Phase II Final Status Survey Report
Mallinckrodt Columbium-Tantalum Plant

St. Louis, Missouri

Chapter 12

Project No. 137131 **Revision 0**

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ABBREVIATIONS AND ACRONYMS

%	percent
σ	sigma; standard deviation
Ac	actinium
AECOM	AECOM Technical Services
bgs	below grade surface
C-T	columbium-tantalum
CFR	Code of Federal Regulations
DCGL	derived concentration guideline level
DP	decommissioning plan
DQO	data quality objectives
EMC	elevated measurement comparison
Energy*Solutions*, LLC	Energy*Solutions*
F	exposure-weighted fraction of the $DCGL_W$
FSS	Final Status Survey
FSSR	Final Status Survey Report
ft	feet
ft^2	square feet
GWS	gamma walk-over survey
m	meters
m^2	square meters
MARSSIM	Multi-Agency Radiation and Site Investigation Manual (NUREG-1575)
MDC	minimum detectable concentration
mrem/yr	millirem per year
NIST	National Institute of Standards and Technology
NRC	U.S. Nuclear Regulatory Commission
Pa	protactinium
Pb	lead
pCi/g	picoCuries per gram
Ra	radium
SOF	sum of fractions
Th	thorium
U	uranium
VCP	vitrified clay pipe
WRS	Wilcoxon Rank Sum

12.0 RESULTS SUMMARY FOR PLANT 5 SUBSURFACE SU06

This chapter of the Final Status Survey Report (FSSR) presents the results of the final status survey (FSS) and data assessment for Plant 5 subsurface survey unit SU06 in accordance with Columbium-Tantalum (C-T) Phase II Decommissioning Plan (DP) Section 14.5. The FSS for this Class 1 survey unit was completed by AECOM Technical Services (AECOM) in September 2011. The SU06 data assessment was performed based on the assumptions, methods, and performance criteria established to satisfy the data quality objectives (DQOs) in accordance with the C-T Phase II DP Section 14.4.3.8. The summary statistics provide numerical values for measures of central tendency (i.e., mean, median), variation (i.e., standard deviation), and spread (i.e., minimum, maximum). Data evaluation and statistical analyses were performed and a separate decision was made for each survey unit of the C-T Plant as to its suitability for release for unrestricted use based upon the industrial use scenario release criterion as established in C-T Phase II DP Chapter 5.

12.1 OVERVIEW

SU06 is a Class 1 survey unit in the western portion of C-T Plant 5. The survey unit is approximately 393 square meters (m^2) in size, which is less than the size limit of 3,000 m^2 for Class 1 survey units for subsurface material (per C-T Phase II DP, Table 14-4). Class 1 was the appropriate classification because the survey unit contained residual radioactivity that exceeded the derived concentration guideline value ($DCGL_W$) prior to remediation. Figure 12-1 shows the location of SU06 within the Plant 5 area.

Figure 12-2 is a photograph of SU06 as viewed from northwest of the survey unit looking south east. Portions of legacy concrete remain in the survey unit. The soil adjacent to Building 250 was removed down to the Building 250 grade beam and then along a 1-to-1 slope down to the final excavation depth. Additional excavation threatened to undermine the building foundation and existing water line running along the building and was not performed. Excavated depth ranged from 4 to 16 feet (ft). The sloped area adjacent to Building 250 was addressed as part of the FSS.

A vitrified clay pipe (VCP) containing contaminated material not associated with the C-T manufacturing operations was discovered running east-west through AECOM grids A4, B4, and C4. Figure 12-3 is a photograph of the VCP contents. The VCP was removed until within approximately 12 ft from the footprint of Building 250 in order to avoid undermining the manhole for the remaining sewer system. A sample of the pipe residue was collected (sample 3112), which reported radioactivity at a gross sum of fractions (SOF) value of more than 100. A sample of the soil collected from the trench after VCP removal indicated that the radioactivity was confined to the VCP (sample 3111 with a gross SOF of 0.19). The terminus of the VCP was cleaned as far back as practical (approximately 5 ft), grouted, and abandoned in place. The portion of the VCP remaining in place (approximately 7 ft) within SU06 was assumed to contain pipe residue consistent with sample 3112. Figure 12-4 is a photograph of the VCP terminus prior to grouting. The location of the VCP and referenced AECOM grids are shown on Figure 12-5.

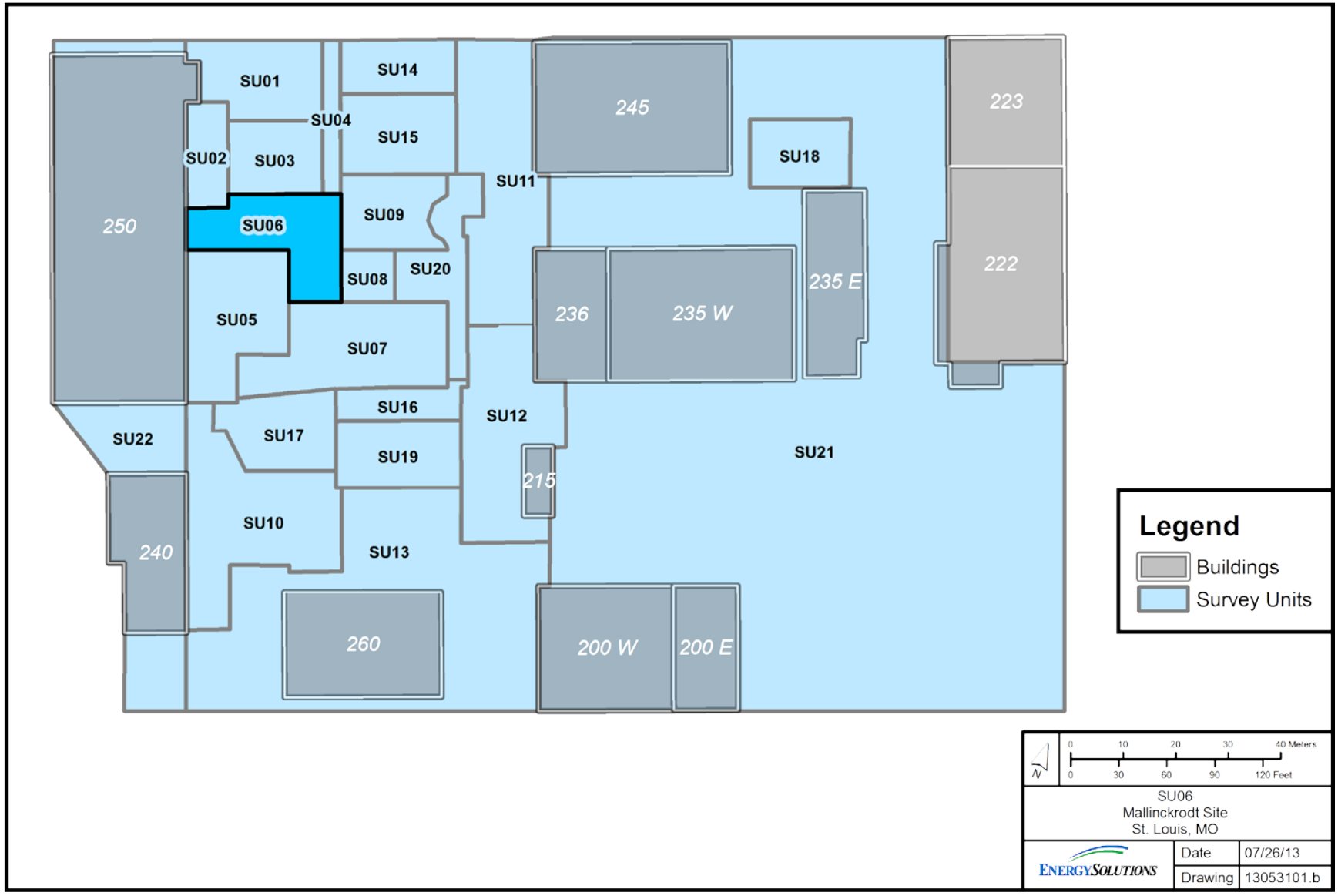


Figure 12-1 Location of SU06 in C-T Plant 5

Figure 12-2 Photograph of SU06 Looking Southeast from East Side of Building 250

Figure 12-3 Photograph of VCP Contents

Figure 12-4 Photograph Looking West at the Terminus of the VCP Prior to Grouting

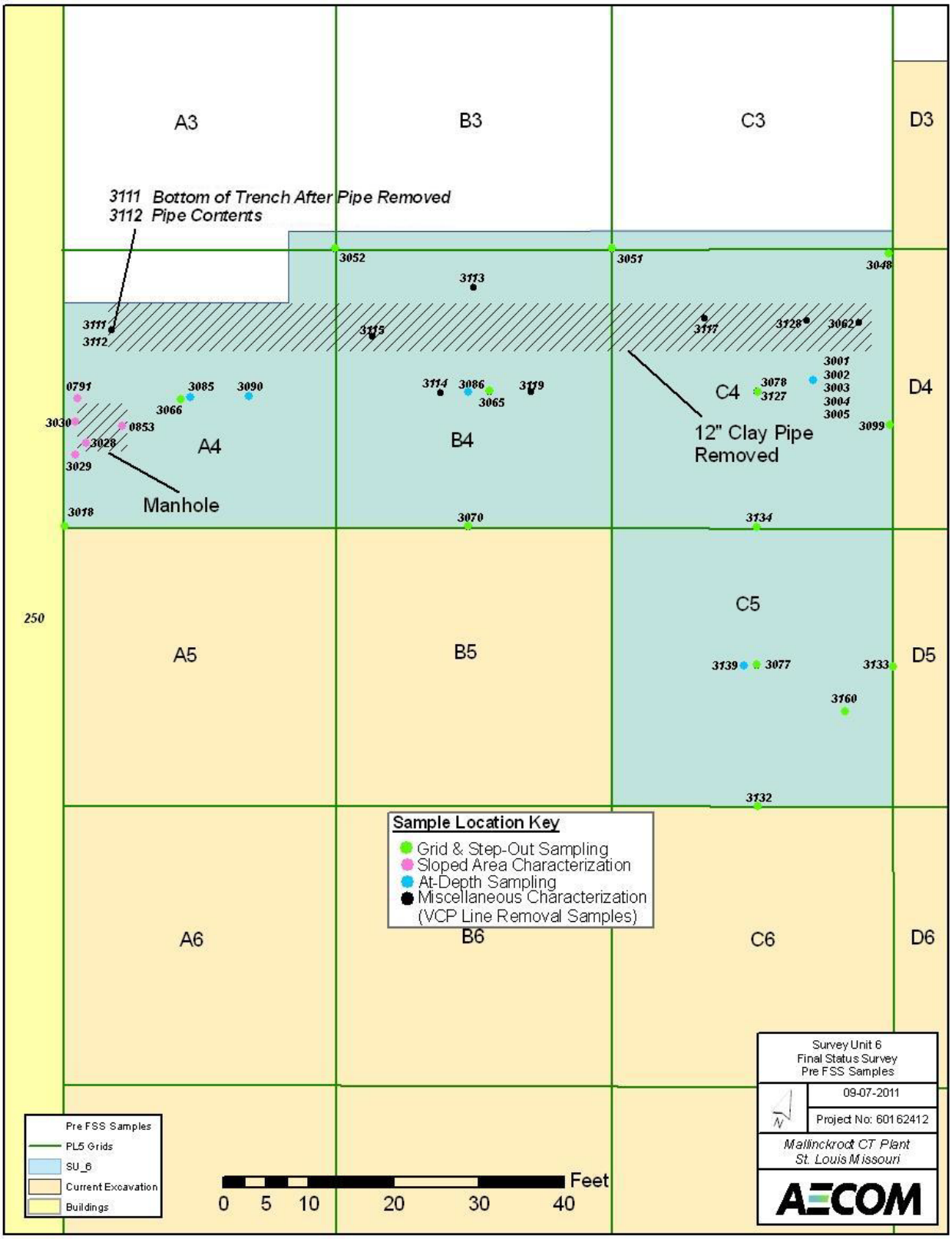


Figure 12-5 Post-Remediation Soil Sampling Locations

12.2 REMEDIAL ACTION AND RADIOLOGICAL SAMPLING SUMMARY

Post-remediation soil sampling, shown in Figure 12-5 above, was performed by AECOM and included: 1) "Grid + Step-Out Sampling", 2) "Sloped Area Characterization" sampling, 3) "At-Depth (Auger) Sampling", and 4) miscellaneous characterization before and after VCP removal. All post-remediation soil samples were analyzed at the on-site laboratory only. Table 12-1 provides the results for the 15 "Grid + Step-Out" samples, 5 "Sloped Area Characterization" samples, 9 "At-Depth (Auger)" samples, and 9 VCP characterization samples.

The trench excavated during VCP removal was subjected to gamma walk-over survey (GWS) and soil sampling, including a soil sample collected immediately beneath the terminus (sample 3111). Soil sample results from both the trench and spoils indicate the high levels of contamination found in the VCP were wholly or largely contained in the VCP for the length of pipe excavated and removed.

Table 12-1 Post-Remediation Sampling Analytical Results

Sample ID	Collection Date	On-Site Results			
		Concentration (pCi/g)			Gross SOF [a]
		^{232}Th	^{226}Ra	^{238}U	
"Grid + Step-Out"					
3018	7/18/2011	1.51	13.6	9.47	**0.54**
3048	8/4/2011	1.11	3.82	9.39	0.19
3051		0.95	4.47	7.81	0.20
3052		1.40	3.20	8.03	0.18
3065	8/10/2011	4.90	11.98	18.56	**0.64**
3066		1.47	6.26	23.6	0.31
3070	8/11/2011	1.14	3.61	37.7	0.23
3077	8/12/2011	0.28	3.92	19.8	0.18
3078		-0.74	7.85	17.2	0.30
3099	8/16/2011	4.00	5.27	25.9	0.39
3127	8/27/2011	1.14	1.95	1.87	0.12
3132	8/29/2011	1.04	1.34	2.78	0.09
3133		1.30	2.16	4.15	0.13
3134		1.15	1.05	1.95	0.09
3160	9/7/2011	4.18	14.1	20.8	0.69
"Sloped Area Characterization"					
0791	5/3/2011	24.3	30.9	18.9	**2.08**
0853	5/20/2011	4.05	5.01	21.0	0.37
3028	8/1/2011	2.36	5.66	15.5	0.32
3029		0.00	4.27	3.02	0.15
3030		1.33	4.02	3.82	0.20

Table 12-1 Post-Remediation Sampling Analytical Results (continued)

Sample ID	Collection Date	On-Site Results			
		Concentration (pCi/g)			Gross SOF [a]
		^{232}Th	^{226}Ra	^{238}U	
"At-Depth (Auger)"					
3001	6/24/2011	3.42	10.8	31.9	**0.56**
3002		1.10	1.59	1.13	0.10
3003		1.47	1.56	1.50	0.12
3004		1.39	1.92	1.36	0.13
3005		1.39	1.19	0.72	0.10
3085	8/16/2011	1.12	5.63	44.9	0.31
3086		0.79	3.37	9.79	0.16
3090		1.08	2.53	9.68	0.15
3139	8/30/2011	1.31	2.46	16.0	0.16
Miscellaneous Characterization (sludge in VCP)					
3112	8/25/2011	708.2	2,127.7	415.4	**102.07**
Miscellaneous Characterization (after VCP removal)					
3062	8/10/2011	1.30	2.72	6.16	0.16
3111	8/28/2011	1.23	3.73	4.47	0.19
3113	8/25/2011	6.45	4.97	16.5	0.47
3114	8/26/2011	4.71	9.63	21.35	**0.56**
3115		3.74	12.45	28.83	**0.63**
3117		1.25	2.15	7.12	0.14
3119		0.32	0.22	12.28	0.04
3128	8/27/2011	1.45	2.88	12.86	0.18

[a] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.

12.3 DATA COLLECTION

Data collection was performed based on the assumptions, methods, and performance criteria established to satisfy the DQOs in accordance with the C-T Phase II DP, Sections 14.4.1 and 14.4.3. Details regarding FSS design and quality assurance and quality control applicable to all survey units were discussed in Chapters 4 and 5, respectively, of this FSSR.

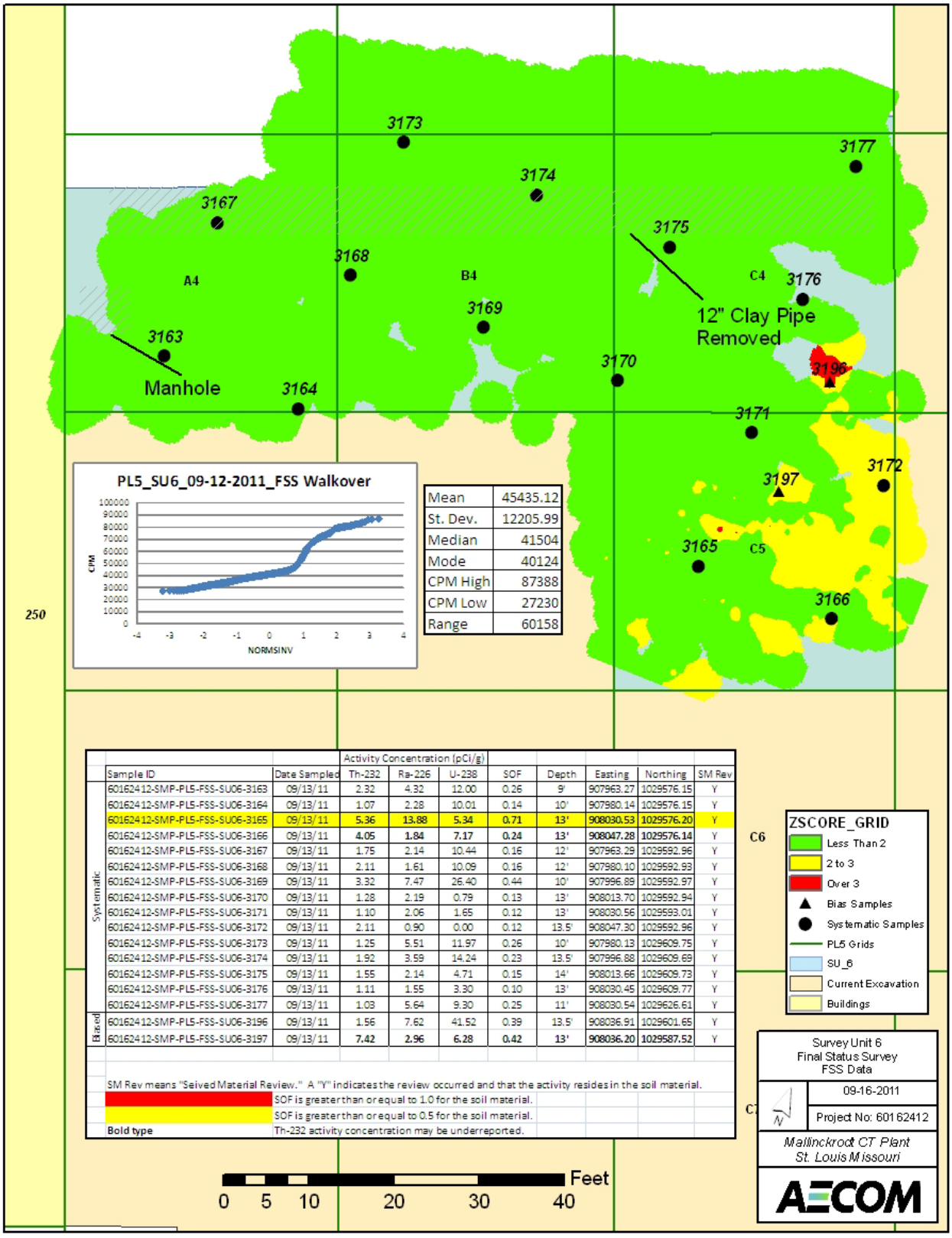
12.3.1 Gamma Scans

A GWS was performed over 100% of the excavated area to locate radiation anomalies that might indicate areas with elevated residual radioactivity where further data collection (i.e., biased soil sampling) was warranted.

12.3.2 Soil Sampling

Soil samples to be used for the statistical test were collected at a frequency and at representative locations throughout SU06 such that a statistically sound conclusion regarding the radiological condition of the survey unit could be developed. Biased soil samples were collected at locations of elevated residual radioactivity near the manhole identified by GWS as well as along the sloped excavation along Building 250. Figure 12-6 provides the GWS results and soil sampling locations. Post-remedial sampling around the manhole identified elevated residual radioactivity

(sample 0791) in an area of less than 10 m^2. The manhole area (as shown in Figure 12-5) was excavated down to the building footer and additional excavation to remove the residual radioactivity threatened to undermine the building foundation. Figure 12-7 shows the sloped excavation samples for bounding elevated contamination identified near the manhole. A total of 26 soil samples were collected throughout SU06, 17 over the areal footprint of SU06 (15 systematic and 2 GWS biased) and 9 biased for elevated area bounding of the manhole in the sloped excavation along Building 250. Further excavation threatened to undermine the building foundation and therefore additional sampling was performed in order to evaluate the residual contamination.



