



ENGINEERING CALCULATION

Basement Fill Model: Probabilistic Analysis for Instantaneous Release Scenario Assuming Industrial Use Exposure Pathways

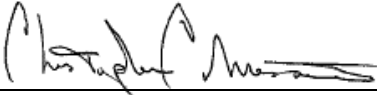
Oyster Creek Station

ENG-OCS-012

Revision: 0

November 1, 2023

Prepared by:
BHI Energy
97 Libbey Industrial Pkwy
Weymouth, MA

Prepared by	
Approved by	

1.0 PURPOSE

This calculation identifies sensitive input parameters (i.e., those input parameters that produce a significant change in the calculated dose with changes in their value) in the modeling of the Instantaneous Release (IR) scenario as part of the development of Basement Fill Model (BFM) derived concentration guideline levels (DCGL) for below-grade concrete structures. The probabilistic analyses were performed using the RESRAD-Onsite code (version 7.2) with the exposure pathways assumed for the Industrial Use (IU) compliance scenario.

Identification of sensitive input parameters is a necessary process to account for uncertainty in input values. The uncertainty associated with sensitive input parameters is addressed in subsequent DCGL calculations by determining and assigning reasonably conservative input values based on the results of RESRAD-Onsite probabilistic analyses. Thus, the results of this calculation support the subsequent development of DCGL values for assessing residual radioactive contamination associated with below-grade concrete structures targeted to remain onsite at license termination.

2.0 APPLICABILITY

This calculation addresses only the sensitivity analysis for input parameters for the BFM Instantaneous Release scenario with the IU exposure pathways.

3.0 REFERENCES

- 3.1 ENG-AP-02, *Verification of Software Operability*
- 3.2 ANL/EAD-4, User's Manual for RESRAD Version 6, U.S. Department of Energy – Argonne National Laboratory, July 2001
- 3.3 ANL/EVS/TM-18/1, *RESRAD-Onsite 7.2 User's Guide*, April 2018
- 3.4 NUREG/CR-7267, *Default Parameter Values and Distribution in RESRAD-ONSITE V7.2, RESRAD-BUILD V3.5, and RESRAD-OFFSITE V4.0 Computer Codes*, February 2020
- 3.5 NUREG/CR-5512, Volume 3, *Residual Radioactive Contamination from Decommissioning: Parameter Analysis, Draft Report for Comment*, October 1999
- 3.6 NUREG/CR-6697, *Development of Probabilistic RESRAD 6.0 and RESRAD-BUILD 3.0 Computer Codes*, Nov. 2000
- 3.7 *Radionuclide Selection for DCGL Development-Oyster Creek Station Site Characterization Project*, January 2022
- 3.8 *Oyster Creek Station Historical Site Assessment*, Rev. 2, November 2021
- 3.9 *Hydrogeologic Investigation Report*, GHD, January 2017
- 3.10 Health Physics, Vol. 39, *Regional and Site-Specific Absolute Humidity Data for Use in Tritium Dose Calculations*, 1980
- 3.11 ENG-OCS-007, *RESRAD-Onsite Probabilistic Analysis - Industrial Use Scenario*, Rev0

1.0 METHOD OF CALCULATION

The operability of the RESRAD-Onsite 7.2 computer code was verified on each computer used for code executions in accordance with BHI Energy Engineering procedure ENG-AP-02, *Verification of Software Operability* [3.1]. The RESRAD code has undergone extensive review, benchmarking, verification, and validation [3.2]. The *RESRAD-Onsite 7.2 User's Guide* [3.3] was used as a reference for code use.

The RESidual RADioactivity (RESRAD) model and computer code was developed at Argonne National Laboratory as a multifunctional tool to assist in developing radiological criteria for assessing the dose associated with residual radioactive material. The RESRAD-Onsite computer code is a pathway analysis model designed to evaluate the potential radiological dose associated with residual radioactive material. RESRAD-Onsite input parameters allow site-specific modeling through entry of site data, such as contaminated zone area and depth, site soil hydrogeologic characteristics, and site soil strata information. Additionally, the user can evaluate radiation exposure under different exposure scenarios by selecting scenario-specific exposure pathways.

The RESRAD-Onsite code includes probabilistic modules that permit the user to perform a sensitivity analysis to identify parameters that have the greatest impact on dose. The probabilistic modules allow the evaluation of dose as a function of parameter distributions.

The approach taken in this calculation consists of two primary phases: the selection of input parameter values and performing RESRAD-Onsite code executions.

Input parameters were treated as either deterministic (a single value is assigned) or stochastic (a parameter distribution is assigned). Treatment depended on parameter type, availability of site-specific data, and the relevance of the parameter in the dose calculations. Behavioral and metabolic parameters were treated as deterministic and were assigned values from NUREG/CR-5512 [3.5], NUREG/CR-7267 [3.4], or the RESRAD User Manual. Physical parameters for which site-specific data are unavailable were assigned parameter distributions from NUREG/CR-7267 or assigned a deterministic value from either NUREG/CR-5512 or the RESRAD User's Manual.

The RESRAD-Onsite Probabilistic Output Report provides regression and correlation coefficients for the average doses at the user defined evaluation times. The Partial Rank Correlation Coefficient (PRCC) has been used to identify sensitive parameters. NUREG/CR-7267 and NUREG/CR-6697 [3.6] recommend the use of the PRCC for cases where a non-linear relationship exists, such as in the case for the Industrial Use Scenario. PRCC values greater than zero (positive value) or less than zero (negative value) identify whether sensitive parameters are positively or negatively correlated to dose, respectively.

The criterion for sensitivity used in this calculation was a PRCC value with an absolute value greater than 0.25. To address the uncertainties associated with the input parameters identified as "sensitive," the 25th percentile value of the parameter's distribution was selected for sensitive parameters that had a negative PRCC value, and the 75th percentile value of the parameter's distribution was selected for sensitive parameters that had a positive PRCC value. The 75th percentile and 25th percentile values are recommended as reasonably conservative input values for calculations of DCGL values for open land areas at the OCS site. The approach of assigning 25th and 75th percentile values of a sensitive parameter's distribution to account for uncertainty in DCGL values has been accepted in past decommissioning projects (e.g., Yankee Rowe, Zion, Connecticut Yankee, Humboldt Bay, Fort Calhoun Station, and SMUD) by the U.S. Nuclear Regulatory Commission (NRC) and State regulators.

2.0 INPUT and CALCULATIONS

2.1 Radionuclide-of-concern (ROC)

- 2.1.1 A site-specific suite of potential ROCs has been identified for the OCS site [3.7]. OCS ROCs are listed in Table 1.

NOTE: RESRAD-Onsite 7.2 automatically accounts for progeny radionuclides with input for several of the OCS ROCs. Progeny radionuclides are also listed in Table 1.

Table 1: Potential Radionuclides-of-Concern Identified for the OCS Site

ROC ^a	Progeny ^b	ROC ^a	Progeny ^b
Am-241	Np-237, Th-229, U-233	Nb-94	---
C-14	---	Ni-63	---
Cm-243	Ac-227, Am-243, Pa-231, Pu-239, U-235	Np-237	Th-229, U-233
Cm-244	Pu-240, Ra-228, Th-228, Th-232, U-236	Pu-238	Pb-210, Po-210, Ra-226, Th-230, U-234
Cs-137	---	Pu-239	Ac-227, Pa-231, U-235
Co-60	---	Pu-240	Ra-228, Th-228, Th-232, U-236
Eu-152	Gd-152	Pu-241	Am-241, Np-237, Th-229, U-233
Eu-154	---	Sb-125	Te-125m
Fe-55	---	Sr-90	---
H-3	---	Tc-99	---
Mn-54	---		

^a ROC = radionuclide-of-concern identified for the OCS site.

^b Included automatically with input of parent ROC.

- 2.2 The scenario modelled in this calculation is an IR scenario, which is one of two scenarios that support development of DCGL values for below-grade concrete structures. The IR scenario assumes an instantaneous release of radioactive contamination on the surfaces of below-grade concrete basements to the fill material that is within 1m of the concrete surfaces creating a contaminated volume (CV). The resultant CV remains below site grade, covered by 3ft (0.91m) soil, and extends to a depth of 43ft (13.1m), which is the depth of the Reactor Building foundation walls. Portions of the CV reside in both the unsaturated and saturated zones based on site geological features. The water table is assumed at the site average groundwater table depth and the below-grade concrete structures are assumed not to impede groundwater flow. The configuration of contaminated zone (CZ) created by the CV is shown in Figure 1.
- 2.3 The CV is assessed using the IU exposure pathways. The IU scenario assumes the average member of the critical group is a hypothetical full-time site worker assigned to outdoor tasks and who also catches and consumes fish from the intake/discharge canal during off-hours. The pathways used to estimate human radiation exposure resulting from residual radioactivity in the soil for this scenario are:
- Direct external radiation exposure pathway
 - Inhalation exposure pathway
 - Ingestion exposure via aquatic food from the intake/discharge canal
 - Inadvertent ingestion of contaminated soil

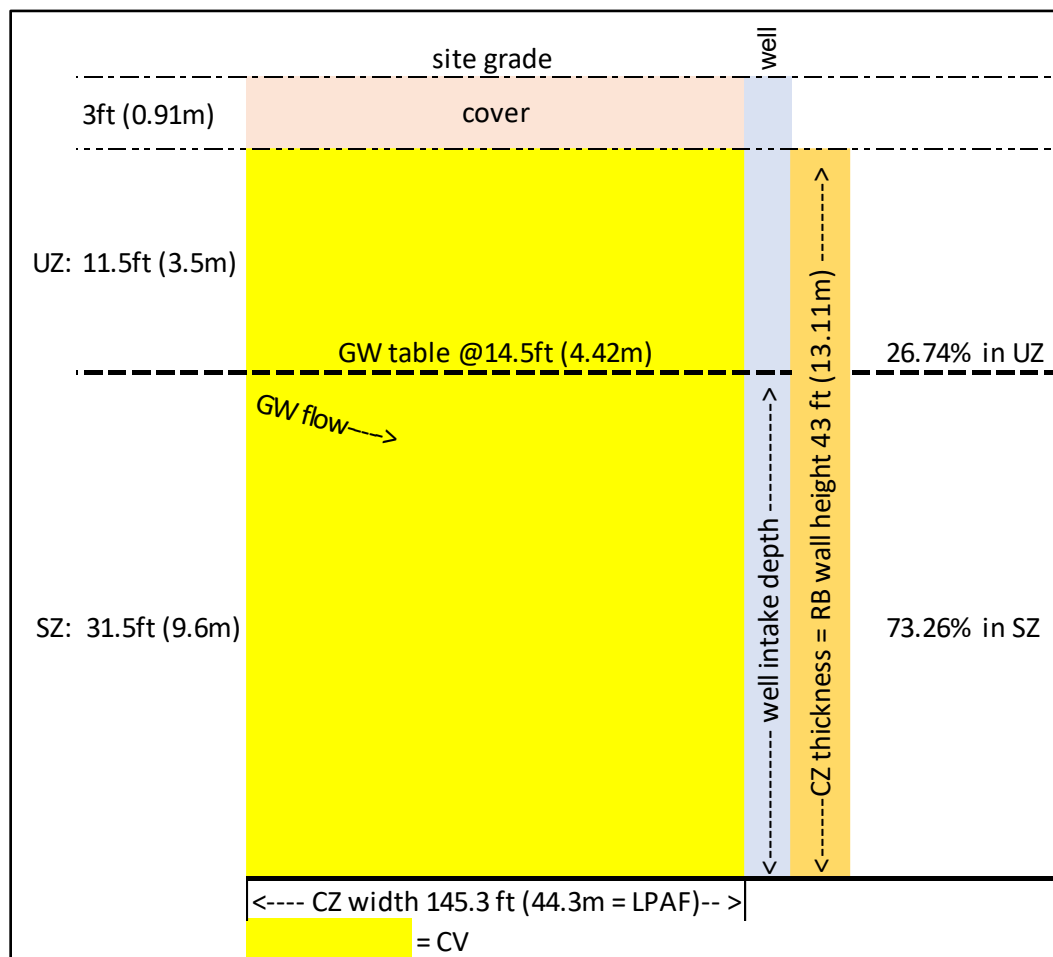


Figure 1: Conceptual Configuration of CV (note: not to scale)

- 2.4 The CV was calculated using the surface areas of below-grade concrete surfaces for the Reactor Building (RB), Turbine Building (TB), Old Radwaste Building (ORB), and stack area provided in Table 1 of Holtec-00045 Calc-001. The surface areas (m^2) are multiplied by 1 m to obtain the total volume of fill material immediately adjacent at 1m to the concrete surfaces: $CV, m^3 = (\text{surface area}, m^2) \times (1\text{m adjacent fill})$. Table 1 shows these calculations.

Table 1. Contaminated Volume Calculations

	Below-Grade Surface Area*		"Instant Release"
	ft ²	m ²	CV m ³
Reactor Building	78,655	7,307	7,307
Turbine Building	96,535	8,968	8,968
Old RW Building	14,224	1,321	1,321
Stack Area	27,862	2,588	2,588
Total Volume	217,276	20,184	20,184

*Source: Holtec-00045 Calc-001, Table 1

- 2.5 The CZ and length parallel to aquifer flow (LPAF, a RESRAD-Onsite input parameter) are calculated from the CV, assuming a disk configuration with a thickness equal to the height of RB wall, 43 ft (13.11m) (source of RB wall height: Holtec-00045 Calc-001).

$$\begin{aligned}\text{CZ Area (m}^2\text{)} &= \text{CV (m}^3\text{)}/\text{CVh (m)} = \pi r^2 \\ 20,184 \text{ m}^3/13.11 \text{ m} &= \pi r^2 \\ 1539.59 \text{ m}^2 &= \pi r^2 = \text{CZ area} \\ 490.07 \text{ m}^2 &= r^2 \\ 22.14\text{m} &= r \\ 2r = \text{diameter} &= 44.27\text{m} = \text{LPAF}\end{aligned}$$

The CZ area and LPAF values were rounded to **1539.6 m²** and **44.3m**, respectively, for RESRAD-Onsite input.

- 2.6 Fractions of CV in the unsaturated zone (UZ) and saturated zone (SZ):

Cover thickness = 3 ft (0.91 m)

Height of RB wall left in place under cover = 43 ft (Holtec-00045 Calc-001)

The average ground water (GW) depth for wells near the RB, TB, and ORB is 14.5ft based on Oyster Creek supplied groundwater information. The Excel spreadsheet used for the depth of groundwater is provided as Attachment 1.

Depth to GW = 14.5 ft, which leaves (14.5 ft – 3 ft cover =) 11.5 ft of RB wall above GW.

Fraction of CV in UZ = 11.5 ft/43ft = 0.2674

Fraction of CV in SZ (i.e., GW) = (43-11.5) ft/43 ft = **0.7326**

- 2.7 UZ thickness:

The contaminated zone is located under 3-ft (0.91m) cover and GW is assumed at 14.5 ft, which places top 11.5 ft of CZ in the UZ. Therefore, the thickness of UZ = 11.5 ft (**3.5 m**).

- 2.8 **Sand** is assumed as soil type for cover and fill material (consistent with soil type assumed in calculations for surface soil DCGL values and supported by information provided in the 2017 Hydrogeologic Investigation Report, the OCS HSA, and well installation logs). Distributions for K_d values, density, porosity, field capacity, and RESRAD “b” parameter for sand are taken from NURREG/CR-7267 and are applied in the probabilistic analyses.

- 2.9 Table 2 summarizes the input values/distribution and the reference source for each input parameter. Table 2 also indicates RESRAD-Onsite parameter values that have been calculated previously and are documented in calculation ENG-OCS-007 [3.11].

