1 lists parameters used in the analyses for the four scenarios. For a large warehouse and a small office scenarios, it was assumed that the floor and four walls were contaminated (five sources), whereas for the large warehouse desk and the small office desk scenarios, it was assumed that only the top of the desk was contaminated (one source). It was assumed that contamination was in one room and that the sources and the receptor were located in the same room. For evaluating the work doses, International Commission on Radiological Protection's (ICRP's) 60 methodology-based (ICRP 1990) dose conversion factors (DCFs) from Publication 68 (ICRP 1994) were used. Table 4 lists the dose coefficients used in the analysis. No shielding parameters were required because there was no shielding between the source and the receptor.

TABLE A.1 RESRAD-BUILD Code Parameters Used in the Analyses for the Four Scenarios

Parameter	Large Warehouse	Small Office	Warehouse Desk	Small Office Desk
Title	Large warehouse	Small_office	Large warehouse_desk	Small_office_desk
Dose/Risk Library	ICRP 68	ICRP 68	ICRP 68	ICRP 68
Time Parameters				
Exposure duration, days	365	365	365	365
Indoor fraction	Table 3	Table 3	Table 3	Table 3
Time Parameters – Evaluation Times				
Times for calculation, yr	0	0	0	0
Time integration points	5	5	5	5
Source Parameters				
Number of sources	5	5	1	1
Source 1 type	Area	Area	Area	Area
Source 1 direction	z	z	z	z
Source 1 location	15, 15, 0	3, 3, 0	0, 0, 0	0, 0, 0
Source Parameters – Details for Source #1				
Geometry	Circular	Circular	Rectangular	Rectangular
Area, m ²	900	36	1.8 x 0.9	1.8 x 0.9
Concentration	Table 1	Table 1	Table 1	Table 1
Removable fraction	1	1	1	1
Lifetime, days	1,095	1,095	1,095	1,095
Air release fraction	0.1	0.1	0.1	0.1
Direct ingestion	0	0	0	0
Radon release fraction	0.1	0.1	0.1	0.1
Source 2 type	Area	Area	NR ^a	NR
Source 2 direction	x	x	NR	NR
Source 2 location	30, 15, 1.85	6, 3, 1.2	NR	NR
Source Parameters – Details for Source #2			NR	NR
Geometry	Circular	Circular	NR	NR
Area, m ²	111	14.4	NR	NR
Concentration	Table 1	Table 1	NR	NR
Removable fraction	1	1	NR	NR
Lifetime, days	1,095	1,095	NR	NR
Air release fraction	0	0	NR	NR
Direct ingestion	0	0	NR	NR

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TABLE A. 1 (Cont.)

Parameter	Large Warehouse	Small Office	Warehouse Desk	Small Office Desk
Radon release fraction	0.1	0.1	NR	NR
Source 3 type	Area	Area	NR	NR
Source 3 direction	x	x	NR	NR
Source 3 location	0, 15, 1.85	0, 3, 1.2	NR	NR
Source Parameters - Details for Source #3			NR	NR
Geometry	Circular	Circular	NR	NR
Area, m ²	111	14.4	NR	NR
Concentration	Table 1	Table 1	NR	NR
Removable fraction	1	1	NR	NR
Lifetime, days	1,095	1,095	NR	NR
Air release fraction	0	0	NR	NR
Direct ingestion	0	0	NR	NR
Radon release fraction	0.1	0.1	NR	NR
Source 4 type	Area	Area	NR	NR
Source 4 direction	y	y	NR	NR
Source 4 location	15, 30, 1.85	3, 6, 1.2	NR	NR
Source Parameters - Details for Source #4			NR	NR
Geometry	Circular	Circular	NR	NR
Area, m ²	111	14.4	NR	NR
Concentration	Table 1	Table 1	NR	NR
Removable fraction	1	1	NR	NR
Lifetime, days	1,095	1,095	NR	NR
Air release fraction	0	0	NR	NR
Direct ingestion	0	0	NR	NR
Radon release fraction	0.1	0.1	NR	NR
Source 5 type	Area	Area	NR	NR
Source 5 direction	y	y	NR	NR
Source 5 location	15, 0, 1.85	3, 0, 1.2	NR	NR
Source Parameters - Details for Source #5			NR	NR
Geometry	Circular		NR	NR
Area, m ²	111	14.4	NR	NR
Concentration	Table 1	Table 1	NR	NR
Removable fraction	1	1	NR	NR
Lifetime, days	1,095	1,095	NR	NR
Air release fraction	0	0	NR	NR
Direct ingestion	0	0	NR	NR
Radon release fraction	0.1	0.1	NR	NR
Receptor Parameters			NR	NR
Number of receptors	1	1	1	1
Receptor room	1	1	1	1
Indirect ingestion	Table 3	Table 3	Table 3	Table 3
Receptor breathing rate, m ³ /d	Table 3	Table 3	Table 3	Table 3
Receptor time fraction	0.685	0.685	0.685	0.685
Receptor location, m	15, 15, 1	3, 3, 1	0, 0.45, 0.075	0, 0.45, 0.075
Shielding Parameters				
Thickness	0	0	0	0
Density	NR	NR	NR	NR
Material	NR	NR	NR	NR

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TABLE A. 1 (Cont.)

Parameter	Large Warehouse	Small Office	Warehouse Desk	Small Office Desk
Building Parameters				
Number of Rooms	1	1	1	1
Deposition velocity, m/s	Table 3	Table 3	Table 3	Table 3
Resuspension rate, 1/s	Table 3	Table 3	Table 3	Table 3
Building Parameters – Air Flow				
Building exchange rate, 1/h	1	1.52	1	1.52
Room 1 area, m ²	900	36	900	36
Room 1 height, m	3.7	2.4	3.7	2.4
Room 1 exchange rate, 1/h	1	1.52	1	1.52
Radiological Units				
Activity unit	dpm	dpm	dpm	dpm
Dose unit	mrem	mrem	mrem	mrem
Uncertainty Analysis – Sampling Parameters				
Random seed	1,000	1,000	1,000	1,000
Number of observations	500	500	500	500
Number of repetitions	3	3	3	3
Sampling technique	Latin Hypercube	Latin Hypercube	Latin Hypercube	Latin Hypercube

^a NR = not required.

^b dpm = disintegration per minute.

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APPENDIX B

Tables B.1a–B.13a include the individual pathway dose percentiles and individual pathway mean dose received by a worker from an individual radionuclide in the warehouse building scenario. All pathway dose percentiles for the warehouse building scenario are listed in Table 5. Note that sum of “individual pathway dose” at different percentiles may not add up to the “all pathway dose” at that percentile. In general, at minimum percentile, the “all pathway dose” would be HIGHER than the sum of the “individual pathway doses,” and at maximum percentile, the “all pathway dose” would be LOWER than the sum of the “individual pathway doses.” Tables B.1b–B13b include the relative contribution of “individual pathway doses” to “all pathway doses” at different percentiles.

TABLE B.1a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Am-241 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	8.13E-04	3.85E-01	1.73E-08	3.46E-08	3.78E-06	0.00E+00
5%	1.49E-03	6.84E-01	4.53E-08	6.35E-08	8.66E-06	0.00E+00
10%	4.34E-03	2.08E+00	1.12E-07	1.83E-07	2.56E-05	0.00E+00
15%	7.28E-03	3.30E+00	2.43E-07	3.05E-07	5.42E-05	0.00E+00
20%	1.02E-02	4.36E+00	4.60E-07	4.31E-07	1.01E-04	0.00E+00
25%	1.31E-02	5.08E+00	9.63E-07	5.44E-07	2.14E-04	0.00E+00
30%	1.36E-02	5.55E+00	1.59E-06	5.74E-07	3.97E-04	0.00E+00
35%	1.41E-02	6.03E+00	3.28E-06	5.95E-07	7.95E-04	0.00E+00
40%	1.46E-02	6.49E+00	5.94E-06	6.18E-07	1.39E-03	0.00E+00
45%	1.51E-02	6.79E+00	1.13E-05	6.41E-07	2.52E-03	0.00E+00
50%	1.56E-02	7.15E+00	2.14E-05	6.61E-07	4.32E-03	0.00E+00
55%	1.59E-02	7.52E+00	3.51E-05	6.75E-07	7.69E-03	0.00E+00
60%	1.63E-02	7.91E+00	5.97E-05	6.88E-07	1.45E-02	0.00E+00
65%	1.66E-02	8.29E+00	9.63E-05	7.04E-07	2.38E-02	0.00E+00
70%	1.69E-02	8.69E+00	1.64E-04	7.17E-07	3.81E-02	0.00E+00
75%	1.72E-02	9.15E+00	3.03E-04	7.31E-07	7.34E-02	0.00E+00
80%	1.81E-02	9.72E+00	5.30E-04	7.67E-07	1.35E-01	0.00E+00
85%	1.91E-02	1.03E+01	9.83E-04	8.09E-07	2.76E-01	0.00E+00
90%	2.00E-02	1.11E+01	2.61E-03	8.51E-07	6.17E-01	0.00E+00
95%	2.20E-02	1.21E+01	7.51E-03	9.34E-07	2.24E+00	0.00E+00
97.5%	2.30E-02	1.35E+01	1.96E-02	9.76E-07	4.61E+00	0.00E+00
Mean	1.42E-02	7.00E+00	1.74E-03	6.02E-07	4.57E-01	0.00E+00
Minimum	1.38E-04	4.10E-02	2.61E-10	5.85E-09	7.57E-08	0.00E+00
Maximum	2.96E-02	1.97E+01	7.82E-02	1.25E-06	3.47E+01	0.00E+00

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TABLE B.1b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Am-241 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.20%	95.88%	0.00%	0.00%	0.00%	0.00%
5%	0.20%	92.62%	0.00%	0.00%	0.00%	0.00%
10%	0.20%	95.82%	0.00%	0.00%	0.00%	0.00%
15%	0.22%	98.48%	0.00%	0.00%	0.00%	0.00%
20%	0.23%	97.55%	0.00%	0.00%	0.00%	0.00%
25%	0.25%	97.18%	0.00%	0.00%	0.00%	0.00%
30%	0.24%	96.55%	0.00%	0.00%	0.01%	0.00%
35%	0.22%	95.95%	0.00%	0.00%	0.01%	0.00%
40%	0.22%	96.78%	0.00%	0.00%	0.02%	0.00%
45%	0.21%	96.19%	0.00%	0.00%	0.04%	0.00%
50%	0.21%	95.57%	0.00%	0.00%	0.06%	0.00%
55%	0.20%	95.41%	0.00%	0.00%	0.10%	0.00%
60%	0.20%	96.25%	0.00%	0.00%	0.18%	0.00%
65%	0.19%	95.99%	0.00%	0.00%	0.28%	0.00%
70%	0.19%	95.46%	0.00%	0.00%	0.42%	0.00%
75%	0.18%	95.44%	0.00%	0.00%	0.77%	0.00%
80%	0.18%	96.01%	0.01%	0.00%	1.33%	0.00%
85%	0.18%	94.68%	0.01%	0.00%	2.54%	0.00%
90%	0.17%	95.16%	0.02%	0.00%	5.26%	0.00%
95%	0.16%	88.84%	0.05%	0.00%	16.42%	0.00%
97.5%	0.15%	87.66%	0.13%	0.00%	29.98%	0.00%
Mean	0.19%	93.68%	0.02%	0.00%	6.11%	0.00%
Minimum	0.32%	96.25%	0.00%	0.00%	0.00%	0.00%
Maximum	0.07%	46.58%	0.18%	0.00%	82.06%	0.00%

TABLE B.2a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from C-14 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	4.85E-05	8.28E-04	1.01E-09	9.48E-10	1.10E-06	0.00E+00
5%	8.90E-05	1.52E-03	2.65E-09	1.74E-09	2.51E-06	0.00E+00
10%	2.59E-04	4.54E-03	6.57E-09	5.05E-09	7.43E-06	0.00E+00
15%	4.34E-04	7.10E-03	1.42E-08	8.49E-09	1.57E-05	0.00E+00
20%	6.06E-04	9.46E-03	2.70E-08	1.18E-08	2.94E-05	0.00E+00
25%	7.78E-04	1.10E-02	5.65E-08	1.52E-08	6.22E-05	0.00E+00
30%	8.10E-04	1.20E-02	9.30E-08	1.58E-08	1.15E-04	0.00E+00
35%	8.41E-04	1.31E-02	1.92E-07	1.64E-08	2.31E-04	0.00E+00
40%	8.71E-04	1.40E-02	3.49E-07	1.70E-08	4.04E-04	0.00E+00
45%	9.01E-04	1.47E-02	6.65E-07	1.76E-08	7.31E-04	0.00E+00
50%	9.31E-04	1.54E-02	1.26E-06	1.82E-08	1.26E-03	0.00E+00
55%	9.51E-04	1.63E-02	2.06E-06	1.86E-08	2.24E-03	0.00E+00

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TABLE B.2a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	9.70E-04	1.71E-02	3.55E-06	1.90E-08	4.24E-03	0.00E+00
65%	9.89E-04	1.79E-02	5.85E-06	1.93E-08	6.93E-03	0.00E+00
70%	1.01E-03	1.87E-02	1.02E-05	1.97E-08	1.14E-02	0.00E+00
75%	1.03E-03	1.97E-02	1.85E-05	2.01E-08	2.18E-02	0.00E+00
80%	1.08E-03	2.10E-02	3.17E-05	2.12E-08	4.04E-02	0.00E+00
85%	1.14E-03	2.21E-02	5.89E-05	2.23E-08	8.45E-02	0.00E+00
90%	1.20E-03	2.40E-02	1.69E-04	2.34E-08	1.94E-01	0.00E+00
95%	1.31E-03	2.62E-02	4.60E-04	2.57E-08	6.94E-01	0.00E+00
97.5%	1.37E-03	2.90E-02	1.31E-03	2.68E-08	1.53E+00	0.00E+00
Mean	8.49E-04	1.51E-02	1.20E-04	1.66E-08	1.55E-01	0.00E+00
Minimum	8.22E-06	8.82E-05	1.53E-11	1.61E-10	2.20E-08	0.00E+00
Maximum	1.76E-03	4.26E-02	6.31E-03	3.45E-08	1.36E+01	0.00E+00

TABLE B.2b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from C-14 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	4.15%	70.83%	0.00%	0.00%	0.09%	0.00%
5%	3.23%	55.23%	0.00%	0.00%	0.09%	0.00%
10%	3.44%	60.42%	0.00%	0.00%	0.10%	0.00%
15%	3.87%	63.22%	0.00%	0.00%	0.14%	0.00%
20%	4.59%	71.67%	0.00%	0.00%	0.22%	0.00%
25%	5.27%	74.20%	0.00%	0.00%	0.42%	0.00%
30%	5.02%	74.33%	0.00%	0.00%	0.71%	0.00%
35%	4.82%	74.99%	0.00%	0.00%	1.32%	0.00%
40%	4.65%	74.84%	0.00%	0.00%	2.15%	0.00%
45%	4.51%	73.57%	0.00%	0.00%	3.66%	0.00%
50%	4.30%	71.32%	0.01%	0.00%	5.83%	0.00%
55%	4.08%	69.81%	0.01%	0.00%	9.59%	0.00%
60%	3.82%	67.32%	0.01%	0.00%	16.67%	0.00%
65%	3.58%	64.72%	0.02%	0.00%	25.08%	0.00%
70%	3.24%	60.15%	0.03%	0.00%	36.62%	0.00%
75%	2.70%	51.93%	0.05%	0.00%	57.32%	0.00%
80%	1.86%	36.01%	0.05%	0.00%	69.37%	0.00%
85%	1.14%	22.13%	0.06%	0.00%	84.50%	0.00%
90%	0.57%	11.37%	0.08%	0.00%	91.67%	0.00%
95%	0.18%	3.69%	0.06%	0.00%	97.65%	0.00%
97.5%	0.09%	1.87%	0.08%	0.00%	98.96%	0.00%
Mean	0.50%	8.85%	0.07%	0.00%	90.59%	0.00%
Minimum	6.69%	71.84%	0.00%	0.00%	0.02%	0.00%
Maximum	0.01%	0.31%	0.05%	0.00%	99.85%	0.00%

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TABLE B.3a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Co-60 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	4.56E-01	2.13E-03	9.64E-06	4.55E-05	6.00E-07	0.00E+00
5%	8.37E-01	3.76E-03	2.49E-05	8.90E-05	1.38E-06	0.00E+00
10%	2.43E+00	1.14E-02	6.22E-05	2.47E-04	4.00E-06	0.00E+00
15%	4.08E+00	1.74E-02	1.34E-04	3.90E-04	8.40E-06	0.00E+00
20%	5.70E+00	2.25E-02	2.57E-04	5.24E-04	1.61E-05	0.00E+00
25%	7.32E+00	2.66E-02	5.24E-04	6.36E-04	3.33E-05	0.00E+00
30%	7.62E+00	3.01E-02	8.73E-04	7.50E-04	5.93E-05	0.00E+00
35%	7.91E+00	3.28E-02	1.68E-03	8.13E-04	1.09E-04	0.00E+00
40%	8.20E+00	3.51E-02	2.86E-03	8.43E-04	1.83E-04	0.00E+00
45%	8.48E+00	3.79E-02	5.00E-03	8.77E-04	2.95E-04	0.00E+00
50%	8.76E+00	4.00E-02	7.90E-03	9.07E-04	4.99E-04	0.00E+00
55%	8.94E+00	4.21E-02	1.26E-02	9.37E-04	7.43E-04	0.00E+00
60%	9.12E+00	4.45E-02	1.85E-02	9.66E-04	1.29E-03	0.00E+00
65%	9.31E+00	4.68E-02	2.65E-02	9.89E-04	2.03E-03	0.00E+00
70%	9.49E+00	4.91E-02	4.28E-02	1.01E-03	2.90E-03	0.00E+00
75%	9.67E+00	5.22E-02	6.99E-02	1.03E-03	4.78E-03	0.00E+00
80%	1.02E+01	5.49E-02	1.18E-01	1.06E-03	7.76E-03	0.00E+00
85%	1.07E+01	5.88E-02	2.04E-01	1.13E-03	1.36E-02	0.00E+00
90%	1.12E+01	6.30E-02	3.84E-01	1.20E-03	2.87E-02	0.00E+00
95%	1.24E+01	7.01E-02	7.95E-01	1.32E-03	6.40E-02	0.00E+00
97.5%	1.29E+01	7.72E-02	1.20E+00	1.39E-03	9.56E-02	0.00E+00
Mean	7.99E+00	3.92E-02	1.27E-01	8.24E-04	1.03E-02	0.00E+00
Minimum	7.74E-02	1.74E-04	1.46E-07	6.48E-06	1.21E-08	0.00E+00
Maximum	1.66E+01	1.08E-01	2.58E+00	1.78E-03	4.07E-01	0.00E+00

TABLE B.3b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Co-60 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	97.62%	0.45%	0.00%	0.01%	0.00%	0.00%
5%	99.10%	0.44%	0.00%	0.01%	0.00%	0.00%
10%	97.89%	0.46%	0.00%	0.01%	0.00%	0.00%
15%	98.48%	0.42%	0.00%	0.01%	0.00%	0.00%
20%	97.29%	0.38%	0.00%	0.01%	0.00%	0.00%
25%	98.77%	0.36%	0.01%	0.01%	0.00%	0.00%
30%	98.55%	0.39%	0.01%	0.01%	0.00%	0.00%
35%	98.13%	0.41%	0.02%	0.01%	0.00%	0.00%
40%	97.98%	0.42%	0.03%	0.01%	0.00%	0.00%
45%	97.76%	0.44%	0.06%	0.01%	0.00%	0.00%
50%	98.38%	0.45%	0.09%	0.01%	0.01%	0.00%
55%	98.23%	0.46%	0.14%	0.01%	0.01%	0.00%

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TABLE B.3b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	98.18%	0.48%	0.20%	0.01%	0.01%	0.00%
65%	98.14%	0.49%	0.28%	0.01%	0.02%	0.00%
70%	98.23%	0.51%	0.44%	0.01%	0.03%	0.00%
75%	96.95%	0.52%	0.70%	0.01%	0.05%	0.00%
80%	97.63%	0.53%	1.13%	0.01%	0.07%	0.00%
85%	97.36%	0.53%	1.85%	0.01%	0.12%	0.00%
90%	96.50%	0.54%	3.29%	0.01%	0.25%	0.00%
95%	98.56%	0.56%	6.34%	0.01%	0.51%	0.00%
97.5%	97.46%	0.58%	9.06%	0.01%	0.72%	0.00%
Mean	97.83%	0.48%	1.55%	0.01%	0.13%	0.00%
Minimum	94.77%	0.21%	0.00%	0.01%	0.00%	0.00%
Maximum	92.01%	0.60%	14.33%	0.01%	2.26%	0.00%

**TABLE B.4a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Cs-137 Contamination in the
Warehouse Building Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.16E-01	9.25E-04	2.47E-06	1.09E-05	2.43E-06	0.00E+00
5%	2.13E-01	1.66E-03	6.47E-06	2.07E-05	5.57E-06	0.00E+00
10%	6.20E-01	4.92E-03	1.60E-05	5.70E-05	1.65E-05	0.00E+00
15%	1.04E+00	7.78E-03	3.48E-05	9.60E-05	3.49E-05	0.00E+00
20%	1.45E+00	1.00E-02	6.58E-05	1.32E-04	6.52E-05	0.00E+00
25%	1.87E+00	1.17E-02	1.37E-04	1.62E-04	1.38E-04	0.00E+00
30%	1.94E+00	1.31E-02	2.27E-04	1.83E-04	2.54E-04	0.00E+00
35%	2.02E+00	1.43E-02	4.68E-04	1.90E-04	5.04E-04	0.00E+00
40%	2.09E+00	1.54E-02	8.20E-04	1.98E-04	8.63E-04	0.00E+00
45%	2.16E+00	1.62E-02	1.59E-03	2.06E-04	1.56E-03	0.00E+00
50%	2.23E+00	1.71E-02	2.92E-03	2.12E-04	2.58E-03	0.00E+00
55%	2.28E+00	1.80E-02	4.43E-03	2.19E-04	4.42E-03	0.00E+00
60%	2.33E+00	1.89E-02	7.19E-03	2.24E-04	7.83E-03	0.00E+00
65%	2.37E+00	1.99E-02	1.15E-02	2.29E-04	1.25E-02	0.00E+00
70%	2.42E+00	2.10E-02	1.81E-02	2.34E-04	2.03E-02	0.00E+00
75%	2.47E+00	2.21E-02	3.23E-02	2.38E-04	3.42E-02	0.00E+00
80%	2.60E+00	2.34E-02	5.47E-02	2.48E-04	6.13E-02	0.00E+00
85%	2.73E+00	2.48E-02	1.04E-01	2.62E-04	1.21E-01	0.00E+00
90%	2.87E+00	2.68E-02	2.14E-01	2.76E-04	2.44E-01	0.00E+00
95%	3.15E+00	2.94E-02	5.66E-01	3.04E-04	7.65E-01	0.00E+00
97.5%	3.28E+00	3.24E-02	1.09E+00	3.19E-04	1.27E+00	0.00E+00
Mean	2.04E+00	1.68E-02	9.83E-02	1.93E-04	1.21E-01	0.00E+00
Minimum	1.97E-02	9.75E-05	3.74E-08	1.85E-06	4.87E-08	0.00E+00
Maximum	4.23E+00	4.62E-02	2.72E+00	4.07E-04	6.75E+00	0.00E+00

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TABLE B.4b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Cs-137 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	92.32%	0.73%	0.00%	0.01%	0.00%	0.00%
5%	86.41%	0.67%	0.00%	0.01%	0.00%	0.00%
10%	92.38%	0.73%	0.00%	0.01%	0.00%	0.00%
15%	93.55%	0.70%	0.00%	0.01%	0.00%	0.00%
20%	94.16%	0.65%	0.00%	0.01%	0.00%	0.00%
25%	97.42%	0.61%	0.01%	0.01%	0.01%	0.00%
30%	96.78%	0.65%	0.01%	0.01%	0.01%	0.00%
35%	96.12%	0.68%	0.02%	0.01%	0.02%	0.00%
40%	95.76%	0.70%	0.04%	0.01%	0.04%	0.00%
45%	95.34%	0.72%	0.07%	0.01%	0.07%	0.00%
50%	96.00%	0.73%	0.13%	0.01%	0.11%	0.00%
55%	96.00%	0.76%	0.19%	0.01%	0.19%	0.00%
60%	95.61%	0.78%	0.30%	0.01%	0.32%	0.00%
65%	95.42%	0.80%	0.46%	0.01%	0.50%	0.00%
70%	93.31%	0.81%	0.70%	0.01%	0.78%	0.00%
75%	91.13%	0.82%	1.19%	0.01%	1.27%	0.00%
80%	90.93%	0.82%	1.91%	0.01%	2.15%	0.00%
85%	89.94%	0.82%	3.43%	0.01%	3.99%	0.00%
90%	87.17%	0.81%	6.51%	0.01%	7.43%	0.00%
95%	78.87%	0.74%	14.19%	0.01%	19.18%	0.00%
97.5%	68.55%	0.68%	22.84%	0.01%	26.50%	0.00%
Mean	89.59%	0.74%	4.32%	0.01%	5.34%	0.00%
Minimum	90.34%	0.45%	0.00%	0.01%	0.00%	0.00%
Maximum	32.26%	0.35%	20.72%	0.00%	51.49%	0.00%

TABLE B.5a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Fe-55 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00E+00	1.07E-02	0.00E+00	0.00E+00	5.46E-06	0.00E+00
5%	0.00E+00	1.86E-02	0.00E+00	0.00E+00	1.26E-05	0.00E+00
10%	0.00E+00	5.75E-02	0.00E+00	0.00E+00	3.65E-05	0.00E+00
15%	0.00E+00	8.71E-02	0.00E+00	0.00E+00	7.67E-05	0.00E+00
20%	0.00E+00	1.12E-01	0.00E+00	0.00E+00	1.46E-04	0.00E+00
25%	0.00E+00	1.33E-01	0.00E+00	0.00E+00	2.95E-04	0.00E+00
30%	0.00E+00	1.51E-01	0.00E+00	0.00E+00	4.83E-04	0.00E+00
35%	0.00E+00	1.63E-01	0.00E+00	0.00E+00	9.12E-04	0.00E+00
40%	0.00E+00	1.76E-01	0.00E+00	0.00E+00	1.42E-03	0.00E+00
45%	0.00E+00	1.90E-01	0.00E+00	0.00E+00	2.27E-03	0.00E+00
50%	0.00E+00	2.01E-01	0.00E+00	0.00E+00	3.75E-03	0.00E+00
55%	0.00E+00	2.12E-01	0.00E+00	0.00E+00	5.69E-03	0.00E+00

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TABLE B.5a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	0.00E+00	2.23E-01	0.00E+00	0.00E+00	9.14E-03	0.00E+00
65%	0.00E+00	2.36E-01	0.00E+00	0.00E+00	1.36E-02	0.00E+00
70%	0.00E+00	2.48E-01	0.00E+00	0.00E+00	2.09E-02	0.00E+00
75%	0.00E+00	2.62E-01	0.00E+00	0.00E+00	3.06E-02	0.00E+00
80%	0.00E+00	2.78E-01	0.00E+00	0.00E+00	4.86E-02	0.00E+00
85%	0.00E+00	2.96E-01	0.00E+00	0.00E+00	8.73E-02	0.00E+00
90%	0.00E+00	3.20E-01	0.00E+00	0.00E+00	1.61E-01	0.00E+00
95%	0.00E+00	3.55E-01	0.00E+00	0.00E+00	3.49E-01	0.00E+00
97.5%	0.00E+00	3.92E-01	0.00E+00	0.00E+00	5.49E-01	0.00E+00
Mean	0.00E+00	1.97E-01	0.00E+00	0.00E+00	5.85E-02	0.00E+00
Minimum	0.00E+00	8.39E-04	0.00E+00	0.00E+00	1.10E-07	0.00E+00
Maximum	0.00E+00	5.48E-01	0.00E+00	0.00E+00	1.99E+00	0.00E+00

TABLE B.5b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Fe-55 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00%	80.98%	0.00%	0.00%	0.04%	0.00%
5%	0.00%	72.03%	0.00%	0.00%	0.05%	0.00%
10%	0.00%	78.00%	0.00%	0.00%	0.05%	0.00%
15%	0.00%	79.68%	0.00%	0.00%	0.07%	0.00%
20%	0.00%	80.58%	0.00%	0.00%	0.11%	0.00%
25%	0.00%	81.61%	0.00%	0.00%	0.18%	0.00%
30%	0.00%	83.38%	0.00%	0.00%	0.27%	0.00%
35%	0.00%	81.93%	0.00%	0.00%	0.46%	0.00%
40%	0.00%	83.34%	0.00%	0.00%	0.67%	0.00%
45%	0.00%	84.86%	0.00%	0.00%	1.01%	0.00%
50%	0.00%	84.25%	0.00%	0.00%	1.57%	0.00%
55%	0.00%	84.79%	0.00%	0.00%	2.28%	0.00%
60%	0.00%	84.59%	0.00%	0.00%	3.47%	0.00%
65%	0.00%	84.37%	0.00%	0.00%	4.86%	0.00%
70%	0.00%	83.85%	0.00%	0.00%	7.07%	0.00%
75%	0.00%	83.83%	0.00%	0.00%	9.77%	0.00%
80%	0.00%	82.91%	0.00%	0.00%	14.50%	0.00%
85%	0.00%	81.50%	0.00%	0.00%	24.02%	0.00%
90%	0.00%	77.74%	0.00%	0.00%	39.18%	0.00%
95%	0.00%	67.67%	0.00%	0.00%	66.55%	0.00%
97.5%	0.00%	57.97%	0.00%	0.00%	81.09%	0.00%
Mean	0.00%	77.09%	0.00%	0.00%	22.91%	0.00%
Minimum	0.00%	52.78%	0.00%	0.00%	0.01%	0.00%
Maximum	0.00%	25.64%	0.00%	0.00%	92.88%	0.00%