			Activity Concentration (pCi/g)							
	Sample ID	Date Sampled	Th-232	Ra-226	U-238	SOF	Depth	Easting	Northing	SM Rev
Systematic	60162412-SMP-PL5-FSS-SU06-3163	09/13/11	2.32	4.32	12.00	0.26	9'	907963.27	1029576.15	Y
	60162412-SMP-PL5-FSS-SU06-3164	09/13/11	1.07	2.28	10.01	0.14	10'	907980.14	1029576.15	Y
	60162412-SMP-PL5-FSS-SU06-3165	09/13/11	**5.36**	**13.88**	**5.34**	**0.71**	**13'**	**908030.53**	**1029576.20**	Y
	60162412-SMP-PL5-FSS-SU06-3166	09/13/11	**4.05**	**1.84**	**7.17**	**0.24**	**13'**	**908047.28**	**1029576.14**	Y
	60162412-SMP-PL5-FSS-SU06-3167	09/13/11	1.75	2.14	10.44	0.16	12'	907963.29	1029592.96	Y
	60162412-SMP-PL5-FSS-SU06-3168	09/13/11	2.11	1.61	10.09	0.16	12'	907980.10	1029592.93	Y
	60162412-SMP-PL5-FSS-SU06-3169	09/13/11	3.32	7.47	26.40	0.44	10'	907996.89	1029592.97	Y
	60162412-SMP-PL5-FSS-SU06-3170	09/13/11	1.28	2.19	0.79	0.13	13'	908013.70	1029592.94	Y
	60162412-SMP-PL5-FSS-SU06-3171	09/13/11	1.10	2.06	1.65	0.12	13'	908030.56	1029593.01	Y
	60162412-SMP-PL5-FSS-SU06-3172	09/13/11	2.11	0.90	0.00	0.12	13.5'	908047.30	1029592.96	Y
	60162412-SMP-PL5-FSS-SU06-3173	09/13/11	1.25	5.51	11.97	0.26	10'	907980.13	1029609.75	Y
	60162412-SMP-PL5-FSS-SU06-3174	09/13/11	1.92	3.59	14.24	0.23	13.5'	907996.88	1029609.69	Y
	60162412-SMP-PL5-FSS-SU06-3175	09/13/11	1.55	2.14	4.71	0.15	14'	908013.66	1029609.73	Y
	60162412-SMP-PL5-FSS-SU06-3176	09/13/11	1.11	1.55	3.30	0.10	13'	908030.45	1029609.77	Y
	60162412-SMP-PL5-FSS-SU06-3177	09/13/11	1.03	5.64	9.30	0.25	11'	908030.54	1029626.61	Y
Biased	60162412-SMP-PL5-FSS-SU06-3196	09/13/11	1.56	7.62	41.52	0.39	13.5'	908036.91	1029601.65	Y
	60162412-SMP-PL5-FSS-SU06-3197	09/13/11	**7.42**	**2.96**	**6.28**	**0.42**	**13'**	**908036.20**	**1029587.52**	Y

SM Rev means "Seived Material Review." A "Y" indicates the review occurred and that the activity resides in the soil material.

SOF is greater than or equal to 1.0 for the soil material.

SOF is greater than or equal to 0.5 for the soil material.

Bold type Th-232 activity concentration may be underreported.

Figure 12-6 GWS and Soil Sampling Locations

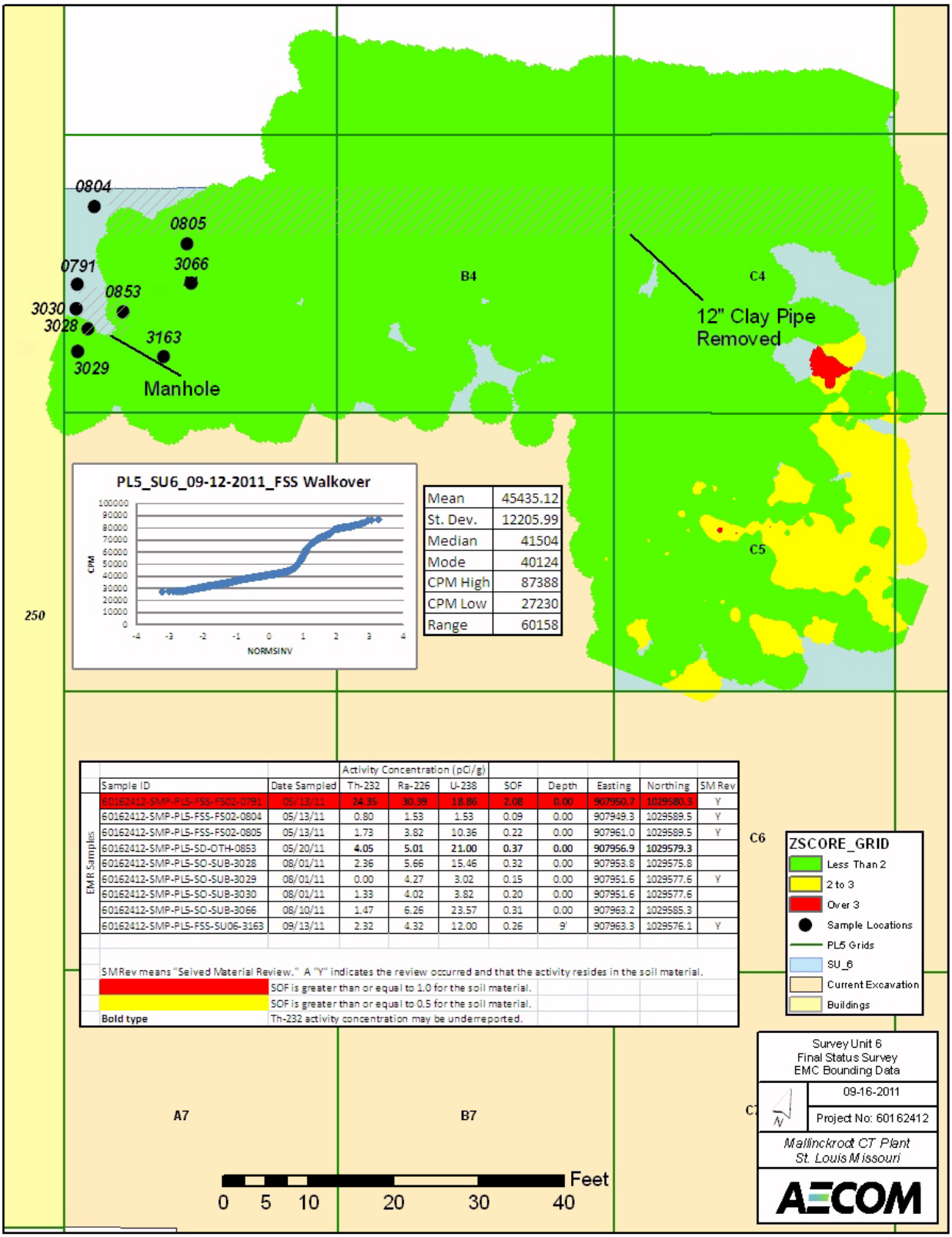


Figure 12-7 Additional Biased Soil Sampling Locations

All soil samples were analyzed on site via gamma spectroscopy analysis. Table 12-2 provides the sample results and summary statistics for the 15 systematic samples. Table 12-3 provides the sample results for the 2 GWS biased samples and the 9 biased samples for elevated area bounding of the sloped excavation along Building 250—some of the results in Table 12-3 are duplicated from Table 12-1.

Any remaining sieved material from each sample was analyzed separately to verify residual radioactivity was consistent with sample results. The radiological screening process did not identify any significant levels of radioactivity in the sieved materials removed from samples.

The C-T Phase II DP, Table 4-17, provided mean background activity levels of 1.3, 2.5, and 4.4 picoCuries per gram (pCi/g) for thorium-232 (^{232}Th), radium-226 (^{226}Ra), and uranium-238 (^{238}U), respectively. These values were used to calculate net SOF values—note that when measured activity concentration levels were less than the background mean resulting in a negative value, the net activity concentration was set equal to zero for the net SOF calculation.

To mitigate the risk of backfilling, the on-site laboratory analytical results were reviewed to determine the likelihood of the survey unit failing to meet the criteria for radiological release. The on-site laboratory, by design, reported conservative sample results.

Table 12-2 Gamma Spectroscopy Systematic Sample Analytical Results

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Activity Concentration (pCi/g) [b]									SOF [c]		Activity Concentration (pCi/g) [b]								SOF [c]		
		^{232}Th			^{226}Ra			^{238}U					^{232}Th			^{226}Ra			^{238}U					
		Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	
3163	9	2.32	0.37	0.09	4.32	1.80	1.37	12.00	3.05	2.02	0.26	0.12	2.37	0.43	0.39	2.98	0.40	0.10	3.38	0.43	0.11	0.21	0.06	1.27
3164	10	1.07	0.23	0.06	2.28	1.47	1.15	10.01	1.71	0.89	0.14	0.01	1.58	0.50	0.32	1.86	0.28	0.09	2.05	0.29	0.10	0.13	0.01	1.03
3165	13	5.36	0.58	0.14	13.88	2.07	1.33	5.34	1.68	1.18	**0.70**	**0.56**	7.32	1.10	0.54	14.10	1.80	0.14	15.90	2.00	0.16	**0.81**	**0.66**	0.87
3166	13	4.05	0.48	0.11	1.84	1.39	1.09	7.17	1.74	1.07	0.24	0.12	5.66	0.84	0.40	2.16	0.32	0.10	2.95	0.41	0.11	0.31	0.18	0.77
3167	12	1.75	0.34	0.06	2.14	1.62	1.27	10.44	1.80	0.94	0.16	0.03	2.31	0.31	0.09	2.10	0.29	0.08	2.31	0.31	0.09	0.17	0.04	0.94
3168	12	2.11	0.39	0.09	1.61	1.75	1.39	10.09	1.53	0.90	0.16	0.04	2.14	0.59	0.36	1.88	0.28	0.10	2.16	0.31	0.10	0.16	0.04	1.00
3169	10	3.32	0.45	0.10	7.47	2.40	1.82	26.40	2.61	1.26	0.43	0.28	4.49	0.89	0.60	4.78	0.65	0.16	5.19	0.74	0.17	0.36	0.21	1.20
3170	13	1.28	0.26	0.05	2.19	0.83	0.56	*0.79*	1.21	0.97	0.13	0.00	1.12	0.25	0.21	1.17	0.17	0.06	1.31	0.18	0.05	0.09	0.00	1.46
3171	13	1.10	0.21	0.06	2.06	0.85	0.60	1.65	0.80	0.53	0.12	0.00	1.14	0.40	0.37	1.71	0.27	0.11	1.60	0.24	0.11	0.11	0.00	1.10
3172	13.5	2.11	0.30	0.10	*0.90*	1.34	1.08	*0.00*	1,535.80	1.99	0.12	0.03	3.30	0.54	0.26	1.30	0.20	0.07	1.83	0.25	0.08	0.18	0.08	0.64
3173	10	1.25	0.34	0.14	5.51	1.74	1.28	11.97	1.72	0.91	0.26	0.11	1.60	0.43	0.45	4.99	0.65	0.11	5.83	0.73	0.13	0.24	0.10	1.05
3174	13.5	1.92	0.37	0.14	3.59	1.98	1.53	14.24	2.12	1.07	0.22	0.08	2.43	0.54	0.41	3.07	0.42	0.11	3.47	0.47	0.12	0.21	0.07	1.05
3175	14	1.55	0.25	0.09	2.14	1.03	0.76	4.71	1.00	0.63	0.14	0.01	1.91	0.33	0.22	2.09	0.28	0.07	2.34	0.31	0.07	0.15	0.03	0.93
3176	13	1.11	0.23	0.09	1.55	0.87	0.64	3.30	3.01	2.14	0.10	0.00	1.03	0.36	0.32	1.30	0.21	0.09	1.35	0.21	0.09	0.09	0.00	1.17
3177	11	1.03	0.27	0.08	5.64	1.66	1.18	9.30	1.29	0.69	0.25	0.11	1.15	0.28	0.26	3.97	0.51	0.07	4.47	0.56	0.08	0.19	0.05	1.31
Summary Statistics																								
Count:		15			15			15			15	15	15			15			15			15	15	15
Average:		2.09			3.81			8.49			0.23	0.10	2.64			3.30			3.74			0.23	0.10	1.05
Median:		1.75			2.19			9.30			0.16	0.04	2.14			2.10			2.34			0.18	0.05	1.05
Standard Dev.:		1.25			3.35			6.65			0.16	0.15	1.84			3.23			3.63			0.18	0.17	0.21
Minimum:		1.03			0.90			0.00			0.10	0.00	1.03			1.17			1.31			0.09	0.00	0.64
Maximum:		5.36			13.88			26.40			**0.70**	**0.56**	7.32			14.10			15.90			**0.81**	**0.66**	1.46
Range:		4.33			12.97			26.40			0.60	0.56	6.29			12.93			14.59			0.72	0.66	0.81

[a] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[b] Italicized results indicate <MDC.
[c] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.
[d] Calculated as discussed in Section 12.3.2.

Table 12-3 Gamma Spectroscopy Biased Sample Analytical Results

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Activity Concentration (pCi/g) [b]									SOF [c]		Activity Concentration (pCi/g) [b]									SOF [c]	
		^{232}Th			^{226}Ra			^{238}U					^{232}Th			^{226}Ra			^{238}U				
		Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	
GWS Biased Samples																							
3196	13.5	1.56	0.30	0.09	7.62	2.74	2.13	41.52	3.23	1.36	0.38	0.24	1.97	0.57	0.48	4.29	0.60	0.12	4.56	0.59	0.14	0.23	0.09	1.63
3197	13	7.42	0.67	0.17	2.96	1.61	1.24	6.28	2.02	1.33	0.42	0.27	11.10	1.50	0.56	2.49	0.38	0.15	2.91	0.42	0.16	**0.55**	0.41	0.76
Manhole Biased Samples																							
0791	--	24.35	1.27	0.25	30.39	2.37	1.37	18.86	1.88	1.24	**2.08**	**1.93**	Samples Not Sent to Off-Site Laboratory										
0804	--	0.80	0.10	0.05	1.53	0.46	0.33	1.53	0.44	0.29	0.09	0.00											
0805	--	1.73	0.22	0.05	3.82	1.04	0.78	10.36	1.09	0.56	0.22	0.07											
0853	--	4.05	0.32	0.09	5.01	1.46	1.12	21.00	1.77	0.84	0.37	0.22											
3028	5	2.36	0.37	0.12	5.66	2.28	1.76	15.46	1.79	1.01	0.31	0.17											
3029	2.5	*0.00*	379.98	0.25	4.27	1.11	0.76	3.02	0.91	0.57	0.15	0.06											
3030	6.5	1.33	0.24	0.06	4.02	1.06	0.74	3.82	1.03	0.63	0.20	0.05											
3066	10	1.47	0.31	0.07	6.26	2.42	1.85	23.57	2.31	1.05	0.31	0.16											
3163	9	2.32	0.37	0.09	4.32	1.80	1.37	12.00	3.05	2.02	0.26	0.12											

[a] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[b] Italicized results indicate <MDC.
[c] **Bolded orange** SOF values indicate a result >0.5 but ≤1.
[d] Calculated as discussed in Section 12.3.2.

12.3.3 Core Boring

C-T Phase II DP Table 4-7 provided characterization borehole results. Of the locations provided in the table, two were collected within the extent of SU06: BH-009 and BH-030. Table 12-4 provides the data for these locations. The results indicate that beyond the excavation extent, additional subsurface contamination is not reasonably expected. Therefore, in accordance with Page 14-22 of the C-T Phase II DP, FSS core sampling or measurements were not performed.

Table 12-4 Characterization Borehole Results

Location ID	Sample Depth (ft)	Activity Concentration (pCi/g) [a]			SOF [b]	
		^{232}Th	^{226}Ra	^{238}U	Gross	Net [c]
BH-009	2 - 3	5.50	16.30	3.80	**0.79**	**0.65**
BH-030	2 - 3	1.60	3.50	28.20	0.23	0.08
	3 - 4	0.77	2.52	*4.03*	0.12	0.00
	4 - 5	0.84	2.20	5.79	0.12	0.00
	10 - 11	0.69	1.29	9.76	0.09	0.01
	12 - 13	2.60	1.30	14.60	0.17	0.07
	14 - 15	1.40	0.84	6.30	0.10	0.01

[a] Italicized results indicate < MDC.
[b] **Bolded orange** SOF values indicate a result >0.5 but ≤1.
[c] Calculated as discussed in Section 12.3.2.

12.4 DATA ANALYSIS

Data analysis was performed based on the assumptions, methods, and performance criteria established to satisfy the DQOs in accordance with the C-T Phase II DP, Sections 14.4.1 and 14.4.3. Details regarding FSS design and quality assurance and quality control applicable to all survey units were discussed in Chapters 4 and 5, respectively, of this FSSR.

12.4.1 Elevated Area Evaluation

AECOM provided a preliminary evaluation of the elevated area. For an estimated area of less than 10 m^2, the area factor from C-T Phase II DP Figure 5-3 was 2.4. Based on sample 0791, the elevated area's measured concentration SOF value was 2.1.

Equation 9 from C-T Phase II DP, Section 5.8.7 provides for the calculation of an *Index* value that represents the fraction or multiple of the $DCGL_{EMC}$. If the *Index* value is greater than one, then the $DCGL_{EMC}$ is exceeded. Using the elevated area extents determined by AECOM, parameters necessary to calculate the *Index* value for Elevated Area #1 were:

- The elevated area activity levels based on sample 0791 were 24.35, 30.39, and 18.86 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively (from Table 12-3 above);
- Mean background activity levels were 1.3, 2.5, and 4.4 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively (from C-T Phase II DP Table 4-17);

- The size of the elevated area was less than 10 m^2; and,
- The area factors from C-T Phase II DP Figure 5-3 for the elevated area were 2.2, 2.4, and 3.3 for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

The calculation of the *Index* value is shown below. Because the *Index* value as calculated in accordance with the DP was less than one, this elevated area is compliant with the C-T Phase II DP for elevated measurements in soil.

$$Index = \frac{(24.35 - 1.3)\ pCi/g}{(2.2 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(30.39 - 2.5)\ pCi/g}{(2.4 \times 29.4\ pCi/g)_{Ra226}} + \frac{(14.46 - 4.4)\ pCi/g}{(3.3 \times 721\ pCi/g)_{U}} = 0.84$$

The portion of the VPC remaining in SU06 is assumed to have the same contents as the removed portions and that the radioactivity levels are consistent with sample 3112. The length of VCP remaining in SU06 is approximately 7 ft and the VCP diameter is assumed to be no larger than 12 inches (1 ft). Parameters necessary to calculate the *Index* value for the VPC, or Elevated Area #2, were:

- The elevated area activity levels based on sample 3112 were 708.2, 2,127.7, and 415.4 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively (from Table 12-1 above);
- Mean background activity levels were 1.3, 2.5, and 4.4 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively (from C-T Phase II DP Table 4-17);
- The size of the elevated area was approximately 7 square feet (ft^2) or 0.7 m^2; and,
- The area factors from C-T Phase II DP Figure 5-3 for the elevated area were 2.2, 2.4, and 3.3 for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

The calculation of the *Index* value is shown below. Because the *Index* value as calculated in accordance with the DP was greater than one, this elevated area is not compliant with the C-T Phase II DP for elevated measurements in soil. Section 12.5 discusses a dose assessment performed to evaluate the impact of this area that is not compliant with the DCGLs.

$$Index = \frac{(708.2 - 1.3)\ pCi/g}{(2.2 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(2{,}127.7 - 2.5)\ pCi/g}{(2.4 \times 29.4\ pCi/g)_{Ra226}} + \frac{(415.4 - 4.4)\ pCi/g}{(3.3 \times 721\ pCi/g)_{U}} = 43.7$$

12.4.2 Data Set Screening Analysis

Table 12-5 summarizes the results of the screening tests performed in accordance with Pages 14-27 through 14-29 of the C-T Phase II DP. All applicable tests demonstrating compliance passed.

Table 12-5 Screening Tests Results

Screening Test	Test Value	Conclusion
Min/Max	0.79	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min/Max < 1
EMC Limit	0.25	PASS

12.4.2.1 Min/Max

In accordance with Page 14-27 of the C-T Phase II DP, the Min/Max screening test value was calculated by subtracting the minimum reference area result from the maximum survey unit systematic result. Sample 3165 with a gross SOF of 0.81 (from Table 12-2) was the maximum survey unit systematic result. Sample BH-Z-08 with a calculated gross SOF of 0.02 (from C-T Phase II DP Table B-1) was the minimum reference area result. The Min/Max screening test value was calculated to be 0.79. Because the test value was less than one, further computations are not required, i.e., $DCGL_W$ screening and Wilcoxon Rank Sum (WRS) tests.

