Phase II Final Status Survey Report
Mallinckrodt Columbium-Tantalum Plant

St. Louis, Missouri

Chapter 18

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ABBREVIATIONS AND ACRONYMS

%	percent
σ	sigma; standard deviation
AECOM	AECOM Technical Services
bgs	below grade surface
C-T	columbium-tantalum
CFR	Code of Federal Regulations
cm	centimeter
cpm	counts per minute
DCGL	derived concentration guideline level
DP	decommissioning plan
DQO	data quality objectives
EMC	elevated measurement comparison
Energy*Solutions*	Energy*Solutions*, LLC
FSS	Final Status Survey
FSSR	Final Status Survey Report
ft	feet or foot
GPS	global positioning system
GWS	gamma walkover 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
NaI	sodium iodide
NIST	National Institute of Standards and Technology
NRC	U.S. Nuclear Regulatory Commission
pCi/g	picoCuries per gram
Ra	radium
SOF	sum of fractions
Th	thorium
U	uranium
WRS	Wilcoxon Rank Sum

18.0 RESULTS SUMMARY FOR PLANT 5 SUBSURFACE SU12

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 SU12 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 Energy*Solutions* in January 2013. The SU12 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.

18.1 OVERVIEW

SU12 is a Class 1 survey unit located in the central portion of C-T Plant 5 in front of Buildings 215 and 236 within the 7th street alley. The survey unit is approximately 701 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 Level ($DCGL_W$) prior to remediation. Figure 18-1 shows the location of SU12 within the Plant 5 area. Figure 18-2 provides features within the survey unit as well as the approximate locations and directions of photographs taken and presented in this section to facilitate the text.

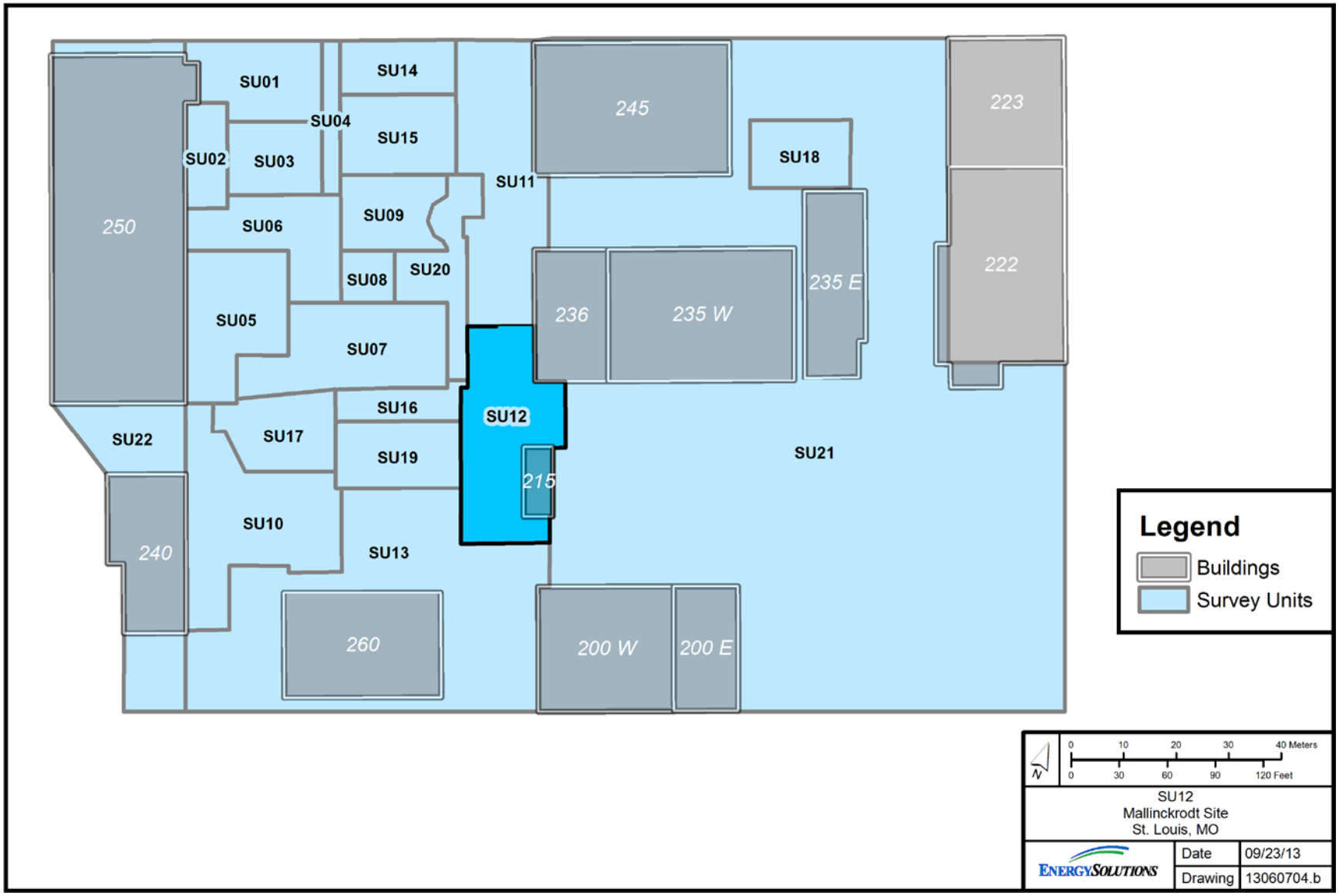

Figure 18-1 Location of Subsurface SU12 in C-T Plant 5

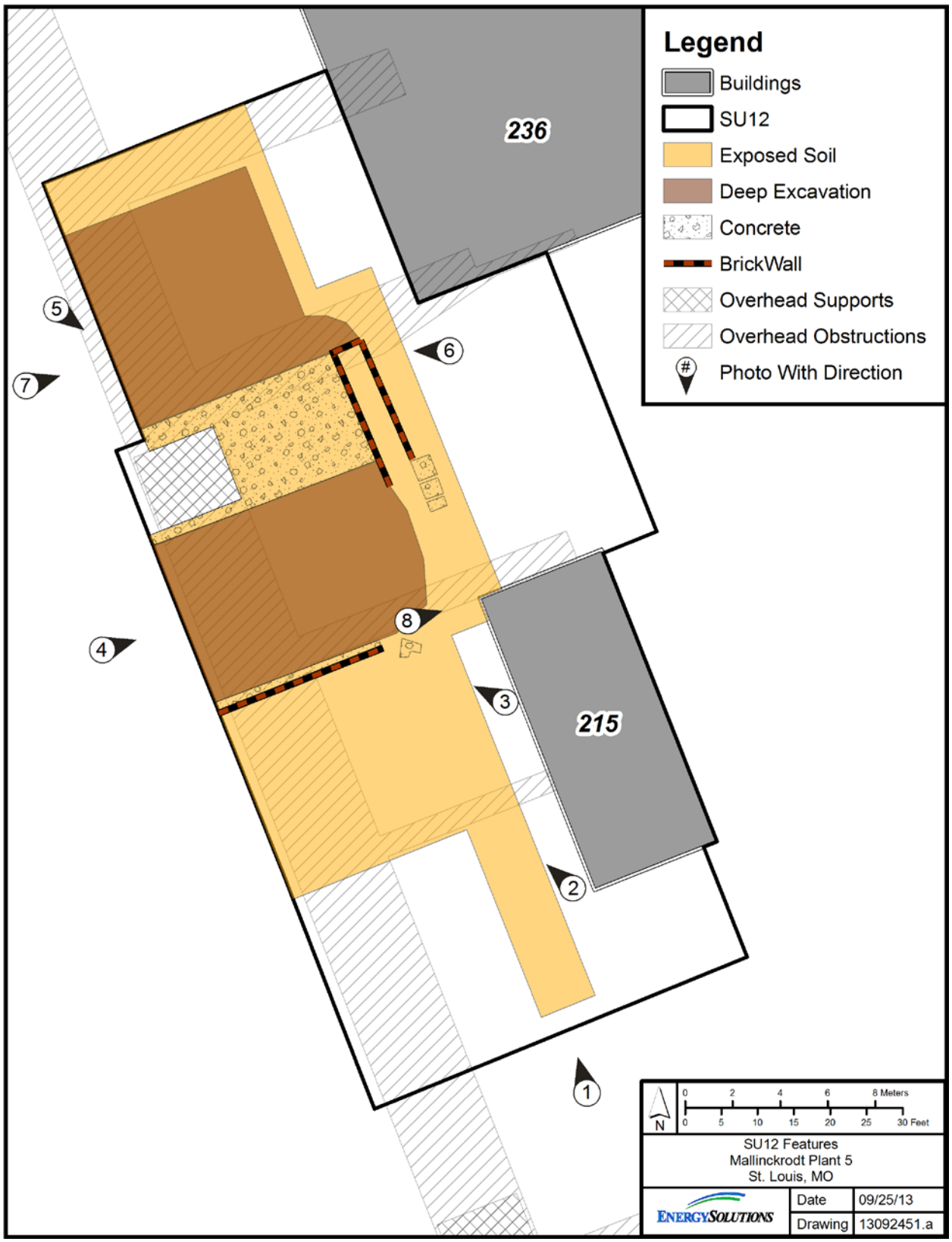

Figure 18-2 SU12 Feature Diagram

SU12 is bounded on the west by SU13, SU16, SU19, and SU20; the south by SU13; the east by SU21; and, the north by SU11. Soil and related debris were removed from the area to an excavated depth of approximately 14 to 16 feet (ft) below grade surface (bgs) around the vertical pipe stand. This depth corresponds to the relatively impermeable clay layer found at that depth with shallower excavation performed at the south end of the survey unit as shown in the following figures. Figure 18-3 through Figure 18-9 are photographs of the SU12 general excavation that were taken during remediation and FSS with the approximate position and orientation from which the photographs were taken as provided on Figure 18-2.

Figure 18-3 (photograph 1) was taken looking northward along the 7th street alley in front of Building 215 from the south end of the survey unit and Figure 18-4 (photograph 2) was taken looking northwest in front of Building 215 with Building 250 in the background. Surface cracks in the pavement were removed in front of Building 215 along with shallow contamination to a depth of about 1 to 4 ft bgs.

Figure 18-3 Photograph (1) of SU12 Looking along 7th Street Alley (North View)

Figure 18-4 Photograph (2) of SU12 South of Vertical Pipe Stand (Northwest View)

The vertical pipe stand continued to support active plant operations and remained in place along the east boundary of the survey unit as shown in Figure 18-2 and Figure 18-5 (photograph 3). The pipe stand measured approximately 12 ft by 15 ft wide and 6 ft deep, constructed of poured concrete within a timber form sitting atop historical brick structural material and concrete as well as soil consisting of ash, cinder, and clay. Four I-beams driven to bedrock support the structure. Figure 18-5, as taken from the northwest corner of Building 215 looking to the northwest, shows the vertical pipe stand and the deep excavation directly to the south including the concrete pad found about 10 ft bgs.

Figure 18-6 (photograph 4), as taken from the east side of the survey unit south of the vertical pipe stand looking east, shows the deep excavation during remediation as excavated to a depth of 14 to 16 ft bgs. The gray clay layer can be seen in the figure along with historical building materials including old brick walls, concrete pads and monolithic concrete structures. Figure 18-7 (photograph 5), as taken from north of the vertical pipe stand looking southeast, shows more of the subsurface structures located directly east of the pipe stand between Buildings 215 and 236. Also shown in the two figures is a 10-inch cast iron pipe of unknown origin that was also left in place. Because of the proximity of the vertical pipe stand and buildings, these subsurface structures were not removed.

Figure 18-5 Photograph (3) of SU12 South of Vertical Pipe Stand (Northwest View)

Figure 18-6 Photograph (4) of SU12 South of Vertical Pipe Stand (East View)

Figure 18-7 Photograph (5) of SU12 Subsurface Structures (Southeast View)

Figure 18-8 (photograph 6) and Figure 18-9 (photograph 7) show the deep excavation north of the vertical pipe stand. Figure 18-8 was taken from between Buildings 215 and 236 looking northwest while Figure 18-9 was taken from the east side of the survey unit north of the vertical pipe stand looking east. The area was excavated to a depth of 14 to 16 ft bgs into AECOM grid F6 where it then sloped upward to the north boundary of the survey unit.

Figure 18-8 Photograph (6) of SU12 North of Vertical Pipe Stand (Northwest View)

Figure 18-9 Photograph (7) of SU12 North of Vertical Pipe Stand (East View)

18.2 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. FSS data as collected for SU12 is summarized as follows:

18.2.1 Gamma Scans

Gamma walkover surveys (GWS) were performed where possible over the entire excavation using a 2-inch by 2-inch NaI detector. Due to the proximity to steep walls at the edge of the excavation, overhead structures and the depth of excavation interfering with satellite reception, GPS data logging was not performed over the majority of the survey unit. The only area of SU12 where satellite reception was adequate was at the south end of the survey unit; otherwise, a 1-meter (m) grid system was established where possible and a count per minute (cpm) reading recorded for each grid. For areas where an established grid could not be used, general area surveys were performed and documented including the deepest parts of the excavation due to the constant influx of groundwater and logistics. The locations of the Energy*Solutions* surveys as performed for SU12 are provided in Figure 18-10.

Energy*Solutions* survey #0444, provided in Figure 18-11, shows the gamma scan survey data for the bottom of the deep excavation directly south of the vertical pipe stand including the exposed walls of the vertical pipe stand (see Figure 18-5 and Figure 18-6). A subsurface slab of concrete was identified at approximately 10 feet bgs as depicted in the survey and as shown in the photographs. Gamma readings ranged between 20,000 to 40,000 cpm over the bottom of the excavation (12 to 16 ft bgs) and on the soils under the concrete slab. Soils directly under the vertical pipe stand between the concrete slab and the pile cap (6 to 10 ft bgs) ranged between 17,000 to 322,000 cpm with the highest readings located at the northeast corner.

Energy*Solutions* survey #0452, provided in Figure 18-12, shows the gamma scan survey data for the south and east walls along the deepest part of the excavation south of the vertical pipe stand between the 2 and 4 meter depths (see Figure 18-6 and Figure 18-7). Historical structural materials were identified including brick walls, monolithic concrete and a 10-inch cast iron pipe as shown in the figures. The walls were gridded into a 1-meter grid and gamma readings recorded. The gamma scan data ranged between 14,000 to 48,000 cpm with the highest readings directly above the subsurface concrete slab due to geometry and contribution from soils under the concrete.

Energy*Solutions* survey #0453, provided in Figure 18-13, shows the gamma walkover survey data (GPS data logging) for the south end of the survey unit (see Figure 18-3 and Figure 18-4). Satellite reception was adequate for most of the area to the south; however, there was some error with accuracy and drifting, particularly the further east due to the proximity to Building 215 and increased overhead obstructions. The GWS was performed over both the exposed soil of the general excavation and the remaining asphalt. The recorded survey results ranged from 3,180 to 18,300 cpm with a mean of 8,020 cpm and a median of 7,560 cpm for asphalt. The recorded

survey results within the excavation over soil ranged from 3,060 to 20,460 cpm with a mean of 13,020 cpm and a median of 12,840 cpm.

Energy*Solutions* survey #0483, provided in Figure 18-14, shows the gamma scan survey data for the valve pit area near the northwest corner of Building 215 between the depths of 0 to 2 meters. Gamma readings ranged between 17,150 to 34,750 cpm over the exposed face of the excavation.

Energy*Solutions* survey #0492, provided in Figure 18-15, shows the gamma scan survey data for the bottom of the excavation directly north of the vertical pipe stand (see Figure 18-8 and Figure 18-9). Gamma readings ranged between 14,000 to 47,000 cpm over the bottom of the excavation (12 to 16 ft bgs) and on the soils under the concrete slab.

The balance of SU12 not highlighted in Figure 18-10 was surveyed using a 2-inch by 2-inch NaI detector; however, the survey was not documented. This included the area of SU12 that was not excavated near Building 236 (northeast corner of SU12) and the area between Building 236 and 215 including the upper portion of the excavation. No readings above the field action or investigation limit were identified.

Upon backfill of SU12, the Nuclear Regulatory Commission (NRC) performed a site inspection on March 15, 2013 and surveyed areas throughout SU11 and SU12. An area at the northeast corner of Building 215 was identified with gamma readings of approximately 55,000 cpm that required additional investigation. This area as identified by the NRC is provided as Figure 18-16 (photograph 8) and Figure 18-17. This area was sampled as discussed in Section 18.2.2

Based upon the survey data results as presented, biased sample locations were selected for analysis. Sample ID's have been included as part of the surveys as shown in the following figures and their results presented in Section 18.2.2.

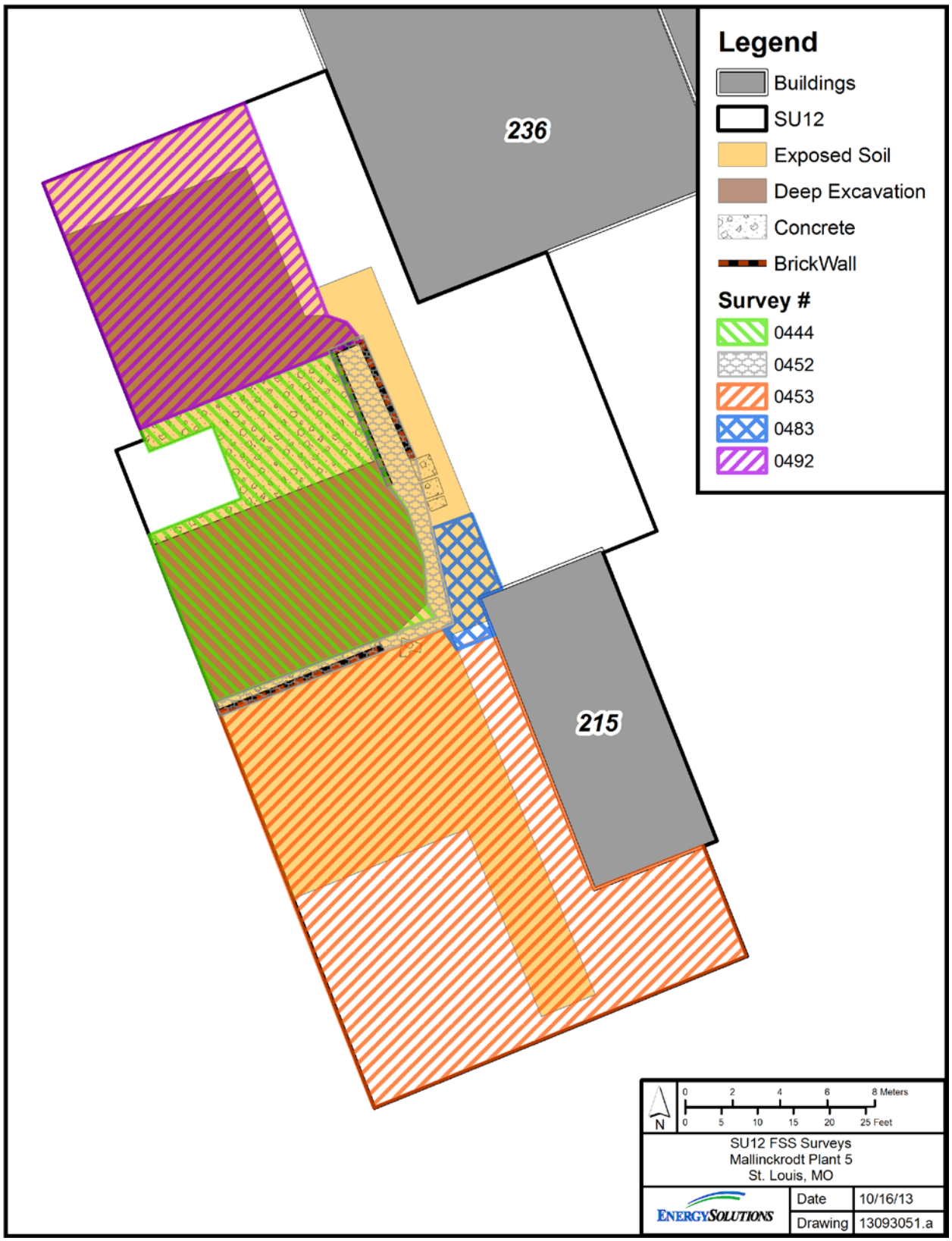

Figure 18-10 SU12 Survey Diagram

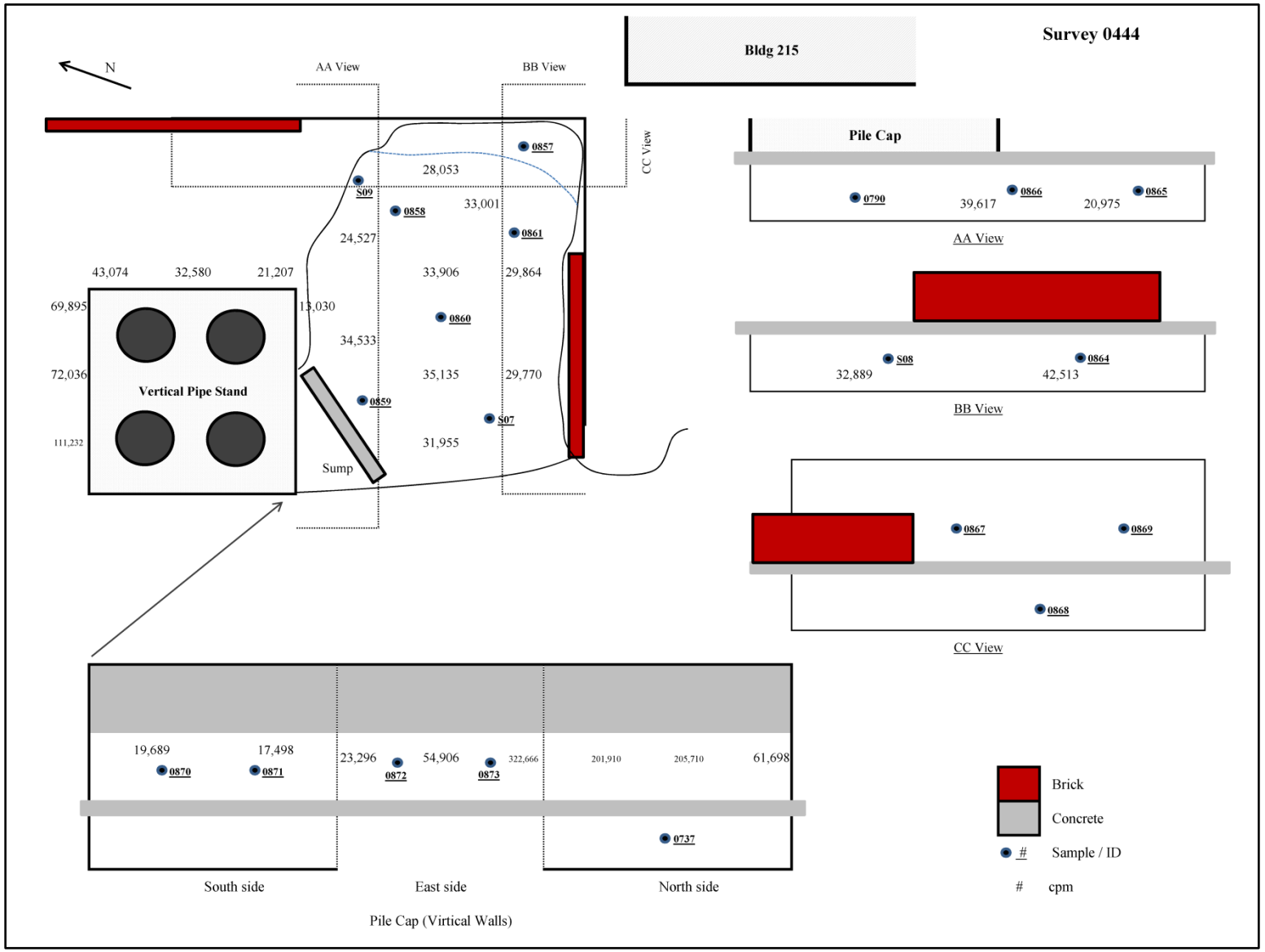

Figure 18-11 Survey 0444 Deep Excavation South of the Vertical Pipe Stand (5-meter Depth) and Pipe Stand Walls

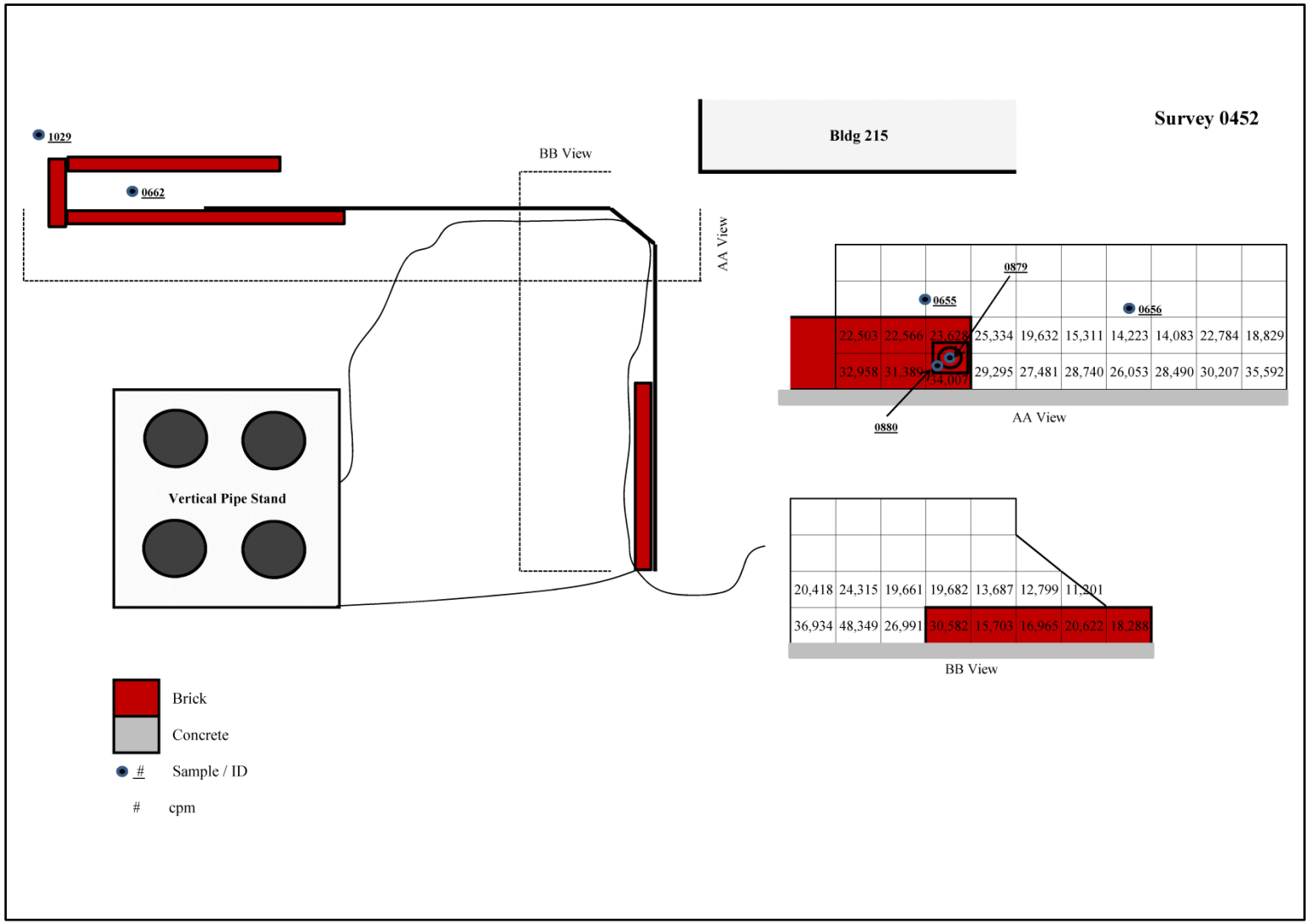

Figure 18-12 Survey 0452 Deep Excavation South of the Vertical Pipe Stand (2 to 4-meter Depth)