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TABLE B.6a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from I-129 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.02E-02	7.28E-03	2.18E-07	1.61E-07	2.08E-05	0.00E+00
5%	1.88E-02	1.34E-02	5.72E-07	2.95E-07	4.77E-05	0.00E+00
10%	5.46E-02	3.99E-02	1.42E-06	8.58E-07	1.41E-04	0.00E+00
15%	9.16E-02	6.24E-02	3.07E-06	1.44E-06	2.98E-04	0.00E+00
20%	1.28E-01	8.32E-02	5.83E-06	2.01E-06	5.58E-04	0.00E+00
25%	1.64E-01	9.64E-02	1.22E-05	2.58E-06	1.18E-03	0.00E+00
30%	1.71E-01	1.06E-01	2.01E-05	2.69E-06	2.19E-03	0.00E+00
35%	1.77E-01	1.15E-01	4.14E-05	2.79E-06	4.37E-03	0.00E+00
40%	1.84E-01	1.23E-01	7.54E-05	2.89E-06	7.66E-03	0.00E+00
45%	1.90E-01	1.29E-01	1.43E-04	2.99E-06	1.39E-02	0.00E+00
50%	1.96E-01	1.36E-01	2.72E-04	3.09E-06	2.40E-02	0.00E+00
55%	2.01E-01	1.43E-01	4.45E-04	3.15E-06	4.24E-02	0.00E+00
60%	2.05E-01	1.50E-01	7.69E-04	3.22E-06	8.04E-02	0.00E+00
65%	2.09E-01	1.57E-01	1.27E-03	3.28E-06	1.31E-01	0.00E+00
70%	2.13E-01	1.65E-01	2.21E-03	3.34E-06	2.16E-01	0.00E+00
75%	2.17E-01	1.74E-01	3.99E-03	3.41E-06	4.14E-01	0.00E+00
80%	2.28E-01	1.84E-01	6.85E-03	3.59E-06	7.66E-01	0.00E+00
85%	2.40E-01	1.95E-01	1.28E-02	3.78E-06	1.60E+00	0.00E+00
90%	2.52E-01	2.11E-01	3.67E-02	3.96E-06	3.70E+00	0.00E+00
95%	2.77E-01	2.31E-01	9.96E-02	4.35E-06	1.32E+01	0.00E+00
97.5%	2.89E-01	2.55E-01	2.86E-01	4.54E-06	2.96E+01	0.00E+00
Mean	1.79E-01	1.33E-01	2.64E-02	2.82E-06	2.98E+00	0.00E+00
Minimum	1.74E-03	7.76E-04	3.30E-09	2.73E-08	4.17E-07	0.00E+00
Maximum	3.72E-01	3.74E-01	1.40E+00	5.85E-06	2.65E+02	0.00E+00

TABLE B.6b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from I-129 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	42.49%	30.25%	0.00%	0.00%	0.09%	0.00%
5%	33.36%	23.86%	0.00%	0.00%	0.08%	0.00%
10%	36.34%	26.59%	0.00%	0.00%	0.09%	0.00%
15%	37.34%	25.45%	0.00%	0.00%	0.12%	0.00%
20%	44.49%	28.98%	0.00%	0.00%	0.19%	0.00%
25%	52.39%	30.73%	0.00%	0.00%	0.38%	0.00%
30%	51.57%	31.83%	0.01%	0.00%	0.66%	0.00%
35%	50.66%	32.85%	0.01%	0.00%	1.25%	0.00%
40%	50.10%	33.64%	0.02%	0.00%	2.09%	0.00%
45%	48.84%	33.22%	0.04%	0.00%	3.56%	0.00%
50%	48.09%	33.24%	0.07%	0.00%	5.86%	0.00%
55%	45.88%	32.79%	0.10%	0.00%	9.70%	0.00%

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TABLE B.6b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	43.55%	32.02%	0.16%	0.00%	17.11%	0.00%
65%	40.25%	30.37%	0.24%	0.00%	25.35%	0.00%
70%	36.91%	28.57%	0.38%	0.00%	37.54%	0.00%
75%	29.43%	23.57%	0.54%	0.00%	56.15%	0.00%
80%	20.97%	16.92%	0.63%	0.00%	70.35%	0.00%
85%	12.12%	9.81%	0.65%	0.00%	80.90%	0.00%
90%	6.17%	5.16%	0.90%	0.00%	90.39%	0.00%
95%	2.04%	1.70%	0.73%	0.00%	97.21%	0.00%
97.5%	0.96%	0.85%	0.95%	0.00%	98.23%	0.00%
Mean	5.39%	4.01%	0.79%	0.00%	89.80%	0.00%
Minimum	59.20%	26.47%	0.00%	0.00%	0.01%	0.00%
Maximum	0.14%	0.14%	0.53%	0.00%	99.49%	0.00%

**TABLE B.7a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Po-210 Contamination in the Warehouse
Building Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	9.57E-07	1.24E-01	1.56E-11	6.61E-11	9.69E-05	0.00E+00
5%	1.72E-06	2.24E-01	4.03E-11	1.34E-10	2.10E-04	0.00E+00
10%	4.60E-06	6.53E-01	9.76E-11	3.79E-10	6.01E-04	0.00E+00
15%	7.57E-06	9.84E-01	2.09E-10	5.63E-10	1.31E-03	0.00E+00
20%	1.05E-05	1.25E+00	3.69E-10	7.42E-10	2.29E-03	0.00E+00
25%	1.35E-05	1.55E+00	5.88E-10	8.86E-10	3.74E-03	0.00E+00
30%	1.41E-05	1.71E+00	9.31E-10	1.03E-09	5.82E-03	0.00E+00
35%	1.46E-05	1.92E+00	1.38E-09	1.18E-09	8.01E-03	0.00E+00
40%	1.52E-05	2.08E+00	2.13E-09	1.29E-09	1.32E-02	0.00E+00
45%	1.56E-05	2.23E+00	3.09E-09	1.34E-09	2.06E-02	0.00E+00
50%	1.62E-05	2.40E+00	4.43E-09	1.40E-09	2.97E-02	0.00E+00
55%	1.65E-05	2.54E+00	6.36E-09	1.46E-09	4.30E-02	0.00E+00
60%	1.69E-05	2.68E+00	9.10E-09	1.51E-09	5.98E-02	0.00E+00
65%	1.72E-05	2.84E+00	1.26E-08	1.56E-09	8.73E-02	0.00E+00
70%	1.75E-05	3.01E+00	1.84E-08	1.60E-09	1.19E-01	0.00E+00
75%	1.79E-05	3.19E+00	2.60E-08	1.64E-09	1.79E-01	0.00E+00
80%	1.88E-05	3.39E+00	4.01E-08	1.69E-09	2.73E-01	0.00E+00
85%	1.98E-05	3.62E+00	6.36E-08	1.79E-09	4.04E-01	0.00E+00
90%	2.08E-05	3.90E+00	1.01E-07	1.90E-09	6.93E-01	0.00E+00
95%	2.28E-05	4.36E+00	1.60E-07	2.09E-09	1.21E+00	0.00E+00
97.5%	2.38E-05	4.83E+00	1.92E-07	2.21E-09	1.85E+00	0.00E+00
Mean	1.48E-05	2.37E+00	2.86E-08	1.27E-09	2.33E-01	0.00E+00
Minimum	1.59E-07	8.72E-03	2.56E-13	7.26E-12	2.08E-06	0.00E+00
Maximum	3.87E-05	7.74E+00	3.53E-07	3.29E-09	5.48E+00	0.00E+00

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TABLE B.7b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Po-210 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00%	86.37%	0.00%	0.00%	0.07%	0.00%
5%	0.00%	94.32%	0.00%	0.00%	0.09%	0.00%
10%	0.00%	86.45%	0.00%	0.00%	0.08%	0.00%
15%	0.00%	81.04%	0.00%	0.00%	0.11%	0.00%
20%	0.00%	77.21%	0.00%	0.00%	0.14%	0.00%
25%	0.00%	83.82%	0.00%	0.00%	0.20%	0.00%
30%	0.00%	83.53%	0.00%	0.00%	0.28%	0.00%
35%	0.00%	86.74%	0.00%	0.00%	0.36%	0.00%
40%	0.00%	86.97%	0.00%	0.00%	0.55%	0.00%
45%	0.00%	87.74%	0.00%	0.00%	0.81%	0.00%
50%	0.00%	90.55%	0.00%	0.00%	1.12%	0.00%
55%	0.00%	91.25%	0.00%	0.00%	1.54%	0.00%
60%	0.00%	91.80%	0.00%	0.00%	2.05%	0.00%
65%	0.00%	92.70%	0.00%	0.00%	2.85%	0.00%
70%	0.00%	93.18%	0.00%	0.00%	3.69%	0.00%
75%	0.00%	93.77%	0.00%	0.00%	5.25%	0.00%
80%	0.00%	94.10%	0.00%	0.00%	7.57%	0.00%
85%	0.00%	94.97%	0.00%	0.00%	10.60%	0.00%
90%	0.00%	95.46%	0.00%	0.00%	16.96%	0.00%
95%	0.00%	96.35%	0.00%	0.00%	26.80%	0.00%
97.5%	0.00%	95.65%	0.00%	0.00%	36.76%	0.00%
Mean	0.00%	91.03%	0.00%	0.00%	8.97%	0.00%
Minimum	0.00%	45.91%	0.00%	0.00%	0.01%	0.00%
Maximum	0.00%	82.30%	0.00%	0.00%	58.29%	0.00%

TABLE B.8a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Pu-239 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.14E-05	4.57E-01	2.64E-10	1.79E-10	4.73E-06	0.00E+00
5%	2.09E-05	8.41E-01	6.93E-10	3.29E-10	1.08E-05	0.00E+00
10%	6.07E-05	2.51E+00	1.72E-09	9.57E-10	3.20E-05	0.00E+00
15%	1.02E-04	3.92E+00	3.72E-09	1.61E-09	6.78E-05	0.00E+00
20%	1.42E-04	5.22E+00	7.05E-09	2.24E-09	1.27E-04	0.00E+00
25%	1.83E-04	6.05E+00	1.48E-08	2.88E-09	2.68E-04	0.00E+00
30%	1.90E-04	6.62E+00	2.43E-08	3.00E-09	4.97E-04	0.00E+00
35%	1.97E-04	7.22E+00	5.01E-08	3.11E-09	9.94E-04	0.00E+00
40%	2.04E-04	7.74E+00	9.13E-08	3.22E-09	1.74E-03	0.00E+00
45%	2.11E-04	8.11E+00	1.74E-07	3.33E-09	3.15E-03	0.00E+00
50%	2.18E-04	8.52E+00	3.29E-07	3.45E-09	5.44E-03	0.00E+00
55%	2.23E-04	9.00E+00	5.39E-07	3.52E-09	9.64E-03	0.00E+00

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TABLE B.8a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.27E-04	9.44E+00	9.30E-07	3.59E-09	1.83E-02	0.00E+00
65%	2.32E-04	9.88E+00	1.53E-06	3.66E-09	2.99E-02	0.00E+00
70%	2.37E-04	1.03E+01	2.67E-06	3.73E-09	4.92E-02	0.00E+00
75%	2.41E-04	1.09E+01	4.83E-06	3.80E-09	9.40E-02	0.00E+00
80%	2.54E-04	1.16E+01	8.29E-06	4.00E-09	1.74E-01	0.00E+00
85%	2.67E-04	1.22E+01	1.55E-05	4.21E-09	3.64E-01	0.00E+00
90%	2.80E-04	1.32E+01	4.44E-05	4.42E-09	8.39E-01	0.00E+00
95%	3.08E-04	1.45E+01	1.20E-04	4.86E-09	3.00E+00	0.00E+00
97.5%	3.21E-04	1.60E+01	3.45E-04	5.07E-09	6.70E+00	0.00E+00
Mean	1.99E-04	8.35E+00	3.18E-05	3.14E-09	6.76E-01	0.00E+00
Minimum	1.93E-06	4.87E-02	4.00E-12	3.04E-11	9.47E-08	0.00E+00
Maximum	4.13E-04	2.35E+01	1.69E-03	6.52E-09	5.98E+01	0.00E+00

TABLE B.8b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Pu-239 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00%	96.07%	0.00%	0.00%	0.00%	0.00%
5%	0.00%	96.02%	0.00%	0.00%	0.00%	0.00%
10%	0.00%	96.80%	0.00%	0.00%	0.00%	0.00%
15%	0.00%	98.28%	0.00%	0.00%	0.00%	0.00%
20%	0.00%	98.53%	0.00%	0.00%	0.00%	0.00%
25%	0.00%	97.63%	0.00%	0.00%	0.00%	0.00%
30%	0.00%	96.68%	0.00%	0.00%	0.01%	0.00%
35%	0.00%	96.47%	0.00%	0.00%	0.01%	0.00%
40%	0.00%	97.36%	0.00%	0.00%	0.02%	0.00%
45%	0.00%	96.96%	0.00%	0.00%	0.04%	0.00%
50%	0.00%	95.72%	0.00%	0.00%	0.06%	0.00%
55%	0.00%	95.93%	0.00%	0.00%	0.10%	0.00%
60%	0.00%	96.67%	0.00%	0.00%	0.19%	0.00%
65%	0.00%	96.06%	0.00%	0.00%	0.29%	0.00%
70%	0.00%	95.39%	0.00%	0.00%	0.45%	0.00%
75%	0.00%	95.03%	0.00%	0.00%	0.82%	0.00%
80%	0.00%	96.10%	0.00%	0.00%	1.45%	0.00%
85%	0.00%	94.00%	0.00%	0.00%	2.81%	0.00%
90%	0.00%	94.36%	0.00%	0.00%	5.98%	0.00%
95%	0.00%	88.56%	0.00%	0.00%	18.35%	0.00%
97.5%	0.00%	82.62%	0.00%	0.00%	34.58%	0.00%
Mean	0.00%	92.52%	0.00%	0.00%	7.48%	0.00%
Minimum	0.00%	96.45%	0.00%	0.00%	0.00%	0.00%
Maximum	0.00%	34.60%	0.00%	0.00%	88.12%	0.00%

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TABLE B.9a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Ra-226 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.56E-01	1.72E+00	7.57E-06	3.75E-05	5.50E-05	6.85E-02
5%	6.53E-01	3.12E+00	1.98E-05	6.88E-05	1.26E-04	1.45E-01
10%	1.90E+00	9.43E+00	4.92E-05	2.00E-04	3.73E-04	4.18E-01
15%	3.18E+00	1.47E+01	1.06E-04	3.36E-04	7.89E-04	6.84E-01
20%	4.44E+00	1.96E+01	2.02E-04	4.68E-04	1.48E-03	8.29E-01
25%	5.71E+00	2.27E+01	4.22E-04	6.00E-04	3.12E-03	9.63E-01
30%	5.94E+00	2.49E+01	6.96E-04	6.25E-04	5.78E-03	1.10E+00
35%	6.17E+00	2.71E+01	1.43E-03	6.48E-04	1.16E-02	1.21E+00
40%	6.39E+00	2.91E+01	2.61E-03	6.73E-04	2.02E-02	1.33E+00
45%	6.61E+00	3.05E+01	4.97E-03	6.97E-04	3.66E-02	1.39E+00
50%	6.83E+00	3.20E+01	9.40E-03	7.19E-04	6.29E-02	1.44E+00
55%	6.97E+00	3.38E+01	1.54E-02	7.34E-04	1.12E-01	1.50E+00
60%	7.11E+00	3.55E+01	2.65E-02	7.49E-04	2.12E-01	1.55E+00
65%	7.25E+00	3.71E+01	4.37E-02	7.64E-04	3.46E-01	1.59E+00
70%	7.40E+00	3.89E+01	7.56E-02	7.79E-04	5.61E-01	1.65E+00
75%	7.54E+00	4.10E+01	1.38E-01	7.94E-04	1.07E+00	1.70E+00
80%	7.94E+00	4.35E+01	2.36E-01	8.37E-04	2.00E+00	1.75E+00
85%	8.35E+00	4.59E+01	4.39E-01	8.80E-04	4.07E+00	1.84E+00
90%	8.77E+00	4.98E+01	1.25E+00	9.24E-04	9.35E+00	1.96E+00
95%	9.62E+00	5.44E+01	3.39E+00	1.02E-03	3.37E+01	2.12E+00
97.5%	1.00E+01	6.02E+01	9.57E+00	1.06E-03	7.26E+01	2.29E+00
Mean	6.23E+00	3.14E+01	8.66E-01	6.56E-04	7.30E+00	1.32E+00
Minimum	6.03E-02	1.83E-01	1.14E-07	6.35E-06	1.10E-06	9.16E-03
Maximum	1.29E+01	8.83E+01	4.37E+01	1.36E-03	6.15E+02	2.94E+00

TABLE B.9b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Ra-226 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	15.13%	73.16%	0.00%	0.00%	0.00%	2.92%
5%	14.12%	67.39%	0.00%	0.00%	0.00%	3.14%
10%	14.69%	73.00%	0.00%	0.00%	0.00%	3.24%
15%	15.30%	70.82%	0.00%	0.00%	0.00%	3.29%
20%	16.49%	72.94%	0.00%	0.00%	0.01%	3.08%
25%	18.32%	72.88%	0.00%	0.00%	0.01%	3.09%
30%	17.36%	72.68%	0.00%	0.00%	0.02%	3.21%
35%	16.79%	73.91%	0.00%	0.00%	0.03%	3.30%
40%	16.52%	75.27%	0.01%	0.00%	0.05%	3.43%
45%	16.19%	74.67%	0.01%	0.00%	0.09%	3.39%
50%	16.01%	75.05%	0.02%	0.00%	0.15%	3.38%
55%	15.58%	75.46%	0.03%	0.00%	0.25%	3.35%

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TABLE B.9b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	15.13%	75.55%	0.06%	0.00%	0.45%	3.30%
65%	14.78%	75.67%	0.09%	0.00%	0.71%	3.25%
70%	14.31%	75.20%	0.15%	0.00%	1.09%	3.19%
75%	13.94%	75.75%	0.26%	0.00%	1.99%	3.14%
80%	13.82%	75.65%	0.41%	0.00%	3.48%	3.04%
85%	13.54%	74.47%	0.71%	0.00%	6.60%	2.99%
90%	12.80%	72.71%	1.82%	0.00%	13.65%	2.87%
95%	11.20%	63.28%	3.94%	0.00%	39.19%	2.46%
97.5%	7.33%	43.93%	6.98%	0.00%	52.99%	1.67%
Mean	13.22%	66.63%	1.84%	0.00%	15.50%	2.80%
Minimum	20.86%	63.36%	0.00%	0.00%	0.00%	3.17%
Maximum	1.89%	12.92%	6.39%	0.00%	89.91%	0.43%

TABLE B.10a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from S-35 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.81E-04	4.29E-03	3.13E-09	2.73E-09	4.31E-06	0.00E+00
5%	3.32E-04	7.88E-03	7.88E-09	5.50E-09	9.49E-06	0.00E+00
10%	9.64E-04	2.31E-02	1.90E-08	1.53E-08	2.64E-05	0.00E+00
15%	1.62E-03	3.45E-02	3.93E-08	2.31E-08	5.33E-05	0.00E+00
20%	2.26E-03	4.33E-02	6.83E-08	2.99E-08	8.96E-05	0.00E+00
25%	2.90E-03	5.37E-02	9.68E-08	3.64E-08	1.39E-04	0.00E+00
30%	3.02E-03	5.96E-02	1.41E-07	4.18E-08	2.13E-04	0.00E+00
35%	3.13E-03	6.74E-02	2.21E-07	4.82E-08	3.08E-04	0.00E+00
40%	3.25E-03	7.32E-02	3.34E-07	5.27E-08	4.55E-04	0.00E+00
45%	3.36E-03	7.86E-02	5.20E-07	5.54E-08	7.45E-04	0.00E+00
50%	3.47E-03	8.40E-02	6.84E-07	5.80E-08	1.05E-03	0.00E+00
55%	3.54E-03	8.94E-02	9.83E-07	6.01E-08	1.38E-03	0.00E+00
60%	3.61E-03	9.46E-02	1.34E-06	6.22E-08	2.04E-03	0.00E+00
65%	3.69E-03	1.00E-01	1.92E-06	6.45E-08	2.97E-03	0.00E+00
70%	3.76E-03	1.06E-01	2.81E-06	6.63E-08	3.96E-03	0.00E+00
75%	3.83E-03	1.13E-01	3.90E-06	6.80E-08	5.81E-03	0.00E+00
80%	4.03E-03	1.20E-01	5.74E-06	6.98E-08	8.79E-03	0.00E+00
85%	4.24E-03	1.28E-01	9.31E-06	7.38E-08	1.29E-02	0.00E+00
90%	4.46E-03	1.37E-01	1.41E-05	7.85E-08	2.08E-02	0.00E+00
95%	4.89E-03	1.53E-01	2.16E-05	8.63E-08	3.53E-02	0.00E+00
97.5%	5.10E-03	1.70E-01	2.56E-05	9.10E-08	5.57E-02	0.00E+00
Mean	3.16E-03	8.32E-02	3.96E-06	5.23E-08	7.17E-03	0.00E+00
Minimum	3.06E-05	2.73E-04	5.21E-11	2.88E-10	9.45E-08	0.00E+00
Maximum	6.57E-03	2.35E-01	4.74E-05	1.19E-07	1.58E-01	0.00E+00

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TABLE B.10b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from S-35 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.45%	81.91%	0.00%	0.00%	0.08%	0.00%
5%	3.88%	92.35%	0.00%	0.00%	0.11%	0.00%
10%	3.53%	84.58%	0.00%	0.00%	0.10%	0.00%
15%	3.64%	77.48%	0.00%	0.00%	0.12%	0.00%
20%	3.84%	73.56%	0.00%	0.00%	0.15%	0.00%
25%	4.34%	80.40%	0.00%	0.00%	0.21%	0.00%
30%	4.05%	79.98%	0.00%	0.00%	0.29%	0.00%
35%	3.87%	83.31%	0.00%	0.00%	0.38%	0.00%
40%	3.74%	84.31%	0.00%	0.00%	0.52%	0.00%
45%	3.65%	85.55%	0.00%	0.00%	0.81%	0.00%
50%	3.63%	87.78%	0.00%	0.00%	1.10%	0.00%
55%	3.54%	89.25%	0.00%	0.00%	1.38%	0.00%
60%	3.44%	89.92%	0.00%	0.00%	1.94%	0.00%
65%	3.34%	90.65%	0.00%	0.00%	2.69%	0.00%
70%	3.21%	90.97%	0.00%	0.00%	3.38%	0.00%
75%	3.11%	91.73%	0.00%	0.00%	4.72%	0.00%
80%	3.13%	92.89%	0.00%	0.00%	6.82%	0.00%
85%	3.10%	93.62%	0.01%	0.00%	9.44%	0.00%
90%	3.04%	93.49%	0.01%	0.00%	14.19%	0.00%
95%	3.00%	94.06%	0.01%	0.00%	21.66%	0.00%
97.5%	2.85%	94.92%	0.01%	0.00%	31.13%	0.00%
Mean	3.38%	88.95%	0.00%	0.00%	7.67%	0.00%
Minimum	4.63%	41.17%	0.00%	0.00%	0.01%	0.00%
Maximum	2.26%	80.57%	0.02%	0.00%	54.24%	0.00%

TABLE B.11a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Sr-90 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.32E-02	1.09E-02	2.81E-07	7.87E-08	5.74E-06	0.00E+00
5%	2.42E-02	1.95E-02	7.35E-07	1.50E-07	1.32E-05	0.00E+00
10%	7.05E-02	5.77E-02	1.82E-06	4.13E-07	3.88E-05	0.00E+00
15%	1.18E-01	9.12E-02	3.95E-06	6.95E-07	8.23E-05	0.00E+00
20%	1.65E-01	1.18E-01	7.47E-06	9.60E-07	1.54E-04	0.00E+00
25%	2.12E-01	1.37E-01	1.56E-05	1.18E-06	3.26E-04	0.00E+00
30%	2.21E-01	1.54E-01	2.57E-05	1.33E-06	6.00E-04	0.00E+00
35%	2.29E-01	1.68E-01	5.32E-05	1.38E-06	1.19E-03	0.00E+00
40%	2.37E-01	1.80E-01	9.31E-05	1.43E-06	2.04E-03	0.00E+00
45%	2.45E-01	1.91E-01	1.80E-04	1.49E-06	3.64E-03	0.00E+00
50%	2.54E-01	2.00E-01	3.31E-04	1.54E-06	6.07E-03	0.00E+00
55%	2.59E-01	2.11E-01	5.01E-04	1.58E-06	1.04E-02	0.00E+00

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TABLE B.11a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.64E-01	2.22E-01	8.16E-04	1.62E-06	1.84E-02	0.00E+00
65%	2.69E-01	2.34E-01	1.30E-03	1.66E-06	2.94E-02	0.00E+00
70%	2.75E-01	2.46E-01	2.03E-03	1.69E-06	4.75E-02	0.00E+00
75%	2.80E-01	2.60E-01	3.66E-03	1.73E-06	7.97E-02	0.00E+00
80%	2.95E-01	2.75E-01	6.18E-03	1.80E-06	1.44E-01	0.00E+00
85%	3.10E-01	2.91E-01	1.17E-02	1.90E-06	2.85E-01	0.00E+00
90%	3.26E-01	3.14E-01	2.42E-02	2.00E-06	5.71E-01	0.00E+00
95%	3.57E-01	3.45E-01	6.31E-02	2.20E-06	1.77E+00	0.00E+00
97.5%	3.73E-01	3.81E-01	1.22E-01	2.31E-06	2.96E+00	0.00E+00
Mean	2.31E-01	1.97E-01	1.10E-02	1.40E-06	2.82E-01	0.00E+00
Minimum	2.24E-03	1.14E-03	4.25E-09	1.34E-08	1.15E-07	0.00E+00
Maximum	4.80E-01	5.41E-01	3.02E-01	2.95E-06	1.56E+01	0.00E+00

TABLE B.11b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Sr-90 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	44.88%	36.91%	0.00%	0.00%	0.02%	0.00%
5%	37.01%	29.79%	0.00%	0.00%	0.02%	0.00%
10%	42.16%	34.55%	0.00%	0.00%	0.02%	0.00%
15%	44.14%	34.04%	0.00%	0.00%	0.03%	0.00%
20%	47.24%	33.73%	0.00%	0.00%	0.04%	0.00%
25%	53.42%	34.52%	0.00%	0.00%	0.08%	0.00%
30%	51.70%	35.98%	0.01%	0.00%	0.14%	0.00%
35%	50.73%	37.11%	0.01%	0.00%	0.26%	0.00%
40%	50.65%	38.45%	0.02%	0.00%	0.43%	0.00%
45%	50.51%	39.20%	0.04%	0.00%	0.75%	0.00%
50%	50.41%	39.81%	0.07%	0.00%	1.21%	0.00%
55%	49.08%	39.92%	0.10%	0.00%	1.98%	0.00%
60%	48.07%	40.43%	0.15%	0.00%	3.34%	0.00%
65%	46.74%	40.58%	0.23%	0.00%	5.09%	0.00%
70%	45.32%	40.62%	0.33%	0.00%	7.83%	0.00%
75%	42.78%	39.69%	0.56%	0.00%	12.17%	0.00%
80%	40.87%	38.14%	0.86%	0.00%	20.02%	0.00%
85%	38.39%	35.99%	1.45%	0.00%	35.27%	0.00%
90%	29.06%	28.07%	2.16%	0.00%	50.97%	0.00%
95%	16.40%	15.84%	2.89%	0.00%	81.27%	0.00%
97.5%	10.38%	10.59%	3.40%	0.00%	82.27%	0.00%
Mean	32.09%	27.28%	1.52%	0.00%	39.11%	0.00%
Minimum	55.76%	28.31%	0.00%	0.00%	0.00%	0.00%
Maximum	2.90%	3.26%	1.82%	0.00%	94.23%	0.00%

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TABLE B.12a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Tc-99 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.64E-04	4.57E-03	3.44E-09	6.86E-09	1.21E-06	0.00E+00
5%	3.02E-04	8.42E-03	9.03E-09	1.26E-08	2.77E-06	0.00E+00
10%	8.77E-04	2.51E-02	2.24E-08	3.66E-08	8.20E-06	0.00E+00
15%	1.47E-03	3.92E-02	4.85E-08	6.14E-08	1.74E-05	0.00E+00
20%	2.05E-03	5.22E-02	9.20E-08	8.56E-08	3.25E-05	0.00E+00
25%	2.64E-03	6.05E-02	1.92E-07	1.10E-07	6.87E-05	0.00E+00
30%	2.75E-03	6.62E-02	3.17E-07	1.15E-07	1.27E-04	0.00E+00
35%	2.85E-03	7.22E-02	6.54E-07	1.19E-07	2.55E-04	0.00E+00
40%	2.95E-03	7.74E-02	1.19E-06	1.23E-07	4.46E-04	0.00E+00
45%	3.06E-03	8.12E-02	2.26E-06	1.27E-07	8.06E-04	0.00E+00
50%	3.16E-03	8.52E-02	4.29E-06	1.32E-07	1.39E-03	0.00E+00
55%	3.23E-03	9.00E-02	7.02E-06	1.34E-07	2.47E-03	0.00E+00
60%	3.29E-03	9.44E-02	1.21E-05	1.37E-07	4.68E-03	0.00E+00
65%	3.36E-03	9.88E-02	2.00E-05	1.40E-07	7.65E-03	0.00E+00
70%	3.42E-03	1.03E-01	3.48E-05	1.43E-07	1.26E-02	0.00E+00
75%	3.49E-03	1.09E-01	6.30E-05	1.45E-07	2.41E-02	0.00E+00
80%	3.67E-03	1.16E-01	1.08E-04	1.53E-07	4.46E-02	0.00E+00
85%	3.86E-03	1.22E-01	2.02E-04	1.61E-07	9.33E-02	0.00E+00
90%	4.05E-03	1.32E-01	5.80E-04	1.69E-07	2.15E-01	0.00E+00
95%	4.45E-03	1.45E-01	1.57E-03	1.86E-07	7.69E-01	0.00E+00
97.5%	4.65E-03	1.60E-01	4.51E-03	1.94E-07	1.72E+00	0.00E+00
Mean	2.88E-03	8.35E-02	4.16E-04	1.20E-07	1.73E-01	0.00E+00
Minimum	2.79E-05	4.87E-04	5.21E-11	1.16E-09	2.42E-08	0.00E+00
Maximum	5.98E-03	2.35E-01	2.21E-02	2.49E-07	1.54E+01	0.00E+00

TABLE B.12b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Tc-99 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.80%	77.75%	0.00%	0.00%	0.02%	0.00%
5%	2.34%	65.19%	0.00%	0.00%	0.02%	0.00%
10%	2.42%	69.12%	0.00%	0.00%	0.02%	0.00%
15%	2.74%	73.00%	0.00%	0.00%	0.03%	0.00%
20%	3.22%	81.80%	0.00%	0.00%	0.05%	0.00%
25%	3.68%	84.29%	0.00%	0.00%	0.10%	0.00%
30%	3.45%	83.21%	0.00%	0.00%	0.16%	0.00%
35%	3.35%	84.76%	0.00%	0.00%	0.30%	0.00%
40%	3.27%	85.82%	0.00%	0.00%	0.49%	0.00%
45%	3.18%	84.47%	0.00%	0.00%	0.84%	0.00%
50%	3.10%	83.73%	0.00%	0.00%	1.37%	0.00%
55%	3.01%	84.06%	0.01%	0.00%	2.31%	0.00%

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TABLE B.12b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.87%	82.26%	0.01%	0.00%	4.07%	0.00%
65%	2.75%	80.94%	0.02%	0.00%	6.26%	0.00%
70%	2.60%	78.62%	0.03%	0.00%	9.58%	0.00%
75%	2.43%	75.89%	0.04%	0.00%	16.76%	0.00%
80%	2.27%	71.47%	0.07%	0.00%	27.56%	0.00%
85%	1.99%	63.00%	0.10%	0.00%	48.16%	0.00%
90%	1.29%	42.11%	0.18%	0.00%	68.34%	0.00%
95%	0.52%	16.84%	0.18%	0.00%	89.42%	0.00%
97.5%	0.26%	8.88%	0.25%	0.00%	95.57%	0.00%
Mean	1.11%	32.09%	0.16%	0.00%	66.64%	0.00%
Minimum	4.24%	73.99%	0.00%	0.00%	0.00%	0.00%
Maximum	0.04%	1.51%	0.14%	0.00%	99.35%	0.00%