3.0 RESULTS

- 3.1 RESRAD-Onsite 7.2 was executed for each ROC using the input values provided in Table 2. An absolute PRCC value ≥ 0.25 was used as the criterion for identifying sensitive input parameters.
- 3.2 Table 3 summarizes the sensitive parameters for each ROC. Selected pages from the RESRAD-Onsite 7.2 Uncertainty Reports from each code execution are provided in Attachment 2. RESRAD-Onsite parameters identified as sensitive are highlighted in yellow.
- 3.3 Table 4 summarizes the 25th and 75th percentile values for each identified sensitive input parameter for each ROC.

Note: For the sensitive parameters, the 75th percentile value of the distribution was selected when the absolute value of the PRCC was ≥ 0.25 and the PRCC had a positive value. The

25th percentile value was selected when the absolute value of the PRCC value was ≥ 0.25 but had a negative value.

4.0 CONCLUSIONS

4.1 Sensitive input parameters varied among the ROCs and included parameters such as

- Distribution coefficients (K_d values) in the CZ
- K_d values in the UZ
- Density of cover material
- Hydraulic gradient in SZ
- External shielding factor
- Fish transfer factor
- Depth of soil mixing layer
- Aquatic food fraction
- Evapotranspiration coefficient

4.2 The 25th and 75th percentile values for sensitive input parameters (presented in Table 4) provide reasonably conservative input for developing DCGL values based on the Instantaneous Release scenario with the application of industrial use exposure pathways.

Table 2. Input Values for RESRAD-Onsite Parameters

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
RESRAD Exposure Pathways										
External Gamma										Open
Inhalation										Open
Plant Ingestion										Close
Meat Ingestion										Close
Milk Ingestion										Close
Aquatic Foods										Open
Drinking Water										Close
Soil Ingestion										Open
Radon										Close
Parameter (unit)	Type ^a	Priority ^b	Treatment ^c	Value/Distribution	Basis	Distribution's Statistical Parameters ^d				Median/ Mean
						1	2	3	4	
Soil Concentrations										
Basic radiation dose limit (mrem/y)	P	3	D	25	10 CFR 20.1402	NR	NR	NR	NR	
Initial principal radionuclide (pCi/g)	P	2	D	1	Unit Value	NR	NR	NR	NR	
Distribution coefficients (sand soil type assigned to contaminated, unsaturated, and saturated zones) (cm ³ /g)										
Ac-227	P	1	S	Truncated lognormal-n	NUREG/CR-7267	7.44	1.1	0.001	0.999	1700
Am-241	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.91	1.95	0.001	0.999	1000
Am-243	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.91	1.95	0.001	0.999	1000
C-14	P	1	S	Truncated lognormal-n	NUREG/CR-7267	3.04	1.82	0.001	0.999	21
Cm-243	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	8.13	2.64	0.001	0.999	3400
Cm-244	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	8.13	2.64	0.001	0.999	3400
Co-60	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.56	2.89	0.001	0.999	260
Cs-137	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.27	1.79	0.001	0.999	530
Eu-152	P	1	S	Truncated lognormal-n	NUREG/CR-7267	6.86	4.01	0.001	0.999	955
Eu-154	P	1	S	Truncated lognormal-n	NUREG/CR-7267	6.86	4.01	0.001	0.999	955
Fe-55	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.77	0	0.001	0.999	320
Gd-152	P	1	S	Truncated lognormal-n	NUREG/CR-7267	1.61	3.22	0.001	0.999	5
H-3	P	1	S	Truncated lognormal-n	NUREG/CR-7267	-2.81	0.5	0.001	0.999	0.06
Mn-54	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.89	2.64	0.001	0.999	980
Nb-94	P	1	S	Truncated lognormal-n	NUREG/CR-7267	7.31	1.39	0.001	0.999	1500
Ni-63	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.87	2.3	0.001	0.999	130
Np-237	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	2.64	1.39	0.001	0.999	14
Pa-231	P	1	S	Truncated lognormal-n	NUREG/CR-7267	7.6	1.1	0.001	0.999	2000
Pb-210	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.39	1.39	0.001	0.999	220
Po-210	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.61	1.79	0.001	0.999	100
Pu-238	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.99	1.39	0.001	0.999	400
Pu-239	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.99	1.39	0.001	0.999	400
Pu-240	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.99	1.39	0.001	0.999	400
Pu-241	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	5.99	1.39	0.001	0.999	400
Ra-226	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	8.04	2.08	0.001	0.999	3100
Ra-228	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	8.04	2.08	0.001	0.999	3100
Sb-125	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	2.83	1.79	0.001	0.999	17

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Sr-90	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	3.09	1.79	0.001	0.999	22
Tc-99	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	-3.22	1.1	0.001	0.999	0.04
Te-125m	P	1	S	Truncated lognormal-n	NUREG/CR-7267	6.31	3.22	0.001	0.999	550
Th-228	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.55	2.4	0.001	0.999	700
Th-229	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.55	2.4	0.001	0.999	700
Th-230	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.55	2.4	0.001	0.999	700
Th-232	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	6.55	2.4	0.001	0.999	700
U-233	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.7	2.48	0.001	0.999	110
U-234	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.7	2.48	0.001	0.999	110
U-235	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.7	2.48	0.001	0.999	110
U-236	P	1	S	Truncated lognormal-n	ANL/EVS/TM-14/4	4.7	2.48	0.001	0.999	110
Initial concentration of radionuclides present in groundwater (pCi/l)	P	3	D	0	Ground water uncontaminated	NR	NR	NR	NR	
Calculation Times										
Time since placement of material (y)	P	3	D	0		NR	NR	NR	NR	
Time for calculations (y)	P	3	D	0, 1, 3, 10, 30, 100, 300, 1000	RESRAD Default	NR	NR	NR	NR	
Contaminated Zone										
Area of contaminated zone (m ²)	P	2	D	1539.6	Based on contaminated volume and height of RB wall.	NR	NR	NR	NR	
Thickness of contaminated zone (m)	P	2	D	13.1	CZ thickness set to RB wall height.	NR	NR	NR	NR	
Length parallel to aquifer flow (m)	P	2	D	44.3	Set to diameter of CZ.	NR	NR	NR	NR	
Does the initial contamination penetrate the water table?				Yes	Based on site features and RB dimensions.					
Contaminated fraction below water table			D	.7326	Based on OCGS site data; average groundwater depths recorded for wells around the RB, TB, and ORB.	NR	NR	NR	NR	
Cover and Contaminated Zone Hydrological Data										
Cover depth (m)	P	2	D	0.91	3ft cover assumed.	NR	NR	NR	NR	
Cover density (g/cm ³)	P	2	S	Truncated Normal	Site soil type = sand (2017 <i>Hydrogeologic Investigation Report</i>). Input for density of fill material = NUREG/CR-7267 density distribution for site soil type - sand .	1.5105	0.159	0.001	0.999	1.5105
Cover erosion rate (m/y)	P	2	D	6E-04	Assumed final site grade is level. Input for erosion rate = NUREG/CR-7267 erosion rate for site with shallow slope (i.e., relatively level)	NR	NR	NR	NR	
Density of contaminated zone (g/cm ³)	P	1	S	Truncated Normal	Site soil type = sand (2017 <i>Hydrogeologic Investigation Report</i>). Input for density of fill material = NUREG/CR-7267 density distribution for site soil type - sand .	1.5105	0.159	0.001	0.999	1.5105

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Contaminated zone erosion rate (m/y)	P	2	D	6E-04	Assumed same as cover.	NR	NR	NR	NR	
Contaminated zone total porosity	P	2	S	Bounded Normal	NUREG/CR-7267 distribution for site soil type -sand	0.43	0.06	0.2446	0.6154	0.43
Contaminated zone field capacity	P	3	D	0.18	Value based on site-specific soil type (sand); calculated using equation in NUREG/CR-7267 (documented in Calculation ENG-OCS-007)	NR	NR	NR	NR	
Contaminated zone hydraulic conductivity (m/y)	P	2	D	2741	2017 <i>Hydrogeologic Investigation Report</i>	NR	NR	NR	NR	
Contaminated zone b parameter	P	2	S	Bounded Log Normal n	NUREG/CR-7267 distribution for site soil type - sand	- 0.0253	0.216	0.501	1.90	0.975
Humidity in air (g/m ³)	P	3	D	6.6	From <i>Regional and Site-Specific Absolute Humidity Data for Use in Tritium Dose Calculations</i> .	NR	NR	NR	NR	
Evapotranspiration coefficient	P	2	S	Uniform	NUREG/CR-7267 distribution	0.5	0.75	NR	NR	0.625
Average annual wind speed (m/s)	P	2	D	3.13	Internet search: https://www.windfinder.com/windstatistics/oyster_creek_barnegat_bay (documented in Calculation ENG-OCS-007).	NR	NR	NR	NR	
Precipitation (m/y)	P	2	D	1.4	<i>Annual Report on the Meteorological Program at Oyster Creek Generating Station</i> – average annual precipitation for 2015 through 2020 (documented in Calculation ENG-OCS-007).	NR	NR	NR	NR	
Irrigation (m/y)	B	3	S	Uniform	Distribution determined using methodology described in <i>Data Collection Handbook</i> and NUREG/CR-6697 (documented in Calculation ENG-OCS-007).	0	0.08			0.04
Irrigation mode	B	3	D	Overhead	Overhead irrigation is common practice for crops in U.S.	NR	NR	NR	NR	
Runoff coefficient	P	2	D	0.2	Value determined using methodology described in <i>Data Collection Handbook</i> and NUREG/CR-7267 (documented in Calculation ENG-OCS-007).	NR	NR	NR	NR	
Watershed area for nearby stream or pond (m ²)	P	3	D	1.01E+08	NJ-GeoWeb (NJDEP BGIS) (documented in Calculation ENG-OCS-007).	NR	NR	NR	NR	

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Accuracy for water/soil computations	-	3	D	1.00E-03	RESRAD Default	NR	NR	NR	NR	
Saturated Zone Hydrological Data										
Density of saturated zone (g/cm ³)	P	1	S	Truncated Normal	NUREG/CR-7267 distribution for site soil type - sand	1.5105	0.159	0.001	0.999	1.5105
Saturated zone total porosity	P	1	S	Truncated Normal	NUREG/CR-7267 distribution for site soil type - sand	0.43	0.06	0.001	0.999	0.43
Saturated zone effective porosity	P	1	D	0.25	2017 <i>Hydrogeologic Investigation Report</i>	NR	NR	NR	NR	
Saturated zone field capacity	P	3	D	0.18	Value based on site-specific soil type (sand); calculated using equation in NUREG/CR-7267	NR	NR	NR	NR	
Saturated zone hydraulic conductivity (m/y)	P	1	D	2741	2017 <i>Hydrogeologic Investigation Report</i>	NR	NR	NR	NR	
Saturated zone hydraulic gradient	P	2	S	Uniform	2017 <i>Hydrogeologic Investigation Report</i>	0.01	0.04			0.025
Saturated zone b parameter	P	2	S	NR	CZ in SZ	NR	NR	NR	NR	
Water table drop rate (m/y)	P	3	D	0	CZ in SZ	NR	NR	NR	NR	
Well pump intake depth (m below water table)	P	2	D	9.6	Set to the distance from the water table to the lower boundary of contamination in the aquifer at the downgradient edge of the contaminated zone.	NR	NR	NR	NR	
Model: Nondispersion (ND) or Mass-Balance (MB)	P	3	D	ND	ND model recommended for contaminant areas >1,000 m ²	NR	NR	NR	NR	
Well pumping rate (m ³ /y)	P	2	S	NR	Drinking water pathway suppressed.	NR	NR	NR	NR	
Unsaturated Zone Hydrological Data										
Number of unsaturated zone strata	P	3	D	1	See Figure 1.	NR	NR	NR	NR	
Unsat. zone 1, thickness (m)	P	1	D	3.5	11.5 ft (3.5m) of CZ located between cover and groundwater table.	NR	NR	NR	NR	
Unsat. zone 1, soil density (g/cm ³)	P	2	S	Truncated Normal	NUREG/CR-7267 distribution for site soil type - sand	1.5105	0.159	0.001	0.999	1.5105
Unsat. zone 1, total porosity	P	2	S	Truncated Normal	NUREG/CR-7267 distribution for site soil type - sand	0.43	0.06	0.001	0.999	0.43
Unsat. zone 1, effective porosity	P	2	D	0.25	2017 <i>Hydrogeologic Investigation Report</i>	NR	NR	NR	NR	
Unsat. zone 1, field capacity	P	3	D	0.18	Value based on site-specific soil type (sand); calculated using equation in NUREG/CR-7267	NR	NR	NR	NR	
Unsat. zone 1, hydraulic conductivity (m/y)	P	2	D	2741	2017 <i>Hydrogeologic Investigation Report</i>	NR	NR	NR	NR	
Unsat. zone 1, soil-specific b parameter	P	2	S	Bounded Log Normal n	NUREG/CR-7267 distribution for site soil type - sand	- 0.0253	0.216	0.501	1.90	0.975

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Occupancy										
Inhalation rate (m ³ /y)	B	3	D	8400	NUREG/CR-7267	NR	NR	NR	NR	
Mass loading for inhalation (g/m ³)	P	2	S	Continuous linear	NUREG/CR-7267					2.3E-5
Exposure duration	B	3	D	30	RESRAD Default	NR	NR	NR	NR	
Indoor dust filtration factor	P	2	S	Uniform	NUREG/CR-7267	0.15	0.95			0.55
Shielding factor, external gamma	P	2	S	Bounded lognormal-n	NUREG/CR-7267	-1.3	0.59	0.044	1	0.2725
Fraction of time spent indoors	B	3	D	0.03	Fraction of calendar year assuming 1h/work day for daily work breaks	NR	NR	NR	NR	
Fraction of time spent outdoors	B	3	D	0.2	Fraction of calendar year assuming 7h/work day for outside tasks	NR	NR	NR	NR	
Shape factor flag, external gamma	P	3	D	Circular	Circular contaminated zone assumed	NR	NR	NR	NR	
Ingestion, Dietary										
Fruits, vegetables, grain consumption (kg/y)	B	2	D	N/A	Input not required - plant ingestion pathway inactive	NR	NR	NR	NR	
Leafy vegetable consumption (kg/y)	B	3	D	N/A	Input not required - plant ingestion pathway inactive	NR	NR	NR	NR	
Milk consumption (L/y)	B	2	D	N/A	Input not required - milk ingestion pathway inactive	NR	NR	NR	NR	
Meat and poultry consumption (kg/y)	B	3	D	N/A	Input not required - meat ingestion pathway inactive	NR	NR	NR	NR	
Fish consumption (kg/y)	B	3	D	20.6	NUREG/CR-5512, Vol. 3	NR	NR	NR	NR	
Other seafood consumption (kg/y)	B	3	D	0.9	RESRAD Default	NR	NR	NR	NR	
Soil ingestion rate (g/yr)	B	2	S	Triangular	NUREG/CR-7267	0	0.39	1		0.39
Drinking water intake (L/y)	B	2	D	N/A	Input not required – drinking water pathway inactive	NR	NR	NR	NR	
Contamination fraction of drinking water	P	3	D	N/A	Input not required – drinking water pathway inactive	NR	NR	NR	NR	
Contamination fraction of household water	P	3		N/A	Input not required – water pathway inactive					
Contamination fraction of livestock water	P	3	D	N/A	Input not required – drinking water/ingestion pathways inactive	NR	NR	NR	NR	
Contamination fraction of irrigation water	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Contamination fraction of aquatic food	P	2	D	Triangular	NUREG/CR-7267	NR	NR	NR	NR	
Contamination fraction of plant food	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Contamination fraction of meat	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Contamination fraction of milk	P	3	D	N/A	Input not required – milk ingestion pathway inactive	NR	NR	NR	NR	
Ingestion, Non-Dietary										