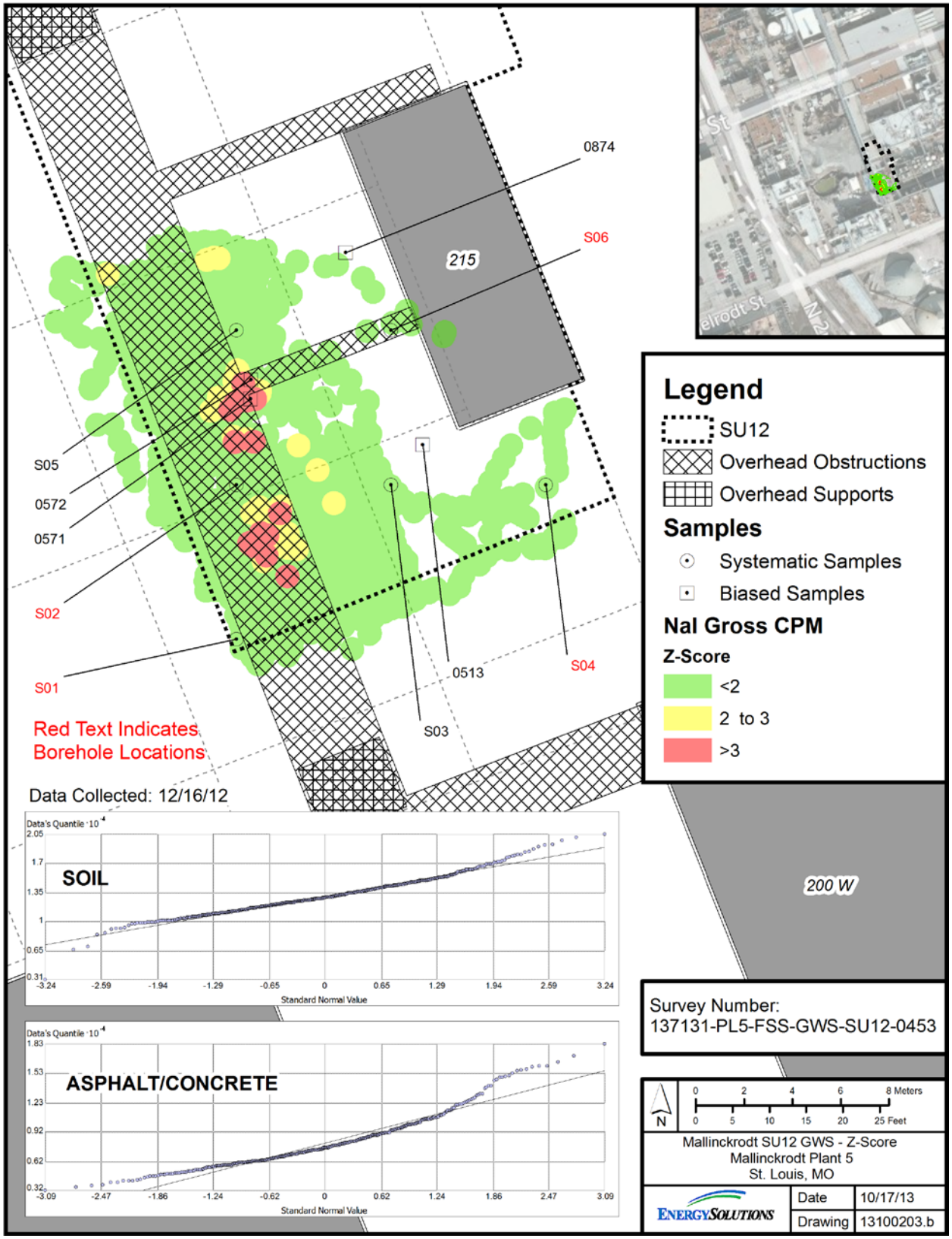

Figure 18-13 Survey 0453 South End of SU12

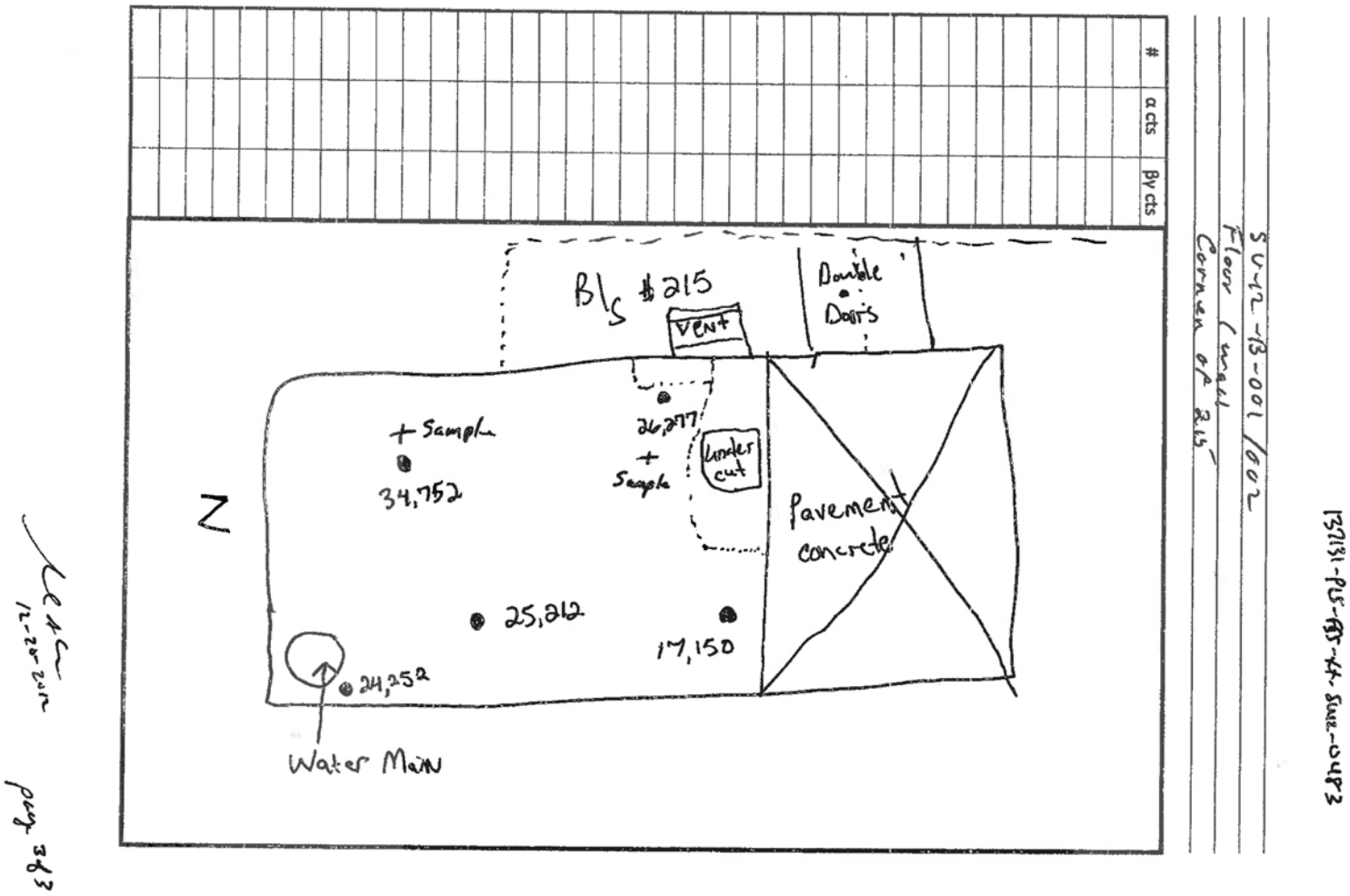

Figure 18-14 Survey 0483 Valve Pit Area Northwest Corner of Building 215

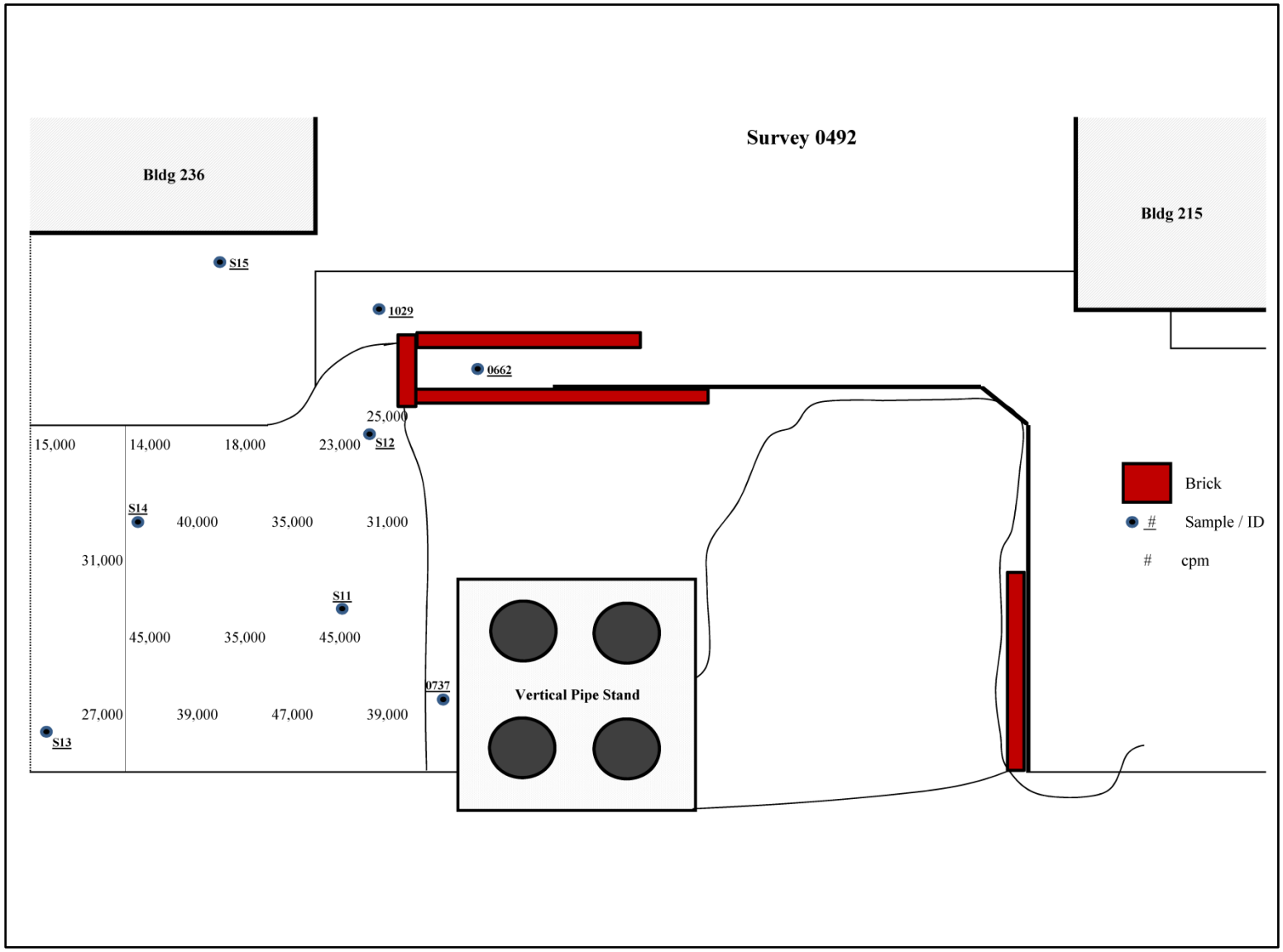

Figure 18-15 Survey 0492 Deep Excavation North of the Vertical Pipe Stand (2 to 5-meter Depth)

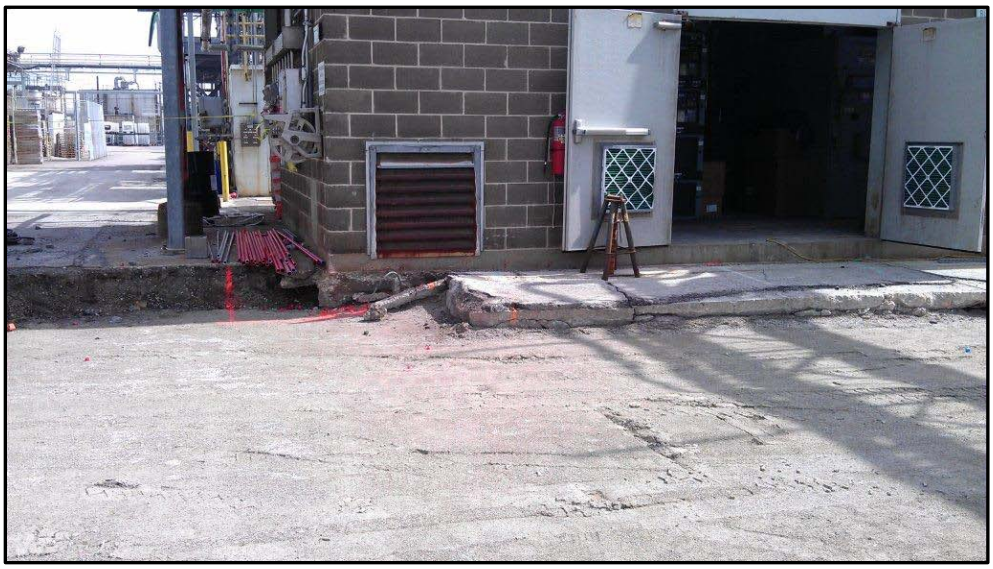

Figure 18-16 Photograph (8) of SU12 NW Corner of Building 215 (East View)

Figure 18-17 NW Corner of Building 215 (Elevated Area)

18.2.2 Soil Sampling

Soil samples to be used for the statistical testing were collected at a frequency and at representative locations throughout SU12 such that a statistically sound conclusion regarding the radiological condition of the survey unit could be developed. Biased soil samples were also collected at locations of elevated readings as identified by gamma scans. The FSS soil sampling locations are provided on Figure 18-18. Samples within the excavation and exposed soil consisted of 30-centimeter (cm) surface samples. Samples outside the excavation consisted of the top 1-meter composite from the core bore samples as footnoted in the data tables and as shown in the figures in red text.

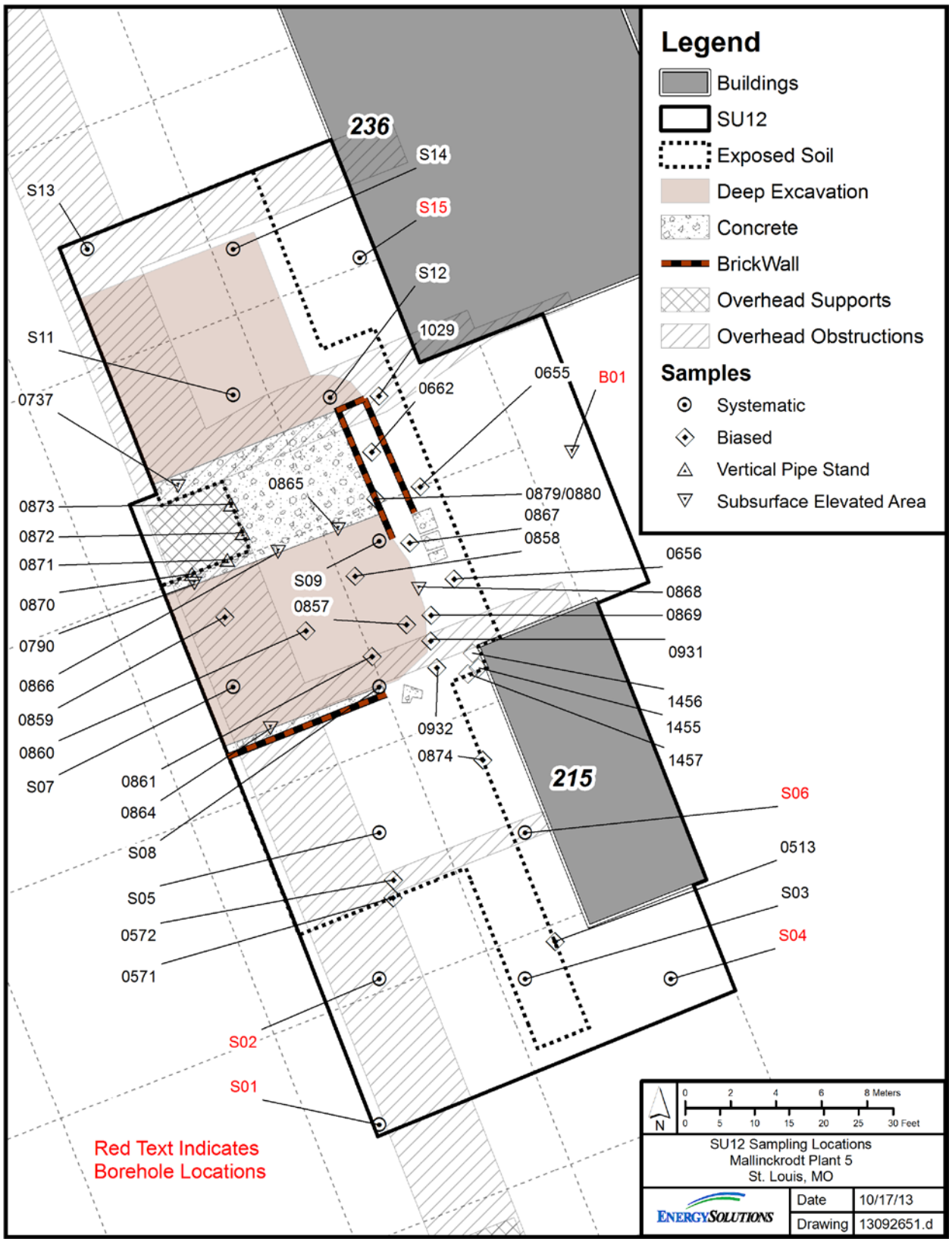

Figure 18-18 Soil Sampling Locations

All soil samples were analyzed on site via gamma spectroscopy analysis. 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 sum of fractions (SOF) values for the individual sample results—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.

18.2.2.1 General Excavation

A total of 33 (14 systematic and 19 biased) soil samples were collected over the areal footprint of SU12 during remediation including two samples that were taken from the 10-inch cast iron pipe located in the brick wall east of the vertical pipe stand as shown in Figure 18-7. The 15th systematic sample location, systematic sample location 10, was not collected due to obstructions and supports for overhead piping. Table 18-1 provides the sample results and summary statistics for the 14 systematic samples and Table 18-2 provides the sample results for the 19 biased samples.

Additional biased samples were also collected as shown in Figure 18-18 for areas of identified elevated activity as discussed in Sections 18.2.2.2 through 18.2.2.4.

18.2.2.2 Vertical Pipe Stand

During remediation, a subsurface slab was identified at approximately 10 ft bgs in the vicinity of the vertical pipe stand. The soils were excavated around the pipe stand down to the subsurface slab; however the soils between the pile cap of the vertical pipe stand and the subsurface slab were left in place. Elevated gamma readings were observed on this material as shown as part of Energy*Solutions* survey #0444, Figure 18-11, particularly along the east and north faces of the vertical pipe stand with the highest readings from the northeast corner. Four (4) biased samples were collected, 2 from the south face and 2 from the east face as shown on Figure 18-11 and Figure 18-18. Table 18-3 provides the sample results for these 4 samples.

Table 18-1 Gamma Spectroscopy Systematic Sample Analytical Results

Loc.	Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
			Activity Concentration (pCi/g)									SOF [c]		Activity Concentration (pCi/g) [b]								SOF [c]		
			^{232}Th			^{226}Ra			^{238}U					^{232}Th			^{226}Ra			^{238}U					
			Result	Unc. (2σ)	MDC	Result	Unc. (2σ)	MDC	Result	Unc. (2σ)	MDC	Gross	Net [d]	Result	Unc. (2σ)	MDC	Result	Unc. (2σ)	MDC	Result	Unc. (2σ)	MDC	Gross	Net [d]	
S01	0445	0 [e]	1.28	0.29	0.13	3.44	1.32	0.95	4.12	0.72	0.69	0.18	0.03	1.32	0.27	0.15	2.33	0.34	0.12	5.34	1.89	2.01	0.14	0.00	1.24
S02	0457	0 [e]	2.58	0.42	0.25	13.10	2.14	1.36	4.11	1.05	0.94	**0.56**	0.41	2.06	0.52	0.41	10.70	1.25	0.27	6.67	3.69	4.30	0.46	0.31	1.22
S03	0876	3	1.70	0.43	0.16	4.12	1.66	1.20	3.25	0.80	0.84	0.22	0.07	1.60	0.53	0.35	4.60	0.70	0.24	4.25	1.45	3.78	0.23	0.08	0.94
S04	0449	0 [e]	1.94	0.37	0.09	6.00	1.57	1.10	4.85	0.82	0.85	0.29	0.15	1.41	0.31	0.21	4.45	0.61	0.22	6.86	2.60	2.98	0.22	0.07	1.33
S05	0877	3	1.22	0.25	0.10	1.06	0.72	0.54	1.39	0.54	0.48	0.09	0.00	1.51	0.32	0.19	1.21	0.25	0.16	*1.14*	0.62	2.24	0.11	0.01	0.84
S06	0435	0 [e]	3.15	0.47	0.25	15.37	2.18	1.28	4.03	1.06	0.92	**0.66**	**0.52**	3.36	0.61	0.45	10.30	1.26	0.28	4.83	2.78	3.78	0.50	0.35	1.33
S07	0862	16	1.29	0.26	0.10	3.88	1.12	0.77	3.04	0.53	0.56	0.19	0.05	1.87	0.41	0.30	2.86	0.46	0.24	3.76	2.67	3.34	0.18	0.04	1.05
S08	0863	14	7.65	0.94	0.47	37.56	5.06	3.46	44.43	3.03	2.20	**1.66**	**1.51**	7.99	1.15	0.85	29.20	3.22	0.62	59.40	9.78	8.32	**1.41**	**1.26**	1.18
S09	0858	16	1.54	0.31	0.09	3.98	1.26	0.88	4.52	0.77	0.73	0.21	0.06	1.66	0.57	0.66	3.71	0.71	0.35	*3.75*	1.61	4.31	0.20	0.06	1.03
S11	1025	15	2.23	0.38	0.19	21.09	2.62	1.43	10.19	1.23	1.09	**0.82**	**0.68**	2.25	0.48	0.53	17.40	1.99	0.32	9.32	2.02	5.24	**0.70**	**0.55**	1.18
S12	1026	15	4.24	0.47	0.21	18.95	2.19	1.19	7.20	1.11	1.08	**0.83**	**0.69**	4.16	0.90	0.70	13.30	1.65	0.36	6.63	1.92	5.01	**0.64**	0.49	1.31
S13	1103	6	6.19	0.71	0.33	21.46	2.61	1.56	4.80	0.98	1.10	**1.00**	**0.85**	6.95	1.19	0.86	23.40	2.68	0.49	*5.08*	2.10	7.05	**1.09**	**0.95**	0.91
S14	1028	15	0.81	0.20	0.12	2.15	0.84	0.58	2.30	0.43	0.38	0.11	0.00	0.96	0.23	0.13	1.54	0.27	0.14	2.78	1.61	1.96	0.10	0.00	1.14
S15	0369	0 [e]	1.14	0.24	0.12	3.87	1.54	1.15	7.33	0.91	0.84	0.19	0.05	1.01	0.25	0.20	2.74	0.40	0.09	5.66	1.17	2.35	0.14	0.01	1.32
Summary Statistics																									
Count:			14			14			14			14	14	14			14			14			14	14	14
Average:			2.64			11.15			7.54			**0.50**	0.36	2.72			9.12			8.96			0.44	0.30	1.14
Median:			1.82			5.06			4.32			0.25	0.11	1.77			4.53			5.21			0.22	0.08	1.18
Standard Dev.:			2.05			10.60			10.85			0.45	0.45	2.20			8.83			14.65			0.40	0.39	0.16
Minimum:			0.81			1.06			1.39			0.09	0.00	0.96			1.21			1.14			0.10	0.00	0.84
Maximum:			7.65			37.56			44.43			**1.66**	**1.51**	7.99			29.20			59.40			**1.41**	**1.26**	1.33
Range:			6.85			36.50			43.04			1.57	1.51	7.03			27.99			58.26			1.31	1.26	0.49

[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 18.2.2.
[e] No excavation was performed at this location. Sample results provided are from the first 1-m segment of the borehole collected at the location.

Table 18-2 Gamma Spectroscopy Biased Sample Analytical Results (Biased)

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Concentration (pCi/g)									SOF [c]		Concentration (pCi/g) [b]									SOF [b]		
		^{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 [c]	
0513	1	1.59	0.50	0.28	23.01	2.97	1.77	8.01	1.09	1.12	**0.86**	**0.71**	Samples not sent to off-site laboratory										
0571	1	2.49	0.51	0.34	26.03	2.82	1.42	5.72	1.29	1.11	**1.00**	**0.85**	2.71	0.62	0.48	21.10	2.35	0.47	6.87	3.82	5.29	**0.84**	**0.70**	1.19
0572	1	1.89	0.35	0.15	15.79	3.49	2.55	41.92	2.81	1.49	**0.67**	**0.53**	2.12	0.51	0.43	4.34	0.62	0.25	47.30	6.48	4.25	0.30	0.16	2.23
0655	3	1.52	0.35	0.19	8.39	1.94	1.33	5.29	0.90	0.90	0.36	0.21	Samples not sent to off-site laboratory										
0656	3	2.35	0.48	0.24	14.69	2.12	1.30	7.12	0.97	0.92	**0.61**	0.46											
0662	3	1.57	0.42	0.16	4.24	1.97	1.46	5.31	0.94	0.93	0.22	0.07											
0857	12	1.62	0.43	0.15	3.82	1.21	0.85	2.93	0.61	0.63	0.20	0.06											
0858	16	1.54	0.31	0.09	3.98	1.26	0.88	4.52	0.77	0.73	0.21	0.06											
0859	16	1.56	0.40	0.15	4.14	1.23	0.86	2.87	0.62	0.62	0.21	0.07											
0860	16	1.55	0.34	0.15	4.08	1.22	0.86	3.40	0.61	0.60	0.21	0.06											
0861	16	1.51	0.31	0.16	3.48	1.44	1.07	4.65	0.70	0.74	0.19	0.04											
0867	8	2.12	0.60	0.31	25.35	3.06	1.88	9.80	1.26	1.35	**0.96**	**0.82**	1.44	0.61	1.11	20.60	2.47	0.49	12.90	3.38	7.30	**0.78**	**0.63**	1.24
0869	8	2.04	0.61	0.25	15.89	2.25	1.45	6.96	0.91	0.88	**0.64**	0.49	1.26	0.34	0.40	13.50	1.52	0.26	8.98	2.73	3.07	**0.52**	0.38	1.21
0874	1	1.19	0.27	0.08	3.19	1.25	0.90	2.82	0.66	0.65	0.16	0.02	Samples not sent to off-site laboratory (gross SOF < 0.5)										
0879 [e]	10	12.87	1.08	0.70	140.37	8.00	3.18	19.25	2.69	2.56	**5.34**	**5.19**	12.80	2.05	1.82	124.00	13.00	0.96	14.00	3.90	10.30	**4.77**	**4.63**	1.12
0880 [e]	10	25.63	1.63	0.79	154.96	8.93	3.59	24.36	2.81	2.44	**6.38**	**6.23**	27.40	3.39	2.13	143.00	15.10	1.11	20.70	4.75	12.60	**6.04**	**5.89**	1.06
0931	5	2.31	0.43	0.23	19.21	1.99	1.13	3.77	0.98	0.94	**0.76**	**0.61**	2.23	0.46	0.39	15.70	1.74	0.21	*1.39*	2.93	4.87	**0.63**	0.49	1.20
0932	3	2.20	0.45	0.23	16.35	2.32	1.30	5.32	0.87	0.83	**0.66**	**0.51**	1.49	0.51	0.49	13.50	1.60	0.38	*4.60*	1.71	4.73	**0.53**	0.38	1.24
1029	5	1.94	0.42	0.11	3.46	1.17	0.79	3.81	0.72	0.70	0.20	0.06	Samples not sent to off-site laboratory (gross SOF < 0.5)										

[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 18.2.2.
[e] Samples from the cast iron pipe in the brick wall as shown in Figure 18-6 and Figure 18-7

18.2.2.3 Under Subsurface Concrete Slab

Elevated gamma readings and contaminated soils were also identified under the subsurface slab between the slab and the indigenous clay layer. Biased samples were collected under the subsurface slab around the perimeter of the exposed soils. Seven (7) additional biased samples were collected from under the slab around the vertical pipe stand including the biased core boring location between Buildings 215 and 236 as shown in Figure 18-18.

In order to further bound this area of elevated activity under the slab, data from core boring samples were reviewed. Several of the core sample location within SU12 hit refusal during the 3 to 4-m interval indicating that the subsurface slab extended beyond the vertical pipe stand location. Core boring data from the 4 to 5-m interval for three locations in the area, corresponding to the depth between the subsurface slab and clay layer, were reviewed for systematic sample locations 3 and 6 as well as systematic sample location 13 from SU13. Table 18-4 provides the sample results for these 10 samples. Figure 18-19 shows the elevated area as identified below the subsurface slab including the bounding sample locations.

18.2.2.4 Cast Iron Pipe in Brick Wall

During remediation east of the vertical pipe stand a 10-inch cast iron pipe was identified penetrating the brick wall as shown in Figure 18-6 and Figure 18-7. A sample was collected from inside the pipe as well as the soils immediately surrounding the pipe as show in Figure 18-12, samples 0879 and 0880 respectively. The data for these two samples is provided in Table 18-2.

Sample data collected from the biased core bore location between Buildings 215 and 236 as shown in Figure 18-18 were used to bound the area around the pipe to the east as well as other samples taken within the area. It was assumed that any remaining contamination was local to the pipe and did not extend beyond core boring location B-01.

18.2.2.5 NW Corner of Building 215

Upon backfill of SU12, an additional area of elevated gamma readings was identified during the NRC inspection at the northwest corner of Building 215 as shown in Figure 18-16 and Figure 18-17. Three (3) surface samples were collected at the northeast corner of the building. Table 18-5 provides the sample results for these 3 samples. Based upon observation and location, it is strongly suspected that this area of elevated activity is due to contamination along a concrete joint and does not extend beyond the immediate area. Samples 1455 and 1457 were taken directly along the edge of the concrete where the joint was located while sample 1456 was taken about a foot away to the north. No significant activity was identified at sample 1456.

During remediation, the surface concrete under the asphalt appeared to be poured in 20-foot sections or slabs. Sample 0513 was also collected at a surface joint located at the south end of Building 215. Based upon Figure 18-18, samples 1455 and 1457 were taken approximately 40 feet to the north along the alley providing further evidence that samples 1455 and 1457 were collected from a concrete joint and not a widespread area of contamination.

Table 18-3 Gamma Spectroscopy Biased Sample Analytical Results (Vertical Pipe Stand between the Pile Cap and Sub-surface Slab)

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Concentration (pCi/g)									SOF [b]		Concentration (pCi/g)								SOF [b]		
		^{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 [c]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [c]	
0870	8	0.56	0.24	0.22	4.13	1.22	0.85	3.83	0.66	0.66	0.17	0.06	Samples not sent to off-site laboratory (gross SOF < 0.5)										
0871	8	1.88	0.52	0.32	11.72	2.81	2.04	10.34	1.34	1.37	0.49	0.35											
0872	8	1.55	0.43	0.23	10.49	2.63	1.89	19.10	1.46	1.01	0.45	0.30											
0873	8	100.10	4.71	1.87	1,132.9	45.63	8.62	33.11	7.93	6.33	**42.77**	**42.62**	95.00	10.60	4.18	1,010.0	105.00	2.32	29.90	8.91	29.60	**38.37**	**38.22**	1.11

[a] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[b] **Bolded red** SOF values indicate a result >1.
[c] Calculated as discussed in Section 18.2.2.

Table 18-4 Gamma Spectroscopy Biased Sample Analytical Results (Below Sub-surface Slab)

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Concentration (pCi/g)									SOF [b]		Concentration (pCi/g)								SOF [b]		
		^{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 [c]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [c]	
0439	13 [d]	2.42	0.36	0.12	8.84	1.58	1.04	7.83	1.37	0.76	0.41	0.27	Samples not sent to off-site laboratory (gross SOF < 0.5)										
0444	13 [d]	5.08	0.51	0.18	16.16	2.71	1.88	16.71	2.04	1.10	**0.79**	**0.64**	4.79	0.76	0.41	12.70	1.46	0.29	19.50	4.56	4.65	**0.66**	**0.51**	1.20
0645	13 [d]	1.14	0.27	0.11	3.96	1.29	0.91	4.87	0.75	0.63	0.19	0.05	Samples not sent to off-site laboratory (gross SOF < 0.5)										
0737	12	25.89	1.37	0.57	27.94	3.57	2.41	11.33	3.37	1.68	**2.05**	**1.90**	25.40	2.87	0.81	25.40	2.81	0.53	13.70	2.71	6.27	**1.95**	**1.80**	1.05
0790	12	6.51	0.92	0.76	192.56	10.46	4.07	49.14	3.53	3.17	**6.89**	**6.74**	7.17	1.73	1.95	152.00	15.90	0.89	51.40	11.20	12.80	**5.54**	**5.40**	1.24
0864	14	1.67	0.34	0.16	13.35	2.47	1.70	9.56	1.00	0.92	**0.54**	0.39	1.94	0.55	0.43	12.50	1.48	0.31	8.57	1.87	4.03	**0.52**	0.37	1.04
0865	14	10.61	1.40	0.48	48.19	5.38	3.55	48.60	3.59	1.85	**2.15**	**2.00**	8.77	1.36	1.16	35.50	3.88	0.63	54.50	8.76	8.11	**1.65**	**1.50**	1.30
0866	14	9.88	1.66	0.54	65.63	5.62	3.22	35.46	2.75	2.30	**2.69**	**2.55**	7.82	1.64	1.22	55.20	5.97	0.74	56.50	11.00	10.40	**2.28**	**2.14**	1.18
0868	14	7.74	0.87	0.36	36.04	4.07	2.61	29.96	2.28	1.89	**1.59**	**1.45**	5.87	0.94	0.67	23.80	2.62	0.43	24.00	3.32	5.22	**1.09**	**0.94**	1.46
0926	13 [d]	3.03	0.47	0.21	17.53	2.79	1.90	18.14	1.98	1.03	**0.75**	**0.60**	2.68	0.60	0.42	10.70	1.25	0.24	23.10	4.34	3.93	**0.51**	0.36	1.47

[a] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[b] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.
[c] Calculated as discussed in Section 18.2.2.
[d] Sample is the 4 to 5-m segment of the borehole collected at the location specified location. Sample 0439 is from systematic location S03, sample 0444 from S06, 0926 from B01 and 0645 from SU13 systematic sample location S13 (Figure 18-18).