TABLE B.13a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from U-238 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.57E-02	8.15E-01	5.46E-07	5.78E-07	9.16E-06	2.77E-17
5%	4.72E-02	1.50E+00	1.43E-06	1.06E-06	2.10E-05	5.86E-17
10%	1.37E-01	4.47E+00	3.55E-06	3.09E-06	6.20E-05	1.69E-16
15%	2.30E-01	6.99E+00	7.68E-06	5.18E-06	1.31E-04	2.76E-16
20%	3.21E-01	9.31E+00	1.46E-05	7.22E-06	2.46E-04	3.35E-16
25%	4.13E-01	1.08E+01	3.05E-05	9.29E-06	5.19E-04	3.89E-16
30%	4.30E-01	1.18E+01	5.02E-05	9.67E-06	9.63E-04	4.44E-16
35%	4.46E-01	1.29E+01	1.04E-04	1.00E-05	1.93E-03	4.89E-16
40%	4.62E-01	1.38E+01	1.89E-04	1.04E-05	3.37E-03	5.35E-16
45%	4.78E-01	1.45E+01	3.59E-04	1.08E-05	6.10E-03	5.59E-16
50%	4.94E-01	1.52E+01	6.80E-04	1.11E-05	1.05E-02	5.82E-16
55%	5.04E-01	1.60E+01	1.11E-03	1.13E-05	1.87E-02	6.04E-16
60%	5.14E-01	1.68E+01	1.92E-03	1.16E-05	3.54E-02	6.25E-16
65%	5.25E-01	1.76E+01	3.16E-03	1.18E-05	5.78E-02	6.43E-16
70%	5.35E-01	1.84E+01	5.52E-03	1.20E-05	9.52E-02	6.64E-16
75%	5.45E-01	1.94E+01	9.99E-03	1.23E-05	1.82E-01	6.85E-16
80%	5.74E-01	2.06E+01	1.71E-02	1.29E-05	3.37E-01	7.05E-16
85%	6.04E-01	2.18E+01	3.21E-02	1.36E-05	7.06E-01	7.43E-16
90%	6.34E-01	2.36E+01	9.19E-02	1.43E-05	1.63E+00	7.92E-16
95%	6.96E-01	2.58E+01	2.49E-01	1.57E-05	5.82E+00	8.54E-16
97.5%	6.96E-01	2.58E+01	2.49E-01	1.57E-05	5.82E+00	8.54E-16
Mean	4.50E-01	1.49E+01	6.60E-02	1.01E-05	1.31E+00	5.32E-16
Minimum	4.36E-03	8.68E-02	8.26E-09	9.81E-08	1.83E-07	3.70E-18
Maximum	9.35E-01	4.19E+01	3.51E+00	2.10E-05	1.17E+02	1.19E-15

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TABLE B.13b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from U-238 Contamination in the Warehouse Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.91%	92.23%	0.00%	0.00%	0.00%	0.00%
5%	2.95%	93.77%	0.00%	0.00%	0.00%	0.00%
10%	2.87%	93.35%	0.00%	0.00%	0.00%	0.00%
15%	3.08%	93.54%	0.00%	0.00%	0.00%	0.00%
20%	3.29%	95.30%	0.00%	0.00%	0.00%	0.00%
25%	3.60%	93.97%	0.00%	0.00%	0.00%	0.00%
30%	3.37%	92.68%	0.00%	0.00%	0.01%	0.00%
35%	3.23%	93.28%	0.00%	0.00%	0.01%	0.00%
40%	3.15%	94.23%	0.00%	0.00%	0.02%	0.00%
45%	3.09%	93.56%	0.00%	0.00%	0.04%	0.00%
50%	3.01%	92.57%	0.00%	0.00%	0.06%	0.00%
55%	2.92%	92.75%	0.01%	0.00%	0.11%	0.00%
60%	2.84%	93.15%	0.01%	0.00%	0.20%	0.00%
65%	2.77%	92.94%	0.02%	0.00%	0.31%	0.00%
70%	2.69%	92.57%	0.03%	0.00%	0.48%	0.00%
75%	2.59%	92.49%	0.05%	0.00%	0.87%	0.00%
80%	2.58%	92.81%	0.08%	0.00%	1.52%	0.00%
85%	2.53%	91.25%	0.13%	0.00%	2.96%	0.00%
90%	2.44%	91.00%	0.35%	0.00%	6.26%	0.00%
95%	2.32%	86.09%	0.83%	0.00%	19.40%	0.00%
97.5%	2.32%	86.09%	0.83%	0.00%	19.40%	0.00%
Mean	2.69%	89.07%	0.39%	0.00%	7.85%	0.00%
Minimum	4.55%	90.65%	0.00%	0.00%	0.00%	0.00%
Maximum	0.70%	31.22%	2.62%	0.00%	86.93%	0.00%

Tables B.14a–B.26a include the individual pathway dose percentiles and individual pathway mean dose levels received by a worker from an individual radionuclide for a small office building scenario. All pathway dose percentiles for small office building scenario are listed in Table 6. Note that the sum of the “individual pathway dose” at different percentiles may not add up to the “all pathway dose” at that percentile. In general, at minimum percentile, “all pathway dose” would be HIGHER than the sum of “individual pathway dose,” and at maximum percentile, “all pathway dose” would be LOWER than the sum of “individual pathway dose.” Tables B.14b–B.26b include the relative contribution of “individual pathway doses” to “all pathway dose” at different percentiles.

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TABLE B.14a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Am-241 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	5.54E-04	3.16E-01	8.03E-09	3.51E-08	3.84E-06	0.00E+00
5%	1.02E-03	5.53E-01	2.10E-08	6.44E-08	8.79E-06	0.00E+00
10%	2.95E-03	1.71E+00	5.22E-08	1.86E-07	2.60E-05	0.00E+00
15%	4.96E-03	2.79E+00	1.13E-07	3.09E-07	5.50E-05	0.00E+00
20%	6.92E-03	3.74E+00	2.14E-07	4.38E-07	1.03E-04	0.00E+00
25%	8.89E-03	4.31E+00	4.48E-07	5.52E-07	2.18E-04	0.00E+00
30%	9.26E-03	4.73E+00	7.37E-07	5.82E-07	4.03E-04	0.00E+00
35%	9.60E-03	5.06E+00	1.52E-06	6.03E-07	8.06E-04	0.00E+00
40%	9.95E-03	5.36E+00	2.76E-06	6.26E-07	1.41E-03	0.00E+00
45%	1.03E-02	5.61E+00	5.28E-06	6.50E-07	2.55E-03	0.00E+00
50%	1.06E-02	5.87E+00	9.97E-06	6.70E-07	4.38E-03	0.00E+00
55%	1.09E-02	6.15E+00	1.63E-05	6.85E-07	7.80E-03	0.00E+00
60%	1.11E-02	6.43E+00	2.77E-05	6.98E-07	1.47E-02	0.00E+00
65%	1.13E-02	6.76E+00	4.48E-05	7.14E-07	2.41E-02	0.00E+00
70%	1.15E-02	7.03E+00	7.62E-05	7.27E-07	3.87E-02	0.00E+00
75%	1.17E-02	7.46E+00	1.41E-04	7.41E-07	7.45E-02	0.00E+00
80%	1.24E-02	7.89E+00	2.46E-04	7.78E-07	1.37E-01	0.00E+00
85%	1.30E-02	8.36E+00	4.57E-04	8.21E-07	2.80E-01	0.00E+00
90%	1.37E-02	9.11E+00	1.21E-03	8.63E-07	6.25E-01	0.00E+00
95%	1.50E-02	1.00E+01	3.49E-03	9.47E-07	2.27E+00	0.00E+00
97.5%	1.56E-02	1.11E+01	9.09E-03	9.90E-07	4.67E+00	0.00E+00
Mean	9.70E-03	5.77E+00	8.09E-04	6.11E-07	4.63E-01	0.00E+00
Minimum	9.39E-05	3.88E-02	1.21E-10	5.93E-09	7.68E-08	0.00E+00
Maximum	2.01E-02	1.65E+01	3.62E-02	1.27E-06	3.52E+01	0.00E+00

TABLE B.14b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Am-241 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.2%	97.3%	0.0%	0.0%	0.0%	0.0%
5%	0.2%	91.9%	0.0%	0.0%	0.0%	0.0%
10%	0.2%	93.6%	0.0%	0.0%	0.0%	0.0%
15%	0.2%	95.3%	0.0%	0.0%	0.0%	0.0%
20%	0.2%	97.5%	0.0%	0.0%	0.0%	0.0%
25%	0.2%	96.0%	0.0%	0.0%	0.0%	0.0%
30%	0.2%	96.4%	0.0%	0.0%	0.0%	0.0%
35%	0.2%	96.4%	0.0%	0.0%	0.0%	0.0%
40%	0.2%	96.8%	0.0%	0.0%	0.0%	0.0%
45%	0.2%	96.0%	0.0%	0.0%	0.0%	0.0%
50%	0.2%	95.5%	0.0%	0.0%	0.1%	0.0%
55%	0.2%	95.3%	0.0%	0.0%	0.1%	0.0%

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TABLE B.14b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	0.2%	95.1%	0.0%	0.0%	0.2%	0.0%
65%	0.2%	95.9%	0.0%	0.0%	0.3%	0.0%
70%	0.2%	94.1%	0.0%	0.0%	0.5%	0.0%
75%	0.1%	94.7%	0.0%	0.0%	0.9%	0.0%
80%	0.1%	94.3%	0.0%	0.0%	1.6%	0.0%
85%	0.1%	92.9%	0.0%	0.0%	3.1%	0.0%
90%	0.1%	93.7%	0.0%	0.0%	6.4%	0.0%
95%	0.1%	88.8%	0.0%	0.0%	20.1%	0.0%
97.5%	0.1%	83.2%	0.1%	0.0%	35.0%	0.0%
Mean	0.2%	92.4%	0.0%	0.0%	7.4%	0.0%
Minimum	0.2%	96.1%	0.0%	0.0%	0.0%	0.0%
Maximum	0.1%	41.1%	0.1%	0.0%	87.7%	0.0%

TABLE B.15a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from C-14 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.91E-05	6.80E-04	4.12E-10	9.61E-10	1.11E-06	0.00E+00
5%	5.33E-05	1.24E-03	1.08E-09	1.76E-09	2.55E-06	0.00E+00
10%	1.55E-04	3.75E-03	2.68E-09	5.13E-09	7.54E-06	0.00E+00
15%	2.60E-04	6.02E-03	5.79E-09	8.61E-09	1.60E-05	0.00E+00
20%	3.63E-04	8.06E-03	1.10E-08	1.20E-08	2.98E-05	0.00E+00
25%	4.67E-04	9.37E-03	2.30E-08	1.54E-08	6.31E-05	0.00E+00
30%	4.86E-04	1.02E-02	3.79E-08	1.60E-08	1.17E-04	0.00E+00
35%	5.04E-04	1.10E-02	7.81E-08	1.67E-08	2.34E-04	0.00E+00
40%	5.22E-04	1.16E-02	1.42E-07	1.73E-08	4.10E-04	0.00E+00
45%	5.40E-04	1.21E-02	2.71E-07	1.79E-08	7.41E-04	0.00E+00
50%	5.58E-04	1.27E-02	5.12E-07	1.85E-08	1.28E-03	0.00E+00
55%	5.70E-04	1.33E-02	8.39E-07	1.88E-08	2.27E-03	0.00E+00
60%	5.81E-04	1.39E-02	1.45E-06	1.92E-08	4.30E-03	0.00E+00
65%	5.93E-04	1.46E-02	2.38E-06	1.96E-08	7.03E-03	0.00E+00
70%	6.05E-04	1.52E-02	4.15E-06	2.00E-08	1.16E-02	0.00E+00
75%	6.16E-04	1.61E-02	7.53E-06	2.04E-08	2.21E-02	0.00E+00
80%	6.49E-04	1.70E-02	1.29E-05	2.15E-08	4.09E-02	0.00E+00
85%	6.82E-04	1.80E-02	2.40E-05	2.26E-08	8.57E-02	0.00E+00
90%	7.17E-04	1.96E-02	6.89E-05	2.37E-08	1.96E-01	0.00E+00
95%	7.87E-04	2.16E-02	1.87E-04	2.60E-08	7.04E-01	0.00E+00
97.5%	8.21E-04	2.39E-02	5.34E-04	2.71E-08	1.56E+00	0.00E+00
Mean	5.09E-04	1.25E-02	4.90E-05	1.68E-08	1.57E-01	0.00E+00
Minimum	4.93E-06	8.35E-05	6.23E-12	1.63E-10	2.23E-08	0.00E+00
Maximum	1.06E-03	3.55E-02	2.57E-03	3.49E-08	1.38E+01	0.00E+00

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TABLE B.15b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from C-14 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.9%	68.7%	0.0%	0.0%	0.1%	0.0%
5%	2.3%	53.3%	0.0%	0.0%	0.1%	0.0%
10%	2.4%	58.1%	0.0%	0.0%	0.1%	0.0%
15%	2.7%	61.5%	0.0%	0.0%	0.2%	0.0%
20%	3.2%	72.1%	0.0%	0.0%	0.3%	0.0%
25%	3.8%	76.0%	0.0%	0.0%	0.5%	0.0%
30%	3.6%	76.3%	0.0%	0.0%	0.9%	0.0%
35%	3.5%	76.9%	0.0%	0.0%	1.6%	0.0%
40%	3.4%	76.0%	0.0%	0.0%	2.7%	0.0%
45%	3.3%	73.6%	0.0%	0.0%	4.5%	0.0%
50%	3.1%	70.9%	0.0%	0.0%	7.2%	0.0%
55%	2.9%	68.4%	0.0%	0.0%	11.7%	0.0%
60%	2.8%	65.8%	0.0%	0.0%	20.4%	0.0%
65%	2.5%	62.0%	0.0%	0.0%	29.8%	0.0%
70%	2.2%	55.8%	0.0%	0.0%	42.5%	0.0%
75%	1.8%	46.5%	0.0%	0.0%	63.9%	0.0%
80%	1.2%	30.7%	0.0%	0.0%	73.9%	0.0%
85%	0.7%	18.4%	0.0%	0.0%	87.3%	0.0%
90%	0.3%	9.3%	0.0%	0.0%	93.1%	0.0%
95%	0.1%	3.0%	0.0%	0.0%	98.2%	0.0%
97.5%	0.1%	1.5%	0.0%	0.0%	99.2%	0.0%
Mean	0.3%	7.3%	0.0%	0.0%	92.3%	0.0%
Minimum	4.8%	80.6%	0.0%	0.0%	0.0%	0.0%
Maximum	0.0%	0.3%	0.0%	0.0%	99.9%	0.0%

TABLE B.16a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Co-60 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.06E-01	1.75E-03	4.38E-06	4.60E-05	6.09E-07	0.00E+00
5%	5.62E-01	3.02E-03	1.13E-05	9.03E-05	1.40E-06	0.00E+00
10%	1.63E+00	9.35E-03	2.83E-05	2.50E-04	4.06E-06	0.00E+00
15%	2.74E+00	1.46E-02	6.11E-05	3.95E-04	8.52E-06	0.00E+00
20%	3.82E+00	1.87E-02	1.17E-04	5.31E-04	1.63E-05	0.00E+00
25%	4.92E+00	2.25E-02	2.38E-04	6.43E-04	3.38E-05	0.00E+00
30%	5.12E+00	2.56E-02	3.97E-04	7.59E-04	6.02E-05	0.00E+00
35%	5.31E+00	2.76E-02	7.62E-04	8.25E-04	1.10E-04	0.00E+00
40%	5.50E+00	2.96E-02	1.30E-03	8.55E-04	1.85E-04	0.00E+00
45%	5.69E+00	3.13E-02	2.27E-03	8.89E-04	2.99E-04	0.00E+00
50%	5.88E+00	3.30E-02	3.59E-03	9.20E-04	5.06E-04	0.00E+00
55%	6.00E+00	3.45E-02	5.73E-03	9.50E-04	7.54E-04	0.00E+00

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TABLE B.16a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	6.12E+00	3.62E-02	8.42E-03	9.79E-04	1.31E-03	0.00E+00
65%	6.25E+00	3.80E-02	1.20E-02	1.00E-03	2.06E-03	0.00E+00
70%	6.37E+00	4.01E-02	1.94E-02	1.03E-03	2.94E-03	0.00E+00
75%	6.49E+00	4.23E-02	3.18E-02	1.05E-03	4.85E-03	0.00E+00
80%	6.83E+00	4.49E-02	5.37E-02	1.08E-03	7.83E-03	0.00E+00
85%	7.19E+00	4.78E-02	9.24E-02	1.14E-03	1.38E-02	0.00E+00
90%	7.55E+00	5.18E-02	1.74E-01	1.22E-03	2.90E-02	0.00E+00
95%	8.28E+00	5.75E-02	3.60E-01	1.34E-03	6.46E-02	0.00E+00
97.5%	8.64E+00	6.38E-02	5.39E-01	1.41E-03	9.63E-02	0.00E+00
Mean	5.36E+00	3.23E-02	5.72E-02	8.36E-04	1.04E-02	0.00E+00
Minimum	5.19E-02	1.57E-04	6.65E-08	6.52E-06	1.22E-08	0.00E+00
Maximum	1.11E+01	9.04E-02	1.16E+00	1.81E-03	4.09E-01	0.00E+00

TABLE B.16b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Co-60 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%
5%	99.0%	0.5%	0.0%	0.0%	0.0%	0.0%
10%	97.8%	0.6%	0.0%	0.0%	0.0%	0.0%
15%	99.3%	0.5%	0.0%	0.0%	0.0%	0.0%
20%	97.9%	0.5%	0.0%	0.0%	0.0%	0.0%
25%	98.7%	0.5%	0.0%	0.0%	0.0%	0.0%
30%	98.9%	0.5%	0.0%	0.0%	0.0%	0.0%
35%	98.2%	0.5%	0.0%	0.0%	0.0%	0.0%
40%	98.1%	0.5%	0.0%	0.0%	0.0%	0.0%
45%	98.0%	0.5%	0.0%	0.0%	0.0%	0.0%
50%	98.6%	0.6%	0.1%	0.0%	0.0%	0.0%
55%	98.4%	0.6%	0.1%	0.0%	0.0%	0.0%
60%	98.4%	0.6%	0.1%	0.0%	0.0%	0.0%
65%	98.3%	0.6%	0.2%	0.0%	0.0%	0.0%
70%	98.6%	0.6%	0.3%	0.0%	0.0%	0.0%
75%	97.6%	0.6%	0.5%	0.0%	0.1%	0.0%
80%	98.2%	0.6%	0.8%	0.0%	0.1%	0.0%
85%	97.6%	0.6%	1.3%	0.0%	0.2%	0.0%
90%	97.2%	0.7%	2.2%	0.0%	0.4%	0.0%
95%	98.5%	0.7%	4.3%	0.0%	0.8%	0.0%
97.5%	98.4%	0.7%	6.1%	0.0%	1.1%	0.0%
Mean	98.2%	0.6%	1.0%	0.0%	0.2%	0.0%
Minimum	96.1%	0.3%	0.0%	0.0%	0.0%	0.0%
Maximum	94.3%	0.8%	9.9%	0.0%	3.5%	0.0%

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TABLE B.17a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Cs-137 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	7.79E-02	7.56E-04	1.12E-06	1.10E-05	2.47E-06	0.00E+00
5%	1.43E-01	1.34E-03	2.93E-06	2.10E-05	5.65E-06	0.00E+00
10%	4.15E-01	4.00E-03	7.27E-06	5.79E-05	1.67E-05	0.00E+00
15%	6.97E-01	6.57E-03	1.58E-05	9.73E-05	3.54E-05	0.00E+00
20%	9.72E-01	8.62E-03	2.98E-05	1.34E-04	6.61E-05	0.00E+00
25%	1.25E+00	9.93E-03	6.22E-05	1.65E-04	1.40E-04	0.00E+00
30%	1.30E+00	1.11E-02	1.03E-04	1.86E-04	2.58E-04	0.00E+00
35%	1.35E+00	1.20E-02	2.12E-04	1.93E-04	5.11E-04	0.00E+00
40%	1.40E+00	1.27E-02	3.72E-04	2.01E-04	8.75E-04	0.00E+00
45%	1.45E+00	1.34E-02	7.20E-04	2.09E-04	1.58E-03	0.00E+00
50%	1.50E+00	1.40E-02	1.32E-03	2.15E-04	2.61E-03	0.00E+00
55%	1.53E+00	1.47E-02	2.01E-03	2.22E-04	4.49E-03	0.00E+00
60%	1.56E+00	1.54E-02	3.26E-03	2.27E-04	7.94E-03	0.00E+00
65%	1.59E+00	1.61E-02	5.19E-03	2.32E-04	1.27E-02	0.00E+00
70%	1.62E+00	1.70E-02	8.22E-03	2.37E-04	2.05E-02	0.00E+00
75%	1.65E+00	1.81E-02	1.46E-02	2.42E-04	3.47E-02	0.00E+00
80%	1.74E+00	1.91E-02	2.48E-02	2.52E-04	6.22E-02	0.00E+00
85%	1.83E+00	2.03E-02	4.71E-02	2.66E-04	1.23E-01	0.00E+00
90%	1.92E+00	2.20E-02	9.69E-02	2.80E-04	2.48E-01	0.00E+00
95%	2.11E+00	2.43E-02	2.56E-01	3.09E-04	7.72E-01	0.00E+00
97.5%	2.20E+00	2.68E-02	4.94E-01	3.23E-04	1.28E+00	0.00E+00
Mean	1.36E+00	1.38E-02	4.44E-02	1.96E-04	1.23E-01	0.00E+00
Minimum	1.32E-02	8.81E-05	1.70E-08	1.88E-06	4.94E-08	0.00E+00
Maximum	2.83E+00	3.85E-02	1.22E+00	4.13E-04	6.80E+00	0.00E+00

TABLE B.17b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Cs-137 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	91.4%	0.9%	0.0%	0.0%	0.0%	0.0%
5%	86.8%	0.8%	0.0%	0.0%	0.0%	0.0%
10%	89.7%	0.9%	0.0%	0.0%	0.0%	0.0%
15%	93.1%	0.9%	0.0%	0.0%	0.0%	0.0%
20%	93.9%	0.8%	0.0%	0.0%	0.0%	0.0%
25%	97.0%	0.8%	0.0%	0.0%	0.0%	0.0%
30%	96.5%	0.8%	0.0%	0.0%	0.0%	0.0%
35%	95.8%	0.8%	0.0%	0.0%	0.0%	0.0%
40%	95.4%	0.9%	0.0%	0.0%	0.1%	0.0%
45%	95.1%	0.9%	0.0%	0.0%	0.1%	0.0%
50%	95.7%	0.9%	0.1%	0.0%	0.2%	0.0%
55%	95.8%	0.9%	0.1%	0.0%	0.3%	0.0%

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TABLE B.17b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	95.3%	0.9%	0.2%	0.0%	0.5%	0.0%
65%	95.2%	1.0%	0.3%	0.0%	0.8%	0.0%
70%	92.7%	1.0%	0.5%	0.0%	1.2%	0.0%
75%	90.5%	1.0%	0.8%	0.0%	1.9%	0.0%
80%	90.1%	1.0%	1.3%	0.0%	3.2%	0.0%
85%	88.6%	1.0%	2.3%	0.0%	5.9%	0.0%
90%	86.7%	1.0%	4.4%	0.0%	11.2%	0.0%
95%	76.2%	0.9%	9.3%	0.0%	28.0%	0.0%
97.5%	64.0%	0.8%	14.4%	0.0%	37.3%	0.0%
Mean	88.3%	0.9%	2.9%	0.0%	7.9%	0.0%
Minimum	90.7%	0.6%	0.0%	0.0%	0.0%	0.0%
Maximum	27.0%	0.4%	11.7%	0.0%	65.0%	0.0%

TABLE B.18a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Fe-55 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00E+00	8.78E-03	0.00E+00	0.00E+00	5.54E-06	0.00E+00
5%	0.00E+00	1.51E-02	0.00E+00	0.00E+00	1.28E-05	0.00E+00
10%	0.00E+00	4.75E-02	0.00E+00	0.00E+00	3.70E-05	0.00E+00
15%	0.00E+00	7.20E-02	0.00E+00	0.00E+00	7.78E-05	0.00E+00
20%	0.00E+00	9.27E-02	0.00E+00	0.00E+00	1.49E-04	0.00E+00
25%	0.00E+00	1.12E-01	0.00E+00	0.00E+00	2.99E-04	0.00E+00
30%	0.00E+00	1.28E-01	0.00E+00	0.00E+00	4.90E-04	0.00E+00
35%	0.00E+00	1.38E-01	0.00E+00	0.00E+00	9.25E-04	0.00E+00
40%	0.00E+00	1.48E-01	0.00E+00	0.00E+00	1.44E-03	0.00E+00
45%	0.00E+00	1.57E-01	0.00E+00	0.00E+00	2.30E-03	0.00E+00
50%	0.00E+00	1.65E-01	0.00E+00	0.00E+00	3.80E-03	0.00E+00
55%	0.00E+00	1.74E-01	0.00E+00	0.00E+00	5.77E-03	0.00E+00
60%	0.00E+00	1.82E-01	0.00E+00	0.00E+00	9.26E-03	0.00E+00
65%	0.00E+00	1.91E-01	0.00E+00	0.00E+00	1.38E-02	0.00E+00
70%	0.00E+00	2.03E-01	0.00E+00	0.00E+00	2.12E-02	0.00E+00
75%	0.00E+00	2.14E-01	0.00E+00	0.00E+00	3.10E-02	0.00E+00
80%	0.00E+00	2.26E-01	0.00E+00	0.00E+00	4.93E-02	0.00E+00
85%	0.00E+00	2.42E-01	0.00E+00	0.00E+00	8.82E-02	0.00E+00
90%	0.00E+00	2.63E-01	0.00E+00	0.00E+00	1.63E-01	0.00E+00
95%	0.00E+00	2.92E-01	0.00E+00	0.00E+00	3.53E-01	0.00E+00
97.5%	0.00E+00	3.21E-01	0.00E+00	0.00E+00	5.53E-01	0.00E+00
Mean	0.00E+00	1.62E-01	0.00E+00	0.00E+00	5.91E-02	0.00E+00
Minimum	0.00E+00	7.56E-04	0.00E+00	0.00E+00	1.12E-07	0.00E+00
Maximum	0.00E+00	4.57E-01	0.00E+00	0.00E+00	1.99E+00	0.00E+00

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TABLE B.18b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Fe-55 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.0%	81.2%	0.0%	0.0%	0.1%	0.0%
5%	0.0%	68.1%	0.0%	0.0%	0.1%	0.0%
10%	0.0%	77.0%	0.0%	0.0%	0.1%	0.0%
15%	0.0%	74.1%	0.0%	0.0%	0.1%	0.0%
20%	0.0%	76.3%	0.0%	0.0%	0.1%	0.0%
25%	0.0%	80.4%	0.0%	0.0%	0.2%	0.0%
30%	0.0%	82.8%	0.0%	0.0%	0.3%	0.0%
35%	0.0%	83.1%	0.0%	0.0%	0.6%	0.0%
40%	0.0%	83.8%	0.0%	0.0%	0.8%	0.0%
45%	0.0%	84.4%	0.0%	0.0%	1.2%	0.0%
50%	0.0%	84.3%	0.0%	0.0%	1.9%	0.0%
55%	0.0%	83.6%	0.0%	0.0%	2.8%	0.0%
60%	0.0%	82.5%	0.0%	0.0%	4.2%	0.0%
65%	0.0%	82.2%	0.0%	0.0%	5.9%	0.0%
70%	0.0%	82.0%	0.0%	0.0%	8.6%	0.0%
75%	0.0%	81.3%	0.0%	0.0%	11.8%	0.0%
80%	0.0%	80.2%	0.0%	0.0%	17.5%	0.0%
85%	0.0%	78.7%	0.0%	0.0%	28.6%	0.0%
90%	0.0%	74.6%	0.0%	0.0%	46.4%	0.0%
95%	0.0%	59.7%	0.0%	0.0%	72.3%	0.0%
97.5%	0.0%	48.8%	0.0%	0.0%	84.1%	0.0%
Mean	0.0%	73.3%	0.0%	0.0%	26.7%	0.0%
Minimum	0.0%	55.1%	0.0%	0.0%	0.0%	0.0%
Maximum	0.0%	21.6%	0.0%	0.0%	94.1%	0.0%

TABLE B.19a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from I-129 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	6.84E-03	5.98E-03	9.78E-08	1.63E-07	2.11E-05	0.00E+00
5%	1.25E-02	1.09E-02	2.56E-07	2.99E-07	4.84E-05	0.00E+00
10%	3.65E-02	3.30E-02	6.36E-07	8.70E-07	1.43E-04	0.00E+00
15%	6.12E-02	5.29E-02	1.38E-06	1.46E-06	3.03E-04	0.00E+00
20%	8.54E-02	7.11E-02	2.61E-06	2.04E-06	5.66E-04	0.00E+00
25%	1.10E-01	8.24E-02	5.46E-06	2.62E-06	1.20E-03	0.00E+00
30%	1.14E-01	8.96E-02	9.00E-06	2.73E-06	2.22E-03	0.00E+00
35%	1.19E-01	9.64E-02	1.86E-05	2.83E-06	4.44E-03	0.00E+00
40%	1.23E-01	1.02E-01	3.38E-05	2.93E-06	7.77E-03	0.00E+00
45%	1.27E-01	1.07E-01	6.43E-05	3.03E-06	1.41E-02	0.00E+00
50%	1.31E-01	1.12E-01	1.22E-04	3.13E-06	2.43E-02	0.00E+00
55%	1.34E-01	1.17E-01	1.99E-04	3.20E-06	4.30E-02	0.00E+00

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TABLE B.19a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	1.37E-01	1.22E-01	3.45E-04	3.26E-06	8.15E-02	0.00E+00
65%	1.40E-01	1.29E-01	5.67E-04	3.33E-06	1.33E-01	0.00E+00
70%	1.42E-01	1.34E-01	9.88E-04	3.39E-06	2.20E-01	0.00E+00
75%	1.45E-01	1.41E-01	1.79E-03	3.46E-06	4.20E-01	0.00E+00
80%	1.53E-01	1.50E-01	3.07E-03	3.64E-06	7.77E-01	0.00E+00
85%	1.61E-01	1.59E-01	5.75E-03	3.83E-06	1.63E+00	0.00E+00
90%	1.69E-01	1.73E-01	1.65E-02	4.02E-06	3.75E+00	0.00E+00
95%	1.85E-01	1.90E-01	4.46E-02	4.41E-06	1.34E+01	0.00E+00
97.5%	1.93E-01	2.10E-01	1.28E-01	4.61E-06	3.00E+01	0.00E+00
Mean	1.20E-01	1.10E-01	1.18E-02	2.86E-06	3.03E+00	0.00E+00
Minimum	1.16E-03	7.34E-04	1.48E-09	2.77E-08	4.23E-07	0.00E+00
Maximum	2.49E-01	3.13E-01	6.29E-01	5.93E-06	2.69E+02	0.00E+00