12.4.2.2 Low Level

In accordance with Page 14-27 of the C-T Phase II DP, the Low Level screening test is not applicable to Class 1 survey units.

12.4.2.3 $DCGL_W$

In accordance with Page 14-28 of the C-T Phase II DP and because the Min/Max test value was less than one, the $DCGL_W$ screening test was not applicable to this survey unit.

12.4.2.4 EMC Limit

In accordance with Page 14-28 of the C-T Phase II DP, the elevated measurement comparison (EMC) limit screening test was applied to the two elevated areas: #1 around the manhole (sample 0791) and #2 the VCP (sample 3112). Parameters necessary to calculate the exposure-weighted fraction of the $DCGL_W$, *F*, were:

- The size of the elevated areas were determined to be less than 10 m^2 for area #1 and approximately 0.7 m^2 for area #2;
- The area factor from C-T Phase II DP Figure 5-3 for both elevated areas was conservatively set to 2.2 (based on thorium series only);
- The elevated area activity level was conservatively represented by sample 0791 with a gross SOF = 2.08 and by sample 3112 with a gross SOF of 102.07 for areas #1 and #2, respectively; and,
- The survey unit average was a gross SOF = 0.23 (from Table 12-2).

The calculation of the EMC screening test result is shown below, using C-T Phase II DP Equation 14-7. A separate term was included for each elevated area.

$$F = \left[\frac{10\ m^2}{393\ m^2} \times \frac{2.08}{2.2 \times 1}\right] + \left[\frac{0.7\ m^2}{393\ m^2} \times \frac{102.07}{2.2 \times 1}\right] + \left[\frac{(393 - 10 - 0.7)\ m^2}{393\ m^2} \times \frac{0.23}{1}\right] = 0.33$$

In accordance with the C-T Phase II DP and because the result was less than one, the total radioactivity concentration in the survey unit is within the release criterion. However, elevated area #2 (VCP) failed the elevated area evaluation and is evaluated using a dose assessment in Section 12.5.

12.4.3 WRS Test

In accordance with Page 14-29 of the C-T Phase II DP and because the Min/Max test value was less than one, the WRS Test was not required to demonstrate compliance.

12.4.4 Retrospective Analysis

A retrospective analysis was performed of the FSS results to determine whether the results met the survey design objectives, in accordance with Page 14-30 of the C-T Phase II DP. Table 12-6 provides the results of the retrospective analysis. Because the actual sample size exceeded the retrospective value sample size, the conclusion is that the survey design objectives were met.

Table 12-6 Retrospective Analysis

Parameter	*A Priori* Value	Retrospective Value Based on FSS Results (Gross SOF)
Upper Bound of Gray Region	DCGL = 1	1
Lower Bound of Gray Region	0.5 x DCGL = 0.5	0.23
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.18
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	4.2
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	15

[a] The *a priori* value of 15 for the N/2 sample size was determined to be a conservative value that would allow application of either the Sign or WRS test. The *a priori* value for N/2 is 10 based on MARSSIM Table 5.3.

12.5 DOSE ASSESSMENT OF VCP

The elevated area evaluation (Section 12.4.1) calculated an *Index* value of 43.7 for Elevated Area #2 (VCP). Because this value was greater than one, the elevated area failed to demonstrate compliance using the DCGLs developed in C-T Phase II DP Chapter 5. As an alternative, this section presents the results of a dose assessment to evaluate the elevated area.

12.5.1 Verification of RESRAD v6.5

C-T Phase II DP Chapter 5 presented three dose models (cases) in the development of the DCGLs. 408guti, 407guti, and 399guti were the RESRAD v6.4 cases for the thorium series, natural uranium, and "6 ^{230}Th + ^{226}Ra + ^{210}Pb," respectively. Energy*Solutions* was currently using RESRAD v6.5; therefore, to ensure comparable results, the three cases mentioned were run in the later version. Excerpts of the RESRAD v6.5 runs are provided in Appendix A. Table 12-7 compares selected results from RESRAD v6.4 and v6.5 for the three cases.

Table 12-7 Comparison of RESRAD Results

RESRAD Calculation		RESRAD Result [a]	
		v6.4	**v6.5**
408guti (thorium series)			
Maximum TDOSE(t) (mrem/yr)		7.627	7.627
Probabilistic total dose, year 0, Avg (mrem/yr):	^{228}Ra	2.87E+00	2.87E+00
	^{228}Th	3.33E+00	3.33E+00
	^{232}Th	3.48E-01	3.48E-01
	All	6.54E+00	6.54E+00
407guti (natural uranium)			
Maximum TDOSE(t) (mrem/yr)		2.429E-01	2.429E-01
Probabilistic total dose, year 0, Avg (mrem/yr):	^{238}U	**7.66E-02**	**7.63E-02**
	^{234}U	1.79E-02	1.79E-02
	^{235}U	1.47E-02	1.47E-02
	^{231}Pa	2.97E-02	2.97E-02
	^{227}Ac	**7.77E-02**	**7.74E-02**
	All	**2.17E-01**	**2.16E-01**
399guti (6 ^{230}Th + ^{226}Ra + ^{210}Pb)			
Maximum TDOSE(t) (mrem/yr)		1.242E+01	1.242E+01
Probabilistic total dose, year 150, Avg (mrem/yr):	^{230}Th	1.65E+00	1.65E+00
	^{226}Ra	3.67E+00	3.67E+00
	^{210}Pb	2.66E-03	2.66E-03
	All	5.33E+00	5.33E+00

[a] Bolded results indicate difference between two RESRAD versions.

In conclusion, RESRAD v6.5 provided identical or comparable results to RESRAD v6.4 and therefore RESRAD v6.5 was used to perform the dose assessment of the VCP.

12.5.2 Elevated Area Characterization

12.5.2.1 Elevated Area Size

Elevated Area #2 had a footprint of 7 ft^2 or 0.7 m^2. The elevated radioactivity was limited to the contents of the VCP, which was assumed to be no greater than 12 in; therefore, the contamination thickness was 0.3 m.

12.5.2.2 Radionuclide Concentrations

Elevated Area #2 gross activity levels, represented by sample 3112 were 708.2, 2,127.7, and 415.4 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively (from Table 12-1). The elevated area net activity levels were 706.9, 2,125.2, and 411.0 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

12.5.3 *In Situ* Model and Results

12.5.3.1 RESRAD Model

The C-T Phase II DP Chapter 5 RESRAD models 408guti, 407guti, and 399guti were identical except for the entered radionuclide concentrations. Three models were run in order to develop independent DCGLs. For this elevated area, the actual radionuclide concentrations were established based on sampling and therefore independent models were not required. Table 12-8 provides the RESRAD *in situ* model parameters that were changed from the C-T Phase II DP Chapter 5 RESRAD models and the justification for each change.

Table 12-8 RESRAD *In Situ* Model Parameter Values

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	706.9 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 12.5.2.2.
^{226}Ra and ^{210}Pb	2,125.2 pCi/g	^{226}Ra and progeny in secular equilibrium per C-T Phase II DP Section 5.8.4. Average net ^{226}Ra concentration from Section 12.5.2.2.
^{230}Th	12,751.2 pCi/g	^{230}Th was not measured in FSS samples. The ^{230}Th / ^{226}Ra ratio of 6 was assumed per C-T Phase II DP Section 5.8.4.
^{238}U and ^{234}U	411.0 pCi/g	For natural uranium, the concentrations of ^{238}U and ^{234}U are equal per C-T Phase II DP Section 5.8.3. Average net ^{238}U concentration from Section 12.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	18.7 pCi/g	^{235}U and progeny in naturally-occurring proportion (^{235}U / ^{238}U = 0.0455) per C-T Phase II DP Section 5.8.3.
Contaminated Zone		
Area	0.7 m^2	Bounding area as discussed in Section 12.5.2.1.
Thickness	0.3 m	Thickness of the VCP as discussed in Section 12.5.2.2.
Cover/Hydrol.		
Cover depth	4.6 m	AECOM did not note the depth of the VCP. It was assumed to be installed at 16 ft bgs. Therefore, there would be 15 ft or 4.6 m of cover (non-contaminated off-site backfill).

12.5.3.2 Result

The maximum dose was 9.136E-14 millirem per year (mrem/yr) at year 1,000. Appendix B provides the RESRAD summary report.

12.5.4 Excavation Scenario Model and Results

In addition to evaluating the dose from the elevated area *in situ*, an excavation scenario was developed to evaluate the dose if the contaminated material was exposed. It is unlikely, based on the future use scenario described in C-T Phase II DP Chapter 5, that large areas of contaminated material would be exposed during future site activities. No building foundations or basements are expected to be installed at the site. Utility systems are likely to be installed and most systems are installed in the 6 ft bgs depth range; however, the specific depth of the elevated area is not evaluated in this scenario.

The scenario assumes that the elevated area is completely exposed during activities to create a 3-ft (0.9-m) wide trench to the shallowest depth of the elevated area. The critical receptor will be exposed to the entire elevated area. The length of the trench would be equal to the length of the elevated area, which is 7 ft or 2.1 m. The critical receptor is an industrial worker, but not the same individual as that evaluated using the DCGLs, e.g. a contractor is performing the work.

It is assumed that the industrial worker will spend a total of 0.5 hours per meter of trench. Examples of activities being performed include trench bottom preparation, such as leveling aggregate, and pipe joining, such as welding. Total time in this trench would be 1 hour (0.5 hours per meter of trench × 2.1 m length). RESRAD evaluates dose on an annual basis. Therefore, 1 hour out of a year's time would be an outdoor time fraction of 0.00011 hours (1 hour / 8,766 hours). Indoor time fraction is zero since this is not an indoor scenario.

12.5.4.1 RESRAD Model

Similar to the *in situ* model discussed in Section 12.5.3.1, one RESRAD model was developed for the excavation scenario. Table 12-9 provides the RESRAD excavation scenario model parameters that were changed from the C-T Phase II DP Chapter 5 RESRAD models and the justification for each change.

Table 12-9 RESRAD Excavation Scenario Model Parameter Values

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	706.9 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 12.5.2.2.
^{226}Ra and ^{210}Pb	2,125.2 pCi/g	^{226}Ra and progeny in secular equilibrium per C-T Phase II DP Section 5.8.4. Average net ^{226}Ra concentration from Section 12.5.2.2.
^{230}Th	12,751.2 pCi/g	^{230}Th was not measured in FSS samples. The ^{230}Th / ^{226}Ra ratio of 6 was assumed per C-T Phase II DP Section 5.8.4.
^{238}U and ^{234}U	411.0 pCi/g	For natural uranium, the concentrations of ^{238}U and ^{234}U are equal per C-T Phase II DP Section 5.8.3. Average net ^{238}U concentration from Section 12.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	18.7 pCi/g	^{235}U and progeny in naturally-occurring proportion (^{235}U / ^{238}U = 0.0455) per C-T Phase II DP Section 5.8.3.
Contaminated Zone		
Area	0.7 m^2	Contaminated trench area equal to size of elevated area, or 0.7 m^2.
Thickness	0.30 m	C-T Phase II DP Appendix D, Page D-17, documents that for the radionuclide mixture used to develop the DCGLs that the maximum dose rate by direct radiation is reached asymptotically when the contaminated zone thickness reaches about 30 cm. Additional contaminated zone thickness does not result in additional dose. This is also the thickness of the VCP as discussed in Section 12.5.2.2.
Occupancy, Inhalation, and External Gamma Data		
Indoor time fraction	0	No internal exposure applicable for the critical receptor within a trench.
Outdoor time fraction	0.00011 hours	1 hour for this length of trench within any given modeled year.

12.5.4.2 Result

The maximum dose was 2.450E-01 mrem/yr at year 0. Appendix C provides the RESRAD summary report.

12.5.5 Dose Using Survey Unit Average

Table 12-2 provided the systematic sample results for the excavated surface. The average net SOF for the off-site summary statistics was 0.10. This corresponds to a dose of 2.5 mrem/yr.

12.5.6 Conclusion

Adding together the *in situ* dose of 9.136E-14 mrem/yr and the maximum dose from the survey unit average of 2.5 mrem/yr, the as-left total dose from the survey unit is 2.5 mrem/yr for the critical receptor.

The independently-evaluated excavation scenario dose was 0.25 mrem/yr.

12.6 DEVIATIONS

In accordance with the second bullet in Section 14.5 of the C-T Phase II DP, the FSSR is required to list changes made in the FSS from what was proposed in the DP. Three deviations were noted.

1. Page 14-22 of the C-T Phase II DP indicated: "A plugged sewer would not be usable and not be salvageable as they are clay or concrete and would break into pieces upon excavation. In the future, potential exposure as a consequence of inadvertent intrusion would be similar to that posed by other subsoil at that depth in the remainder of the survey unit. Thus, if plugged sewers and their contents will be considered as part of the subsurface final status survey unit in which they are located." AECOM sampled and cleaned out the VCP to a length of 5 ft from the opening and then grouted the pipe. However, AECOM did not perform any sampling of material remaining in the VCP after remediation and therefore the VCP remaining contents are assumed to be consistent with the sampled contents (sample 3112).
2. Page 14-27 of the C-T Phase II DP indicated that the "data set for the survey unit will be processed within a database using screening software developed and verified for the project." This database was not developed; instead, a combination of Microsoft® Excel® spreadsheets and hand calculations was utilized. This deviation is not significant and does not affect the data collection or assessment.

12.7 NRC INSPECTIONS

A summary of NRC inspections applicable to the FSS are provided in Section 5.8 of this FSSR. The scope of the inspections included, but was not limited to: review of project plans, interviewing of project personnel, evaluation of the on-site laboratory, and independent confirmatory surveys conducted by the NRC after backfilling. Inspection Report 040-06563/11-003 noted that the NRC reviewed the FSS data package for SU06 to ensure the licensee conducted the surveys in accordance with the NRC-approved DP and work plans. No violations were identified. No findings of significance were identified.

12.8 CONCLUSION

FSS data were verified to be reliable, appropriately documented, and technically defensible. Specifically, the following conclusions are made:

- The instruments used to collect the data were capable of detecting the radiation type (i.e., gamma) at or below the release criteria (described in Sections 4.4 and 4.5 of this FSSR).

- The calibration of the instruments used to collect the data was current and radioactive sources used for calibration were National Institute of Standards and Technology (NIST) traceable (described in Section 5.4 of this FSSR). Specific records available upon request.
- Instrument response was checked before instrument use each day, at minimum (described in Section 5.4 of this FSSR). Specific records available upon request.
- The survey methods used to collect the data were appropriate for the media and type of radiation being measured (described in Sections 4.4, 4.5, and 4.6 of this FSSR).
- The custody of samples collected for laboratory analysis was tracked from the point of collection until final results were obtained (described in Section 5.5.2 of this FSSR). Specific records available upon request.
- The survey data consist of qualified measurement results that are representative of the area of interest.
- Areas identified with elevated residual radioactivity (i.e. SOF > 1.0) were appropriately investigated and the $DCGL_{EMC}$ properly applied.

All the applicable screening tests passed, the retrospective analysis found that the survey design objectives were met, and additional subsurface contamination was not reasonably suspected. SU06 meets the industrial use scenario release criterion as established in the C-T Phase II DP Chapter 5; and therefore, satisfies the unrestricted release provisions of Title 10, Code of Federal Regulations (CFR), Part 20, Subpart E.

12.9 REFERENCES

Mallinckrodt, *Mallinckrodt Columbium-Tantalum Phase II Decommissioning Plan*, Revision 2, August 2008.

APPENDIX A

Excerpts from RESRAD v6.5 Verification Runs

(408guti, 407guti, and 399guti)

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Summary : 408GUTI Verification
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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(1)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(2)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(3)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(4)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(5)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(6)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(7)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(8)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(9)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(10)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(11)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(1)
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(2)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(3)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3(1)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3(2)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(3)
D-34	Food transfer factors:			
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(1,1)
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(1,2)
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(1,3)
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(2,1)
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(2,2)
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(3,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(3,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(3,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(1,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(1,2)
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(2,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(2,2)
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIOFAC(3,1)
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(3,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Ra-228	6.248E+00	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Th-228	6.248E+00	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Th-232	6.248E+00	0.000E+00	---	S1(3)
R012	Concentration in groundwater (pCi/L): Ra-228	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Th-228	not used	0.000E+00	---	W1(2)
R012	Concentration in groundwater (pCi/L): Th-232	not used	0.000E+00	---	W1(3)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	5.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.000E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	not used	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	not used	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	not used	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	not used	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	not used	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	not used	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	not used	1.000E-03	---	VWT

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Well pump intake depth (m below water table)	not used	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	not used	2.500E+02	---	UW
R015	Number of unsaturated zone strata	not used	1	---	NS
R015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	not used	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Ra-228				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.798E-03	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Th-228				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.444E-06	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for Th-232				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.444E-06	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R017	Inhalation rate (m**3/yr)	1.227E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	3.500E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	6.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	1.700E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	1.825E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	4.563E-02	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	not used	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL

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R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	10000.00 square meters	Ra-228	6.248E+00
Thickness:	1.00 meters	Th-228	6.248E+00
Cover Depth:	0.00 meters	Th-232	6.248E+00

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	7.627E+00	7.613E+00	7.581E+00	7.486E+00	7.413E+00	7.403E+00	7.392E+00	0.000E+00
M(t):	3.051E-01	3.045E-01	3.032E-01	2.995E-01	2.965E-01	2.961E-01	2.957E-01	0.000E+00

Maximum TDOSE(t): 7.627E+00 mrem/yr at t = 0.000E+00 years

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ra-228	3.246E+00	0.4256	2.223E-03	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.705E-02	0.0101
Th-228	3.860E+00	0.5061	1.108E-02	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.529E-02	0.0046
Th-232	1.859E-01	0.0244	6.283E-02	0.0082	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.466E-01	0.0192
Total	7.292E+00	0.9561	7.613E-02	0.0100	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.590E-01	0.0340

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.325E+00	0.4360
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.907E+00	0.5122
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.954E-01	0.0518
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.627E+00	1.0000

*Sum of all water independent and dependent pathways.

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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-228+D	Ra-228+D	1.000E+00	4.171E-01	3.683E-01	2.872E-01	1.203E-01	1.000E-02	1.659E-06	2.627E-17	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.151E-01	2.797E-01	4.138E-01	2.823E-01	2.558E-02	4.245E-06	6.715E-17	0.000E+00
Ra-228+D	∑DSR(j)		5.322E-01	6.480E-01	7.010E-01	4.026E-01	3.558E-02	5.905E-06	9.342E-17	0.000E+00
Th-228+D	Th-228+D	1.000E+00	6.253E-01	4.352E-01	2.109E-01	1.669E-02	1.190E-05	1.150E-16	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	3.281E-02	3.281E-02	3.281E-02	3.281E-02	3.281E-02	3.280E-02	3.277E-02	0.000E+00
Th-232	Ra-228+D	1.000E+00	2.566E-02	7.294E-02	1.516E-01	3.134E-01	4.203E-01	4.298E-01	4.294E-01	0.000E+00
Th-232	Th-228+D	1.000E+00	4.815E-03	2.951E-02	1.170E-01	4.327E-01	6.977E-01	7.223E-01	7.210E-01	0.000E+00
Th-232	∑DSR(j)		6.329E-02	1.353E-01	3.014E-01	7.789E-01	1.151E+00	1.185E+00	1.183E+00	0.000E+00

The DSR includes contributions from associated (half-life ≤ 30 days) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-228	4.697E+01	3.858E+01	3.566E+01	6.209E+01	7.027E+02	4.234E+06	*2.726E+14	*2.726E+14
Th-228	3.998E+01	5.744E+01	1.186E+02	1.498E+03	2.101E+06	*8.195E+14	*8.195E+14	*8.195E+14
Th-232	3.950E+02	1.848E+02	8.295E+01	3.210E+01	2.172E+01	2.110E+01	2.113E+01	*1.097E+05

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Ra-228	6.248E+00	2.629 ± 0.005	7.031E-01	3.556E+01	5.322E-01	4.697E+01
Th-228	6.248E+00	0.000E+00	6.253E-01	3.998E+01	6.253E-01	3.998E+01
Th-232	6.248E+00	82.6 ± 0.2	1.185E+00	2.110E+01	6.329E-02	3.950E+02

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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-228	Ra-228	1.000E+00	2.606E+00	2.301E+00	1.795E+00	7.515E-01	6.250E-02	1.037E-05	1.641E-16	0.000E+00
Ra-228	Th-232	1.000E+00	1.603E-01	4.557E-01	9.469E-01	1.958E+00	2.626E+00	2.685E+00	2.683E+00	0.000E+00
Ra-228	∑DOSE(j)		2.766E+00	2.757E+00	2.741E+00	2.709E+00	2.688E+00	2.685E+00	2.683E+00	0.000E+00
Th-228	Ra-228	1.000E+00	7.194E-01	1.748E+00	2.586E+00	1.764E+00	1.598E-01	2.653E-05	4.196E-16	0.000E+00
Th-228	Th-228	1.000E+00	3.907E+00	2.719E+00	1.318E+00	1.043E-01	7.434E-05	7.185E-16	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	3.008E-02	1.844E-01	7.311E-01	2.704E+00	4.359E+00	4.513E+00	4.505E+00	0.000E+00
Th-228	∑DOSE(j)		4.656E+00	4.651E+00	4.634E+00	4.572E+00	4.519E+00	4.513E+00	4.505E+00	0.000E+00
Th-232	Th-232	1.000E+00	2.050E-01	2.050E-01	2.050E-01	2.050E-01	2.050E-01	2.049E-01	2.047E-01	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ra-228	Ra-228	1.000E+00	6.248E+00	5.517E+00	4.303E+00	1.802E+00	1.499E-01	2.486E-05	3.935E-16	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	7.082E-01	1.886E+00	4.310E+00	5.911E+00	6.055E+00	6.049E+00	6.031E+00
Ra-228	∑S(j):		6.248E+00	6.226E+00	6.189E+00	6.112E+00	6.061E+00	6.055E+00	6.049E+00	6.031E+00
Th-228	Ra-228	1.000E+00	0.000E+00	1.779E+00	3.343E+00	2.489E+00	2.280E-01	3.785E-05	5.991E-16	0.000E+00
Th-228	Th-228	1.000E+00	6.248E+00	4.349E+00	2.107E+00	1.668E-01	1.189E-04	1.149E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.163E-01	7.738E-01	3.482E+00	5.835E+00	6.055E+00	6.049E+00	6.031E+00
Th-228	∑S(j):		6.248E+00	6.244E+00	6.224E+00	6.138E+00	6.064E+00	6.055E+00	6.049E+00	6.031E+00
Th-232	Th-232	1.000E+00	6.248E+00	6.248E+00	6.248E+00	6.248E+00	6.247E+00	6.245E+00	6.240E+00	6.220E+00

THF(i) is the thread fraction of the parent nuclide.