Table 18-5 Gamma Spectroscopy Biased Sample Analytical Results (Northwest Corner Building 215)

Sample ID	Depth (ft bgs)	On-Site Results											Off-Site Results [a]										On-Site/ Off-Site Gross SOF Ratio
		Concentration (pCi/g)									SOF		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 [c]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	
1455	0.5	(Sampled after demobilization of the on-site laboratory)											6.35	1.37	1.13	96.50	10.20	0.62	*7.70*	2.48	11.10	**3.56**	**3.41**	
1456	0.5												2.26	0.53	0.26	6.53	0.89	0.33	9.26	3.73	4.25	0.33	0.18	
1457	0.5												2.88	0.77	0.98	42.80	4.60	0.51	8.86	2.57	6.71	**1.59**	**1.44**	

[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 red** SOF values indicate a result >1.
[d] Calculated as discussed in Section 18.2.2.

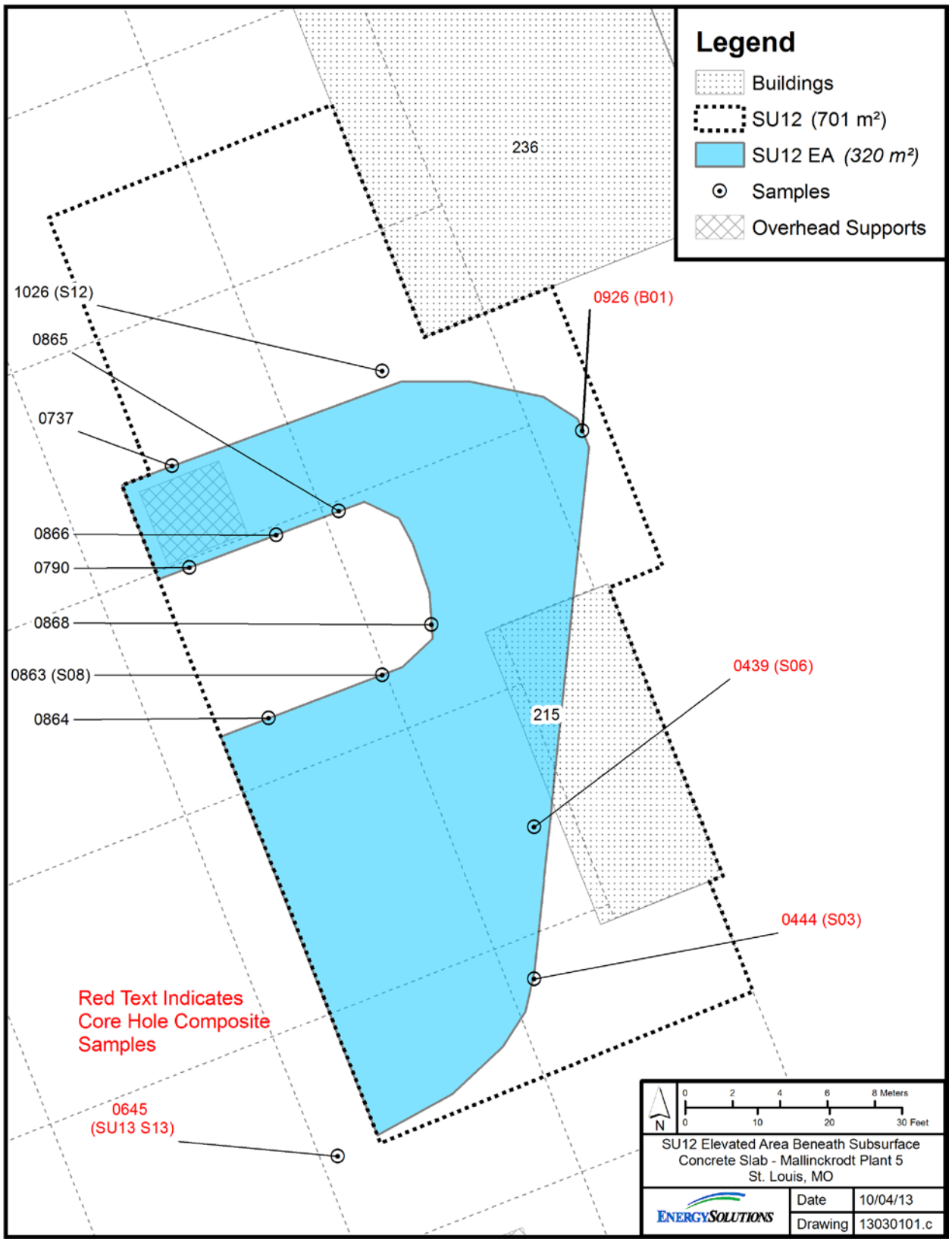

Figure 18-19 Elevated Area below Subsurface Concrete Slab

18.2.3 Core Boring

The C-T Phase II DP, Table 4-7, provided characterization borehole results. Four were collected within the extent of SU12: BH-041, BH-052, BH-090, and BH-091. Table 18-6 provides the data for these borehole locations.

Table 18-6 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-041	3 - 4	1.50	5.90	17.50	0.29	0.14
	4 – 5	*0.05*	3.04	6.10	0.11	0.02
	6 – 7	*0.03*	1.37	0.85	0.05	0.00
	8 – 9	*0.02*	1.35	3.90	0.05	0.00
	11.5 – 13.5	1.00	5.60	3.90	0.24	0.11
	16 - 17	1.00	3.90	4.20	0.18	0.05
BH-052	3.5 – 4.5	7.00	1,511.00	28.50	**51.73**	**51.58**
	7 – 8	2.43	19.30	6.66	**0.77**	**0.62**
	9 – 10	0.58	3.73	*3.74*	0.16	0.04
	10 – 11	0.31	1.62	*2.63*	0.07	0.00
	13 – 14	0.62	18.40	9.50	**0.66**	**0.55**
	19 - 20	1.50	2.10	1.40	0.14	0.01
BH-090	0.75 – 1.5	0.87	3.39	17.20	0.18	0.05
	3 – 4.5	0.98	1.70	7.20	0.11	0.00
	6 – 7.5	1.12	1.52	3.65	0.10	0.00
	9 – 10.5	0.61	2.40	5.40	0.11	0.00
	12 – 13.5	3.04	11.10	18.00	**0.53**	0.38
	16.5 - 18	1.65	0.98	1.93	0.11	0.01
BH-091	1 – 1.5	1.45	5.08	6.60	0.24	0.10
	3 – 4.5	0.93	1.86	2.05	0.11	0.00
	6 – 7.5	0.49	1.62	1.84	0.08	0.00
	9 – 10.5	0.55	1.06	2.96	0.06	0.00
	12 – 13.5	7.70	24.30	36.50	**1.20**	**1.05**
	13.5 - 15	1.31	1.19	2.13	0.10	0.00
Note: The following boreholes are located outside the survey unit along the east boundary.						
BH-051	2 – 3	0.99	3.60	8.60	0.18	0.04
	6 – 7	0.66	2.50	1.90	0.12	0.00
	13 – 14	2.20	7.90	5.80	0.37	0.22
	18 – 19	1.00	1.40	5.60	0.10	0.00
BH-103	0 – 2	1.34	0.86	6.72	0.09	0.00
	2 – 4	1.06	0.85	5.94	0.08	0.00
BH-104	0 – 2	1.10	1.04	6.18	0.09	0.00
	2 – 4	1.23	0.87	3.53	0.09	0.00
	4 - 6	1.00	1.05	2.67	0.08	0.00

[a] Italicized results indicate <MDC.
[b] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.
[c] Calculated as discussed in Section 18.2.2.

AECOM Technical Services (AECOM) also collected numerous supplemental characterization core boring samples within SU12. Table 18-7 provides these sample results. During the sampling effort, AECOM noted that the clay layer depth ranged between 13.5 and 15.5 ft bgs.

Table 18-7 AECOM Supplemental Characterization Borehole Results

Location ID	Sample ID	Sample Depth (m)	Activity Concentration (pCi/g) [a]			Sample SOF [b]		Column SOF [b]	
			^{232}Th	^{226}Ra	^{238}U	Gross	Net [c]	Gross	Net [c]
F7-1	4721	0 – 1	1.87	48.83	6.02	**1.75**	**1.60**	**1.75**	**1.60**
	4722	1 - 2	1.52	11.10	2.05	0.44	0.30	**1.10**	**0.95**
	End of borehole; Reason not indicated								
F7-2	4723	0 – 1	7.95	1,066.00	16.15	**36.61**	**36.47**	**36.61**	**36.47**
	4724	1 - 2	3.44	104.19	6.57	**3.70**	**3.55**	**20.16**	**20.01**
	Refusal at 5 ft bgs								
G6-1	4764	0 – 1	0.84	5.68	11.41	0.24	0.12	0.24	0.12
	4765	1 - 2	0.92	2.16	3.25	0.12	0.00	0.18	0.05
	Refusal at 5.5 ft bgs								
G7-1	4762	0 – 1	0.57	5.43	6.24	0.22	0.10	0.22	0.10
	4763	1 - 2	0.73	1.66	3.81	0.09	0.00	0.15	0.05
	Refusal at 5.25 ft bgs								
G7-2	4760	0 – 1	0.70	21.63	6.14	**0.77**	**0.65**	**0.77**	**0.65**
	4761	1 - 2	1.03	4.62	4.92	0.21	0.07	0.49	0.36
	Refusal at 5.25 ft bgs								
SB-009	4813	0 – 1	0.71	4.03	11.21	0.18	0.06	0.18	0.06
	4814	1 - 2	0.92	2.42	5.32	0.13	0.00	0.16	0.03
	--	2 – 3	No recovery						
	4834	3 – 4	1.67	4.89	6.10	0.24	0.10	0.19	0.05
	4835	4 - 5	3.49	18.30	3.09	**0.77**	**0.63**	0.33	0.19
SB-010	4815	0 – 1	0.65	1.86	2.39	0.09	0.00	0.09	0.00
	4816	1 - 2	1.04	1.36	3.57	0.09	0.00	0.09	0.00
	4836	2 – 3	1.08	8.73	5.43	0.35	0.21	0.18	0.05
	4837	3 – 4	0.48	2.20	4.05	0.10	0.00	0.16	0.04
	4838	4 - 5	1.13	11.08	7.93	0.44	0.30	0.21	0.09
SB-011	4817	0 – 1	10.65	2,000.50	39.87	**68.55**	**68.40**	**68.55**	**68.40**
	4818	1 - 2	18.55	446.20	46.51	**16.02**	**15.87**	**42.28**	**42.14**
	4839	2 – 3	4.69	124.04	16.80	**4.44**	**4.29**	**29.67**	**29.52**
	4840	3 – 4	2.10	18.10	12.64	**0.72**	**0.58**	**22.43**	**22.29**
	--	4 - 5	Refusal at 12 ft bgs						
SB-012	4821	0 – 1	2.54	9.07	5.91	0.42	0.28	0.42	0.28
	4822	1 - 2	1.36	2.95	4.67	0.16	0.02	0.29	0.15
	--	2 – 3	No recovery						
	4841	3 – 4	2.02	22.06	13.56	**0.85**	**0.71**	0.48	0.33
	4842	4 - 5	0.91	8.62	3.54	0.34	0.21	0.44	0.30
SB-013	4843	0 – 1	5.64	4.88	16.77	0.43	0.28	0.43	0.28
	4844	1 - 2	2.25	4.27	8.76	0.25	0.11	0.34	0.19
	4849	2 – 3	1.24	2.90	4.62	0.16	0.01	0.28	0.13
	4850	3 – 4	3.64	19.79	18.33	**0.85**	**0.71**	0.42	0.28
	--	4 - 5	Refusal at 12 ft bgs						

Table 18-7 AECOM Supplemental Characterization Borehole Results (Continued)

Location ID	Sample ID	Sample Depth (m)	Activity Concentration (pCi/g) [a]			Sample SOF [b]		Column SOF [b]	
			^{232}Th	^{226}Ra	^{238}U	Gross	Net [c]	Gross	Net [c]
SB-014	4845	0 – 1	1.07	3.98	2.82	0.18	0.05	0.18	0.05
	4846	1 - 2	1.13	3.18	2.33	0.16	0.02	0.17	0.04
	4853	2 – 3	0.67	3.12	1.65	0.14	0.02	0.16	0.03
	--	3 – 4	No recovery						
	--	4 - 5	Refusal at 12 ft bgs						
SB-015	4857	0 – 1	1.16	3.42	2.16	0.17	0.03	0.17	0.03
	4858	1 - 2	1.04	2.39	3.18	0.13	0.00	0.15	0.01
	4861	2 – 3	0.60	2.15	3.33	0.10	0.00	0.13	0.01
	4862	3 – 4	1.27	3.42	3.27	0.17	0.03	0.14	0.01
	4863	4 - 5	6.43	21.74	41.02	**1.07**	**0.92**	0.33	0.18
	Clay layer reached 15.5 ft								
SB-016	4851	0 – 1	1.10	4.19	3.89	0.19	0.06	0.19	0.06
	4852	1 - 2	0.80	1.44	2.01	0.09	0.00	0.14	0.01
	4854	2 – 3	0.62	1.63	1.56	0.08	0.00	0.12	0.00
	4855	3 – 4	4.30	15.19	21.78	**0.73**	**0.58**	0.27	0.13
	4856	4 - 5	4.24	20.21	15.64	**0.89**	**0.74**	0.40	0.25
	Clay layer reached 15 ft								
SB-036	4959	0 – 1	0.78	8.44	13.26	0.34	0.21	0.34	0.21
	4960	1 - 2	0.33	15.27	18.39	**0.56**	0.45	0.45	0.33
	4964	2 – 3	0.38	4.57	2.26	0.17	0.07	0.36	0.25
	4965	3 – 4	2.80	48.58	11.66	**1.79**	**1.64**	**0.71**	**0.58**
	4966	4 - 5	*-0.85*	40.71	20.24	**1.41**	**1.32**	**0.85**	**0.73**
SB-037	4961	0 – 1	0.54	2.21	1.95	0.10	0.00	0.10	0.00
	--	1 - 2	No recovery						
	4962	2 – 3	0.48	4.98	1.96	0.19	0.08	0.15	0.04
	4963	3 – 4	1.00	33.69	11.29	**1.20**	**1.07**	0.50	0.38
	--	4 - 5	No recovery						
SB-038	4967	0 – 1	0.48	20.15	46.03	**0.77**	**0.66**	**0.77**	**0.66**
	4968	1 - 2	*-0.02*	11.39	15.07	0.41	0.32	**0.59**	0.49
	4969	2 – 3	0.00	226.19	22.59	**7.72**	**7.63**	**2.97**	**2.87**
	4970	3 – 4	14.51	57.11	9.41	**2.56**	**2.42**	**2.87**	**2.72**
	4971	4 - 5	*-0.99*	19.63	17.34	**0.69**	**0.60**	**2.43**	**2.29**
SB-049	6520	0 – 1	1.54	9.51	10.63	0.40	0.26	0.40	0.26
	6521	1 - 2	1.80	21.34	8.46	**0.81**	**0.67**	**0.61**	0.46
	6522	2 – 3	1.80	22.05	6.39	**0.83**	**0.69**	**0.68**	**0.54**
	6523	3 – 4	2.35	27.17	11.57	**1.04**	**0.89**	**0.77**	**0.63**
	6524	4 - 5	4.82	68.39	25.28	**2.56**	**2.42**	**1.13**	**0.98**
	Clay layer reached 14.5 ft								
SB-054A	6548	0 – 1	1.53	4.94	3.99	0.24	0.09	0.24	0.09
	6549	1 - 2	0.67	3.95	3.05	0.17	0.05	0.20	0.07
	6550	2 – 3	1.13	4.66	2.63	0.21	0.07	0.20	0.07
	6551	3 – 4	3.29	10.66	5.75	**0.51**	0.36	0.28	0.14
	6552	4 - 5	8.99	41.44	24.36	**1.82**	**1.67**	**0.59**	0.44

Table 18-7 AECOM Supplemental Characterization Borehole Results (Continued)

Location ID	Sample ID	Sample Depth (m)	Activity Concentration (pCi/g) [a]			Sample SOF [b]		Column SOF [b]	
			^{232}Th	^{226}Ra	^{238}U	Gross	Net [c]	Gross	Net [c]
SB-059	6572	0 – 1	5.31	16.11	8.67	**0.78**	**0.64**	**0.78**	**0.64**
	6573	1 - 2	1.17	3.23	2.33	0.16	0.02	0.47	0.33
	6574	2 – 3	0.43	1.15	1.44	0.06	0.00	0.33	0.19
	6575	3 – 4	6.05	18.20	12.64	**0.89**	**0.74**	0.47	0.33
	6576	4 - 5	8.97	28.15	17.80	**1.36**	**1.21**	**0.65**	0.50
	Clay layer reached 13.5 ft								

[a] Italicized results indicate <MDC.
[b] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.
[c] Calculated as discussed in Section 18.2.2.

In accordance with Page 14-22 of the C-T Phase II DP, FSS core sampling was performed for two reasons: 1) it was reasonably suspected that subsoil contamination existed below the un-excavated areas and 2) to demonstrate that contaminated soil above the DCGLs did not exist under the excavation extent. Energy*Solutions* collected borehole samples at each systematic sample location throughout SU12 as shown in Figure 18-18 prior to remediation. Table 18-8 provides these borehole sample results. Sample results were not provided for systematic sample locations 7 through 14. Systematic sample location 10 was not collected due to obstructions while the remaining locations were from areas remediated to the clay layer.

One biased borehole location, B01, was also sampled from between Buildings 215 and 236 as shown in Figure 18-18. Table 18-9 provides the sample results for this biased sampling location. No other biased borehole samples were collected from the biased sampling locations due to the contour of the excavation and for safety.

In accordance with Table 14-5 of the C-T Phase II DP, the Class 1 subsurface investigation level is the $DCGL_W$ (1 SOF) plus the mean of background (0.15 SOF) plus six standard deviations of background (6 × 0.09 SOF = 0.54 SOF), using data from Tables 4-17 and B-1. This evaluates to a gross SOF of 1.69. All subsurface samples were below this investigation level. Figure 18-20 shows a summary of all sampling locations performed including all characterization and FSS samples.

Table 18-8 Gamma Spectroscopy Systematic Borehole Sample Analytical Results

Sample Location	Sample ID	Sample Depth (m) [a]	On-Site Results											Off-Site Results [b]										Column SOF [d, e]	
			Activity Concentration (pCi/g) [c]									Sample SOF [d]		Activity Concentration (pCi/g) [c]									Sample SOF [d]		
			^{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 [f]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [e]	Gross	Net [f]
S01	0445	0-1	1.28	0.29	0.13	3.44	1.32	0.95	4.12	0.72	0.69	0.18	0.03	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.18	0.03
	0446	1-2	1.54	0.32	0.17	6.01	1.45	0.97	3.99	0.73	0.76	0.27	0.13											0.23	0.08
	0447	2-3	1.33	0.33	0.10	6.18	1.82	1.30	9.28	0.88	0.70	0.28	0.13											0.24	0.10
	0448	3-4	1.30	0.27	0.11	*0.41*	0.86	0.69	1.59	0.52	0.57	0.07	0.00											0.20	0.05
	--	4-5	Refusal at approximately 11-12 feet bgs																						
S02	0457	0-1	2.58	0.42	0.25	13.10	2.14	1.36	4.11	1.05	0.94	**0.56**	0.41	2.06	0.52	0.41	10.70	1.25	0.27	6.67	3.69	4.30	0.46	0.31	0.46	0.31
	0458	1-2	1.29	0.31	0.09	2.09	1.09	0.80	2.15	0.53	0.57	0.13	0.00	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.29	0.15
	0459	2-3	0.96	0.23	0.11	2.25	0.99	0.72	2.51	0.51	0.49	0.12	0.00											0.24	0.09
	0460	3-4	2.31	0.40	0.16	4.05	1.35	0.96	3.95	0.68	0.67	0.24	0.09											0.24	0.09
	--	4-5	Refusal at approximately 11-12 feet bgs																						
S03	--	0-1	Soil excavated; reference area background used for column average calculations									0.15	0.00	No sample (Clean backfill)										0.15	0.00
	0441	1-2	0.96	0.33	0.15	4.38	1.20	0.80	2.46	0.58	0.61	0.19	0.06	Samples Not Sent to Off-Site Laboratory (Gross SOF < 0.5)										0.17	0.03
	0442	2-3	1.03	0.24	0.06	3.98	1.36	0.94	3.19	0.65	0.72	0.18	0.05											0.17	0.04
	0443	3-4	3.59	0.42	0.13	14.39	2.60	1.80	16.74	1.44	1.10	**0.66**	**0.52**	2.92	0.53	0.34	8.82	1.05	0.26	13.70	2.20	3.82	0.44	0.30	0.24	0.09
	0444	4-5	5.08	0.51	0.18	16.16	2.71	1.88	16.71	2.04	1.10	**0.79**	**0.64**	4.79	0.76	0.41	12.70	1.46	0.29	19.50	4.56	4.65	**0.66**	**0.51**	0.32	0.18
S04	0449	0-1	1.94	0.37	0.09	6.00	1.57	1.10	4.85	0.82	0.85	0.29	0.15	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.29	0.15
	0450	1-2	1.02	0.21	0.10	2.09	0.95	0.70	2.30	0.56	0.49	0.12	0.00											0.20	0.06
	0451	2-3	0.71	0.21	0.05	3.45	1.26	0.89	3.95	0.66	0.57	0.15	0.03											0.19	0.05
	0452	3-4	0.62	0.14	0.07	3.26	1.55	1.19	9.60	1.20	0.54	0.15	0.03											0.18	0.04
	0453	4-5	0.59	0.15	0.02	3.05	1.44	1.11	8.26	1.00	0.46	0.14	0.02											0.17	0.04
S05	--	0-1	Soil excavated; reference area background used for column average calculations									0.15	0.00	No sample (Clean backfill)										0.15	0.00
	0466	1-2	1.81	0.45	0.20	10.28	1.88	1.19	4.72	0.95	1.02	0.43	0.29	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.29	0.14
	0467	2-3	1.32	0.26	0.08	3.69	1.48	1.05	2.39	0.64	0.67	0.18	0.04											0.25	0.11
	0468	3-4	2.04	0.40	0.15	3.52	1.47	1.08	4.53	0.82	0.84	0.21	0.07											0.24	0.10
	--	4-5	Refusal at approximately 11-12 feet bgs																						
S06	0435	0-1	3.15	0.47	0.25	15.37	2.18	1.28	4.03	1.06	0.92	**0.66**	**0.52**	3.36	0.61	0.45	10.30	1.26	0.28	4.83	2.78	3.78	0.50	0.35	0.50	0.35
	0436	1-2	1.03	0.23	0.13	2.31	0.95	0.68	1.70	0.49	0.49	0.12	0.00	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.31	0.17
	0437	2-3	0.99	0.19	0.13	3.60	0.93	0.59	1.85	0.51	0.42	0.17	0.04											0.26	0.12
	0438	3-4	0.65	0.15	0.06	2.94	0.86	0.61	3.31	0.45	0.38	0.13	0.01											0.23	0.09
	0439	4-5	2.42	0.36	0.12	8.84	1.58	1.04	7.83	1.37	0.76	0.41	0.27											0.27	0.12
S08	--	0-1	Soil excavated; reference area background used for column average calculations									0.15	0.00	No sample (Clean backfill)										0.15	0.00
	--	1-2										0.15	0.00											0.15	0.00
	--	2-3										0.15	0.00											0.15	0.00
	--	3-4										0.15	0.00											0.15	0.00
	0863 [g]	4-5	7.65	0.94	0.47	44.43	3.03	2.20	37.56	5.06	3.46	**1.66**	**1.51**	7.99	1.15	0.85	29.20	3.22	0.62	59.40	9.78	8.32	**1.41**	**1.26**	0.40	0.25
S13	--	0-1	Soil excavated; reference area background used for column average calculations									0.15	0.00	No sample (Clean backfill)										0.15	0.00
	--	1-2										0.15	0.00											0.15	0.00
	0456	2-3	6.14	0.82	0.32	4.67	1.34	0.98	14.42	2.3	1.51	**0.75**	**0.61**	Sample not sent to off-site laboratory										0.24	0.10
	--	3-4	Refusal at approximately 8-9 feet bgs																						
S15	0369	0-1	1.14	0.24	0.12	3.87	1.54	1.15	7.33	0.91	0.84	0.19	0.05	Samples not sent to off-site laboratory (gross SOF < 0.5)										0.19	0.05
	0370	1-2	1.31	0.26	0.14	2.76	1.04	0.74	3.03	0.59	0.57	0.15	0.01											0.17	0.03
	0371	2-3	2.03	0.40	0.17	2.88	1.68	1.26	5.42	0.88	0.78	0.19	0.05											0.18	0.03
	0372	3-4	2.11	0.37	0.14	10.51	2.20	1.53	13.67	1.38	1.19	0.46	0.32											0.25	0.10
	0373	4-5	1.53	0.44	0.18	7.63	1.80	1.24	7.54	1.01	0.95	0.33	0.19											0.27	0.12

[a] Sampling was stopped when native clay soil was reached or refusal encountered.
[b] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[c] Italicized results indicate <MDC.
[d] **Bolded orange** SOF values indicate a result >0.5 but ≤1 and **bolded red** SOF values indicate a result >1.
[e] Calculated per Section 14.4.3.7 of C-T Phase II DP. Calculation of column SOF used on-site results unless off-site results were available.
[f] Calculated as discussed in Section 18.2.2.
[g] Sample 0863 was a 30-cm grab sample collected after remediation along the edge of the excavation.

Table 18-9 Gamma Spectroscopy Biased Borehole Sample Analytical Results

Sample Location	Sample ID	Sample Depth (m) [a]	On-Site Results											Off-Site Results [b]											Column SOF	
			Activity Concentration (pCi/g)									Sample SOF [c]		Activity Concentration (pCi/g)									Sample 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 [e]	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Result	Uncert. (2σ)	MDC	Gross	Net [d]	Gross	Net [e]
B01	0922	0-1	1.18	0.28	0.14	5.50	1.47	1.01	5.52	0.76	0.67	0.24	0.10	Samples not sent to off-site laboratory (gross SOF < 0.5)											0.24	0.10
	0923	1-2	1.39	0.32	0.14	3.99	1.21	0.81	2.36	0.56	0.56	0.20	0.05												0.22	0.08
	0924	2-3	1.15	0.21	0.08	2.51	1.02	0.74	1.80	0.47	0.51	0.14	0.00												0.19	0.05
	0925	3-4	1.59	0.41	0.16	19.59	2.43	1.38	6.25	1.03	1.03	**0.74**	**0.60**	1.07	0.67	1.02	17.00	2.10	0.53	6.40	2.25	6.35	**0.63**	0.50	0.30	0.16
	0926	4-5	3.03	0.47	0.21	17.53	2.79	1.90	18.14	1.98	1.03	**0.75**	**0.60**	2.68	0.60	0.42	10.70	1.25	0.24	23.10	4.34	3.93	**0.51**	0.36	0.34	0.20
	0927	5-6	1.69	0.36	0.18	16.02	2.19	1.34	8.87	0.92	0.77	**0.63**	0.48	1.58	0.39	0.34	11.20	1.33	0.30	7.51	1.60	3.46	0.46	0.31	0.36	0.22

[a] Sampling was stopped when native clay soil was reached or refusal encountered.
[b] Off-site laboratory results as reported by TestAmerica after sufficient in-growth time to reach ^{226}Ra progeny equilibrium.
[c] **Bolded orange** SOF values indicate a result >0.5 but ≤1.
[d] Calculated per Section 14.4.3.7 of C-T Phase II DP. Calculation of column SOF used on-site results unless off-site results were available.
[e] Calculated as discussed in Section 18.2.2.