TABLE B.19b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from I-129 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	37.7%	32.9%	0.0%	0.0%	0.1%	0.0%
5%	29.5%	25.7%	0.0%	0.0%	0.1%	0.0%
10%	31.9%	28.9%	0.0%	0.0%	0.1%	0.0%
15%	32.9%	28.4%	0.0%	0.0%	0.2%	0.0%
20%	39.2%	32.6%	0.0%	0.0%	0.3%	0.0%
25%	46.8%	35.1%	0.0%	0.0%	0.5%	0.0%
30%	46.5%	36.4%	0.0%	0.0%	0.9%	0.0%
35%	45.7%	37.2%	0.0%	0.0%	1.7%	0.0%
40%	44.8%	37.1%	0.0%	0.0%	2.8%	0.0%
45%	43.5%	36.5%	0.0%	0.0%	4.8%	0.0%
50%	42.6%	36.2%	0.0%	0.0%	7.9%	0.0%
55%	40.3%	35.1%	0.1%	0.0%	12.9%	0.0%
60%	37.4%	33.4%	0.1%	0.0%	22.3%	0.0%
65%	34.4%	31.7%	0.1%	0.0%	32.9%	0.0%
70%	29.3%	27.5%	0.2%	0.0%	45.3%	0.0%
75%	22.6%	22.0%	0.3%	0.0%	65.3%	0.0%
80%	14.8%	14.5%	0.3%	0.0%	75.4%	0.0%
85%	8.5%	8.4%	0.3%	0.0%	86.2%	0.0%
90%	4.2%	4.3%	0.4%	0.0%	93.8%	0.0%
95%	1.4%	1.4%	0.3%	0.0%	98.1%	0.0%
97.5%	0.6%	0.7%	0.4%	0.0%	98.9%	0.0%
Mean	3.7%	3.4%	0.4%	0.0%	92.6%	0.0%
Minimum	53.8%	34.1%	0.0%	0.0%	0.0%	0.0%
Maximum	0.1%	0.1%	0.2%	0.0%	99.7%	0.0%

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TABLE B.20a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Po-210 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	5.66E-07	1.02E-01	7.08E-12	6.70E-11	9.83E-05	0.00E+00
5%	1.04E-06	1.85E-01	1.83E-11	1.36E-10	2.13E-04	0.00E+00
10%	3.02E-06	5.50E-01	4.43E-11	3.84E-10	6.10E-04	0.00E+00
15%	5.07E-06	8.09E-01	9.48E-11	5.69E-10	1.32E-03	0.00E+00
20%	7.07E-06	1.06E+00	1.68E-10	7.48E-10	2.32E-03	0.00E+00
25%	9.09E-06	1.30E+00	2.67E-10	8.95E-10	3.79E-03	0.00E+00
30%	9.47E-06	1.46E+00	4.23E-10	1.05E-09	5.90E-03	0.00E+00
35%	9.81E-06	1.62E+00	6.25E-10	1.19E-09	8.13E-03	0.00E+00
40%	1.02E-05	1.73E+00	9.67E-10	1.31E-09	1.34E-02	0.00E+00
45%	1.05E-05	1.87E+00	1.40E-09	1.36E-09	2.09E-02	0.00E+00
50%	1.09E-05	1.98E+00	2.01E-09	1.42E-09	3.01E-02	0.00E+00
55%	1.11E-05	2.09E+00	2.89E-09	1.48E-09	4.36E-02	0.00E+00
60%	1.13E-05	2.19E+00	4.13E-09	1.53E-09	6.06E-02	0.00E+00
65%	1.15E-05	2.31E+00	5.74E-09	1.58E-09	8.85E-02	0.00E+00
70%	1.18E-05	2.45E+00	8.36E-09	1.62E-09	1.21E-01	0.00E+00
75%	1.20E-05	2.59E+00	1.18E-08	1.67E-09	1.81E-01	0.00E+00
80%	1.26E-05	2.76E+00	1.82E-08	1.71E-09	2.75E-01	0.00E+00
85%	1.33E-05	2.95E+00	2.86E-08	1.81E-09	4.09E-01	0.00E+00
90%	1.40E-05	3.21E+00	4.55E-08	1.93E-09	6.98E-01	0.00E+00
95%	1.53E-05	3.57E+00	7.22E-08	2.12E-09	1.22E+00	0.00E+00
97.5%	1.60E-05	3.96E+00	8.66E-08	2.23E-09	1.87E+00	0.00E+00
Mean	9.91E-06	1.95E+00	1.29E-08	1.29E-09	2.35E-01	0.00E+00
Minimum	9.60E-08	8.20E-03	1.16E-13	7.31E-12	2.11E-06	0.00E+00
Maximum	2.06E-05	5.50E+00	1.59E-07	2.92E-09	5.50E+00	0.00E+00

TABLE B.20b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Po-210 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.0%	85.9%	0.0%	0.0%	0.1%	0.0%
5%	0.0%	89.3%	0.0%	0.0%	0.1%	0.0%
10%	0.0%	86.8%	0.0%	0.0%	0.1%	0.0%
15%	0.0%	78.0%	0.0%	0.0%	0.1%	0.0%
20%	0.0%	77.4%	0.0%	0.0%	0.2%	0.0%
25%	0.0%	79.8%	0.0%	0.0%	0.2%	0.0%
30%	0.0%	83.6%	0.0%	0.0%	0.3%	0.0%
35%	0.0%	86.1%	0.0%	0.0%	0.4%	0.0%
40%	0.0%	85.6%	0.0%	0.0%	0.7%	0.0%
45%	0.0%	88.2%	0.0%	0.0%	1.0%	0.0%
50%	0.0%	89.7%	0.0%	0.0%	1.4%	0.0%
55%	0.0%	90.0%	0.0%	0.0%	1.9%	0.0%

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TABLE B.20b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	0.0%	90.0%	0.0%	0.0%	2.5%	0.0%
65%	0.0%	90.7%	0.0%	0.0%	3.5%	0.0%
70%	0.0%	91.6%	0.0%	0.0%	4.5%	0.0%
75%	0.0%	92.1%	0.0%	0.0%	6.4%	0.0%
80%	0.0%	92.8%	0.0%	0.0%	9.3%	0.0%
85%	0.0%	93.3%	0.0%	0.0%	13.0%	0.0%
90%	0.0%	93.3%	0.0%	0.0%	20.3%	0.0%
95%	0.0%	94.2%	0.0%	0.0%	32.1%	0.0%
97.5%	0.0%	93.4%	0.0%	0.0%	44.0%	0.0%
Mean	0.0%	89.2%	0.0%	0.0%	10.8%	0.0%
Minimum	0.0%	51.3%	0.0%	0.0%	0.0%	0.0%
Maximum	0.0%	69.1%	0.0%	0.0%	69.1%	0.0%

**TABLE B.21a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Pu-239 Contamination in the Small Office
Building Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.30E-05	3.75E-01	2.27E-10	1.82E-10	4.80E-06	0.00E+00
5%	2.38E-05	6.84E-01	5.95E-10	3.34E-10	1.10E-05	0.00E+00
10%	6.93E-05	2.07E+00	1.48E-09	9.71E-10	3.25E-05	0.00E+00
15%	1.16E-04	3.32E+00	3.19E-09	1.63E-09	6.88E-05	0.00E+00
20%	1.62E-04	4.46E+00	6.06E-09	2.27E-09	1.29E-04	0.00E+00
25%	2.09E-04	5.17E+00	1.27E-08	2.92E-09	2.72E-04	0.00E+00
30%	2.17E-04	5.62E+00	2.09E-08	3.04E-09	5.04E-04	0.00E+00
35%	2.25E-04	6.05E+00	4.31E-08	3.16E-09	1.01E-03	0.00E+00
40%	2.33E-04	6.38E+00	7.84E-08	3.27E-09	1.77E-03	0.00E+00
45%	2.41E-04	6.68E+00	1.49E-07	3.38E-09	3.19E-03	0.00E+00
50%	2.49E-04	7.00E+00	2.83E-07	3.49E-09	5.52E-03	0.00E+00
55%	2.55E-04	7.34E+00	4.63E-07	3.57E-09	9.78E-03	0.00E+00
60%	2.60E-04	7.65E+00	7.99E-07	3.64E-09	1.85E-02	0.00E+00
65%	2.65E-04	8.06E+00	1.32E-06	3.71E-09	3.03E-02	0.00E+00
70%	2.70E-04	8.37E+00	2.29E-06	3.78E-09	4.99E-02	0.00E+00
75%	2.75E-04	8.88E+00	4.15E-06	3.86E-09	9.54E-02	0.00E+00
80%	2.90E-04	9.39E+00	7.12E-06	4.06E-09	1.77E-01	0.00E+00
85%	3.05E-04	9.95E+00	1.33E-05	4.27E-09	3.70E-01	0.00E+00
90%	3.20E-04	1.08E+01	3.82E-05	4.49E-09	8.51E-01	0.00E+00
95%	3.52E-04	1.19E+01	1.04E-04	4.92E-09	3.04E+00	0.00E+00
97.5%	3.67E-04	1.32E+01	2.97E-04	5.14E-09	6.79E+00	0.00E+00
Mean	2.27E-04	6.88E+00	2.73E-05	3.19E-09	6.85E-01	0.00E+00
Minimum	2.20E-06	4.61E-02	3.43E-12	3.09E-11	9.61E-08	0.00E+00
Maximum	4.72E-04	1.96E+01	1.45E-03	6.62E-09	6.07E+01	0.00E+00

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TABLE B.21b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Pu-239 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.0%	95.4%	0.0%	0.0%	0.0%	0.0%
5%	0.0%	96.0%	0.0%	0.0%	0.0%	0.0%
10%	0.0%	94.7%	0.0%	0.0%	0.0%	0.0%
15%	0.0%	95.2%	0.0%	0.0%	0.0%	0.0%
20%	0.0%	98.1%	0.0%	0.0%	0.0%	0.0%
25%	0.0%	97.3%	0.0%	0.0%	0.0%	0.0%
30%	0.0%	96.3%	0.0%	0.0%	0.0%	0.0%
35%	0.0%	97.0%	0.0%	0.0%	0.0%	0.0%
40%	0.0%	96.9%	0.0%	0.0%	0.0%	0.0%
45%	0.0%	96.4%	0.0%	0.0%	0.0%	0.0%
50%	0.0%	95.9%	0.0%	0.0%	0.1%	0.0%
55%	0.0%	95.5%	0.0%	0.0%	0.1%	0.0%
60%	0.0%	94.9%	0.0%	0.0%	0.2%	0.0%
65%	0.0%	95.9%	0.0%	0.0%	0.4%	0.0%
70%	0.0%	94.1%	0.0%	0.0%	0.6%	0.0%
75%	0.0%	94.7%	0.0%	0.0%	1.0%	0.0%
80%	0.0%	94.6%	0.0%	0.0%	1.8%	0.0%
85%	0.0%	92.3%	0.0%	0.0%	3.4%	0.0%
90%	0.0%	93.0%	0.0%	0.0%	7.3%	0.0%
95%	0.0%	87.3%	0.0%	0.0%	22.2%	0.0%
97.5%	0.0%	75.5%	0.0%	0.0%	38.9%	0.0%
Mean	0.0%	90.9%	0.0%	0.0%	9.1%	0.0%
Minimum	0.0%	96.2%	0.0%	0.0%	0.0%	0.0%
Maximum	0.0%	29.2%	0.0%	0.0%	90.2%	0.0%

TABLE B.22a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Ra-226 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.38E-01	1.41E+00	3.43E-06	3.80E-05	5.58E-05	9.60E-02
5%	4.37E-01	2.53E+00	8.99E-06	6.98E-05	1.28E-04	2.05E-01
10%	1.27E+00	7.78E+00	2.23E-05	2.03E-04	3.78E-04	5.84E-01
15%	2.13E+00	1.25E+01	4.82E-05	3.40E-04	8.00E-04	9.22E-01
20%	2.97E+00	1.67E+01	9.15E-05	4.75E-04	1.50E-03	1.14E+00
25%	3.82E+00	1.94E+01	1.91E-04	6.08E-04	3.17E-03	1.32E+00
30%	3.98E+00	2.11E+01	3.15E-04	6.33E-04	5.86E-03	1.51E+00
35%	4.13E+00	2.27E+01	6.50E-04	6.58E-04	1.17E-02	1.67E+00
40%	4.27E+00	2.40E+01	1.18E-03	6.82E-04	2.05E-02	1.84E+00
45%	4.42E+00	2.51E+01	2.25E-03	7.07E-04	3.71E-02	1.96E+00
50%	4.57E+00	2.63E+01	4.26E-03	7.29E-04	6.38E-02	2.04E+00
55%	4.66E+00	2.76E+01	6.98E-03	7.45E-04	1.14E-01	2.12E+00

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TABLE B.22a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	4.76E+00	2.88E+01	1.20E-02	7.59E-04	2.15E-01	2.19E+00
65%	4.85E+00	3.03E+01	1.98E-02	7.75E-04	3.51E-01	2.26E+00
70%	4.95E+00	3.15E+01	3.43E-02	7.90E-04	5.69E-01	2.35E+00
75%	5.04E+00	3.34E+01	6.27E-02	8.06E-04	1.09E+00	2.42E+00
80%	5.31E+00	3.52E+01	1.07E-01	8.49E-04	2.03E+00	2.49E+00
85%	5.59E+00	3.74E+01	1.99E-01	8.93E-04	4.13E+00	2.60E+00
90%	5.86E+00	4.07E+01	5.65E-01	9.37E-04	9.48E+00	2.78E+00
95%	6.44E+00	4.49E+01	1.54E+00	1.03E-03	3.41E+01	3.02E+00
97.5%	6.72E+00	4.96E+01	4.33E+00	1.07E-03	7.37E+01	3.29E+00
Mean	4.17E+00	2.59E+01	3.92E-01	6.65E-04	7.40E+00	1.86E+00
Minimum	4.03E-02	1.73E-01	5.19E-08	6.44E-06	1.12E-06	1.21E-02
Maximum	8.65E+00	7.37E+01	1.98E+01	1.38E-03	6.23E+02	4.19E+00

TABLE B.22b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Ra-226 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	12.6%	74.8%	0.0%	0.0%	0.0%	5.1%
5%	11.7%	68.1%	0.0%	0.0%	0.0%	5.5%
10%	11.8%	72.5%	0.0%	0.0%	0.0%	5.4%
15%	12.2%	71.7%	0.0%	0.0%	0.0%	5.3%
20%	13.0%	73.0%	0.0%	0.0%	0.0%	5.0%
25%	14.5%	73.8%	0.0%	0.0%	0.0%	5.0%
30%	13.8%	73.4%	0.0%	0.0%	0.0%	5.3%
35%	13.7%	75.5%	0.0%	0.0%	0.0%	5.5%
40%	13.4%	75.2%	0.0%	0.0%	0.1%	5.8%
45%	13.2%	74.9%	0.0%	0.0%	0.1%	5.8%
50%	13.1%	75.4%	0.0%	0.0%	0.2%	5.9%
55%	12.8%	75.9%	0.0%	0.0%	0.3%	5.8%
60%	12.4%	74.7%	0.0%	0.0%	0.6%	5.7%
65%	12.1%	75.4%	0.0%	0.0%	0.9%	5.6%
70%	11.7%	74.4%	0.1%	0.0%	1.3%	5.6%
75%	11.4%	75.4%	0.1%	0.0%	2.5%	5.5%
80%	11.2%	74.3%	0.2%	0.0%	4.3%	5.3%
85%	11.1%	74.0%	0.4%	0.0%	8.2%	5.1%
90%	10.2%	71.1%	1.0%	0.0%	16.6%	4.9%
95%	8.6%	59.7%	2.0%	0.0%	45.4%	4.0%
97.5%	5.4%	39.9%	3.5%	0.0%	59.3%	2.6%
Mean	10.5%	65.2%	1.0%	0.0%	18.7%	4.7%
Minimum	15.7%	67.5%	0.0%	0.0%	0.0%	4.7%
Maximum	1.3%	11.1%	3.0%	0.0%	93.4%	0.6%

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TABLE B.23a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from S-35 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.08E-04	3.47E-03	1.28E-09	2.77E-09	4.38E-06	0.00E+00
5%	1.99E-04	6.49E-03	3.21E-09	5.58E-09	9.62E-06	0.00E+00
10%	5.78E-04	1.95E-02	7.72E-09	1.55E-08	2.68E-05	0.00E+00
15%	9.70E-04	2.85E-02	1.60E-08	2.32E-08	5.41E-05	0.00E+00
20%	1.35E-03	3.68E-02	2.78E-08	3.01E-08	9.09E-05	0.00E+00
25%	1.74E-03	4.52E-02	3.94E-08	3.69E-08	1.41E-04	0.00E+00
30%	1.81E-03	5.07E-02	5.76E-08	4.23E-08	2.16E-04	0.00E+00
35%	1.88E-03	5.71E-02	9.02E-08	4.87E-08	3.12E-04	0.00E+00
40%	1.95E-03	6.10E-02	1.36E-07	5.34E-08	4.61E-04	0.00E+00
45%	2.01E-03	6.58E-02	2.12E-07	5.62E-08	7.54E-04	0.00E+00
50%	2.08E-03	6.96E-02	2.79E-07	5.87E-08	1.06E-03	0.00E+00
55%	2.12E-03	7.35E-02	4.00E-07	6.09E-08	1.40E-03	0.00E+00
60%	2.17E-03	7.72E-02	5.46E-07	6.31E-08	2.07E-03	0.00E+00
65%	2.21E-03	8.14E-02	7.82E-07	6.53E-08	3.01E-03	0.00E+00
70%	2.25E-03	8.66E-02	1.14E-06	6.72E-08	4.01E-03	0.00E+00
75%	2.30E-03	9.15E-02	1.59E-06	6.90E-08	5.88E-03	0.00E+00
80%	2.42E-03	9.77E-02	2.33E-06	7.07E-08	8.90E-03	0.00E+00
85%	2.54E-03	1.04E-01	3.78E-06	7.48E-08	1.30E-02	0.00E+00
90%	2.67E-03	1.13E-01	5.73E-06	7.96E-08	2.10E-02	0.00E+00
95%	2.93E-03	1.26E-01	8.73E-06	8.75E-08	3.55E-02	0.00E+00
97.5%	3.06E-03	1.40E-01	1.03E-05	9.23E-08	5.62E-02	0.00E+00
Mean	1.90E-03	6.85E-02	1.61E-06	5.29E-08	7.24E-03	0.00E+00
Minimum	1.84E-05	2.56E-04	2.12E-11	2.90E-10	9.58E-08	0.00E+00
Maximum	3.94E-03	1.95E-01	1.91E-05	1.21E-07	1.59E-01	0.00E+00

TABLE B.23b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from S-35 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.5%	81.2%	0.0%	0.0%	0.1%	0.0%
5%	2.7%	89.2%	0.0%	0.0%	0.1%	0.0%
10%	2.5%	84.9%	0.0%	0.0%	0.1%	0.0%
15%	2.6%	76.3%	0.0%	0.0%	0.1%	0.0%
20%	2.8%	74.7%	0.0%	0.0%	0.2%	0.0%
25%	3.0%	78.6%	0.0%	0.0%	0.2%	0.0%
30%	2.9%	80.7%	0.0%	0.0%	0.3%	0.0%
35%	2.8%	83.8%	0.0%	0.0%	0.5%	0.0%
40%	2.7%	84.2%	0.0%	0.0%	0.6%	0.0%
45%	2.7%	86.5%	0.0%	0.0%	1.0%	0.0%
50%	2.6%	87.8%	0.0%	0.0%	1.3%	0.0%
55%	2.6%	88.6%	0.0%	0.0%	1.7%	0.0%

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TABLE B.23b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.5%	89.3%	0.0%	0.0%	2.4%	0.0%
65%	2.4%	89.7%	0.0%	0.0%	3.3%	0.0%
70%	2.4%	90.7%	0.0%	0.0%	4.2%	0.0%
75%	2.3%	90.7%	0.0%	0.0%	5.8%	0.0%
80%	2.3%	91.7%	0.0%	0.0%	8.4%	0.0%
85%	2.3%	92.3%	0.0%	0.0%	11.5%	0.0%
90%	2.2%	92.8%	0.0%	0.0%	17.3%	0.0%
95%	2.2%	93.3%	0.0%	0.0%	26.4%	0.0%
97.5%	2.0%	94.0%	0.0%	0.0%	37.6%	0.0%
Mean	2.4%	88.2%	0.0%	0.0%	9.3%	0.0%
Minimum	3.4%	46.8%	0.0%	0.0%	0.0%	0.0%
Maximum	1.5%	74.8%	0.0%	0.0%	60.8%	0.0%

TABLE B.24a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Sr-90 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	8.85E-03	8.87E-03	1.27E-07	7.98E-08	5.82E-06	0.00E+00
5%	1.62E-02	1.57E-02	3.33E-07	1.52E-07	1.33E-05	0.00E+00
10%	4.72E-02	4.70E-02	8.27E-07	4.19E-07	3.94E-05	0.00E+00
15%	7.92E-02	7.71E-02	1.79E-06	7.05E-07	8.35E-05	0.00E+00
20%	1.11E-01	1.01E-01	3.39E-06	9.74E-07	1.56E-04	0.00E+00
25%	1.42E-01	1.17E-01	7.07E-06	1.19E-06	3.30E-04	0.00E+00
30%	1.48E-01	1.30E-01	1.17E-05	1.35E-06	6.08E-04	0.00E+00
35%	1.53E-01	1.40E-01	2.41E-05	1.40E-06	1.20E-03	0.00E+00
40%	1.59E-01	1.49E-01	4.22E-05	1.45E-06	2.06E-03	0.00E+00
45%	1.64E-01	1.57E-01	8.16E-05	1.51E-06	3.69E-03	0.00E+00
50%	1.70E-01	1.64E-01	1.50E-04	1.56E-06	6.16E-03	0.00E+00
55%	1.74E-01	1.72E-01	2.28E-04	1.60E-06	1.06E-02	0.00E+00
60%	1.77E-01	1.81E-01	3.70E-04	1.64E-06	1.86E-02	0.00E+00
65%	1.81E-01	1.89E-01	5.89E-04	1.68E-06	2.98E-02	0.00E+00
70%	1.84E-01	2.00E-01	9.21E-04	1.72E-06	4.81E-02	0.00E+00
75%	1.88E-01	2.13E-01	1.66E-03	1.75E-06	8.07E-02	0.00E+00
80%	1.98E-01	2.24E-01	2.80E-03	1.82E-06	1.46E-01	0.00E+00
85%	2.08E-01	2.38E-01	5.31E-03	1.93E-06	2.89E-01	0.00E+00
90%	2.18E-01	2.58E-01	1.09E-02	2.03E-06	5.79E-01	0.00E+00
95%	2.39E-01	2.85E-01	2.85E-02	2.23E-06	1.79E+00	0.00E+00
97.5%	2.50E-01	3.15E-01	5.51E-02	2.34E-06	2.99E+00	0.00E+00
Mean	1.55E-01	1.62E-01	4.96E-03	1.42E-06	2.85E-01	0.00E+00
Minimum	1.50E-03	1.03E-03	1.93E-09	1.36E-08	1.17E-07	0.00E+00
Maximum	3.22E-01	4.52E-01	1.36E-01	2.99E-06	1.57E+01	0.00E+00

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TABLE B.24b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Sr-90 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	40.8%	40.9%	0.0%	0.0%	0.0%	0.0%
5%	32.3%	31.2%	0.0%	0.0%	0.0%	0.0%
10%	35.9%	35.7%	0.0%	0.0%	0.0%	0.0%
15%	39.3%	38.3%	0.0%	0.0%	0.0%	0.0%
20%	41.1%	37.4%	0.0%	0.0%	0.1%	0.0%
25%	47.4%	38.9%	0.0%	0.0%	0.1%	0.0%
30%	46.5%	40.9%	0.0%	0.0%	0.2%	0.0%
35%	45.8%	41.8%	0.0%	0.0%	0.4%	0.0%
40%	45.6%	42.7%	0.0%	0.0%	0.6%	0.0%
45%	45.4%	43.3%	0.0%	0.0%	1.0%	0.0%
50%	45.1%	43.7%	0.0%	0.0%	1.6%	0.0%
55%	43.7%	43.4%	0.1%	0.0%	2.7%	0.0%
60%	42.7%	43.7%	0.1%	0.0%	4.5%	0.0%
65%	41.3%	43.4%	0.1%	0.0%	6.8%	0.0%
70%	39.8%	43.3%	0.2%	0.0%	10.4%	0.0%
75%	37.3%	42.3%	0.3%	0.0%	16.0%	0.0%
80%	35.2%	39.9%	0.5%	0.0%	26.1%	0.0%
85%	31.8%	36.4%	0.8%	0.0%	44.2%	0.0%
90%	22.3%	26.4%	1.1%	0.0%	59.2%	0.0%
95%	11.4%	13.6%	1.4%	0.0%	85.3%	0.0%
97.5%	7.3%	9.2%	1.6%	0.0%	87.0%	0.0%
Mean	25.5%	26.7%	0.8%	0.0%	46.9%	0.0%
Minimum	50.3%	34.4%	0.0%	0.0%	0.0%	0.0%
Maximum	2.0%	2.8%	0.8%	0.0%	96.3%	0.0%

TABLE B.25a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Tc-99 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.02E-04	3.75E-03	1.46E-09	6.95E-09	1.23E-06	0.00E+00
5%	1.87E-04	6.85E-03	3.82E-09	1.28E-08	2.81E-06	0.00E+00
10%	5.44E-04	2.07E-02	9.47E-09	3.71E-08	8.32E-06	0.00E+00
15%	9.14E-04	3.32E-02	2.05E-08	6.23E-08	1.76E-05	0.00E+00
20%	1.27E-03	4.46E-02	3.89E-08	8.68E-08	3.29E-05	0.00E+00
25%	1.64E-03	5.17E-02	8.14E-08	1.12E-07	6.97E-05	0.00E+00
30%	1.71E-03	5.62E-02	1.34E-07	1.16E-07	1.29E-04	0.00E+00
35%	1.77E-03	6.05E-02	2.77E-07	1.21E-07	2.58E-04	0.00E+00
40%	1.83E-03	6.38E-02	5.04E-07	1.25E-07	4.52E-04	0.00E+00
45%	1.90E-03	6.68E-02	9.59E-07	1.29E-07	8.18E-04	0.00E+00
50%	1.96E-03	7.00E-02	1.82E-06	1.33E-07	1.41E-03	0.00E+00
55%	2.00E-03	7.34E-02	2.97E-06	1.36E-07	2.50E-03	0.00E+00

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TABLE B.25a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.04E-03	7.65E-02	5.14E-06	1.39E-07	4.74E-03	0.00E+00
65%	2.08E-03	8.06E-02	8.45E-06	1.42E-07	7.76E-03	0.00E+00
70%	2.12E-03	8.38E-02	1.47E-05	1.45E-07	1.28E-02	0.00E+00
75%	2.16E-03	8.88E-02	2.67E-05	1.47E-07	2.44E-02	0.00E+00
80%	2.28E-03	9.39E-02	4.57E-05	1.55E-07	4.52E-02	0.00E+00
85%	2.40E-03	9.95E-02	8.57E-05	1.63E-07	9.47E-02	0.00E+00
90%	2.52E-03	1.08E-01	2.45E-04	1.71E-07	2.18E-01	0.00E+00
95%	2.76E-03	1.19E-01	6.66E-04	1.88E-07	7.80E-01	0.00E+00
97.5%	2.88E-03	1.32E-01	1.91E-03	1.96E-07	1.75E+00	0.00E+00
Mean	1.79E-03	6.88E-02	1.76E-04	1.22E-07	1.76E-01	0.00E+00
Minimum	1.73E-05	4.61E-04	2.21E-11	1.18E-09	2.46E-08	0.00E+00
Maximum	3.71E-03	1.96E-01	9.37E-03	2.53E-07	1.56E+01	0.00E+00

TABLE B.25b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Tc-99 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.1%	77.7%	0.0%	0.0%	0.0%	0.0%
5%	1.7%	63.1%	0.0%	0.0%	0.0%	0.0%
10%	1.8%	67.8%	0.0%	0.0%	0.0%	0.0%
15%	2.0%	73.8%	0.0%	0.0%	0.0%	0.0%
20%	2.3%	81.3%	0.0%	0.0%	0.1%	0.0%
25%	2.7%	84.6%	0.0%	0.0%	0.1%	0.0%
30%	2.6%	84.5%	0.0%	0.0%	0.2%	0.0%
35%	2.5%	85.8%	0.0%	0.0%	0.4%	0.0%
40%	2.5%	85.6%	0.0%	0.0%	0.6%	0.0%
45%	2.4%	84.8%	0.0%	0.0%	1.0%	0.0%
50%	2.3%	83.3%	0.0%	0.0%	1.7%	0.0%
55%	2.3%	82.8%	0.0%	0.0%	2.8%	0.0%
60%	2.2%	80.8%	0.0%	0.0%	5.0%	0.0%
65%	2.1%	80.1%	0.0%	0.0%	7.7%	0.0%
70%	2.0%	77.1%	0.0%	0.0%	11.8%	0.0%
75%	1.8%	74.0%	0.0%	0.0%	20.3%	0.0%
80%	1.6%	67.2%	0.0%	0.0%	32.4%	0.0%
85%	1.4%	58.6%	0.1%	0.0%	55.8%	0.0%
90%	0.9%	37.0%	0.1%	0.0%	74.5%	0.0%
95%	0.3%	14.0%	0.1%	0.0%	91.6%	0.0%
97.5%	0.2%	7.3%	0.1%	0.0%	96.6%	0.0%
Mean	0.7%	27.9%	0.1%	0.0%	71.3%	0.0%
Minimum	3.1%	82.2%	0.0%	0.0%	0.0%	0.0%
Maximum	0.0%	1.2%	0.1%	0.0%	99.5%	0.0%

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TABLE B.26a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from U-238 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.73E-02	6.69E-01	2.50E-07	5.87E-07	9.29E-06	3.87E-17
5%	3.17E-02	1.22E+00	6.55E-07	1.08E-06	2.13E-05	8.28E-17
10%	9.21E-02	3.69E+00	1.62E-06	3.13E-06	6.29E-05	2.36E-16
15%	1.55E-01	5.92E+00	3.51E-06	5.25E-06	1.33E-04	3.72E-16
20%	2.16E-01	7.95E+00	6.67E-06	7.33E-06	2.49E-04	4.59E-16
25%	2.77E-01	9.22E+00	1.39E-05	9.42E-06	5.27E-04	5.33E-16
30%	2.89E-01	1.00E+01	2.30E-05	9.80E-06	9.77E-04	6.11E-16
35%	2.99E-01	1.08E+01	4.74E-05	1.02E-05	1.95E-03	6.73E-16
40%	3.10E-01	1.14E+01	8.63E-05	1.05E-05	3.42E-03	7.42E-16
45%	3.21E-01	1.19E+01	1.64E-04	1.09E-05	6.18E-03	7.90E-16
50%	3.32E-01	1.25E+01	3.11E-04	1.13E-05	1.07E-02	8.22E-16
55%	3.39E-01	1.31E+01	5.09E-04	1.15E-05	1.89E-02	8.55E-16
60%	3.45E-01	1.36E+01	8.79E-04	1.17E-05	3.59E-02	8.85E-16
65%	3.52E-01	1.44E+01	1.45E-03	1.20E-05	5.87E-02	9.13E-16
70%	3.59E-01	1.49E+01	2.52E-03	1.22E-05	9.66E-02	9.47E-16
75%	3.66E-01	1.58E+01	4.57E-03	1.24E-05	1.85E-01	9.76E-16
80%	3.85E-01	1.67E+01	7.83E-03	1.31E-05	3.42E-01	1.01E-15
85%	4.05E-01	1.78E+01	1.47E-02	1.38E-05	7.16E-01	1.05E-15
90%	4.26E-01	1.93E+01	4.20E-02	1.45E-05	1.65E+00	1.12E-15
95%	4.67E-01	2.13E+01	1.14E-01	1.59E-05	5.90E+00	1.22E-15
97.5%	4.88E-01	2.35E+01	3.27E-01	1.66E-05	1.32E+01	1.33E-15
Mean	3.02E-01	1.23E+01	3.02E-02	1.03E-05	1.33E+00	7.50E-16
Minimum	2.93E-03	8.21E-02	3.78E-09	9.95E-08	1.86E-07	4.88E-18
Maximum	6.28E-01	3.50E+01	1.61E+00	2.13E-05	1.18E+02	1.69E-15

TABLE B.26b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from U-238 Contamination in the Small Office Building Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.4%	93.1%	0.0%	0.0%	0.0%	0.0%
5%	2.4%	94.0%	0.0%	0.0%	0.0%	0.0%
10%	2.3%	91.4%	0.0%	0.0%	0.0%	0.0%
15%	2.4%	91.6%	0.0%	0.0%	0.0%	0.0%
20%	2.6%	94.8%	0.0%	0.0%	0.0%	0.0%
25%	2.8%	94.4%	0.0%	0.0%	0.0%	0.0%
30%	2.7%	93.2%	0.0%	0.0%	0.0%	0.0%
35%	2.6%	93.9%	0.0%	0.0%	0.0%	0.0%
40%	2.6%	94.2%	0.0%	0.0%	0.0%	0.0%
45%	2.5%	93.5%	0.0%	0.0%	0.0%	0.0%
50%	2.5%	93.0%	0.0%	0.0%	0.1%	0.0%
55%	2.4%	93.0%	0.0%	0.0%	0.1%	0.0%

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TABLE B.26b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.3%	92.3%	0.0%	0.0%	0.2%	0.0%
65%	2.3%	93.5%	0.0%	0.0%	0.4%	0.0%
70%	2.2%	91.8%	0.0%	0.0%	0.6%	0.0%
75%	2.1%	92.6%	0.0%	0.0%	1.1%	0.0%
80%	2.1%	92.2%	0.0%	0.0%	1.9%	0.0%
85%	2.1%	90.3%	0.1%	0.0%	3.6%	0.0%
90%	2.0%	90.6%	0.2%	0.0%	7.7%	0.0%
95%	1.9%	85.3%	0.5%	0.0%	23.6%	0.0%
97.5%	1.5%	71.6%	1.0%	0.0%	40.2%	0.0%
Mean	2.2%	88.1%	0.2%	0.0%	9.6%	0.0%
Minimum	3.3%	92.0%	0.0%	0.0%	0.0%	0.0%
Maximum	0.5%	26.6%	1.2%	0.0%	89.9%	0.0%

Tables B.27a–B.39a include the individual pathway dose percentiles and individual pathway mean dose levels received by a worker from an individual radionuclide for the small office desk scenario. All pathway dose percentiles for the small office desk scenario are listed in Table 7. Note that the sum of “individual pathway dose” at different percentiles may not add up to “all pathway dose” at that percentile. In general, at minimum percentile, the “all pathway dose” would be HIGHER than the sum of the “individual pathway dose,” and at maximum percentile, the “all pathway dose” would be LOWER than the sum of the “individual pathway dose.” Tables B.27b–B.39b include the relative contribution of “individual pathway doses” to “all pathway dose” at different percentiles. For all radionuclides, mean dose is less than 5 mrem/yr.