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Livestock fodder intake for meat (kg/d)	M	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Livestock fodder intake for milk (kg/d)	M	3	D	N/A	Input not required – milk ingestion pathway inactive	NR	NR	NR	NR	
Livestock water intake for meat (L/d)	M	3	D	N/A	Input not required – water ingestion pathway inactive	NR	NR	NR	NR	
Livestock water intake for milk (L/d)	M	3	D	N/A	Input not required – milk ingestion pathway inactive	NR	NR	NR	NR	
Livestock soil intake (kg/d)	M	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Mass loading for foliar deposition (g/m ³)	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Depth of soil mixing layer (m)	P	2	S	Triangular	NUREG/CR-7267	0	0.15	0.6		0.23
Depth of roots (m)	P	1	S	N/A	Input not required – plant ingestion pathway inactive	0.3	4			1.85
Drinking water fraction from ground water	P	3	D	N/A	Input not required – drinking water ingestion pathway inactive	NR	NR	NR	NR	
Household water fraction from ground water	P	3		N/A	Input not required – drinking water pathway inactive					
Livestock water fraction from ground water	P	3	D	N/A	Input not required – drinking water/meat ingestion pathways inactive	NR	NR	NR	NR	
Irrigation fraction from ground water	P	3	D	N/A	Input not required – drinking water pathway inactive	NR	NR	NR	NR	
Wet weight crop yield for Non-Leafy (kg/m ²)	P	2	S	N/A	Input not required – plant ingestion pathway inactive	0.56	0.48	0.001	0.999	1.75
Wet weight crop yield for Leafy (kg/m ²)	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Wet weight crop yield for Fodder (kg/m ²)	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Growing Season for Non-Leafy (y)	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Growing Season for Leafy (y)	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Growing Season for Fodder (y)	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Translocation Factor for Non-Leafy	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Translocation Factor for Leafy	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Translocation Factor for Fodder	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Weathering Removal Constant for Vegetation (1/y)	P	2	S	N/A	Input not required – plant ingestion pathway inactive	5.1	18	84		33
Wet Foliar Interception Fraction for Non-Leafy	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Wet Foliar Interception Fraction for Leafy	P	2	S	N/A	Input not required – plant ingestion pathway inactive	0.06	0.67	0.95		0.58

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Wet Foliar Interception Fraction for Fodder	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Dry Foliar Interception Fraction for Non-Leafy	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Dry Foliar Interception Fraction for Leafy	P	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Dry Foliar Interception Fraction for Fodder	P	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Storage times of contaminated foodstuffs (days):										
Fruits, non-leafy vegetables, and grain	B	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Leafy vegetables	B	3	D	N/A	Input not required – plant ingestion pathway inactive	NR	NR	NR	NR	
Milk	B	3	D	N/A	Input not required – milk ingestion pathway inactive	NR	NR	NR	NR	
Meat and poultry	B	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Fish	B	3	D	7	RESRAD Default	NR	NR	NR	NR	
Crustacea and mollusks	B	3	D	7	RESRAD Default	NR	NR	NR	NR	
Well water	B	3	D	N/A	Input not required – drinking water pathway inactive	NR	NR	NR	NR	
Surface water	B	3	D	N/A	Input not required drinking water pathway inactive	NR	NR	NR	NR	
Livestock fodder	B	3	D	N/A	Input not required – meat ingestion pathway inactive	NR	NR	NR	NR	
Special Radionuclides (C-14)										
C-12 concentration in water (g/cm ³)	P	3	D	2.00E-05	RESRAD Default	NR	NR	NR	NR	
C-12 concentration in contaminated soil (g/g)	P	3	D	3.00E-02	RESRAD Default	NR	NR	NR	NR	
Fraction of vegetation carbon from soil	P	3	D	2.00E-02	RESRAD Default	NR	NR	NR	NR	
Fraction of vegetation carbon from air	P	3	D	9.80E-01	RESRAD Default	NR	NR	NR	NR	
C-14 evasion layer thickness in soil (m)	P	2	S	Triangular	NUREG/CR-7267	0.2	0.3	0.6		0.3
C-14 evasion flux rate from soil (1/s)	P	3	D	7.00E-07	RESRAD Default	NR	NR	NR	NR	
C-12 evasion flux rate from soil (1/s)	P	3	D	1.00E-10	RESRAD Default	NR	NR	NR	NR	
Fraction of grain in beef cattle feed	B	3	D	0.2500	NUREG/CR-7267	NR	NR	NR	NR	
Fraction of grain in milk cow feed	B	3	D	0.1000	NUREG/CR-7267	NR	NR	NR	NR	
Inhalation Dose Conversion Factors (mrem/pCi inhaled) from FGR11 (contained in RESRAD Dose Conversion Library)										
Ingestion Dose Conversion Factors (mrem/pCi ingested) from FGR11 (contained in RESRAD Dose Conversion Library)										
Plant Transfer Factors (pCi/g plant)/(pCi/g soil)										
Note: Plant ingestion pathway closed – input for plant transfer factors not required for Industrial Use dose calculations.										

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Meat Transfer Factors (pCi/kg)/(pCi/d)										
Note: Meat ingestion pathway closed – input for meat transfer factors not required for Industrial Use dose calculations.										
Milk Transfer Factors (pCi/L)/(pCi/d)										
Note: Milk ingestion pathway closed – input for milk transfer factors not required for Industrial Use dose calculations.										
Bioaccumulation Factors for Fish ((pCi/kg)/(pCi/L))										
Ac-227	P	2	S	Lognormal-n	NUREG/CR-7267	3.2	1.1			2.5E+01
Am-241	P	2	S	Lognormal-n	NUREG/CR-7267	5.5	1.1			2.4E+02
Am-243	P	2	S	Lognormal-n	NUREG/CR-7267	5.5	1.1			2.4E+02
C-14	P	2	S	Lognormal-n	NUREG/CR-7267	13.0	1.1			4.4E+05
Cm-243	P	2	S	Lognormal-n	NUREG/CR-7267	3.4	1.1			3.0E+01
Cm-244	P	2	S	Lognormal-n	NUREG/CR-7267	3.4	1.1			3.0E+01
Co-60	P	2	S	Lognormal-n	NUREG/CR-7267	4.3	0.9			7.4E+01
Cs-137	P	2	S	Lognormal-n	NUREG/CR-7267	7.8	0.9			2.4E+03
Eu-152	P	2	S	Lognormal-n	NUREG/CR-7267	4.9	1.6			1.3E+02
Eu-154	P	2	S	Lognormal-n	NUREG/CR-7267	4.9	1.6			1.3E+02
Fe-55	P	2	S	Lognormal-n	NUREG/CR-7267	5.1	1.9			1.6E+02
Gd-152	P	2	S	Lognormal-n	NUREG/CR-7267	3.4	1.1			3.0E+01
H-3	P	2	S	Lognormal-n	NUREG/CR-7267	0	0.1			1.0E+00
Mn-54	P	2	S	Lognormal-n	NUREG/CR-7267	5.5	1.9			2.4E+02
Nb-94	P	2	S	Lognormal-n	NUREG/CR-7267	5.7	1.1			3.0E+02
Ni-63	P	2	S	Lognormal-n	NUREG/CR-7267	3.0	0.6			2.0E+01
Np-237	P	2	S	Lognormal-n	NUREG/CR-7267	3.0	1.1			2.0E+01
Pa-231	P	2	S	Lognormal-n	NUREG/CR-7267	2.3	1.1			1.0E+01
Pb-210	P	2	S	Lognormal-n	NUREG/CR-7267	3.2	1.1			2.5E+02
Po-210	P	2	S	Lognormal-n	NUREG/CR-7267	3.6	1.5			3.7E+01
Pu-238	P	2	S	Lognormal-n	NUREG/CR-7267	10.0	1.0			2.2E+04
Pu-239	P	2	S	Lognormal-n	NUREG/CR-7267	10.0	1.0			2.2E+04
Pu-240	P	2	S	Lognormal-n	NUREG/CR-7267	10.0	1.0			2.2E+04
Pu-241	P	2	S	Lognormal-n	NUREG/CR-7267	10.0	1.0			2.2E+04
Ra-226	P	2	S	Lognormal-n	NUREG/CR-7267	1.4	1.9			4.1E+00
Ra-228	P	2	S	Lognormal-n	NUREG/CR-7267	1.4	1.9			4.1E+00
Sb-125	P	2	S	Lognormal-n	NUREG/CR-7267	3.6	1.5			3.7E+01
Sr-90	P	2	S	Lognormal-n	NUREG/CR-7267	1.1	1.4			3.0E+00
Tc-99	P	2	S	Lognormal-n	NUREG/CR-7267	3.0	1.1			2.0E+01
Te-12m	P	2	S	Lognormal-n	NUREG/CR-7267	5.0	0.4			1.5E+02
Th-228	P	2	S	Lognormal-n	NUREG/CR-7267	4.6	1.1			9.9E+01
Th-229	P	2	S	Lognormal-n	NUREG/CR-7267	4.6	1.1			9.9E+01
Th-230	P	2	S	Lognormal-n	NUREG/CR-7267	4.6	1.1			9.9E+01
Th-232	P	2	S	Lognormal-n	NUREG/CR-7267	4.6	1.1			9.9E+01
U-233	P	2	S	Lognormal-n	NUREG/CR-7267	0.0	2.5			1.0E+00
U-234	P	2	S	Lognormal-n	NUREG/CR-7267	0.0	2.5			1.0E+00
U-235	P	2	S	Lognormal-n	NUREG/CR-7267	0.0	2.5			1.0E+00
U-236	P	2	S	Lognormal-n	NUREG/CR-7267	0.0	2.5			1.0E+00
Bioaccumulation Factors for Crustacea/ Mollusks ((pCi/kg)/(pCi/L)) RESRAD default value for each radionuclide applied										
Graphics Parameters										
Number of points				32	RESRAD Default	NR	NR	NR	NR	
Spacing				log	RESRAD Default	NR	NR	NR	NR	

Input Values for Probabilistic Analysis: OC BFM Instantaneous Release (<i>In Situ</i>) Scenario to Support the Industrial Use Compliance Scenario										
Time integration parameters										
Maximum number of points for dose				17	RESRAD Default	NR	NR	NR	NR	

Table 2 Notes:

^a P = physical, B = behavioral, M = metabolic

^b 1 = high-priority parameter, 2 = medium-priority parameter, 3 = low-priority parameter

^c D = deterministic, S = stochastic

^d Distributions Statistical Parameters:

Lognormal-n: 1= mean, 2 = standard deviation

Bounded lognormal-n: 1= mean, 2 = standard deviation, 3 = minimum, 4 = maximum

Truncated lognormal-n: 1= mean, 2 = standard deviation, 3 = lower quantile, 4 = upper quantile

Bounded normal: 1 = mean, 2 = standard deviation, 3 = minimum, 4 = maximum

Triangular: 1 = minimum, 2 = mode, 3 = maximum

Uniform: 1 = minimum, 2 = maximum

NR = not required

Table 3: Sensitive Input Parameter by Radionuclide

Radionuclide	Sensitive Parameter	PRCC Value
Am-241	K _d of Am-241 in CZ	0.34
	K _d of Am-241 in UZ	-0.29
	Depth of soil mixing layer	0.63
C-14	Density of cover material	-0.86
	K _d of C14 in CZ	0.41
	K _d of C14 in UZ	-0.30
Cm-243	Depth of soil mixing layer	0.48
	K _d of Am-243 in CZ	0.26
	K _d of Pu-239 in UZ	-0.54
Cm-244	Depth of soil mixing layer	0.50
	K _d of Pu-240 in CZ	0.43
	K _d of Pu-240 in UZ	-0.55
Co-60	Density of cover material	-1.0
	K _d of Co-60 in CZ	0.42
	External gamma shielding factor	0.26
Cs-137	Density of cover material	-1.0
	External gamma shielding factor	0.80
Eu-152	Density of cover material	-0.99
	K _d of Eu-152 in CZ	0.42
Eu-154	Density of cover material	-0.99
	K _d of Eu-154 in CZ	0.40
Fe-55	No sensitive parameter identified	
H-3	SZ hydraulic gradient	-0.47
	Aquatic food fraction	0.66
Mn-54	Density of cover material	-1.0
	External gamma shielding factor	0.58
	K _d of Mn-54 in CZ	0.28
Nb-94	Density of cover material	-0.83
	SZ hydraulic gradient	-0.49
	K _d of Nb-94 in CZ	0.91
Ni-63	K _d of Ni-63 in UZ	-0.41
Np-237	Density of cover material	-0.25
	K _d of Np-237 in CZ	0.57
	K _d of Np-237 in UZ	-0.67
Pu-238	Density of cover material	-0.52
	K _d of U-234 in CZ	0.31
	K _d of U-234 in UZ	-0.53
Pu-239	Depth of soil mixing layer	0.45
	K _d of Pu-239 in CZ	0.55
	K _d of Pu-239 in UZ	-0.57
Pu-240	Density of cover material	-0.26
	K _d of Pu-240 in UZ	-0.49
	K _d of U-236 in UZ	-0.39
Pu-241	K _d of Am-241 in CZ	0.32
	K _d of Am-241 in UZ	-0.33
	Depth of soil mixing layer	0.64

Radionuclide	Sensitive Parameter	PRCC Value
Sb-125	Density of cover material	-1.0
	K _d of Sb-125 in CZ	0.63
Sr-90	Density of cover material	-0.55
	K _d of Sr-90 in CZ	0.59
	K _d of Sr-90 in UZ	-0.56
Tc-99	Aquatic foods fraction	0.41
	K _d of Tc-99 in UZ	-0.55
	Fish TF for Tc	0.67
	Evapotranspiration coefficient	-0.30

Table 4: RESRAD-Generated Percentile Values for Sensitive Input Parameters

Sensitive Input Parameter	Affected Nuclide	RESRAD Percentile Value ^a	
		25 th	75 th
Kd in CZ (cm ³ /g)	Am-241		3.71E+03
	Am-243		3.71E+03
	C-14		7.11E+01
	Co-60	3.71E+01	
	Eu-152		1.41E+04
	Eu-154		1.41E+04
	Mn-54		5.78E+03
	Nb-94		3.80E+03
	Np-237		3.56E+01
	Pu-239		1.02E+03
	Pu-240		1.02E+03
	Sb-125		5.64E+01
	Sr-90	6.58E+00	
	U-234	2.07E+01	
Kd in UZ (cm ³ /g)	Am-241	2.69E+02	
	C-14	6.14E+00	
	Ni-63	2.77E+01	
	Np-237	5.49E+00	
	Pu-239	1.57E+02	
	Pu-240	1.57E+02	
	Sr-90	6.58E+00	
	Tc-99	1.94E-02	
	U-234	2.07E+01	
	U-236	2.07E+01	
Density of cover material	C-14	1.40E+00	
	Co-60	1.40E+00	
	Cs-137	1.40E+00	
	Eu-152	1.40E+00	
	Eu-154	1.40E+00	
	Mn-54	1.40E+00	
	Nb-94	1.40E+00	
	Np-237	1.40E+00	
	Pu-238	1.40E+00	
	Pu-240	1.40E+00	
	Sb-125	1.40E+00	
	Sr-90	1.40E+00	
SZ hydraulic gradient	H-3	1.75E-02	
	Nb-94	1.75E-02	
External gamma shielding factor	Co-60		4.00E-01
	Cs-137		4.00E-01
	Mn-54		4.00E-01
Fish transfer factor (pCi/g per pCi/l)	Tc		4.21E+01