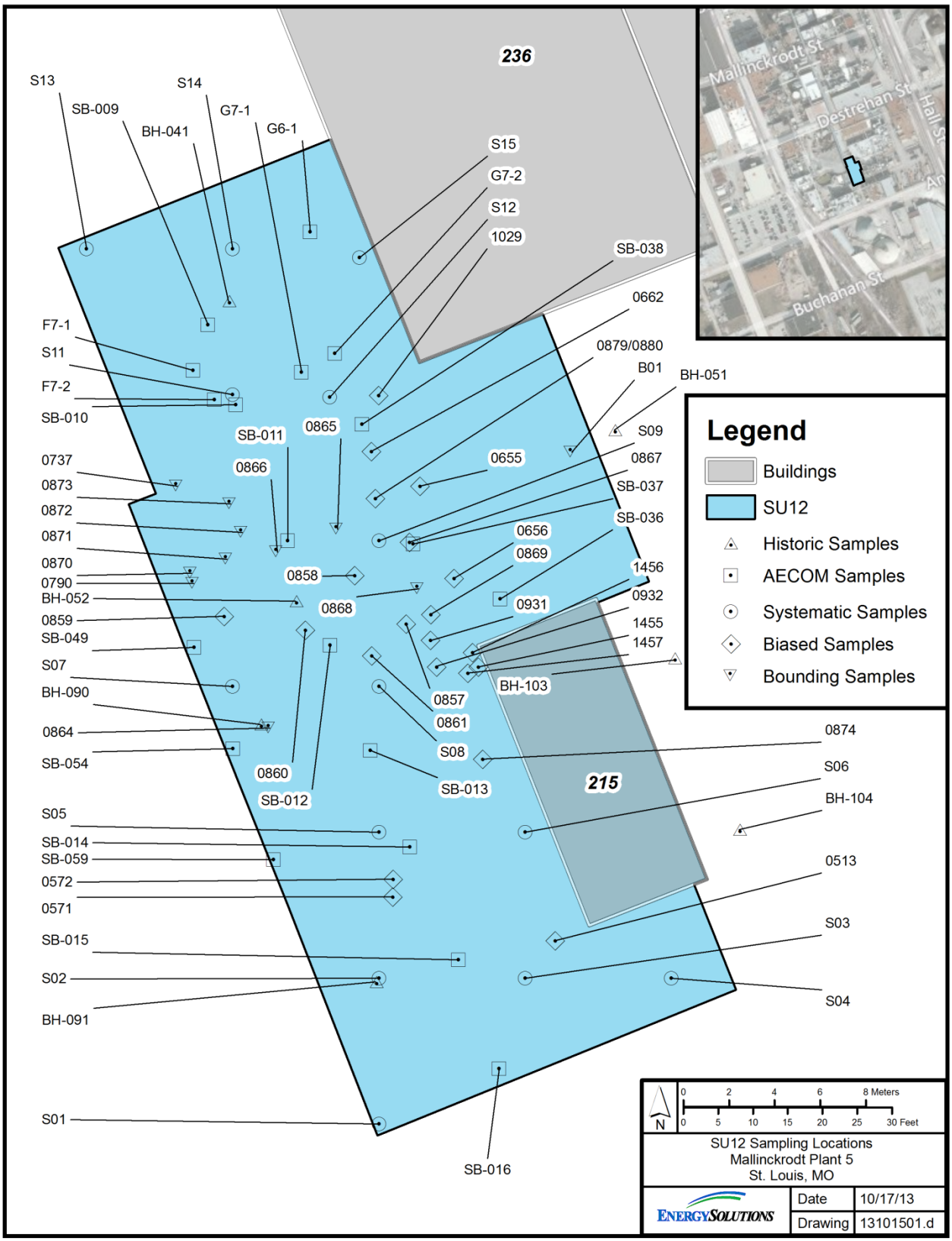

Figure 18-20 Characterization and FSS Sampling Locations

18.3 DATA ANALYSIS – EXCAVATED SURFACE

The 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. Surface soil (0 to 30 cm) sample results and the first 1-m composite sample result from boreholes were used in the assessment of excavated and unexcavated locations, respectively as appropriate.

18.3.1 Elevated Area Evaluation

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

18.3.1.1 Vertical Pipe Stand

Parameters necessary to calculate the *Index* value for the area directly under the vertical pipe stand of the vertical pipe stand discussed in Section 18.2.2.2, noted as Elevated Area #1:

- The activity levels for the elevated area directly under the pile cap of the vertical pipe stand, represented by the average of the samples provided in Table 18-3, were 24.75, 259.08, and 15.79 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively;
- 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 determined to be approximately 12 ft by 12 ft or 13.4 m^2; and,
- The area factors from C-T Phase II DP Figure 5-3 for the elevated area were 2.0, 2.2, and 3.0 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 18.5 discusses the dose assessment performed to evaluate the impact of this area that is not compliant with the DCGLs.

$$Index = \frac{(24.75 - 1.3)\ pCi/g}{(2.0 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(259.08 - 2.5)\ pCi/g}{(2.2 \times 29.4\ pCi/g)_{Ra226}} + \frac{(15.79 - 4.4)\ pCi/g}{(3.0 \times 721\ pCi/g)_{U}} = 4.46$$

18.3.1.2 Under Subsurface Concrete Slab

Parameters necessary to calculate the *Index* value for the area including the soils beneath the subsurface slab shown as Figure 18-19 and discussed in Section 18.2.2.3, noted as Elevated Area #2:

- The activity levels for the elevated area under the subsurface slab, represented by the average of the samples provided in Table 18-4 (excluding sample 0645) and samples

0863 and 1026 (systematic sample locations S08 and S12, see Table 18-1), were 7.18, 34.47, and 29.56 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively;

- 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 determined to be approximately 320 m^2; and,
- The area factors from C-T Phase II DP Figure 5-3 for the elevated area were 1.1, 1.2, and 1.5 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 18.5 discusses the dose assessment performed to evaluate the impact of this area that is not compliant with the DCGLs.

$$Index = \frac{(7.18 - 1.3)\ pCi/g}{(1.1 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(34.47 - 2.5)\ pCi/g}{(1.2 \times 29.4\ pCi/g)_{Ra226}} + \frac{(29.56 - 4.4)\ pCi/g}{(1.5 \times 721\ pCi/g)_{U}} = 1.15$$

18.3.1.3 Cast Iron Pipe in Brick Wall

Parameters necessary to calculate the *Index* value for the cast iron pipe identified in the brick wall east of the vertical pipe stand as discussed in Section 18.2.2.4, noted as Elevated Area #3:

- The activity levels for the elevated area associated with the cast iron pipe, represented by the average of samples 0879 and 0880 as presented in Table 18-2, are 20.10, 133.50, and 17.35 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively;
- 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 determined to be approximately 8 m^2 as bounded by biased core bore location B01; 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 18.5 discusses the dose assessment performed to evaluate the impact of this area that is not compliant with the DCGLs.

$$Index = \frac{(20.10 - 1.3)\ pCi/g}{(2.2 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(133.50 - 2.5)\ pCi/g}{(2.4 \times 29.4\ pCi/g)_{Ra226}} + \frac{(17.35 - 4.4)\ pCi/g}{(3.3 \times 721\ pCi/g)_{U}} = 2.22$$

18.3.1.4 NW Corner of Building 215

Parameters necessary to calculate the *Index* value for the area directly under Building 215 as discussed in Section 18.2.2.5, noted as Elevated Area #4:

- The activity levels for the elevated area located at the northwest corner of Building 215, represented by the average of samples 1455 and 1457 as provided in Table 18-5, were 4.62, 69.65, and 8.28 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively;
- 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, seam along a concrete joint, was determined to be approximately 1 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 18.5 discusses the dose assessment performed to evaluate the impact of this area that is not compliant with the DCGLs.

$$Index = \frac{(4.62 - 1.3)\ pCi/g}{(2.2 \times 23.9\ pCi/g)_{Th\ series}} + \frac{(69.65 - 2.5)\ pCi/g}{(2.4 \times 29.4\ pCi/g)_{Ra226}} + \frac{(8.28 - 4.4)\ pCi/g}{(3.3 \times 721\ pCi/g)_{U}} = 1.02$$

18.3.2 Data Set Screening Analysis

Table 18-10 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 18-10 Screening Tests Results

Screening Test	Test Value	Conclusion
Min/Max	1.39	FAIL; conduct DCGL test
Low Level	N/A	Not applicable; Class 1 survey unit
$DCGL_W$	0.29	PASS; conduct WRS test
EMC Limit	0.44	PASS

18.3.2.1 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 0863 with a gross SOF of 1.41 (from Table 18-1) was the maximum survey unit systematic result while 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 1.39. Because the test value was greater than one, further computations are required, i.e., $DCGL_W$ screening and Wilcoxon Rank Sum (WRS) tests.

18.3.2.2 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.

18.3.2.3 $DCGL_W$

In accordance with Page 14-28 of the C-T Phase II DP and because the Min/Max test value was greater than one, the $DCGL_W$ screening test value was calculated by subtracting the reference area average gross SOF from the survey unit average gross SOF. The survey unit average gross SOF was 0.36 (from Table 18-1, excluding 0863 which is part of the Elevated Area #2 evaluation in Section 18.3.1.2). The reference area average gross SOF was calculated to be 0.15 using average activity concentrations from C-T Phase II DP Table 4-17. The $DCGL_W$ screening test value was calculated to be 0.29. Because the test value was less than one, the WRS test is required per C-T Phase II DP Table 14-6.

18.3.2.4 EMC Limit

In accordance with Page 14-26 of the C-T Phase II DP, the $DCGL_{EMC}$ is not applicable to subsurface survey units/areas which would include elevated areas #1 through #3; the subsurface material under the vertical pipe stand, the soils under the subsurface slab and the cast iron pipe respectively. Thus, the EMC limit is not applicable to these three areas.

In accordance with Page 14-28 of the C-T Phase II DP, the EMC limit screening test was applied to the concrete joint located at the surface near the northwest corner of Building 215 or elevated area #4. Parameters necessary to calculate the exposure-weighted fraction of the $DCGL_W$, *F*, were:

- The size of the elevated area was determined to be approximately 1 m^2;
- The area factor from C-T Phase II DP Figure 5-3 was conservatively set to 2.2 (based on thorium series only);
- The average activity level for the elevated area was a gross SOF = 2.58 based on samples 1455 and 1457; and,
- The survey unit average was a gross SOF = 0.36 (from Table 18-1, excluding sample 0863 as indicated above).

The calculation of the EMC screening test result is shown below, using C-T Phase II DP Equation 14-7.

$$F = \left[\frac{1\ m^2}{701\ m^2} \times \frac{2.58}{2.2 \times 1}\right] + \left[\frac{(701-1)\ m^2}{701\ m^2} \times \frac{0.36}{1}\right] = 0.36$$

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, this area failed the elevated area evaluation in Section 18.3.1.4 and is evaluated using a dose assessment in Section 18.4 along with the other three areas.

18.3.3 WRS Test

In accordance with Page 14-29 of the C-T Phase II DP, because the Min/Max test value was greater than one and the $DCGL_W$ test was less than one, the WRS Test was required to demonstrate compliance. The test was completed in accordance with Pages 14-29 and 14-30 of the C-T Phase II DP. The result was that the survey unit passed, with the calculation details provided in Table 18-11.

Table 18-11 WRS Test Results

Sample ID	Area	On-Site Results				Off-Site Results			
		Data (SOF)	Adjusted Data (SOF)	Ranks	RA Ranks	Data (SOF)	Adjusted Data (SOF)	Ranks	RA Ranks
BH-013	RA	0.11	1.11	21	21	0.11	1.11	21	21
BH-016	RA	0.42	1.42	28	28	0.42	1.42	29	29
BH-028	RA	0.10	1.10	20	20	0.10	1.10	20	20
BH-031	RA	0.09	1.09	17	17	0.09	1.09	16	16
BH-034	RA	0.29	1.29	27	27	0.29	1.29	27	27
BH-037	RA	0.22	1.22	24	24	0.22	1.22	24	24
BH-045	RA	0.10	1.10	19	19	0.10	1.10	19	19
BH-053	RA	0.16	1.16	22	22	0.16	1.16	22	22
BH-065	RA	0.23	1.23	25	25	0.23	1.23	25	25
BH-083	RA	0.07	1.07	16	16	0.07	1.07	15	15
BH-091	RA	0.24	1.24	26	26	0.24	1.24	26	26
BH-093	RA	0.10	1.10	18	18	0.10	1.10	18	18
BH-099	RA	0.22	1.22	23	23	0.22	1.22	23	23
BH-Z-02	RA	0.07	1.07	15	15	0.07	1.07	14	14
BH-Z-09	RA	0.05	1.05	14	14	0.05	1.05	13	13
0445	SU	0.18	0.18	3	0	0.14	0.14	3	0
0457	SU	0.56	0.56	9	0	0.46	0.46	9	0
0876	SU	0.22	0.22	7	0	0.23	0.23	8	0
0449	SU	0.29	0.29	8	0	0.22	0.22	7	0
0877	SU	0.09	0.09	1	0	0.11	0.11	2	0
0435	SU	0.66	0.66	10	0	0.50	0.50	10	0
0862	SU	0.19	0.19	5	0	0.18	0.18	5	0
0863	SU	1.66	1.66	29	0	1.41	1.41	28	0
0858	SU	0.21	0.21	6	0	0.20	0.20	6	0
1025	SU	0.82	0.82	11	0	0.70	0.70	12	0
1026	SU	0.83	0.83	12	0	0.64	0.64	11	0
1103	SU	1.00	1.00	13	0	1.09	1.09	17	0
1028	SU	0.11	0.11	2	0	0.10	0.10	1	0
0369	SU	0.19	0.19	4	0	0.14	0.14	4	0
			Sum:	435	315		Sum:	435	312
			Critical Value:	263			Critical Value:	263	
			Conclusion:	**PASS**			**Conclusion:**	**PASS**	

18.3.4 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 18-12 provides the results of the retrospective analysis. Because the actual sample size (14) was less than the retrospective value sample size (19), the conclusion is that the survey design objectives may not have been met; however, systematic sample 0863 which was the maximum sample result for the survey unit is actually a bounding sample for the subsurface slab elevated area. If this sample was excluded from the data set, the retrospective analysis would have calculated a sample size of thirteen. As a result, the design objectives were considered to have been met because by removing this one bounding sample from the data set the actual sample size would have met the retrospective values sample size.

Table 18-12 Retrospective Analysis

Parameter	*A Priori* Value	Retrospective Value Based on FSS Results (Gross SOF) [b]	
Upper Bound of Gray Region	DCGL = 1	1	
Lower Bound of Gray Region	0.5 x DCGL = 0.5	0.44	0.36
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.40	0.30
Type I Error (false positive)	0.05	0.05	
Type II Error (false negative)	0.05	0.05	
Relative Shift	3	1.4	2.1
Calculated N/2 Sample Size	15 [a]	19	13
Actual N/2 Sample Size	--	14	13

[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.

[b] The retrospective analysis was performed with and without systematic sample 0863. The first column includes sample 0863 while the second column excludes the sample.

18.4 DATA ANALYSIS – SUBSURFACE MATERIAL

Data analysis of the subsurface material 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. Column average gross SOF results were used in the data assessment. Borehole sampling was stopped when native clay soil was reached or refusal encountered. Per Page 14-19 of the C-T Phase II DP, column averages were calculated over 1-m increments (averaged 0 to 1 m, 0 to 2 m, etc.) for the set of samples collected. Table 18-13 provides the calculated borehole column average gross SOF results. Table 18-14 provides the calculated borehole column average net SOF results.

Table 18-13 Systematic Borehole Column Average Gross SOF Results

Sample Location	Core Depth Interval (m)				
	0-1	0-2	0-3	0-4	0-5
	Combined Results for Column Average Gross SOF [a]				
S01	0.18	0.23	0.24	0.20	-- [c]
S02	0.46	0.29	0.24	0.24	-- [c]
S03	0.15	0.17	0.17	0.24	0.32
S04	0.29	0.20	0.19	0.18	0.17
S05	0.15	0.29	0.25	0.24	-- [c]
S06	0.50	0.31	0.26	0.23	0.27
S07 [b]	--	--	--	--	--
S08	0.15	0.15	0.15	0.15	0.40
S09 [b]	--	--	--	--	--
S11 [b]	--	--	--	--	--
S12 [b]	--	--	--	--	--
S13	0.15	0.15	0.24	--	--
S14 [b]	--	--	--	--	--
S15	0.19	0.17	0.18	0.25	0.27
Summary Statistics					
Count:	9	9	9	8	5
Average:	0.24	0.22	0.21	0.22	0.29
Median:	0.18	0.20	0.24	0.23	0.27
Standard Dev.:	0.14	0.07	0.04	0.04	0.08
Minimum:	0.15	0.15	0.15	0.15	0.17
Maximum:	0.50	0.31	0.26	0.25	0.40
Range:	0.35	0.17	0.12	0.10	0.23

[a] Calculation of column average gross SOF used on-site results unless off-site results were available.
[b] Fully remediated to the clay layer. Sample S10 was not collected due to obstructions.
[c] 5th meter interval not included as the core boring hit refusal due to a subsurface concrete slab. Soils under the subsurface slab were evaluated as part of Elevated Area #2 in Section 18.3.1.2

Table 18-14 Systematic Borehole Column Average Net SOF Results

Sample Location	Core Depth Interval (m)				
	0-1	0-2	0-3	0-4	0-5
	Combined Results for Column Average Net SOF [a]				
S01	0.03	0.08	0.10	0.05	-- [c]
S02	0.31	0.15	0.09	0.09	-- [c]
S03	0.00	0.03	0.04	0.09	0.18
S04	0.15	0.06	0.05	0.04	0.04
S05	0.00	0.14	0.11	0.10	-- [c]
S06	0.35	0.17	0.12	0.09	0.12
S07 [b]	--	--	--	--	--
S08	0.00	0.00	0.00	0.00	0.25
S09 [b]	--	--	--	--	--
S11 [b]	--	--	--	--	--
S12 [b]	--	--	--	--	--
S13	0.00	0.00	0.10	--	--
S14 [b]	--	--	--	--	--
S15	0.05	0.03	0.03	0.10	0.12
Summary Statistics					
Count:	9	9	9	8	5
Average:	0.10	0.07	0.07	0.07	0.14
Median:	0.03	0.06	0.09	0.09	0.12
Standard Dev.:	0.14	0.07	0.04	0.04	0.08
Minimum:	0.00	0.00	0.00	0.00	0.04
Maximum:	0.35	0.17	0.12	0.10	0.25
Range:	0.35	0.17	0.12	0.10	0.21

[a] Calculation of column average gross SOF used on-site results unless off-site results were available.
[b] Fully remediated to the clay layer. Sample S10 was not collected due to obstructions.
[c] 5th meter interval not included as the core boring hit refusal due to a subsurface concrete slab. Soils under the subsurface slab were evaluated as part of Elevated Area #2 in Section 18.3.1.2

18.4.1 Data Set Screening Analysis

Table 18-15 summarizes the results of the screening tests performed on the borehole subsurface FSS data in accordance with Pages 14-27 through 14-29 of the C-T Phase II DP. All applicable tests demonstrating compliance passed.

Table 18-15 Screening Tests Results – Subsurface Material

Screening Test	Test Value	Conclusion
0 – 1 m		
Min/Max	0.48	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min / Max < 1
EMC Limit	N/A	Not applicable; subsurface material
0 – 2 m		
Min/Max	0.29	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min / Max < 1
EMC Limit	N/A	Not applicable; subsurface material
0 – 3 m		
Min/Max	0.24	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min / Max < 1
EMC Limit	N/A	Not applicable; subsurface material
0 – 4 m		
Min/Max	0.23	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min / Max < 1
EMC Limit	N/A	Not applicable; subsurface material
0 – 5 m		
Min/Max	0.38	PASS
Low Level	N/A	Not applicable; Class 1 survey unit
DCGL	N/A	Not applicable; Min / Max < 1
EMC Limit	N/A	Not applicable; subsurface material

18.4.1.1 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 from Table 18-13. Systematic sample location 6 had the maximum survey unit systematic column average gross SOF of 0.50, 0.31 and 0.26 for 0-1 m, 0-2 m and 0-3 m respectively. Systematic sample location 15 had the maximum survey unit systematic column average gross SOF of 0.25 for 0-4 m. Systematic sample location 8 had the maximum survey unit systematic column average gross SOF of 0.40 for 0-5 m. 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 0.48, 0.29, 0.24, 0.23, and 0.38 for 0-1 m, 0-2 m, 0-3 m, 0-4 m, and 0-5 m, respectively. Because the test value was less than one for all intervals, further computations are not required, i.e., $DCGL_W$ screening and WRS tests.

18.4.1.2 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.

18.4.1.3 $DCGL_W$

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 subsurface material for this survey unit.

18.4.1.4 EMC Limit

In accordance with Page 14-26 of the C-T Phase II DP, the $DCGL_{EMC}$ is not applicable to subsurface survey units, in this case the assessment of the subsurface material in the survey unit. Thus, the EMC limit is not applicable.

18.4.2 WRS Test

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

18.4.3 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 18-16 through Table 18-18 provides the results for the retrospective analysis for the 0-1 m, 0-2 m, and 0-3 m column averages. Because the actual sample size met the retrospective value sample size, the conclusion is that the survey design objectives were met.

Table 18-19 through Table 18-20 provides the results for the retrospective analysis for the 0-4 m, and 0-5 m column averages. It should be noted that the actual sample size was less than the retrospective value sample size. This is due to the areas that were fully remediated to the clay layer and sample locations that hit refusal, not because elevated contamination caused a large calculated relative shift. Based upon the known subsurface conditions and the core boring results provided in Section 18.2.3, it was reasonable to not re-perform the systematic FSS borehole sampling at new locations for two reasons: 1) characterization data guided the excavation extent and FSS data results were consistent with characterization data results, and 2) if the systematic FSS core bore sampling was re-performed, it was anticipated that a large fraction of these new locations would also have a reduced number of samples at depth; a significant portion of the survey unit was either fully remediated to the clay layer or would have hit refusal due to the subsurface concrete slab as described in Section 18.2.2.3. As a result, there was a very limited area where the full column would actually hit the clay layer. Additionally, the column averaging for core boring location S08 as provided in Table 18-13 and Table 18-14 is representative of the core boring locations that hit refusal due to the subsurface slab. The column average for the 0-5 m depth at this location did not exceed the investigation level; therefore, it is unlikely that the column average for the other locations would have required further action. As a result, the FSS was considered adequate for demonstrating compliance in this situation.

Table 18-16 Retrospective Analysis – 0-1 m

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	0.24
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.14
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	5.4
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	9

[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.

Table 18-17 Retrospective Analysis – 0-2 m

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	0.22
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.07
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	11.1
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	9

[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.

Table 18-18 Retrospective Analysis – 0-3 m

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	0.21
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.04
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	19.8
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	9

[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.

Table 18-19 Retrospective Analysis – 0-4 m

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	0.22
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.04
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	19.5
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	8

[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.

Table 18-20 Retrospective Analysis – 0-5 m

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	0.29
Spatial Variability (standard deviation)	1/6 x DCGL = 0.17	0.08
Type I Error (false positive)	0.05	0.05
Type II Error (false negative)	0.05	0.05
Relative Shift	3	8.8
Calculated N/2 Sample Size	15 [a]	9
Actual N/2 Sample Size	--	5

[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.

18.5 DOSE ASSESSMENT OF ELEVATED AREAS

The elevated area evaluation (Section 18.3.1.1) for Elevated Areas #1 calculated an *Index* value of 4.46 for the area under the vertical pipe stand. The elevated area evaluation (Section 18.3.1.2) for Elevated Areas #2 calculated an *Index* value of 1.15 for the area under the subsurface concrete slab. The elevated area evaluation (Section 18.3.1.3) for Elevated Areas #3 calculated an *Index* value of 2.22 for the area around the cast iron pipe. The elevated area evaluation (Section 18.3.1.4) for Elevated Areas #4 calculated an *Index* value of 1.02 for the area at the northwest corner of Building 215. Because these values were greater than one, the elevated areas 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 dose assessments to evaluate each area as identified.

18.5.1 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. Section 12.5.1 of this FSSR documents the results of the comparison. 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 assessments.

18.5.2 Elevated Area Characterization

18.5.2.1 Elevated Area Size

Elevated Area #1 under the vertical pipe stand had a footprint of approximately 12 ft by 12 ft, or 13.4 m^2. The contamination started at approximately 6 ft bgs and continued to 10-11 ft bgs where the subsurface concrete slab was encountered; therefore the thickness was 5 ft or 1.52 m.

Elevated Area #2 under the subsurface concrete slab located approximately 10 to 11 ft bgs had a footprint of approximately 320 m^2 as shown in Figure 18-19. The contaminated lens started at approximately 11 to 12 ft bgs and continued to 14-15 ft bgs where the indigenous clay layer was located; therefore the thickness was approximately 3 to 4 ft or 1 m.

Elevated Area #3 around the 10-inch cast iron pipe had a footprint assumed to be 1 meter wide extending to biased bore sampling location B01 about 8-m away for an area of approximately 8 m^2. Based upon the depth of Elevated Area #2 and the location of the cast iron pipe, the thickness was assumed to be 1 m.

Elevated Area #4 near the northwest corner of Building 215 along a concrete joint had a footprint of approximately 1 m^2 based upon the location and general observation as discussed in Section 18.2.2.5. The contamination started at the surface and was assumed to be approximately 1 ft deep based upon prior similar areas.

18.5.2.2 Radionuclide Concentrations

The gross activity levels for Elevated Area #1, represented by the average of the sample results presented in Table 18-3 and summarized in Table 18-21, are 24.75, 259.08, and 15.79 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively. The net activity levels are 23.63, 256.58, and 11.54 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

Table 18-21 Elevated Area #1 Radionuclide Concentrations

Sample ID	Gross				Net			
	Concentration (pCi/g)			SOF [a]	Concentration (pCi/g)			SOF [a]
	^{232}Th	^{226}Ra	^{238}U		^{232}Th	^{226}Ra	^{238}U	
0870	0.56	4.13	3.83	0.17	0.00	1.73	0.00	0.06
0871	1.88	11.72	10.34	0.49	0.58	9.32	5.94	0.35
0872	1.55	10.49	19.10	0.45	0.25	8.09	14.70	0.30
0873	95.00	1,010.00	29.90	**38.37**	93.70	1007.60	25.50	**38.22**
Avg.	24.75	259.08	15.79	**9.87**	23.63	256.58	11.54	**9.73**

[a] **Bolded red** SOF values indicate a result >1.

The gross activity levels for Elevated Area #2, represented by the average of the sample results presented in Table 18-4 (excluding sample 0645) and samples 0863 and 1026 (systematic sample locations S08 and S12, see Table 18-1), are 7.18, 34.47, and 29.56 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively as summarized in Table 18-22. The net activity levels are 5.78, 31.97, and 24.85 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

Table 18-22 Elevated Area #2 Radionuclide Concentrations

Sample ID	Gross				Net			
	Concentration (pCi/g)			SOF [a]	Concentration (pCi/g)			SOF [a]
	^{232}Th	^{226}Ra	^{238}U		^{232}Th	^{226}Ra	^{238}U	
0439	2.42	8.84	7.83	0.41	0.00	6.34	0.00	0.22
0444	4.79	12.70	19.50	**0.66**	3.49	10.20	15.10	**0.51**
0737	25.40	25.40	13.70	**1.95**	24.10	22.90	9.30	**1.80**
0790	7.17	152.00	51.40	**5.54**	5.87	149.50	47.00	**5.40**
0864	1.94	12.50	8.57	**0.52**	0.64	10.00	4.17	0.37
0865	8.77	35.50	54.50	**1.65**	7.47	33.00	50.10	**1.50**
0866	7.82	55.20	56.50	**2.28**	6.52	52.70	52.10	**2.14**
0868	5.87	23.80	24.00	**1.09**	4.57	21.30	19.60	**0.94**
0926	2.68	10.70	23.10	**0.51**	1.38	8.20	18.70	0.36
0863	7.99	29.20	59.40	**1.41**	6.69	26.70	55.00	**1.26**
1026	4.16	13.30	6.63	**0.64**	2.86	10.80	2.23	0.49
Avg.	7.18	34.47	29.56	**1.51**	5.78	31.97	24.85	**1.36**

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

The gross activity levels for Elevated Area #3, represented by the average of samples 0879 and 0880 as presented in Table 18-2 and summarized in Table 18-23, are 20.10, 133.50, and 17.35 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively. The net activity levels are 13.05, 131.00, and 8.15 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

Table 18-23 Elevated Area #3 Radionuclide Concentrations

Sample ID	Gross				Net			
	Concentration (pCi/g)			SOF [a]	Concentration (pCi/g)			SOF [a]
	^{232}Th	^{226}Ra	^{238}U		^{232}Th	^{226}Ra	^{238}U	
0879	12.80	124.00	14.00	**4.77**	0.00	121.50	0.00	**4.13**
0880	27.40	143.00	20.70	**6.04**	26.10	140.50	16.30	**5.89**
Avg.	20.10	133.50	17.35	**5.41**	18.80	131.00	12.95	**5.26**

[a] **Bolded red** SOF values indicate a result >1.

The gross activity levels for Elevated Area #4, represented by the average of samples 1455 and 1457 as presented in Table 18-5 and summarized in Table 18-24, are 4.62, 69.65, and 8.28 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively. The net activity levels are 3.32, 67.15, and 3.88 pCi/g for ^{232}Th, ^{226}Ra, and ^{238}U, respectively.

Table 18-24 Elevated Area #4 Radionuclide Concentrations

Sample ID	Gross				Net			
	Concentration (pCi/g) [a]			SOF [b]	Concentration (pCi/g)			SOF [b]
	^{232}Th	^{226}Ra	^{238}U		^{232}Th	^{226}Ra	^{238}U	
1455	6.35	96.50	*7.70*	**3.56**	5.05	94.00	3.30	**3.41**
1457	2.88	42.80	8.86	**1.59**	1.58	40.30	4.46	**1.44**
Avg.	4.62	69.65	8.28	**2.57**	3.32	67.15	3.88	**2.43**

[a] Italicized results indicate <MDC.
[b] **Bolded red** SOF values indicate a result >1.

18.5.3 *In Situ* Models and Results

18.5.3.1 RESRAD Models

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 these elevated areas, the actual radionuclide concentrations were established based on sampling and therefore independent models with respect to modeled radionuclides were not required. Table 18-25 through Table 18-28 provide 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 for Elevated Areas #1 through #4, respectively.

Table 18-25 RESRAD *In Situ* Model Parameters for Elevated Area #1

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	23.63 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	256.58 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 18.5.2.2.
^{230}Th	1,539.48 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	11.54 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.53 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	13.4 m^2	Area under the vertical pipe stand as discussed in Section 18.5.2.1.
Thickness	1.52 m	Thickness of elevated area under the vertical pipe stand and above the subsurface slab as discussed in Section 18.5.2.1.
Cover/Hydrol.		
Cover depth	1.83 m	The first 6 ft bgs is vertical pipe stand made from poured concrete. Modeled as soil.

Table 18-26 RESRAD *In Situ* Model Parameters for Elevated Area #2

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	5.78 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	31.97 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 18.5.2.2.
^{230}Th	191.82 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	24.85 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	1.13 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	320 m^2	Area beneath the subsurface slab as discussed in Section 18.5.2.1.
Thickness	1.0 m	Thickness of the elevated area below the subsurface slab as discussed in Section 18.5.2.1.
Cover/Hydrol.		
Cover depth	3.57 m	The excavation was approximately 15 ft at this location with a 1.0 m thick contaminated lens.

Table 18-27 RESRAD *In Situ* Model Parameters for Elevated Area #3

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	18.8 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	131.00 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 18.5.2.2.
^{230}Th	786.00 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	12.95 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.59 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	8 m^2	Area as discussed in Section 18.5.2.1.
Thickness	1.0 m	Thickness of elevated area as discussed in Section 18.5.2.1.
Cover/Hydrol.		
Cover depth	2.35 m	The subsurface slab is approximately 11 ft bgs with the 1.0 m thick contaminated layer sitting on top of the concrete.

Table 18-28 RESRAD *In Situ* Model Parameters for Elevated Area #4

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	3.32 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	67.15 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 18.5.2.2.
^{230}Th	402.9 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	3.88 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.18 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	1.0 m^2	Area as discussed in Section 18.5.2.1.
Thickness	0.3048 m	Thickness of elevated area as discussed in Section 18.5.2.1.
Cover/Hydrol.		
Cover depth	0 m	Surface contamination below pavement/asphalt

18.5.3.2 Results

The maximum dose for Elevated Area #1 was 1.790E-02 millirem per year (mrem/yr) at year 1,000. Appendix A provides the RESRAD summary report.