RESCALC.EXE execution time = 99.40 seconds

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Probabilistic Input

Number of Sample Runs: 1200

Number	Name	Distribution	Parameters															
1	THICK0	UNIFORM	0	1														
2	MLINH	CONTINUOUS LINEAR	8	0	0	.000015	.0151	.000023	.1365	.000037	.8119	.000047	.9495	.000067	.9937	.000083	.9983	.000107	1
3	SHF1	DISCRETE CUMULATIVE	8	.0084	.01	.022	.09	.035	.21	.055	.39	.088	.63	.14	.88	.23	.95	1	1

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Probabilistic Total Dose Summary

Nuclide	Peak	Peak	DOSE(j,t), mrem/yr							
(j)	Time	Dose	t= 0.00E+00	1.00E+00	3.00E+00	1.00E+01	3.00E+01	1.00E+02	3.00E+02	1.00E+03
Ra-228										
Min	0.00E+00	6.13E-05	6.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	2.64E+00	1.29E+01	9.74E+00	1.19E+01	1.29E+01	7.40E+00	6.52E-01	1.07E-04	1.66E-15	0.00E+00
Avg	2.38E+00	3.70E+00	2.87E+00	3.45E+00	3.67E+00	2.01E+00	1.58E-01	1.99E-05	1.96E-16	0.00E+00
Std	4.71E-01	2.15E+00	1.63E+00	1.99E+00	2.15E+00	1.24E+00	1.07E-01	1.66E-05	2.27E-16	0.00E+00
Th-228										
Min	0.00E+00	9.00E-05	9.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	1.15E+01	1.15E+01	8.03E+00	3.89E+00	3.08E-01	2.19E-04	2.12E-15	0.00E+00	0.00E+00
Avg	0.00E+00	3.33E+00	3.33E+00	2.32E+00	1.12E+00	8.80E-02	6.13E-05	5.47E-16	0.00E+00	0.00E+00
Std	0.00E+00	1.92E+00	1.92E+00	1.34E+00	6.50E-01	5.18E-02	3.77E-05	3.81E-16	0.00E+00	0.00E+00
Th-232										
Min	0.00E+00	1.69E-06	1.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	1.87E+02	2.13E+01	8.19E-01	2.13E+00	5.15E+00	1.39E+01	2.07E+01	2.13E+01	2.13E+01	0.00E+00
Avg	6.32E+01	5.90E+00	3.48E-01	7.33E-01	1.61E+00	4.04E+00	5.74E+00	5.50E+00	4.22E+00	0.00E+00
Std	3.44E+01	3.55E+00	1.16E-01	3.32E-01	8.42E-01	2.32E+00	3.50E+00	3.77E+00	4.00E+00	0.00E+00
∑ALL										
Min	0.00E+00	1.53E-04	1.53E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	2.21E+01	2.21E+01	2.20E+01	2.19E+01	2.16E+01	2.14E+01	2.13E+01	2.13E+01	0.00E+00
Avg	0.00E+00	6.54E+00	6.54E+00	6.50E+00	6.40E+00	6.14E+00	5.90E+00	5.50E+00	4.22E+00	0.00E+00
Std	0.00E+00	3.66E+00	3.66E+00	3.65E+00	3.64E+00	3.61E+00	3.61E+00	3.77E+00	4.00E+00	0.00E+00

∑ALL is total dose summed for all nuclides.

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Cumulative Probability Summary for: Total Dose Over Pathways

Cumulative Probability	Dose(t), mrem/yr t= 0.00E+00	1.00E+00	3.00E+00	1.00E+01	3.00E+01	1.00E+02	3.00E+02	1.00E+03
0.025	1.93E+00	1.72E+00	1.36E+00	7.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.050	2.89E+00	2.78E+00	2.55E+00	1.78E+00	1.03E+00	0.00E+00	0.00E+00	0.00E+00
0.075	3.79E+00	3.69E+00	3.44E+00	2.69E+00	1.96E+00	0.00E+00	0.00E+00	0.00E+00
0.100	4.43E+00	4.35E+00	4.13E+00	3.58E+00	2.91E+00	0.00E+00	0.00E+00	0.00E+00
0.125	4.79E+00	4.73E+00	4.57E+00	4.08E+00	3.56E+00	1.56E+00	0.00E+00	0.00E+00
0.150	4.92E+00	4.87E+00	4.75E+00	4.41E+00	3.98E+00	2.34E+00	0.00E+00	0.00E+00
0.175	5.03E+00	5.00E+00	4.90E+00	4.67E+00	4.37E+00	3.31E+00	0.00E+00	0.00E+00
0.200	5.04E+00	5.03E+00	4.98E+00	4.81E+00	4.59E+00	3.93E+00	0.00E+00	0.00E+00
0.225	5.12E+00	5.07E+00	5.02E+00	4.90E+00	4.73E+00	4.26E+00	0.00E+00	0.00E+00
0.250	5.24E+00	5.22E+00	5.16E+00	4.94E+00	4.82E+00	4.58E+00	0.00E+00	0.00E+00
0.275	5.26E+00	5.24E+00	5.20E+00	5.01E+00	4.88E+00	4.72E+00	0.00E+00	0.00E+00
0.300	5.28E+00	5.26E+00	5.22E+00	5.08E+00	4.94E+00	4.82E+00	0.00E+00	0.00E+00
0.325	5.36E+00	5.31E+00	5.25E+00	5.13E+00	5.01E+00	4.88E+00	1.91E+00	0.00E+00
0.350	5.55E+00	5.51E+00	5.38E+00	5.17E+00	5.07E+00	4.96E+00	2.72E+00	0.00E+00
0.375	5.59E+00	5.57E+00	5.51E+00	5.28E+00	5.11E+00	5.03E+00	3.54E+00	0.00E+00
0.400	5.61E+00	5.59E+00	5.54E+00	5.38E+00	5.23E+00	5.08E+00	4.19E+00	0.00E+00
0.425	5.62E+00	5.60E+00	5.56E+00	5.43E+00	5.30E+00	5.14E+00	4.52E+00	0.00E+00
0.450	5.63E+00	5.61E+00	5.58E+00	5.47E+00	5.36E+00	5.28E+00	4.73E+00	0.00E+00
0.475	5.72E+00	5.64E+00	5.59E+00	5.50E+00	5.41E+00	5.34E+00	4.84E+00	0.00E+00
0.500	6.04E+00	5.98E+00	5.86E+00	5.53E+00	5.45E+00	5.38E+00	4.90E+00	0.00E+00
0.525	6.15E+00	6.12E+00	6.05E+00	5.79E+00	5.54E+00	5.43E+00	5.02E+00	0.00E+00
0.550	6.16E+00	6.14E+00	6.09E+00	5.91E+00	5.73E+00	5.47E+00	5.08E+00	0.00E+00
0.575	6.17E+00	6.15E+00	6.11E+00	5.96E+00	5.83E+00	5.70E+00	5.24E+00	0.00E+00
0.600	6.18E+00	6.17E+00	6.13E+00	6.01E+00	5.89E+00	5.83E+00	5.34E+00	0.00E+00
0.625	6.19E+00	6.18E+00	6.14E+00	6.04E+00	5.94E+00	5.88E+00	5.39E+00	0.00E+00
0.650	6.20E+00	6.19E+00	6.15E+00	6.06E+00	5.97E+00	5.94E+00	5.44E+00	0.00E+00
0.675	6.23E+00	6.21E+00	6.18E+00	6.07E+00	6.00E+00	5.97E+00	5.66E+00	0.00E+00
0.700	6.72E+00	6.66E+00	6.53E+00	6.13E+00	6.02E+00	6.00E+00	5.88E+00	0.00E+00
0.725	7.00E+00	6.95E+00	6.85E+00	6.56E+00	6.33E+00	6.03E+00	5.93E+00	0.00E+00
0.750	7.05E+00	7.03E+00	6.96E+00	6.75E+00	6.57E+00	6.42E+00	5.95E+00	0.00E+00
0.775	7.07E+00	7.05E+00	6.98E+00	6.81E+00	6.68E+00	6.65E+00	5.99E+00	0.00E+00
0.800	7.08E+00	7.05E+00	7.01E+00	6.87E+00	6.75E+00	6.72E+00	6.06E+00	0.00E+00
0.825	7.09E+00	7.07E+00	7.03E+00	6.90E+00	6.81E+00	6.79E+00	6.62E+00	0.00E+00
0.850	7.10E+00	7.08E+00	7.04E+00	6.93E+00	6.85E+00	6.82E+00	6.76E+00	0.00E+00
0.875	7.12E+00	7.10E+00	7.07E+00	6.97E+00	6.88E+00	6.87E+00	6.80E+00	0.00E+00
0.900	8.34E+00	8.27E+00	8.12E+00	7.71E+00	7.33E+00	6.94E+00	6.85E+00	0.00E+00
0.925	8.63E+00	8.60E+00	8.52E+00	8.31E+00	8.15E+00	8.12E+00	6.89E+00	0.00E+00
0.950	8.68E+00	8.66E+00	8.62E+00	8.49E+00	8.40E+00	8.39E+00	8.28E+00	0.00E+00
0.975	2.20E+01	2.19E+01	2.17E+01	2.11E+01	2.07E+01	2.07E+01	1.97E+01	0.00E+00
1.000	2.21E+01	2.20E+01	2.19E+01	2.16E+01	2.14E+01	2.13E+01	2.13E+01	0.00E+00

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Peak of the mean dose (averaged over observations) at graphical times

Repetition	Time of peak mean dose	Peak mean dose
	Years	mrem/yr
1	0.000E+00	6.517E+00
2	0.000E+00	6.571E+00
3	0.000E+00	6.563E+00
4	0.000E+00	6.522E+00

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(2)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(3)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(4)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(5)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(6)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(7)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(8)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(9)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(10)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(11)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(12)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(13)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(14)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(15)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(16)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(17)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(18)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(19)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(20)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(21)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(22)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(23)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(24)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(25)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(26)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(27)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(28)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(29)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(30)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	1.380E-02	1.360E-02	DCF2(3)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(4)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(5)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(6)
B-1	U-234	1.320E-01	1.320E-01	DCF2(7)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(8)
B-1	U-238	1.180E-01	1.180E-01	DCF2(9)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(10)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	5.376E-03	5.370E-03	DCF3(3)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(4)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(5)

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-1	Th-230	5.480E-04	5.480E-04	DCF3(6)
D-1	U-234	2.830E-04	2.830E-04	DCF3(7)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(8)
D-1	U-238	2.550E-04	2.550E-04	DCF3(9)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(10)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Po-210 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Po-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(4,2)
D-34	Po-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(4,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(5,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(6,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(6,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(6,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(7,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(7,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(7,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(8,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(8,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(8,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(9,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(9,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Po-210 , fish	1.000E+02	1.000E+02	BIOFAC(4,1)
D-5	Po-210 , crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(4,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(6,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(6,2)
D-5				
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(7,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(7,2)
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(8,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(8,2)
D-5				
D-5	U-238 , fish	1.000E+01	1.000E+01	BIOFAC(9,1)
D-5	U-238 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(9,2)
D-5				
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(10,1)
D-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(10,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Ac-227	2.843E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	2.843E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): U-234	6.248E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): U-235	2.843E-01	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): U-238	6.248E+00	0.000E+00	---	S1(9)
R012	Concentration in groundwater (pCi/L): Ac-227	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Pa-231	not used	0.000E+00	---	W1(2)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(8)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(9)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	5.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.000E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	not used	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	not used	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	not used	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	not used	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	not used	2.000E-01	---	FCSZ

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	not used	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	not used	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	not used	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	not used	2.500E+02	---	UW
R015	Number of unsaturated zone strata	not used	1	---	NS
R015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	not used	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Ac-227				
R016	Contaminated zone (cm**3/g)	8.250E+02	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	not used	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	not used	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.231E-04	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Pa-231				
R016	Contaminated zone (cm**3/g)	3.800E+02	5.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.014E-04	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	1.260E+02	5.000E+01	---	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.113E-03	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	1.260E+02	5.000E+01	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.113E-03	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	1.260E+02	5.000E+01	---	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.113E-03	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+02	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+02	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.661E-03	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for daughter Po-210				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+01	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.612E-02	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R016	Distribution coefficients for daughter Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.798E-03	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for daughter Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(6,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.444E-06	ALEACH(6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R017	Inhalation rate (m**3/yr)	1.227E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	3.500E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	6.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	1.700E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	1.825E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	4.563E-02	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	not used	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	10000.00 square meters	Ac-227	2.843E-01
Thickness:	1.00 meters	Pa-231	2.843E-01
Cover Depth:	0.00 meters	U-234	6.248E+00
		U-235	2.843E-01
		U-238	6.248E+00

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.429E-01	2.426E-01	2.420E-01	2.398E-01	2.335E-01	2.124E-01	1.637E-01	0.000E+00
M(t):	9.717E-03	9.705E-03	9.680E-03	9.592E-03	9.340E-03	8.495E-03	6.546E-03	0.000E+00

Maximum TDOSE(t): 2.429E-01 mrem/yr at t = 0.000E+00 years

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	4.088E-02	0.1683	1.152E-02	0.0474	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.447E-02	0.1419
Pa-231	4.580E-03	0.0189	2.411E-03	0.0099	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.564E-02	0.1055
U-234	1.853E-04	0.0008	5.044E-03	0.0208	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.471E-02	0.0605
U-235	1.571E-02	0.0647	2.139E-04	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.325E-04	0.0026
U-238	6.847E-02	0.2819	4.510E-03	0.0186	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.396E-02	0.0575
Total	1.298E-01	0.5344	2.370E-02	0.0975	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.941E-02	0.3681

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.687E-02	0.3576
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.263E-02	0.1343
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.994E-02	0.0821
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.655E-02	0.0681
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.694E-02	0.3579
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.429E-01	1.0000

*Sum of all water independent and dependent pathways.

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Probabilistic Input

Number of Sample Runs: 900

Number	Name	Distribution	Parameters															
1	MLINH	CONTINUOUS LINEAR	8	0	0	.000015	.0151	.000023	.1365	.000037	.8119	.000047	.9495	.000067	.9937	.000083	.9983	.000107	1
2	SHF1	DISCRETE CUMULATIVE	8	.0084	.01	.022	.09	.035	.21	.055	.39	.088	.63	.14	.88	.23	.95	1	1
3	THICK0	UNIFORM	0	1															

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Probabilistic Total Dose Summary

Nuclide (j)	Peak Time	Peak Dose	DOSE(j,t), mrem/yr t= 0.00E+00	1.00E+00	3.00E+00	1.00E+01	3.00E+01	1.00E+02	3.00E+02	1.00E+03
Ac-227										
Min	0.00E+00	4.95E-04	4.95E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	1.83E-01	1.83E-01	1.77E-01	1.66E-01	1.33E-01	6.95E-02	7.22E-03	1.13E-05	0.00E+00
Avg	0.00E+00	7.74E-02	7.74E-02	7.48E-02	6.99E-02	5.52E-02	2.81E-02	2.68E-03	3.24E-06	0.00E+00
Std	0.00E+00	2.48E-02	2.48E-02	2.41E-02	2.29E-02	1.89E-02	1.07E-02	1.32E-03	2.56E-06	0.00E+00
Pa-231										
Min	0.00E+00	1.08E-04	1.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	1.13E+02	2.00E-01	4.50E-02	5.06E-02	6.15E-02	9.40E-02	1.53E-01	2.00E-01	1.69E-01	0.00E+00
Avg	7.88E+01	8.68E-02	2.97E-02	3.20E-02	3.64E-02	4.94E-02	7.14E-02	8.12E-02	5.30E-02	0.00E+00
Std	3.09E+01	3.24E-02	6.91E-03	7.67E-03	9.19E-03	1.42E-02	2.50E-02	3.92E-02	4.16E-02	0.00E+00
U-234										
Min	0.00E+00	4.39E-05	4.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	2.72E-02	2.72E-02	2.71E-02	2.69E-02	2.63E-02	2.46E-02	2.03E-02	1.26E-02	0.00E+00
Avg	0.00E+00	1.79E-02	1.79E-02	1.78E-02	1.75E-02	1.67E-02	1.48E-02	1.05E-02	4.92E-03	0.00E+00
Std	0.00E+00	4.34E-03	4.34E-03	4.41E-03	4.54E-03	4.86E-03	5.31E-03	5.46E-03	4.13E-03	0.00E+00
U-235										
Min	0.00E+00	9.39E-05	9.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	4.80E-02	4.80E-02	4.77E-02	4.74E-02	4.66E-02	4.47E-02	3.86E-02	2.57E-02	0.00E+00
Avg	0.00E+00	1.47E-02	1.47E-02	1.45E-02	1.43E-02	1.36E-02	1.20E-02	8.59E-03	4.04E-03	0.00E+00
Std	0.00E+00	7.75E-03	7.75E-03	7.76E-03	7.75E-03	7.70E-03	7.42E-03	6.38E-03	4.06E-03	0.00E+00
U-238										
Min	0.00E+00	4.10E-04	4.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	2.28E-01	2.28E-01	2.27E-01	2.26E-01	2.21E-01	2.08E-01	1.79E-01	1.16E-01	0.00E+00
Avg	0.00E+00	7.63E-02	7.63E-02	7.57E-02	7.45E-02	7.09E-02	6.28E-02	4.44E-02	1.98E-02	0.00E+00
Std	0.00E+00	3.51E-02	3.51E-02	3.51E-02	3.53E-02	3.53E-02	3.47E-02	3.05E-02	1.93E-02	0.00E+00
∑ALL										
Min	0.00E+00	1.15E-03	1.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	5.32E-01	5.32E-01	5.30E-01	5.28E-01	5.20E-01	4.98E-01	4.30E-01	3.23E-01	0.00E+00
Avg	0.00E+00	2.16E-01	2.16E-01	2.15E-01	2.13E-01	2.06E-01	1.89E-01	1.47E-01	8.18E-02	0.00E+00
Std	0.00E+00	7.45E-02	7.45E-02	7.50E-02	7.58E-02	7.76E-02	8.02E-02	8.04E-02	6.78E-02	0.00E+00

∑ALL is total dose summed for all nuclides.