Sensitive Input Parameter	Affected Nuclide	RESRAD Percentile Value ^a	
		25 th	75 th
Depth of soil mixing layer	Am-241		3.40E-01
	Cm-243		3.40E-01
	Cm-244		3.40E-01
	Pu-239		3.40E-01
	Pu-241		3.40E-01
Aquatic food fraction	H-3		6.10E-01
	Tc-99		6.10E-01
Evapotranspiration coefficient	Tc-99	5.62E-01	

Attachment 1
OCS Groundwater Depth

Well	Date	DTW	General Location	Average Depth (fbg)
MW-15K-1A	7/26/2021	8.05	West of TB	8.9
MW-15K-1A	10/24/2022	8.21		
MW-15K-1A	1/27/2020	8.82		
MW-15K-1A	4/25/2022	8.92		
MW-15K-1A	5/19/2020	8.97		
MW-15K-1A	5/3/2021	9.05		
MW-15K-1A	10/18/2021	9.34		
MW-15K-1A	8/17/2020	9.53		
MW-15K-1A	4/18/2023	9.61		
MW-16D	7/26/2021	16.60	North side of RB	17.0
MW-16D	10/24/2022	16.75		
MW-16D	10/18/2021	16.85		
MW-16D	1/27/2020	17.00		
MW-16D	5/3/2021	17.03		
MW-16D	4/24/2023	17.11		
MW-16D	8/17/2020	17.18		
MW-16D	5/19/2020	17.26		
MW-16D	4/25/2022	17.43		
MW-1A-2A	7/26/2021	14.55	South of ORB	15.5
MW-1A-2A	5/3/2021	14.92		
MW-1A-2A	5/19/2020	15.10		
MW-1A-2A	1/27/2020	15.20		
MW-1A-2A	10/18/2021	15.31		
MW-1A-2A	10/24/2022	15.42		
MW-1A-2A	4/25/2022	15.92		
MW-1A-2A	8/17/2020	16.24		
MW-1A-2A	10/12/2020	16.55		
MW-1I-1A	7/26/2021	10.82	North of TB	11.8
MW-1I-1A	5/3/2021	11.11		
MW-1I-1A	5/19/2020	11.46		
MW-1I-1A	1/27/2020	11.67		
MW-1I-1A	10/24/2022	11.71		
MW-1I-1A	10/18/2021	11.85		
MW-1I-1A	4/25/2022	12.28		
MW-1I-1A	4/24/2023	12.32		
MW-1I-1A	8/17/2020	12.58		
MW-1I-1A	10/12/2020	12.62		
MW-1I-2A	7/26/2021	11.30	North of TB	12.3
MW-1I-2A	5/3/2021	11.65		
MW-1I-2A	10/24/2022	12.03		
MW-1I-2A	5/19/2020	12.11		
MW-1I-2A	1/27/2020	12.25		
MW-1I-2A	10/18/2021	12.35		
MW-1I-2A	4/25/2022	12.68		
MW-1I-2A	4/20/2023	12.70		
MW-1I-2A	8/17/2020	13.04		
MW-1I-2A	10/12/2020	13.23		
MW-24-3A Farm	5/3/2023	10.16	Not considered - REMP control	

Well	Date	DTW	General Location	Average Depth (fbg)
MW-24-3A Farm	5/3/2021	10.58		
MW-24-3A Farm	10/24/2022	10.62		
MW-24-3A Farm	1/27/2020	10.67		
MW-24-3A Farm	4/25/2022	10.70		
MW-24-3A Farm	5/19/2020	10.90		
MW-24-3A Farm	2/8/2021	10.94		
MW-24-3A Farm	10/18/2021	11.00		
MW-24-3A Farm	1/27/2020	11.24		
MW-24-3A Farm	10/12/2020	11.54		
MW-52	10/12/2020	9.80	Not considered - too far west	
MW-52	8/17/2020	10.20		
MW-52	10/24/2022	10.59		
MW-52	10/18/2021	10.64		
MW-52	5/3/2021	10.65		
MW-52	1/27/2020	10.68		
MW-52	4/20/2023	10.80		
MW-52	4/25/2022	10.81		
MW-52	5/19/2020	10.96		
MW-53	10/24/2022	10.17	West of TB	10.9
MW-53	4/25/2022	10.70		
MW-53	1/27/2020	10.71		
MW-53	5/3/2021	10.85		
MW-53	5/19/2020	10.90		
MW-53	10/12/2020	11.05		
MW-53	10/18/2021	11.20		
MW-53	4/18/2023	11.30		
MW-53	8/17/2020	11.34		
MW-54	10/12/2020	5.53	Not considered - too far west	
MW-54	1/27/2020	7.00		
MW-54	8/17/2020	7.25		
MW-54	10/24/2022	7.54		
MW-54	10/18/2021	7.75		
MW-54	4/25/2022	7.80		
MW-54	5/3/2021	7.82		
MW-54	4/20/2023	8.11		
MW-54	5/19/2020	8.20		
MW-55	10/12/2020	9.86	West of TB	10.6
MW-55	8/17/2020	10.25		
MW-55	10/24/2022	10.42		
MW-55	7/26/2021	10.43		
MW-55	1/27/2020	10.61		
MW-55	10/18/2021	10.80		
MW-55	4/18/2022	10.85		
MW-55	4/25/2022	10.90		
MW-55	5/3/2021	10.93		
MW-55	5/19/2020	11.25		
MW-56I	10/24/2022	10.65	West of TB	11.1
MW-56I	8/17/2020	10.68		

Well	Date	DTW	General Location	Average Depth (fbg)
MW-56I	7/26/2021	10.91		
MW-56I	1/27/2020	11.02		
MW-56I	10/18/2021	11.10		
MW-56I	10/12/2020	11.11		
MW-56I	4/18/2023	11.15		
MW-56I	5/3/2021	11.45		
MW-56I	4/25/2022	11.60		
MW-56I	5/19/2020	11.65		
MW-57I	10/12/2020	10.10	Not considered - too far west	
MW-57I	8/17/2020	10.45		
MW-57I	10/24/2022	10.75		
MW-57I	10/18/2021	10.92		
MW-57I	4/20/2023	10.95		
MW-57I	7/26/2021	11.03		
MW-57I	5/19/2020	11.08		
MW-57I	5/3/2021	11.10		
MW-57I	1/27/2020	11.20		
MW-57I	4/25/2022	11.23		
MW-59I	10/12/2020	12.47	West of TB	13.1
MW-59I	10/24/2022	12.79		
MW-59I	8/17/2020	12.90		
MW-59I	7/26/2021	13.15		
MW-59I	10/18/2021	13.15		
MW-59I	4/18/2023	13.15		
MW-59I	1/27/2020	13.30		
MW-59I	5/3/2021	13.40		
MW-59I	5/19/2020	13.42		
MW-59I	4/25/2022	13.47		
MW-61I	10/24/2022	10.37	West of TB	10.9
MW-61I	10/12/2020	10.43		
MW-61I	8/17/2020	10.45		
MW-61I	4/18/2023	10.60		
MW-61I	1/27/2020	10.84		
MW-61I	4/25/2022	10.95		
MW-61I	10/18/2021	11.05		
MW-61I	7/26/2021	11.10		
MW-61I	5/3/2021	11.30		
MW-61I	5/19/2020	11.47		
MW-62	10/18/2021	11.65	North of TB	13.3
MW-62	10/12/2020	12.82		
MW-62	7/26/2021	12.90		
MW-62	1/27/2020	13.17		
MW-62	8/17/2020	13.36		
MW-62	5/19/2020	13.51		
MW-62	10/24/2022	13.56		
MW-62	5/3/2021	13.75		
MW-62	4/25/2022	13.98		
MW-62	4/24/2023	14.41		

Well	Date	DTW	General Location	Average Depth (fbg)
MW-64	10/12/2020	9.85	Not considered - too far west	
MW-64	8/17/2020	10.43		
MW-64	10/24/2022	10.62		
MW-64	7/26/2021	10.65		
MW-64	10/18/2021	10.80		
MW-64	5/3/2021	11.00		
MW-64	4/20/2023	11.02		
MW-64	1/27/2020	11.06		
MW-64	4/25/2022	11.15		
MW-64	5/19/2020	11.30		
MW-65	5/19/2020	11.51	West of TB	12.2
MW-65	10/24/2022	11.64		
MW-65	10/12/2020	11.90		
MW-65	8/17/2020	12.05		
MW-65	7/26/2021	12.13		
MW-65	10/18/2021	12.27		
MW-65	4/18/2023	12.41		
MW-65	5/3/2021	12.45		
MW-65	4/25/2022	12.53	inside TB footprint	18.6
MW-65	1/27/2020	12.68		
MW-67	10/24/2022	18.22		
MW-67	7/26/2021	18.30		
MW-67	5/19/2020	18.44		
MW-67	4/24/2023	18.47		
MW-67	8/17/2020	18.59		
MW-67	1/27/2020	18.68		
MW-67	4/25/2022	18.78	South of RB	16.2
MW-67	10/18/2021	18.85		
MW-67	5/3/2021	18.87		
MW-67	10/12/2020	19.03		
MW-68I	8/17/2020	17.25		
MW-68I	10/12/2020	17.51		
MW-71	7/26/2021	15.62		
MW-71	10/24/2022	15.64	North of RB	18.2
MW-71	1/27/2020	16.03		
MW-71	10/18/2021	16.05		
MW-71	5/3/2021	16.10		
MW-71	5/19/2020	16.35		
MW-71	8/17/2020	16.40		
MW-71	4/24/2023	16.43		
MW-71	4/25/2022	16.61		
MW-71	10/12/2020	16.81	North of RB	18.2
MW-72	10/24/2022	17.92		
MW-72	7/26/2021	17.94		
MW-72	1/27/2020	17.98		
MW-72	10/18/2021	18.03		
MW-72	8/17/2020	18.05		
MW-72	5/3/2021	18.20		

Well	Date	DTW	General Location	Average Depth (fbg)
MW-72	4/24/2023	18.21		
MW-72	5/19/2020	18.30		
MW-72	4/25/2022	18.42		
MW-72	10/12/2020	18.50		
W-10	7/26/2021	17.57	South of RB	17.8
W-10	8/17/2020	17.61		
W-10	1/27/2020	17.64		
W-10	4/24/2023	17.75		
W-10	10/24/2022	17.79		
W-10	10/18/2021	17.80		
W-10	10/12/2020	17.88		
W-10	5/3/2021	17.90		
W-10	4/25/2022	18.09		
W-10	5/19/2020	18.15		
W-12	7/26/2021	13.20	North of RB	13.9
W-12	4/25/2022	13.52		
W-12	5/3/2021	13.60		
W-12	10/24/2022	13.76		
W-12	10/18/2021	13.80		
W-12	5/19/2020	13.85		
W-12	1/27/2020	13.90		
W-12	4/24/2023	14.20		
W-12	8/17/2020	14.45		
W-12	10/12/2020	14.85		
W-13	10/24/2022	19.02	North of RB	19.5
W-13	8/17/2020	19.10		
W-13	7/26/2021	19.22		
W-13	1/27/2020	19.26		
W-13	10/18/2021	19.37		
W-13	4/24/2023	19.47		
W-13	4/25/2022	19.48		
W-13	10/12/2020	19.52		
W-13	5/19/2020	19.73		
W-13	5/3/2021	20.65		
W-14	10/24/2022	17.70	NW of ORB	17.3
W-14	8/17/2020	17.90		
W-14	7/26/2021	17.95		
W-14	1/27/2020	17.96		
W-14	4/24/2023	18.11		
W-14	10/18/2021	18.12		
W-14	5/3/2021	18.30		
W-14	4/25/2022	18.31		
W-14	5/19/2020	18.45		
W-15	7/26/2021	10.35	NW of ORB	11.4
W-15	5/3/2021	10.60		
W-15	1/27/2020	10.87		
W-15	10/18/2021	11.13		
W-15	4/25/2022	11.37		

Well	Date	DTW	General Location	Average Depth (fbg)
W-15	10/24/2022	11.41		
W-15	5/19/2020	11.80		
W-15	4/24/2023	12.01		
W-15	8/17/2020	12.07		
W-15	10/12/2020	12.45		
W-16	7/26/2021	8.07	Not considered - too far north	
W-16	5/3/2021	8.33		
W-16	5/19/2020	8.53		
W-16	1/27/2020	8.65		
W-16	10/18/2021	8.87		
W-16	10/24/2022	9.00		
W-16	4/25/2022	9.17		
W-16	4/24/2023	9.23		
W-16	8/17/2020	9.71		
W-16	10/12/2020	10.30		
W-1A	8/17/2020	19.25	Not considered - outside PA	
W-1A	10/24/2022	19.29		
W-1A	1/27/2020	19.62		
W-1A	10/18/2021	19.72		
W-1A	10/12/2020	19.75		
W-1A	4/24/2023	20.09		
W-1A	4/25/2022	20.34		
W-1A	5/3/2021	20.46		
W-1A	5/19/2020	20.56		
W-24	7/26/2021	12.58	South of TB	13.7
W-24	10/24/2022	12.72		
W-24	5/3/2021	13.12		
W-24	1/27/2020	13.30		
W-24	5/19/2020	13.50		
W-24	10/18/2021	13.73		
W-24	4/25/2022	14.27		
W-24	10/12/2020	14.65		
W-24	8/17/2020	14.75		
W-24	4/24/2023	14.77		
W-3	7/26/2021	14.25	West of TB	15.4
W-3	10/18/2021	14.35		
W-3	10/24/2022	14.56		
W-3	5/3/2021	15.26		
W-3	4/20/2023	15.58		
W-3	4/25/2022	15.83		
W-3	10/12/2020	15.86		
W-3	1/27/2020	15.95		
W-3	5/19/2020	16.08		
W-3	8/17/2020	16.25		
W-34	10/24/2022	17.56	South of TB	18.0
W-34	7/26/2021	17.73		
W-34	10/12/2020	17.76		
W-34	10/18/2021	17.98		

Well	Date	DTW	General Location	Average Depth (fbg)
W-34	8/17/2020	18.00		
W-34	1/27/2020	18.10		
W-34	5/3/2021	18.15		
W-34	4/24/2023	18.16		
W-34	4/25/2022	18.34		
W-34	5/19/2020	18.35		
W-4	8/17/2020	16.20	West of TB	16.7
W-4	7/26/2021	16.45		
W-4	1/27/2020	16.50		
W-4	10/12/2020	16.52		
W-4	10/18/2021	16.56		
W-4	10/24/2022	16.62		
W-4	4/20/2023	16.65		
W-4	4/25/2022	16.92		
W-4	5/3/2021	17.02		
W-4	5/19/2020	17.15		
W-4A	10/24/2022	12.40	Not considered - too far SE	
W-4A	1/27/2020	12.51		
W-4A	1/27/2020	12.52		
W-4A	2/8/2021	12.55		
W-4A	10/18/2021	12.70		
W-4A	4/24/2023	12.70		
W-4A	10/12/2020	12.71		
W-4A	5/3/2021	12.76		
W-4A	4/25/2022	12.81		
W-4A	5/19/2020	12.98		
W-5	7/26/2021	11.61	Not considered - too far NW	
W-5	5/3/2021	12.15		
W-5	10/24/2022	12.27		
W-5	5/19/2020	12.30		
W-5	1/27/2020	12.35		
W-5	10/18/2021	12.75		
W-5	4/25/2022	12.82		
W-5	4/24/2023	13.00		
W-5	10/12/2020	13.05		
W-5	8/17/2020	13.10		
W-6	8/17/2020	19.64	Not considered - too far NW	
W-6	7/26/2021	19.95		
W-6	10/12/2020	20.03		
W-6	1/27/2020	20.05		
W-6	4/24/2023	20.08		
W-6	10/18/2021	20.15		
W-6	10/24/2022	20.20		
W-6	4/25/2022	20.36		
W-6	5/3/2021	20.55		
W-6	5/19/2020	20.60		
W-9	10/24/2022	14.34	South of RB	15.2
W-9	7/26/2021	14.45		