The maximum dose for Elevated Area #2 was 9.470E-11 mrem/yr at year 1,000. Appendix B provides the RESRAD summary report.

The maximum dose for Elevated Area #3 was 3.538E-05 mrem/yr at year 1,000. Appendix C provides the RESRAD summary report.

The maximum dose for Elevated Area #4 was 5.724 mrem/yr at year 0. Appendix D provides the RESRAD summary report.

18.5.4 Excavation Scenario Models and Results

In addition to evaluating the dose from the elevated areas *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, so excavation to expose the entire elevated area is unlikely with the exception of Elevated Area #4 which is small and may be completely exposed. Utility systems are likely to be installed and most systems are installed in the 6 ft bgs depth range; however, the specific depths of the elevated areas are not evaluated in this scenario.

18.5.4.1 RESRAD Models

Similar to the *in situ* models discussed in Section 18.5.3.1, one RESRAD model was developed for the excavation scenario for each elevated area. Table 18-29 through Table 18-32 provide 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 for each of the four (4) Elevated Areas.

For Elevated Area #1, the scenario assumes that a 3-ft (0.9-m) wide trench is excavated to the shallowest depth of the elevated area; however, because the vertical pipe stand is a structure, it is likely that it would all be removed and therefore the trench will be considered 12 ft, or 3.66 m, wide for this evaluation. The length of the trench, assumed to be equivalent to the width of the vertical pipe stand is 12 ft, or 3.66 m. Therefore, the area of the trench (excavation) is 13.4 m^2 and this is the size of the elevated area for which the critical receptor will be exposed. 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.

The model assumes 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 1.83 hours (0.5 hours per meter of trench × 3.66 m length). RESRAD evaluates dose on an annual basis. Therefore, 1.83 hours out of a year's time would be an outdoor time fraction of 0.00021 hours (1.83 hours / 8,766 hours). The indoor time fraction is zero since this is not an indoor scenario.

Table 18-29 RESRAD Excavation Model Parameters for Elevated Area #1

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	23.63 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	256.58 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 18.5.2.2.
^{230}Th	1,539.48 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	11.54 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.53 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.

Table 18-29 RESRAD Excavation Model Parameters for Elevated Area #1 (Continued)

Parameter	Value	Justification
Contaminated Zone		
Area	13.4 m^2	Total area of Elevated Area #1 is assumed to be completely exposed.
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.
Occupancy, Inhalation, and External Gamma Data		
Indoor time fraction	0	No internal exposure applicable for the critical receptor within a trench.
Outdoor time fraction	0.00021 hours	0.5 hours per meter of trench over a trench length of 3.66 meters (12 ft) within any given modeled year.

For Elevated Area #2, the scenario assumes that a 3-ft (0.9-m) wide trench is excavated to the shallowest depth of the elevated area. The length of the trench, assumed to be equivalent to the diameter of a circle with the area equal to the elevated area size of 320 m^2, is 10.1 m. The area of the trench (excavation) would be 9.1 m^2 (10.1 m by 0.9 m) and represents the size of the elevated area for which the critical receptor will be exposed. 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.

The model assumes 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 5.1 hours (0.5 hours per meter of trench × 10.1 m length). RESRAD evaluates dose on an annual basis. Therefore, 5.1 hours out of a year's time would be an outdoor time fraction of 0.00058 hours (5.1 hours / 8,766 hours). Indoor time fraction is zero since this is not an indoor scenario.

Table 18-30 RESRAD Excavation Model Parameters for Elevated Area #2

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	5.78 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	31.97 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 18.5.2.2.
^{230}Th	191.82 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	24.85 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	1.13 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.

Table 18-30 RESRAD Excavation Model Parameters for Elevated Area #2 (Continued)

Parameter	Value	Justification
Contaminated Zone		
Area	9.1 m^2	Trench area of 9.1 m^2 assuming 3-ft (0.9-m) wide trench and 10.1 m long trench.
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.
Occupancy, Inhalation, and External Gamma Data		
Indoor time fraction	0	No internal exposure applicable for the critical receptor within a trench.
Outdoor time fraction	0.00058 hours	0.5 hours per meter of trench over a trench length of 10.1 meters within any given modeled year.

For Elevated Area #3, the scenario assumes that a 3-ft (0.9-m) wide trench is excavated to the shallowest depth of the elevated area. The length of the trench, assumed to be equivalent to the diameter of a circle with the area equal to the elevated area size of 8 m^2, is 1.60 m. The area of the trench (excavation) would be 1.44 m^2 (1.60 m by 0.9 m) and represents the size of the elevated area for which the critical receptor will be exposed. 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.

The model assumes 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 0.80 hours (0.5 hours per meter of trench × 1.60 m length). RESRAD evaluates dose on an annual basis. Therefore, 0.80 hours out of a year's time would be an outdoor time fraction of 0.000091 hours (0.80 hours / 8,766 hours). Indoor time fraction is zero since this is not an indoor scenario.

Table 18-31 RESRAD Excavation Model Parameters for Elevated Area #3

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	18.8 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	131.00 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 18.5.2.2.
^{230}Th	786.00 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	12.95 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.59 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.

Table 18-31 RESRAD Excavation Model Parameters for Elevated Area #3 (Continued)

Parameter	Value	Justification
Contaminated Zone		
Area	1.44 m^2	Trench area of 1.44 m^2 assuming 3-ft (0.9-m) wide trench and 1.60 m long trench.
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.
Occupancy, Inhalation, and External Gamma Data		
Indoor time fraction	0	No internal exposure applicable for the critical receptor within a trench.
Outdoor time fraction	0.000091 hours	0.5 hours per meter of trench over a trench length of 1.60 meters within any given modeled year.

For Elevated Area #4, the scenario assumes that the elevated area is completely exposed due to its limited size. The total time in the trench is 0.5 hours, which equates to an outdoor time fraction of 0.000057 hours. The indoor time fraction is zero.

Table 18-32 RESRAD Excavation Model Parameters for Elevated Area #4

Parameter	Value	Justification
Soil Concentrations		
^{228}Ra, ^{228}Th, and ^{232}Th	3.32 pCi/g	Thorium series in secular equilibrium per C-T Phase II DP Section 5.8.2. Average net ^{232}Th concentration from Section 18.5.2.2.
^{226}Ra and ^{210}Pb	67.15 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 18.5.2.2.
^{230}Th	402.9 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	3.88 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 18.5.2.2.
^{235}U, ^{231}Pa, and ^{227}Ac	0.18 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	1 m^2	Total area of Elevated Area #4 is assumed to be completely exposed.
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.

Table 18-32 RESRAD Excavation Model Parameters for Elevated Area #4 (Continued)

Parameter	Value	Justification
Occupancy, Inhalation, and External Gamma Data		
Indoor time fraction	0	No internal exposure applicable for the critical receptor within a trench.
Outdoor time fraction	0.000057 hours	0.5 hours for this length of trench within any given modeled year.

18.5.4.2 Results

The maximum dose for Elevated Area #1 was 3.209E-01 mrem/yr at year 0. Appendix E provides the RESRAD summary report.

The maximum dose for Elevated Area #2 was 1.060E-01 mrem/yr at year 0. Appendix F provides the RESRAD summary report.

The maximum dose for Elevated Area #3 was 1.937E-02 mrem/yr at year 0. Appendix G provides the RESRAD summary report.

The maximum dose for Elevated Area #4 was 4.117E-03 mrem/yr at year 0. Appendix H provides the RESRAD summary report.

18.5.5 Dose Using Survey Unit Average

Table 18-1 provided the systematic sample results for the excavated surface. The average net SOF result is 0.224 excluding sample 0863 which is included as part of the Elevated Area #2 evaluation. This corresponds to a dose of 5.60 mrem/yr.

18.5.6 Conclusion

Adding together the *in situ* doses as specified in Section 18.5.3.2, the cumulative dose associated with the four (4) elevated areas of 5.74 mrem/yr and the dose from the survey unit average of 5.60 mrem/yr, the as-left total dose from the survey unit is 11.34 mrem/yr.

The independently-evaluated excavation scenario doses as specified in Section 18.5.4.2 ranged between 0.3209 mrem/yr and 0.0004 mrem/yr. The total cumulative dose associated with the excavation scenarios is 0.45 mrem/yr. When considering the dose contribution of the excavation walls, the total dose could be up to 1.35 mrem/yr.

18.6 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. Two deviations were noted.

- 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.

- No gamma scan data over the northeast corner of the survey unit as shown in Figure 18-10. The area was scanned; however the survey was not documented for this area. This deviation due to the lack of documented data is not considered significant because of the sample results as taken in the area.

18.7 NRC INSPECTIONS

A summary of U.S. Nuclear Regulatory Commission (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 04006563/13001 noted that the NRC reviewed the FSS data package for SU12 to ensure the licensee conducted the survey in accordance with the requirements as stated in the DP. No violations were identified. No findings of significance were identified.

The NRC inspector did identify an area at the northwest corner of Building 215 with a count rate of 55,000 cpm as specified in the inspection report. This area was sampled and has been evaluated as detailed in Sections 18.2.2.5, 18.3.1.4 and 18.5.

18.8 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 or a dose assessment was performed, the retrospective analysis found that the survey design objectives were met, and additional subsurface contamination not identified was not reasonably suspected. SU12 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.

18.9 REFERENCES

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

APPENDIX A

RESRAD v6.5 Summary Report for Elevated Area #1 *In Situ* Model

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Summary : SU12 Elevated Area #1 In-situ Model
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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 : SU12 Elevated Area #1 In-situ Model
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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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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)	1.340E+01	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.520E+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	5.300E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	5.300E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	2.566E+02	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	2.566E+02	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	2.363E+01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	2.363E+01	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.500E+03	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	2.363E+01	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	1.154E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	5.300E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	1.154E+01	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)	1.830E+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	8.681E-03	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	3.494E-03	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	1.751E-03	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)

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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	2.499E-03	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	2.499E-03	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	2.924E-06	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	2.924E-06	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	2.924E-06	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	3.494E-03	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	3.494E-03	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	3.494E-03	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	1.718E-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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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 : SU12 Elevated Area #1 In-situ Model
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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:	13.40 square meters	Ac-227	5.300E-01
Thickness:	1.52 meters	Pa-231	5.300E-01
Cover Depth:	1.83 meters	Pb-210	2.566E+02
		Ra-226	2.566E+02
		Ra-228	2.363E+01
		Th-228	2.363E+01
		Th-230	1.500E+03
		Th-232	2.363E+01
		U-234	1.154E+01
		U-235	5.300E-01
		U-238	1.154E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	5.797E-07	5.852E-07	5.959E-07	6.350E-07	7.708E-07	1.549E-06	1.165E-05	1.790E-02
M(t):	2.319E-08	2.341E-08	2.384E-08	2.540E-08	3.083E-08	6.196E-08	4.660E-07	7.161E-04

Maximum TDOSE(t): 1.790E-02 mrem/yr at t = 1.000E+03 years

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Summary : SU12 Elevated Area #1 In-situ Model
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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	4.311E-14	0.0000	0.000E+00	0.0000	0.000E+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	7.993E-16	0.0000	0.000E+00	0.0000	0.000E+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	9.338E-15	0.0000	0.000E+00	0.0000	0.000E+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	1.913E-07	0.3300	0.000E+00	0.0000	0.000E+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	6.103E-08	0.1053	0.000E+00	0.0000	0.000E+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	3.245E-07	0.5598	0.000E+00	0.0000	0.000E+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	2.428E-10	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	2.577E-09	0.0044	0.000E+00	0.0000	0.000E+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	5.607E-18	0.0000	0.000E+00	0.0000	0.000E+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	9.803E-19	0.0000	0.000E+00	0.0000	0.000E+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	1.987E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	5.797E-07	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	4.311E-14	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	7.993E-16	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	9.338E-15	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	1.913E-07	0.3300
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	6.103E-08	0.1053
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	3.245E-07	0.5598
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	2.428E-10	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	2.577E-09	0.0044
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	5.607E-18	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	9.803E-19	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	1.987E-12	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	5.797E-07	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	4.201E-14	0.0000	0.000E+00	0.0000	0.000E+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	2.171E-15	0.0000	0.000E+00	0.0000	0.000E+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	1.576E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.929E-07	0.3296	0.000E+00	0.0000	0.000E+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	1.478E-07	0.2526	0.000E+00	0.0000	0.000E+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	2.280E-07	0.3897	0.000E+00	0.0000	0.000E+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	7.348E-10	0.0013	0.000E+00	0.0000	0.000E+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	1.569E-08	0.0268	0.000E+00	0.0000	0.000E+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	3.956E-17	0.0000	0.000E+00	0.0000	0.000E+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	1.029E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.007E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	5.852E-07	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	4.201E-14	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	2.171E-15	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	1.576E-14	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	1.929E-07	0.3296
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	1.478E-07	0.2526
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	2.280E-07	0.3897
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	7.348E-10	0.0013
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	1.569E-08	0.0268
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	3.956E-17	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	1.029E-18	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	2.007E-12	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	5.852E-07	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	3.987E-14	0.0000	0.000E+00	0.0000	0.000E+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	4.854E-15	0.0000	0.000E+00	0.0000	0.000E+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	1.636E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.961E-07	0.3291	0.000E+00	0.0000	0.000E+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	2.224E-07	0.3732	0.000E+00	0.0000	0.000E+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	1.126E-07	0.1889	0.000E+00	0.0000	0.000E+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	1.748E-09	0.0029	0.000E+00	0.0000	0.000E+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	6.304E-08	0.1058	0.000E+00	0.0000	0.000E+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	2.128E-16	0.0000	0.000E+00	0.0000	0.000E+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	1.215E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.047E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	5.959E-07	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	3.987E-14	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	4.854E-15	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	1.636E-14	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	1.961E-07	0.3291
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	2.224E-07	0.3732
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	1.126E-07	0.1889
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	1.748E-09	0.0029
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	6.304E-08	0.1058
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	2.128E-16	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	1.215E-18	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	2.047E-12	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	5.959E-07	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 In-situ Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 IN SITU.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+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	3.323E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.370E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.432E-14	0.0000	0.000E+00	0.0000	0.000E+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	2.079E-07	0.3274	0.000E+00	0.0000	0.000E+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	1.630E-07	0.2567	0.000E+00	0.0000	0.000E+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	9.522E-09	0.0150	0.000E+00	0.0000	0.000E+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	5.614E-09	0.0088	0.000E+00	0.0000	0.000E+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	2.490E-07	0.3921	0.000E+00	0.0000	0.000E+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	2.029E-15	0.0000	0.000E+00	0.0000	0.000E+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	2.791E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.195E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	6.350E-07	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	3.323E-14	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	1.370E-14	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	1.432E-14	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	2.079E-07	0.3274
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	1.630E-07	0.2567
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	9.522E-09	0.0150
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	5.614E-09	0.0088
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	2.490E-07	0.3921
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	2.029E-15	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	2.791E-18	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	2.195E-12	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	6.350E-07	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 In-situ Model
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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	1.974E-14	0.0000	0.000E+00	0.0000	0.000E+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	3.567E-14	0.0000	0.000E+00	0.0000	0.000E+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	9.728E-15	0.0000	0.000E+00	0.0000	0.000E+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	2.455E-07	0.3185	0.000E+00	0.0000	0.000E+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	1.828E-08	0.0237	0.000E+00	0.0000	0.000E+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	8.199E-12	0.0000	0.000E+00	0.0000	0.000E+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	1.984E-08	0.0257	0.000E+00	0.0000	0.000E+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	4.872E-07	0.6320	0.000E+00	0.0000	0.000E+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	2.052E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.531E-17	0.0000	0.000E+00	0.0000	0.000E+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	2.677E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	7.708E-07	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	1.974E-14	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	3.567E-14	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	9.728E-15	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	2.455E-07	0.3185
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	1.828E-08	0.0237
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	8.199E-12	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	1.984E-08	0.0257
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	4.872E-07	0.6320
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	2.052E-14	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	1.531E-17	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	2.677E-12	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	7.708E-07	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 In-situ Model
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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	3.189E-15	0.0000	0.000E+00	0.0000	0.000E+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	1.108E-13	0.0000	0.000E+00	0.0000	0.000E+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	2.514E-15	0.0000	0.000E+00	0.0000	0.000E+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	4.395E-07	0.2838	0.000E+00	0.0000	0.000E+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	6.445E-12	0.0000	0.000E+00	0.0000	0.000E+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	1.536E-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	1.300E-07	0.0839	0.000E+00	0.0000	0.000E+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	9.794E-07	0.6323	0.000E+00	0.0000	0.000E+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	4.225E-13	0.0000	0.000E+00	0.0000	0.000E+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	1.839E-16	0.0000	0.000E+00	0.0000	0.000E+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	5.367E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.549E-06	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	3.189E-15	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	1.108E-13	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	2.514E-15	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	4.395E-07	0.2838
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	6.445E-12	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	1.536E-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	1.300E-07	0.0839
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	9.794E-07	0.6323
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	4.225E-13	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	1.839E-16	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	5.367E-12	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	1.549E-06	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 In-situ Model
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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	1.757E-17	0.0000	0.000E+00	0.0000	0.000E+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	1.026E-12	0.0000	0.000E+00	0.0000	0.000E+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	5.275E-17	0.0000	0.000E+00	0.0000	0.000E+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	2.320E-06	0.1991	0.000E+00	0.0000	0.000E+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	8.781E-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-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	2.827E-06	0.2426	0.000E+00	0.0000	0.000E+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	6.504E-06	0.5583	0.000E+00	0.0000	0.000E+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	2.390E-11	0.0000	0.000E+00	0.0000	0.000E+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	6.128E-15	0.0000	0.000E+00	0.0000	0.000E+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	3.923E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.165E-05	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	1.757E-17	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	1.026E-12	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	5.275E-17	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	2.320E-06	0.1991
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	8.781E-22	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	2.827E-06	0.2426
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	6.504E-06	0.5583
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	2.390E-11	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	6.128E-15	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	3.923E-11	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	1.165E-05	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 In-situ Model
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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	2.597E-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
Pa-231	2.784E-09	0.0000	0.000E+00	0.0000	0.000E+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	9.135E-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
Ra-226	7.853E-04	0.0439	0.000E+00	0.0000	0.000E+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	1.197E-02	0.6685	0.000E+00	0.0000	0.000E+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	5.149E-03	0.2877	0.000E+00	0.0000	0.000E+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	2.076E-07	0.0000	0.000E+00	0.0000	0.000E+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	8.693E-11	0.0000	0.000E+00	0.0000	0.000E+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	4.217E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.790E-02	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	2.597E-25	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	2.784E-09	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	9.135E-23	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	7.853E-04	0.0439
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	1.197E-02	0.6685
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	5.149E-03	0.2877
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	2.076E-07	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	8.693E-11	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	4.217E-08	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	1.790E-02	1.0000

*Sum of all water independent and dependent pathways.

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:01 Page 22
Summary : SU12 Elevated Area #1 In-situ Model
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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	8.135E-14	7.926E-14	7.523E-14	6.269E-14	3.724E-14	6.018E-15	3.315E-17	4.900E-25
Pa-231	Pa-231	1.000E+00	2.028E-16	2.056E-16	2.114E-16	2.330E-16	3.076E-16	8.130E-16	1.307E-14	2.174E-10
Pa-231	Ac-227+D	1.000E+00	1.305E-15	3.890E-15	8.948E-15	2.561E-14	6.700E-14	2.082E-13	1.923E-12	5.036E-09
Pa-231	∑DSR(j)		1.508E-15	4.096E-15	9.159E-15	2.584E-14	6.730E-14	2.090E-13	1.936E-12	5.253E-09
Pb-210+D	Pb-210+D	1.000E+00	3.323E-20	3.281E-20	3.197E-20	2.922E-20	2.258E-20	9.163E-21	6.966E-22	8.440E-26
Pb-210+D	Po-210	1.000E+00	3.636E-17	6.137E-17	6.373E-17	5.578E-17	3.789E-17	9.790E-18	2.049E-19	2.716E-25
Pb-210+D	∑DSR(j)		3.639E-17	6.140E-17	6.377E-17	5.581E-17	3.791E-17	9.799E-18	2.056E-19	3.560E-25
Ra-226+D	Ra-226+D	1.000E+00	7.456E-10	7.518E-10	7.644E-10	8.102E-10	9.569E-10	1.713E-09	9.041E-09	3.061E-06
Ra-226+D	Pb-210+D	1.000E+00	5.206E-22	1.565E-21	3.667E-21	1.120E-20	3.496E-20	1.828E-19	5.782E-18	8.625E-13
Ra-226+D	Po-210	1.000E+00	4.287E-19	2.079E-18	6.130E-18	2.010E-17	5.707E-17	1.919E-16	1.673E-15	2.731E-12
Ra-226+D	∑DSR(j)		7.456E-10	7.518E-10	7.644E-10	8.102E-10	9.569E-10	1.713E-09	9.041E-09	3.061E-06
Ra-228+D	Ra-228+D	1.000E+00	4.872E-11	4.362E-11	3.497E-11	1.612E-11	1.765E-12	7.667E-16	1.898E-25	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	2.534E-09	6.212E-09	9.378E-09	6.881E-09	7.720E-10	2.720E-13	3.697E-23	0.000E+00
Ra-228+D	∑DSR(j)		2.583E-09	6.256E-09	9.413E-09	6.897E-09	7.737E-10	2.727E-13	3.716E-23	0.000E+00
Th-228+D	Th-228+D	1.000E+00	1.373E-08	9.650E-09	4.765E-09	4.030E-10	3.470E-13	6.500E-24	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	4.131E-27	4.249E-27	4.494E-27	5.468E-27	9.581E-27	6.820E-26	1.858E-23	6.207E-15
Th-230	Ra-226+D	1.000E+00	1.619E-13	4.899E-13	1.165E-12	3.743E-12	1.322E-11	8.667E-11	1.884E-09	7.978E-06
Th-230	Pb-210+D	1.000E+00	7.552E-26	5.323E-25	2.859E-24	2.712E-23	2.743E-22	6.453E-21	1.022E-18	2.037E-12
Th-230	Po-210	1.000E+00	5.023E-23	5.695E-22	4.168E-21	4.613E-20	4.386E-19	6.726E-18	2.948E-16	6.438E-12
Th-230	∑DSR(j)		1.619E-13	4.899E-13	1.165E-12	3.743E-12	1.322E-11	8.667E-11	1.884E-09	7.978E-06
Th-232	Th-232	1.000E+00	5.285E-30	5.452E-30	5.803E-30	7.219E-30	1.347E-29	1.196E-28	6.132E-26	1.870E-16
Th-232	Ra-228+D	1.000E+00	3.003E-12	8.637E-12	1.841E-11	4.167E-11	7.198E-11	1.762E-10	2.124E-09	1.292E-05
Th-232	Th-228+D	1.000E+00	1.061E-10	6.555E-10	2.650E-09	1.050E-08	2.054E-08	4.127E-08	2.731E-07	2.050E-04
Th-232	∑DSR(j)		1.091E-10	6.641E-10	2.668E-09	1.054E-08	2.062E-08	4.145E-08	2.752E-07	2.179E-04
U-234	U-234	1.000E+00	1.681E-28	1.725E-28	1.816E-28	2.172E-28	3.624E-28	2.176E-27	3.643E-25	2.213E-17
U-234	Th-230	1.000E+00	1.866E-32	5.730E-32	1.408E-31	5.076E-31	2.496E-30	5.205E-29	3.116E-26	1.554E-17
U-234	Ra-226+D	1.000E+00	4.859E-19	3.428E-18	1.844E-17	1.758E-16	1.778E-15	3.661E-14	2.071E-12	1.799E-08
U-234	Pb-210+D	1.000E+00	1.703E-31	2.577E-30	3.066E-29	8.740E-28	2.654E-26	2.210E-24	1.037E-21	4.542E-15
U-234	Po-210	1.000E+00	9.532E-29	2.344E-27	3.988E-26	1.416E-24	4.168E-23	2.290E-21	2.986E-19	1.435E-14
U-234	∑DSR(j)		4.859E-19	3.428E-18	1.844E-17	1.758E-16	1.778E-15	3.661E-14	2.071E-12	1.799E-08
U-235+D	U-235+D	1.000E+00	1.838E-18	1.870E-18	1.936E-18	2.183E-18	3.080E-18	1.027E-17	3.207E-16	5.458E-11
U-235+D	Pa-231	1.000E+00	2.151E-21	6.532E-21	1.566E-20	5.178E-20	1.986E-19	1.731E-18	8.333E-17	4.650E-12
U-235+D	Ac-227+D	1.000E+00	9.243E-21	6.463E-20	3.408E-19	3.031E-18	2.561E-17	3.349E-16	1.116E-14	1.048E-10
U-235+D	∑DSR(j)		1.850E-18	1.941E-18	2.292E-18	5.266E-18	2.889E-17	3.469E-16	1.156E-14	1.640E-10
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	2.985E-35

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:01 Page 23
Summary : SU12 Elevated Area #1 In-situ Model
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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	1.722E-13	1.739E-13	1.774E-13	1.902E-13	2.320E-13	4.651E-13	3.399E-12	3.643E-09
U-238+D	U-234	9.999E-01	2.393E-34	7.345E-34	1.803E-33	6.466E-33	3.134E-32	6.199E-31	3.105E-28	6.285E-20
U-238+D	Th-230	9.999E-01	1.766E-38	1.264E-37	7.023E-37	7.516E-36	1.060E-34	6.984E-33	1.100E-29	1.126E-20
U-238+D	Ra-226+D	9.999E-01	3.444E-25	5.205E-24	6.175E-23	1.741E-21	5.074E-20	3.359E-18	5.276E-16	1.128E-11
U-238+D	Pb-210+D	9.999E-01	9.671E-38	3.027E-36	7.794E-35	6.602E-33	5.936E-31	1.708E-28	2.438E-25	2.799E-18
U-238+D	Po-210	9.999E-01	4.679E-35	2.415E-33	9.178E-32	1.022E-29	9.160E-28	1.760E-25	7.008E-23	8.844E-18
U-238+D	∑DSR(j)		1.722E-13	1.739E-13	1.774E-13	1.902E-13	2.320E-13	4.651E-13	3.399E-12	3.654E-09

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	4.759E+09
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	3.353E+10	3.325E+10	3.271E+10	3.086E+10	2.613E+10	1.460E+10	2.765E+09	8.168E+06
Ra-228	9.679E+09	3.996E+09	2.656E+09	3.625E+09	3.231E+10	9.166E+13	*2.726E+14	*2.726E+14
Th-228	1.820E+09	2.591E+09	5.247E+09	6.204E+10	7.205E+13	*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	1.327E+10	3.134E+06
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	1.390E+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 : SU12 Elevated Area #1 In-situ Model
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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	5.300E-01	0.000E+00	8.135E-14	*7.232E+13	4.900E-25	*7.232E+13
Pa-231	5.300E-01	1.000E+03	5.253E-09	4.759E+09	5.253E-09	4.759E+09
Pb-210	2.566E+02	2.085 ± 0.004	6.435E-17	*7.634E+13	3.560E-25	*7.634E+13
Ra-226	2.566E+02	1.000E+03	3.061E-06	8.168E+06	3.061E-06	8.168E+06
Ra-228	2.363E+01	4.251 ± 0.009	9.785E-09	2.555E+09	0.000E+00	*2.726E+14
Th-228	2.363E+01	0.000E+00	1.373E-08	1.820E+09	0.000E+00	*8.195E+14
Th-230	1.500E+03	1.000E+03	7.978E-06	3.134E+06	7.978E-06	3.134E+06
Th-232	2.363E+01	1.000E+03	2.179E-04	*1.097E+05	2.179E-04	*1.097E+05
U-234	1.154E+01	1.000E+03	1.799E-08	1.390E+09	1.799E-08	1.390E+09
U-235	5.300E-01	1.000E+03	1.640E-10	*2.161E+06	1.640E-10	*2.161E+06
U-238	1.154E+01	1.000E+03	3.654E-09	*3.361E+05	3.654E-09	*3.361E+05