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Cumulative Probability Summary for: Total Dose Over Pathways

Cumulative Probability	Dose(t), mrem/yr t= 0.00E+00	1.00E+00	3.00E+00	1.00E+01	3.00E+01	1.00E+02	3.00E+02	1.00E+03
0.025	6.01E-02	5.42E-02	4.51E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.050	1.05E-01	1.00E-01	9.42E-02	7.12E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00
0.075	1.39E-01	1.36E-01	1.30E-01	1.04E-01	5.75E-02	0.00E+00	0.00E+00	0.00E+00
0.100	1.65E-01	1.61E-01	1.55E-01	1.35E-01	8.92E-02	0.00E+00	0.00E+00	0.00E+00
0.125	1.85E-01	1.84E-01	1.81E-01	1.65E-01	1.18E-01	2.48E-02	0.00E+00	0.00E+00
0.150	1.90E-01	1.89E-01	1.88E-01	1.77E-01	1.42E-01	4.33E-02	0.00E+00	0.00E+00
0.175	1.93E-01	1.92E-01	1.91E-01	1.84E-01	1.61E-01	6.42E-02	0.00E+00	0.00E+00
0.200	1.95E-01	1.94E-01	1.93E-01	1.87E-01	1.68E-01	8.93E-02	0.00E+00	0.00E+00
0.225	1.96E-01	1.96E-01	1.94E-01	1.89E-01	1.74E-01	1.08E-01	0.00E+00	0.00E+00
0.250	1.98E-01	1.97E-01	1.96E-01	1.91E-01	1.77E-01	1.26E-01	0.00E+00	0.00E+00
0.275	1.99E-01	1.98E-01	1.97E-01	1.93E-01	1.80E-01	1.33E-01	0.00E+00	0.00E+00
0.300	2.00E-01	1.99E-01	1.98E-01	1.94E-01	1.82E-01	1.39E-01	0.00E+00	0.00E+00
0.325	2.01E-01	2.00E-01	1.99E-01	1.95E-01	1.84E-01	1.44E-01	1.94E-02	0.00E+00
0.350	2.02E-01	2.01E-01	2.00E-01	1.97E-01	1.86E-01	1.48E-01	3.69E-02	0.00E+00
0.375	2.03E-01	2.02E-01	2.02E-01	1.97E-01	1.87E-01	1.51E-01	5.47E-02	0.00E+00
0.400	2.04E-01	2.04E-01	2.03E-01	1.99E-01	1.88E-01	1.55E-01	6.49E-02	0.00E+00
0.425	2.06E-01	2.05E-01	2.04E-01	2.00E-01	1.89E-01	1.58E-01	8.30E-02	0.00E+00
0.450	2.08E-01	2.07E-01	2.06E-01	2.01E-01	1.90E-01	1.61E-01	9.10E-02	0.00E+00
0.475	2.10E-01	2.09E-01	2.07E-01	2.03E-01	1.92E-01	1.63E-01	9.65E-02	0.00E+00
0.500	2.11E-01	2.11E-01	2.09E-01	2.04E-01	1.93E-01	1.64E-01	1.04E-01	0.00E+00
0.525	2.12E-01	2.12E-01	2.10E-01	2.06E-01	1.94E-01	1.65E-01	1.09E-01	0.00E+00
0.550	2.14E-01	2.13E-01	2.12E-01	2.08E-01	1.96E-01	1.67E-01	1.11E-01	0.00E+00
0.575	2.15E-01	2.14E-01	2.13E-01	2.09E-01	1.97E-01	1.69E-01	1.13E-01	0.00E+00
0.600	2.17E-01	2.16E-01	2.15E-01	2.10E-01	2.00E-01	1.71E-01	1.16E-01	0.00E+00
0.625	2.18E-01	2.17E-01	2.16E-01	2.12E-01	2.02E-01	1.73E-01	1.19E-01	0.00E+00
0.650	2.21E-01	2.20E-01	2.18E-01	2.13E-01	2.03E-01	1.75E-01	1.21E-01	0.00E+00
0.675	2.23E-01	2.22E-01	2.21E-01	2.15E-01	2.05E-01	1.77E-01	1.23E-01	0.00E+00
0.700	2.24E-01	2.24E-01	2.23E-01	2.18E-01	2.06E-01	1.78E-01	1.26E-01	0.00E+00
0.725	2.26E-01	2.26E-01	2.24E-01	2.20E-01	2.09E-01	1.81E-01	1.28E-01	0.00E+00
0.750	2.28E-01	2.27E-01	2.26E-01	2.22E-01	2.12E-01	1.83E-01	1.31E-01	0.00E+00
0.775	2.29E-01	2.29E-01	2.27E-01	2.23E-01	2.14E-01	1.84E-01	1.33E-01	0.00E+00
0.800	2.31E-01	2.30E-01	2.29E-01	2.25E-01	2.16E-01	1.87E-01	1.34E-01	0.00E+00
0.825	2.32E-01	2.32E-01	2.30E-01	2.27E-01	2.18E-01	1.89E-01	1.37E-01	0.00E+00
0.850	2.35E-01	2.34E-01	2.33E-01	2.29E-01	2.20E-01	1.92E-01	1.40E-01	0.00E+00
0.875	2.38E-01	2.38E-01	2.37E-01	2.33E-01	2.23E-01	1.96E-01	1.44E-01	0.00E+00
0.900	2.53E-01	2.53E-01	2.52E-01	2.44E-01	2.29E-01	2.01E-01	1.48E-01	0.00E+00
0.925	2.58E-01	2.58E-01	2.56E-01	2.52E-01	2.41E-01	2.09E-01	1.51E-01	0.00E+00
0.950	2.69E-01	2.68E-01	2.67E-01	2.63E-01	2.52E-01	2.23E-01	1.61E-01	0.00E+00
0.975	4.97E-01	4.96E-01	4.92E-01	4.83E-01	4.62E-01	3.78E-01	2.27E-01	0.00E+00
1.000	5.32E-01	5.30E-01	5.28E-01	5.20E-01	4.98E-01	4.30E-01	3.23E-01	0.00E+00

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Peak of the mean dose (averaged over observations) at graphical times

Repetition	Time of peak mean dose	Peak mean dose
	Years	mrem/yr
1	0.000E+00	2.168E-01
2	0.000E+00	2.158E-01
3	0.000E+00	2.155E-01

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(1)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(2)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(3)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(4)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(5)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(6)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(7)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(8)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(9)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(10)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(11)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(12)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Pb-210+D	1.380E-02	1.360E-02	DCF2(1)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(2)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(3)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(4)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Pb-210+D	5.376E-03	5.370E-03	DCF3(1)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(2)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(3)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(4)
D-34	Food transfer factors:			
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(1,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(1,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(1,3)
D-34				
D-34	Po-210 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(2,1)
D-34	Po-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Po-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(2,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(3,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(3,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(3,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(4,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(4,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(1,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(1,2)
D-5				
D-5	Po-210 , fish	1.000E+02	1.000E+02	BIOFAC(2,1)
D-5	Po-210 , crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(2,2)
D-5				

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(3,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(3,2)
D-5				
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(4,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(4,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+01	1.000E+00	---	T(2)
R011	Times for calculations (yr)	1.000E+02	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.500E+02	1.000E+01	---	T(4)
R011	Times for calculations (yr)	2.000E+02	3.000E+01	---	T(5)
R011	Times for calculations (yr)	3.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	6.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Pb-210	6.250E+00	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Ra-226	6.250E+00	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Th-230	3.750E+01	0.000E+00	---	S1(4)
R012	Concentration in groundwater (pCi/L): Pb-210	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Ra-226	not used	0.000E+00	---	W1(3)
R012	Concentration in groundwater (pCi/L): Th-230	not used	0.000E+00	---	W1(4)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	5.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.000E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	not used	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	not used	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	not used	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	not used	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	not used	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	not used	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	not used	1.000E-03	---	VWT

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Well pump intake depth (m below water table)	not used	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	not used	2.500E+02	---	UW
R015	Number of unsaturated zone strata	not used	1	---	NS
R015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	not used	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Pb-210				
R016	Contaminated zone (cm**3/g)	2.392E+03	1.000E+02	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+02	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+02	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.115E-04	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Ra-226				
R016	Contaminated zone (cm**3/g)	3.533E+03	7.000E+01	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.547E-05	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for Th-230				
R016	Contaminated zone (cm**3/g)	5.884E+03	6.000E+04	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.532E-05	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R016	Distribution coefficients for daughter Po-210				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.612E-02	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R017	Inhalation rate (m**3/yr)	1.227E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	3.500E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	6.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	1.700E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	1.825E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	4.563E-02	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	not used	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	10000.00 square meters	Pb-210	6.250E+00
Thickness:	1.00 meters	Ra-226	6.250E+00
Cover Depth:	0.00 meters	Th-230	3.750E+01

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+01	1.000E+02	1.500E+02	2.000E+02	3.000E+02	6.000E+02	1.000E+03
TDOSE(t):	5.701E+00	5.852E+00	6.834E+00	7.367E+00	7.884E+00	8.875E+00	1.154E+01	0.000E+00
M(t):	2.280E-01	2.341E-01	2.734E-01	2.947E-01	3.154E-01	3.550E-01	4.617E-01	0.000E+00

Maximum TDOSE(t): 1.242E+01 mrem/yr at t = 767 ± 2 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 7.667E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Nuclide														
Pb-210	1.144E-13	0.0000	3.587E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.530E-11	0.0000
Ra-226	3.300E+00	0.2657	8.277E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.052E-01	0.0246
Th-230	7.877E+00	0.6343	7.369E-02	0.0059	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.617E-01	0.0694
Total	1.118E+01	0.9000	7.452E-02	0.0060	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.167E+00	0.0940

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 7.667E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Nuclide														
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.545E-11	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.606E+00	0.2904
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.813E+00	0.7096
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.242E+01	1.0000

*Sum of all water independent and dependent pathways.

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Probabilistic Input

Number of Sample Runs: 900

Number	Name	Distribution	Parameters															
1	THICK0	UNIFORM	0	1														
2	MLINH	CONTINUOUS LINEAR	8	0	0	.000015	.0151	.000023	.1365	.000037	.8119	.000047	.9495	.000067	.9937	.000083	.9983	.000107	1
3	SHF1	DISCRETE CUMULATIVE	8	.0084	.01	.022	.09	.035	.21	.055	.39	.088	.63	.14	.88	.23	.95	1	1

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Probabilistic Total Dose Summary

Nuclide	Peak	Peak	DOSE(j,t), mrem/yr							
(j)	Time	Dose	t= 0.00E+00	1.00E+01	1.00E+02	1.50E+02	2.00E+02	3.00E+02	6.00E+02	1.00E+03
Pb-210										
Min	0.00E+00	2.53E-06	2.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	0.00E+00	3.37E-01	3.37E-01	2.80E-01	1.69E-02	3.55E-03	7.45E-04	3.29E-05	2.84E-09	0.00E+00
Avg	0.00E+00	3.06E-01	3.06E-01	2.50E-01	1.35E-02	2.66E-03	5.22E-04	1.99E-05	8.96E-10	0.00E+00
Std	0.00E+00	7.04E-02	7.04E-02	6.43E-02	5.72E-03	1.34E-03	3.03E-04	1.46E-05	1.22E-09	0.00E+00
Ra-226										
Min	0.00E+00	1.09E-04	1.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	6.06E+01	1.51E+01	1.51E+01	1.51E+01	1.47E+01	1.43E+01	1.40E+01	1.33E+01	1.14E+01	0.00E+00
Avg	3.55E+01	4.54E+00	4.42E+00	4.44E+00	4.01E+00	3.67E+00	3.34E+00	2.74E+00	1.23E+00	0.00E+00
Std	2.11E+01	2.52E+00	2.53E+00	2.56E+00	2.66E+00	2.66E+00	2.64E+00	2.55E+00	1.88E+00	0.00E+00
Th-230										
Min	0.00E+00	2.31E-06	2.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	8.04E+02	2.39E+01	3.81E-01	7.11E-01	4.18E+00	6.03E+00	7.83E+00	1.13E+01	2.06E+01	0.00E+00
Avg	3.69E+02	3.89E+00	2.29E-01	3.41E-01	1.25E+00	1.65E+00	1.98E+00	2.43E+00	2.27E+00	0.00E+00
Std	2.42E+02	3.35E+00	5.64E-02	1.07E-01	7.59E-01	1.13E+00	1.51E+00	2.21E+00	3.46E+00	0.00E+00
∑ALL										
Min	0.00E+00	1.13E-04	1.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Max	7.67E+02	3.39E+01	1.57E+01	1.61E+01	1.88E+01	2.03E+01	2.18E+01	2.45E+01	3.20E+01	0.00E+00
Avg	3.21E+02	7.49E+00	4.96E+00	5.03E+00	5.27E+00	5.33E+00	5.32E+00	5.16E+00	3.49E+00	0.00E+00
Std	2.46E+02	4.62E+00	2.58E+00	2.68E+00	3.42E+00	3.79E+00	4.14E+00	4.76E+00	5.35E+00	0.00E+00

∑ALL is total dose summed for all nuclides.

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Cumulative Probability Summary for: Total Dose Over Pathways

Cumulative Probability	Dose(t), mrem/yr t= 0.00E+00	1.00E+01	1.00E+02	1.50E+02	2.00E+02	3.00E+02	6.00E+02	1.00E+03
0.025	1.40E+00	9.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.050	2.25E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.075	2.91E+00	2.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.100	3.53E+00	3.38E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.125	3.75E+00	3.76E+00	1.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.150	3.87E+00	3.93E+00	2.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.175	3.90E+00	4.01E+00	3.48E+00	1.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.200	3.92E+00	4.02E+00	4.17E+00	2.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.225	4.00E+00	4.04E+00	4.43E+00	3.78E+00	1.92E+00	0.00E+00	0.00E+00	0.00E+00
0.250	4.05E+00	4.16E+00	4.60E+00	4.29E+00	3.10E+00	0.00E+00	0.00E+00	0.00E+00
0.275	4.06E+00	4.18E+00	4.66E+00	4.69E+00	3.97E+00	0.00E+00	0.00E+00	0.00E+00
0.300	4.08E+00	4.19E+00	4.69E+00	4.95E+00	4.50E+00	0.00E+00	0.00E+00	0.00E+00
0.325	4.18E+00	4.22E+00	4.82E+00	5.01E+00	5.10E+00	2.35E+00	0.00E+00	0.00E+00
0.350	4.28E+00	4.37E+00	4.85E+00	5.11E+00	5.33E+00	3.57E+00	0.00E+00	0.00E+00
0.375	4.29E+00	4.41E+00	4.86E+00	5.19E+00	5.38E+00	4.50E+00	0.00E+00	0.00E+00
0.400	4.30E+00	4.42E+00	4.90E+00	5.22E+00	5.47E+00	5.25E+00	0.00E+00	0.00E+00
0.425	4.31E+00	4.43E+00	5.07E+00	5.24E+00	5.56E+00	5.73E+00	0.00E+00	0.00E+00
0.450	4.32E+00	4.44E+00	5.12E+00	5.37E+00	5.58E+00	5.95E+00	0.00E+00	0.00E+00
0.475	4.44E+00	4.49E+00	5.14E+00	5.49E+00	5.63E+00	6.03E+00	0.00E+00	0.00E+00
0.500	4.67E+00	4.76E+00	5.15E+00	5.53E+00	5.80E+00	6.14E+00	0.00E+00	0.00E+00
0.525	4.68E+00	4.81E+00	5.18E+00	5.54E+00	5.89E+00	6.26E+00	0.00E+00	0.00E+00
0.550	4.69E+00	4.82E+00	5.44E+00	5.56E+00	5.92E+00	6.30E+00	0.00E+00	0.00E+00
0.575	4.70E+00	4.83E+00	5.57E+00	5.74E+00	5.94E+00	6.49E+00	0.00E+00	0.00E+00
0.600	4.71E+00	4.83E+00	5.60E+00	5.99E+00	6.02E+00	6.63E+00	0.00E+00	0.00E+00
0.625	4.72E+00	4.84E+00	5.61E+00	6.02E+00	6.35E+00	6.65E+00	2.98E+00	0.00E+00
0.650	4.73E+00	4.85E+00	5.62E+00	6.04E+00	6.43E+00	6.69E+00	4.60E+00	0.00E+00
0.675	4.85E+00	4.90E+00	5.64E+00	6.05E+00	6.46E+00	7.06E+00	6.07E+00	0.00E+00
0.700	5.17E+00	5.26E+00	5.66E+00	6.07E+00	6.48E+00	7.24E+00	6.78E+00	0.00E+00
0.725	5.30E+00	5.43E+00	5.99E+00	6.10E+00	6.49E+00	7.26E+00	7.21E+00	0.00E+00
0.750	5.31E+00	5.45E+00	6.27E+00	6.56E+00	6.53E+00	7.28E+00	7.67E+00	0.00E+00
0.775	5.32E+00	5.46E+00	6.34E+00	6.79E+00	7.06E+00	7.31E+00	7.98E+00	0.00E+00
0.800	5.32E+00	5.46E+00	6.35E+00	6.82E+00	7.25E+00	7.57E+00	8.28E+00	0.00E+00
0.825	5.33E+00	5.47E+00	6.36E+00	6.84E+00	7.31E+00	8.07E+00	8.59E+00	0.00E+00
0.850	5.34E+00	5.48E+00	6.37E+00	6.85E+00	7.32E+00	8.21E+00	8.99E+00	0.00E+00
0.875	5.36E+00	5.50E+00	6.39E+00	6.88E+00	7.35E+00	8.24E+00	9.37E+00	0.00E+00
0.900	6.30E+00	6.41E+00	6.52E+00	6.93E+00	7.38E+00	8.27E+00	9.49E+00	0.00E+00
0.925	6.41E+00	6.57E+00	7.64E+00	8.18E+00	8.61E+00	8.32E+00	1.04E+01	0.00E+00
0.950	6.44E+00	6.60E+00	7.70E+00	8.29E+00	8.86E+00	9.94E+00	1.08E+01	0.00E+00
0.975	1.57E+01	1.60E+01	1.87E+01	2.02E+01	2.15E+01	2.33E+01	1.29E+01	0.00E+00
1.000	1.57E+01	1.61E+01	1.88E+01	2.03E+01	2.18E+01	2.45E+01	3.20E+01	0.00E+00

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Summary of dose at graphical times, reptition 1

Dose statistics at graphical times, mrem/yr

Time Years	Minimum	Maximum	Mean	Median	90%	95%	97.5%	99%
0.00E+00	1.76E-01	1.57E+01	4.93E+00	4.66E+00	6.38E+00	6.43E+00	1.56E+01	1.57E+01
1.00E+01	0.00E+00	1.60E+01	5.00E+00	4.75E+00	6.52E+00	6.60E+00	1.60E+01	1.60E+01
4.00E+01	0.00E+00	1.70E+01	5.09E+00	4.88E+00	6.78E+00	6.96E+00	1.69E+01	1.69E+01
8.00E+01	0.00E+00	1.82E+01	5.19E+00	5.01E+00	7.06E+00	7.46E+00	1.81E+01	1.82E+01
1.00E+02	0.00E+00	1.88E+01	5.23E+00	5.15E+00	7.14E+00	7.70E+00	1.87E+01	1.88E+01
1.20E+02	0.00E+00	1.94E+01	5.25E+00	5.30E+00	6.74E+00	7.93E+00	1.93E+01	1.94E+01
1.50E+02	0.00E+00	2.03E+01	5.25E+00	5.52E+00	6.93E+00	8.29E+00	2.02E+01	2.02E+01
1.60E+02	0.00E+00	2.06E+01	5.26E+00	5.59E+00	7.00E+00	8.40E+00	2.05E+01	2.05E+01
2.00E+02	0.00E+00	2.18E+01	5.24E+00	5.81E+00	7.37E+00	8.85E+00	2.15E+01	2.16E+01
2.00E+02	0.00E+00	2.18E+01	5.24E+00	5.81E+00	7.37E+00	8.85E+00	2.15E+01	2.16E+01
2.40E+02	0.00E+00	2.29E+01	5.20E+00	5.90E+00	7.75E+00	9.28E+00	2.25E+01	2.28E+01
2.80E+02	0.00E+00	2.40E+01	5.13E+00	6.11E+00	8.10E+00	9.72E+00	2.33E+01	2.39E+01
3.00E+02	0.00E+00	2.45E+01	5.09E+00	6.14E+00	8.28E+00	9.93E+00	2.36E+01	2.44E+01
3.20E+02	0.00E+00	2.51E+01	5.04E+00	6.18E+00	8.45E+00	1.01E+01	2.38E+01	2.49E+01
3.60E+02	0.00E+00	2.61E+01	4.93E+00	6.23E+00	8.79E+00	1.05E+01	2.38E+01	2.59E+01
4.00E+02	0.00E+00	2.71E+01	4.76E+00	5.79E+00	9.13E+00	1.09E+01	2.31E+01	2.69E+01
4.40E+02	0.00E+00	2.81E+01	4.59E+00	4.44E+00	9.46E+00	1.13E+01	2.11E+01	2.76E+01
4.80E+02	0.00E+00	2.92E+01	4.36E+00	2.23E+00	9.74E+00	1.15E+01	1.71E+01	2.81E+01
5.20E+02	0.00E+00	3.02E+01	4.10E+00	0.00E+00	9.94E+00	1.02E+01	1.33E+01	2.83E+01
5.60E+02	0.00E+00	3.11E+01	3.80E+00	0.00E+00	1.01E+01	1.05E+01	1.26E+01	2.78E+01
6.00E+02	0.00E+00	3.19E+01	3.48E+00	0.00E+00	1.01E+01	1.08E+01	1.30E+01	2.61E+01
6.00E+02	0.00E+00	3.19E+01	3.48E+00	0.00E+00	1.01E+01	1.08E+01	1.30E+01	2.61E+01
6.40E+02	0.00E+00	3.25E+01	3.11E+00	0.00E+00	9.75E+00	1.10E+01	1.32E+01	2.26E+01
6.80E+02	0.00E+00	3.29E+01	2.73E+00	0.00E+00	9.69E+00	1.10E+01	1.31E+01	1.64E+01
7.20E+02	0.00E+00	3.29E+01	2.31E+00	0.00E+00	9.11E+00	1.07E+01	1.25E+01	1.37E+01
7.60E+02	0.00E+00	3.21E+01	1.92E+00	0.00E+00	8.57E+00	1.01E+01	1.16E+01	1.35E+01
8.00E+02	0.00E+00	3.00E+01	1.53E+00	0.00E+00	7.96E+00	9.39E+00	1.14E+01	1.30E+01
8.40E+02	0.00E+00	2.59E+01	1.13E+00	0.00E+00	6.10E+00	8.27E+00	9.98E+00	1.16E+01
8.80E+02	0.00E+00	1.88E+01	7.42E-01	0.00E+00	3.06E+00	6.55E+00	8.36E+00	1.02E+01
9.20E+02	0.00E+00	8.40E+00	3.80E-01	0.00E+00	0.00E+00	4.26E+00	6.00E+00	7.37E+00
9.60E+02	0.00E+00	5.44E+00	1.17E-01	0.00E+00	0.00E+00	0.00E+00	2.54E+00	3.85E+00
1.00E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Probabilistic results summary : 399GUTI Verification
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Peak of the mean dose (averaged over observations) at graphical times