TABLE B.27a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Am-241 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn ^a	Deposition	Immersion	Ingestion	Radon
2.5%	3.41E-04	1.47E-02	3.76E-10	1.30E-09	1.77E-07	0.00E+00
5%	6.47E-04	2.69E-02	7.23E-10	2.47E-09	3.68E-07	0.00E+00
10%	1.88E-03	7.83E-02	2.11E-09	7.16E-09	9.88E-07	0.00E+00
15%	3.08E-03	1.32E-01	5.30E-09	1.16E-08	2.35E-06	0.00E+00
20%	4.31E-03	1.65E-01	1.10E-08	1.64E-08	5.27E-06	0.00E+00
25%	5.51E-03	1.89E-01	2.04E-08	2.04E-08	1.05E-05	0.00E+00
30%	5.72E-03	2.09E-01	3.77E-08	2.17E-08	1.87E-05	0.00E+00
35%	5.93E-03	2.27E-01	7.18E-08	2.25E-08	3.47E-05	0.00E+00
40%	6.15E-03	2.39E-01	1.27E-07	2.33E-08	6.43E-05	0.00E+00
45%	6.36E-03	2.52E-01	2.31E-07	2.41E-08	1.20E-04	0.00E+00
50%	6.57E-03	2.66E-01	4.03E-07	2.49E-08	1.99E-04	0.00E+00
55%	6.71E-03	2.78E-01	7.36E-07	2.55E-08	3.42E-04	0.00E+00
60%	6.84E-03	2.91E-01	1.21E-06	2.60E-08	6.18E-04	0.00E+00
65%	6.98E-03	3.03E-01	2.01E-06	2.66E-08	1.08E-03	0.00E+00

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TABLE B.27a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
70%	7.12E-03	3.17E-01	3.61E-06	2.71E-08	1.77E-03	0.00E+00
75%	7.26E-03	3.36E-01	6.68E-06	2.77E-08	3.45E-03	0.00E+00
80%	7.65E-03	3.55E-01	1.30E-05	2.91E-08	6.89E-03	0.00E+00
85%	8.04E-03	3.75E-01	2.42E-05	3.05E-08	1.30E-02	0.00E+00
90%	8.45E-03	4.09E-01	5.46E-05	3.21E-08	3.02E-02	0.00E+00
95%	9.26E-03	4.58E-01	1.52E-04	3.52E-08	8.96E-02	0.00E+00
97.5%	9.67E-03	4.97E-01	3.30E-04	3.69E-08	2.18E-01	0.00E+00
Mean	6.00E-03	2.60E-01	3.14E-05	2.28E-08	2.01E-02	0.00E+00
Minimum	5.77E-05	2.39E-03	7.90E-12	1.76E-10	7.51E-09	0.00E+00
Maximum	1.24E-02	6.28E-01	1.66E-03	4.72E-08	1.46E+00	0.00E+00

TABLE B.27b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Am-241 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	2.12%	91.36%	0.00%	0.00%	0.00%	0.00%
5%	2.10%	87.45%	0.00%	0.00%	0.00%	0.00%
10%	2.20%	91.75%	0.00%	0.00%	0.00%	0.00%
15%	2.22%	94.69%	0.00%	0.00%	0.00%	0.00%
20%	2.43%	93.34%	0.00%	0.00%	0.00%	0.00%
25%	2.73%	93.62%	0.00%	0.00%	0.01%	0.00%
30%	2.52%	91.94%	0.00%	0.00%	0.01%	0.00%
35%	2.45%	93.73%	0.00%	0.00%	0.01%	0.00%
40%	2.40%	93.30%	0.00%	0.00%	0.03%	0.00%
45%	2.36%	93.50%	0.00%	0.00%	0.04%	0.00%
50%	2.33%	94.29%	0.00%	0.00%	0.07%	0.00%
55%	2.26%	93.90%	0.00%	0.00%	0.12%	0.00%
60%	2.21%	94.06%	0.00%	0.00%	0.20%	0.00%
65%	2.14%	93.06%	0.00%	0.00%	0.33%	0.00%
70%	2.07%	92.16%	0.00%	0.00%	0.51%	0.00%
75%	1.99%	92.19%	0.00%	0.00%	0.95%	0.00%
80%	2.01%	93.35%	0.00%	0.00%	1.81%	0.00%
85%	1.96%	91.53%	0.01%	0.00%	3.17%	0.00%
90%	1.87%	90.61%	0.01%	0.00%	6.68%	0.00%
95%	1.82%	90.13%	0.03%	0.00%	17.64%	0.00%
97.5%	1.63%	83.93%	0.06%	0.00%	36.82%	0.00%
Mean	2.10%	90.85%	0.01%	0.00%	7.04%	0.00%
Minimum	2.33%	96.65%	0.00%	0.00%	0.00%	0.00%
Maximum	0.73%	37.28%	0.10%	0.00%	86.43%	0.00%

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TABLE B.28a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from C-14 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.64E-05	3.17E-05	1.93E-11	5.01E-10	5.15E-08	0.00E+00
5%	3.12E-05	5.79E-05	3.71E-11	9.49E-10	1.07E-07	0.00E+00
10%	9.06E-05	1.69E-04	1.08E-10	2.76E-09	2.87E-07	0.00E+00
15%	1.48E-04	2.84E-04	2.72E-10	4.52E-09	6.83E-07	0.00E+00
20%	2.08E-04	3.56E-04	5.62E-10	6.32E-09	1.53E-06	0.00E+00
25%	2.65E-04	4.07E-04	1.05E-09	8.07E-09	3.06E-06	0.00E+00
30%	2.76E-04	4.53E-04	1.93E-09	8.39E-09	5.43E-06	0.00E+00
35%	2.86E-04	4.93E-04	3.69E-09	8.70E-09	1.01E-05	0.00E+00
40%	2.96E-04	5.18E-04	6.52E-09	9.02E-09	1.88E-05	0.00E+00
45%	3.06E-04	5.44E-04	1.19E-08	9.32E-09	3.49E-05	0.00E+00
50%	3.17E-04	5.72E-04	2.07E-08	9.64E-09	5.87E-05	0.00E+00
55%	3.23E-04	6.02E-04	3.78E-08	9.84E-09	1.00E-04	0.00E+00
60%	3.30E-04	6.29E-04	6.27E-08	1.00E-08	1.81E-04	0.00E+00
65%	3.36E-04	6.55E-04	1.04E-07	1.02E-08	3.22E-04	0.00E+00
70%	3.43E-04	6.85E-04	1.90E-07	1.04E-08	5.32E-04	0.00E+00
75%	3.50E-04	7.27E-04	3.51E-07	1.06E-08	1.02E-03	0.00E+00
80%	3.69E-04	7.65E-04	7.06E-07	1.12E-08	2.04E-03	0.00E+00
85%	3.88E-04	8.09E-04	1.30E-06	1.18E-08	3.87E-03	0.00E+00
90%	4.07E-04	8.82E-04	2.99E-06	1.24E-08	9.76E-03	0.00E+00
95%	4.46E-04	9.87E-04	8.07E-06	1.36E-08	2.81E-02	0.00E+00
97.5%	4.66E-04	1.07E-03	1.89E-05	1.42E-08	6.95E-02	0.00E+00
Mean	2.89E-04	5.60E-04	1.85E-06	8.80E-09	6.70E-03	0.00E+00
Minimum	2.78E-06	5.15E-06	4.05E-13	8.29E-11	2.18E-09	0.00E+00
Maximum	5.96E-04	1.35E-03	1.24E-04	1.81E-08	6.15E-01	0.00E+00

TABLE B.28b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from C-14 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	23.72%	45.72%	0.00%	0.00%	0.07%	0.00%
5%	20.46%	38.02%	0.00%	0.00%	0.07%	0.00%
10%	24.86%	46.48%	0.00%	0.00%	0.08%	0.00%
15%	25.45%	48.72%	0.00%	0.00%	0.12%	0.00%
20%	28.42%	48.67%	0.00%	0.00%	0.21%	0.00%
25%	32.29%	49.57%	0.00%	0.00%	0.37%	0.00%
30%	31.01%	50.95%	0.00%	0.00%	0.61%	0.00%
35%	30.38%	52.38%	0.00%	0.00%	1.07%	0.00%
40%	29.86%	52.23%	0.00%	0.00%	1.90%	0.00%
45%	29.20%	51.88%	0.00%	0.00%	3.33%	0.00%
50%	28.52%	51.52%	0.00%	0.00%	5.29%	0.00%

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TABLE B.28b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	27.17%	50.58%	0.00%	0.00%	8.43%	0.00%
60%	25.65%	48.94%	0.00%	0.00%	14.05%	0.00%
65%	23.98%	46.68%	0.01%	0.00%	22.93%	0.00%
70%	21.62%	43.17%	0.01%	0.00%	33.56%	0.00%
75%	17.67%	36.73%	0.02%	0.00%	51.49%	0.00%
80%	12.17%	25.24%	0.02%	0.00%	67.26%	0.00%
85%	8.15%	17.01%	0.03%	0.00%	81.36%	0.00%
90%	3.79%	8.21%	0.03%	0.00%	90.83%	0.00%
95%	1.54%	3.39%	0.03%	0.00%	96.48%	0.00%
97.5%	0.66%	1.52%	0.03%	0.00%	98.70%	0.00%
Mean	3.83%	7.42%	0.02%	0.00%	88.73%	0.00%
Minimum	30.33%	56.12%	0.00%	0.00%	0.02%	0.00%
Maximum	0.10%	0.22%	0.02%	0.00%	99.83%	0.00%

**TABLE B.29a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Co-60 Contamination in the Small Office
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.91E-01	7.26E-05	2.06E-07	1.94E-06	2.81E-08	0.00E+00
5%	3.61E-01	1.57E-04	3.95E-07	3.77E-06	5.86E-08	0.00E+00
10%	1.05E+00	4.26E-04	1.12E-06	1.12E-05	1.54E-07	0.00E+00
15%	1.72E+00	6.45E-04	2.85E-06	1.66E-05	3.54E-07	0.00E+00
20%	2.41E+00	8.40E-04	5.92E-06	2.15E-05	8.20E-07	0.00E+00
25%	3.08E+00	9.89E-04	1.09E-05	2.71E-05	1.60E-06	0.00E+00
30%	3.20E+00	1.12E-03	1.96E-05	3.20E-05	2.80E-06	0.00E+00
35%	3.31E+00	1.23E-03	3.75E-05	3.48E-05	5.27E-06	0.00E+00
40%	3.43E+00	1.34E-03	6.15E-05	3.63E-05	8.30E-06	0.00E+00
45%	3.55E+00	1.41E-03	1.08E-04	3.75E-05	1.51E-05	0.00E+00
50%	3.67E+00	1.50E-03	1.60E-04	3.90E-05	2.35E-05	0.00E+00
55%	3.75E+00	1.57E-03	2.29E-04	4.04E-05	3.48E-05	0.00E+00
60%	3.82E+00	1.64E-03	3.67E-04	4.16E-05	5.09E-05	0.00E+00
65%	3.90E+00	1.72E-03	5.63E-04	4.26E-05	7.55E-05	0.00E+00
70%	3.98E+00	1.80E-03	9.24E-04	4.37E-05	1.29E-04	0.00E+00
75%	4.05E+00	1.89E-03	1.43E-03	4.48E-05	2.33E-04	0.00E+00
80%	4.27E+00	2.02E-03	2.56E-03	4.64E-05	3.87E-04	0.00E+00
85%	4.49E+00	2.15E-03	4.61E-03	4.90E-05	7.76E-04	0.00E+00
90%	4.72E+00	2.33E-03	7.73E-03	5.18E-05	1.28E-03	0.00E+00
95%	5.17E+00	2.65E-03	1.59E-02	5.71E-05	2.51E-03	0.00E+00
97.5%	5.40E+00	2.89E-03	2.36E-02	6.02E-05	4.73E-03	0.00E+00
Mean	3.35E+00	1.45E-03	2.53E-03	3.55E-05	4.79E-04	0.00E+00
Minimum	3.22E-02	6.09E-06	4.32E-09	1.22E-07	1.20E-09	0.00E+00
Maximum	6.91E+00	3.65E-03	4.68E-02	7.78E-05	1.34E-02	0.00E+00

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TABLE B.29b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Co-60 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.89%	0.04%	0.00%	0.00%	0.00%	0.00%
5%	99.91%	0.04%	0.00%	0.00%	0.00%	0.00%
10%	99.94%	0.04%	0.00%	0.00%	0.00%	0.00%
15%	99.95%	0.04%	0.00%	0.00%	0.00%	0.00%
20%	99.93%	0.03%	0.00%	0.00%	0.00%	0.00%
25%	99.89%	0.03%	0.00%	0.00%	0.00%	0.00%
30%	99.70%	0.03%	0.00%	0.00%	0.00%	0.00%
35%	99.90%	0.04%	0.00%	0.00%	0.00%	0.00%
40%	99.76%	0.04%	0.00%	0.00%	0.00%	0.00%
45%	99.82%	0.04%	0.00%	0.00%	0.00%	0.00%
50%	99.90%	0.04%	0.00%	0.00%	0.00%	0.00%
55%	99.87%	0.04%	0.01%	0.00%	0.00%	0.00%
60%	99.88%	0.04%	0.01%	0.00%	0.00%	0.00%
65%	99.78%	0.04%	0.01%	0.00%	0.00%	0.00%
70%	99.85%	0.05%	0.02%	0.00%	0.00%	0.00%
75%	99.63%	0.05%	0.04%	0.00%	0.01%	0.00%
80%	99.82%	0.05%	0.06%	0.00%	0.01%	0.00%
85%	99.82%	0.05%	0.10%	0.00%	0.02%	0.00%
90%	99.86%	0.05%	0.16%	0.00%	0.03%	0.00%
95%	99.92%	0.05%	0.31%	0.00%	0.05%	0.00%
97.5%	99.94%	0.05%	0.44%	0.00%	0.09%	0.00%
Mean	99.87%	0.04%	0.08%	0.00%	0.01%	0.00%
Minimum	98.91%	0.02%	0.00%	0.00%	0.00%	0.00%
Maximum	99.95%	0.05%	0.68%	0.00%	0.19%	0.00%

TABLE B.30a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Cs-137 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	4.85E-02	3.45E-05	5.25E-08	4.50E-07	1.14E-07	0.00E+00
5%	9.18E-02	6.61E-05	1.01E-07	9.20E-07	2.37E-07	0.00E+00
10%	2.67E-01	1.86E-04	2.95E-07	2.58E-06	6.35E-07	0.00E+00
15%	4.37E-01	3.00E-04	7.40E-07	4.14E-06	1.50E-06	0.00E+00
20%	6.12E-01	3.80E-04	1.52E-06	5.54E-06	3.39E-06	0.00E+00
25%	7.82E-01	4.34E-04	2.84E-06	6.88E-06	6.69E-06	0.00E+00
30%	8.13E-01	4.87E-04	5.18E-06	7.81E-06	1.19E-05	0.00E+00
35%	8.42E-01	5.39E-04	9.98E-06	8.13E-06	2.23E-05	0.00E+00
40%	8.73E-01	5.70E-04	1.74E-05	8.43E-06	3.98E-05	0.00E+00
45%	9.03E-01	6.04E-04	3.10E-05	8.75E-06	7.29E-05	0.00E+00
50%	9.33E-01	6.38E-04	5.48E-05	9.09E-06	1.23E-04	0.00E+00

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TABLE B.30a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	9.53E-01	6.69E-04	9.06E-05	9.34E-06	2.01E-04	0.00E+00
60%	9.72E-01	7.00E-04	1.43E-04	9.56E-06	3.25E-04	0.00E+00
65%	9.91E-01	7.30E-04	2.29E-04	9.78E-06	5.31E-04	0.00E+00
70%	1.01E+00	7.61E-04	4.02E-04	1.00E-05	8.94E-04	0.00E+00
75%	1.03E+00	8.08E-04	7.13E-04	1.02E-05	1.64E-03	0.00E+00
80%	1.09E+00	8.58E-04	1.23E-03	1.07E-05	3.35E-03	0.00E+00
85%	1.14E+00	9.11E-04	2.44E-03	1.13E-05	5.86E-03	0.00E+00
90%	1.20E+00	9.96E-04	4.73E-03	1.18E-05	1.28E-02	0.00E+00
95%	1.32E+00	1.11E-03	1.19E-02	1.30E-05	2.87E-02	0.00E+00
97.5%	1.37E+00	1.21E-03	2.03E-02	1.37E-05	6.54E-02	0.00E+00
Mean	8.51E-01	6.22E-04	1.89E-03	8.28E-06	5.63E-03	0.00E+00
Minimum	8.20E-03	3.11E-06	1.10E-09	3.41E-08	4.83E-09	0.00E+00
Maximum	1.76E+00	1.53E-03	4.80E-02	1.76E-05	2.19E-01	0.00E+00

TABLE B.30b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Cs-137 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.71%	0.07%	0.00%	0.00%	0.00%	0.00%
5%	99.08%	0.07%	0.00%	0.00%	0.00%	0.00%
10%	99.84%	0.07%	0.00%	0.00%	0.00%	0.00%
15%	99.91%	0.07%	0.00%	0.00%	0.00%	0.00%
20%	99.34%	0.06%	0.00%	0.00%	0.00%	0.00%
25%	99.52%	0.06%	0.00%	0.00%	0.00%	0.00%
30%	99.14%	0.06%	0.00%	0.00%	0.00%	0.00%
35%	99.13%	0.06%	0.00%	0.00%	0.00%	0.00%
40%	99.11%	0.06%	0.00%	0.00%	0.00%	0.00%
45%	98.65%	0.07%	0.00%	0.00%	0.01%	0.00%
50%	99.23%	0.07%	0.01%	0.00%	0.01%	0.00%
55%	99.02%	0.07%	0.01%	0.00%	0.02%	0.00%
60%	99.05%	0.07%	0.01%	0.00%	0.03%	0.00%
65%	98.98%	0.07%	0.02%	0.00%	0.05%	0.00%
70%	99.00%	0.07%	0.04%	0.00%	0.09%	0.00%
75%	98.21%	0.08%	0.07%	0.00%	0.16%	0.00%
80%	98.97%	0.08%	0.11%	0.00%	0.31%	0.00%
85%	99.25%	0.08%	0.21%	0.00%	0.51%	0.00%
90%	98.75%	0.08%	0.39%	0.00%	1.05%	0.00%
95%	99.20%	0.08%	0.90%	0.00%	2.16%	0.00%
97.5%	99.31%	0.09%	1.47%	0.00%	4.73%	0.00%
Mean	99.05%	0.07%	0.22%	0.00%	0.66%	0.00%
Minimum	90.10%	0.03%	0.00%	0.00%	0.00%	0.00%
Maximum	99.91%	0.09%	2.73%	0.00%	12.48%	0.00%

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TABLE B.31a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Fe-55 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00E+00	3.66E-04	0.00E+00	0.00E+00	2.57E-07	0.00E+00
5%	0.00E+00	7.63E-04	0.00E+00	0.00E+00	5.34E-07	0.00E+00
10%	0.00E+00	2.10E-03	0.00E+00	0.00E+00	1.40E-06	0.00E+00
15%	0.00E+00	3.19E-03	0.00E+00	0.00E+00	3.18E-06	0.00E+00
20%	0.00E+00	4.09E-03	0.00E+00	0.00E+00	7.28E-06	0.00E+00
25%	0.00E+00	4.91E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00
30%	0.00E+00	5.60E-03	0.00E+00	0.00E+00	2.39E-05	0.00E+00
35%	0.00E+00	6.13E-03	0.00E+00	0.00E+00	4.16E-05	0.00E+00
40%	0.00E+00	6.71E-03	0.00E+00	0.00E+00	6.76E-05	0.00E+00
45%	0.00E+00	7.10E-03	0.00E+00	0.00E+00	1.15E-04	0.00E+00
50%	0.00E+00	7.52E-03	0.00E+00	0.00E+00	1.78E-04	0.00E+00
55%	0.00E+00	7.90E-03	0.00E+00	0.00E+00	2.58E-04	0.00E+00
60%	0.00E+00	8.29E-03	0.00E+00	0.00E+00	3.62E-04	0.00E+00
65%	0.00E+00	8.65E-03	0.00E+00	0.00E+00	5.56E-04	0.00E+00
70%	0.00E+00	9.06E-03	0.00E+00	0.00E+00	9.00E-04	0.00E+00
75%	0.00E+00	9.55E-03	0.00E+00	0.00E+00	1.54E-03	0.00E+00
80%	0.00E+00	1.02E-02	0.00E+00	0.00E+00	2.57E-03	0.00E+00
85%	0.00E+00	1.09E-02	0.00E+00	0.00E+00	4.63E-03	0.00E+00
90%	0.00E+00	1.18E-02	0.00E+00	0.00E+00	7.33E-03	0.00E+00
95%	0.00E+00	1.33E-02	0.00E+00	0.00E+00	1.40E-02	0.00E+00
97.5%	0.00E+00	1.47E-02	0.00E+00	0.00E+00	2.52E-02	0.00E+00
Mean	0.00E+00	7.31E-03	0.00E+00	0.00E+00	2.69E-03	0.00E+00
Minimum	0.00E+00	3.02E-05	0.00E+00	0.00E+00	1.09E-08	0.00E+00
Maximum	0.00E+00	1.86E-02	0.00E+00	0.00E+00	6.72E-02	0.00E+00

TABLE B.31b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Fe-55 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00%	65.90%	0.00%	0.00%	0.05%	0.00%
5%	0.00%	71.27%	0.00%	0.00%	0.05%	0.00%
10%	0.00%	80.46%	0.00%	0.00%	0.05%	0.00%
15%	0.00%	73.10%	0.00%	0.00%	0.07%	0.00%
20%	0.00%	75.70%	0.00%	0.00%	0.13%	0.00%
25%	0.00%	76.87%	0.00%	0.00%	0.22%	0.00%
30%	0.00%	79.73%	0.00%	0.00%	0.34%	0.00%
35%	0.00%	80.84%	0.00%	0.00%	0.55%	0.00%
40%	0.00%	83.18%	0.00%	0.00%	0.84%	0.00%
45%	0.00%	83.57%	0.00%	0.00%	1.35%	0.00%
50%	0.00%	84.32%	0.00%	0.00%	2.00%	0.00%

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TABLE B.31b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	0.00%	84.64%	0.00%	0.00%	2.76%	0.00%
60%	0.00%	83.68%	0.00%	0.00%	3.66%	0.00%
65%	0.00%	81.85%	0.00%	0.00%	5.26%	0.00%
70%	0.00%	81.06%	0.00%	0.00%	8.05%	0.00%
75%	0.00%	79.93%	0.00%	0.00%	12.91%	0.00%
80%	0.00%	79.52%	0.00%	0.00%	20.03%	0.00%
85%	0.00%	78.28%	0.00%	0.00%	33.25%	0.00%
90%	0.00%	75.15%	0.00%	0.00%	46.54%	0.00%
95%	0.00%	62.21%	0.00%	0.00%	65.10%	0.00%
97.5%	0.00%	48.42%	0.00%	0.00%	83.31%	0.00%
Mean	0.00%	73.07%	0.00%	0.00%	26.93%	0.00%
Minimum	0.00%	41.85%	0.00%	0.00%	0.02%	0.00%
Maximum	0.00%	24.67%	0.00%	0.00%	89.21%	0.00%

**TABLE B.32a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from I-129 Contamination in the Small Office
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.89E-03	2.79E-04	4.58E-09	5.45E-09	9.77E-07	0.00E+00
5%	7.38E-03	5.09E-04	8.81E-09	1.03E-08	2.03E-06	0.00E+00
10%	2.14E-02	1.49E-03	2.57E-08	3.00E-08	5.44E-06	0.00E+00
15%	3.51E-02	2.50E-03	6.46E-08	4.92E-08	1.30E-05	0.00E+00
20%	4.92E-02	3.13E-03	1.33E-07	6.89E-08	2.90E-05	0.00E+00
25%	6.28E-02	3.58E-03	2.49E-07	8.80E-08	5.80E-05	0.00E+00
30%	6.53E-02	3.99E-03	4.60E-07	9.15E-08	1.03E-04	0.00E+00
35%	6.77E-02	4.34E-03	8.76E-07	9.48E-08	1.91E-04	0.00E+00
40%	7.01E-02	4.56E-03	1.55E-06	9.82E-08	3.57E-04	0.00E+00
45%	7.26E-02	4.79E-03	2.82E-06	1.02E-07	6.62E-04	0.00E+00
50%	7.50E-02	5.03E-03	4.93E-06	1.05E-07	1.12E-03	0.00E+00
55%	7.65E-02	5.30E-03	8.98E-06	1.07E-07	1.91E-03	0.00E+00
60%	7.81E-02	5.54E-03	1.49E-05	1.09E-07	3.43E-03	0.00E+00
65%	7.96E-02	5.76E-03	2.47E-05	1.12E-07	6.10E-03	0.00E+00
70%	8.12E-02	6.02E-03	4.54E-05	1.14E-07	1.01E-02	0.00E+00
75%	8.28E-02	6.39E-03	8.34E-05	1.16E-07	1.93E-02	0.00E+00
80%	8.73E-02	6.72E-03	1.68E-04	1.22E-07	3.88E-02	0.00E+00
85%	9.17E-02	7.12E-03	3.11E-04	1.29E-07	7.36E-02	0.00E+00
90%	9.63E-02	7.75E-03	7.15E-04	1.35E-07	1.85E-01	0.00E+00
95%	1.06E-01	8.68E-03	1.92E-03	1.48E-07	5.38E-01	0.00E+00
97.5%	1.10E-01	9.40E-03	4.52E-03	1.55E-07	1.32E+00	0.00E+00
Mean	6.84E-02	4.93E-03	4.45E-04	9.58E-08	1.29E-01	0.00E+00
Minimum	6.59E-04	4.53E-05	9.62E-11	9.22E-10	4.13E-08	0.00E+00
Maximum	1.41E-01	1.19E-02	3.05E-02	1.98E-07	1.21E+01	0.00E+00

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TABLE B.32b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from I-129 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	75.13%	5.38%	0.00%	0.00%	0.02%	0.00%
5%	63.67%	4.39%	0.00%	0.00%	0.02%	0.00%
10%	77.39%	5.38%	0.00%	0.00%	0.02%	0.00%
15%	81.14%	5.77%	0.00%	0.00%	0.03%	0.00%
20%	76.20%	4.85%	0.00%	0.00%	0.04%	0.00%
25%	87.98%	5.02%	0.00%	0.00%	0.08%	0.00%
30%	86.34%	5.27%	0.00%	0.00%	0.14%	0.00%
35%	85.25%	5.46%	0.00%	0.00%	0.24%	0.00%
40%	85.47%	5.55%	0.00%	0.00%	0.44%	0.00%
45%	85.34%	5.63%	0.00%	0.00%	0.78%	0.00%
50%	85.71%	5.76%	0.01%	0.00%	1.28%	0.00%
55%	84.68%	5.86%	0.01%	0.00%	2.11%	0.00%
60%	82.50%	5.85%	0.02%	0.00%	3.62%	0.00%
65%	80.03%	5.79%	0.02%	0.00%	6.13%	0.00%
70%	76.64%	5.68%	0.04%	0.00%	9.55%	0.00%
75%	72.50%	5.60%	0.07%	0.00%	16.94%	0.00%
80%	69.15%	5.33%	0.13%	0.00%	30.72%	0.00%
85%	58.53%	4.54%	0.20%	0.00%	46.97%	0.00%
90%	36.09%	2.90%	0.27%	0.00%	69.45%	0.00%
95%	16.81%	1.38%	0.31%	0.00%	85.57%	0.00%
97.5%	7.79%	0.66%	0.32%	0.00%	93.33%	0.00%
Mean	33.77%	2.43%	0.22%	0.00%	63.58%	0.00%
Minimum	82.23%	5.65%	0.00%	0.00%	0.01%	0.00%
Maximum	1.15%	0.10%	0.25%	0.00%	99.10%	0.00%