Well	Date	DTW	General Location	Average Depth (fbg)
W-9	5/3/2021	14.91		
W-9	1/27/2020	15.03		
W-9	10/18/2021	15.05		
W-9	5/19/2020	15.15		
W-9	4/25/2022	15.58		
W-9	4/24/2023	15.66		
W-9	8/17/2020	15.70		
W-9	10/12/2020	16.00		
	Average All	13.89	Average for wells near TB, RB, and ORB	14.5

Attachment 2

PRCC Values at Time of Peak of the Mean Dose

Am-241 Results:

RESRAD Regression and Correlation output 10/26/23 16:04 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Am241
Input File : BFM-IU_AM241.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Kd of Am-241 in Contaminated Zone		2	0.14	2	0.11	2	0.34	2	0.25
Kd of Am-241 in Unsaturated Zone 1		12	-0.02	18	-0.02	3	-0.29	3	-0.21
Kd of Am-241 in Saturated Zone		18	-0.01	22	-0.01	25	-0.01	28	-0.01
Kd of Np-237 in Contaminated Zone		19	-0.01	23	-0.01	7	0.15	7	0.10
Kd of Np-237 in Unsaturated Zone 1		10	-0.02	15	-0.02	27	-0.01	29	-0.01
Kd of Np-237 in Saturated Zone		20	-0.01	24	-0.01	14	-0.03	16	-0.02
Kd of Th-229 in Contaminated Zone		31	0.00	31	0.00	30	-0.01	32	0.00
Kd of Th-229 in Unsaturated Zone 1		34	0.00	34	0.00	12	0.03	14	0.02
Kd of Th-229 in Saturated Zone		8	-0.02	13	-0.02	16	-0.03	18	-0.02
Kd of U-233 in Contaminated Zone		30	0.00	30	0.00	17	0.02	20	0.01
Kd of U-233 in Unsaturated Zone 1		33	0.00	33	0.00	34	0.00	34	0.00
Kd of U-233 in Saturated Zone		22	0.01	26	0.01	33	0.00	33	0.00
Density of cover material		21	-0.01	25	-0.01	8	-0.11	9	-0.07
Density of contaminated zone		24	-0.01	10	-0.02	32	0.00	26	-0.01
Contaminated zone total porosity		14	-0.02	5	-0.04	10	-0.04	8	-0.08
Contaminated zone b parameter		28	0.00	28	0.00	24	0.01	27	0.01
Evapotranspiration coefficient		9	-0.02	14	-0.02	9	-0.08	10	-0.05
Irrigation		7	0.03	12	0.02	18	0.02	22	0.01
Density of saturated zone		23	-0.01	9	-0.02	19	-0.02	11	-0.04
Saturated zone total porosity		25	-0.01	11	-0.02	23	-0.01	12	-0.03
Saturated zone hydraulic gradient		4	-0.09	4	-0.07	4	-0.24	4	-0.17
Density of Unsaturated zone 1		26	-0.01	16	-0.02	31	-0.01	21	-0.01
Total Porosity of Unsaturated zone 1		17	-0.01	7	-0.04	26	0.01	19	0.02
b Parameter of Unsaturated zone 1		16	-0.02	21	-0.01	21	0.02	24	0.01
Mass loading for inhalation		6	0.04	8	0.03	15	0.03	17	0.02
Indoor dust filtration factor		32	0.00	32	0.00	22	-0.01	25	-0.01
External gamma shielding factor		11	0.02	17	0.02	29	-0.01	31	0.00
Soil ingestion		3	0.14	3	0.11	11	0.04	13	0.02
Aquatic food		13	0.02	19	0.01	6	0.22	6	0.15
Depth of soil mixing layer		1	0.61	1	0.60	1	0.63	1	0.56
Fish transfer factor for Am		5	0.05	6	0.04	13	0.03	15	0.02
Fish transfer factor for Np		27	-0.01	27	-0.01	5	0.24	5	0.17
Fish transfer factor for Th		29	0.00	29	0.00	20	-0.02	23	-0.01
Fish transfer factor for U		15	-0.02	20	-0.01	28	-0.01	30	0.00

C-14 Results:

RESRAD Regression and Correlation output 10/27/23 12:56 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_C14
Input File : BFM-IU_C14.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material		19	-0.01	19	-0.01	1	-0.86	1	-0.83
Density of contaminated zone		15	0.01	7	0.05	11	0.03	4	0.04
Contaminated zone total porosity		22	0.00	20	0.01	15	0.01	8	0.02
Contaminated zone b parameter		7	-0.03	12	-0.03	18	0.00	20	0.00
Evapotranspiration coefficient		17	0.01	17	0.01	13	-0.02	14	-0.01
Irrigation		4	0.03	9	0.03	17	-0.01	18	-0.01
Density of saturated zone		10	0.02	3	0.08	23	0.00	23	0.00
Saturated zone total porosity		12	0.02	5	0.06	20	0.00	16	0.01
Saturated zone hydraulic gradient		16	-0.01	16	-0.01	4	-0.07	6	-0.04
Density of Unsaturated zone 1		11	0.02	4	0.07	12	-0.02	5	-0.04
Total Porosity of Unsaturated zone 1		9	0.02	1	0.08	22	0.00	19	0.00
b Parameter of Unsaturated zone 1		20	-0.01	21	-0.01	19	0.00	21	0.00
Mass loading for inhalation		13	-0.02	14	-0.02	16	0.01	17	0.01
Indoor dust filtration factor		6	-0.03	11	-0.03	5	-0.06	7	-0.03
External gamma shielding factor		14	-0.02	15	-0.02	7	-0.03	10	-0.01
Soil ingestion		3	0.03	8	0.03	6	-0.03	9	-0.02
Aquatic food		2	0.06	6	0.06	8	0.03	11	0.01
Depth of soil mixing layer		23	0.00	23	0.00	14	0.01	15	0.01
Thickness of evasion layer of C-14 in soil		18	0.01	18	0.01	10	0.03	13	0.01
Fish transfer factor for C		1	0.08	2	0.08	21	0.00	22	0.00
Kd of C-14 in Contaminated Zone		8	-0.03	13	-0.03	2	0.41	2	0.22
Kd of C-14 in Unsaturated Zone 1		5	-0.03	10	-0.03	3	-0.30	3	-0.15
Kd of C-14 in Saturated Zone		21	-0.01	22	-0.01	9	0.03	12	0.01

Cm-243 Results:

RESRAD Regression and Correlation output 10/27/23 14:39 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Cm243
Input File : BFM-IU_CM243.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material		42	0.00	42	0.00	4	-0.18	4	-0.13
Density of contaminated zone		37	-0.01	23	-0.02	16	0.03	6	0.08
Contaminated zone total porosity		36	-0.01	17	-0.03	33	0.01	17	0.03
Contaminated zone b parameter		12	-0.03	14	-0.03	23	-0.02	26	-0.02
Evapotranspiration coefficient		11	-0.03	13	-0.03	6	-0.10	7	-0.07
Irrigation		16	-0.02	20	-0.02	32	0.01	33	0.01
Density of saturated zone		25	-0.02	8	-0.05	42	0.00	41	0.00
Saturated zone total porosity		33	-0.01	16	-0.03	40	0.00	37	-0.01

Saturated zone hydraulic gradient	17	-0.02	21	-0.02	8	-0.10	9	-0.07
Density of Unsaturated zone 1	6	-0.05	2	-0.14	27	-0.02	14	-0.04
Total Porosity of Unsaturated zone 1	19	-0.02	5	-0.07	26	0.02	12	0.05
b Parameter of Unsaturated zone 1	21	-0.02	25	-0.02	30	0.02	31	0.01
Mass loading for inhalation	15	-0.02	19	-0.02	22	0.03	25	0.02
Indoor dust filtration factor	20	-0.02	24	-0.02	20	-0.03	23	-0.02
External gamma shielding factor	35	-0.01	37	-0.01	14	0.04	18	0.03
Soil ingestion	7	0.04	9	0.04	12	0.05	15	0.03
Aquatic food	2	0.11	3	0.10	13	0.05	16	0.03
Depth of soil mixing layer	30	0.01	33	0.01	2	0.48	2	0.40
Kd of Ac-227 in Contaminated Zone	27	0.01	30	0.01	21	-0.03	24	-0.02
Kd of Ac-227 in Unsaturated Zone 1	14	-0.03	18	-0.03	17	-0.03	20	-0.02
Kd of Ac-227 in Saturated Zone	8	-0.04	10	-0.04	24	-0.02	27	-0.02
Fish transfer factor for Ac	41	0.00	41	0.00	38	-0.01	39	0.00
Kd of Am-243 in Contaminated Zone	22	0.02	26	0.02	3	0.26	3	0.20
Kd of Am-243 in Unsaturated Zone 1	39	0.01	39	0.01	10	-0.07	11	-0.05
Kd of Am-243 in Saturated Zone	38	0.01	38	0.01	34	-0.01	34	-0.01
Fish transfer factor for Am	26	-0.01	29	-0.01	29	-0.02	30	-0.01
Kd of Cm-243 in Contaminated Zone	4	0.07	6	0.06	11	0.06	13	0.04
Kd of Cm-243 in Unsaturated Zone 1	18	-0.02	22	-0.02	9	-0.07	10	-0.05
Kd of Cm-243 in Saturated Zone	29	-0.01	32	-0.01	31	0.02	32	0.01
Fish transfer factor for Cm	40	0.00	40	0.00	18	-0.03	21	-0.02
Kd of Pa-231 in Contaminated Zone	28	-0.01	31	-0.01	19	-0.03	22	-0.02
Kd of Pa-231 in Unsaturated Zone 1	13	0.03	15	0.03	36	0.01	36	0.01
Kd of Pa-231 in Saturated Zone	24	0.02	28	0.02	15	0.04	19	0.03
Fish transfer factor for Pa	34	-0.01	36	-0.01	37	0.01	38	0.00
Kd of Pu-239 in Contaminated Zone	5	-0.05	7	-0.05	5	0.16	5	0.12
Kd of Pu-239 in Unsaturated Zone 1	3	-0.10	4	-0.10	1	-0.54	1	-0.46
Kd of Pu-239 in Saturated Zone	10	0.04	12	0.04	25	-0.02	28	-0.02
Fish transfer factor for Pu	1	0.17	1	0.16	7	0.10	8	0.07
Kd of U-235 in Contaminated Zone	23	-0.02	27	-0.02	39	0.00	40	0.00
Kd of U-235 in Unsaturated Zone 1	31	-0.01	34	-0.01	41	0.00	42	0.00
Kd of U-235 in Saturated Zone	9	0.04	11	0.04	35	-0.01	35	-0.01
Fish transfer factor for U	32	-0.01	35	-0.01	28	0.02	29	0.01

Cm-244 Results:

RESRAD Regression and Correlation output 10/27/23 18:15 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Cm244
Input File : BFM-IU_CM244.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		7	0.04	9	0.04	5	-0.12	6	-0.08
Density of contaminated zone		12	-0.02	6	-0.07	13	-0.04	7	-0.08
Contaminated zone total porosity		17	-0.02	7	-0.05	12	-0.04	5	-0.08
Contaminated zone b parameter		8	0.04	11	0.04	32	-0.01	32	-0.01
Evapotranspiration coefficient		29	-0.01	31	-0.01	8	-0.06	13	-0.04
Irrigation		11	0.02	15	0.02	6	0.09	9	0.06
Density of saturated zone		34	0.01	17	0.02	16	-0.03	8	-0.07
Saturated zone total porosity		25	0.01	14	0.03	22	-0.03	10	-0.06
Saturated zone hydraulic gradient		6	-0.05	8	-0.04	4	-0.18	4	-0.13
Density of Unsaturated zone 1		37	0.00	21	-0.01	26	-0.02	12	-0.04
Total Porosity of Unsaturated zone 1		20	0.01	10	0.04	31	0.01	16	0.03
b Parameter of Unsaturated zone 1		32	-0.01	34	-0.01	18	0.03	21	0.02
Mass loading for inhalation		24	-0.01	27	-0.01	24	0.02	26	0.01
Indoor dust filtration factor		41	0.00	41	0.00	39	0.00	39	0.00
External gamma shielding factor		13	-0.02	16	-0.02	29	-0.02	30	-0.01
Soil ingestion		16	-0.02	20	-0.02	21	0.03	24	0.02
Aquatic food		4	0.08	4	0.08	9	0.05	14	0.04
Depth of soil mixing layer		3	0.09	3	0.08	2	0.50	2	0.40
Fish transfer factor for Cm		27	-0.01	29	-0.01	35	0.01	35	0.01
Fish transfer factor for Pu		1	0.18	1	0.18	10	0.04	15	0.03
Fish transfer factor for U		40	0.00	40	0.00	14	0.03	18	0.02
Kd of Cm-244 in Contaminated Zone		10	0.03	13	0.03	37	-0.01	37	-0.01
Kd of Cm-244 in Unsaturated Zone 1		31	0.01	33	0.01	7	-0.07	11	-0.05
Kd of Cm-244 in Saturated Zone		18	0.01	22	0.01	25	0.02	27	0.01
Kd of Pu-240 in Contaminated Zone		9	-0.03	12	-0.03	3	0.43	3	0.33
Kd of Pu-240 in Unsaturated Zone 1		5	-0.08	5	-0.07	1	-0.55	1	-0.45
Kd of Pu-240 in Saturated Zone		22	-0.01	25	-0.01	19	0.03	22	0.02
Kd of Ra-228 in Contaminated Zone		39	0.00	39	0.00	30	0.00	31	0.01
Kd of Ra-228 in Unsaturated Zone 1		15	-0.02	19	-0.02	40	0.00	40	0.00
Kd of Ra-228 in Saturated Zone		38	0.00	38	0.00	15	0.03	19	0.02
Kd of Th-228 in Contaminated Zone		2	0.09	2	0.09	41	0.00	41	0.00
Kd of Th-228 in Unsaturated Zone 1		28	-0.01	30	-0.01	34	-0.01	34	-0.01
Kd of Th-228 in Saturated Zone		33	-0.01	35	-0.01	28	-0.02	29	-0.01
Kd of Th-232 in Contaminated Zone		23	-0.01	26	-0.01	17	-0.03	20	-0.02
Kd of Th-232 in Unsaturated Zone 1		26	-0.01	28	-0.01	38	0.00	38	0.00
Kd of Th-232 in Saturated Zone		35	0.01	36	0.01	27	-0.02	28	-0.01
Kd of U-236 in Contaminated Zone		36	0.00	37	0.00	23	-0.03	25	-0.02
Kd of U-236 in Unsaturated Zone 1		14	0.02	18	0.02	11	-0.04	17	-0.03
Kd of U-236 in Saturated Zone		21	-0.01	24	-0.01	20	-0.03	23	-0.02
Fish transfer factor for Ra		30	-0.01	32	-0.01	36	-0.01	36	-0.01
Fish transfer factor for Th		19	-0.01	23	-0.01	33	-0.01	33	-0.01

Co-60 Results:

RESRAD Regression and Correlation output 10/27/23 13:07 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Co60
Input File : BFM-IU_CO60.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		1	-0.76	1	-0.76	1	-1.00	1	-1.00
Density of contaminated zone		6	0.03	5	0.07	13	-0.01	9	0.00
Contaminated zone total porosity		5	0.03	4	0.07	11	-0.02	7	0.00