Repetition	Time of peak mean dose	Peak mean dose
	Years	mrem/yr
1	1.600E+02	5.256E+00
2	1.600E+02	5.379E+00
3	2.000E+02	5.363E+00

APPENDIX B

RESRAD v6.5 Summary Report for *In Situ* Model

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Summary : SU06 VCP Elevated Area In Situ
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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(7)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(8)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(9)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(10)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(11)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(12)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(13)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(14)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(15)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(16)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(17)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(18)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(19)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(20)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(21)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(22)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(23)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(24)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(25)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(26)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(27)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(28)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(29)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(30)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(31)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(32)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(33)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(34)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(35)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(36)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(37)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(38)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(39)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(40)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(41)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	1.380E-02	1.360E-02	DCF2(3)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(4)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(5)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(6)

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Summary : SU06 VCP Elevated Area In Situ
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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(7)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(8)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(9)
B-1	U-234	1.320E-01	1.320E-01	DCF2(10)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(11)
B-1	U-238	1.180E-01	1.180E-01	DCF2(12)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(13)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	5.376E-03	5.370E-03	DCF3(3)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(4)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(5)
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3(6)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3(7)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(8)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(9)
D-1	U-234	2.830E-04	2.830E-04	DCF3(10)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(11)
D-1	U-238	2.550E-04	2.550E-04	DCF3(12)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(13)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Po-210 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Po-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(4,2)
D-34	Po-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(4,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(5,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,3)
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(6,1)
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(6,2)
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(6,3)
D-34				

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Summary : SU06 VCP Elevated Area In Situ
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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(7,1)
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(7,2)
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(7,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(8,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(8,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(8,3)
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(9,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(9,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(9,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(11,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(11,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(12,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(12,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(12,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(13,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(13,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(13,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Po-210 , fish	1.000E+02	1.000E+02	BIOFAC(4,1)
D-5	Po-210 , crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(4,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(6,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(6,2)
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(7,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(7,2)
D-5				

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(8,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(8,2)
D-5				
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIOFAC(9,1)
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(9,2)
D-5				
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(10,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(10,2)
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(11,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(11,2)
D-5				
D-5	U-238 , fish	1.000E+01	1.000E+01	BIOFAC(12,1)
D-5	U-238 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(12,2)
D-5				
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(13,1)
D-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(13,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Summary : SU06 VCP Elevated Area In Situ
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Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	7.000E-01	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	3.000E-01	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Ac-227	1.870E+01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.870E+01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	2.125E+03	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	2.125E+03	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	7.069E+02	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	7.069E+02	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.300E+04	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	7.069E+02	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	4.110E+02	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.870E+01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	4.110E+02	0.000E+00	---	S1(12)
R012	Concentration in groundwater (pCi/L): Ac-227	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Pa-231	not used	0.000E+00	---	W1(2)
R012	Concentration in groundwater (pCi/L): Pb-210	not used	0.000E+00	---	W1(3)
R012	Concentration in groundwater (pCi/L): Ra-226	not used	0.000E+00	---	W1(5)
R012	Concentration in groundwater (pCi/L): Ra-228	not used	0.000E+00	---	W1(6)
R012	Concentration in groundwater (pCi/L): Th-228	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): Th-230	not used	0.000E+00	---	W1(8)
R012	Concentration in groundwater (pCi/L): Th-232	not used	0.000E+00	---	W1(9)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(10)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(11)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(12)
R013	Cover depth (m)	4.600E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	1.500E+00	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R013	Evapotranspiration coefficient	5.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.000E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	not used	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	not used	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	not used	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	not used	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	not used	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	not used	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	not used	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	not used	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	not used	2.500E+02	---	UW
R015	Number of unsaturated zone strata	not used	1	---	NS
R015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	not used	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	not used	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	not used	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.398E-02	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+02	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+02	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.870E-03	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.266E-02	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for Ra-228				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(6,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.266E-02	ALEACH(6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R016	Distribution coefficients for Th-228				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for Th-232				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(10)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(10,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(10)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(10)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(10)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(11)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(11,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(11)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(11)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(12)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(12,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(12)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(12)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(12)
R016	Distribution coefficients for daughter Po-210				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+01	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.706E-02	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R017	Inhalation rate (m**3/yr)	1.227E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	3.500E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	6.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	1.700E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	1.825E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	4.563E-02	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	not used	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	KYMAX

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Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.70 square meters	Ac-227	1.870E+01
Thickness:	0.30 meters	Pa-231	1.870E+01
Cover Depth:	4.60 meters	Pb-210	2.125E+03
		Ra-226	2.125E+03
		Ra-228	7.069E+02
		Th-228	7.069E+02
		Th-230	1.300E+04
		Th-232	7.069E+02
		U-234	4.110E+02
		U-235	1.870E+01
		U-238	4.110E+02

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	8.054E-18	8.102E-18	8.155E-18	8.333E-18	9.707E-18	1.873E-17	1.236E-16	9.136E-14
M(t):	3.221E-19	3.241E-19	3.262E-19	3.333E-19	3.883E-19	7.492E-19	4.944E-18	3.655E-15

Maximum TDOSE(t): 9.136E-14 mrem/yr at t = 1.000E+03 years

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Summary : SU06 VCP Elevated Area In Situ
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.318E-21	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.242E-18	0.1542	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	6.752E-18	0.8383	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.107E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	5.201E-20	0.0065	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.302E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.054E-18	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.318E-21	0.0010
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.242E-18	0.1542
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.752E-18	0.8383
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.107E-23	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.201E-20	0.0065
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.302E-27	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.054E-18	1.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.303E-21	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	3.029E-18	0.3738	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	4.744E-18	0.5856	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	3.334E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	3.205E-19	0.0396	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.296E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.102E-18	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.303E-21	0.0010
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.029E-18	0.3738
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.744E-18	0.5856
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.334E-23	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.205E-19	0.0396
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.296E-27	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.102E-18	1.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.273E-21	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	4.518E-18	0.5540	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	2.342E-18	0.2872	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	7.852E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.287E-18	0.1578	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.285E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.155E-18	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.273E-21	0.0010
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.518E-18	0.5540
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.342E-18	0.2872
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.852E-23	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.287E-18	0.1578
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.285E-27	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.155E-18	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area In Situ
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.166E-21	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	3.144E-18	0.3773	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	1.981E-19	0.0238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.436E-22	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	4.983E-18	0.5979	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.246E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	8.333E-18	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.166E-21	0.0010
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.144E-18	0.3773
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.981E-19	0.0238
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.436E-22	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.983E-18	0.5979
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.246E-27	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.333E-18	1.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	7.871E-21	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	2.907E-19	0.0299	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	1.705E-22	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	7.816E-22	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	9.407E-18	0.9691	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	3.029E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.141E-27	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	9.707E-18	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.871E-21	0.0008
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.907E-19	0.0299
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.705E-22	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.816E-22	0.0001
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.407E-18	0.9691
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.029E-27	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.141E-27	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.707E-18	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area In Situ
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	6.918E-21	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	5.029E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	3.814E-21	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.872E-17	0.9994	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	3.766E-26	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	8.385E-28	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.873E-17	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.918E-21	0.0004
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.029E-23	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.814E-21	0.0002
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.872E-17	0.9994
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.766E-26	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.385E-28	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.873E-17	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area In Situ
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	4.785E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	4.829E-20	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.235E-16	0.9996	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	7.441E-25	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.236E-16	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.785E-21	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.829E-20	0.0004
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.235E-16	0.9996
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.441E-25	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.236E-16	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area In Situ
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	1.316E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.274E-16	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	9.124E-14	0.9986	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.051E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	3.289E-25	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	9.136E-14	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.316E-21	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.274E-16	0.0014
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.124E-14	0.9986
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.051E-21	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.289E-25	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.136E-14	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area In Situ
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP IN SITU.RAD

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227+D	Ac-227+D	1.000E+00	8.278E-32	7.785E-32	6.884E-32	4.478E-32	1.311E-32	1.778E-34	8.203E-40	0.000E+00
Pa-231	Pa-231	1.000E+00	6.800E-38	6.798E-38	6.793E-38	6.778E-38	6.734E-38	6.583E-38	6.169E-38	4.916E-38
Pa-231	Ac-227+D	1.000E+00	1.330E-33	3.877E-33	8.499E-33	2.062E-32	3.505E-32	3.333E-32	1.714E-32	1.665E-33
Pa-231	∑DSR(j)		1.330E-33	3.877E-33	8.499E-33	2.062E-32	3.505E-32	3.333E-32	1.714E-32	1.665E-33
Pb-210+D	Pb-210+D	1.000E+00	9.809E-45	9.809E-45	8.408E-45	8.408E-45	5.605E-45	1.401E-45	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	4.513E-34	7.481E-34	7.612E-34	6.335E-34	3.733E-34	5.859E-35	2.952E-37	2.803E-45
Pb-210+D	∑DSR(j)		4.513E-34	7.481E-34	7.612E-34	6.335E-34	3.733E-34	5.859E-35	2.952E-37	2.803E-45
Ra-226+D	Ra-226+D	1.000E+00	3.914E-24	3.907E-24	3.893E-24	3.843E-24	3.704E-24	3.255E-24	2.251E-24	6.194E-25
Ra-226+D	Pb-210+D	1.000E+00	0.000E+00	0.000E+00	1.401E-45	2.803E-45	8.408E-45	2.102E-44	8.828E-44	1.069E-41
Ra-226+D	Po-210	1.000E+00	5.334E-36	2.546E-35	7.328E-35	2.251E-34	5.342E-34	9.262E-34	1.078E-33	1.433E-33
Ra-226+D	∑DSR(j)		3.914E-24	3.907E-24	3.893E-24	3.843E-24	3.704E-24	3.255E-24	2.251E-24	6.194E-25
Ra-228+D	Ra-228+D	1.000E+00	1.048E-26	9.291E-27	7.298E-27	3.134E-27	2.800E-28	5.971E-32	1.938E-42	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.756E-21	4.285E-21	6.391E-21	4.448E-21	4.112E-22	7.114E-26	1.267E-36	0.000E+00
Ra-228+D	∑DSR(j)		1.756E-21	4.285E-21	6.391E-21	4.448E-21	4.112E-22	7.114E-26	1.267E-36	0.000E+00
Th-228+D	Th-228+D	1.000E+00	9.551E-21	6.711E-21	3.314E-21	2.802E-22	2.412E-25	4.515E-36	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	8.513E-28	2.565E-27	6.040E-27	1.874E-26	6.013E-26	2.934E-25	3.715E-24	9.804E-21
Th-230	Pb-210+D	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.401E-45	9.669E-44	1.138E-37
Th-230	Po-210	1.000E+00	6.265E-40	7.025E-39	5.046E-38	5.334E-37	4.536E-36	4.966E-35	1.177E-33	1.515E-29
Th-230	∑DSR(j)		8.513E-28	2.565E-27	6.040E-27	1.874E-26	6.013E-26	2.934E-25	3.715E-24	9.804E-21
Th-232	Th-232	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	6.473E-28	1.853E-27	3.916E-27	8.642E-27	1.447E-26	3.515E-26	4.227E-25	2.549E-21
Th-232	Th-228+D	1.000E+00	7.357E-23	4.534E-22	1.820E-21	7.048E-21	1.331E-20	2.648E-20	1.748E-19	1.291E-16
Th-232	∑DSR(j)		7.357E-23	4.534E-22	1.820E-21	7.048E-21	1.331E-20	2.648E-20	1.748E-19	1.291E-16
U-234	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	2.548E-33	1.785E-32	9.455E-32	8.522E-31	7.370E-30	9.163E-29	1.810E-27	4.991E-24
U-234	Pb-210+D	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.796E-41
U-234	Po-210	1.000E+00	1.401E-45	2.943E-44	4.806E-43	1.605E-41	4.034E-40	1.326E-38	5.631E-37	7.714E-33
U-234	∑DSR(j)		2.548E-33	1.785E-32	9.455E-32	8.522E-31	7.370E-30	9.163E-29	1.810E-27	4.991E-24
U-235+D	U-235+D	1.000E+00	6.726E-44	6.726E-44	6.726E-44	6.726E-44	7.287E-44	8.968E-44	1.626E-43	1.327E-42
U-235+D	Pa-231	1.000E+00	7.203E-43	2.158E-42	5.031E-42	1.506E-41	4.347E-41	1.401E-40	3.935E-40	1.052E-39
U-235+D	Ac-227+D	1.000E+00	9.420E-39	6.468E-38	3.275E-37	2.523E-36	1.449E-35	5.899E-35	1.031E-34	3.500E-35
U-235+D	∑DSR(j)		9.421E-39	6.469E-38	3.275E-37	2.523E-36	1.449E-35	5.899E-35	1.031E-34	3.500E-35
U-238	U-238	5.400E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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Summary : SU06 VCP Elevated Area In Situ
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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238+D	U-238+D	9.999E-01	3.167E-30	3.153E-30	3.126E-30	3.031E-30	2.776E-30	2.040E-30	8.475E-31	3.964E-32
U-238+D	U-234	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	1.803E-39	2.703E-38	3.148E-37	8.303E-36	2.004E-34	7.099E-33	2.636E-31	8.003E-28
U-238+D	Pb-210+D	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.809E-45
U-238+D	Po-210	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.408E-45	8.828E-43	7.946E-41	1.237E-36
U-238+D	∑DSR(j)		3.167E-30	3.153E-30	3.126E-30	3.031E-30	2.776E-30	2.047E-30	1.111E-30	8.003E-28

The DSR includes contributions from associated (half-life ≤ 30 days) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	*7.232E+13	*7.232E+13	*7.232E+13	*7.232E+13	*7.232E+13	*7.232E+13	*7.232E+13	*7.232E+13
Pa-231	*4.723E+10	*4.723E+10	*4.723E+10	*4.723E+10	*4.723E+10	*4.723E+10	*4.723E+10	*4.723E+10
Pb-210	*7.634E+13	*7.634E+13	*7.634E+13	*7.634E+13	*7.634E+13	*7.634E+13	*7.634E+13	*7.634E+13
Ra-226	*9.885E+11	*9.885E+11	*9.885E+11	*9.885E+11	*9.885E+11	*9.885E+11	*9.885E+11	*9.885E+11
Ra-228	*2.726E+14	*2.726E+14	*2.726E+14	*2.726E+14	*2.726E+14	*2.726E+14	*2.726E+14	*2.726E+14
Th-228	*8.195E+14	*8.195E+14	*8.195E+14	*8.195E+14	*8.195E+14	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	*2.018E+10	*2.018E+10	*2.018E+10	*2.018E+10	*2.018E+10	*2.018E+10	*2.018E+10	*2.018E+10
Th-232	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05
U-234	*6.247E+09	*6.247E+09	*6.247E+09	*6.247E+09	*6.247E+09	*6.247E+09	*6.247E+09	*6.247E+09
U-235	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06
U-238	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05

*At specific activity limit

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Summary : SU06 VCP Elevated Area In Situ
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Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 1.000E+03 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Ac-227	1.870E+01	0.000E+00	0.000E+00	*7.232E+13	0.000E+00	*7.232E+13
Pa-231	1.870E+01	0.000E+00	0.000E+00	*4.723E+10	0.000E+00	*4.723E+10
Pb-210	2.125E+03	0.000E+00	0.000E+00	*7.634E+13	0.000E+00	*7.634E+13
Ra-226	2.125E+03	0.000E+00	3.914E-24	*9.885E+11	6.194E-25	*9.885E+11
Ra-228	7.069E+02	4.096 ± 0.008	6.596E-21	*2.726E+14	0.000E+00	*2.726E+14
Th-228	7.069E+02	0.000E+00	9.551E-21	*8.195E+14	0.000E+00	*8.195E+14
Th-230	1.300E+04	1.000E+03	9.804E-21	*2.018E+10	9.804E-21	*2.018E+10
Th-232	7.069E+02	1.000E+03	1.291E-16	*1.097E+05	1.291E-16	*1.097E+05
U-234	4.110E+02	1.000E+03	4.991E-24	*6.247E+09	4.991E-24	*6.247E+09
U-235	1.870E+01	0.000E+00	0.000E+00	*2.161E+06	0.000E+00	*2.161E+06
U-238	4.110E+02	1.000E+03	8.003E-28	*3.361E+05	8.003E-28	*3.361E+05

*At specific activity limit

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Summary : SU06 VCP Elevated Area In Situ
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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	Ac-227	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.970E-25
Po-210	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.970E-25
Ra-226	Ra-226	1.000E+00	8.318E-21	8.303E-21	8.273E-21	8.166E-21	7.871E-21	6.918E-21	4.785E-21	1.316E-21
Ra-226	Th-230	1.000E+00	1.107E-23	3.334E-23	7.852E-23	2.436E-22	7.816E-22	3.814E-21	4.829E-20	1.274E-16
Ra-226	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.029E-27	3.766E-26	7.441E-25	2.051E-21
Ra-226	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.289E-25
Ra-226	∑DOSE(j)		8.329E-21	8.336E-21	8.351E-21	8.410E-21	8.652E-21	1.073E-20	5.308E-20	1.275E-16
Ra-228	Ra-228	1.000E+00	7.411E-24	6.568E-24	5.159E-24	2.215E-24	1.979E-25	0.000E+00	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	4.576E-25	1.310E-24	2.768E-24	6.109E-24	1.023E-23	2.485E-23	2.988E-22	1.802E-18
Ra-228	∑DOSE(j)		7.869E-24	7.878E-24	7.927E-24	8.324E-24	1.042E-23	2.485E-23	2.988E-22	1.802E-18
Th-228	Ra-228	1.000E+00	1.242E-18	3.029E-18	4.518E-18	3.144E-18	2.907E-19	5.029E-23	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	6.752E-18	4.744E-18	2.342E-18	1.981E-19	1.705E-22	0.000E+00	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	5.201E-20	3.205E-19	1.287E-18	4.983E-18	9.407E-18	1.872E-17	1.235E-16	9.124E-14
Th-228	∑DOSE(j)		8.045E-18	8.093E-18	8.147E-18	8.325E-18	9.698E-18	1.872E-17	1.235E-16	9.124E-14
Th-230	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

RESRAD, Version 6.5 T½ Limit = 30 days 09/23/2013 10:12 Page 26
Summary : SU06 VCP Elevated Area In Situ
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP IN SITU.RAD

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238	U-238	5.400E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	1.302E-27	1.296E-27	1.285E-27	1.246E-27	1.141E-27	8.385E-28	0.000E+00	0.000E+00
U-238	∑DOSE(j)		1.302E-27	1.296E-27	1.285E-27	1.246E-27	1.141E-27	8.385E-28	0.000E+00	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

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Summary : SU06 VCP Elevated Area In Situ
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP IN SITU.RAD