TABLE B.33a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Po-210 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.53E-07	4.37E-03	3.46E-13	2.74E-12	4.66E-06	0.00E+00
5%	6.68E-07	9.48E-03	6.63E-13	6.02E-12	9.19E-06	0.00E+00
10%	1.94E-06	2.45E-02	1.81E-12	1.67E-11	2.37E-05	0.00E+00
15%	3.18E-06	3.57E-02	4.16E-12	2.32E-11	5.11E-05	0.00E+00
20%	4.45E-06	4.74E-02	7.88E-12	3.05E-11	9.98E-05	0.00E+00
25%	5.69E-06	5.70E-02	1.36E-11	3.79E-11	1.71E-04	0.00E+00
30%	5.91E-06	6.54E-02	2.09E-11	4.50E-11	2.71E-04	0.00E+00
35%	6.13E-06	7.26E-02	2.89E-11	5.06E-11	4.17E-04	0.00E+00
40%	6.35E-06	7.94E-02	4.33E-11	5.50E-11	6.30E-04	0.00E+00
45%	6.57E-06	8.49E-02	6.61E-11	5.74E-11	8.97E-04	0.00E+00
50%	6.79E-06	8.96E-02	9.13E-11	5.96E-11	1.26E-03	0.00E+00

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TABLE B.33a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	6.93E-06	9.45E-02	1.37E-10	6.21E-11	1.92E-03	0.00E+00
60%	7.07E-06	9.87E-02	1.82E-10	6.45E-11	2.78E-03	0.00E+00
65%	7.21E-06	1.04E-01	2.60E-10	6.64E-11	4.07E-03	0.00E+00
70%	7.35E-06	1.10E-01	3.78E-10	6.82E-11	5.48E-03	0.00E+00
75%	7.50E-06	1.16E-01	5.58E-10	7.02E-11	8.55E-03	0.00E+00
80%	7.90E-06	1.25E-01	8.89E-10	7.22E-11	1.28E-02	0.00E+00
85%	8.31E-06	1.33E-01	1.31E-09	7.64E-11	1.92E-02	0.00E+00
90%	8.72E-06	1.44E-01	1.99E-09	8.08E-11	3.08E-02	0.00E+00
95%	9.57E-06	1.64E-01	3.04E-09	8.94E-11	5.49E-02	0.00E+00
97.5%	9.99E-06	1.81E-01	3.78E-09	9.49E-11	8.20E-02	0.00E+00
Mean	6.19E-06	8.78E-02	5.68E-10	5.42E-11	1.06E-02	0.00E+00
Minimum	5.96E-08	3.66E-04	7.53E-15	1.86E-13	2.06E-07	0.00E+00
Maximum	1.28E-05	2.31E-01	6.44E-09	1.24E-10	2.14E-01	0.00E+00

TABLE B.33b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Po-210 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.01%	79.15%	0.00%	0.00%	0.08%	0.00%
5%	0.01%	85.83%	0.00%	0.00%	0.08%	0.00%
10%	0.01%	85.87%	0.00%	0.00%	0.08%	0.00%
15%	0.01%	74.07%	0.00%	0.00%	0.11%	0.00%
20%	0.01%	78.12%	0.00%	0.00%	0.16%	0.00%
25%	0.01%	81.17%	0.00%	0.00%	0.24%	0.00%
30%	0.01%	83.21%	0.00%	0.00%	0.34%	0.00%
35%	0.01%	85.12%	0.00%	0.00%	0.49%	0.00%
40%	0.01%	88.04%	0.00%	0.00%	0.70%	0.00%
45%	0.01%	89.20%	0.00%	0.00%	0.94%	0.00%
50%	0.01%	89.74%	0.00%	0.00%	1.26%	0.00%
55%	0.01%	90.70%	0.00%	0.00%	1.84%	0.00%
60%	0.01%	89.98%	0.00%	0.00%	2.53%	0.00%
65%	0.01%	90.80%	0.00%	0.00%	3.55%	0.00%
70%	0.01%	91.00%	0.00%	0.00%	4.55%	0.00%
75%	0.01%	90.46%	0.00%	0.00%	6.66%	0.00%
80%	0.01%	92.33%	0.00%	0.00%	9.48%	0.00%
85%	0.01%	93.24%	0.00%	0.00%	13.45%	0.00%
90%	0.01%	92.91%	0.00%	0.00%	19.87%	0.00%
95%	0.01%	92.93%	0.00%	0.00%	31.16%	0.00%
97.5%	0.01%	95.12%	0.00%	0.00%	43.05%	0.00%
Mean	0.01%	89.26%	0.00%	0.00%	10.73%	0.00%
Minimum	0.01%	40.86%	0.00%	0.00%	0.02%	0.00%
Maximum	0.00%	80.41%	0.00%	0.00%	74.53%	0.00%

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TABLE B.34a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Pu-239 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.56E-05	1.75E-02	1.06E-11	6.72E-12	2.22E-07	0.00E+00
5%	2.95E-05	3.20E-02	2.05E-11	1.27E-11	4.61E-07	0.00E+00
10%	8.58E-05	9.34E-02	5.98E-11	3.70E-11	1.24E-06	0.00E+00
15%	1.41E-04	1.57E-01	1.50E-10	6.06E-11	2.94E-06	0.00E+00
20%	1.97E-04	1.96E-01	3.10E-10	8.49E-11	6.60E-06	0.00E+00
25%	2.51E-04	2.25E-01	5.77E-10	1.08E-10	1.32E-05	0.00E+00
30%	2.61E-04	2.50E-01	1.07E-09	1.13E-10	2.34E-05	0.00E+00
35%	2.71E-04	2.72E-01	2.03E-09	1.17E-10	4.34E-05	0.00E+00
40%	2.81E-04	2.86E-01	3.60E-09	1.21E-10	8.12E-05	0.00E+00
45%	2.90E-04	3.00E-01	6.54E-09	1.25E-10	1.50E-04	0.00E+00
50%	3.00E-04	3.16E-01	1.14E-08	1.29E-10	2.53E-04	0.00E+00
55%	3.06E-04	3.32E-01	2.08E-08	1.32E-10	4.33E-04	0.00E+00
60%	3.13E-04	3.47E-01	3.46E-08	1.35E-10	7.79E-04	0.00E+00
65%	3.19E-04	3.61E-01	5.74E-08	1.37E-10	1.39E-03	0.00E+00
70%	3.25E-04	3.78E-01	1.05E-07	1.40E-10	2.30E-03	0.00E+00
75%	3.31E-04	4.01E-01	1.94E-07	1.43E-10	4.39E-03	0.00E+00
80%	3.49E-04	4.22E-01	3.90E-07	1.51E-10	8.80E-03	0.00E+00
85%	3.67E-04	4.46E-01	7.22E-07	1.58E-10	1.67E-02	0.00E+00
90%	3.86E-04	4.86E-01	1.66E-06	1.66E-10	4.21E-02	0.00E+00
95%	4.23E-04	5.44E-01	4.46E-06	1.82E-10	1.22E-01	0.00E+00
97.5%	4.42E-04	5.90E-01	1.05E-05	1.91E-10	3.00E-01	0.00E+00
Mean	2.74E-04	3.09E-01	1.03E-06	1.18E-10	2.92E-02	0.00E+00
Minimum	2.64E-06	2.84E-03	2.23E-13	1.13E-12	9.40E-09	0.00E+00
Maximum	5.65E-04	7.46E-01	7.02E-05	2.43E-10	2.73E+00	0.00E+00

TABLE B.34b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Pu-239 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.08%	91.85%	0.00%	0.00%	0.00%	0.00%
5%	0.08%	88.83%	0.00%	0.00%	0.00%	0.00%
10%	0.09%	94.03%	0.00%	0.00%	0.00%	0.00%
15%	0.09%	96.79%	0.00%	0.00%	0.00%	0.00%
20%	0.10%	95.89%	0.00%	0.00%	0.00%	0.00%
25%	0.11%	96.00%	0.00%	0.00%	0.01%	0.00%
30%	0.10%	94.92%	0.00%	0.00%	0.01%	0.00%
35%	0.10%	96.75%	0.00%	0.00%	0.02%	0.00%
40%	0.09%	95.92%	0.00%	0.00%	0.03%	0.00%
45%	0.09%	95.72%	0.00%	0.00%	0.05%	0.00%
50%	0.09%	96.40%	0.00%	0.00%	0.08%	0.00%

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TABLE B.34b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	0.09%	96.51%	0.00%	0.00%	0.13%	0.00%
60%	0.09%	96.31%	0.00%	0.00%	0.22%	0.00%
65%	0.08%	95.15%	0.00%	0.00%	0.37%	0.00%
70%	0.08%	93.85%	0.00%	0.00%	0.57%	0.00%
75%	0.08%	94.59%	0.00%	0.00%	1.04%	0.00%
80%	0.08%	93.86%	0.00%	0.00%	1.96%	0.00%
85%	0.08%	92.37%	0.00%	0.00%	3.46%	0.00%
90%	0.07%	92.25%	0.00%	0.00%	7.99%	0.00%
95%	0.07%	87.80%	0.00%	0.00%	19.67%	0.00%
97.5%	0.06%	82.38%	0.00%	0.00%	41.89%	0.00%
Mean	0.08%	91.30%	0.00%	0.00%	8.61%	0.00%
Minimum	0.09%	99.86%	0.00%	0.00%	0.00%	0.00%
Maximum	0.02%	24.33%	0.00%	0.00%	88.94%	0.00%

**TABLE B.35a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Ra-226 Contamination in the Small Office
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.48E-01	6.58E-02	1.61E-07	1.61E-06	2.58E-06	1.77E-03
5%	2.80E-01	1.20E-01	3.09E-07	3.05E-06	5.36E-06	3.27E-03
10%	8.15E-01	3.51E-01	9.02E-07	8.87E-06	1.44E-05	9.83E-03
15%	1.33E+00	5.90E-01	2.26E-06	1.45E-05	3.42E-05	1.57E-02
20%	1.87E+00	7.38E-01	4.68E-06	2.03E-05	7.67E-05	1.99E-02
25%	2.39E+00	8.44E-01	8.71E-06	2.59E-05	1.53E-04	2.33E-02
30%	2.48E+00	9.34E-01	1.61E-05	2.70E-05	2.72E-04	2.61E-02
35%	2.57E+00	1.02E+00	3.07E-05	2.80E-05	5.05E-04	2.88E-02
40%	2.67E+00	1.07E+00	5.43E-05	2.89E-05	9.42E-04	3.14E-02
45%	2.76E+00	1.13E+00	9.87E-05	3.00E-05	1.75E-03	3.34E-02
50%	2.85E+00	1.19E+00	1.73E-04	3.09E-05	2.90E-03	3.49E-02
55%	2.91E+00	1.25E+00	3.15E-04	3.17E-05	5.03E-03	3.63E-02
60%	2.97E+00	1.31E+00	5.19E-04	3.23E-05	9.01E-03	3.78E-02
65%	3.03E+00	1.36E+00	8.66E-04	3.29E-05	1.58E-02	3.92E-02
70%	3.09E+00	1.42E+00	1.57E-03	3.36E-05	2.63E-02	4.05E-02
75%	3.15E+00	1.50E+00	2.90E-03	3.42E-05	5.04E-02	4.19E-02
80%	3.32E+00	1.59E+00	5.75E-03	3.61E-05	1.01E-01	4.31E-02
85%	3.49E+00	1.68E+00	1.06E-02	3.80E-05	1.91E-01	4.50E-02
90%	3.66E+00	1.83E+00	2.46E-02	3.98E-05	4.71E-01	4.83E-02
95%	4.02E+00	2.05E+00	6.68E-02	4.37E-05	1.36E+00	5.29E-02
97.5%	4.19E+00	2.22E+00	1.55E-01	4.57E-05	3.32E+00	5.68E-02
Mean	2.60E+00	1.16E+00	1.49E-02	2.83E-05	3.17E-01	3.22E-02
Minimum	2.50E-02	1.07E-02	3.37E-09	2.54E-07	1.09E-07	1.72E-04
Maximum	5.36E+00	2.81E+00	9.39E-01	5.84E-05	2.72E+01	7.57E-02

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TABLE B.35b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Ra-226 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	62.94%	27.97%	0.00%	0.00%	0.00%	0.75%
5%	60.85%	26.08%	0.00%	0.00%	0.00%	0.71%
10%	66.34%	28.58%	0.00%	0.00%	0.00%	0.80%
15%	65.90%	29.11%	0.00%	0.00%	0.00%	0.77%
20%	65.96%	26.07%	0.00%	0.00%	0.00%	0.70%
25%	70.50%	24.93%	0.00%	0.00%	0.00%	0.69%
30%	67.83%	25.52%	0.00%	0.00%	0.01%	0.71%
35%	67.44%	26.81%	0.00%	0.00%	0.01%	0.76%
40%	67.53%	27.16%	0.00%	0.00%	0.02%	0.79%
45%	67.80%	27.78%	0.00%	0.00%	0.04%	0.82%
50%	67.76%	28.23%	0.00%	0.00%	0.07%	0.83%
55%	67.04%	28.76%	0.01%	0.00%	0.12%	0.84%
60%	66.30%	29.16%	0.01%	0.00%	0.20%	0.85%
65%	65.63%	29.43%	0.02%	0.00%	0.34%	0.85%
70%	65.05%	29.91%	0.03%	0.00%	0.55%	0.85%
75%	63.63%	30.40%	0.06%	0.00%	1.02%	0.85%
80%	64.11%	30.67%	0.11%	0.00%	1.94%	0.83%
85%	63.56%	30.55%	0.19%	0.00%	3.48%	0.82%
90%	61.92%	30.94%	0.42%	0.00%	7.97%	0.82%
95%	59.18%	30.17%	0.98%	0.00%	20.01%	0.78%
97.5%	51.31%	27.16%	1.89%	0.00%	40.65%	0.69%
Mean	63.01%	28.16%	0.36%	0.00%	7.69%	0.78%
Minimum	63.73%	27.22%	0.00%	0.00%	0.00%	0.44%
Maximum	16.68%	8.73%	2.92%	0.00%	84.66%	0.24%

TABLE B.36a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from S-35 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	6.13E-05	1.55E-04	6.23E-11	1.54E-09	2.08E-07	0.00E+00
5%	1.16E-04	3.37E-04	1.17E-10	3.42E-09	4.09E-07	0.00E+00
10%	3.37E-04	8.40E-04	3.04E-10	9.34E-09	1.04E-06	0.00E+00
15%	5.53E-04	1.26E-03	7.01E-10	1.30E-08	2.08E-06	0.00E+00
20%	7.74E-04	1.66E-03	1.25E-09	1.71E-08	4.04E-06	0.00E+00
25%	9.89E-04	2.02E-03	2.05E-09	2.12E-08	6.64E-06	0.00E+00
30%	1.03E-03	2.28E-03	2.86E-09	2.52E-08	1.01E-05	0.00E+00
35%	1.07E-03	2.55E-03	4.16E-09	2.82E-08	1.56E-05	0.00E+00
40%	1.10E-03	2.79E-03	6.28E-09	3.09E-08	2.19E-05	0.00E+00
45%	1.14E-03	2.99E-03	9.15E-09	3.26E-08	3.12E-05	0.00E+00
50%	1.18E-03	3.14E-03	1.35E-08	3.35E-08	4.35E-05	0.00E+00

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TABLE B.36a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	1.20E-03	3.33E-03	1.83E-08	3.50E-08	6.63E-05	0.00E+00
60%	1.23E-03	3.49E-03	2.57E-08	3.63E-08	9.55E-05	0.00E+00
65%	1.25E-03	3.67E-03	3.55E-08	3.76E-08	1.37E-04	0.00E+00
70%	1.28E-03	3.89E-03	5.21E-08	3.86E-08	1.92E-04	0.00E+00
75%	1.30E-03	4.10E-03	7.57E-08	3.96E-08	2.72E-04	0.00E+00
80%	1.37E-03	4.38E-03	1.12E-07	4.08E-08	3.98E-04	0.00E+00
85%	1.44E-03	4.72E-03	1.65E-07	4.31E-08	6.07E-04	0.00E+00
90%	1.52E-03	5.07E-03	2.48E-07	4.58E-08	9.82E-04	0.00E+00
95%	1.66E-03	5.82E-03	3.67E-07	5.05E-08	1.70E-03	0.00E+00
97.5%	1.74E-03	6.41E-03	4.42E-07	5.38E-08	2.47E-03	0.00E+00
Mean	1.08E-03	3.09E-03	7.06E-08	3.05E-08	3.25E-04	0.00E+00
Minimum	1.04E-05	1.30E-05	1.37E-12	1.05E-10	9.33E-09	0.00E+00
Maximum	2.22E-03	8.21E-03	7.46E-07	7.07E-08	6.24E-03	0.00E+00

TABLE B.36b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from S-35 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	23.54%	59.53%	0.00%	0.00%	0.08%	0.00%
5%	23.87%	69.27%	0.00%	0.00%	0.08%	0.00%
10%	24.95%	62.12%	0.00%	0.00%	0.08%	0.00%
15%	24.41%	55.59%	0.00%	0.00%	0.09%	0.00%
20%	26.22%	56.22%	0.00%	0.00%	0.14%	0.00%
25%	28.76%	58.69%	0.00%	0.00%	0.19%	0.00%
30%	26.82%	59.40%	0.00%	0.00%	0.26%	0.00%
35%	26.00%	62.19%	0.00%	0.00%	0.38%	0.00%
40%	25.77%	64.99%	0.00%	0.00%	0.51%	0.00%
45%	25.47%	66.64%	0.00%	0.00%	0.70%	0.00%
50%	25.31%	67.27%	0.00%	0.00%	0.93%	0.00%
55%	24.76%	68.33%	0.00%	0.00%	1.36%	0.00%
60%	24.21%	68.70%	0.00%	0.00%	1.88%	0.00%
65%	23.83%	69.74%	0.00%	0.00%	2.59%	0.00%
70%	23.27%	70.79%	0.00%	0.00%	3.50%	0.00%
75%	22.64%	71.20%	0.00%	0.00%	4.73%	0.00%
80%	22.81%	72.67%	0.00%	0.00%	6.60%	0.00%
85%	22.83%	74.62%	0.00%	0.00%	9.59%	0.00%
90%	22.27%	74.48%	0.00%	0.00%	14.42%	0.00%
95%	21.98%	76.85%	0.00%	0.00%	22.43%	0.00%
97.5%	20.92%	77.22%	0.01%	0.00%	29.78%	0.00%
Mean	23.96%	68.80%	0.00%	0.00%	7.24%	0.00%
Minimum	23.28%	29.16%	0.00%	0.00%	0.02%	0.00%
Maximum	20.77%	76.80%	0.01%	0.00%	58.31%	0.00%

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TABLE B.37a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Sr-90 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	5.51E-03	4.05E-04	5.97E-09	1.57E-08	2.68E-07	0.00E+00
5%	1.04E-02	7.76E-04	1.15E-08	3.21E-08	5.59E-07	0.00E+00
10%	3.03E-02	2.18E-03	3.35E-08	9.02E-08	1.50E-06	0.00E+00
15%	4.97E-02	3.52E-03	8.41E-08	1.44E-07	3.54E-06	0.00E+00
20%	6.96E-02	4.47E-03	1.73E-07	1.92E-07	8.00E-06	0.00E+00
25%	8.89E-02	5.10E-03	3.23E-07	2.39E-07	1.58E-05	0.00E+00
30%	9.24E-02	5.72E-03	5.89E-07	2.72E-07	2.81E-05	0.00E+00
35%	9.58E-02	6.32E-03	1.13E-06	2.84E-07	5.26E-05	0.00E+00
40%	9.93E-02	6.68E-03	1.98E-06	2.94E-07	9.39E-05	0.00E+00
45%	1.03E-01	7.08E-03	3.53E-06	3.05E-07	1.70E-04	0.00E+00
50%	1.06E-01	7.48E-03	6.23E-06	3.17E-07	2.89E-04	0.00E+00
55%	1.08E-01	7.85E-03	1.03E-05	3.26E-07	4.74E-04	0.00E+00
60%	1.11E-01	8.22E-03	1.62E-05	3.33E-07	7.64E-04	0.00E+00
65%	1.13E-01	8.57E-03	2.59E-05	3.41E-07	1.24E-03	0.00E+00
70%	1.15E-01	8.93E-03	4.56E-05	3.49E-07	2.10E-03	0.00E+00
75%	1.17E-01	9.49E-03	7.96E-05	3.57E-07	3.84E-03	0.00E+00
80%	1.24E-01	1.01E-02	1.39E-04	3.73E-07	7.77E-03	0.00E+00
85%	1.30E-01	1.07E-02	2.74E-04	3.93E-07	1.37E-02	0.00E+00
90%	1.36E-01	1.17E-02	5.34E-04	4.12E-07	2.99E-02	0.00E+00
95%	1.50E-01	1.30E-02	1.33E-03	4.54E-07	6.63E-02	0.00E+00
97.5%	1.56E-01	1.42E-02	2.27E-03	4.78E-07	1.52E-01	0.00E+00
Mean	9.68E-02	7.30E-03	2.12E-04	2.89E-07	1.31E-02	0.00E+00
Minimum	9.32E-04	3.63E-05	1.25E-10	1.18E-09	1.14E-08	0.00E+00
Maximum	2.00E-01	1.80E-02	5.34E-03	6.14E-07	5.06E-01	0.00E+00

TABLE B.37b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Sr-90 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	80.42%	5.91%	0.00%	0.00%	0.00%	0.00%
5%	82.78%	6.15%	0.00%	0.00%	0.00%	0.00%
10%	89.52%	6.43%	0.00%	0.00%	0.00%	0.00%
15%	87.60%	6.20%	0.00%	0.00%	0.01%	0.00%
20%	86.46%	5.55%	0.00%	0.00%	0.01%	0.00%
25%	91.45%	5.25%	0.00%	0.00%	0.02%	0.00%
30%	90.32%	5.59%	0.00%	0.00%	0.03%	0.00%
35%	88.95%	5.87%	0.00%	0.00%	0.05%	0.00%
40%	88.90%	5.98%	0.00%	0.00%	0.08%	0.00%
45%	89.01%	6.14%	0.00%	0.00%	0.15%	0.00%
50%	89.75%	6.33%	0.01%	0.00%	0.24%	0.00%

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TABLE B.37b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	89.09%	6.46%	0.01%	0.00%	0.39%	0.00%
60%	89.10%	6.63%	0.01%	0.00%	0.62%	0.00%
65%	88.43%	6.72%	0.02%	0.00%	0.98%	0.00%
70%	86.29%	6.71%	0.03%	0.00%	1.57%	0.00%
75%	84.59%	6.85%	0.06%	0.00%	2.77%	0.00%
80%	84.98%	6.93%	0.10%	0.00%	5.35%	0.00%
85%	82.71%	6.82%	0.17%	0.00%	8.74%	0.00%
90%	81.57%	6.99%	0.32%	0.00%	17.89%	0.00%
95%	74.83%	6.51%	0.66%	0.00%	33.16%	0.00%
97.5%	57.82%	5.27%	0.84%	0.00%	56.41%	0.00%
Mean	82.46%	6.21%	0.18%	0.00%	11.15%	0.00%
Minimum	83.99%	3.27%	0.00%	0.00%	0.00%	0.00%
Maximum	31.88%	2.87%	0.85%	0.00%	80.86%	0.00%

**TABLE B.38a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Tc-99 Contamination in the Small Office
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	6.16E-05	1.75E-04	6.83E-11	5.52E-09	5.68E-08	0.00E+00
5%	1.17E-04	3.20E-04	1.31E-10	1.05E-08	1.18E-07	0.00E+00
10%	3.39E-04	9.34E-04	3.84E-10	3.04E-08	3.16E-07	0.00E+00
15%	5.56E-04	1.57E-03	9.63E-10	4.98E-08	7.53E-07	0.00E+00
20%	7.78E-04	1.96E-03	1.99E-09	6.97E-08	1.69E-06	0.00E+00
25%	9.94E-04	2.25E-03	3.71E-09	8.90E-08	3.37E-06	0.00E+00
30%	1.03E-03	2.50E-03	6.85E-09	9.26E-08	6.00E-06	0.00E+00
35%	1.07E-03	2.72E-03	1.31E-08	9.59E-08	1.11E-05	0.00E+00
40%	1.11E-03	2.86E-03	2.31E-08	9.94E-08	2.08E-05	0.00E+00
45%	1.15E-03	3.00E-03	4.20E-08	1.03E-07	3.85E-05	0.00E+00
50%	1.19E-03	3.16E-03	7.34E-08	1.06E-07	6.49E-05	0.00E+00
55%	1.21E-03	3.32E-03	1.34E-07	1.08E-07	1.11E-04	0.00E+00
60%	1.24E-03	3.47E-03	2.22E-07	1.11E-07	1.99E-04	0.00E+00
65%	1.26E-03	3.61E-03	3.69E-07	1.13E-07	3.55E-04	0.00E+00
70%	1.29E-03	3.78E-03	6.77E-07	1.15E-07	5.89E-04	0.00E+00
75%	1.31E-03	4.01E-03	1.24E-06	1.17E-07	1.12E-03	0.00E+00
80%	1.38E-03	4.22E-03	2.51E-06	1.24E-07	2.26E-03	0.00E+00
85%	1.45E-03	4.46E-03	4.64E-06	1.30E-07	4.28E-03	0.00E+00
90%	1.52E-03	4.86E-03	1.07E-05	1.37E-07	1.08E-02	0.00E+00
95%	1.67E-03	5.44E-03	2.87E-05	1.50E-07	3.13E-02	0.00E+00
97.5%	1.75E-03	5.90E-03	6.73E-05	1.56E-07	7.69E-02	0.00E+00
Mean	1.08E-03	3.09E-03	6.63E-06	9.70E-08	7.49E-03	0.00E+00
Minimum	1.04E-05	2.84E-05	1.43E-12	9.33E-10	2.41E-09	0.00E+00
Maximum	2.23E-03	7.46E-03	4.54E-04	2.00E-07	7.04E-01	0.00E+00

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TABLE B.38b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Tc-99 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	20.51%	58.25%	0.00%	0.00%	0.02%	0.00%
5%	17.70%	48.45%	0.00%	0.00%	0.02%	0.00%
10%	21.55%	59.37%	0.00%	0.00%	0.02%	0.00%
15%	21.70%	61.19%	0.00%	0.00%	0.03%	0.00%
20%	24.19%	61.04%	0.00%	0.00%	0.05%	0.00%
25%	26.41%	59.72%	0.00%	0.00%	0.09%	0.00%
30%	25.41%	61.54%	0.00%	0.00%	0.15%	0.00%
35%	24.97%	63.43%	0.00%	0.00%	0.26%	0.00%
40%	24.59%	63.37%	0.00%	0.00%	0.46%	0.00%
45%	24.27%	63.51%	0.00%	0.00%	0.81%	0.00%
50%	23.89%	63.64%	0.00%	0.00%	1.31%	0.00%
55%	23.12%	63.41%	0.00%	0.00%	2.12%	0.00%
60%	22.32%	62.77%	0.00%	0.00%	3.60%	0.00%
65%	21.38%	61.34%	0.01%	0.00%	6.02%	0.00%
70%	20.66%	60.78%	0.01%	0.00%	9.46%	0.00%
75%	19.55%	59.87%	0.02%	0.00%	16.79%	0.00%
80%	18.15%	55.43%	0.03%	0.00%	29.64%	0.00%
85%	15.60%	47.99%	0.05%	0.00%	46.04%	0.00%
90%	10.15%	32.37%	0.07%	0.00%	71.81%	0.00%
95%	4.50%	14.66%	0.08%	0.00%	84.31%	0.00%
97.5%	2.13%	7.20%	0.08%	0.00%	93.73%	0.00%
Mean	9.27%	26.50%	0.06%	0.00%	64.17%	0.00%
Minimum	24.61%	67.08%	0.00%	0.00%	0.01%	0.00%
Maximum	0.31%	1.05%	0.06%	0.00%	99.29%	0.00%

TABLE B.39a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from U-238 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.08E-02	3.12E-02	1.17E-08	3.45E-08	4.30E-07	7.15E-19
5%	2.05E-02	5.70E-02	2.25E-08	6.53E-08	8.92E-07	1.32E-18
10%	5.95E-02	1.67E-01	6.57E-08	1.90E-07	2.39E-06	3.97E-18
15%	9.74E-02	2.79E-01	1.65E-07	3.11E-07	5.70E-06	6.33E-18
20%	1.36E-01	3.50E-01	3.41E-07	4.35E-07	1.28E-05	8.04E-18
25%	1.74E-01	4.01E-01	6.35E-07	5.56E-07	2.55E-05	9.40E-18
30%	1.81E-01	4.46E-01	1.17E-06	5.78E-07	4.54E-05	1.05E-17
35%	1.88E-01	4.85E-01	2.24E-06	5.99E-07	8.41E-05	1.16E-17
40%	1.95E-01	5.10E-01	3.96E-06	6.21E-07	1.57E-04	1.26E-17
45%	2.01E-01	5.36E-01	7.19E-06	6.42E-07	2.91E-04	1.35E-17
50%	2.08E-01	5.63E-01	1.26E-05	6.64E-07	4.91E-04	1.41E-17
55%	2.12E-01	5.92E-01	2.29E-05	6.77E-07	8.39E-04	1.46E-17

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TABLE B.39a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
60%	2.17E-01	6.19E-01	3.81E-05	6.91E-07	1.51E-03	1.53E-17
65%	2.21E-01	6.44E-01	6.32E-05	7.05E-07	2.68E-03	1.58E-17
70%	2.25E-01	6.74E-01	1.16E-04	7.19E-07	4.45E-03	1.64E-17
75%	2.30E-01	7.15E-01	2.13E-04	7.33E-07	8.51E-03	1.69E-17
80%	2.42E-01	7.52E-01	4.29E-04	7.72E-07	1.71E-02	1.74E-17
85%	2.55E-01	7.96E-01	7.95E-04	8.12E-07	3.24E-02	1.82E-17
90%	2.67E-01	8.67E-01	1.83E-03	8.53E-07	8.16E-02	1.95E-17
95%	2.93E-01	9.71E-01	4.91E-03	9.35E-07	2.37E-01	2.13E-17
97.5%	3.06E-01	1.05E+00	1.15E-02	9.77E-07	5.81E-01	2.29E-17
Mean	1.90E-01	5.51E-01	1.14E-03	6.05E-07	5.67E-02	1.30E-17
Minimum	1.83E-03	5.06E-03	2.46E-10	5.83E-09	1.82E-08	6.93E-20
Maximum	3.91E-01	1.33E+00	7.79E-02	1.25E-06	5.33E+00	3.05E-17

TABLE B.39b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from U-238 Contamination in the Small Office Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	24.19%	69.84%	0.00%	0.00%	0.00%	0.00%
5%	24.13%	67.14%	0.00%	0.00%	0.00%	0.00%
10%	24.73%	69.29%	0.00%	0.00%	0.00%	0.00%
15%	24.82%	71.19%	0.00%	0.00%	0.00%	0.00%
20%	26.37%	67.67%	0.00%	0.00%	0.00%	0.00%
25%	29.01%	66.70%	0.00%	0.00%	0.00%	0.00%
30%	27.35%	67.33%	0.00%	0.00%	0.01%	0.00%
35%	26.88%	69.44%	0.00%	0.00%	0.01%	0.00%
40%	26.41%	69.19%	0.00%	0.00%	0.02%	0.00%
45%	26.33%	70.08%	0.00%	0.00%	0.04%	0.00%
50%	26.06%	70.58%	0.00%	0.00%	0.06%	0.00%
55%	25.58%	71.38%	0.00%	0.00%	0.10%	0.00%
60%	25.11%	71.80%	0.00%	0.00%	0.17%	0.00%
65%	24.38%	71.10%	0.01%	0.00%	0.30%	0.00%
70%	23.74%	71.00%	0.01%	0.00%	0.47%	0.00%
75%	23.20%	72.23%	0.02%	0.00%	0.86%	0.00%
80%	23.31%	72.42%	0.04%	0.00%	1.64%	0.00%
85%	23.11%	72.29%	0.07%	0.00%	2.94%	0.00%
90%	22.10%	71.71%	0.15%	0.00%	6.75%	0.00%
95%	20.92%	69.24%	0.35%	0.00%	16.89%	0.00%
97.5%	19.34%	66.46%	0.73%	0.00%	36.73%	0.00%
Mean	23.75%	69.02%	0.14%	0.00%	7.09%	0.00%
Minimum	25.10%	69.55%	0.00%	0.00%	0.00%	0.00%
Maximum	6.29%	21.39%	1.25%	0.00%	85.69%	0.00%

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Tables B.40a–B.52a include the individual pathway dose percentiles and individual pathway mean dose levels received by a worker from an individual radionuclide for the warehouse desk scenario. All pathway dose percentiles for the warehouse desk scenario are listed in Table 8. Note that the sum of “individual pathway dose” at different percentiles may not add up to the “all pathway dose” at that percentile. In general, at the minimum percentile, the “all pathway dose” would be HIGHER than the sum of the “individual pathway dose,” and at the maximum percentile, the “all pathway dose” would be LOWER than the sum of the “individual pathway dose.” Tables B.40b–B.52b include the relative contribution of “individual pathway doses” to the “all pathway dose” at different percentiles.