Contaminated zone b parameter	15	0.01	15	0.01	10	0.02	12	0.00
Evapotranspiration coefficient	10	0.02	10	0.02	18	0.00	18	0.00
Irrigation	18	0.01	19	0.00	15	-0.01	16	0.00
Density of saturated zone	2	-0.05	2	-0.11	6	-0.05	4	-0.01
Saturated zone total porosity	4	-0.05	3	-0.11	7	-0.04	5	-0.01
Saturated zone hydraulic gradient	9	0.02	9	0.02	4	-0.08	6	-0.01
Density of Unsaturated zone 1	22	0.00	21	0.00	22	0.00	22	0.00
Total Porosity of Unsaturated zone 1	20	0.00	18	0.00	16	-0.01	13	0.00
b Parameter of Unsaturated zone 1	17	0.01	17	0.01	17	-0.01	17	0.00
Mass loading for inhalation	12	-0.02	11	-0.02	12	-0.01	14	0.00
Indoor dust filtration factor	8	-0.03	8	-0.02	14	-0.01	15	0.00
External gamma shielding factor	11	0.02	12	0.02	3	0.26	3	0.02
Soil ingestion	21	0.00	22	0.00	8	0.02	10	0.00
Aquatic food	7	0.03	7	0.02	20	0.00	20	0.00
Depth of soil mixing layer	3	0.05	6	0.03	5	-0.05	8	0.00
Kd of Co-60 in Contaminated Zone	13	-0.01	13	-0.01	2	0.42	2	0.03
Kd of Co-60 in Unsaturated Zone 1	19	-0.01	20	0.00	19	0.00	19	0.00
Kd of Co-60 in Saturated Zone	16	0.01	16	0.01	21	0.00	21	0.00
Fish transfer factor for Co	14	-0.01	14	-0.01	9	0.02	11	0.00

Cs-137 Results:

RESRAD Regression and Correlation output 10/27/23 13:13 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Cs137
Input File : BFM-IU_CS137.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material	1	-0.69	1	-0.69	1	-1.00	1	-1.00	1
Density of contaminated zone	7	0.03	5	0.07	12	-0.02	10	0.00	0.00
Contaminated zone total porosity	5	0.03	4	0.07	10	-0.03	6	0.00	0.00
Contaminated zone b parameter	17	0.01	19	0.01	13	0.01	14	0.00	0.00
Evapotranspiration coefficient	11	0.02	12	0.02	6	-0.05	9	0.00	0.00
Irrigation	21	0.00	21	0.00	17	0.01	18	0.00	0.00
Density of saturated zone	3	-0.05	2	-0.12	8	-0.03	4	0.00	0.00
Saturated zone total porosity	4	-0.05	3	-0.11	9	-0.03	5	0.00	0.00
Saturated zone hydraulic gradient	10	0.02	11	0.02	4	-0.06	7	0.00	0.00
Density of Unsaturated zone 1	20	0.01	13	0.01	21	0.00	16	0.00	0.00
Total Porosity of Unsaturated zone 1	19	0.01	10	0.02	15	-0.01	13	0.00	0.00
b Parameter of Unsaturated zone 1	12	0.02	14	0.01	19	0.01	20	0.00	0.00
Mass loading for inhalation	9	-0.03	9	-0.02	14	0.01	15	0.00	0.00
Indoor dust filtration factor	8	-0.03	8	-0.02	11	0.02	12	0.00	0.00
External gamma shielding factor	15	0.01	17	0.01	2	0.80	2	0.02	0.00
Soil ingestion	22	0.00	22	0.00	16	0.01	17	0.00	0.00
Aquatic food	6	0.03	7	0.02	7	0.03	11	0.00	0.00
Depth of soil mixing layer	2	0.05	6	0.04	5	-0.05	8	0.00	0.00
Kd of Cs-137 in Contaminated Zone	14	-0.01	16	-0.01	3	0.23	3	0.00	0.00
Kd of Cs-137 in Unsaturated Zone 1	18	0.01	20	0.01	22	0.00	22	0.00	0.00
Kd of Cs-137 in Saturated Zone	13	0.02	15	0.01	20	0.00	21	0.00	0.00
Fish transfer factor for Cs	16	-0.01	18	-0.01	18	-0.01	19	0.00	0.00

Eu-152 Results:

RESRAD Regression and Correlation output 10/27/23 13:23 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Eu152
Input File : BFM-IU_EU152.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material	1	-0.73	1	-0.73	1	-0.99	1	-0.99	1
Density of contaminated zone	24	0.00	19	0.01	7	0.04	4	0.01	0.00
Contaminated zone total porosity	21	-0.01	13	-0.01	17	0.01	10	0.00	0.00
Contaminated zone b parameter	11	0.02	12	0.02	16	-0.02	19	0.00	0.00
Evapotranspiration coefficient	14	-0.02	15	-0.01	8	-0.04	11	0.00	0.00
Irrigation	13	-0.02	14	-0.01	11	0.03	12	0.00	0.00
Density of saturated zone	2	0.06	2	0.14	24	0.01	18	0.00	0.00
Saturated zone total porosity	3	0.06	3	0.12	22	-0.01	15	0.00	0.00
Saturated zone hydraulic gradient	19	-0.01	22	-0.01	4	-0.07	7	-0.01	0.00
Density of Unsaturated zone 1	12	-0.02	4	-0.04	10	-0.04	6	-0.01	0.00
Total Porosity of Unsaturated zone 1	23	0.00	18	-0.01	9	-0.04	5	-0.01	0.00
b Parameter of Unsaturated zone 1	8	-0.03	9	-0.02	21	-0.01	23	0.00	0.00
Mass loading for inhalation	5	0.04	6	0.02	18	0.01	20	0.00	0.00
Indoor dust filtration factor	20	0.01	23	0.00	20	0.01	22	0.00	0.00
External gamma shielding factor	4	0.05	5	0.03	3	0.19	3	0.02	0.00
Soil ingestion	22	0.00	24	0.00	15	0.02	17	0.00	0.00
Aquatic food	17	0.01	20	0.01	6	-0.05	9	0.00	0.00
Depth of soil mixing layer	6	-0.03	7	-0.02	26	0.00	26	0.00	0.00
Kd of Eu-152 in Contaminated Zone	9	0.03	10	0.02	2	0.42	2	0.05	0.00
Kd of Eu-152 in Unsaturated Zone 1	18	-0.01	21	-0.01	19	0.01	21	0.00	0.00
Kd of Eu-152 in Saturated Zone	26	0.00	26	0.00	23	-0.01	24	0.00	0.00
Fish transfer factor for Eu	16	-0.01	17	-0.01	14	-0.02	16	0.00	0.00
Kd of Gd-152 in Contaminated Zone	15	-0.01	16	-0.01	5	-0.06	8	-0.01	0.00
Kd of Gd-152 in Unsaturated Zone 1	10	0.02	11	0.02	25	0.01	25	0.00	0.00
Kd of Gd-152 in Saturated Zone	25	0.00	25	0.00	13	0.02	14	0.00	0.00
Fish transfer factor for Gd	7	0.03	8	0.02	12	-0.03	13	0.00	0.00

Eu-154 Results:

RESRAD Regression and Correlation output 10/27/23 13:28 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Eu154
Input File : BFM-IU_Eu154.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material		1	-0.74	1	-0.74	1	-0.99	1	-0.99
Density of contaminated zone		6	0.03	5	0.07	9	0.04	6	0.01
Contaminated zone total porosity		5	0.03	4	0.07	10	0.04	7	0.01
Contaminated zone b parameter		13	0.02	14	0.01	20	0.00	20	0.00
Evapotranspiration coefficient		10	0.03	10	0.02	18	0.01	18	0.00
Irrigation		19	0.01	20	0.00	19	-0.01	19	0.00
Density of saturated zone		3	-0.05	2	-0.11	5	0.04	4	0.01
Saturated zone total porosity		4	-0.05	3	-0.10	7	0.04	5	0.01
Saturated zone hydraulic gradient		11	0.02	12	0.01	4	-0.06	8	-0.01
Density of Unsaturated zone 1		20	0.00	16	0.01	16	-0.01	11	0.00
Total Porosity of Unsaturated zone 1		17	0.01	11	0.02	17	-0.01	12	0.00
b Parameter of Unsaturated zone 1		14	0.01	15	0.01	12	0.02	14	0.00
Mass loading for inhalation		9	-0.03	9	-0.02	22	0.00	22	0.00
Indoor dust filtration factor		7	-0.03	7	-0.02	15	0.01	17	0.00
External gamma shielding factor		12	0.02	13	0.01	3	0.16	3	0.02
Soil ingestion		21	0.00	21	0.00	21	0.00	21	0.00
Aquatic food		8	0.03	8	0.02	14	-0.01	16	0.00
Depth of soil mixing layer		2	0.05	6	0.03	8	-0.04	10	0.00
Fish transfer factor for Eu		15	-0.01	17	-0.01	13	0.02	15	0.00
Kd of Eu-154 in Contaminated Zone		16	-0.01	18	-0.01	2	0.40	2	0.05
Kd of Eu-154 in Unsaturated Zone 1		22	0.00	22	0.00	11	0.03	13	0.00
Kd of Eu-154 in Saturated Zone		18	-0.01	19	0.00	6	0.04	9	0.00

Fe-55 Results:

RESRAD Regression and Correlation output 10/27/23 13:33 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Fe55
Input File : BFM-IU_Fe55.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material		0	0.00	0	0.00	0	0.00	0	0.00
Density of contaminated zone		0	0.00	0	0.00	0	0.00	0	0.00
Contaminated zone total porosity		0	0.00	0	0.00	0	0.00	0	0.00
Contaminated zone b parameter		0	0.00	0	0.00	0	0.00	0	0.00
Evapotranspiration coefficient		0	0.00	0	0.00	0	0.00	0	0.00
Irrigation		0	0.00	0	0.00	0	0.00	0	0.00
Density of saturated zone		0	0.00	0	0.00	0	0.00	0	0.00
Saturated zone total porosity		0	0.00	0	0.00	0	0.00	0	0.00
Saturated zone hydraulic gradient		0	0.00	0	0.00	0	0.00	0	0.00
Density of Unsaturated zone 1		0	0.00	0	0.00	0	0.00	0	0.00
Total Porosity of Unsaturated zone 1		0	0.00	0	0.00	0	0.00	0	0.00
b Parameter of Unsaturated zone 1		0	0.00	0	0.00	0	0.00	0	0.00
Mass loading for inhalation		0	0.00	0	0.00	0	0.00	0	0.00
Indoor dust filtration factor		0	0.00	0	0.00	0	0.00	0	0.00
External gamma shielding factor		0	0.00	0	0.00	0	0.00	0	0.00
Soil ingestion		0	0.00	0	0.00	0	0.00	0	0.00
Aquatic food		0	0.00	0	0.00	0	0.00	0	0.00
Depth of soil mixing layer		0	0.00	0	0.00	0	0.00	0	0.00
Kd of Fe-55 in Contaminated Zone		0	0.00	0	0.00	0	0.00	0	0.00
Kd of Fe-55 in Unsaturated Zone 1		0	0.00	0	0.00	0	0.00	0	0.00
Kd of Fe-55 in Saturated Zone		0	0.00	0	0.00	0	0.00	0	0.00
Fish transfer factor for Fe		0	0.00	0	0.00	0	0.00	0	0.00

H-3 Results:

RESRAD Regression and Correlation output 10/27/23 13:38 Page: Coef 1
Title : OCS BFM Industrial Use_IR_H3
Input File : BFM-IU_H3.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material		22	0.01	22	0.00	14	0.02	15	0.02
Density of contaminated zone		8	0.06	5	0.11	6	0.05	3	0.11
Contaminated zone total porosity		12	-0.03	8	-0.06	16	-0.01	10	-0.03
Contaminated zone b parameter		9	-0.04	14	-0.02	13	-0.02	14	-0.02
Evapotranspiration coefficient		5	-0.08	9	-0.05	5	-0.11	7	-0.07
Irrigation		21	-0.01	21	-0.01	18	0.01	19	0.00
Density of saturated zone		11	-0.03	7	-0.07	11	-0.03	8	-0.06
Saturated zone total porosity		10	-0.03	6	-0.07	12	-0.03	9	-0.06
Saturated zone hydraulic gradient		2	-0.52	2	-0.39	2	-0.47	2	-0.36
Density of Unsaturated zone 1		16	-0.02	13	-0.04	7	-0.04	6	-0.07
Total Porosity of Unsaturated zone 1		15	0.02	12	0.04	20	0.00	17	0.01
b Parameter of Unsaturated zone 1		19	-0.01	19	-0.01	19	0.00	20	0.00
Mass loading for inhalation		20	0.01	20	0.01	22	0.00	22	0.00
Indoor dust filtration factor		13	-0.03	15	-0.02	15	-0.01	16	-0.01
External gamma shielding factor		14	0.02	16	0.01	21	0.00	21	0.00
Soil ingestion		18	-0.02	18	-0.01	17	-0.01	18	-0.01
Aquatic food		1	0.69	1	0.61	1	0.66	1	0.60
Depth of soil mixing layer		6	-0.06	10	-0.04	10	-0.03	13	-0.02
Kd of H-3 in Contaminated Zone		7	-0.06	11	-0.04	8	-0.03	11	-0.02
Kd of H-3 in Unsaturated Zone 1		3	-0.22	3	-0.14	4	-0.15	5	-0.10

Kd of H-3 in Saturated Zone	17	0.02	17	0.01	9	0.03	12	0.02
Fish transfer factor for H	4	0.18	4	0.12	3	0.15	4	0.10

Mn-54 Results:

RESRAD Regression and Correlation output 10/27/23 13:44 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Mn54
Input File : BFM-IU_MN54.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		1	-0.72	1	-0.72	1	-1.00	1	-1.00
Density of contaminated zone		7	0.03	5	0.07	13	-0.01	9	0.00
Contaminated zone total porosity		5	0.03	4	0.07	10	-0.02	6	0.00
Contaminated zone b parameter		16	0.01	18	0.01	20	0.00	20	0.00
Evapotranspiration coefficient		11	0.02	11	0.02	9	-0.02	11	0.00
Irrigation		19	0.00	20	0.00	11	-0.02	13	0.00
Density of saturated zone		3	-0.05	2	-0.11	6	-0.04	4	0.00
Saturated zone total porosity		4	-0.05	3	-0.11	7	-0.03	5	0.00
Saturated zone hydraulic gradient		10	0.03	10	0.02	5	-0.05	8	0.00
Density of Unsaturated zone 1		20	0.00	15	0.01	18	0.00	14	0.00
Total Porosity of Unsaturated zone 1		18	0.01	12	0.02	16	-0.01	12	0.00
b Parameter of Unsaturated zone 1		15	0.01	17	0.01	19	0.00	19	0.00
Mass loading for inhalation		9	-0.03	9	-0.02	21	0.00	21	0.00
Indoor dust filtration factor		8	-0.03	8	-0.02	14	0.01	16	0.00
External gamma shielding factor		13	0.02	14	0.01	2	0.58	2	0.02
Soil ingestion		22	0.00	22	0.00	12	0.01	15	0.00
Aquatic food		6	0.03	7	0.02	17	0.00	18	0.00
Depth of soil mixing layer		2	0.05	6	0.04	4	-0.05	7	0.00
Kd of Mn-54 in Contaminated Zone		12	-0.02	13	-0.01	3	0.28	3	0.01
Kd of Mn-54 in Unsaturated zone 1		21	0.00	21	0.00	15	0.01	17	0.00
Kd of Mn-54 in Saturated Zone		17	0.01	19	0.01	22	0.00	22	0.00
Fish transfer factor for Mn		14	-0.01	16	-0.01	8	0.02	10	0.00