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	Ac-227	1.000E+00	1.870E+01	1.733E+01	1.490E+01	8.761E+00	1.923E+00	9.531E-03	2.476E-09	2.213E-32
Ac-227	Pa-231	1.000E+00	0.000E+00	5.682E-01	1.554E+00	3.782E+00	4.967E+00	1.736E+00	5.027E-02	2.056E-07
Ac-227	U-235	1.000E+00	0.000E+00	6.069E-06	5.076E-05	4.387E-04	2.013E-03	3.055E-03	3.017E-04	4.320E-09
Ac-227	∑S(j):		1.870E+01	1.790E+01	1.645E+01	1.254E+01	6.893E+00	1.749E+00	5.058E-02	2.099E-07
Pa-231	Pa-231	1.000E+00	1.870E+01	1.837E+01	1.773E+01	1.566E+01	1.099E+01	3.177E+00	9.174E-02	3.752E-07
Pa-231	U-235	1.000E+00	0.000E+00	3.887E-04	1.126E-03	3.314E-03	6.977E-03	6.730E-03	5.842E-04	8.022E-09
Pa-231	∑S(j):		1.870E+01	1.837E+01	1.773E+01	1.567E+01	1.099E+01	3.184E+00	9.232E-02	3.832E-07
Pb-210	Pb-210	1.000E+00	2.125E+03	2.042E+03	1.885E+03	1.425E+03	6.410E+02	3.911E+01	1.324E-02	9.463E-15
Pb-210	Ra-226	1.000E+00	0.000E+00	6.433E+01	1.831E+02	5.082E+02	9.187E+02	6.188E+02	4.839E+01	5.062E-03
Pb-210	Th-230	1.000E+00	0.000E+00	8.599E-02	7.473E-01	7.359E+00	4.775E+01	2.030E+02	3.232E+02	3.275E+02
Pb-210	U-234	1.000E+00	0.000E+00	8.158E-09	2.126E-07	6.971E-06	1.343E-04	1.714E-03	4.890E-03	5.272E-03
Pb-210	U-238	9.999E-01	0.000E+00	5.781E-15	4.521E-13	4.937E-11	2.838E-09	1.142E-07	6.902E-07	8.453E-07
Pb-210	∑S(j):		2.125E+03	2.106E+03	2.069E+03	1.941E+03	1.607E+03	8.609E+02	3.716E+02	3.276E+02
Po-210	Pb-210	1.000E+00	0.000E+00	1.686E+03	1.831E+03	1.389E+03	6.249E+02	3.813E+01	1.291E-02	9.225E-15
Po-210	Ra-226	1.000E+00	0.000E+00	3.430E+01	1.460E+02	4.658E+02	8.728E+02	5.941E+02	4.651E+01	4.866E-03
Po-210	Th-230	1.000E+00	0.000E+00	3.466E-02	5.114E-01	6.380E+00	4.438E+01	1.930E+02	3.085E+02	3.127E+02
Po-210	U-234	1.000E+00	0.000E+00	2.665E-09	1.282E-07	5.760E-06	1.227E-04	1.623E-03	4.666E-03	5.032E-03
Po-210	U-238	9.999E-01	0.000E+00	1.592E-15	2.441E-13	3.897E-11	2.551E-09	1.076E-07	6.580E-07	8.069E-07
Po-210	∑S(j):		0.000E+00	1.720E+03	1.978E+03	1.862E+03	1.542E+03	8.252E+02	3.550E+02	3.127E+02
Ra-226	Ra-226	1.000E+00	2.125E+03	2.098E+03	2.043E+03	1.864E+03	1.435E+03	5.738E+02	4.183E+01	4.375E-03
Ra-226	Th-230	1.000E+00	0.000E+00	5.595E+00	1.657E+01	5.278E+01	1.397E+02	3.135E+02	4.194E+02	4.208E+02
Ra-226	U-234	1.000E+00	0.000E+00	7.932E-07	6.994E-06	7.237E-05	5.333E-04	3.086E-03	6.460E-03	6.772E-03
Ra-226	U-238	9.999E-01	0.000E+00	7.481E-13	1.972E-11	6.711E-10	1.428E-08	2.381E-07	9.401E-07	1.086E-06
Ra-226	∑S(j):		2.125E+03	2.103E+03	2.060E+03	1.917E+03	1.575E+03	8.873E+02	4.612E+02	4.208E+02
Ra-228	Ra-228	1.000E+00	7.069E+02	6.187E+02	4.740E+02	1.866E+02	1.300E+01	1.159E-03	3.119E-15	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	7.978E+01	2.107E+02	4.708E+02	6.277E+02	6.388E+02	6.369E+02	6.304E+02
Ra-228	∑S(j):		7.069E+02	6.985E+02	6.848E+02	6.574E+02	6.407E+02	6.388E+02	6.369E+02	6.304E+02
Th-228	Ra-228	1.000E+00	0.000E+00	2.004E+02	3.726E+02	2.652E+02	2.053E+01	1.833E-03	4.931E-15	0.000E+00
Th-228	Th-228	1.000E+00	7.069E+02	4.920E+02	2.384E+02	1.887E+01	1.345E-02	1.299E-13	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.312E+01	8.676E+01	3.826E+02	6.209E+02	6.388E+02	6.369E+02	6.304E+02
Th-228	∑S(j):		7.069E+02	7.055E+02	6.978E+02	6.667E+02	6.415E+02	6.388E+02	6.369E+02	6.304E+02
Th-230	Th-230	1.000E+00	1.300E+04	1.300E+04	1.300E+04	1.300E+04	1.299E+04	1.297E+04	1.291E+04	1.269E+04
Th-230	U-234	1.000E+00	0.000E+00	3.667E-03	1.081E-02	3.390E-02	8.608E-02	1.731E-01	2.067E-01	2.043E-01
Th-230	U-238	9.999E-01	0.000E+00	5.183E-09	4.556E-08	4.664E-07	3.338E-06	1.766E-05	3.227E-05	3.276E-05
Th-230	∑S(j):		1.300E+04	1.300E+04	1.300E+04	1.300E+04	1.299E+04	1.297E+04	1.291E+04	1.269E+04
Th-232	Th-232	1.000E+00	7.069E+02	7.069E+02	7.069E+02	7.068E+02	7.066E+02	7.059E+02	7.038E+02	6.965E+02
U-234	U-234	1.000E+00	4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.416E+02	6.996E+01	2.027E+00	8.398E-06
U-234	U-238	9.999E-01	0.000E+00	1.145E-03	3.315E-03	9.761E-03	2.055E-02	1.984E-02	1.725E-03	2.384E-08
U-234	∑S(j):		4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.417E+02	6.998E+01	2.029E+00	8.422E-06
U-235	U-235	1.000E+00	1.870E+01	1.837E+01	1.773E+01	1.567E+01	1.099E+01	3.184E+00	9.232E-02	3.832E-07

RESRAD, Version 6.5 T½ Limit = 30 days 09/23/2013 10:12 Page 28
Summary : SU06 VCP Elevated Area In Situ
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP IN SITU.RAD

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238	U-238	5.400E-05	2.219E-02	2.180E-02	2.105E-02	1.859E-02	1.305E-02	3.779E-03	1.096E-04	4.548E-10
U-238	U-238	9.999E-01	4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.416E+02	6.998E+01	2.029E+00	8.422E-06
U-238	∑S(j):		4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.417E+02	6.998E+01	2.029E+00	8.422E-06

THF(i) is the thread fraction of the parent nuclide.

RESCALC.EXE execution time = 1.71 seconds

APPENDIX C

RESRAD v6.5 Summary Report for Excavation Scenario Model

RESRAD, Version 6.5 T½ Limit = 30 days 09/18/2013 11:24 Page 1
Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

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RESRAD, Version 6.5 T½ Limit = 30 days 09/18/2013 11:24 Page 2
Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(7)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(8)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(9)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(10)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(11)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(12)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(13)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(14)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(15)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(16)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(17)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(18)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(19)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(20)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(21)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(22)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(23)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(24)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(25)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(26)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(27)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(28)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(29)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(30)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(31)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(32)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(33)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(34)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(35)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(36)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(37)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(38)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(39)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(40)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(41)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	1.380E-02	1.360E-02	DCF2(3)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(4)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(5)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(6)

RESRAD, Version 6.5 T½ Limit = 30 days 09/18/2013 11:24 Page 3
Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(7)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(8)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(9)
B-1	U-234	1.320E-01	1.320E-01	DCF2(10)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(11)
B-1	U-238	1.180E-01	1.180E-01	DCF2(12)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(13)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	5.376E-03	5.370E-03	DCF3(3)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(4)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(5)
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3(6)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3(7)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(8)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(9)
D-1	U-234	2.830E-04	2.830E-04	DCF3(10)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(11)
D-1	U-238	2.550E-04	2.550E-04	DCF3(12)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(13)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Po-210 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Po-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(4,2)
D-34	Po-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(4,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(5,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(5,3)
D-34				
D-34	Ra-228+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(6,1)
D-34	Ra-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(6,2)
D-34	Ra-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(6,3)
D-34				

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-228+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(7,1)
D-34	Th-228+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(7,2)
D-34	Th-228+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(7,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(8,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(8,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(8,3)
D-34				
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(9,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(9,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(9,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(11,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(11,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(12,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(12,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(12,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(13,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(13,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(13,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Po-210 , fish	1.000E+02	1.000E+02	BIOFAC(4,1)
D-5	Po-210 , crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(4,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(6,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(6,2)
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(7,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(7,2)
D-5				

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(8,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(8,2)
D-5				
D-5	Th-232 , fish	1.000E+02	1.000E+02	BIOFAC(9,1)
D-5	Th-232 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(9,2)
D-5				
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(10,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(10,2)
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(11,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(11,2)
D-5				
D-5	U-238 , fish	1.000E+01	1.000E+01	BIOFAC(12,1)
D-5	U-238 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(12,2)
D-5				
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(13,1)
D-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(13,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	7.000E-01	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	3.000E-01	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Ac-227	1.870E+01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.870E+01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	2.125E+03	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	2.125E+03	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	7.069E+02	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	7.069E+02	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.300E+04	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	7.069E+02	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	4.110E+02	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.870E+01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	4.110E+02	0.000E+00	---	S1(12)
R012	Concentration in groundwater (pCi/L): Ac-227	not used	0.000E+00	---	W1(1)
R012	Concentration in groundwater (pCi/L): Pa-231	not used	0.000E+00	---	W1(2)
R012	Concentration in groundwater (pCi/L): Pb-210	not used	0.000E+00	---	W1(3)
R012	Concentration in groundwater (pCi/L): Ra-226	not used	0.000E+00	---	W1(5)
R012	Concentration in groundwater (pCi/L): Ra-228	not used	0.000E+00	---	W1(6)
R012	Concentration in groundwater (pCi/L): Th-228	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): Th-230	not used	0.000E+00	---	W1(8)
R012	Concentration in groundwater (pCi/L): Th-232	not used	0.000E+00	---	W1(9)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(10)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(11)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(12)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	4.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R013	Evapotranspiration coefficient	5.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.000E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	not used	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	not used	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	not used	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	not used	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	not used	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	not used	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	not used	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	not used	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	not used	2.500E+02	---	UW
R015	Number of unsaturated zone strata	not used	1	---	NS
R015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	not used	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	not used	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	not used	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.398E-02	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+02	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+02	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.870E-03	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.266E-02	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for Ra-228				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	not used	7.000E+01	---	DCNUCU(6,1)
R016	Saturated zone (cm**3/g)	not used	7.000E+01	---	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.266E-02	ALEACH(6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R016	Distribution coefficients for Th-228				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for Th-232				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	not used	6.000E+04	---	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	not used	6.000E+04	---	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.481E-05	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)
R016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(10)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(10,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(10)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(10)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(10)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(11)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(11,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(11)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(11)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for U-238				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(12)
R016	Unsaturated zone 1 (cm**3/g)	not used	5.000E+01	---	DCNUCU(12,1)
R016	Saturated zone (cm**3/g)	not used	5.000E+01	---	DCNUCS(12)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.770E-02	ALEACH(12)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(12)
R016	Distribution coefficients for daughter Po-210				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	not used	1.000E+01	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	not used	1.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.706E-02	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R017	Inhalation rate (m**3/yr)	1.227E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	3.500E-05	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	6.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	1.700E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	0.000E+00	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	1.100E-04	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
R018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	not used	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	not used	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	not used	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	not used	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	not used	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	1	---	---	KYMAX

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Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	0.70 square meters	Ac-227	1.870E+01
Thickness:	0.30 meters	Pa-231	1.870E+01
Cover Depth:	0.00 meters	Pb-210	2.125E+03
		Ra-226	2.125E+03
		Ra-228	7.069E+02
		Th-228	7.069E+02
		Th-230	1.300E+04
		Th-232	7.069E+02
		U-234	4.110E+02
		U-235	1.870E+01
		U-238	4.110E+02

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.450E-01	2.427E-01	2.379E-01	2.226E-01	1.912E-01	1.289E-01	0.000E+00	0.000E+00
M(t):	9.801E-03	9.707E-03	9.515E-03	8.906E-03	7.647E-03	5.158E-03	0.000E+00	0.000E+00

Maximum TDOSE(t): 2.450E-01 mrem/yr at t = 0.000E+00 years

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Summary : SU06 VCP Elevated Area Excavation
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	2.785E-04	0.0011	1.849E-04	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.489E-07	0.0000
Pa-231	3.129E-05	0.0001	3.919E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.642E-07	0.0000
Pb-210	1.084E-04	0.0004	5.980E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.740E-05	0.0002
Ra-226	1.590E-01	0.6490	2.858E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.398E-06	0.0000
Ra-228	3.436E-02	0.1402	6.253E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.930E-06	0.0000
Th-228	3.917E-02	0.1598	3.127E-04	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.348E-06	0.0000
Th-230	3.494E-04	0.0014	6.471E-03	0.0264	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.003E-05	0.0001
Th-232	1.978E-03	0.0081	1.773E-03	0.0072	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.599E-06	0.0000
U-234	1.517E-06	0.0000	8.211E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.240E-07	0.0000
U-235	1.130E-04	0.0005	3.481E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.393E-08	0.0000
U-238	4.525E-04	0.0018	7.342E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.077E-07	0.0000
Total	2.359E-01	0.9626	9.090E-03	0.0371	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.767E-05	0.0003

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.642E-04	0.0019
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.104E-05	0.0003
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-04	0.0008
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.591E-01	0.6492
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.442E-02	0.1405
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.948E-02	0.1611
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.840E-03	0.0279
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.756E-03	0.0153
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.395E-05	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.165E-04	0.0005
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.262E-04	0.0021
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.450E-01	1.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	2.581E-04	0.0011	1.714E-04	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.943E-07	0.0000
Pa-231	3.919E-05	0.0002	4.412E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.770E-07	0.0000
Pb-210	1.044E-04	0.0004	6.822E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.994E-05	0.0002
Ra-226	1.568E-01	0.6463	3.023E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.503E-06	0.0000
Ra-228	4.114E-02	0.1695	1.434E-04	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.946E-06	0.0000
Th-228	2.724E-02	0.1122	2.176E-04	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.380E-07	0.0000
Th-230	7.675E-04	0.0032	6.471E-03	0.0267	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.006E-05	0.0001
Th-232	6.577E-03	0.0271	1.786E-03	0.0074	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.955E-06	0.0000
U-234	1.490E-06	0.0000	8.067E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.183E-07	0.0000
U-235	1.110E-04	0.0005	3.421E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.370E-08	0.0000
U-238	4.443E-04	0.0018	7.213E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.023E-07	0.0000
Total	2.335E-01	0.9622	9.087E-03	0.0374	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.125E-05	0.0003

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.301E-04	0.0018
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.388E-05	0.0003
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.126E-04	0.0009
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.569E-01	0.6464
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.128E-02	0.1701
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.745E-02	0.1131
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.258E-03	0.0299
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.369E-03	0.0345
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.247E-05	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.144E-04	0.0005
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.167E-04	0.0021
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.427E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	2.215E-04	0.0009	1.473E-04	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.966E-07	0.0000
Pa-231	5.274E-05	0.0002	5.252E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.972E-07	0.0000
Pb-210	9.641E-05	0.0004	6.474E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.753E-05	0.0002
Ra-226	1.525E-01	0.6412	3.356E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.164E-05	0.0000
Ra-228	4.357E-02	0.1832	2.068E-04	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.675E-06	0.0000
Th-228	1.317E-02	0.0554	1.054E-04	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.544E-07	0.0000
Th-230	1.585E-03	0.0067	6.470E-03	0.0272	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.011E-05	0.0001
Th-232	1.698E-02	0.0714	1.830E-03	0.0077	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.638E-06	0.0000
U-234	1.438E-06	0.0000	7.786E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.073E-07	0.0000
U-235	1.070E-04	0.0004	3.304E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.325E-08	0.0000
U-238	4.283E-04	0.0018	6.962E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.917E-07	0.0000
Total	2.287E-01	0.9616	9.061E-03	0.0381	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.086E-05	0.0003

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.694E-04	0.0016
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.059E-04	0.0004
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.987E-04	0.0008
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.526E-01	0.6414
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.378E-02	0.1840
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.328E-02	0.0558
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.076E-03	0.0339
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.882E-02	0.0791
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.961E-05	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.104E-04	0.0005
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.982E-04	0.0021
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.379E-01	1.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.299E-04	0.0006	8.662E-05	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.509E-07	0.0000
Pa-231	8.213E-05	0.0004	7.021E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.240E-07	0.0000
Pb-210	7.276E-05	0.0003	4.898E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.838E-05	0.0001
Ra-226	1.383E-01	0.6214	4.234E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.742E-05	0.0001
Ra-228	2.354E-02	0.1057	1.338E-04	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.279E-06	0.0000
Th-228	1.035E-03	0.0047	8.347E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.597E-08	0.0000
Th-230	4.264E-03	0.0191	6.470E-03	0.0291	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.038E-05	0.0001
Th-232	4.565E-02	0.2050	1.983E-03	0.0089	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.279E-06	0.0000
U-234	1.275E-06	0.0000	6.880E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.715E-07	0.0000
U-235	9.434E-05	0.0004	2.928E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.179E-08	0.0000
U-238	3.768E-04	0.0017	6.151E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.577E-07	0.0000
Total	2.136E-01	0.9593	8.977E-03	0.0403	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.729E-05	0.0003

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.168E-04	0.0010
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.530E-04	0.0007
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.501E-04	0.0007
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.384E-01	0.6216
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.368E-02	0.1063
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-03	0.0047
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.075E-02	0.0483
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.764E-02	0.2140
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.035E-05	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.728E-05	0.0004
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.386E-04	0.0020
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.226E-01	1.0000

*Sum of all water independent and dependent pathways.

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File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	2.822E-05	0.0001	1.901E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.703E-08	0.0000
Pa-231	9.097E-05	0.0005	7.214E-05	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.305E-07	0.0000
Pb-210	3.255E-05	0.0002	2.203E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.277E-05	0.0001
Ra-226	1.045E-01	0.5469	5.072E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.391E-05	0.0001
Ra-228	1.718E-03	0.0090	1.023E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.300E-08	0.0000
Th-228	7.224E-07	0.0000	5.948E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.563E-11	0.0000
Th-230	1.052E-02	0.0550	6.470E-03	0.0338	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.152E-05	0.0001
Th-232	6.500E-02	0.3400	2.102E-03	0.0110	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.382E-06	0.0000
U-234	9.292E-07	0.0000	4.831E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.906E-07	0.0000
U-235	6.574E-05	0.0003	2.081E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.483E-09	0.0000
U-238	2.610E-04	0.0014	4.317E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.809E-07	0.0000
Total	1.823E-01	0.9534	8.839E-03	0.0462	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.866E-05	0.0004

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.731E-05	0.0002
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.636E-04	0.0009
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.734E-05	0.0004
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.046E-01	0.5473
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-03	0.0090
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.283E-07	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.701E-02	0.0890
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.711E-02	0.3511
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.943E-05	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.783E-05	0.0004
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.044E-04	0.0016
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.912E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.333E-07	0.0000	9.423E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.817E-10	0.0000
Pa-231	2.925E-05	0.0002	2.382E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.654E-07	0.0000
Pb-210	1.941E-06	0.0000	1.344E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.789E-07	0.0000
Ra-226	3.829E-02	0.2970	2.892E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.457E-05	0.0001
Ra-228	1.395E-07	0.0000	9.135E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.300E-12	0.0000
Th-228	6.314E-18	0.0000	5.745E-20	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.476E-22	0.0000
Th-230	2.124E-02	0.1647	6.466E-03	0.0502	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.526E-05	0.0002
Th-232	6.058E-02	0.4698	2.109E-03	0.0164	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.457E-06	0.0001
U-234	4.647E-07	0.0000	1.406E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.547E-08	0.0000
U-235	1.845E-05	0.0001	6.371E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.698E-09	0.0000
U-238	7.111E-05	0.0006	1.251E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.240E-08	0.0000
Total	1.202E-01	0.9325	8.657E-03	0.0671	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.034E-05	0.0004