*At specific activity limit

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Summary : SU12 Elevated Area #1 In-situ Model
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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	4.311E-14	4.201E-14	3.987E-14	3.323E-14	1.974E-14	3.189E-15	1.757E-17	2.597E-25
Ac-227	Pa-231	1.000E+00	6.918E-16	2.062E-15	4.742E-15	1.357E-14	3.551E-14	1.103E-13	1.019E-12	2.669E-09
Ac-227	U-235	1.000E+00	4.899E-21	3.425E-20	1.806E-19	1.606E-18	1.357E-17	1.775E-16	5.914E-15	5.554E-11
Ac-227	∑DOSE(j)		4.381E-14	4.407E-14	4.462E-14	4.680E-14	5.526E-14	1.137E-13	1.025E-12	2.725E-09
Pa-231	Pa-231	1.000E+00	1.075E-16	1.090E-16	1.121E-16	1.235E-16	1.630E-16	4.309E-16	6.925E-15	1.152E-10
Pa-231	U-235	1.000E+00	1.140E-21	3.462E-21	8.302E-21	2.744E-20	1.052E-19	9.173E-19	4.417E-17	2.465E-12
Pa-231	∑DOSE(j)		1.075E-16	1.090E-16	1.121E-16	1.235E-16	1.631E-16	4.318E-16	6.969E-15	1.177E-10
Pb-210	Pb-210	1.000E+00	8.527E-18	8.418E-18	8.204E-18	7.496E-18	5.794E-18	2.351E-18	1.787E-19	2.165E-23
Pb-210	Ra-226	1.000E+00	1.336E-19	4.015E-19	9.409E-19	2.874E-18	8.969E-18	4.690E-17	1.484E-15	2.213E-10
Pb-210	Th-230	1.000E+00	1.133E-22	7.985E-22	4.288E-21	4.067E-20	4.114E-19	9.679E-18	1.533E-15	3.055E-09
Pb-210	U-234	1.000E+00	0.000E+00	2.974E-29	3.538E-28	1.009E-26	3.063E-25	2.550E-23	1.196E-20	5.241E-14
Pb-210	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.971E-27	2.813E-24	3.230E-17
Pb-210	∑DOSE(j)		8.661E-18	8.820E-18	9.149E-18	1.041E-17	1.517E-17	5.893E-17	3.016E-15	3.276E-09
Po-210	Pb-210	1.000E+00	9.329E-15	1.575E-14	1.635E-14	1.431E-14	9.722E-15	2.512E-15	5.257E-17	6.970E-23
Po-210	Ra-226	1.000E+00	1.100E-16	5.333E-16	1.573E-15	5.157E-15	1.464E-14	4.925E-14	4.292E-13	7.007E-10
Po-210	Th-230	1.000E+00	7.535E-20	8.543E-19	6.253E-18	6.919E-17	6.579E-16	1.009E-14	4.421E-13	9.657E-09
Po-210	U-234	1.000E+00	1.100E-27	2.705E-26	4.602E-25	1.635E-23	4.810E-22	2.643E-20	3.446E-18	1.656E-13
Po-210	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	1.180E-28	1.057E-26	2.031E-24	8.088E-22	1.021E-16
Po-210	∑DOSE(j)		9.440E-15	1.628E-14	1.793E-14	1.954E-14	2.502E-14	6.185E-14	8.714E-13	1.036E-08
Ra-226	Ra-226	1.000E+00	1.913E-07	1.929E-07	1.961E-07	2.079E-07	2.455E-07	4.395E-07	2.320E-06	7.853E-04
Ra-226	Th-230	1.000E+00	2.428E-10	7.348E-10	1.748E-09	5.614E-09	1.984E-08	1.300E-07	2.827E-06	1.197E-02
Ra-226	U-234	1.000E+00	5.607E-18	3.956E-17	2.128E-16	2.029E-15	2.052E-14	4.225E-13	2.390E-11	2.076E-07
Ra-226	U-238	9.999E-01	3.974E-24	6.006E-23	7.126E-22	2.009E-20	5.855E-19	3.876E-17	6.089E-15	1.301E-10
Ra-226	∑DOSE(j)		1.915E-07	1.936E-07	1.979E-07	2.135E-07	2.654E-07	5.695E-07	5.147E-06	1.275E-02
Ra-228	Ra-228	1.000E+00	1.151E-09	1.031E-09	8.262E-10	3.810E-10	4.171E-11	1.812E-14	4.486E-24	0.000E+00
Ra-228	Th-232	1.000E+00	7.097E-11	2.041E-10	4.351E-10	9.846E-10	1.701E-09	4.163E-09	5.018E-08	3.054E-04
Ra-228	∑DOSE(j)		1.222E-09	1.235E-09	1.261E-09	1.366E-09	1.743E-09	4.163E-09	5.018E-08	3.054E-04
Th-228	Ra-228	1.000E+00	5.988E-08	1.468E-07	2.216E-07	1.626E-07	1.824E-08	6.427E-12	8.737E-22	0.000E+00
Th-228	Th-228	1.000E+00	3.245E-07	2.280E-07	1.126E-07	9.522E-09	8.199E-12	1.536E-22	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	2.506E-09	1.549E-08	6.261E-08	2.480E-07	4.855E-07	9.752E-07	6.454E-06	4.844E-03
Th-228	∑DOSE(j)		3.869E-07	3.903E-07	3.968E-07	4.202E-07	5.037E-07	9.752E-07	6.454E-06	4.844E-03
Th-230	Th-230	1.000E+00	6.197E-24	6.373E-24	6.741E-24	8.203E-24	1.437E-23	1.023E-22	2.788E-20	9.310E-12
Th-230	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.880E-29	6.007E-28	3.596E-25	1.794E-16
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	1.269E-28	1.299E-19
Th-230	∑DOSE(j)		6.197E-24	6.373E-24	6.741E-24	8.203E-24	1.437E-23	1.023E-22	2.788E-20	9.311E-12
Th-232	Th-232	1.000E+00	1.249E-28	1.288E-28	1.371E-28	1.706E-28	3.184E-28	2.827E-27	1.449E-24	4.418E-15
U-234	U-234	1.000E+00	1.940E-27	1.991E-27	2.095E-27	2.506E-27	4.183E-27	2.511E-26	4.204E-24	2.554E-16
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	3.583E-27	7.253E-19
U-234	∑DOSE(j)		1.940E-27	1.991E-27	2.095E-27	2.506E-27	4.183E-27	2.511E-26	4.208E-24	2.561E-16
U-235	U-235	1.000E+00	9.742E-19	9.911E-19	1.026E-18	1.157E-18	1.632E-18	5.444E-18	1.700E-16	2.893E-11

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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	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	1.987E-12	2.007E-12	2.047E-12	2.195E-12	2.677E-12	5.367E-12	3.922E-11	4.204E-08
U-238	∑DOSE(j)		1.987E-12	2.007E-12	2.047E-12	2.195E-12	2.677E-12	5.367E-12	3.922E-11	4.204E-08

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

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Summary : SU12 Elevated Area #1 In-situ Model
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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	5.300E-01	5.090E-01	4.693E-01	3.534E-01	1.572E-01	9.219E-03	2.790E-06	1.344E-18
Ac-227	Pa-231	1.000E+00	0.000E+00	1.651E-02	4.741E-02	1.362E-01	2.751E-01	3.129E-01	1.588E-01	1.356E-02
Ac-227	U-235	1.000E+00	0.000E+00	1.757E-07	1.532E-06	1.529E-05	1.032E-04	5.004E-04	9.201E-04	2.821E-04
Ac-227	∑S(j):		5.300E-01	5.255E-01	5.167E-01	4.896E-01	4.324E-01	3.226E-01	1.598E-01	1.384E-02
Pa-231	Pa-231	1.000E+00	5.300E-01	5.281E-01	5.244E-01	5.117E-01	4.770E-01	3.729E-01	1.846E-01	1.576E-02
Pa-231	U-235	1.000E+00	0.000E+00	1.117E-05	3.329E-05	1.083E-04	3.028E-04	7.899E-04	1.176E-03	3.371E-04
Pa-231	∑S(j):		5.300E-01	5.282E-01	5.245E-01	5.118E-01	4.773E-01	3.737E-01	1.858E-01	1.610E-02
Pb-210	Pb-210	1.000E+00	2.566E+02	2.483E+02	2.325E+02	1.848E+02	9.582E+01	9.622E+00	1.353E-02	1.412E-12
Pb-210	Ra-226	1.000E+00	0.000E+00	7.834E+00	2.268E+01	6.694E+01	1.447E+02	1.889E+02	1.107E+02	1.421E+01
Pb-210	Th-230	1.000E+00	0.000E+00	9.980E-03	8.772E-02	8.988E-01	6.508E+00	3.873E+01	1.140E+02	1.959E+02
Pb-210	U-234	1.000E+00	0.000E+00	2.309E-10	6.113E-09	2.117E-07	4.761E-06	1.015E-04	8.887E-04	3.361E-03
Pb-210	U-238	9.999E-01	0.000E+00	1.638E-16	1.305E-14	1.519E-12	1.046E-10	7.803E-09	2.086E-07	2.071E-06
Pb-210	∑S(j):		2.566E+02	2.561E+02	2.553E+02	2.526E+02	2.470E+02	2.373E+02	2.247E+02	2.101E+02
Po-210	Pb-210	1.000E+00	0.000E+00	2.096E+02	2.335E+02	1.864E+02	9.664E+01	9.705E+00	1.365E-02	1.424E-12
Po-210	Ra-226	1.000E+00	0.000E+00	4.240E+00	1.857E+01	6.328E+01	1.419E+02	1.873E+02	1.098E+02	1.410E+01
Po-210	Th-230	1.000E+00	0.000E+00	4.072E-03	6.143E-02	8.037E-01	6.253E+00	3.811E+01	1.128E+02	1.941E+02
Po-210	U-234	1.000E+00	0.000E+00	7.615E-11	3.759E-09	1.799E-07	4.491E-06	9.931E-05	8.779E-04	3.329E-03
Po-210	U-238	9.999E-01	0.000E+00	4.548E-17	7.167E-15	1.231E-12	9.697E-11	7.592E-09	2.057E-07	2.050E-06
Po-210	∑S(j):		0.000E+00	2.139E+02	2.521E+02	2.504E+02	2.448E+02	2.351E+02	2.226E+02	2.082E+02
Ra-226	Ra-226	1.000E+00	2.566E+02	2.558E+02	2.543E+02	2.492E+02	2.350E+02	1.914E+02	1.065E+02	1.367E+01
Ra-226	Th-230	1.000E+00	0.000E+00	6.489E-01	1.941E+00	6.404E+00	1.866E+01	5.629E+01	1.294E+02	2.080E+02
Ra-226	U-234	1.000E+00	0.000E+00	2.245E-08	2.012E-07	2.202E-06	1.899E-05	1.821E-04	1.093E-03	3.609E-03
Ra-226	U-238	9.999E-01	0.000E+00	2.121E-14	5.698E-13	2.074E-11	5.330E-10	1.662E-08	2.780E-07	2.261E-06
Ra-226	∑S(j):		2.566E+02	2.565E+02	2.563E+02	2.556E+02	2.536E+02	2.477E+02	2.359E+02	2.217E+02
Ra-228	Ra-228	1.000E+00	2.363E+01	2.089E+01	1.634E+01	6.904E+00	5.893E-01	1.071E-04	2.198E-15	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	2.680E+00	7.146E+00	1.639E+01	2.257E+01	2.314E+01	2.313E+01	2.308E+01
Ra-228	∑S(j):		2.363E+01	2.357E+01	2.348E+01	2.329E+01	2.316E+01	2.314E+01	2.313E+01	2.308E+01
Th-228	Ra-228	1.000E+00	0.000E+00	6.733E+00	1.267E+01	9.499E+00	8.916E-01	1.621E-04	3.328E-15	0.000E+00
Th-228	Th-228	1.000E+00	2.363E+01	1.645E+01	7.969E+00	6.309E-01	4.496E-04	4.347E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	4.402E-01	2.930E+00	1.323E+01	2.227E+01	2.314E+01	2.313E+01	2.308E+01
Th-228	∑S(j):		2.363E+01	2.362E+01	2.357E+01	2.336E+01	2.317E+01	2.314E+01	2.313E+01	2.308E+01
Th-230	Th-230	1.000E+00	1.500E+03	1.500E+03	1.500E+03	1.500E+03	1.499E+03	1.498E+03	1.495E+03	1.482E+03
Th-230	U-234	1.000E+00	0.000E+00	1.037E-04	3.100E-04	1.021E-03	2.958E-03	8.761E-03	1.926E-02	2.855E-02
Th-230	U-238	9.999E-01	0.000E+00	1.469E-10	1.316E-09	1.439E-08	1.236E-07	1.170E-06	6.790E-06	2.068E-05
Th-230	∑S(j):		1.500E+03	1.500E+03	1.500E+03	1.500E+03	1.499E+03	1.498E+03	1.495E+03	1.482E+03
Th-232	Th-232	1.000E+00	2.363E+01	2.363E+01	2.363E+01	2.363E+01	2.363E+01	2.362E+01	2.361E+01	2.356E+01
U-234	U-234	1.000E+00	1.154E+01	1.150E+01	1.142E+01	1.114E+01	1.039E+01	8.135E+00	4.042E+00	3.496E-01
U-234	U-238	9.999E-01	0.000E+00	3.260E-05	9.712E-05	3.159E-04	8.837E-04	2.306E-03	3.439E-03	9.923E-04
U-234	∑S(j):		1.154E+01	1.150E+01	1.142E+01	1.114E+01	1.039E+01	8.137E+00	4.045E+00	3.506E-01
U-235	U-235	1.000E+00	5.300E-01	5.282E-01	5.245E-01	5.118E-01	4.773E-01	3.737E-01	1.858E-01	1.610E-02

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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
U-238	U-238	5.400E-05	6.232E-04	6.210E-04	6.167E-04	6.018E-04	5.611E-04	4.394E-04	2.185E-04	1.893E-05
U-238	U-238	9.999E-01	1.154E+01	1.150E+01	1.142E+01	1.114E+01	1.039E+01	8.136E+00	4.045E+00	3.505E-01
U-238	∑S(j):		1.154E+01	1.150E+01	1.142E+01	1.114E+01	1.039E+01	8.137E+00	4.045E+00	3.506E-01

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

RESCALC.EXE execution time = 2.36 seconds

APPENDIX B

RESRAD v6.5 Summary Report for Elevated Area #2 *In Situ* Model

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Summary : SU12 Elevated Area #2 In-site Model
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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)

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:08 Page 3
Summary : SU12 Elevated Area #2 In-site Model
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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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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 : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 IN SITU.RAD

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)	3.200E+02	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	1.130E+00	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.130E+00	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	3.197E+01	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	3.197E+01	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	5.780E+00	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	5.780E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.918E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	5.780E+00	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	2.485E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.130E+00	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	2.485E+01	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)	3.570E+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	1.319E-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	5.311E-03	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	2.661E-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	3.798E-03	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	3.798E-03	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	4.444E-06	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	4.444E-06	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	4.444E-06	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	5.311E-03	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	5.311E-03	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	5.311E-03	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	2.612E-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:	320.00 square meters	Ac-227	1.130E+00
Thickness:	1.00 meters	Pa-231	1.130E+00
Cover Depth:	3.57 meters	Pb-210	3.197E+01
		Ra-226	3.197E+01
		Ra-228	5.780E+00
		Th-228	5.780E+00
		Th-230	1.918E+02
		Th-232	5.780E+00
		U-234	2.485E+01
		U-235	1.130E+00
		U-238	2.485E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	7.489E-15	7.553E-15	7.669E-15	8.084E-15	9.656E-15	1.869E-14	1.239E-13	9.470E-11
M(t):	2.996E-16	3.021E-16	3.067E-16	3.234E-16	3.862E-16	7.476E-16	4.955E-15	3.788E-12

Maximum TDOSE(t): 9.470E-11 mrem/yr at t = 1.000E+03 years

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Summary : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 IN SITU.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 = 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	1.197E-24	0.0000	0.000E+00	0.0000	0.000E+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	1.923E-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
Pb-210	7.460E-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
Ra-226	7.952E-17	0.0106	0.000E+00	0.0000	0.000E+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	1.147E-15	0.1531	0.000E+00	0.0000	0.000E+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	6.215E-15	0.8299	0.000E+00	0.0000	0.000E+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	1.036E-19	0.0000	0.000E+00	0.0000	0.000E+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	4.799E-17	0.0064	0.000E+00	0.0000	0.000E+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	4.028E-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	3.357E-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
Total	7.489E-15	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	1.197E-24	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	1.923E-26	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	7.460E-26	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	7.952E-17	0.0106
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	1.147E-15	0.1531
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	6.215E-15	0.8299
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	1.036E-19	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	4.799E-17	0.0064
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	4.028E-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	3.357E-22	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	7.489E-15	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	1.161E-24	0.0000	0.000E+00	0.0000	0.000E+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	5.712E-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
Pb-210	1.256E-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
Ra-226	8.008E-17	0.0106	0.000E+00	0.0000	0.000E+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	2.809E-15	0.3719	0.000E+00	0.0000	0.000E+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	4.367E-15	0.5782	0.000E+00	0.0000	0.000E+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	3.134E-19	0.0000	0.000E+00	0.0000	0.000E+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	2.965E-16	0.0393	0.000E+00	0.0000	0.000E+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	2.839E-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	3.384E-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
Total	7.553E-15	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	1.161E-24	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	5.712E-26	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	1.256E-25	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	8.008E-17	0.0106
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	2.809E-15	0.3719
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	4.367E-15	0.5782
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	3.134E-19	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	2.965E-16	0.0393
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	2.839E-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	3.384E-22	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	7.553E-15	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	1.092E-24	0.0000	0.000E+00	0.0000	0.000E+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	1.306E-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
Pb-210	1.301E-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
Ra-226	8.122E-17	0.0106	0.000E+00	0.0000	0.000E+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	4.233E-15	0.5520	0.000E+00	0.0000	0.000E+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	2.156E-15	0.2812	0.000E+00	0.0000	0.000E+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	7.445E-19	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	1.197E-15	0.1561	0.000E+00	0.0000	0.000E+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	1.524E-24	0.0000	0.000E+00	0.0000	0.000E+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	4.979E-30	0.0000	0.000E+00	0.0000	0.000E+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	3.439E-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
Total	7.669E-15	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	1.092E-24	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	1.306E-25	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	1.301E-25	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	8.122E-17	0.0106
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	4.233E-15	0.5520
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	2.156E-15	0.2812
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	7.445E-19	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	1.197E-15	0.1561
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	1.524E-24	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	4.979E-30	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	3.439E-22	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	7.669E-15	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	8.815E-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
Pa-231	3.656E-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
Pb-210	1.131E-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
Ra-226	8.531E-17	0.0106	0.000E+00	0.0000	0.000E+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	3.085E-15	0.3816	0.000E+00	0.0000	0.000E+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	1.824E-16	0.0226	0.000E+00	0.0000	0.000E+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	2.381E-18	0.0003	0.000E+00	0.0000	0.000E+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	4.729E-15	0.5850	0.000E+00	0.0000	0.000E+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	1.443E-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
U-235	4.345E-29	0.0000	0.000E+00	0.0000	0.000E+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	3.638E-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
Total	8.084E-15	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	8.815E-25	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	3.656E-25	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	1.131E-25	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	8.531E-17	0.0106
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	3.085E-15	0.3816
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	1.824E-16	0.0226
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	2.381E-18	0.0003
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	4.729E-15	0.5850
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	1.443E-23	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	4.345E-29	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	3.638E-22	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	8.084E-15	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	4.777E-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
Pa-231	9.026E-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
Pb-210	7.547E-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
Ra-226	9.816E-17	0.0102	0.000E+00	0.0000	0.000E+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	3.376E-16	0.0350	0.000E+00	0.0000	0.000E+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	1.570E-19	0.0000	0.000E+00	0.0000	0.000E+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	8.305E-18	0.0009	0.000E+00	0.0000	0.000E+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	9.212E-15	0.9540	0.000E+00	0.0000	0.000E+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	1.430E-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
U-235	3.487E-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
U-238	4.272E-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
Total	9.656E-15	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	4.777E-25	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	9.026E-25	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	7.547E-26	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	9.816E-17	0.0102
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	3.376E-16	0.0350
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	1.570E-19	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	8.305E-18	0.0009
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	9.212E-15	0.9540
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	1.430E-22	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	3.487E-28	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	4.272E-22	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	9.656E-15	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	5.597E-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
Pa-231	2.380E-24	0.0000	0.000E+00	0.0000	0.000E+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	1.830E-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
Ra-226	1.604E-16	0.0086	0.000E+00	0.0000	0.000E+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	1.086E-19	0.0000	0.000E+00	0.0000	0.000E+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	5.220E-17	0.0028	0.000E+00	0.0000	0.000E+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	1.848E-14	0.9886	0.000E+00	0.0000	0.000E+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	2.747E-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	3.892E-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-238	7.500E-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
Total	1.869E-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+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	5.597E-26	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	2.380E-24	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	1.830E-26	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	1.604E-16	0.0086
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	1.086E-19	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	5.220E-17	0.0028
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	1.848E-14	0.9886
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	2.747E-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	3.892E-27	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	7.500E-22	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	1.869E-14	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+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	1.223E-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
Pa-231	1.487E-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
Pb-210	3.192E-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
Ra-226	6.531E-16	0.0053	0.000E+00	0.0000	0.000E+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	1.138E-29	0.0000	0.000E+00	0.0000	0.000E+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	1.027E-15	0.0083	0.000E+00	0.0000	0.000E+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	1.222E-13	0.9864	0.000E+00	0.0000	0.000E+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	1.302E-19	0.0000	0.000E+00	0.0000	0.000E+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	8.688E-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-238	3.776E-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
Total	1.239E-13	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	1.223E-28	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	1.487E-23	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	3.192E-28	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	6.531E-16	0.0053
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	1.138E-29	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	1.027E-15	0.0083
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	1.222E-13	0.9864
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	1.302E-19	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	8.688E-26	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	3.776E-21	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	1.239E-13	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	8.529E-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
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	8.885E-14	0.0009	0.000E+00	0.0000	0.000E+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	3.670E-12	0.0388	0.000E+00	0.0000	0.000E+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	9.094E-11	0.9603	0.000E+00	0.0000	0.000E+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	7.765E-16	0.0000	0.000E+00	0.0000	0.000E+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	1.778E-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
U-238	1.438E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	9.470E-11	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	8.529E-21	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	8.885E-14	0.0009
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	3.670E-12	0.0388
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	9.094E-11	0.9603
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	7.765E-16	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	1.778E-22	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	1.438E-18	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	9.470E-11	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #2 In-site Model
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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	1.060E-24	1.028E-24	9.667E-25	7.801E-25	4.228E-25	4.953E-26	1.082E-28	5.303E-38
Pa-231	Pa-231	1.000E+00	1.440E-29	1.457E-29	1.493E-29	1.624E-29	2.068E-29	4.812E-29	5.377E-28	2.508E-24
Pa-231	Ac-227+D	1.000E+00	1.701E-26	5.054E-26	1.155E-25	3.235E-25	7.987E-25	2.106E-24	1.316E-23	7.545E-21
Pa-231	∑DSR(j)		1.702E-26	5.055E-26	1.155E-25	3.235E-25	7.988E-25	2.106E-24	1.316E-23	7.548E-21
Pb-210+D	Pb-210+D	1.000E+00	2.792E-35	2.754E-35	2.679E-35	2.433E-35	1.846E-35	7.030E-36	4.455E-37	2.853E-41
Pb-210+D	Po-210	1.000E+00	2.334E-27	3.929E-27	4.070E-27	3.539E-27	2.361E-27	5.723E-28	9.983E-30	6.998E-36
Pb-210+D	∑DSR(j)		2.334E-27	3.929E-27	4.070E-27	3.539E-27	2.361E-27	5.723E-28	9.983E-30	6.998E-36
Ra-226+D	Ra-226+D	1.000E+00	2.487E-18	2.505E-18	2.540E-18	2.668E-18	3.070E-18	5.019E-18	2.043E-17	2.779E-15
Ra-226+D	Pb-210+D	1.000E+00	4.373E-37	1.313E-36	3.071E-36	9.307E-36	2.839E-35	1.363E-34	3.333E-33	2.002E-28
Ra-226+D	Po-210	1.000E+00	2.752E-29	1.332E-28	3.915E-28	1.273E-27	3.532E-27	1.091E-26	7.350E-26	4.831E-23
Ra-226+D	∑DSR(j)		2.487E-18	2.505E-18	2.540E-18	2.668E-18	3.070E-18	5.019E-18	2.043E-17	2.779E-15
Ra-228+D	Ra-228+D	1.000E+00	1.964E-20	1.756E-20	1.404E-20	6.416E-21	6.844E-22	2.714E-25	5.182E-35	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.983E-16	4.859E-16	7.324E-16	5.338E-16	5.841E-17	1.879E-20	1.969E-30	0.000E+00
Ra-228+D	∑DSR(j)		1.984E-16	4.859E-16	7.324E-16	5.338E-16	5.841E-17	1.879E-20	1.969E-30	0.000E+00
Th-228+D	Th-228+D	1.000E+00	1.075E-15	7.556E-16	3.731E-16	3.155E-17	2.717E-20	5.088E-31	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	1.121E-44	3.941E-36
Th-230	Ra-226+D	1.000E+00	5.402E-22	1.634E-21	3.881E-21	1.241E-20	4.330E-20	2.721E-19	5.354E-18	1.914E-14
Th-230	Pb-210+D	1.000E+00	6.345E-41	4.470E-40	2.397E-39	2.262E-38	2.256E-37	5.068E-36	7.216E-34	1.203E-27
Th-230	Po-210	1.000E+00	3.226E-33	3.652E-32	2.667E-31	2.933E-30	2.749E-29	4.026E-28	1.586E-26	2.898E-22
Th-230	∑DSR(j)		5.402E-22	1.634E-21	3.881E-21	1.241E-20	4.330E-20	2.721E-19	5.354E-18	1.914E-14
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	4.944E-40
Th-232	Ra-228+D	1.000E+00	1.211E-21	3.481E-21	7.412E-21	1.672E-20	2.876E-20	7.031E-20	8.473E-19	5.147E-15
Th-232	Th-228+D	1.000E+00	8.301E-18	5.129E-17	2.071E-16	8.182E-16	1.594E-15	3.197E-15	2.114E-14	1.573E-11
Th-232	∑DSR(j)		8.303E-18	5.129E-17	2.071E-16	8.182E-16	1.594E-15	3.197E-15	2.114E-14	1.573E-11
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	3.676E-40
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	6.660E-39
U-234	Ra-226+D	1.000E+00	1.621E-27	1.142E-26	6.134E-26	5.805E-25	5.754E-24	1.105E-22	5.238E-21	3.125E-17
U-234	Pb-210+D	1.000E+00	0.000E+00	2.803E-45	2.522E-44	7.273E-43	2.164E-41	1.681E-39	6.587E-37	1.956E-30
U-234	Po-210	1.000E+00	6.121E-39	1.503E-37	2.550E-36	8.984E-35	2.590E-33	1.328E-31	1.446E-29	4.708E-25
U-234	∑DSR(j)		1.621E-27	1.142E-26	6.134E-26	5.805E-25	5.754E-24	1.105E-22	5.238E-21	3.125E-17
U-235+D	U-235+D	1.000E+00	4.186E-34	4.251E-34	4.384E-34	4.883E-34	6.643E-34	1.951E-33	4.235E-32	2.019E-27
U-235+D	Pa-231	1.000E+00	1.526E-34	4.628E-34	1.106E-33	3.609E-33	1.335E-32	1.024E-31	3.430E-30	5.365E-26
U-235+D	Ac-227+D	1.000E+00	1.204E-31	8.401E-31	4.407E-30	3.846E-29	3.086E-28	3.444E-27	7.688E-26	1.573E-22
U-235+D	∑DSR(j)		1.210E-31	8.409E-31	4.408E-30	3.846E-29	3.086E-28	3.444E-27	7.688E-26	1.574E-22
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 : SU12 Elevated Area #2 In-site Model
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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	1.351E-23	1.362E-23	1.384E-23	1.464E-23	1.719E-23	3.017E-23	1.507E-22	4.261E-20
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	1.044E-42
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	3.470E-42
U-238+D	Ra-226+D	9.999E-01	1.149E-33	1.734E-32	2.053E-31	5.737E-30	1.632E-28	9.933E-27	1.248E-24	1.526E-20
U-238+D	Pb-210+D	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.275E-43	1.457E-40	9.461E-34
U-238+D	Po-210	9.999E-01	2.803E-45	1.555E-43	5.866E-42	6.475E-40	5.665E-38	1.003E-35	3.194E-33	2.277E-28
U-238+D	∑DSR(j)		1.351E-23	1.362E-23	1.384E-23	1.464E-23	1.719E-23	3.018E-23	1.520E-22	5.787E-20

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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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	1.130E+00	0.000E+00	1.060E-24	*7.232E+13	0.000E+00	*7.232E+13
Pa-231	1.130E+00	1.000E+03	7.548E-21	*4.723E+10	7.548E-21	*4.723E+10
Pb-210	3.197E+01	2.054 ± 0.004	4.111E-27	*7.634E+13	0.000E+00	*7.634E+13
Ra-226	3.197E+01	1.000E+03	2.779E-15	*9.885E+11	2.779E-15	*9.885E+11
Ra-228	5.780E+00	4.234 ± 0.008	7.610E-16	*2.726E+14	0.000E+00	*2.726E+14
Th-228	5.780E+00	0.000E+00	1.075E-15	*8.195E+14	0.000E+00	*8.195E+14
Th-230	1.918E+02	1.000E+03	1.914E-14	*2.018E+10	1.914E-14	*2.018E+10
Th-232	5.780E+00	1.000E+03	1.573E-11	*1.097E+05	1.573E-11	*1.097E+05
U-234	2.485E+01	1.000E+03	3.125E-17	*6.247E+09	3.125E-17	*6.247E+09
U-235	1.130E+00	1.000E+03	1.574E-22	*2.161E+06	1.574E-22	*2.161E+06
U-238	2.485E+01	1.000E+03	5.787E-20	*3.361E+05	5.787E-20	*3.361E+05

*At specific activity limit

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Summary : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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
Ac-227	Ac-227	1.000E+00	1.197E-24	1.161E-24	1.092E-24	8.815E-25	4.777E-25	5.597E-26	1.223E-28	0.000E+00
Ac-227	Pa-231	1.000E+00	1.922E-26	5.711E-26	1.305E-25	3.655E-25	9.026E-25	2.380E-24	1.487E-23	8.526E-21
Ac-227	U-235	1.000E+00	0.000E+00	0.000E+00	4.979E-30	4.345E-29	3.487E-28	3.892E-27	8.687E-26	1.778E-22
Ac-227	∑DOSE(j)		1.217E-24	1.218E-24	1.223E-24	1.247E-24	1.381E-24	2.440E-24	1.496E-23	8.704E-21
Pa-231	Pa-231	1.000E+00	1.627E-29	1.647E-29	1.687E-29	1.836E-29	2.337E-29	5.438E-29	6.076E-28	2.834E-24
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	3.876E-30	6.063E-26
Pa-231	∑DOSE(j)		1.627E-29	1.647E-29	1.687E-29	1.836E-29	2.337E-29	5.438E-29	6.115E-28	2.894E-24
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	6.400E-27
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	2.308E-25
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	4.860E-29
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	2.373E-25
Po-210	Pb-210	1.000E+00	7.460E-26	1.256E-25	1.301E-25	1.131E-25	7.547E-26	1.830E-26	3.192E-28	0.000E+00
Po-210	Ra-226	1.000E+00	8.799E-28	4.257E-27	1.252E-26	4.070E-26	1.129E-25	3.489E-25	2.350E-24	1.545E-21
Po-210	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	5.627E-28	5.274E-27	7.722E-26	3.042E-24	5.558E-20
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	3.593E-28	1.170E-23
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	5.659E-27
Po-210	∑DOSE(j)		7.548E-26	1.299E-25	1.426E-25	1.544E-25	1.937E-25	4.444E-25	5.393E-24	5.714E-20
Ra-226	Ra-226	1.000E+00	7.952E-17	8.008E-17	8.122E-17	8.531E-17	9.816E-17	1.604E-16	6.531E-16	8.885E-14
Ra-226	Th-230	1.000E+00	1.036E-19	3.134E-19	7.445E-19	2.381E-18	8.305E-18	5.220E-17	1.027E-15	3.670E-12
Ra-226	U-234	1.000E+00	4.028E-26	2.839E-25	1.524E-24	1.443E-23	1.430E-22	2.747E-21	1.302E-19	7.765E-16
Ra-226	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	1.426E-28	4.055E-27	2.468E-25	3.102E-23	3.793E-19
Ra-226	∑DOSE(j)		7.963E-17	8.040E-17	8.196E-17	8.769E-17	1.065E-16	2.126E-16	1.680E-15	3.760E-12
Ra-228	Ra-228	1.000E+00	1.135E-19	1.015E-19	8.116E-20	3.708E-20	3.956E-21	1.569E-24	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	7.000E-21	2.012E-20	4.284E-20	9.663E-20	1.662E-19	4.064E-19	4.897E-18	2.975E-14
Ra-228	∑DOSE(j)		1.205E-19	1.216E-19	1.240E-19	1.337E-19	1.702E-19	4.064E-19	4.897E-18	2.975E-14
Th-228	Ra-228	1.000E+00	1.146E-15	2.808E-15	4.233E-15	3.085E-15	3.376E-16	1.086E-19	1.138E-29	0.000E+00
Th-228	Th-228	1.000E+00	6.215E-15	4.367E-15	2.156E-15	1.824E-16	1.570E-19	0.000E+00	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	4.798E-17	2.964E-16	1.197E-15	4.729E-15	9.211E-15	1.848E-14	1.222E-13	9.091E-11
Th-228	∑DOSE(j)		7.410E-15	7.472E-15	7.587E-15	7.997E-15	9.549E-15	1.848E-14	1.222E-13	9.091E-11
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	2.282E-27