Nb-94 Results:

RESRAD Regression and Correlation output 10/27/23 09:57 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Nb94
Input File : BFM-IU_NB94.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		1	-0.62	1	-0.56	2	-0.83	2	-0.51
Density of contaminated zone		5	0.04	4	0.10	5	0.07	4	0.08
Contaminated zone total porosity		13	0.01	8	0.03	15	0.02	11	0.02
Contaminated zone b parameter		11	0.02	14	0.01	22	0.00	22	0.00
Evapotranspiration coefficient		12	-0.02	15	-0.01	12	-0.03	13	-0.01
Irrigation		22	0.00	22	0.00	16	0.01	16	0.00
Density of saturated zone		6	-0.04	5	-0.08	6	-0.06	5	-0.06
Saturated zone total porosity		7	-0.03	6	-0.08	7	-0.05	6	-0.05
Saturated zone hydraulic gradient		3	-0.24	3	-0.17	3	-0.49	3	-0.19
Density of Unsaturated zone 1		14	0.01	9	0.03	9	0.03	7	0.04
Total Porosity of Unsaturated zone 1		18	0.01	13	0.02	10	0.03	9	0.03
b Parameter of Unsaturated zone 1		16	0.01	17	0.01	19	0.01	19	0.00
Mass loading for inhalation		8	0.03	10	0.02	20	-0.01	20	0.00
Indoor dust filtration factor		19	-0.01	19	0.00	21	0.00	21	0.00
External gamma shielding factor		4	0.06	7	0.05	4	0.09	8	0.03
Soil ingestion		17	-0.01	18	-0.01	17	-0.01	17	0.00
Aquatic food		9	0.02	11	0.02	18	0.01	18	0.00
Depth of soil mixing layer		15	0.01	16	0.01	14	-0.02	15	-0.01
Kd of Nb-94 in Contaminated Zone		2	0.48	2	0.38	1	0.91	1	0.76
Kd of Nb-94 in Unsaturated zone 1		10	-0.02	12	-0.02	11	-0.03	12	-0.01
Kd of Nb-94 in Saturated Zone		21	-0.01	21	0.00	8	-0.05	10	-0.02
Fish transfer factor for Nb		20	0.01	20	0.00	13	-0.02	14	-0.01

Ni-63 Results:

RESRAD Regression and Correlation output 10/27/23 10:03 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Ni63
Input File : BFM-IU_NI63.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		7	0.02	11	0.02	11	0.03	12	0.02
Density of contaminated zone		12	0.01	5	0.04	7	-0.04	4	-0.12
Contaminated zone total porosity		22	0.00	22	0.00	4	-0.05	2	-0.13
Contaminated zone b parameter		5	-0.03	9	-0.03	13	-0.02	14	-0.02
Evapotranspiration coefficient		2	-0.04	6	-0.04	2	-0.06	7	-0.06
Irrigation		19	-0.01	20	-0.01	21	0.00	21	0.00
Density of saturated zone		20	0.00	19	-0.01	5	-0.05	3	-0.13
Saturated zone total porosity		9	0.02	1	0.05	10	-0.03	6	-0.08
Saturated zone hydraulic gradient		21	0.00	21	0.00	18	0.01	18	0.01
Density of Unsaturated zone 1		11	0.01	3	0.05	16	0.01	9	0.04
Total Porosity of Unsaturated zone 1		10	0.02	2	0.05	9	0.03	5	0.09
b Parameter of Unsaturated zone 1		14	0.01	14	0.01	22	0.00	22	0.00
Mass loading for inhalation		18	-0.01	18	-0.01	20	-0.01	20	-0.01
Indoor dust filtration factor		15	0.01	15	0.01	14	-0.02	15	-0.02
External gamma shielding factor		16	0.01	16	0.01	17	0.01	17	0.01
Soil ingestion		4	0.03	8	0.03	19	-0.01	19	-0.01

Aquatic food	1	0.04	4	0.04	15	0.02	16	0.02
Depth of soil mixing layer	13	0.01	13	0.01	8	0.03	11	0.03
Kd of Ni-63 in Contaminated Zone	6	-0.02	10	-0.02	12	-0.02	13	-0.02
Kd of Ni-63 in Unsaturated Zone 1	3	-0.03	7	-0.03	1	-0.41	1	-0.40
Kd of Ni-63 in Saturated Zone	8	-0.02	12	-0.02	3	-0.06	8	-0.05
Fish transfer factor for Ni	17	-0.01	17	-0.01	6	-0.04	10	-0.04

Np-237 Results:

RESRAD Regression and Correlation output 10/27/23 10:18 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Np237
Input File : BFM-IU_NP237.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material	24	0.01	24	0.01	3	-0.27	3	-0.18	
Density of contaminated zone	19	-0.01	9	-0.03	15	0.02	9	0.04	
Contaminated zone total porosity	27	0.00	25	0.00	29	0.00	26	0.01	
Contaminated zone b parameter	9	0.02	13	0.02	18	-0.01	19	-0.01	
Evapotranspiration coefficient	5	-0.04	7	-0.03	5	-0.12	6	-0.07	
Irrigation	17	0.01	19	0.01	13	0.03	16	0.02	
Density of saturated zone	22	0.01	12	0.02	16	0.02	11	0.04	
Saturated zone total porosity	29	0.00	27	0.00	25	0.01	15	0.02	
Saturated zone hydraulic gradient	14	-0.01	17	-0.01	4	-0.17	4	-0.11	
Density of Unsaturated zone 1	13	0.01	5	0.04	30	0.00	27	0.01	
Total Porosity of Unsaturated zone 1	15	0.01	6	0.03	9	0.05	5	0.10	
b Parameter of Unsaturated zone 1	16	0.01	18	0.01	11	0.04	13	0.02	
Mass loading for inhalation	28	0.00	29	0.00	27	-0.01	29	0.00	
Indoor dust filtration factor	12	0.02	16	0.01	12	0.04	14	0.02	
External gamma shielding factor	6	-0.03	8	-0.03	28	0.01	30	0.00	
Soil ingestion	23	-0.01	23	-0.01	24	0.01	25	0.01	
Aquatic food	2	0.08	2	0.06	6	0.10	7	0.06	
Depth of soil mixing layer	26	0.00	28	0.00	20	0.01	21	0.01	
Kd of Np-237 in Contaminated Zone	18	-0.01	20	-0.01	2	0.37	2	0.44	
Kd of Np-237 in Unsaturated Zone 1	3	-0.06	3	-0.05	1	-0.67	1	-0.57	
Kd of Np-237 in Saturated Zone	21	-0.01	22	-0.01	22	0.01	23	0.01	
Kd of Th-229 in Contaminated Zone	25	0.00	26	0.00	21	0.01	22	0.01	
Kd of Th-229 in Unsaturated Zone 1	7	0.03	10	0.02	17	-0.02	18	-0.01	
Kd of Th-229 in Saturated Zone	11	-0.02	15	-0.01	19	-0.01	20	-0.01	
Kd of U-233 in Contaminated Zone	10	-0.02	14	-0.01	8	-0.07	10	-0.04	
Kd of U-233 in Unsaturated Zone 1	8	-0.03	11	-0.02	7	-0.09	8	-0.06	
Kd of U-233 in Saturated Zone	30	0.00	30	0.00	26	-0.01	28	0.00	
Fish transfer factor for Np	1	0.64	1	0.63	10	0.04	12	0.03	
Fish transfer factor for Th	20	0.01	21	0.01	23	0.01	24	0.01	
Fish transfer factor for U	4	0.05	4	0.04	14	0.02	17	0.02	

Pu-238 Results:

RESRAD Regression and Correlation output 10/29/23 12:06 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Pu238
Input File : BFM-IU_PU238.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material	39	0.00	39	0.00	2	-0.52	2	-0.44	
Density of contaminated zone	12	0.02	5	0.06	8	0.05	4	0.12	
Contaminated zone total porosity	18	0.01	10	0.04	13	0.04	5	0.09	
Contaminated zone b parameter	16	-0.01	17	-0.01	34	-0.01	36	-0.01	
Evapotranspiration coefficient	6	-0.03	12	-0.03	6	-0.10	8	-0.07	
Irrigation	29	0.00	29	0.00	41	0.00	41	0.00	
Density of saturated zone	9	-0.03	3	-0.10	27	-0.01	15	-0.02	
Saturated zone total porosity	7	-0.03	1	-0.11	36	-0.01	20	-0.03	
Saturated zone hydraulic gradient	5	-0.04	11	-0.04	7	-0.09	9	-0.06	
Density of Unsaturated zone 1	8	-0.03	2	-0.10	39	0.01	23	0.02	
Total Porosity of Unsaturated zone 1	11	-0.03	4	-0.09	20	0.02	10	0.05	
b Parameter of Unsaturated zone 1	1	0.05	6	0.05	37	-0.01	38	-0.01	
Mass loading for inhalation	19	0.01	19	0.01	31	0.01	33	0.01	
Indoor dust filtration factor	17	-0.01	18	-0.01	33	-0.01	35	-0.01	
External gamma shielding factor	3	0.04	8	0.04	23	-0.02	26	-0.01	
Soil ingestion	4	-0.04	9	-0.04	21	-0.02	24	-0.02	
Aquatic food	2	0.04	7	0.04	26	0.02	29	0.01	
Depth of soil mixing layer	10	-0.03	13	-0.03	9	-0.05	11	-0.04	
Fish transfer factor for Th	20	-0.01	20	-0.01	42	0.00	42	0.00	
Fish transfer factor for U	42	0.00	42	0.00	10	0.05	12	0.04	
Kd of Pu-238 in Contaminated Zone	14	-0.02	15	-0.02	12	0.04	14	0.03	
Kd of Pu-238 in Unsaturated Zone 1	15	-0.02	16	-0.02	19	-0.03	22	-0.02	
Kd of Pu-238 in Saturated Zone	27	0.01	27	0.01	15	0.03	17	0.02	
Kd of Pb-210 in Contaminated Zone	31	0.00	31	0.00	29	-0.01	31	-0.01	
Kd of Pb-210 in Unsaturated Zone 1	40	0.00	40	0.00	14	-0.04	16	-0.03	
Kd of Pb-210 in Saturated Zone	25	-0.01	25	-0.01	40	-0.01	40	0.00	
Kd of Po-210 in Contaminated Zone	22	-0.01	22	-0.01	32	-0.01	34	-0.01	
Kd of Po-210 in Unsaturated Zone 1	23	-0.01	23	-0.01	17	-0.03	19	-0.02	
Kd of Po-210 in Saturated Zone	24	-0.01	24	-0.01	18	0.03	21	0.02	
Kd of Ra-226 in Contaminated Zone	34	0.00	34	0.00	24	0.02	27	0.01	
Kd of Ra-226 in Unsaturated Zone 1	21	-0.01	21	-0.01	28	0.01	30	0.01	
Kd of Ra-226 in Saturated Zone	35	0.00	35	0.00	22	0.02	25	0.02	
Kd of Th-230 in Contaminated Zone	30	0.00	30	0.00	4	0.12	7	0.08	
Kd of Th-230 in Unsaturated Zone 1	33	0.00	33	0.00	5	-0.12	6	-0.08	
Kd of Th-230 in Saturated Zone	36	0.00	36	0.00	16	-0.03	18	-0.02	
Kd of U-234 in Contaminated Zone	38	0.00	38	0.00	3	0.31	3	0.23	
Kd of U-234 in Unsaturated Zone 1	41	0.00	41	0.00	1	-0.53	1	-0.45	
Kd of U-234 in Saturated Zone	32	0.00	32	0.00	35	0.01	37	0.01	
Fish transfer factor for Pb	28	-0.01	28	-0.01	25	0.02	28	0.01	
Fish transfer factor for Po	26	0.01	26	0.01	30	0.01	32	0.01	
Fish transfer factor for Pu	37	0.00	37	0.00	11	-0.05	13	-0.04	

Fish transfer factor for Ra	13	0.02	14	0.02	38	-0.01	39	-0.01
-----------------------------	----	------	----	------	----	-------	----	-------

Pu-239 Results:

RESRAD Regression and Correlation output 10/27/23 11:06 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Pu239
Input File : BFM-IU_PU239.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		29	0.00	29	0.00	5	-0.15	5	-0.10
Density of contaminated zone		5	-0.03	2	-0.10	12	0.04	6	0.08
Contaminated zone total porosity		9	-0.03	3	-0.08	14	0.03	7	0.07
Contaminated zone b parameter		8	0.03	13	0.03	33	0.00	33	0.00
Evapotranspiration coefficient		12	-0.02	16	-0.02	8	-0.07	10	-0.05
Irrigation		18	-0.01	20	-0.01	25	0.01	25	0.01
Density of saturated zone		13	-0.02	4	-0.06	22	-0.01	17	-0.03
Saturated zone total porosity		19	-0.01	8	-0.04	16	-0.02	11	-0.05
Saturated zone hydraulic gradient		3	-0.06	6	-0.05	4	-0.20	4	-0.13
Density of Unsaturated zone 1		20	0.01	9	0.03	21	-0.02	16	-0.03
Total Porosity of Unsaturated zone 1		15	0.02	7	0.05	18	0.02	14	0.04
b Parameter of Unsaturated zone 1		4	0.03	10	0.03	27	-0.01	27	0.00
Mass loading for inhalation		11	-0.02	15	-0.02	17	0.02	20	0.01
Indoor dust filtration factor		10	-0.03	14	-0.02	13	-0.04	18	-0.03
External gamma shielding factor		14	-0.02	17	-0.02	10	0.05	13	0.04
Soil ingestion		30	0.00	30	0.00	11	0.05	15	0.04
Aquatic food		2	0.06	5	0.06	6	0.08	8	0.05
Depth of soil mixing layer		23	-0.01	23	-0.01	3	0.45	3	0.34
Fish transfer factor for U		28	0.00	28	0.00	24	-0.01	24	-0.01
Kd of Pu-239 in Contaminated Zone		7	-0.03	12	-0.03	2	0.55	2	0.44
Kd of Pu-239 in Unsaturated Zone 1		6	-0.03	11	-0.03	1	-0.57	1	-0.46
Kd of Pu-239 in Saturated Zone		22	-0.01	22	-0.01	23	-0.01	23	-0.01
Kd of Ac-227 in Contaminated Zone		26	0.00	26	0.00	28	0.00	28	0.00
Kd of Ac-227 in Unsaturated Zone 1		21	0.01	21	0.01	19	0.02	21	0.01
Kd of Ac-227 in Saturated Zone		25	-0.01	25	-0.01	9	-0.06	12	-0.04
Kd of Pa-231 in Contaminated Zone		32	0.00	32	0.00	30	0.00	30	0.00
Kd of Pa-231 in Unsaturated Zone 1		24	-0.01	24	-0.01	32	0.00	32	0.00
Kd of Pa-231 in Saturated Zone		16	-0.01	18	-0.01	26	0.01	26	0.01
Kd of U-235 in Contaminated Zone		31	0.00	31	0.00	20	-0.02	22	-0.01
Kd of U-235 in Unsaturated Zone 1		27	0.00	27	0.00	15	-0.03	19	-0.02
Kd of U-235 in Saturated Zone		34	0.00	34	0.00	29	0.00	29	0.00
Fish transfer factor for Pu		1	0.23	1	0.23	7	0.07	9	0.05
Fish transfer factor for Ac		17	-0.01	19	-0.01	34	-0.00	34	0.00
Fish transfer factor for Pa		33	0.00	33	0.00	31	0.00	31	0.00

Pu-240 Results:

RESRAD Regression and Correlation output 10/27/23 13:02 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Pu240
Input File : BFM-IU_PU240.RAD