TABLE B.40a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Am-241 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.42E-04	7.06E-04	3.24E-11	5.14E-11	7.01E-09	0.00E+00
5%	6.47E-04	1.32E-03	6.23E-11	9.74E-11	1.45E-08	0.00E+00
10%	1.88E-03	3.71E-03	1.82E-10	2.83E-10	3.90E-08	0.00E+00
15%	3.08E-03	6.18E-03	4.56E-10	4.58E-10	9.28E-08	0.00E+00
20%	4.31E-03	7.74E-03	9.44E-10	6.48E-10	2.08E-07	0.00E+00
25%	5.51E-03	8.77E-03	1.76E-09	8.06E-10	4.15E-07	0.00E+00
30%	5.73E-03	9.90E-03	3.25E-09	8.55E-10	7.39E-07	0.00E+00
35%	5.94E-03	1.08E-02	6.19E-09	8.88E-10	1.37E-06	0.00E+00
40%	6.15E-03	1.16E-02	1.09E-08	9.19E-10	2.54E-06	0.00E+00
45%	6.37E-03	1.23E-02	1.99E-08	9.51E-10	4.74E-06	0.00E+00
50%	6.58E-03	1.30E-02	3.47E-08	9.82E-10	7.87E-06	0.00E+00
55%	6.71E-03	1.37E-02	6.34E-08	1.01E-09	1.35E-05	0.00E+00
60%	6.85E-03	1.43E-02	1.05E-07	1.03E-09	2.44E-05	0.00E+00
65%	6.99E-03	1.49E-02	1.73E-07	1.05E-09	4.25E-05	0.00E+00
70%	7.13E-03	1.56E-02	3.11E-07	1.07E-09	6.99E-05	0.00E+00
75%	7.26E-03	1.65E-02	5.76E-07	1.09E-09	1.36E-04	0.00E+00
80%	7.66E-03	1.74E-02	1.12E-06	1.15E-09	2.72E-04	0.00E+00
85%	8.05E-03	1.84E-02	2.09E-06	1.21E-09	5.14E-04	0.00E+00
90%	8.45E-03	2.00E-02	4.70E-06	1.27E-09	1.19E-03	0.00E+00
95%	9.27E-03	2.23E-02	1.31E-05	1.39E-09	3.54E-03	0.00E+00
97.5%	9.68E-03	2.42E-02	2.85E-05	1.46E-09	8.61E-03	0.00E+00
Mean	6.00E-03	1.26E-02	2.70E-06	8.99E-10	7.94E-04	0.00E+00
Minimum	5.78E-05	1.08E-04	6.80E-13	6.96E-12	2.96E-10	0.00E+00
Maximum	1.24E-02	3.08E-02	1.43E-04	1.86E-09	5.77E-02	0.00E+00

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TABLE B.40b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Am-241 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	30.91%	63.90%	0.00%	0.00%	0.00%	0.00%
5%	30.13%	61.24%	0.00%	0.00%	0.00%	0.00%
10%	32.76%	64.62%	0.00%	0.00%	0.00%	0.00%
15%	30.94%	62.04%	0.00%	0.00%	0.00%	0.00%
20%	33.49%	60.09%	0.00%	0.00%	0.00%	0.00%
25%	37.13%	59.12%	0.00%	0.00%	0.00%	0.00%
30%	34.65%	59.89%	0.00%	0.00%	0.00%	0.00%
35%	33.75%	61.48%	0.00%	0.00%	0.01%	0.00%
40%	33.28%	62.86%	0.00%	0.00%	0.01%	0.00%
45%	32.98%	63.83%	0.00%	0.00%	0.02%	0.00%
50%	32.78%	64.78%	0.00%	0.00%	0.04%	0.00%
55%	32.13%	65.33%	0.00%	0.00%	0.06%	0.00%
60%	31.50%	65.92%	0.00%	0.00%	0.11%	0.00%
65%	30.83%	65.75%	0.00%	0.00%	0.19%	0.00%
70%	30.23%	66.31%	0.00%	0.00%	0.30%	0.00%
75%	29.55%	67.09%	0.00%	0.00%	0.55%	0.00%
80%	30.08%	68.54%	0.00%	0.00%	1.07%	0.00%
85%	29.84%	68.10%	0.01%	0.00%	1.90%	0.00%
90%	28.70%	68.01%	0.02%	0.00%	4.04%	0.00%
95%	28.11%	67.67%	0.04%	0.00%	10.72%	0.00%
97.5%	26.81%	66.92%	0.08%	0.00%	23.84%	0.00%
Mean	30.92%	64.98%	0.01%	0.00%	4.09%	0.00%
Minimum	31.16%	58.19%	0.00%	0.00%	0.00%	0.00%
Maximum	16.43%	40.91%	0.19%	0.00%	76.54%	0.00%

TABLE B.41a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from C-14 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.65E-05	1.52E-06	1.90E-12	1.98E-11	2.03E-09	0.00E+00
5%	3.12E-05	2.83E-06	3.65E-12	3.75E-11	4.22E-09	0.00E+00
10%	9.07E-05	7.98E-06	1.07E-11	1.09E-10	1.13E-08	0.00E+00
15%	1.49E-04	1.35E-05	2.67E-11	1.78E-10	2.69E-08	0.00E+00
20%	2.08E-04	1.67E-05	5.53E-11	2.50E-10	6.04E-08	0.00E+00
25%	2.66E-04	1.89E-05	1.03E-10	3.19E-10	1.21E-07	0.00E+00
30%	2.76E-04	2.14E-05	1.90E-10	3.31E-10	2.15E-07	0.00E+00
35%	2.86E-04	2.34E-05	3.63E-10	3.43E-10	3.98E-07	0.00E+00
40%	2.97E-04	2.52E-05	6.42E-10	3.56E-10	7.43E-07	0.00E+00
45%	3.07E-04	2.66E-05	1.17E-09	3.68E-10	1.38E-06	0.00E+00
50%	3.17E-04	2.80E-05	2.04E-09	3.81E-10	2.32E-06	0.00E+00

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TABLE B.41a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	3.24E-04	2.95E-05	3.72E-09	3.88E-10	3.96E-06	0.00E+00
60%	3.30E-04	3.09E-05	6.17E-09	3.97E-10	7.13E-06	0.00E+00
65%	3.37E-04	3.22E-05	1.02E-08	4.04E-10	1.27E-05	0.00E+00
70%	3.43E-04	3.39E-05	1.87E-08	4.12E-10	2.10E-05	0.00E+00
75%	3.50E-04	3.55E-05	3.45E-08	4.20E-10	4.02E-05	0.00E+00
80%	3.69E-04	3.76E-05	6.94E-08	4.43E-10	8.04E-05	0.00E+00
85%	3.88E-04	3.96E-05	1.28E-07	4.66E-10	1.53E-04	0.00E+00
90%	4.07E-04	4.31E-05	2.95E-07	4.89E-10	3.85E-04	0.00E+00
95%	4.47E-04	4.82E-05	7.93E-07	5.37E-10	1.11E-03	0.00E+00
97.5%	4.67E-04	5.20E-05	1.86E-06	5.60E-10	2.74E-03	0.00E+00
Mean	2.89E-04	2.72E-05	1.82E-07	3.47E-10	2.65E-04	0.00E+00
Minimum	2.79E-06	2.32E-07	3.98E-14	3.28E-12	8.61E-11	0.00E+00
Maximum	5.97E-04	6.63E-05	1.22E-05	7.16E-10	2.43E-02	0.00E+00

TABLE B.41b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from C-14 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	74.59%	6.88%	0.00%	0.00%	0.01%	0.00%
5%	66.91%	6.06%	0.00%	0.00%	0.01%	0.00%
10%	84.30%	7.42%	0.00%	0.00%	0.01%	0.00%
15%	80.97%	7.36%	0.00%	0.00%	0.01%	0.00%
20%	79.65%	6.39%	0.00%	0.00%	0.02%	0.00%
25%	88.19%	6.29%	0.00%	0.00%	0.04%	0.00%
30%	86.57%	6.71%	0.00%	0.00%	0.07%	0.00%
35%	85.49%	7.00%	0.00%	0.00%	0.12%	0.00%
40%	85.48%	7.26%	0.00%	0.00%	0.21%	0.00%
45%	85.47%	7.42%	0.00%	0.00%	0.38%	0.00%
50%	85.47%	7.56%	0.00%	0.00%	0.62%	0.00%
55%	84.95%	7.75%	0.00%	0.00%	1.04%	0.00%
60%	83.56%	7.82%	0.00%	0.00%	1.80%	0.00%
65%	81.89%	7.82%	0.00%	0.00%	3.09%	0.00%
70%	80.10%	7.91%	0.00%	0.00%	4.90%	0.00%
75%	76.75%	7.78%	0.01%	0.00%	8.81%	0.00%
80%	74.78%	7.63%	0.01%	0.00%	16.30%	0.00%
85%	70.56%	7.20%	0.02%	0.00%	27.78%	0.00%
90%	55.01%	5.82%	0.04%	0.00%	52.00%	0.00%
95%	30.06%	3.25%	0.05%	0.00%	74.51%	0.00%
97.5%	15.08%	1.68%	0.06%	0.00%	88.66%	0.00%
Mean	49.77%	4.69%	0.03%	0.00%	45.52%	0.00%
Minimum	81.97%	6.83%	0.00%	0.00%	0.00%	0.00%
Maximum	2.42%	0.27%	0.05%	0.00%	98.56%	0.00%

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TABLE B.42a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Co-60 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.91E-01	3.52E-06	1.81E-08	7.68E-08	1.11E-09	0.00E+00
5%	3.62E-01	7.74E-06	3.49E-08	1.49E-07	2.31E-09	0.00E+00
10%	1.05E+00	2.02E-05	9.89E-08	4.43E-07	6.09E-09	0.00E+00
15%	1.72E+00	3.08E-05	2.51E-07	6.57E-07	1.40E-08	0.00E+00
20%	2.41E+00	3.93E-05	5.22E-07	8.49E-07	3.24E-08	0.00E+00
25%	3.08E+00	4.68E-05	9.60E-07	1.07E-06	6.30E-08	0.00E+00
30%	3.20E+00	5.29E-05	1.73E-06	1.26E-06	1.10E-07	0.00E+00
35%	3.32E+00	5.87E-05	3.30E-06	1.38E-06	2.08E-07	0.00E+00
40%	3.44E+00	6.41E-05	5.42E-06	1.43E-06	3.28E-07	0.00E+00
45%	3.56E+00	6.85E-05	9.48E-06	1.48E-06	5.95E-07	0.00E+00
50%	3.67E+00	7.32E-05	1.41E-05	1.54E-06	9.27E-07	0.00E+00
55%	3.75E+00	7.70E-05	2.02E-05	1.60E-06	1.37E-06	0.00E+00
60%	3.83E+00	8.07E-05	3.24E-05	1.64E-06	2.01E-06	0.00E+00
65%	3.90E+00	8.47E-05	4.96E-05	1.68E-06	2.98E-06	0.00E+00
70%	3.98E+00	8.84E-05	8.14E-05	1.73E-06	5.09E-06	0.00E+00
75%	4.06E+00	9.36E-05	1.26E-04	1.77E-06	9.18E-06	0.00E+00
80%	4.28E+00	9.88E-05	2.26E-04	1.83E-06	1.53E-05	0.00E+00
85%	4.50E+00	1.05E-04	4.07E-04	1.94E-06	3.07E-05	0.00E+00
90%	4.72E+00	1.14E-04	6.82E-04	2.05E-06	5.05E-05	0.00E+00
95%	5.18E+00	1.29E-04	1.41E-03	2.26E-06	9.97E-05	0.00E+00
97.5%	5.41E+00	1.41E-04	2.09E-03	2.38E-06	1.88E-04	0.00E+00
Mean	3.35E+00	7.06E-05	2.24E-04	1.40E-06	1.90E-05	0.00E+00
Minimum	3.23E-02	3.01E-07	3.81E-10	4.88E-09	4.72E-11	0.00E+00
Maximum	6.91E+00	1.79E-04	4.16E-03	3.07E-06	5.32E-04	0.00E+00

TABLE B.42b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Co-60 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
5%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
20%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
25%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
30%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
35%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
40%	99.96%	0.00%	0.00%	0.00%	0.00%	0.00%
45%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%
50%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%

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TABLE B.42b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
60%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
65%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
70%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
75%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%
80%	99.94%	0.00%	0.01%	0.00%	0.00%	0.00%
85%	99.99%	0.00%	0.01%	0.00%	0.00%	0.00%
90%	100.00%	0.00%	0.01%	0.00%	0.00%	0.00%
95%	100.00%	0.00%	0.03%	0.00%	0.00%	0.00%
97.5%	100.00%	0.00%	0.04%	0.00%	0.00%	0.00%
Mean	99.99%	0.00%	0.01%	0.00%	0.00%	0.00%
Minimum	99.91%	0.00%	0.00%	0.00%	0.00%	0.00%
Maximum	100.00%	0.00%	0.06%	0.00%	0.01%	0.00%

**TABLE B.43a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Cs-137 Contamination in the Warehouse
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	4.85E-02	1.66E-06	4.64E-09	1.78E-08	4.49E-09	0.00E+00
5%	9.19E-02	3.23E-06	8.92E-09	3.63E-08	9.34E-09	0.00E+00
10%	2.67E-01	8.93E-06	2.60E-08	1.02E-07	2.51E-08	0.00E+00
15%	4.37E-01	1.45E-05	6.53E-08	1.64E-07	5.91E-08	0.00E+00
20%	6.13E-01	1.80E-05	1.34E-07	2.19E-07	1.34E-07	0.00E+00
25%	7.83E-01	2.05E-05	2.51E-07	2.72E-07	2.64E-07	0.00E+00
30%	8.14E-01	2.30E-05	4.57E-07	3.09E-07	4.70E-07	0.00E+00
35%	8.43E-01	2.56E-05	8.81E-07	3.21E-07	8.80E-07	0.00E+00
40%	8.74E-01	2.76E-05	1.54E-06	3.33E-07	1.57E-06	0.00E+00
45%	9.04E-01	2.94E-05	2.74E-06	3.45E-07	2.88E-06	0.00E+00
50%	9.34E-01	3.10E-05	4.84E-06	3.59E-07	4.84E-06	0.00E+00
55%	9.54E-01	3.27E-05	8.00E-06	3.69E-07	7.95E-06	0.00E+00
60%	9.73E-01	3.44E-05	1.26E-05	3.77E-07	1.28E-05	0.00E+00
65%	9.92E-01	3.59E-05	2.02E-05	3.86E-07	2.10E-05	0.00E+00
70%	1.01E+00	3.75E-05	3.55E-05	3.95E-07	3.53E-05	0.00E+00
75%	1.03E+00	3.98E-05	6.31E-05	4.03E-07	6.49E-05	0.00E+00
80%	1.09E+00	4.23E-05	1.08E-04	4.22E-07	1.32E-04	0.00E+00
85%	1.14E+00	4.45E-05	2.15E-04	4.45E-07	2.31E-04	0.00E+00
90%	1.20E+00	4.82E-05	4.18E-04	4.66E-07	5.05E-04	0.00E+00
95%	1.32E+00	5.41E-05	1.05E-03	5.14E-07	1.14E-03	0.00E+00
97.5%	1.38E+00	5.91E-05	1.80E-03	5.40E-07	2.59E-03	0.00E+00
Mean	8.52E-01	3.02E-05	1.68E-04	3.27E-07	2.23E-04	0.00E+00
Minimum	8.21E-03	1.53E-07	9.74E-11	1.36E-09	1.91E-10	0.00E+00
Maximum	1.76E+00	7.51E-05	4.26E-03	6.94E-07	8.71E-03	0.00E+00

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TABLE B.43b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Cs-137 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
5%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%
10%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
20%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
25%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%
30%	99.85%	0.00%	0.00%	0.00%	0.00%	0.00%
35%	99.97%	0.00%	0.00%	0.00%	0.00%	0.00%
40%	99.88%	0.00%	0.00%	0.00%	0.00%	0.00%
45%	99.90%	0.00%	0.00%	0.00%	0.00%	0.00%
50%	99.96%	0.00%	0.00%	0.00%	0.00%	0.00%
55%	99.93%	0.00%	0.00%	0.00%	0.00%	0.00%
60%	99.94%	0.00%	0.00%	0.00%	0.00%	0.00%
65%	99.90%	0.00%	0.00%	0.00%	0.00%	0.00%
70%	99.99%	0.00%	0.00%	0.00%	0.00%	0.00%
75%	99.80%	0.00%	0.01%	0.00%	0.01%	0.00%
80%	99.83%	0.00%	0.01%	0.00%	0.01%	0.00%
85%	99.95%	0.00%	0.02%	0.00%	0.02%	0.00%
90%	100.00%	0.00%	0.03%	0.00%	0.04%	0.00%
95%	99.98%	0.00%	0.08%	0.00%	0.09%	0.00%
97.5%	99.99%	0.00%	0.13%	0.00%	0.19%	0.00%
Mean	99.95%	0.00%	0.02%	0.00%	0.03%	0.00%
Minimum	98.96%	0.00%	0.00%	0.00%	0.00%	0.00%
Maximum	100.00%	0.00%	0.24%	0.00%	0.50%	0.00%

TABLE B.44a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Fe-55 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00E+00	1.77E-05	0.00E+00	0.00E+00	1.01E-08	0.00E+00
5%	0.00E+00	3.79E-05	0.00E+00	0.00E+00	2.11E-08	0.00E+00
10%	0.00E+00	9.99E-05	0.00E+00	0.00E+00	5.53E-08	0.00E+00
15%	0.00E+00	1.53E-04	0.00E+00	0.00E+00	1.26E-07	0.00E+00
20%	0.00E+00	1.94E-04	0.00E+00	0.00E+00	2.87E-07	0.00E+00
25%	0.00E+00	2.34E-04	0.00E+00	0.00E+00	5.56E-07	0.00E+00
30%	0.00E+00	2.64E-04	0.00E+00	0.00E+00	9.42E-07	0.00E+00
35%	0.00E+00	2.92E-04	0.00E+00	0.00E+00	1.64E-06	0.00E+00
40%	0.00E+00	3.22E-04	0.00E+00	0.00E+00	2.67E-06	0.00E+00
45%	0.00E+00	3.44E-04	0.00E+00	0.00E+00	4.54E-06	0.00E+00
50%	0.00E+00	3.68E-04	0.00E+00	0.00E+00	7.02E-06	0.00E+00

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TABLE B.44a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	0.00E+00	3.87E-04	0.00E+00	0.00E+00	1.02E-05	0.00E+00
60%	0.00E+00	4.03E-04	0.00E+00	0.00E+00	1.43E-05	0.00E+00
65%	0.00E+00	4.26E-04	0.00E+00	0.00E+00	2.19E-05	0.00E+00
70%	0.00E+00	4.46E-04	0.00E+00	0.00E+00	3.56E-05	0.00E+00
75%	0.00E+00	4.70E-04	0.00E+00	0.00E+00	6.10E-05	0.00E+00
80%	0.00E+00	5.00E-04	0.00E+00	0.00E+00	1.02E-04	0.00E+00
85%	0.00E+00	5.33E-04	0.00E+00	0.00E+00	1.83E-04	0.00E+00
90%	0.00E+00	5.79E-04	0.00E+00	0.00E+00	2.92E-04	0.00E+00
95%	0.00E+00	6.56E-04	0.00E+00	0.00E+00	5.53E-04	0.00E+00
97.5%	0.00E+00	7.15E-04	0.00E+00	0.00E+00	1.00E-03	0.00E+00
Mean	0.00E+00	3.55E-04	0.00E+00	0.00E+00	1.07E-04	0.00E+00
Minimum	0.00E+00	1.49E-06	0.00E+00	0.00E+00	4.31E-10	0.00E+00
Maximum	0.00E+00	9.12E-04	0.00E+00	0.00E+00	2.67E-03	0.00E+00

TABLE B.44b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Fe-55 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.00%	69.25%	0.00%	0.00%	0.04%	0.00%
5%	0.00%	77.99%	0.00%	0.00%	0.04%	0.00%
10%	0.00%	79.41%	0.00%	0.00%	0.04%	0.00%
15%	0.00%	75.52%	0.00%	0.00%	0.06%	0.00%
20%	0.00%	76.97%	0.00%	0.00%	0.11%	0.00%
25%	0.00%	79.36%	0.00%	0.00%	0.19%	0.00%
30%	0.00%	79.65%	0.00%	0.00%	0.28%	0.00%
35%	0.00%	80.71%	0.00%	0.00%	0.45%	0.00%
40%	0.00%	83.16%	0.00%	0.00%	0.69%	0.00%
45%	0.00%	83.93%	0.00%	0.00%	1.11%	0.00%
50%	0.00%	85.29%	0.00%	0.00%	1.63%	0.00%
55%	0.00%	85.89%	0.00%	0.00%	2.26%	0.00%
60%	0.00%	84.19%	0.00%	0.00%	2.99%	0.00%
65%	0.00%	83.60%	0.00%	0.00%	4.30%	0.00%
70%	0.00%	83.27%	0.00%	0.00%	6.63%	0.00%
75%	0.00%	82.84%	0.00%	0.00%	10.75%	0.00%
80%	0.00%	82.77%	0.00%	0.00%	16.81%	0.00%
85%	0.00%	82.02%	0.00%	0.00%	28.17%	0.00%
90%	0.00%	79.32%	0.00%	0.00%	39.92%	0.00%
95%	0.00%	71.76%	0.00%	0.00%	60.49%	0.00%
97.5%	0.00%	56.79%	0.00%	0.00%	79.73%	0.00%
Mean	0.00%	76.89%	0.00%	0.00%	23.11%	0.00%
Minimum	0.00%	45.82%	0.00%	0.00%	0.01%	0.00%
Maximum	0.00%	29.78%	0.00%	0.00%	87.28%	0.00%

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TABLE B.45a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from I-129 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.90E-03	1.34E-05	4.09E-10	2.15E-10	3.86E-08	0.00E+00
5%	7.39E-03	2.49E-05	7.87E-10	4.08E-10	8.00E-08	0.00E+00
10%	2.15E-02	7.02E-05	2.30E-09	1.19E-09	2.15E-07	0.00E+00
15%	3.51E-02	1.19E-04	5.77E-09	1.94E-09	5.11E-07	0.00E+00
20%	4.92E-02	1.47E-04	1.19E-08	2.72E-09	1.15E-06	0.00E+00
25%	6.29E-02	1.67E-04	2.22E-08	3.47E-09	2.29E-06	0.00E+00
30%	6.54E-02	1.89E-04	4.11E-08	3.61E-09	4.07E-06	0.00E+00
35%	6.78E-02	2.06E-04	7.83E-08	3.74E-09	7.55E-06	0.00E+00
40%	7.02E-02	2.22E-04	1.38E-07	3.88E-09	1.41E-05	0.00E+00
45%	7.26E-02	2.34E-04	2.52E-07	4.01E-09	2.61E-05	0.00E+00
50%	7.51E-02	2.47E-04	4.40E-07	4.15E-09	4.40E-05	0.00E+00
55%	7.66E-02	2.60E-04	8.02E-07	4.23E-09	7.53E-05	0.00E+00
60%	7.82E-02	2.72E-04	1.33E-06	4.32E-09	1.35E-04	0.00E+00
65%	7.97E-02	2.83E-04	2.21E-06	4.40E-09	2.41E-04	0.00E+00
70%	8.13E-02	2.98E-04	4.06E-06	4.49E-09	3.99E-04	0.00E+00
75%	8.29E-02	3.13E-04	7.45E-06	4.58E-09	7.63E-04	0.00E+00
80%	8.74E-02	3.31E-04	1.50E-05	4.83E-09	1.53E-03	0.00E+00
85%	9.18E-02	3.48E-04	2.78E-05	5.07E-09	2.91E-03	0.00E+00
90%	9.64E-02	3.79E-04	6.39E-05	5.33E-09	7.32E-03	0.00E+00
95%	1.06E-01	4.24E-04	1.72E-04	5.84E-09	2.12E-02	0.00E+00
97.5%	1.10E-01	4.58E-04	4.04E-04	6.10E-09	5.22E-02	0.00E+00
Mean	6.85E-02	2.40E-04	3.98E-05	3.78E-09	5.08E-03	0.00E+00
Minimum	6.59E-04	2.04E-06	8.60E-12	3.64E-11	1.63E-09	0.00E+00
Maximum	1.41E-01	5.83E-04	2.73E-03	7.80E-09	4.78E-01	0.00E+00

TABLE B.45b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from I-129 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	95.47%	0.33%	0.00%	0.00%	0.00%	0.00%
5%	90.58%	0.30%	0.00%	0.00%	0.00%	0.00%
10%	97.83%	0.32%	0.00%	0.00%	0.00%	0.00%
15%	97.66%	0.33%	0.00%	0.00%	0.00%	0.00%
20%	96.12%	0.29%	0.00%	0.00%	0.00%	0.00%
25%	98.51%	0.26%	0.00%	0.00%	0.00%	0.00%
30%	97.78%	0.28%	0.00%	0.00%	0.01%	0.00%
35%	97.43%	0.30%	0.00%	0.00%	0.01%	0.00%
40%	96.97%	0.31%	0.00%	0.00%	0.02%	0.00%
45%	96.96%	0.31%	0.00%	0.00%	0.03%	0.00%
50%	97.42%	0.32%	0.00%	0.00%	0.06%	0.00%

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TABLE B.45b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	97.17%	0.33%	0.00%	0.00%	0.10%	0.00%
60%	97.15%	0.34%	0.00%	0.00%	0.17%	0.00%
65%	97.12%	0.34%	0.00%	0.00%	0.29%	0.00%
70%	96.10%	0.35%	0.00%	0.00%	0.47%	0.00%
75%	93.70%	0.35%	0.01%	0.00%	0.86%	0.00%
80%	94.36%	0.36%	0.02%	0.00%	1.65%	0.00%
85%	94.64%	0.36%	0.03%	0.00%	2.99%	0.00%
90%	91.97%	0.36%	0.06%	0.00%	6.98%	0.00%
95%	90.54%	0.36%	0.15%	0.00%	18.18%	0.00%
97.5%	78.63%	0.33%	0.29%	0.00%	37.13%	0.00%
Mean	92.74%	0.32%	0.05%	0.00%	6.89%	0.00%
Minimum	89.79%	0.28%	0.00%	0.00%	0.00%	0.00%
Maximum	25.46%	0.11%	0.49%	0.00%	86.17%	0.00%

**TABLE B.46a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from Po-210 Contamination in the Warehouse
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	3.53E-07	2.06E-04	3.05E-14	1.09E-13	1.84E-07	0.00E+00
5%	6.69E-07	4.71E-04	5.85E-14	2.38E-13	3.63E-07	0.00E+00
10%	1.94E-06	1.15E-03	1.60E-13	6.61E-13	9.38E-07	0.00E+00
15%	3.18E-06	1.71E-03	3.67E-13	9.22E-13	2.02E-06	0.00E+00
20%	4.46E-06	2.26E-03	6.95E-13	1.21E-12	3.94E-06	0.00E+00
25%	5.69E-06	2.74E-03	1.20E-12	1.50E-12	6.73E-06	0.00E+00
30%	5.92E-06	3.08E-03	1.84E-12	1.78E-12	1.07E-05	0.00E+00
35%	6.13E-06	3.44E-03	2.55E-12	2.00E-12	1.65E-05	0.00E+00
40%	6.36E-06	3.78E-03	3.82E-12	2.17E-12	2.49E-05	0.00E+00
45%	6.58E-06	4.09E-03	5.83E-12	2.27E-12	3.54E-05	0.00E+00
50%	6.80E-06	4.36E-03	8.05E-12	2.35E-12	4.98E-05	0.00E+00
55%	6.94E-06	4.64E-03	1.20E-11	2.45E-12	7.58E-05	0.00E+00
60%	7.08E-06	4.84E-03	1.61E-11	2.55E-12	1.10E-04	0.00E+00
65%	7.22E-06	5.11E-03	2.30E-11	2.62E-12	1.61E-04	0.00E+00
70%	7.36E-06	5.41E-03	3.35E-11	2.70E-12	2.17E-04	0.00E+00
75%	7.50E-06	5.71E-03	4.92E-11	2.77E-12	3.39E-04	0.00E+00
80%	7.91E-06	6.13E-03	7.86E-11	2.85E-12	5.07E-04	0.00E+00
85%	8.32E-06	6.54E-03	1.16E-10	3.02E-12	7.62E-04	0.00E+00
90%	8.73E-06	7.05E-03	1.77E-10	3.19E-12	1.22E-03	0.00E+00
95%	9.58E-06	7.99E-03	2.70E-10	3.53E-12	2.19E-03	0.00E+00
97.5%	1.00E-05	8.82E-03	3.36E-10	3.74E-12	3.26E-03	0.00E+00
Mean	6.20E-06	4.27E-03	5.04E-11	2.14E-12	4.19E-04	0.00E+00
Minimum	5.97E-08	1.81E-05	6.64E-16	7.41E-15	8.11E-09	0.00E+00
Maximum	1.28E-05	1.13E-02	5.73E-10	4.91E-12	8.54E-03	0.00E+00