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.279E-07	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.324E-05	0.0004
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.064E-06	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.833E-02	0.2973
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.404E-07	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.372E-18	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.773E-02	0.2151
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.270E-02	0.4863
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.458E-05	0.0001
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.909E-05	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.367E-05	0.0006
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.289E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227+D	Ac-227+D	1.000E+00	2.482E-05	2.300E-05	1.975E-05	1.160E-05	2.530E-06	1.219E-08	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	3.401E-06	3.341E-06	3.223E-06	2.843E-06	1.985E-06	5.621E-07	0.000E+00	0.000E+00
Pa-231	Ac-227+D	1.000E+00	3.977E-07	1.145E-06	2.438E-06	5.338E-06	6.766E-06	2.285E-06	0.000E+00	0.000E+00
Pa-231	∑DSR(j)		3.799E-06	4.486E-06	5.661E-06	8.180E-06	8.751E-06	2.847E-06	0.000E+00	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	8.630E-08	8.291E-08	7.652E-08	5.779E-08	2.591E-08	1.560E-09	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	1.047E-08	1.714E-08	1.697E-08	1.285E-08	5.779E-09	3.521E-10	0.000E+00	0.000E+00
Pb-210+D	∑DSR(j)		9.676E-08	1.000E-07	9.349E-08	7.064E-08	3.169E-08	1.912E-09	0.000E+00	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	7.484E-05	7.381E-05	7.178E-05	6.510E-05	4.918E-05	1.801E-05	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	1.344E-09	3.938E-09	8.722E-09	2.178E-08	3.804E-08	2.504E-08	0.000E+00	0.000E+00
Ra-226+D	Po-210	1.000E+00	1.234E-10	5.827E-10	1.634E-09	4.567E-09	8.270E-09	5.566E-09	0.000E+00	0.000E+00
Ra-226+D	∑DSR(j)		7.485E-05	7.381E-05	7.179E-05	6.513E-05	4.923E-05	1.804E-05	0.000E+00	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	3.844E-05	3.362E-05	2.572E-05	1.007E-05	6.893E-07	5.663E-11	0.000E+00	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.025E-05	2.478E-05	3.621E-05	2.343E-05	1.756E-06	1.420E-10	0.000E+00	0.000E+00
Ra-228+D	∑DSR(j)		4.870E-05	5.840E-05	6.193E-05	3.350E-05	2.445E-06	1.986E-10	0.000E+00	0.000E+00
Th-228+D	Th-228+D	1.000E+00	5.585E-05	3.884E-05	1.878E-05	1.477E-06	1.030E-09	9.014E-21	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	5.099E-07	5.099E-07	5.099E-07	5.098E-07	5.095E-07	5.085E-07	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	1.624E-08	4.842E-08	1.113E-07	3.174E-07	7.984E-07	1.623E-06	0.000E+00	0.000E+00
Th-230	Pb-210+D	1.000E+00	1.950E-13	1.344E-12	6.865E-12	5.442E-11	3.301E-10	1.356E-09	0.000E+00	0.000E+00
Th-230	Po-210	1.000E+00	1.450E-14	1.607E-13	1.124E-12	1.082E-11	7.023E-11	2.984E-10	0.000E+00	0.000E+00
Th-230	∑DSR(j)		5.262E-07	5.583E-07	6.212E-07	8.272E-07	1.308E-06	2.133E-06	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	2.516E-06	2.516E-06	2.516E-06	2.516E-06	2.515E-06	2.513E-06	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	2.368E-06	6.702E-06	1.380E-05	2.775E-05	3.560E-05	3.333E-05	0.000E+00	0.000E+00
Th-232	Th-228+D	1.000E+00	4.290E-07	2.620E-06	1.031E-05	3.712E-05	5.682E-05	5.285E-05	0.000E+00	0.000E+00
Th-232	∑DSR(j)		5.314E-06	1.184E-05	2.662E-05	6.739E-05	9.494E-05	8.870E-05	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	2.042E-07	2.007E-07	1.937E-07	1.711E-07	1.201E-07	3.476E-08	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	2.282E-12	6.791E-12	1.557E-11	4.397E-11	1.081E-10	2.151E-10	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	4.858E-14	3.368E-13	1.743E-12	1.443E-11	9.787E-11	5.069E-10	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	4.384E-19	6.476E-18	7.303E-17	1.714E-15	2.984E-14	3.636E-13	0.000E+00	0.000E+00
U-234	Po-210	1.000E+00	2.749E-20	6.602E-19	1.071E-17	3.255E-16	6.245E-15	7.970E-14	0.000E+00	0.000E+00
U-234	∑DSR(j)		2.042E-07	2.007E-07	1.937E-07	1.712E-07	1.203E-07	3.548E-08	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	6.230E-06	6.118E-06	5.901E-06	5.201E-06	3.623E-06	1.015E-06	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	3.588E-11	1.059E-10	2.386E-10	6.315E-10	1.281E-09	1.197E-09	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	2.814E-12	1.908E-11	9.390E-11	6.532E-10	2.797E-09	4.045E-09	0.000E+00	0.000E+00
U-235+D	∑DSR(j)		6.230E-06	6.119E-06	5.902E-06	5.202E-06	3.627E-06	1.021E-06	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	9.748E-12	9.577E-12	9.244E-12	8.166E-12	5.731E-12	1.660E-12	0.000E+00	0.000E+00

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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238+D	U-238+D	9.999E-01	1.280E-06	1.257E-06	1.212E-06	1.067E-06	7.406E-07	2.036E-07	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	2.886E-13	8.524E-13	1.921E-12	5.092E-12	1.038E-11	9.904E-12	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	2.150E-18	1.490E-17	7.696E-17	6.346E-16	4.256E-15	2.201E-14	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	3.436E-20	5.097E-19	5.801E-18	1.406E-16	2.661E-15	3.927E-14	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	2.484E-25	7.584E-24	1.847E-22	1.277E-20	6.411E-19	2.434E-17	0.000E+00	0.000E+00
U-238+D	Po-210	9.999E-01	1.349E-26	6.793E-25	2.458E-23	2.322E-21	1.320E-19	5.310E-18	0.000E+00	0.000E+00
U-238+D	∑DSR(j)		1.280E-06	1.257E-06	1.212E-06	1.067E-06	7.406E-07	2.036E-07	0.000E+00	0.000E+00

The DSR includes contributions from associated (half-life ≤ 30 days) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	1.007E+06	1.087E+06	1.266E+06	2.156E+06	9.882E+06	2.051E+09	*7.232E+13	*7.232E+13
Pa-231	6.580E+06	5.573E+06	4.416E+06	3.056E+06	2.857E+06	8.781E+06	*4.723E+10	*4.723E+10
Pb-210	2.584E+08	2.499E+08	2.674E+08	3.539E+08	7.889E+08	1.307E+10	*7.634E+13	*7.634E+13
Ra-226	3.340E+05	3.387E+05	3.482E+05	3.839E+05	5.078E+05	1.386E+06	*9.885E+11	*9.885E+11
Ra-228	5.134E+05	4.281E+05	4.037E+05	7.463E+05	1.022E+07	1.259E+11	*2.726E+14	*2.726E+14
Th-228	4.476E+05	6.437E+05	1.331E+06	1.693E+07	2.426E+10	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	4.751E+07	4.478E+07	4.024E+07	3.022E+07	1.911E+07	1.172E+07	*2.018E+10	*2.018E+10
Th-232	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05	*1.097E+05
U-234	1.224E+08	1.246E+08	1.291E+08	1.461E+08	2.079E+08	7.046E+08	*6.247E+09	*6.247E+09
U-235	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06	*2.161E+06
U-238	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05	*3.361E+05

*At specific activity limit

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Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Ac-227	1.870E+01	0.000E+00	2.482E-05	1.007E+06	2.482E-05	1.007E+06
Pa-231	1.870E+01	20.55 ± 0.04	9.173E-06	2.725E+06	3.799E-06	6.580E+06
Pb-210	2.125E+03	0.732 ± 0.001	1.003E-07	2.493E+08	9.676E-08	2.584E+08
Ra-226	2.125E+03	0.000E+00	7.485E-05	3.340E+05	7.485E-05	3.340E+05
Ra-228	7.069E+02	2.431 ± 0.005	6.238E-05	4.008E+05	4.870E-05	5.134E+05
Th-228	7.069E+02	0.000E+00	5.585E-05	4.476E+05	5.585E-05	4.476E+05
Th-230	1.300E+04	140.5 ± 0.3	2.232E-06	1.120E+07	5.262E-07	4.751E+07
Th-232	7.069E+02	37.92 ± 0.08	9.559E-05	*1.097E+05	5.314E-06	*1.097E+05
U-234	4.110E+02	0.000E+00	2.042E-07	1.224E+08	2.042E-07	1.224E+08
U-235	1.870E+01	0.000E+00	6.230E-06	*2.161E+06	6.230E-06	*2.161E+06
U-238	4.110E+02	0.000E+00	1.280E-06	*3.361E+05	1.280E-06	*3.361E+05

*At specific activity limit

RESRAD, Version 6.5 T½ Limit = 30 days 09/18/2013 11:24 Page 25
Summary : SU06 VCP Elevated Area Excavation
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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	Ac-227	1.000E+00	4.642E-04	4.301E-04	3.694E-04	2.168E-04	4.731E-05	2.279E-07	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	7.437E-06	2.140E-05	4.559E-05	9.981E-05	1.265E-04	4.273E-05	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	5.262E-11	3.568E-10	1.756E-09	1.221E-08	5.230E-08	7.563E-08	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		4.716E-04	4.515E-04	4.150E-04	3.167E-04	1.739E-04	4.303E-05	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	6.361E-05	6.248E-05	6.027E-05	5.316E-05	3.712E-05	1.051E-05	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	6.709E-10	1.981E-09	4.462E-09	1.181E-08	2.396E-08	2.237E-08	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		6.361E-05	6.248E-05	6.028E-05	5.317E-05	3.714E-05	1.053E-05	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	1.834E-04	1.762E-04	1.626E-04	1.228E-04	5.506E-05	3.315E-06	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	2.857E-06	8.370E-06	1.854E-05	4.629E-05	8.083E-05	5.321E-05	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	2.535E-09	1.747E-08	8.925E-08	7.075E-07	4.291E-06	1.763E-05	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	1.802E-16	2.662E-15	3.002E-14	7.046E-13	1.226E-11	1.495E-10	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	1.021E-22	3.117E-21	7.591E-20	5.250E-18	2.635E-16	1.000E-14	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		1.863E-04	1.846E-04	1.812E-04	1.698E-04	1.402E-04	7.415E-05	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	2.224E-05	3.642E-05	3.607E-05	2.731E-05	1.228E-05	7.483E-07	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	2.623E-07	1.238E-06	3.472E-06	9.705E-06	1.757E-05	1.183E-05	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	1.885E-10	2.089E-09	1.462E-08	1.406E-07	9.129E-07	3.879E-06	0.000E+00	0.000E+00
Po-210	U-234	1.000E+00	1.130E-17	2.714E-16	4.401E-15	1.338E-13	2.567E-12	3.276E-11	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	5.544E-24	2.792E-22	1.010E-20	9.543E-19	5.425E-17	2.182E-15	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		2.251E-05	3.766E-05	3.956E-05	3.716E-05	3.077E-05	1.646E-05	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	1.591E-01	1.569E-01	1.525E-01	1.384E-01	1.045E-01	3.827E-02	0.000E+00	0.000E+00
Ra-226	Th-230	1.000E+00	2.112E-04	6.294E-04	1.447E-03	4.126E-03	1.038E-02	2.110E-02	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	1.997E-11	1.384E-10	7.162E-10	5.933E-09	4.022E-08	2.083E-07	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	1.412E-17	2.095E-16	2.384E-15	5.780E-14	1.094E-12	1.614E-11	0.000E+00	0.000E+00
Ra-226	∑DOSE(j)		1.593E-01	1.575E-01	1.540E-01	1.425E-01	1.149E-01	5.937E-02	0.000E+00	0.000E+00
Ra-228	Ra-228	1.000E+00	2.718E-02	2.377E-02	1.818E-02	7.116E-03	4.873E-04	4.003E-08	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	1.674E-03	4.738E-03	9.753E-03	1.962E-02	2.517E-02	2.356E-02	0.000E+00	0.000E+00
Ra-228	∑DOSE(j)		2.885E-02	2.851E-02	2.793E-02	2.674E-02	2.565E-02	2.356E-02	0.000E+00	0.000E+00
Th-228	Ra-228	1.000E+00	7.247E-03	1.752E-02	2.560E-02	1.656E-02	1.241E-03	1.004E-07	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	3.948E-02	2.745E-02	1.328E-02	1.044E-03	7.283E-07	6.372E-18	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	3.032E-04	1.852E-03	7.288E-03	2.624E-02	4.017E-02	3.736E-02	0.000E+00	0.000E+00
Th-228	∑DOSE(j)		4.703E-02	4.682E-02	4.616E-02	4.385E-02	4.141E-02	3.736E-02	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	6.629E-03	6.629E-03	6.628E-03	6.627E-03	6.623E-03	6.611E-03	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	9.377E-10	2.791E-09	6.401E-09	1.807E-08	4.444E-08	8.840E-08	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	8.835E-16	6.122E-15	3.163E-14	2.608E-13	1.749E-12	9.047E-12	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		6.629E-03	6.629E-03	6.628E-03	6.627E-03	6.624E-03	6.611E-03	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	1.779E-03	1.779E-03	1.779E-03	1.779E-03	1.778E-03	1.776E-03	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	8.394E-05	8.247E-05	7.960E-05	7.032E-05	4.935E-05	1.429E-05	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	1.186E-10	3.503E-10	7.895E-10	2.093E-09	4.267E-09	4.071E-09	0.000E+00	0.000E+00
U-234	∑DOSE(j)		8.395E-05	8.247E-05	7.960E-05	7.032E-05	4.935E-05	1.429E-05	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	1.165E-04	1.144E-04	1.104E-04	9.725E-05	6.776E-05	1.899E-05	0.000E+00	0.000E+00

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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238	U-238	5.400E-05	4.006E-09	3.936E-09	3.799E-09	3.356E-09	2.356E-09	6.822E-10	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	5.262E-04	5.167E-04	4.982E-04	4.386E-04	3.044E-04	8.367E-05	0.000E+00	0.000E+00
U-238	∑DOSE(j)		5.262E-04	5.167E-04	4.982E-04	4.386E-04	3.044E-04	8.367E-05	0.000E+00	0.000E+00

THF(i) is the thread fraction of the parent nuclide.

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Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ac-227	Ac-227	1.000E+00	1.870E+01	1.733E+01	1.490E+01	8.761E+00	1.923E+00	9.531E-03	2.476E-09	2.213E-32
Ac-227	Pa-231	1.000E+00	0.000E+00	5.682E-01	1.554E+00	3.782E+00	4.967E+00	1.736E+00	5.027E-02	2.056E-07
Ac-227	U-235	1.000E+00	0.000E+00	6.069E-06	5.076E-05	4.387E-04	2.013E-03	3.055E-03	3.017E-04	4.320E-09
Ac-227	∑S(j):		1.870E+01	1.790E+01	1.645E+01	1.254E+01	6.893E+00	1.749E+00	5.058E-02	2.099E-07
Pa-231	Pa-231	1.000E+00	1.870E+01	1.837E+01	1.773E+01	1.566E+01	1.099E+01	3.177E+00	9.174E-02	3.752E-07
Pa-231	U-235	1.000E+00	0.000E+00	3.887E-04	1.126E-03	3.314E-03	6.977E-03	6.730E-03	5.842E-04	8.022E-09
Pa-231	∑S(j):		1.870E+01	1.837E+01	1.773E+01	1.567E+01	1.099E+01	3.184E+00	9.232E-02	3.832E-07
Pb-210	Pb-210	1.000E+00	2.125E+03	2.042E+03	1.885E+03	1.425E+03	6.410E+02	3.911E+01	1.324E-02	9.463E-15
Pb-210	Ra-226	1.000E+00	0.000E+00	6.433E+01	1.831E+02	5.082E+02	9.187E+02	6.188E+02	4.839E+01	5.062E-03
Pb-210	Th-230	1.000E+00	0.000E+00	8.599E-02	7.473E-01	7.359E+00	4.775E+01	2.030E+02	3.232E+02	3.275E+02
Pb-210	U-234	1.000E+00	0.000E+00	8.158E-09	2.126E-07	6.971E-06	1.343E-04	1.714E-03	4.890E-03	5.272E-03
Pb-210	U-238	9.999E-01	0.000E+00	5.781E-15	4.521E-13	4.937E-11	2.838E-09	1.142E-07	6.902E-07	8.453E-07
Pb-210	∑S(j):		2.125E+03	2.106E+03	2.069E+03	1.941E+03	1.607E+03	8.609E+02	3.716E+02	3.276E+02
Po-210	Pb-210	1.000E+00	0.000E+00	1.686E+03	1.831E+03	1.389E+03	6.249E+02	3.813E+01	1.291E-02	9.225E-15
Po-210	Ra-226	1.000E+00	0.000E+00	3.430E+01	1.460E+02	4.658E+02	8.728E+02	5.941E+02	4.651E+01	4.866E-03
Po-210	Th-230	1.000E+00	0.000E+00	3.466E-02	5.114E-01	6.380E+00	4.438E+01	1.930E+02	3.085E+02	3.127E+02
Po-210	U-234	1.000E+00	0.000E+00	2.665E-09	1.282E-07	5.760E-06	1.227E-04	1.623E-03	4.666E-03	5.032E-03
Po-210	U-238	9.999E-01	0.000E+00	1.592E-15	2.441E-13	3.897E-11	2.551E-09	1.076E-07	6.580E-07	8.069E-07
Po-210	∑S(j):		0.000E+00	1.720E+03	1.978E+03	1.862E+03	1.542E+03	8.252E+02	3.550E+02	3.127E+02
Ra-226	Ra-226	1.000E+00	2.125E+03	2.098E+03	2.043E+03	1.864E+03	1.435E+03	5.738E+02	4.183E+01	4.375E-03
Ra-226	Th-230	1.000E+00	0.000E+00	5.595E+00	1.657E+01	5.278E+01	1.397E+02	3.135E+02	4.194E+02	4.208E+02
Ra-226	U-234	1.000E+00	0.000E+00	7.932E-07	6.994E-06	7.237E-05	5.333E-04	3.086E-03	6.460E-03	6.772E-03
Ra-226	U-238	9.999E-01	0.000E+00	7.481E-13	1.972E-11	6.711E-10	1.428E-08	2.381E-07	9.401E-07	1.086E-06
Ra-226	∑S(j):		2.125E+03	2.103E+03	2.060E+03	1.917E+03	1.575E+03	8.873E+02	4.612E+02	4.208E+02
Ra-228	Ra-228	1.000E+00	7.069E+02	6.187E+02	4.740E+02	1.866E+02	1.300E+01	1.159E-03	3.119E-15	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	7.978E+01	2.107E+02	4.708E+02	6.277E+02	6.388E+02	6.369E+02	6.304E+02
Ra-228	∑S(j):		7.069E+02	6.985E+02	6.848E+02	6.574E+02	6.407E+02	6.388E+02	6.369E+02	6.304E+02
Th-228	Ra-228	1.000E+00	0.000E+00	2.004E+02	3.726E+02	2.652E+02	2.053E+01	1.833E-03	4.931E-15	0.000E+00
Th-228	Th-228	1.000E+00	7.069E+02	4.920E+02	2.384E+02	1.887E+01	1.345E-02	1.299E-13	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.312E+01	8.676E+01	3.826E+02	6.209E+02	6.388E+02	6.369E+02	6.304E+02
Th-228	∑S(j):		7.069E+02	7.055E+02	6.978E+02	6.667E+02	6.415E+02	6.388E+02	6.369E+02	6.304E+02
Th-230	Th-230	1.000E+00	1.300E+04	1.300E+04	1.300E+04	1.300E+04	1.299E+04	1.297E+04	1.291E+04	1.269E+04
Th-230	U-234	1.000E+00	0.000E+00	3.667E-03	1.081E-02	3.390E-02	8.608E-02	1.731E-01	2.067E-01	2.043E-01
Th-230	U-238	9.999E-01	0.000E+00	5.183E-09	4.556E-08	4.664E-07	3.338E-06	1.766E-05	3.227E-05	3.276E-05
Th-230	∑S(j):		1.300E+04	1.300E+04	1.300E+04	1.300E+04	1.299E+04	1.297E+04	1.291E+04	1.269E+04
Th-232	Th-232	1.000E+00	7.069E+02	7.069E+02	7.069E+02	7.068E+02	7.066E+02	7.059E+02	7.038E+02	6.965E+02
U-234	U-234	1.000E+00	4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.416E+02	6.996E+01	2.027E+00	8.398E-06
U-234	U-238	9.999E-01	0.000E+00	1.145E-03	3.315E-03	9.761E-03	2.055E-02	1.984E-02	1.725E-03	2.384E-08
U-234	∑S(j):		4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.417E+02	6.998E+01	2.029E+00	8.422E-06
U-235	U-235	1.000E+00	1.870E+01	1.837E+01	1.773E+01	1.567E+01	1.099E+01	3.184E+00	9.232E-02	3.832E-07

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Summary : SU06 VCP Elevated Area Excavation
File : C:\RESRAD_FAMILY\RESRAD\USERFILES\SU06 VCP EXCAVATION.RAD

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-238	U-238	5.400E-05	2.219E-02	2.180E-02	2.105E-02	1.859E-02	1.305E-02	3.779E-03	1.096E-04	4.548E-10
U-238	U-238	9.999E-01	4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.416E+02	6.998E+01	2.029E+00	8.422E-06
U-238	∑S(j):		4.110E+02	4.038E+02	3.897E+02	3.443E+02	2.417E+02	6.998E+01	2.029E+00	8.422E-06

THF(i) is the thread fraction of the parent nuclide.

RESCALC.EXE execution time = 1.50 seconds