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Summary : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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	3.357E-22	3.384E-22	3.439E-22	3.638E-22	4.272E-22	7.497E-22	3.745E-21	1.059E-18
U-238	∑DOSE(j)		3.357E-22	3.384E-22	3.439E-22	3.638E-22	4.272E-22	7.497E-22	3.745E-21	1.059E-18

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

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:08 Page 27
Summary : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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	1.130E+00	1.080E+00	9.872E-01	7.203E-01	2.927E-01	1.252E-02	1.535E-06	3.140E-20
Ac-227	Pa-231	1.000E+00	0.000E+00	3.508E-02	1.001E-01	2.815E-01	5.375E-01	5.216E-01	1.830E-01	4.380E-03
Ac-227	U-235	1.000E+00	0.000E+00	3.736E-07	3.241E-06	3.175E-05	2.037E-04	8.477E-04	1.067E-03	9.128E-05
Ac-227	∑S(j):		1.130E+00	1.115E+00	1.087E+00	1.002E+00	8.304E-01	5.350E-01	1.841E-01	4.472E-03
Pa-231	Pa-231	1.000E+00	1.130E+00	1.124E+00	1.112E+00	1.071E+00	9.630E-01	6.630E-01	2.282E-01	5.462E-03
Pa-231	U-235	1.000E+00	0.000E+00	2.378E-05	7.059E-05	2.267E-04	6.114E-04	1.404E-03	1.453E-03	1.168E-04
Pa-231	∑S(j):		1.130E+00	1.124E+00	1.112E+00	1.072E+00	9.636E-01	6.644E-01	2.297E-01	5.579E-03
Pb-210	Pb-210	1.000E+00	3.197E+01	3.091E+01	2.889E+01	2.281E+01	1.162E+01	1.095E+00	1.283E-03	7.079E-14
Pb-210	Ra-226	1.000E+00	0.000E+00	9.751E-01	2.817E+00	8.249E+00	1.742E+01	2.090E+01	9.460E+00	4.893E-01
Pb-210	Th-230	1.000E+00	0.000E+00	1.275E-03	1.119E-02	1.141E-01	8.145E-01	4.629E+00	1.225E+01	1.761E+01
Pb-210	U-234	1.000E+00	0.000E+00	4.966E-10	1.312E-08	4.513E-07	9.948E-06	1.979E-04	1.447E-03	3.707E-03
Pb-210	U-238	9.999E-01	0.000E+00	3.524E-16	2.799E-14	3.232E-12	2.176E-10	1.495E-08	3.197E-07	1.793E-06
Pb-210	∑S(j):		3.197E+01	3.189E+01	3.172E+01	3.118E+01	2.985E+01	2.662E+01	2.171E+01	1.810E+01
Po-210	Pb-210	1.000E+00	0.000E+00	2.602E+01	2.889E+01	2.291E+01	1.167E+01	1.099E+00	1.289E-03	7.108E-14
Po-210	Ra-226	1.000E+00	0.000E+00	5.267E-01	2.299E+00	7.766E+00	1.702E+01	2.064E+01	9.348E+00	4.836E-01
Po-210	Th-230	1.000E+00	0.000E+00	5.195E-04	7.816E-03	1.016E-01	7.792E-01	4.535E+00	1.207E+01	1.736E+01
Po-210	U-234	1.000E+00	0.000E+00	1.636E-10	8.051E-09	3.822E-07	9.345E-06	1.928E-04	1.423E-03	3.655E-03
Po-210	U-238	9.999E-01	0.000E+00	9.773E-17	1.535E-14	2.610E-12	2.008E-10	1.449E-08	3.139E-07	1.767E-06
Po-210	∑S(j):		0.000E+00	2.655E+01	3.120E+01	3.078E+01	2.946E+01	2.627E+01	2.142E+01	1.785E+01
Ra-226	Ra-226	1.000E+00	3.197E+01	3.184E+01	3.157E+01	3.065E+01	2.816E+01	2.094E+01	8.984E+00	4.646E-01
Ra-226	Th-230	1.000E+00	0.000E+00	8.292E-02	2.477E-01	8.136E-01	2.341E+00	6.771E+00	1.409E+01	1.915E+01
Ra-226	U-234	1.000E+00	0.000E+00	4.830E-08	4.319E-07	4.694E-06	3.966E-05	3.547E-04	1.783E-03	4.052E-03
Ra-226	U-238	9.999E-01	0.000E+00	4.562E-14	1.223E-12	4.412E-11	1.106E-09	3.173E-08	4.244E-07	1.978E-06
Ra-226	∑S(j):		3.197E+01	3.192E+01	3.181E+01	3.146E+01	3.050E+01	2.771E+01	2.307E+01	1.962E+01
Ra-228	Ra-228	1.000E+00	5.780E+00	5.104E+00	3.980E+00	1.667E+00	1.386E-01	2.300E-05	3.641E-16	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	6.552E-01	1.745E+00	3.987E+00	5.469E+00	5.601E+00	5.596E+00	5.579E+00
Ra-228	∑S(j):		5.780E+00	5.759E+00	5.725E+00	5.654E+00	5.607E+00	5.601E+00	5.596E+00	5.579E+00
Th-228	Ra-228	1.000E+00	0.000E+00	1.646E+00	3.092E+00	2.303E+00	2.109E-01	3.501E-05	5.543E-16	0.000E+00
Th-228	Th-228	1.000E+00	5.780E+00	4.023E+00	1.949E+00	1.543E-01	1.100E-04	1.063E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.076E-01	7.158E-01	3.221E+00	5.398E+00	5.601E+00	5.596E+00	5.579E+00
Th-228	∑S(j):		5.780E+00	5.777E+00	5.757E+00	5.678E+00	5.609E+00	5.601E+00	5.596E+00	5.579E+00
Th-230	Th-230	1.000E+00	1.918E+02	1.918E+02	1.918E+02	1.918E+02	1.917E+02	1.916E+02	1.910E+02	1.893E+02
Th-230	U-234	1.000E+00	0.000E+00	2.231E-04	6.658E-04	2.178E-03	6.202E-03	1.734E-02	3.346E-02	4.143E-02
Th-230	U-238	9.999E-01	0.000E+00	3.159E-10	2.823E-09	3.060E-08	2.567E-07	2.242E-06	1.061E-05	2.158E-05
Th-230	∑S(j):		1.918E+02	1.918E+02	1.918E+02	1.918E+02	1.917E+02	1.916E+02	1.911E+02	1.893E+02
Th-232	Th-232	1.000E+00	5.780E+00	5.780E+00	5.780E+00	5.780E+00	5.779E+00	5.777E+00	5.772E+00	5.754E+00
U-234	U-234	1.000E+00	2.485E+01	2.472E+01	2.446E+01	2.356E+01	2.119E+01	1.461E+01	5.047E+00	1.223E-01
U-234	U-238	9.999E-01	0.000E+00	7.007E-05	2.080E-04	6.680E-04	1.802E-03	4.141E-03	4.294E-03	3.473E-04
U-234	∑S(j):		2.485E+01	2.472E+01	2.446E+01	2.356E+01	2.119E+01	1.461E+01	5.051E+00	1.227E-01
U-235	U-235	1.000E+00	1.130E+00	1.124E+00	1.112E+00	1.072E+00	9.636E-01	6.644E-01	2.297E-01	5.579E-03

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:08 Page 28
Summary : SU12 Elevated Area #2 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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	1.342E-03	1.335E-03	1.321E-03	1.272E-03	1.144E-03	7.890E-04	2.727E-04	6.625E-06
U-238	U-238	9.999E-01	2.485E+01	2.472E+01	2.446E+01	2.356E+01	2.119E+01	1.461E+01	5.051E+00	1.227E-01
U-238	∑S(j):		2.485E+01	2.472E+01	2.446E+01	2.356E+01	2.119E+01	1.461E+01	5.051E+00	1.227E-01

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

RESCALC.EXE execution time = 1.67 seconds

APPENDIX C

RESRAD v6.5 Summary Report for Elevated Area #3 *In Situ* Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:15 Page 1
Summary : SU12 Elevated Area #3 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 IN SITU.RAD

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Summary : SU12 Elevated Area #3 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 IN SITU.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)

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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 : SU12 Elevated Area #3 In-site Model
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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)	8.000E+00	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	5.900E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	5.900E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	1.310E+02	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	1.310E+02	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	1.880E+01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	1.880E+01	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	7.860E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	1.880E+01	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	1.295E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	5.900E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	1.295E+01	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)	2.350E+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	1.319E-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	5.311E-03	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	2.661E-03	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)

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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	3.798E-03	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	3.798E-03	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	4.444E-06	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	4.444E-06	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	4.444E-06	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	5.311E-03	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	5.311E-03	ALEACH(11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(11)

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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	5.311E-03	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	2.612E-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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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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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:	8.00 square meters	Ac-227	5.900E-01
Thickness:	1.00 meters	Pa-231	5.900E-01
Cover Depth:	2.35 meters	Pb-210	1.310E+02
		Ra-226	1.310E+02
		Ra-228	1.880E+01
		Th-228	1.880E+01
		Th-230	7.860E+02
		Th-232	1.880E+01
		U-234	1.295E+01
		U-235	5.900E-01
		U-238	1.295E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.165E-09	2.184E-09	2.218E-09	2.342E-09	2.803E-09	5.444E-09	3.686E-08	3.538E-05
M(t):	8.662E-11	8.736E-11	8.874E-11	9.369E-11	1.121E-10	2.178E-10	1.475E-09	1.415E-06

Maximum TDOSE(t): 3.538E-05 mrem/yr at t = 1.000E+03 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	2.322E-17	0.0000	0.000E+00	0.0000	0.000E+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	3.854E-19	0.0000	0.000E+00	0.0000	0.000E+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	3.751E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.420E-10	0.1118	0.000E+00	0.0000	0.000E+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	2.986E-10	0.1379	0.000E+00	0.0000	0.000E+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	1.612E-09	0.7444	0.000E+00	0.0000	0.000E+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	3.153E-13	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	1.252E-11	0.0058	0.000E+00	0.0000	0.000E+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	1.559E-20	0.0000	0.000E+00	0.0000	0.000E+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	2.362E-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
U-238	1.838E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.165E-09	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	2.322E-17	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	3.854E-19	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	3.751E-18	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	2.420E-10	0.1118
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	2.986E-10	0.1379
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	1.612E-09	0.7444
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	3.153E-13	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	1.252E-11	0.0058
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	1.559E-20	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	2.362E-23	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	1.838E-15	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	2.165E-09	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	2.252E-17	0.0000	0.000E+00	0.0000	0.000E+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	1.120E-18	0.0000	0.000E+00	0.0000	0.000E+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	6.316E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.437E-10	0.1116	0.000E+00	0.0000	0.000E+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	7.295E-10	0.3340	0.000E+00	0.0000	0.000E+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	1.133E-09	0.5186	0.000E+00	0.0000	0.000E+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	9.537E-13	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	7.711E-11	0.0353	0.000E+00	0.0000	0.000E+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	1.099E-19	0.0000	0.000E+00	0.0000	0.000E+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	3.998E-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
U-238	1.853E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.184E-09	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	2.252E-17	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	1.120E-18	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	6.316E-18	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	2.437E-10	0.1116
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	7.295E-10	0.3340
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	1.133E-09	0.5186
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	9.537E-13	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	7.711E-11	0.0353
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	1.099E-19	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	3.998E-23	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	1.853E-15	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	2.184E-09	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	2.118E-17	0.0000	0.000E+00	0.0000	0.000E+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	2.544E-18	0.0000	0.000E+00	0.0000	0.000E+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	6.542E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.472E-10	0.1114	0.000E+00	0.0000	0.000E+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	1.099E-09	0.4953	0.000E+00	0.0000	0.000E+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	5.593E-10	0.2521	0.000E+00	0.0000	0.000E+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	2.266E-12	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
Th-232	3.110E-10	0.1402	0.000E+00	0.0000	0.000E+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	5.900E-19	0.0000	0.000E+00	0.0000	0.000E+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	1.194E-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
U-238	1.883E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.218E-09	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	2.118E-17	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	2.544E-18	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	6.542E-18	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	2.472E-10	0.1114
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	1.099E-09	0.4953
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	5.593E-10	0.2521
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	2.266E-12	0.0010
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	3.110E-10	0.1402
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	5.900E-19	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	1.194E-22	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	1.883E-15	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	2.218E-09	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	1.710E-17	0.0000	0.000E+00	0.0000	0.000E+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	7.104E-18	0.0000	0.000E+00	0.0000	0.000E+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	5.689E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.596E-10	0.1108	0.000E+00	0.0000	0.000E+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	8.006E-10	0.3418	0.000E+00	0.0000	0.000E+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	4.730E-11	0.0202	0.000E+00	0.0000	0.000E+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	7.245E-12	0.0031	0.000E+00	0.0000	0.000E+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	1.228E-09	0.5241	0.000E+00	0.0000	0.000E+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	5.583E-18	0.0000	0.000E+00	0.0000	0.000E+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	8.703E-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
U-238	1.993E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.342E-09	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	1.710E-17	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	7.104E-18	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	5.689E-18	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	2.596E-10	0.1108
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	8.006E-10	0.3418
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	4.730E-11	0.0202
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	7.245E-12	0.0031
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	1.228E-09	0.5241
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	5.583E-18	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	8.703E-22	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	1.993E-15	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	2.342E-09	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 In-site Model
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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	9.269E-18	0.0000	0.000E+00	0.0000	0.000E+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	1.753E-17	0.0000	0.000E+00	0.0000	0.000E+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	3.795E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.987E-10	0.1066	0.000E+00	0.0000	0.000E+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	8.761E-11	0.0313	0.000E+00	0.0000	0.000E+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	4.073E-14	0.0000	0.000E+00	0.0000	0.000E+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	2.527E-11	0.0090	0.000E+00	0.0000	0.000E+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	2.391E-09	0.8531	0.000E+00	0.0000	0.000E+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	5.534E-17	0.0000	0.000E+00	0.0000	0.000E+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	6.811E-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-238	2.343E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.803E-09	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	9.269E-18	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	1.753E-17	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	3.795E-18	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	2.987E-10	0.1066
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	8.761E-11	0.0313
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	4.073E-14	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	2.527E-11	0.0090
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	2.391E-09	0.8531
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	5.534E-17	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	6.811E-21	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	2.343E-15	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	2.803E-09	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 In-site Model
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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	1.088E-18	0.0000	0.000E+00	0.0000	0.000E+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	4.632E-17	0.0000	0.000E+00	0.0000	0.000E+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	9.200E-19	0.0000	0.000E+00	0.0000	0.000E+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	4.883E-10	0.0897	0.000E+00	0.0000	0.000E+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	2.818E-14	0.0000	0.000E+00	0.0000	0.000E+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	7.628E-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
Th-230	1.588E-10	0.0292	0.000E+00	0.0000	0.000E+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	4.797E-09	0.8811	0.000E+00	0.0000	0.000E+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	1.063E-15	0.0000	0.000E+00	0.0000	0.000E+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	7.585E-20	0.0000	0.000E+00	0.0000	0.000E+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	4.129E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	5.444E-09	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	1.088E-18	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	4.632E-17	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	9.200E-19	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	4.883E-10	0.0897
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	2.818E-14	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	7.628E-25	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	1.588E-10	0.0292
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	4.797E-09	0.8811
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	1.063E-15	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	7.585E-20	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	4.129E-15	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	5.444E-09	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 In-site Model
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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	2.395E-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
Pa-231	2.916E-16	0.0000	0.000E+00	0.0000	0.000E+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	1.605E-20	0.0000	0.000E+00	0.0000	0.000E+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	1.987E-09	0.0539	0.000E+00	0.0000	0.000E+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	2.955E-24	0.0000	0.000E+00	0.0000	0.000E+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	3.125E-09	0.0848	0.000E+00	0.0000	0.000E+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	3.175E-08	0.8613	0.000E+00	0.0000	0.000E+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	5.037E-14	0.0000	0.000E+00	0.0000	0.000E+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	1.706E-18	0.0000	0.000E+00	0.0000	0.000E+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	2.088E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	3.686E-08	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	2.395E-21	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	2.916E-16	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	1.605E-20	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	1.987E-09	0.0539
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	2.955E-24	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	3.125E-09	0.0848
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	3.175E-08	0.8613
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	5.037E-14	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	1.706E-18	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	2.088E-14	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	3.686E-08	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+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	1.259E-30	0.0000	0.000E+00	0.0000	0.000E+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	1.814E-13	0.0000	0.000E+00	0.0000	0.000E+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	1.125E-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
Ra-226	2.704E-07	0.0076	0.000E+00	0.0000	0.000E+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	1.117E-05	0.3158	0.000E+00	0.0000	0.000E+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	2.393E-05	0.6766	0.000E+00	0.0000	0.000E+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	3.006E-10	0.0000	0.000E+00	0.0000	0.000E+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	3.883E-15	0.0000	0.000E+00	0.0000	0.000E+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	6.304E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	3.538E-05	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	1.259E-30	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	1.814E-13	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	1.125E-26	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	2.704E-07	0.0076
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	1.117E-05	0.3158
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	2.393E-05	0.6766
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	3.006E-10	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	3.883E-15	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	6.304E-12	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	3.538E-05	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 In-site Model
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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	3.935E-17	3.817E-17	3.590E-17	2.898E-17	1.571E-17	1.844E-18	4.059E-21	2.134E-30
Pa-231	Pa-231	1.000E+00	2.168E-20	2.194E-20	2.248E-20	2.446E-20	3.114E-20	7.247E-20	8.098E-19	3.776E-15
Pa-231	Ac-227+D	1.000E+00	6.315E-19	1.877E-18	4.290E-18	1.202E-17	2.968E-17	7.843E-17	4.935E-16	3.036E-13
Pa-231	∑DSR(j)		6.532E-19	1.899E-18	4.313E-18	1.204E-17	2.971E-17	7.851E-17	4.943E-16	3.074E-13
Pb-210+D	Pb-210+D	1.000E+00	9.438E-25	9.309E-25	9.055E-25	8.222E-25	6.240E-25	2.376E-25	1.506E-26	9.644E-31
Pb-210+D	Po-210	1.000E+00	2.863E-20	4.822E-20	4.994E-20	4.343E-20	2.897E-20	7.022E-21	1.225E-22	8.587E-29
Pb-210+D	∑DSR(j)		2.863E-20	4.822E-20	4.994E-20	4.343E-20	2.897E-20	7.023E-21	1.225E-22	8.684E-29
Ra-226+D	Ra-226+D	1.000E+00	1.847E-12	1.860E-12	1.887E-12	1.982E-12	2.280E-12	3.727E-12	1.517E-11	2.064E-09
Ra-226+D	Pb-210+D	1.000E+00	1.478E-26	4.438E-26	1.038E-25	3.146E-25	9.594E-25	4.608E-24	1.126E-22	6.766E-18
Ra-226+D	Po-210	1.000E+00	3.377E-22	1.634E-21	4.804E-21	1.562E-20	4.334E-20	1.339E-19	9.019E-19	5.928E-16
Ra-226+D	∑DSR(j)		1.847E-12	1.860E-12	1.887E-12	1.982E-12	2.280E-12	3.727E-12	1.517E-11	2.064E-09
Ra-228+D	Ra-228+D	1.000E+00	6.577E-14	5.881E-14	4.702E-14	2.148E-14	2.292E-15	9.089E-19	1.736E-28	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.582E-11	3.874E-11	5.840E-11	4.256E-11	4.658E-12	1.498E-15	1.570E-25	0.000E+00
Ra-228+D	∑DSR(j)		1.588E-11	3.880E-11	5.844E-11	4.258E-11	4.660E-12	1.499E-15	1.572E-25	0.000E+00
Th-228+D	Th-228+D	1.000E+00	8.574E-11	6.025E-11	2.975E-11	2.516E-12	2.166E-15	4.057E-26	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	1.753E-33	1.802E-33	1.906E-33	2.320E-33	4.064E-33	2.893E-32	7.880E-30	2.629E-21
Th-230	Ra-226+D	1.000E+00	4.012E-16	1.213E-15	2.883E-15	9.218E-15	3.216E-14	2.021E-13	3.976E-12	1.421E-08
Th-230	Pb-210+D	1.000E+00	2.144E-30	1.511E-29	8.101E-29	7.645E-28	7.623E-27	1.713E-25	2.439E-23	4.067E-17
Th-230	Po-210	1.000E+00	3.958E-26	4.481E-25	3.272E-24	3.599E-23	3.373E-22	4.939E-21	1.946E-19	3.555E-15
Th-230	∑DSR(j)		4.012E-16	1.213E-15	2.883E-15	9.218E-15	3.216E-14	2.021E-13	3.976E-12	1.421E-08
Th-232	Th-232	1.000E+00	4.445E-37	4.586E-37	4.881E-37	6.072E-37	1.133E-36	1.006E-35	5.156E-33	1.570E-23
Th-232	Ra-228+D	1.000E+00	4.055E-15	1.166E-14	2.482E-14	5.598E-14	9.630E-14	2.354E-13	2.837E-12	1.725E-08
Th-232	Th-228+D	1.000E+00	6.620E-13	4.090E-12	1.652E-11	6.524E-11	1.271E-10	2.549E-10	1.686E-09	1.256E-06
Th-232	∑DSR(j)		6.660E-13	4.101E-12	1.654E-11	6.530E-11	1.272E-10	2.552E-10	1.689E-09	1.273E-06
U-234	U-234	1.000E+00	4.211E-35	4.312E-35	4.522E-35	5.342E-35	8.595E-35	4.543E-34	5.290E-32	9.007E-25
U-234	Th-230	1.000E+00	7.911E-39	2.428E-38	5.955E-38	2.133E-37	1.030E-36	2.029E-35	1.066E-32	4.443E-24
U-234	Ra-226+D	1.000E+00	1.204E-21	8.485E-21	4.556E-20	4.311E-19	4.273E-18	8.208E-17	3.890E-15	2.321E-11
U-234	Pb-210+D	1.000E+00	4.835E-36	7.309E-35	8.680E-34	2.457E-32	7.313E-31	5.683E-29	2.226E-26	6.609E-20
U-234	Po-210	1.000E+00	7.511E-32	1.844E-30	3.128E-29	1.102E-27	3.178E-26	1.630E-24	1.774E-22	5.777E-18
U-234	∑DSR(j)		1.204E-21	8.485E-21	4.556E-20	4.311E-19	4.273E-18	8.208E-17	3.890E-15	2.321E-11
U-235+D	U-235+D	1.000E+00	3.533E-23	3.587E-23	3.700E-23	4.120E-23	5.605E-23	1.646E-22	3.574E-21	1.706E-16
U-235+D	Pa-231	1.000E+00	2.298E-25	6.969E-25	1.665E-24	5.435E-24	2.010E-23	1.543E-22	5.165E-21	8.079E-17
U-235+D	Ac-227+D	1.000E+00	4.472E-24	3.120E-23	1.636E-22	1.428E-21	1.147E-20	1.282E-19	2.883E-18	6.330E-15
U-235+D	∑DSR(j)		4.003E-23	6.777E-23	2.023E-22	1.475E-21	1.154E-20	1.286E-19	2.892E-18	6.582E-15
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 : SU12 Elevated Area #3 In-site Model
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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	1.419E-16	1.431E-16	1.454E-16	1.539E-16	1.809E-16	3.188E-16	1.612E-15	4.754E-13
U-238+D	U-234	9.999E-01	5.992E-41	1.836E-40	4.489E-40	1.590E-39	7.433E-39	1.295E-37	4.508E-35	2.558E-27
U-238+D	Th-230	9.999E-01	7.006E-45	5.325E-44	2.971E-43	3.149E-42	4.335E-41	2.635E-39	3.385E-36	2.314E-27
U-238+D	Ra-226+D	9.999E-01	8.531E-28	1.288E-26	1.524E-25	4.260E-24	1.212E-22	7.377E-21	9.271E-19	1.134E-14
U-238+D	Pb-210+D	9.999E-01	2.745E-42	8.584E-41	2.205E-39	1.853E-37	1.627E-35	4.315E-33	4.926E-30	3.198E-23
U-238+D	Po-210	9.999E-01	3.687E-38	1.900E-36	7.198E-35	7.945E-33	6.951E-31	1.231E-28	3.919E-26	2.794E-21
U-238+D	∑DSR(j)		1.419E-16	1.431E-16	1.454E-16	1.539E-16	1.809E-16	3.188E-16	1.612E-15	4.868E-13

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	1.211E+10
Ra-228	1.574E+12	6.443E+11	4.278E+11	5.871E+11	5.365E+12	*2.726E+14	*2.726E+14	*2.726E+14
Th-228	2.916E+11	4.149E+11	8.404E+11	9.936E+12	*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	1.759E+09
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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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	5.900E-01	0.000E+00	3.935E-17	*7.232E+13	2.134E-30	*7.232E+13
Pa-231	5.900E-01	1.000E+03	3.074E-13	*4.723E+10	3.074E-13	*4.723E+10
Pb-210	1.310E+02	2.052 ± 0.004	5.045E-20	*7.634E+13	8.587E-29	*7.634E+13
Ra-226	1.310E+02	1.000E+03	2.064E-09	1.211E+10	2.064E-09	1.211E+10
Ra-228	1.880E+01	4.236 ± 0.008	6.072E-11	4.117E+11	0.000E+00	*2.726E+14
Th-228	1.880E+01	0.000E+00	8.574E-11	2.916E+11	0.000E+00	*8.195E+14
Th-230	7.860E+02	1.000E+03	1.421E-08	1.759E+09	1.421E-08	1.759E+09
Th-232	1.880E+01	1.000E+03	1.273E-06	*1.097E+05	1.273E-06	*1.097E+05
U-234	1.295E+01	1.000E+03	2.321E-11	*6.247E+09	2.321E-11	*6.247E+09
U-235	5.900E-01	1.000E+03	6.582E-15	*2.161E+06	6.582E-15	*2.161E+06
U-238	1.295E+01	1.000E+03	4.868E-13	*3.361E+05	4.868E-13	*3.361E+05

*At specific activity limit

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Summary : SU12 Elevated Area #3 In-site Model
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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	2.322E-17	2.252E-17	2.118E-17	1.710E-17	9.269E-18	1.088E-18	2.395E-21	1.259E-30
Ac-227	Pa-231	1.000E+00	3.726E-19	1.107E-18	2.531E-18	7.089E-18	1.751E-17	4.628E-17	2.912E-16	1.791E-13
Ac-227	U-235	1.000E+00	2.638E-24	1.841E-23	9.655E-23	8.427E-22	6.767E-21	7.566E-20	1.701E-18	3.735E-15
Ac-227	∑DOSE(j)		2.359E-17	2.362E-17	2.371E-17	2.419E-17	2.679E-17	4.744E-17	2.929E-16	1.829E-13
Pa-231	Pa-231	1.000E+00	1.279E-20	1.295E-20	1.326E-20	1.443E-20	1.837E-20	4.276E-20	4.778E-19	2.228E-15
Pa-231	U-235	1.000E+00	1.356E-25	4.112E-25	9.825E-25	3.207E-24	1.186E-23	9.102E-23	3.047E-21	4.767E-17
Pa-231	∑DOSE(j)		1.279E-20	1.295E-20	1.326E-20	1.444E-20	1.838E-20	4.285E-20	4.808E-19	2.276E-15
Pb-210	Pb-210	1.000E+00	1.236E-22	1.219E-22	1.186E-22	1.077E-22	8.174E-23	3.112E-23	1.972E-24	0.000E+00
Pb-210	Ra-226	1.000E+00	1.936E-24	5.814E-24	1.360E-23	4.121E-23	1.257E-22	6.036E-22	1.476E-20	8.864E-16
Pb-210	Th-230	1.000E+00	1.686E-27	1.187E-26	6.367E-26	6.009E-25	5.992E-24	1.346E-22	1.917E-20	3.197E-14
Pb-210	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.359E-28	2.883E-25	8.559E-19
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	6.379E-29	4.141E-22
Pb-210	∑DOSE(j)		1.256E-22	1.278E-22	1.323E-22	1.495E-22	2.134E-22	7.694E-22	3.393E-20	3.286E-14
Po-210	Pb-210	1.000E+00	3.751E-18	6.316E-18	6.542E-18	5.689E-18	3.795E-18	9.199E-19	1.605E-20	1.125E-26
Po-210	Ra-226	1.000E+00	4.424E-20	2.141E-19	6.293E-19	2.046E-18	5.678E-18	1.754E-17	1.181E-16	7.766E-14
Po-210	Th-230	1.000E+00	3.111E-23	3.522E-22	2.572E-21	2.829E-20	2.651E-19	3.882E-18	1.530E-16	2.795E-12
Po-210	U-234	1.000E+00	0.000E+00	2.388E-29	4.051E-28	1.428E-26	4.116E-25	2.111E-23	2.297E-21	7.481E-17
Po-210	U-238	9.999E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.594E-27	5.075E-25	3.619E-20
Po-210	∑DOSE(j)		3.795E-18	6.531E-18	7.174E-18	7.763E-18	9.738E-18	2.234E-17	2.711E-16	2.872E-12
Ra-226	Ra-226	1.000E+00	2.420E-10	2.437E-10	2.472E-10	2.596E-10	2.987E-10	4.883E-10	1.987E-09	2.704E-07
Ra-226	Th-230	1.000E+00	3.153E-13	9.537E-13	2.266E-12	7.245E-12	2.527E-11	1.588E-10	3.125E-09	1.117E-05
Ra-226	U-234	1.000E+00	1.559E-20	1.099E-19	5.900E-19	5.583E-18	5.534E-17	1.063E-15	5.037E-14	3.006E-10
Ra-226	U-238	9.999E-01	1.105E-26	1.668E-25	1.974E-24	5.517E-23	1.569E-21	9.553E-20	1.201E-17	1.468E-13
Ra-226	∑DOSE(j)		2.423E-10	2.447E-10	2.494E-10	2.668E-10	3.240E-10	6.471E-10	5.113E-09	1.144E-05
Ra-228	Ra-228	1.000E+00	1.237E-12	1.106E-12	8.839E-13	4.039E-13	4.309E-14	1.709E-17	3.263E-27	0.000E+00
Ra-228	Th-232	1.000E+00	7.624E-14	2.191E-13	4.666E-13	1.052E-12	1.810E-12	4.426E-12	5.334E-11	3.243E-07
Ra-228	∑DOSE(j)		1.313E-12	1.325E-12	1.351E-12	1.456E-12	1.853E-12	4.426E-12	5.334E-11	3.243E-07
Th-228	Ra-228	1.000E+00	2.973E-10	7.284E-10	1.098E-09	8.002E-10	8.756E-11	2.817E-14	2.952E-24	0.000E+00
Th-228	Th-228	1.000E+00	1.612E-09	1.133E-09	5.593E-10	4.730E-11	4.073E-14	7.628E-25	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	1.244E-11	7.689E-11	3.105E-10	1.227E-09	2.389E-09	4.792E-09	3.170E-08	2.361E-05
Th-228	∑DOSE(j)		1.922E-09	1.938E-09	1.968E-09	2.074E-09	2.477E-09	4.792E-09	3.170E-08	2.361E-05
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	6.194E-27	2.067E-18
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	5.754E-23
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	2.997E-26
Th-230	∑DOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.194E-27	2.067E-18
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	2.952E-22
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	1.166E-23
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	3.313E-26
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	1.170E-23
U-235	U-235	1.000E+00	2.084E-23	2.117E-23	2.183E-23	2.431E-23	3.307E-23	9.712E-23	2.109E-21	1.007E-16