Coefficients for peak of mean dose time Dose		PCC		SRC		PRCC		SRRCC	
Coefficient =		1		1		1		1	
Repetition =									
Description of Probabilistic Variable		Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material		10	0.03	12	0.03	3	-0.26	3	-0.21
Density of contaminated zone		19	-0.02	6	-0.06	34	0.00	32	-0.01
Contaminated zone total porosity		20	-0.02	8	-0.06	35	0.00	33	-0.01
Contaminated zone b parameter		9	-0.03	11	-0.03	29	0.01	30	0.01
Evapotranspiration coefficient		34	0.00	34	0.00	9	-0.10	9	-0.07
Irrigation		26	-0.01	28	-0.01	14	0.02	17	0.02
Density of saturated zone		5	0.06	2	0.19	30	0.01	14	0.03
Saturated zone total porosity		6	0.06	3	0.17	13	0.02	10	0.05
Saturated zone hydraulic gradient		8	-0.04	10	-0.04	6	-0.15	6	-0.11
Density of Unsaturated zone 1		30	-0.01	22	-0.02	18	-0.02	11	-0.05
Total Porosity of Unsaturated zone 1		29	0.01	21	0.02	25	0.02	12	0.04
b Parameter of Unsaturated zone 1		18	0.02	20	0.02	37	0.00	37	0.00
Mass loading for inhalation		23	0.02	26	0.02	31	-0.01	31	-0.01
Indoor dust filtration factor		15	0.03	17	0.03	21	0.02	23	0.01
External gamma shielding factor		14	-0.03	16	-0.03	15	0.02	18	0.02
Soil ingestion		11	-0.03	13	-0.03	26	-0.01	27	-0.01
Aquatic food		3	0.07	5	0.07	8	0.12	8	0.09
Depth of soil mixing layer		21	-0.02	23	-0.02	5	0.21	5	0.16
Fish transfer factor for Th		13	0.03	15	0.03	12	-0.03	16	-0.02
Fish transfer factor for U		37	0.00	37	0.00	7	0.12	7	0.09
Kd of Pu-240 in Contaminated Zone		4	-0.06	7	-0.06	4	0.23	4	0.18
Kd of Pu-240 in Unsaturated Zone 1		2	-0.08	4	-0.08	1	-0.49	1	-0.43
Kd of Pu-240 in Saturated Zone		16	-0.02	18	-0.02	27	-0.01	28	-0.01
Kd of Ra-228 in Contaminated Zone		32	0.01	32	0.01	22	0.02	24	0.01
Kd of Ra-228 in Unsaturated Zone 1		24	-0.02	25	-0.02	17	0.02	20	0.02
Kd of Ra-228 in Saturated Zone		25	-0.01	27	-0.01	16	-0.02	19	-0.02
Kd of Th-228 in Contaminated Zone		27	0.01	29	0.01	32	-0.01	34	-0.01
Kd of Th-228 in Unsaturated Zone 1		17	-0.02	19	-0.02	36	0.00	36	0.00
Kd of Th-228 in Saturated Zone		31	0.01	31	0.01	28	0.01	29	0.01
Kd of Th-232 in Contaminated Zone		33	-0.01	33	0.00	24	0.02	26	0.01
Kd of Th-232 in Unsaturated Zone 1		12	0.03	14	0.03	10	0.04	13	0.03
Kd of Th-232 in Saturated Zone		7	0.04	9	0.04	20	-0.02	22	-0.02
Kd of U-236 in Contaminated Zone		35	0.00	35	0.00	19	-0.02	21	-0.02
Kd of U-236 in Unsaturated Zone 1		28	-0.01	30	-0.01	2	-0.39	2	-0.32
Kd of U-236 in Saturated Zone		22	-0.02	24	-0.02	11	-0.03	15	-0.02
Fish transfer factor for Pu		1	0.22	1	0.21	33	0.01	35	0.00
Fish transfer factor for Ra		36	0.00	36	0.00	23	0.02	25	0.01

Pu-241 Results:

RESRAD Regression and Correlation output 10/27/23 14:45 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Pu241
Input File : BFM-IU_PU241.RAD

Coefficients for peak of mean dose time Dose					PCC		SRC		PRCC		SRRC	
Coefficient =					1		1		1		1	
Repetition =												
Description of Probabilistic Variable					Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Kd of Am-241 in Contaminated Zone					3	0.12	4	0.10	3	0.32	3	0.23
Kd of Am-241 in Unsaturated Zone 1					13	-0.03	15	-0.02	2	-0.33	2	-0.24
Kd of Am-241 in Saturated Zone					10	0.03	11	0.03	31	-0.01	35	-0.01
Kd of Np-237 in Contaminated Zone					29	-0.01	31	-0.01	7	0.15	7	0.10
Kd of Np-237 in Unsaturated Zone 1					31	-0.01	33	-0.01	33	0.01	36	0.01
Kd of Np-237 in Saturated Zone					21	0.02	23	0.01	24	0.01	28	0.01
Kd of Th-229 in Contaminated Zone					20	-0.02	22	-0.01	28	0.01	31	0.01
Kd of Th-229 in Unsaturated Zone 1					28	-0.01	30	-0.01	23	-0.01	27	-0.01
Kd of Th-229 in Saturated Zone					6	0.04	7	0.03	12	-0.03	14	-0.02
Kd of U-233 in Contaminated Zone					25	-0.01	27	-0.01	15	-0.02	19	-0.01
Kd of U-233 in Unsaturated Zone 1					33	0.00	35	0.00	22	0.02	26	0.01
Kd of U-233 in Saturated Zone					23	-0.01	25	-0.01	18	-0.02	22	-0.01
Density of cover material					17	0.02	19	0.02	8	-0.10	8	-0.07
Density of contaminated zone					36	0.00	29	-0.01	34	0.01	18	0.02
Contaminated zone total porosity					35	0.00	28	-0.01	19	-0.02	10	-0.04
Contaminated zone b parameter					9	-0.03	10	-0.03	20	-0.02	23	-0.01
Evapotranspiration coefficient					32	0.01	34	0.00	9	-0.08	9	-0.06
Irrigation					24	-0.01	26	-0.01	25	-0.01	29	-0.01
Density of saturated zone					27	0.01	14	0.02	35	-0.01	25	-0.01
Saturated zone total porosity					26	0.01	12	0.02	38	0.00	32	-0.01
Saturated zone hydraulic gradient					4	-0.05	6	-0.04	4	-0.21	4	-0.15
Density of Unsaturated zone 1					12	0.03	5	0.07	32	-0.01	16	-0.02
Total Porosity of Unsaturated zone 1					5	0.04	3	0.10	26	0.01	11	0.03
b Parameter of Unsaturated zone 1					18	-0.02	20	-0.02	37	0.00	38	0.00
Mass loading for inhalation					16	0.02	18	0.02	36	-0.01	37	0.00
Indoor dust filtration factor					30	0.01	32	0.01	30	-0.01	34	-0.01
External gamma shielding factor					14	-0.02	16	-0.02	17	-0.02	21	-0.01
Soil ingestion					2	0.17	2	0.14	10	0.04	12	0.03
Aquatic food					8	0.04	9	0.03	6	0.18	6	0.13
Depth of soil mixing layer					1	0.60	1	0.59	1	0.64	1	0.57
Fish transfer factor for Am					22	0.02	24	0.01	14	0.02	17	0.02
Fish transfer factor for Np					37	0.00	37	0.00	5	0.19	5	0.13
Fish transfer factor for Th					19	0.02	21	0.02	29	0.01	33	0.01
Fish transfer factor for U					11	0.03	13	0.02	27	0.01	30	0.01
Kd of Pu-241 in Contaminated Zone					7	0.04	8	0.03	11	0.03	13	0.02
Kd of Pu-241 in Unsaturated Zone 1					34	0.00	36	0.00	16	-0.02	20	-0.01
Kd of Pu-241 in Saturated Zone					15	0.02	17	0.02	13	0.03	15	0.02
Fish transfer factor for Pu					38	0.00	38	0.00	21	0.02	24	0.01

Sb-125 Results:

RESRAD Regression and Correlation output 10/27/23 10:28 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Sb125
Input File : BFM-IU_SB125.RAD

Coefficients for peak of mean dose time Dose					PCC		SRC		PRCC		SRRC	
Coefficient =					1		1		1		1	
Repetition =												
Description of Probabilistic Variable					Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material					1	-0.66	1	-0.66	1	-1.00	1	-1.00
Density of contaminated zone					24	0.00	22	0.01	5	0.06	5	0.01
Contaminated zone total porosity					21	-0.01	12	-0.02	15	0.02	8	0.00
Contaminated zone b parameter					11	0.02	13	0.02	24	0.00	24	0.00
Evapotranspiration coefficient					19	-0.01	20	-0.01	8	-0.04	12	0.00
Irrigation					14	-0.02	16	-0.01	12	0.03	15	0.00
Density of saturated zone					2	0.06	2	0.15	17	0.02	10	0.00
Saturated zone total porosity					3	0.06	3	0.14	20	0.01	13	0.00
Saturated zone hydraulic gradient					18	-0.01	19	-0.01	4	-0.19	4	-0.01
Density of Unsaturated zone 1					15	-0.02	4	-0.04	10	-0.04	7	-0.01
Total Porosity of Unsaturated zone 1					25	0.00	24	0.00	9	-0.04	6	-0.01
b Parameter of Unsaturated zone 1					7	-0.03	8	-0.02	25	0.00	25	0.00
Mass loading for inhalation					6	0.03	7	0.03	21	0.01	21	0.00
Indoor dust filtration factor					22	0.01	23	0.00	18	0.02	19	0.00
External gamma shielding factor					5	0.04	6	0.03	3	0.24	3	0.02
Soil ingestion					26	0.00	26	0.00	16	0.02	18	0.00
Aquatic food					16	0.01	17	0.01	7	-0.05	11	0.00
Depth of soil mixing layer					8	-0.03	9	-0.02	23	0.00	23	0.00
Kd of Sb-125 in Contaminated Zone					4	0.05	5	0.04	2	0.63	2	0.05
Kd of Sb-125 in Unsaturated Zone 1					23	0.00	25	0.00	22	-0.01	22	0.00
Kd of Sb-125 in Saturated Zone					9	0.03	10	0.02	26	0.00	26	0.00
Kd of Te-125m in Contaminated Zone					12	-0.02	14	-0.02	14	-0.02	17	0.00
Kd of Te-125m in Unsaturated Zone 1					17	-0.01	18	-0.01	6	-0.05	9	0.00
Kd of Te-125m in Saturated Zone					13	0.02	15	0.02	19	0.02	20	0.00
Fish transfer factor for Sb					20	-0.01	21	-0.01	11	0.03	14	0.00
Fish transfer factor for Te					10	0.03	11	0.02	13	-0.03	16	0.00

Sr-90 Results:

RESRAD Regression and Correlation output 10/27/23 10:36 Page: Coef 1
Title : OCS BFM_Industrial Use_IR_Sr90
Input File : BFM-IU_SR90.RAD

Coefficients for peak of mean dose time Dose					PCC		SRC		PRCC		SRRC	
Coefficient =					1		1		1		1	
Repetition =												
Description of Probabilistic Variable					Sig	Coef	Sig	Coef	Sig	Coef	Sig	Coef
Density of cover material					20	-0.01	20	-0.01	3	-0.55	3	-0.42

Density of contaminated zone	16	-0.02	8	-0.06	11	0.02	9	0.04
Contaminated zone total porosity	10	-0.03	4	-0.08	19	0.00	15	-0.01
Contaminated zone b parameter	15	0.02	16	0.02	15	-0.01	17	-0.01
Evapotranspiration coefficient	22	0.00	22	0.00	5	-0.07	8	-0.05
Irrigation	21	0.01	21	0.01	14	0.01	16	0.01
Density of saturated zone	3	0.05	1	0.17	9	-0.03	7	-0.06
Saturated zone total porosity	4	0.05	2	0.17	16	-0.01	12	-0.02
Saturated zone hydraulic gradient	2	-0.06	7	-0.06	4	-0.15	5	-0.09
Density of Unsaturated zone 1	14	0.02	6	0.07	8	0.04	6	0.07
Total Porosity of Unsaturated zone 1	12	0.02	5	0.07	7	0.05	4	0.10
b Parameter of Unsaturated zone 1	19	-0.01	19	-0.01	20	0.00	20	0.00
Mass loading for inhalation	8	0.03	12	0.03	22	0.00	22	0.00
Indoor dust filtration factor	11	0.03	14	0.02	12	0.02	13	0.01
External gamma shielding factor	6	-0.04	10	-0.04	17	-0.01	18	0.00
Soil ingestion	13	0.02	15	0.02	10	0.03	11	0.02
Aquatic food	18	0.01	18	0.01	18	-0.01	19	0.00
Depth of soil mixing layer	9	0.03	13	0.03	21	0.00	21	0.00
Kd of Sr-90 in Contaminated Zone	7	-0.04	11	-0.04	1	0.59	1	0.46
Kd of Sr-90 in Unsaturated Zone 1	5	-0.04	9	-0.04	2	-0.56	2	-0.43
Kd of Sr-90 in Saturated Zone	17	-0.01	17	-0.01	6	-0.06	10	-0.04
Fish transfer factor for Sr	1	0.12	3	0.12	13	-0.01	14	-0.01

Tc-99 Results:

RESRAD Regression and Correlation output 10/27/23 10:51 Page: Coef 1
Title : OCS BFM Industrial Use_IR_Tc99
Input File : BFM-IU_TC99.RAD

Coefficients for peak of mean dose time Dose
Coefficient =
Repetition =

Description of Probabilistic Variable	PCC 1		SRC 1		PRCC 1		SRRC 1	
	Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff
Density of cover material	16	0.01	17	0.01	15	-0.03	16	-0.02
Density of contaminated zone	15	0.02	11	0.03	19	0.01	17	0.01
Contaminated zone total porosity	12	-0.02	8	-0.05	13	-0.03	9	-0.05
Contaminated zone b parameter	22	0.00	22	0.00	17	0.02	18	0.01
Evapotranspiration coefficient	5	-0.11	6	-0.07	4	-0.30	4	-0.19
Irrigation	7	-0.04	12	-0.03	18	-0.01	19	-0.01
Density of saturated zone	10	-0.03	7	-0.06	11	-0.03	8	-0.06
Saturated zone total porosity	13	-0.02	9	-0.05	9	-0.04	7	-0.07
Saturated zone hydraulic gradient	4	-0.18	4	-0.12	5	-0.21	5	-0.13
Density of Unsaturated zone 1	8	-0.04	5	-0.08	16	-0.02	10	-0.04
Total Porosity of Unsaturated zone 1	17	-0.01	14	-0.02	6	0.07	6	0.12
b Parameter of Unsaturated zone 1	11	0.03	15	0.02	10	0.03	13	0.02
Mass loading for inhalation	9	0.04	13	0.02	14	0.03	15	0.02
Indoor dust filtration factor	18	0.01	18	0.01	20	-0.01	20	0.00
External gamma shielding factor	21	0.00	21	0.00	12	-0.03	14	-0.02
Soil ingestion	20	0.00	20	0.00	22	0.00	22	0.00
Aquatic food	2	0.34	2	0.23	3	0.41	3	0.28
Depth of soil mixing layer	19	0.00	19	0.00	7	-0.06	11	-0.03
Kd of Tc-99 in Contaminated Zone	6	-0.05	10	-0.03	8	-0.04	12	-0.02
Kd of Tc-99 in Unsaturated Zone 1	3	-0.28	3	-0.19	2	-0.55	2	-0.40
Kd of Tc-99 in Saturated Zone	14	-0.02	16	-0.01	21	0.00	21	0.00
Fish transfer factor for Tc	1	0.73	1	0.69	1	0.67	1	0.55