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TABLE B.46b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Po-210 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	0.14%	79.20%	0.00%	0.00%	0.07%	0.00%
5%	0.13%	91.72%	0.00%	0.00%	0.07%	0.00%
10%	0.14%	83.39%	0.00%	0.00%	0.07%	0.00%
15%	0.14%	75.45%	0.00%	0.00%	0.09%	0.00%
20%	0.16%	79.52%	0.00%	0.00%	0.14%	0.00%
25%	0.18%	84.92%	0.00%	0.00%	0.21%	0.00%
30%	0.16%	84.51%	0.00%	0.00%	0.29%	0.00%
35%	0.15%	86.28%	0.00%	0.00%	0.41%	0.00%
40%	0.15%	87.74%	0.00%	0.00%	0.58%	0.00%
45%	0.14%	89.25%	0.00%	0.00%	0.77%	0.00%
50%	0.14%	90.30%	0.00%	0.00%	1.03%	0.00%
55%	0.14%	92.15%	0.00%	0.00%	1.50%	0.00%
60%	0.13%	91.04%	0.00%	0.00%	2.06%	0.00%
65%	0.13%	91.87%	0.00%	0.00%	2.89%	0.00%
70%	0.13%	92.68%	0.00%	0.00%	3.72%	0.00%
75%	0.12%	93.10%	0.00%	0.00%	5.53%	0.00%
80%	0.12%	93.90%	0.00%	0.00%	7.77%	0.00%
85%	0.12%	95.58%	0.00%	0.00%	11.15%	0.00%
90%	0.12%	94.48%	0.00%	0.00%	16.31%	0.00%
95%	0.12%	96.32%	0.00%	0.00%	26.36%	0.00%
97.5%	0.11%	97.59%	0.00%	0.00%	36.02%	0.00%
Mean	0.13%	90.95%	0.00%	0.00%	8.92%	0.00%
Minimum	0.15%	44.64%	0.00%	0.00%	0.02%	0.00%
Maximum	0.10%	92.66%	0.00%	0.00%	69.75%	0.00%

TABLE B.47a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Pu-239 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.56E-05	8.38E-04	4.95E-13	2.65E-13	8.77E-09	0.00E+00
5%	2.96E-05	1.56E-03	9.53E-13	5.03E-13	1.82E-08	0.00E+00
10%	8.59E-05	4.40E-03	2.78E-12	1.46E-12	4.88E-08	0.00E+00
15%	1.41E-04	7.45E-03	6.98E-12	2.39E-12	1.16E-07	0.00E+00
20%	1.97E-04	9.21E-03	1.44E-11	3.35E-12	2.60E-07	0.00E+00
25%	2.52E-04	1.05E-02	2.69E-11	4.28E-12	5.20E-07	0.00E+00
30%	2.62E-04	1.18E-02	4.97E-11	4.45E-12	9.25E-07	0.00E+00
35%	2.71E-04	1.29E-02	9.47E-11	4.61E-12	1.71E-06	0.00E+00
40%	2.81E-04	1.39E-02	1.68E-10	4.78E-12	3.20E-06	0.00E+00
45%	2.91E-04	1.47E-02	3.05E-10	4.94E-12	5.94E-06	0.00E+00
50%	3.00E-04	1.55E-02	5.33E-10	5.11E-12	1.00E-05	0.00E+00

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TABLE B.47a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	3.07E-04	1.63E-02	9.71E-10	5.21E-12	1.71E-05	0.00E+00
60%	3.13E-04	1.71E-02	1.61E-09	5.32E-12	3.08E-05	0.00E+00
65%	3.19E-04	1.77E-02	2.68E-09	5.43E-12	5.47E-05	0.00E+00
70%	3.25E-04	1.87E-02	4.91E-09	5.53E-12	9.07E-05	0.00E+00
75%	3.32E-04	1.96E-02	9.02E-09	5.64E-12	1.73E-04	0.00E+00
80%	3.50E-04	2.08E-02	1.82E-08	5.95E-12	3.47E-04	0.00E+00
85%	3.68E-04	2.18E-02	3.36E-08	6.25E-12	6.60E-04	0.00E+00
90%	3.86E-04	2.38E-02	7.73E-08	6.57E-12	1.66E-03	0.00E+00
95%	4.24E-04	2.66E-02	2.08E-07	7.20E-12	4.81E-03	0.00E+00
97.5%	4.42E-04	2.87E-02	4.88E-07	7.52E-12	1.18E-02	0.00E+00
Mean	2.74E-04	1.50E-02	4.80E-08	4.66E-12	1.15E-03	0.00E+00
Minimum	2.64E-06	1.28E-04	1.04E-14	4.47E-14	3.71E-10	0.00E+00
Maximum	5.65E-04	3.66E-02	3.27E-06	9.61E-12	1.08E-01	0.00E+00

TABLE B.47b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Pu-239 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.70%	91.22%	0.00%	0.00%	0.00%	0.00%
5%	1.67%	88.21%	0.00%	0.00%	0.00%	0.00%
10%	1.81%	92.55%	0.00%	0.00%	0.00%	0.00%
15%	1.83%	96.68%	0.00%	0.00%	0.00%	0.00%
20%	2.02%	94.52%	0.00%	0.00%	0.00%	0.00%
25%	2.27%	94.17%	0.00%	0.00%	0.00%	0.00%
30%	2.07%	93.38%	0.00%	0.00%	0.01%	0.00%
35%	1.97%	94.04%	0.00%	0.00%	0.01%	0.00%
40%	1.91%	94.72%	0.00%	0.00%	0.02%	0.00%
45%	1.87%	94.76%	0.00%	0.00%	0.04%	0.00%
50%	1.85%	95.37%	0.00%	0.00%	0.06%	0.00%
55%	1.79%	95.30%	0.00%	0.00%	0.10%	0.00%
60%	1.74%	94.97%	0.00%	0.00%	0.17%	0.00%
65%	1.69%	93.97%	0.00%	0.00%	0.29%	0.00%
70%	1.63%	93.93%	0.00%	0.00%	0.46%	0.00%
75%	1.57%	93.10%	0.00%	0.00%	0.82%	0.00%
80%	1.59%	94.21%	0.00%	0.00%	1.57%	0.00%
85%	1.56%	92.65%	0.00%	0.00%	2.80%	0.00%
90%	1.48%	91.42%	0.00%	0.00%	6.39%	0.00%
95%	1.43%	89.91%	0.00%	0.00%	16.26%	0.00%
97.5%	1.30%	84.21%	0.00%	0.00%	34.74%	0.00%
Mean	1.67%	91.33%	0.00%	0.00%	7.00%	0.00%
Minimum	2.00%	97.12%	0.00%	0.00%	0.00%	0.00%
Maximum	0.45%	29.32%	0.00%	0.00%	86.19%	0.00%

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TABLE B.48a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Ra-226 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.48E-01	3.15E-03	1.42E-08	6.36E-08	1.02E-07	8.99E-05
5%	2.81E-01	5.87E-03	2.73E-08	1.21E-07	2.11E-07	1.67E-04
10%	8.16E-01	1.66E-02	7.97E-08	3.50E-07	5.68E-07	4.85E-04
15%	1.34E+00	2.80E-02	2.00E-07	5.74E-07	1.35E-06	7.95E-04
20%	1.87E+00	3.46E-02	4.13E-07	8.03E-07	3.03E-06	1.01E-03
25%	2.39E+00	3.93E-02	7.70E-07	1.02E-06	6.05E-06	1.19E-03
30%	2.48E+00	4.44E-02	1.42E-06	1.07E-06	1.07E-05	1.33E-03
35%	2.58E+00	4.86E-02	2.71E-06	1.10E-06	1.99E-05	1.45E-03
40%	2.67E+00	5.23E-02	4.80E-06	1.14E-06	3.72E-05	1.57E-03
45%	2.76E+00	5.52E-02	8.72E-06	1.18E-06	6.90E-05	1.66E-03
50%	2.85E+00	5.81E-02	1.52E-05	1.22E-06	1.15E-04	1.72E-03
55%	2.91E+00	6.11E-02	2.78E-05	1.25E-06	1.99E-04	1.79E-03
60%	2.97E+00	6.41E-02	4.58E-05	1.28E-06	3.56E-04	1.86E-03
65%	3.03E+00	6.68E-02	7.65E-05	1.30E-06	6.22E-04	1.93E-03
70%	3.09E+00	7.02E-02	1.39E-04	1.33E-06	1.04E-03	1.98E-03
75%	3.15E+00	7.37E-02	2.56E-04	1.35E-06	1.99E-03	2.05E-03
80%	3.32E+00	7.81E-02	5.08E-04	1.43E-06	3.97E-03	2.11E-03
85%	3.49E+00	8.22E-02	9.41E-04	1.50E-06	7.54E-03	2.20E-03
90%	3.67E+00	8.95E-02	2.17E-03	1.57E-06	1.86E-02	2.36E-03
95%	4.02E+00	1.00E-01	5.90E-03	1.73E-06	5.36E-02	2.58E-03
97.5%	4.20E+00	1.08E-01	1.37E-02	1.80E-06	1.31E-01	2.77E-03
Mean	2.60E+00	5.65E-02	1.32E-03	1.12E-06	1.25E-02	1.59E-03
Minimum	2.51E-02	4.82E-04	2.98E-10	1.00E-08	4.31E-09	9.07E-06
Maximum	5.37E+00	1.38E-01	8.31E-02	2.31E-06	1.08E+00	3.68E-03

TABLE B.48b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Ra-226 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	97.37%	2.07%	0.00%	0.00%	0.00%	0.06%
5%	97.32%	2.04%	0.00%	0.00%	0.00%	0.06%
10%	98.28%	2.00%	0.00%	0.00%	0.00%	0.06%
15%	97.70%	2.05%	0.00%	0.00%	0.00%	0.06%
20%	97.48%	1.80%	0.00%	0.00%	0.00%	0.05%
25%	97.73%	1.61%	0.00%	0.00%	0.00%	0.05%
30%	97.48%	1.74%	0.00%	0.00%	0.00%	0.05%
35%	97.34%	1.84%	0.00%	0.00%	0.00%	0.05%
40%	97.27%	1.91%	0.00%	0.00%	0.00%	0.06%
45%	97.29%	1.95%	0.00%	0.00%	0.00%	0.06%
50%	97.50%	1.98%	0.00%	0.00%	0.00%	0.06%

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TABLE B.48b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	97.40%	2.04%	0.00%	0.00%	0.01%	0.06%
60%	97.36%	2.10%	0.00%	0.00%	0.01%	0.06%
65%	97.27%	2.14%	0.00%	0.00%	0.02%	0.06%
70%	97.23%	2.21%	0.00%	0.00%	0.03%	0.06%
75%	96.84%	2.27%	0.01%	0.00%	0.06%	0.06%
80%	96.96%	2.28%	0.01%	0.00%	0.12%	0.06%
85%	97.51%	2.30%	0.03%	0.00%	0.21%	0.06%
90%	96.94%	2.37%	0.06%	0.00%	0.49%	0.06%
95%	97.33%	2.42%	0.14%	0.00%	1.30%	0.06%
97.5%	97.47%	2.50%	0.32%	0.00%	3.05%	0.06%
Mean	97.31%	2.11%	0.05%	0.00%	0.47%	0.06%
Minimum	88.42%	1.70%	0.00%	0.00%	0.00%	0.03%
Maximum	97.49%	2.50%	1.51%	0.00%	19.53%	0.07%

**TABLE B.49a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from S-35 Contamination in the Warehouse
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	6.14E-05	7.31E-06	6.13E-12	6.09E-11	8.20E-09	0.00E+00
5%	1.16E-04	1.68E-05	1.15E-11	1.35E-10	1.62E-08	0.00E+00
10%	3.38E-04	3.98E-05	2.99E-11	3.72E-10	4.09E-08	0.00E+00
15%	5.53E-04	6.06E-05	6.89E-11	5.15E-10	8.21E-08	0.00E+00
20%	7.75E-04	7.99E-05	1.23E-10	6.73E-10	1.59E-07	0.00E+00
25%	9.90E-04	9.57E-05	2.01E-10	8.37E-10	2.62E-07	0.00E+00
30%	1.03E-03	1.08E-04	2.81E-10	9.98E-10	4.01E-07	0.00E+00
35%	1.07E-03	1.20E-04	4.09E-10	1.12E-09	6.17E-07	0.00E+00
40%	1.11E-03	1.33E-04	6.17E-10	1.22E-09	8.64E-07	0.00E+00
45%	1.14E-03	1.44E-04	9.00E-10	1.29E-09	1.23E-06	0.00E+00
50%	1.18E-03	1.53E-04	1.33E-09	1.32E-09	1.72E-06	0.00E+00
55%	1.21E-03	1.62E-04	1.80E-09	1.38E-09	2.62E-06	0.00E+00
60%	1.23E-03	1.70E-04	2.53E-09	1.44E-09	3.78E-06	0.00E+00
65%	1.26E-03	1.80E-04	3.49E-09	1.48E-09	5.40E-06	0.00E+00
70%	1.28E-03	1.91E-04	5.12E-09	1.53E-09	7.62E-06	0.00E+00
75%	1.30E-03	2.02E-04	7.46E-09	1.56E-09	1.08E-05	0.00E+00
80%	1.38E-03	2.16E-04	1.10E-08	1.61E-09	1.57E-05	0.00E+00
85%	1.45E-03	2.31E-04	1.63E-08	1.70E-09	2.40E-05	0.00E+00
90%	1.52E-03	2.47E-04	2.45E-08	1.81E-09	3.89E-05	0.00E+00
95%	1.67E-03	2.83E-04	3.63E-08	2.00E-09	6.73E-05	0.00E+00
97.5%	1.74E-03	3.13E-04	4.39E-08	2.13E-09	9.84E-05	0.00E+00
Mean	1.08E-03	1.50E-04	6.98E-09	1.21E-09	1.29E-05	0.00E+00
Minimum	1.04E-05	6.41E-07	1.35E-13	4.20E-12	3.68E-10	0.00E+00
Maximum	2.22E-03	4.03E-04	7.41E-08	2.79E-09	2.49E-04	0.00E+00

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TABLE B.49b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from S-35 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	85.66%	10.20%	0.00%	0.00%	0.01%	0.00%
5%	84.44%	12.16%	0.00%	0.00%	0.01%	0.00%
10%	85.30%	10.06%	0.00%	0.00%	0.01%	0.00%
15%	86.30%	9.44%	0.00%	0.00%	0.01%	0.00%
20%	87.11%	8.98%	0.00%	0.00%	0.02%	0.00%
25%	88.62%	8.56%	0.00%	0.00%	0.02%	0.00%
30%	87.12%	9.18%	0.00%	0.00%	0.03%	0.00%
35%	86.80%	9.79%	0.00%	0.00%	0.05%	0.00%
40%	86.76%	10.43%	0.00%	0.00%	0.07%	0.00%
45%	87.48%	11.00%	0.00%	0.00%	0.09%	0.00%
50%	87.62%	11.34%	0.00%	0.00%	0.13%	0.00%
55%	87.29%	11.75%	0.00%	0.00%	0.19%	0.00%
60%	86.82%	12.00%	0.00%	0.00%	0.27%	0.00%
65%	86.74%	12.47%	0.00%	0.00%	0.37%	0.00%
70%	86.42%	12.87%	0.00%	0.00%	0.51%	0.00%
75%	85.65%	13.23%	0.00%	0.00%	0.71%	0.00%
80%	87.10%	13.69%	0.00%	0.00%	1.00%	0.00%
85%	86.99%	13.89%	0.00%	0.00%	1.44%	0.00%
90%	86.60%	14.10%	0.00%	0.00%	2.22%	0.00%
95%	86.39%	14.69%	0.00%	0.00%	3.49%	0.00%
97.5%	86.15%	15.49%	0.00%	0.00%	4.88%	0.00%
Mean	86.84%	12.12%	0.00%	0.00%	1.04%	0.00%
Minimum	86.53%	5.34%	0.00%	0.00%	0.00%	0.00%
Maximum	84.72%	15.36%	0.00%	0.00%	9.47%	0.00%

TABLE B.50a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Sr-90 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	5.52E-03	1.95E-05	5.26E-10	6.20E-10	1.06E-08	0.00E+00
5%	1.05E-02	3.79E-05	1.01E-09	1.27E-09	2.21E-08	0.00E+00
10%	3.04E-02	1.05E-04	2.95E-09	3.56E-09	5.92E-08	0.00E+00
15%	4.97E-02	1.70E-04	7.42E-09	5.71E-09	1.40E-07	0.00E+00
20%	6.96E-02	2.11E-04	1.53E-08	7.62E-09	3.16E-07	0.00E+00
25%	8.90E-02	2.40E-04	2.85E-08	9.46E-09	6.23E-07	0.00E+00
30%	9.25E-02	2.70E-04	5.19E-08	1.08E-08	1.11E-06	0.00E+00
35%	9.59E-02	3.01E-04	1.00E-07	1.12E-08	2.08E-06	0.00E+00
40%	9.94E-02	3.24E-04	1.75E-07	1.16E-08	3.71E-06	0.00E+00
45%	1.03E-01	3.45E-04	3.11E-07	1.21E-08	6.73E-06	0.00E+00
50%	1.06E-01	3.64E-04	5.49E-07	1.25E-08	1.14E-05	0.00E+00

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TABLE B.50a (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	1.08E-01	3.84E-04	9.07E-07	1.29E-08	1.87E-05	0.00E+00
60%	1.11E-01	4.03E-04	1.43E-06	1.32E-08	3.02E-05	0.00E+00
65%	1.13E-01	4.21E-04	2.28E-06	1.35E-08	4.91E-05	0.00E+00
70%	1.15E-01	4.40E-04	4.02E-06	1.38E-08	8.27E-05	0.00E+00
75%	1.17E-01	4.67E-04	7.04E-06	1.41E-08	1.52E-04	0.00E+00
80%	1.24E-01	4.97E-04	1.23E-05	1.47E-08	3.07E-04	0.00E+00
85%	1.30E-01	5.22E-04	2.41E-05	1.55E-08	5.41E-04	0.00E+00
90%	1.37E-01	5.66E-04	4.71E-05	1.63E-08	1.18E-03	0.00E+00
95%	1.50E-01	6.35E-04	1.17E-04	1.79E-08	2.63E-03	0.00E+00
97.5%	1.56E-01	6.94E-04	2.01E-04	1.89E-08	6.05E-03	0.00E+00
Mean	9.69E-02	3.55E-04	1.87E-05	1.14E-08	5.18E-04	0.00E+00
Minimum	9.33E-04	1.79E-06	1.11E-11	4.70E-11	4.50E-10	0.00E+00
Maximum	2.00E-01	8.81E-04	4.75E-04	2.42E-08	2.01E-02	0.00E+00

TABLE B.50b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Sr-90 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	99.46%	0.35%	0.00%	0.00%	0.00%	0.00%
5%	98.80%	0.36%	0.00%	0.00%	0.00%	0.00%
10%	99.68%	0.34%	0.00%	0.00%	0.00%	0.00%
15%	99.60%	0.34%	0.00%	0.00%	0.00%	0.00%
20%	99.08%	0.30%	0.00%	0.00%	0.00%	0.00%
25%	99.42%	0.27%	0.00%	0.00%	0.00%	0.00%
30%	99.02%	0.29%	0.00%	0.00%	0.00%	0.00%
35%	99.12%	0.31%	0.00%	0.00%	0.00%	0.00%
40%	99.08%	0.32%	0.00%	0.00%	0.00%	0.00%
45%	98.84%	0.33%	0.00%	0.00%	0.01%	0.00%
50%	99.26%	0.34%	0.00%	0.00%	0.01%	0.00%
55%	98.96%	0.35%	0.00%	0.00%	0.02%	0.00%
60%	99.01%	0.36%	0.00%	0.00%	0.03%	0.00%
65%	98.93%	0.37%	0.00%	0.00%	0.04%	0.00%
70%	99.13%	0.38%	0.00%	0.00%	0.07%	0.00%
75%	98.66%	0.39%	0.01%	0.00%	0.13%	0.00%
80%	99.00%	0.40%	0.01%	0.00%	0.25%	0.00%
85%	98.98%	0.40%	0.02%	0.00%	0.41%	0.00%
90%	98.93%	0.41%	0.03%	0.00%	0.86%	0.00%
95%	99.19%	0.42%	0.08%	0.00%	1.74%	0.00%
97.5%	99.26%	0.44%	0.13%	0.00%	3.84%	0.00%
Mean	99.09%	0.36%	0.02%	0.00%	0.53%	0.00%
Minimum	89.91%	0.17%	0.00%	0.00%	0.00%	0.00%
Maximum	99.57%	0.44%	0.24%	0.00%	10.02%	0.00%

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TABLE B.51a Contribution of Individual Pathway Doses (mrem/yr) at Different Percentiles from Tc-99 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	6.17E-05	8.38E-06	6.46E-12	2.18E-10	2.24E-09	0.00E+00
5%	1.17E-04	1.56E-05	1.24E-11	4.13E-10	4.65E-09	0.00E+00
10%	3.40E-04	4.40E-05	3.63E-11	1.20E-09	1.25E-08	0.00E+00
15%	5.56E-04	7.45E-05	9.11E-11	1.96E-09	2.97E-08	0.00E+00
20%	7.79E-04	9.21E-05	1.88E-10	2.75E-09	6.66E-08	0.00E+00
25%	9.95E-04	1.05E-04	3.51E-10	3.51E-09	1.33E-07	0.00E+00
30%	1.03E-03	1.18E-04	6.48E-10	3.65E-09	2.37E-07	0.00E+00
35%	1.07E-03	1.29E-04	1.23E-09	3.79E-09	4.39E-07	0.00E+00
40%	1.11E-03	1.39E-04	2.19E-09	3.93E-09	8.20E-07	0.00E+00
45%	1.15E-03	1.47E-04	3.97E-09	4.06E-09	1.52E-06	0.00E+00
50%	1.19E-03	1.55E-04	6.95E-09	4.20E-09	2.56E-06	0.00E+00
55%	1.21E-03	1.63E-04	1.27E-08	4.28E-09	4.38E-06	0.00E+00
60%	1.24E-03	1.71E-04	2.10E-08	4.37E-09	7.88E-06	0.00E+00
65%	1.26E-03	1.77E-04	3.49E-08	4.46E-09	1.40E-05	0.00E+00
70%	1.29E-03	1.87E-04	6.40E-08	4.54E-09	2.32E-05	0.00E+00
75%	1.31E-03	1.96E-04	1.18E-07	4.63E-09	4.44E-05	0.00E+00
80%	1.38E-03	2.08E-04	2.37E-07	4.88E-09	8.91E-05	0.00E+00
85%	1.45E-03	2.18E-04	4.39E-07	5.13E-09	1.69E-04	0.00E+00
90%	1.53E-03	2.38E-04	1.01E-06	5.39E-09	4.26E-04	0.00E+00
95%	1.67E-03	2.66E-04	2.71E-06	5.91E-09	1.24E-03	0.00E+00
97.5%	1.75E-03	2.87E-04	6.37E-06	6.18E-09	3.03E-03	0.00E+00
Mean	1.08E-03	1.50E-04	6.27E-07	3.83E-09	2.96E-04	0.00E+00
Minimum	1.04E-05	1.28E-06	1.36E-13	3.68E-11	9.50E-11	0.00E+00
Maximum	2.23E-03	3.66E-04	4.30E-05	7.89E-09	2.78E-02	0.00E+00

TABLE B.51b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from Tc-99 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	73.54%	10.00%	0.00%	0.00%	0.00%	0.00%
5%	75.79%	10.12%	0.00%	0.00%	0.00%	0.00%
10%	84.78%	11.00%	0.00%	0.00%	0.00%	0.00%
15%	82.11%	11.00%	0.00%	0.00%	0.00%	0.00%
20%	81.79%	9.67%	0.00%	0.00%	0.01%	0.00%
25%	86.45%	9.08%	0.00%	0.00%	0.01%	0.00%
30%	85.15%	9.74%	0.00%	0.00%	0.02%	0.00%
35%	84.24%	10.16%	0.00%	0.00%	0.03%	0.00%
40%	84.16%	10.55%	0.00%	0.00%	0.06%	0.00%
45%	84.36%	10.79%	0.00%	0.00%	0.11%	0.00%
50%	84.81%	11.05%	0.00%	0.00%	0.18%	0.00%

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TABLE B.51b (Cont.)

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
55%	84.11%	11.31%	0.00%	0.00%	0.30%	0.00%
60%	84.06%	11.60%	0.00%	0.00%	0.54%	0.00%
65%	83.14%	11.69%	0.00%	0.00%	0.92%	0.00%
70%	81.91%	11.92%	0.00%	0.00%	1.48%	0.00%
75%	79.19%	11.85%	0.01%	0.00%	2.68%	0.00%
80%	79.37%	11.93%	0.01%	0.00%	5.11%	0.00%
85%	77.23%	11.61%	0.02%	0.00%	8.99%	0.00%
90%	75.17%	11.72%	0.05%	0.00%	20.97%	0.00%
95%	61.73%	9.82%	0.10%	0.00%	45.57%	0.00%
97.5%	38.87%	6.39%	0.14%	0.00%	67.49%	0.00%
Mean	70.81%	9.82%	0.04%	0.00%	19.33%	0.00%
Minimum	79.91%	9.81%	0.00%	0.00%	0.00%	0.00%
Maximum	7.66%	1.26%	0.15%	0.00%	95.27%	0.00%

**TABLE B.52a Contribution of Individual Pathway Doses (mrem/yr)
at Different Percentiles from U-238 Contamination in the Warehouse
Desk Scenario**

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	1.08E-02	1.49E-03	1.02E-09	1.36E-09	1.70E-08	3.63E-20
5%	2.05E-02	2.78E-03	1.97E-09	2.58E-09	3.52E-08	6.75E-20
10%	5.95E-02	7.85E-03	5.75E-09	7.49E-09	9.45E-08	1.96E-19
15%	9.75E-02	1.33E-02	1.44E-08	1.23E-08	2.25E-07	3.21E-19
20%	1.37E-01	1.64E-02	2.98E-08	1.72E-08	5.04E-07	4.07E-19
25%	1.74E-01	1.86E-02	5.56E-08	2.19E-08	1.01E-06	4.79E-19
30%	1.81E-01	2.11E-02	1.03E-07	2.28E-08	1.79E-06	5.37E-19
35%	1.88E-01	2.31E-02	1.96E-07	2.36E-08	3.32E-06	5.86E-19
40%	1.95E-01	2.48E-02	3.46E-07	2.45E-08	6.21E-06	6.33E-19
45%	2.01E-01	2.62E-02	6.30E-07	2.53E-08	1.15E-05	6.70E-19
50%	2.08E-01	2.76E-02	1.10E-06	2.62E-08	1.94E-05	6.96E-19
55%	2.13E-01	2.91E-02	2.01E-06	2.67E-08	3.31E-05	7.22E-19
60%	2.17E-01	3.04E-02	3.33E-06	2.73E-08	5.96E-05	7.50E-19
65%	2.21E-01	3.16E-02	5.53E-06	2.78E-08	1.06E-04	7.78E-19
70%	2.26E-01	3.34E-02	1.01E-05	2.84E-08	1.76E-04	7.99E-19
75%	2.30E-01	3.50E-02	1.87E-05	2.89E-08	3.36E-04	8.25E-19
80%	2.42E-01	3.71E-02	3.76E-05	3.05E-08	6.74E-04	8.49E-19
85%	2.55E-01	3.90E-02	6.96E-05	3.20E-08	1.28E-03	8.87E-19
90%	2.68E-01	4.24E-02	1.60E-04	3.37E-08	3.22E-03	9.51E-19
95%	2.94E-01	4.75E-02	4.30E-04	3.69E-08	9.35E-03	1.04E-18
97.5%	3.06E-01	5.12E-02	1.01E-03	3.86E-08	2.30E-02	1.12E-18
Mean	1.90E-01	2.68E-02	9.95E-05	2.39E-08	2.24E-03	6.41E-19
Minimum	1.83E-03	2.28E-04	2.15E-11	2.30E-10	7.18E-10	3.66E-21
Maximum	3.92E-01	6.53E-02	6.82E-03	4.93E-08	2.10E-01	1.48E-18

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TABLE B.52b Relative Contribution of Individual Pathway Doses to All Pathway Dose at Different Percentiles from U-238 Contamination in the Warehouse Desk Scenario

Percentile	External	Inhalation w/o Rn	Deposition	Immersion	Ingestion	Radon
2.5%	85.60%	11.83%	0.00%	0.00%	0.00%	0.00%
5%	85.26%	11.58%	0.00%	0.00%	0.00%	0.00%
10%	86.67%	11.43%	0.00%	0.00%	0.00%	0.00%
15%	87.07%	11.86%	0.00%	0.00%	0.00%	0.00%
20%	87.64%	10.54%	0.00%	0.00%	0.00%	0.00%
25%	88.74%	9.48%	0.00%	0.00%	0.00%	0.00%
30%	87.37%	10.16%	0.00%	0.00%	0.00%	0.00%
35%	86.97%	10.67%	0.00%	0.00%	0.00%	0.00%
40%	86.89%	11.07%	0.00%	0.00%	0.00%	0.00%
45%	87.24%	11.35%	0.00%	0.00%	0.00%	0.00%
50%	87.68%	11.62%	0.00%	0.00%	0.01%	0.00%
55%	87.24%	11.93%	0.00%	0.00%	0.01%	0.00%
60%	86.97%	12.21%	0.00%	0.00%	0.02%	0.00%
65%	86.56%	12.39%	0.00%	0.00%	0.04%	0.00%
70%	86.31%	12.78%	0.00%	0.00%	0.07%	0.00%
75%	85.68%	13.03%	0.01%	0.00%	0.13%	0.00%
80%	87.00%	13.30%	0.01%	0.00%	0.24%	0.00%
85%	86.98%	13.30%	0.02%	0.00%	0.44%	0.00%
90%	85.98%	13.64%	0.05%	0.00%	1.03%	0.00%
95%	86.60%	14.00%	0.13%	0.00%	2.76%	0.00%
97.5%	85.80%	14.33%	0.28%	0.00%	6.43%	0.00%
Mean	86.70%	12.23%	0.05%	0.00%	1.02%	0.00%
Minimum	80.05%	9.99%	0.00%	0.00%	0.00%	0.00%
Maximum	81.41%	13.56%	1.42%	0.00%	43.71%	0.00%

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