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Summary : SU12 Elevated Area #3 In-site Model
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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	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	1.838E-15	1.853E-15	1.883E-15	1.993E-15	2.343E-15	4.129E-15	2.087E-14	6.157E-12
U-238	∑DOSE(j)		1.838E-15	1.853E-15	1.883E-15	1.993E-15	2.343E-15	4.129E-15	2.087E-14	6.157E-12

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

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Summary : SU12 Elevated Area #3 In-site Model
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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	5.900E-01	5.640E-01	5.154E-01	3.761E-01	1.528E-01	6.535E-03	8.017E-07	1.640E-20
Ac-227	Pa-231	1.000E+00	0.000E+00	1.832E-02	5.228E-02	1.470E-01	2.807E-01	2.724E-01	9.556E-02	2.287E-03
Ac-227	U-235	1.000E+00	0.000E+00	1.951E-07	1.692E-06	1.658E-05	1.064E-04	4.426E-04	5.573E-04	4.766E-05
Ac-227	∑S(j):		5.900E-01	5.823E-01	5.677E-01	5.231E-01	4.336E-01	2.793E-01	9.612E-02	2.335E-03
Pa-231	Pa-231	1.000E+00	5.900E-01	5.869E-01	5.806E-01	5.594E-01	5.028E-01	3.462E-01	1.192E-01	2.852E-03
Pa-231	U-235	1.000E+00	0.000E+00	1.242E-05	3.686E-05	1.184E-04	3.192E-04	7.332E-04	7.588E-04	6.098E-05
Pa-231	∑S(j):		5.900E-01	5.869E-01	5.807E-01	5.595E-01	5.031E-01	3.469E-01	1.199E-01	2.913E-03
Pb-210	Pb-210	1.000E+00	1.310E+02	1.267E+02	1.184E+02	9.348E+01	4.760E+01	4.485E+00	5.258E-03	2.901E-13
Pb-210	Ra-226	1.000E+00	0.000E+00	3.995E+00	1.154E+01	3.380E+01	7.139E+01	8.565E+01	3.876E+01	2.005E+00
Pb-210	Th-230	1.000E+00	0.000E+00	5.226E-03	4.586E-02	4.676E-01	3.337E+00	1.897E+01	5.020E+01	7.216E+01
Pb-210	U-234	1.000E+00	0.000E+00	2.588E-10	6.839E-09	2.352E-07	5.184E-06	1.031E-04	7.541E-04	1.932E-03
Pb-210	U-238	9.999E-01	0.000E+00	1.836E-16	1.459E-14	1.684E-12	1.134E-10	7.791E-09	1.666E-07	9.345E-07
Pb-210	∑S(j):		1.310E+02	1.307E+02	1.300E+02	1.277E+02	1.223E+02	1.091E+02	8.897E+01	7.417E+01
Po-210	Pb-210	1.000E+00	0.000E+00	1.066E+02	1.184E+02	9.387E+01	4.780E+01	4.504E+00	5.280E-03	2.913E-13
Po-210	Ra-226	1.000E+00	0.000E+00	2.158E+00	9.419E+00	3.182E+01	6.974E+01	8.456E+01	3.831E+01	1.981E+00
Po-210	Th-230	1.000E+00	0.000E+00	2.129E-03	3.203E-02	4.164E-01	3.193E+00	1.858E+01	4.944E+01	7.115E+01
Po-210	U-234	1.000E+00	0.000E+00	8.526E-11	4.195E-09	1.992E-07	4.870E-06	1.005E-04	7.416E-04	1.905E-03
Po-210	U-238	9.999E-01	0.000E+00	5.093E-17	7.997E-15	1.360E-12	1.046E-10	7.549E-09	1.636E-07	9.211E-07
Po-210	∑S(j):		0.000E+00	1.088E+02	1.278E+02	1.261E+02	1.207E+02	1.076E+02	8.775E+01	7.313E+01
Ra-226	Ra-226	1.000E+00	1.310E+02	1.304E+02	1.293E+02	1.256E+02	1.154E+02	8.580E+01	3.681E+01	1.904E+00
Ra-226	Th-230	1.000E+00	0.000E+00	3.398E-01	1.015E+00	3.334E+00	9.592E+00	2.774E+01	5.772E+01	7.848E+01
Ra-226	U-234	1.000E+00	0.000E+00	2.517E-08	2.251E-07	2.446E-06	2.067E-05	1.848E-04	9.293E-04	2.111E-03
Ra-226	U-238	9.999E-01	0.000E+00	2.377E-14	6.371E-13	2.299E-11	5.765E-10	1.653E-08	2.212E-07	1.031E-06
Ra-226	∑S(j):		1.310E+02	1.308E+02	1.304E+02	1.289E+02	1.250E+02	1.135E+02	9.453E+01	8.038E+01
Ra-228	Ra-228	1.000E+00	1.880E+01	1.660E+01	1.295E+01	5.422E+00	4.509E-01	7.480E-05	1.184E-15	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	2.131E+00	5.675E+00	1.297E+01	1.779E+01	1.822E+01	1.820E+01	1.815E+01
Ra-228	∑S(j):		1.880E+01	1.873E+01	1.862E+01	1.839E+01	1.824E+01	1.822E+01	1.820E+01	1.815E+01
Th-228	Ra-228	1.000E+00	0.000E+00	5.353E+00	1.006E+01	7.490E+00	6.860E-01	1.139E-04	1.803E-15	0.000E+00
Th-228	Th-228	1.000E+00	1.880E+01	1.309E+01	6.340E+00	5.019E-01	3.577E-04	3.458E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	3.501E-01	2.328E+00	1.048E+01	1.756E+01	1.822E+01	1.820E+01	1.815E+01
Th-228	∑S(j):		1.880E+01	1.879E+01	1.873E+01	1.847E+01	1.824E+01	1.822E+01	1.820E+01	1.815E+01
Th-230	Th-230	1.000E+00	7.860E+02	7.860E+02	7.860E+02	7.859E+02	7.857E+02	7.849E+02	7.828E+02	7.755E+02
Th-230	U-234	1.000E+00	0.000E+00	1.163E-04	3.469E-04	1.135E-03	3.232E-03	9.036E-03	1.744E-02	2.159E-02
Th-230	U-238	9.999E-01	0.000E+00	1.646E-10	1.471E-09	1.595E-08	1.338E-07	1.168E-06	5.530E-06	1.125E-05
Th-230	∑S(j):		7.860E+02	7.860E+02	7.860E+02	7.859E+02	7.857E+02	7.850E+02	7.829E+02	7.755E+02
Th-232	Th-232	1.000E+00	1.880E+01	1.880E+01	1.880E+01	1.880E+01	1.880E+01	1.879E+01	1.877E+01	1.872E+01
U-234	U-234	1.000E+00	1.295E+01	1.288E+01	1.275E+01	1.228E+01	1.104E+01	7.612E+00	2.630E+00	6.375E-02
U-234	U-238	9.999E-01	0.000E+00	3.652E-05	1.084E-04	3.481E-04	9.391E-04	2.158E-03	2.238E-03	1.810E-04
U-234	∑S(j):		1.295E+01	1.288E+01	1.275E+01	1.228E+01	1.104E+01	7.614E+00	2.632E+00	6.394E-02
U-235	U-235	1.000E+00	5.900E-01	5.869E-01	5.807E-01	5.595E-01	5.031E-01	3.469E-01	1.199E-01	2.913E-03

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Summary : SU12 Elevated Area #3 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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	6.993E-04	6.956E-04	6.882E-04	6.631E-04	5.963E-04	4.112E-04	1.421E-04	3.453E-06
U-238	U-238	9.999E-01	1.295E+01	1.288E+01	1.274E+01	1.228E+01	1.104E+01	7.614E+00	2.632E+00	6.393E-02
U-238	∑S(j):		1.295E+01	1.288E+01	1.275E+01	1.228E+01	1.104E+01	7.614E+00	2.632E+00	6.394E-02

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

RESCALC.EXE execution time = 1.65 seconds

APPENDIX D

RESRAD v6.5 Summary Report for Elevated Area #4 *In Situ* Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:20 Page 1
Summary : SU12 Elevated Area #4 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 IN SITU.RAD

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RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:20 Page 2
Summary : SU12 Elevated Area #4 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 IN SITU.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)

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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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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)	1.000E+00	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	3.048E-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	1.800E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.800E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	6.715E+01	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	6.715E+01	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	3.320E+00	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	3.320E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	4.029E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	3.320E+00	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	3.880E+00	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.800E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	3.880E+00	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	4.329E-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	1.742E-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	8.731E-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	1.246E-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	1.246E-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	1.458E-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	1.458E-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	1.458E-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	1.742E-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	1.742E-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	1.742E-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	8.569E-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:	1.00 square meters	Ac-227	1.800E-01
Thickness:	0.30 meters	Pa-231	1.800E-01
Cover Depth:	0.00 meters	Pb-210	6.715E+01
		Ra-226	6.715E+01
		Ra-228	3.320E+00
		Th-228	3.320E+00
		Th-230	4.029E+02
		Th-232	3.320E+00
		U-234	3.880E+00
		U-235	1.800E-01
		U-238	3.880E+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):	5.724E+00	5.667E+00	5.551E+00	5.173E+00	4.290E+00	2.506E+00	5.680E-02	0.000E+00
M(t):	2.290E-01	2.267E-01	2.221E-01	2.069E-01	1.716E-01	1.002E-01	2.272E-03	0.000E+00

Maximum TDOSE(t): 5.724E+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.
Ac-227	2.676E-03	0.0005	2.613E-03	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.137E-05	0.0000
Pa-231	3.006E-04	0.0001	5.537E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.609E-05	0.0000
Pb-210	3.415E-03	0.0006	2.774E-03	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.502E-03	0.0006
Ra-226	5.022E+00	0.8774	1.325E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.863E-04	0.0001
Ra-228	1.613E-01	0.0282	4.311E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.077E-05	0.0000
Th-228	1.839E-01	0.0321	2.155E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.875E-05	0.0000
Th-230	1.081E-02	0.0019	2.943E-01	0.0514	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.839E-03	0.0003
Th-232	9.283E-03	0.0016	1.222E-02	0.0021	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.791E-05	0.0000
U-234	1.426E-05	0.0000	1.138E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.064E-06	0.0000
U-235	1.085E-03	0.0002	4.919E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.974E-07	0.0000
U-238	4.265E-03	0.0007	1.017E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.606E-06	0.0000
Total	5.399E+00	0.9432	3.186E-01	0.0557	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.320E-03	0.0011

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	5.310E-03	0.0009
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	8.704E-04	0.0002
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	9.690E-03	0.0017
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	5.024E+00	0.8777
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	1.617E-01	0.0283
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	1.861E-01	0.0325
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	3.070E-01	0.0536
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	2.158E-02	0.0038
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	1.161E-03	0.0002
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	1.134E-03	0.0002
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	5.291E-03	0.0009
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	5.724E+00	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 In-site Model
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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	2.481E-03	0.0004	2.424E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.982E-05	0.0000
Pa-231	3.766E-04	0.0001	6.236E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.646E-05	0.0000
Pb-210	3.289E-03	0.0006	3.165E-03	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.740E-03	0.0007
Ra-226	4.954E+00	0.8742	1.403E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.899E-04	0.0002
Ra-228	1.932E-01	0.0341	9.884E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.101E-05	0.0000
Th-228	1.279E-01	0.0226	1.500E-03	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.305E-05	0.0000
Th-230	2.376E-02	0.0042	2.943E-01	0.0519	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.842E-03	0.0003
Th-232	3.087E-02	0.0054	1.231E-02	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.286E-05	0.0000
U-234	1.402E-05	0.0000	1.118E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.908E-06	0.0000
U-235	1.066E-03	0.0002	4.836E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.909E-07	0.0000
U-238	4.188E-03	0.0007	9.999E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.457E-06	0.0000
Total	5.341E+00	0.9425	3.189E-01	0.0563	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.663E-03	0.0012

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	4.925E-03	0.0009
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	1.017E-03	0.0002
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	1.020E-02	0.0018
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	4.956E+00	0.8746
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	1.942E-01	0.0343
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	1.294E-01	0.0228
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	3.199E-01	0.0565
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	4.327E-02	0.0076
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	1.141E-03	0.0002
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	1.114E-03	0.0002
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	5.197E-03	0.0009
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	5.667E+00	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	2.133E-03	0.0004	2.086E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.705E-05	0.0000
Pa-231	5.072E-04	0.0001	7.430E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.705E-05	0.0000
Pb-210	3.038E-03	0.0005	3.005E-03	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.515E-03	0.0006
Ra-226	4.820E+00	0.8683	1.558E-03	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.091E-03	0.0002
Ra-228	2.047E-01	0.0369	1.426E-03	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.724E-05	0.0000
Th-228	6.185E-02	0.0111	7.269E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.323E-06	0.0000
Th-230	4.911E-02	0.0088	2.943E-01	0.0530	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.847E-03	0.0003
Th-232	7.975E-02	0.0144	1.261E-02	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.237E-05	0.0000
U-234	1.354E-05	0.0000	1.080E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.603E-06	0.0000
U-235	1.028E-03	0.0002	4.673E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.782E-07	0.0000
U-238	4.040E-03	0.0007	9.656E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.168E-06	0.0000
Total	5.226E+00	0.9414	3.186E-01	0.0574	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.640E-03	0.0012

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	4.236E-03	0.0008
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	1.267E-03	0.0002
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	9.558E-03	0.0017
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	4.823E+00	0.8687
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	2.061E-01	0.0371
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	6.259E-02	0.0113
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	3.453E-01	0.0622
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	9.245E-02	0.0167
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	1.102E-03	0.0002
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	1.076E-03	0.0002
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	5.014E-03	0.0009
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	5.551E+00	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	1.256E-03	0.0002	1.233E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.008E-05	0.0000
Pa-231	7.923E-04	0.0002	9.960E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.786E-05	0.0000
Pb-210	2.295E-03	0.0004	2.275E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.662E-03	0.0005
Ra-226	4.379E+00	0.8464	1.968E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.634E-03	0.0003
Ra-228	1.107E-01	0.0214	9.237E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.783E-05	0.0000
Th-228	4.863E-03	0.0009	5.754E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.005E-07	0.0000
Th-230	1.322E-01	0.0256	2.943E-01	0.0569	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.871E-03	0.0004
Th-232	2.145E-01	0.0415	1.367E-02	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.152E-04	0.0000
U-234	1.203E-05	0.0000	9.561E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.616E-06	0.0000
U-235	9.081E-04	0.0002	4.149E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.372E-07	0.0000
U-238	3.562E-03	0.0007	8.548E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.230E-06	0.0000
Total	4.850E+00	0.9374	3.173E-01	0.0613	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.344E-03	0.0012

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	2.499E-03	0.0005
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	1.806E-03	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	7.232E-03	0.0014
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	4.382E+00	0.8471
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	1.117E-01	0.0216
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	4.922E-03	0.0010
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	4.284E-01	0.0828
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	2.283E-01	0.0441
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	9.757E-04	0.0002
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	9.500E-04	0.0002
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	4.424E-03	0.0009
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	5.173E+00	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	2.768E-04	0.0001	2.744E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.244E-06	0.0000
Pa-231	8.847E-04	0.0002	1.031E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.528E-05	0.0000
Pb-210	1.029E-03	0.0002	1.026E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.200E-03	0.0003
Ra-226	3.324E+00	0.7747	2.366E-03	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.251E-03	0.0005
Ra-228	8.117E-03	0.0019	7.089E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.301E-06	0.0000
Th-228	3.395E-06	0.0000	4.100E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.567E-10	0.0000
Th-230	3.269E-01	0.0762	2.943E-01	0.0686	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.976E-03	0.0005
Th-232	3.058E-01	0.0713	1.449E-02	0.0034	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.306E-04	0.0000
U-234	8.812E-06	0.0000	6.752E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.377E-06	0.0000
U-235	6.365E-04	0.0001	2.966E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.440E-07	0.0000
U-238	2.482E-03	0.0006	6.033E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.103E-06	0.0000
Total	3.970E+00	0.9253	3.149E-01	0.0734	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.588E-03	0.0013

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	5.534E-04	0.0001
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	1.931E-03	0.0005
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	3.256E-03	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	3.328E+00	0.7758
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	8.189E-03	0.0019
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	3.436E-06	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	6.231E-01	0.1452
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	3.204E-01	0.0747
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	6.893E-04	0.0002
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	6.664E-04	0.0002
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	3.090E-03	0.0007
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	4.290E+00	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 In-site Model
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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	1.375E-06	0.0000	1.427E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.167E-08	0.0000
Pa-231	2.912E-04	0.0001	3.479E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.866E-06	0.0000
Pb-210	6.202E-05	0.0000	6.323E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.395E-05	0.0000
Ra-226	1.238E+00	0.4942	1.367E-03	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.390E-03	0.0006
Ra-228	6.705E-07	0.0000	6.419E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.178E-10	0.0000
Th-228	2.978E-17	0.0000	3.960E-19	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.445E-21	0.0000
Th-230	6.655E-01	0.2656	2.942E-01	0.1174	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.323E-03	0.0009
Th-232	2.860E-01	0.1141	1.454E-02	0.0058	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.317E-04	0.0001
U-234	4.479E-06	0.0000	2.004E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.595E-06	0.0000
U-235	1.823E-04	0.0001	9.260E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.915E-08	0.0000
U-238	6.909E-04	0.0003	1.782E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.507E-06	0.0000
Total	2.191E+00	0.8744	3.109E-01	0.1241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.927E-03	0.0016

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	2.814E-06	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	6.440E-04	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	1.992E-04	0.0001
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	1.241E+00	0.4953
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	6.770E-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	3.018E-17	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	9.620E-01	0.3839
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	3.006E-01	0.1200
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	2.065E-04	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	1.916E-04	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	8.706E-04	0.0003
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	2.506E+00	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 In-site Model
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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	1.540E-14	0.0000	1.223E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.998E-17	0.0000
Pa-231	3.424E-07	0.0000	3.053E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.265E-09	0.0000
Pb-210	2.381E-09	0.0000	6.316E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.388E-10	0.0000
Ra-226	3.535E-03	0.0622	3.131E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.207E-06	0.0001
Ra-228	6.949E-20	0.0000	5.164E-22	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.476E-24	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	3.376E-02	0.5944	8.401E-03	0.1479	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.398E-05	0.0013
Th-232	1.060E-02	0.1866	4.157E-04	0.0073	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.764E-06	0.0001
U-234	1.795E-07	0.0000	2.166E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.755E-09	0.0000
U-235	2.027E-07	0.0000	9.435E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.766E-11	0.0000
U-238	8.877E-07	0.0000	1.568E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.326E-09	0.0000
Total	4.790E-02	0.8433	8.820E-03	0.1553	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.096E-05	0.0014

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	2.773E-14	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	6.520E-07	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	3.752E-09	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	3.541E-03	0.0624
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	7.002E-20	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	4.224E-02	0.7436
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	1.102E-02	0.1940
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	3.979E-07	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	2.123E-07	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	1.046E-06	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	5.680E-02	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+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	2.950E-02	2.736E-02	2.353E-02	1.388E-02	3.075E-03	1.563E-05	1.540E-13	0.000E+00
Pa-231	Pa-231	1.000E+00	4.363E-03	4.287E-03	4.139E-03	3.658E-03	2.572E-03	7.465E-04	7.624E-07	0.000E+00
Pa-231	Ac-227+D	1.000E+00	4.727E-04	1.361E-03	2.902E-03	6.376E-03	8.157E-03	2.831E-03	2.860E-06	0.000E+00
Pa-231	∑DSR(j)		4.836E-03	5.648E-03	7.040E-03	1.003E-02	1.073E-02	3.578E-03	3.622E-06	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	1.249E-04	1.200E-04	1.108E-04	8.377E-05	3.770E-05	2.302E-06	4.922E-11	0.000E+00
Pb-210+D	Po-210	1.000E+00	1.945E-05	3.185E-05	3.156E-05	2.392E-05	1.079E-05	6.642E-07	6.655E-12	0.000E+00
Pb-210+D	∑DSR(j)		1.443E-04	1.518E-04	1.423E-04	1.077E-04	4.849E-05	2.967E-06	5.587E-11	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	7.482E-02	7.380E-02	7.180E-02	6.522E-02	4.949E-02	1.843E-02	5.253E-05	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	1.945E-06	5.700E-06	1.263E-05	3.159E-05	5.540E-05	3.711E-05	1.851E-07	0.000E+00
Ra-226+D	Po-210	1.000E+00	2.294E-07	1.083E-06	3.037E-06	8.502E-06	1.545E-05	1.054E-05	2.467E-08	0.000E+00
Ra-226+D	∑DSR(j)		7.482E-02	7.381E-02	7.182E-02	6.526E-02	4.956E-02	1.848E-02	5.274E-05	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	3.842E-02	3.361E-02	2.572E-02	1.008E-02	6.935E-04	5.795E-08	6.270E-21	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.029E-02	2.487E-02	3.636E-02	2.356E-02	1.773E-03	1.460E-07	1.482E-20	0.000E+00
Ra-228+D	∑DSR(j)		4.871E-02	5.849E-02	6.208E-02	3.364E-02	2.467E-03	2.039E-07	2.109E-20	0.000E+00
Th-228+D	Th-228+D	1.000E+00	5.606E-02	3.898E-02	1.885E-02	1.482E-03	1.035E-06	9.089E-18	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	7.457E-04	7.457E-04	7.457E-04	7.455E-04	7.451E-04	7.438E-04	2.184E-05	0.000E+00
Th-230	Ra-226+D	1.000E+00	1.624E-05	4.840E-05	1.113E-04	3.176E-04	8.009E-04	1.641E-03	8.277E-05	0.000E+00
Th-230	Pb-210+D	1.000E+00	2.821E-10	1.945E-09	9.938E-09	7.886E-08	4.799E-07	1.992E-06	1.953E-07	0.000E+00
Th-230	Po-210	1.000E+00	2.694E-11	2.985E-10	2.090E-09	2.013E-08	1.310E-07	5.603E-07	2.586E-08	0.000E+00
Th-230	∑DSR(j)		7.620E-04	7.941E-04	8.570E-04	1.063E-03	1.547E-03	2.388E-03	1.048E-04	0.000E+00
Th-232	Th-232	1.000E+00	3.703E-03	3.703E-03	3.703E-03	3.702E-03	3.701E-03	3.697E-03	1.062E-04	0.000E+00
Th-232	Ra-228+D	1.000E+00	2.367E-03	6.699E-03	1.379E-02	2.776E-02	3.565E-02	3.348E-02	1.287E-03	0.000E+00
Th-232	Th-228+D	1.000E+00	4.306E-04	2.630E-03	1.035E-02	3.730E-02	5.716E-02	5.337E-02	1.925E-03	0.000E+00
Th-232	∑DSR(j)		6.500E-03	1.303E-02	2.785E-02	6.876E-02	9.651E-02	9.055E-02	3.318E-03	0.000E+00
U-234	U-234	1.000E+00	2.993E-04	2.941E-04	2.840E-04	2.514E-04	1.774E-04	5.237E-05	5.033E-08	0.000E+00
U-234	Th-230	1.000E+00	3.337E-09	9.934E-09	2.279E-08	6.440E-08	1.587E-07	3.178E-07	1.123E-08	0.000E+00
U-234	Ra-226+D	1.000E+00	4.856E-11	3.368E-10	1.743E-09	1.446E-08	9.835E-08	5.156E-07	4.088E-08	0.000E+00
U-234	Pb-210+D	1.000E+00	6.343E-16	9.373E-15	1.057E-13	2.485E-12	4.344E-11	5.367E-10	9.470E-11	0.000E+00
U-234	Po-210	1.000E+00	5.108E-17	1.227E-15	1.991E-14	6.059E-13	1.166E-11	1.503E-10	1.253E-11	0.000E+00
U-234	∑DSR(j)		2.993E-04	2.941E-04	2.840E-04	2.515E-04	1.777E-04	5.321E-05	1.026E-07	0.000E+00
U-235+D	U-235+D	1.000E+00	6.302E-03	6.191E-03	5.975E-03	5.276E-03	3.697E-03	1.058E-03	1.157E-06	0.000E+00
U-235+D	Pa-231	1.000E+00	4.602E-08	1.359E-07	3.064E-07	8.128E-07	1.660E-06	1.589E-06	4.863E-09	0.000E+00
U-235+D	Ac-227+D	1.000E+00	3.345E-09	2.269E-08	1.117E-07	7.797E-07	3.367E-06	5.005E-06	1.718E-08	0.000E+00
U-235+D	∑DSR(j)		6.302E-03	6.191E-03	5.975E-03	5.278E-03	3.702E-03	1.065E-03	1.179E-06	0.000E+00
U-238	U-238	5.400E-05	1.434E-08	1.409E-08	1.361E-08	1.204E-08	8.500E-09	2.510E-09	2.378E-12	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	1.364E-03	1.339E-03	1.292E-03	1.140E-03	7.965E-04	2.244E-04	2.695E-07	0.000E+00
U-238+D	U-234	9.999E-01	4.229E-10	1.249E-09	2.817E-09	7.482E-09	1.534E-08	1.492E-08	4.289E-11	0.000E+00
U-238+D	Th-230	9.999E-01	3.144E-15	2.179E-14	1.126E-13	9.299E-13	6.259E-12	3.270E-11	1.779E-12	0.000E+00
U-238+D	Ra-226+D	9.999E-01	3.435E-17	5.097E-16	5.803E-15	1.409E-13	2.677E-12	4.008E-11	6.019E-12	0.000E+00
U-238+D	Pb-210+D	9.999E-01	3.595E-22	1.098E-20	2.674E-19	1.852E-17	9.340E-16	3.602E-14	1.351E-14	0.000E+00
U-238+D	Po-210	9.999E-01	2.506E-23	1.262E-21	4.569E-20	4.323E-18	2.467E-16	1.004E-14	1.787E-15	0.000E+00
U-238+D	∑DSR(j)		1.364E-03	1.339E-03	1.292E-03	1.140E-03	7.965E-04	2.244E-04	2.695E-07	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	8.475E+02	9.138E+02	1.062E+03	1.801E+03	8.131E+03	1.599E+06	*7.232E+13	*7.232E+13
Pa-231	5.170E+03	4.426E+03	3.551E+03	2.491E+03	2.330E+03	6.987E+03	6.902E+06	*4.723E+10
Pb-210	1.732E+05	1.647E+05	1.756E+05	2.321E+05	5.156E+05	8.427E+06	4.474E+11	*7.634E+13
Ra-226	3.341E+02	3.387E+02	3.481E+02	3.831E+02	5.044E+02	1.353E+03	4.740E+05	*9.885E+11
Ra-228	5.132E+02	4.274E+02	4.027E+02	7.432E+02	1.014E+04	1.226E+08	*2.726E+14	*2.726E+14
Th-228	4.460E+02	6.413E+02	1.326E+03	1.686E+04	2.415E+07	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	3.281E+04	3.148E+04	2.917E+04	2.351E+04	1.616E+04	1.047E+04	2.385E+05	*2.018E+10
Th-232	3.846E+03	1.918E+03	8.978E+02	3.636E+02	2.590E+02	2.761E+02	7.534E+03	*1.097E+05
U-234	8.354E+04	8.500E+04	8.801E+04	9.941E+04	1.407E+05	4.698E+05	2.438E+08	*6.247E+09
U-235	3.967E+03	4.038E+03	4.184E+03	4.737E+03	6.753E+03	2.348E+04	*2.161E+06	*2.161E+06
U-238	1.833E+04	1.867E+04	1.935E+04	2.193E+04	3.139E+04	1.114E+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	1.800E-01	0.000E+00	2.950E-02	8.475E+02	2.950E-02	8.475E+02
Pa-231	1.800E-01	20.61 ± 0.04	1.123E-02	2.227E+03	4.836E-03	5.170E+03
Pb-210	6.715E+01	0.842 ± 0.002	1.520E-04	1.645E+05	1.443E-04	1.732E+05
Ra-226	6.715E+01	0.000E+00	7.482E-02	3.341E+02	7.482E-02	3.341E+02
Ra-228	3.320E+00	2.440 ± 0.005	6.252E-02	3.999E+02	4.871E-02	5.132E+02
Th-228	3.320E+00	0.000E+00	5.606E-02	4.460E+02	5.606E-02	4.460E+02
Th-230	4.029E+02	143.2 ± 0.3	2.498E-03	1.001E+04	7.620E-04	3.281E+04
Th-232	3.320E+00	38.19 ± 0.08	9.720E-02	2.572E+02	6.500E-03	3.846E+03
U-234	3.880E+00	0.000E+00	2.993E-04	8.354E+04	2.993E-04	8.354E+04
U-235	1.800E-01	0.000E+00	6.302E-03	3.967E+03	6.302E-03	3.967E+03
U-238	3.880E+00	0.000E+00	1.364E-03	1.833E+04	1.364E-03	1.833E+04

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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	5.310E-03	4.925E-03	4.236E-03	2.499E-03	5.534E-04	2.814E-06	2.773E-14	0.000E+00
Ac-227	Pa-231	1.000E+00	8.508E-05	2.450E-04	5.223E-04	1.148E-03	1.468E-03	5.097E-04	5.147E-07	0.000E+00
Ac-227	U-235	1.000E+00	6.020E-10	4.084E-09	2.011E-08	1.404E-07	6.061E-07	9.009E-07	3.093E-09	0.000E+00
Ac-227	∑DOSE(j)		5.395E-03	5.170E-03	4.758E-03	3.647E-03	2.022E-03	5.134E-04	5.178E-07	0.000E+00
Pa-231	Pa-231	1.000E+00	7.854E-04	7.716E-04	7.449E-04	6.585E-04	4.629E-04	1.344E-04	1.372E-07	0.000E+00
Pa-231	U-235	1.000E+00	8.284E-09	2.447E-08	5.514E-08	1.463E-07	2.988E-07	2.860E-07	8.753E-10	0.000E+00
Pa-231	∑DOSE(j)		7.854E-04	7.717E-04	7.450E-04	6.587E-04	4.632E-04	1.347E-04	1.381E-07	0.000E+00
Pb-210	Pb-210	1.000E+00	8.385E-03	8.057E-03	7.438E-03	5.625E-03	2.532E-03	1.546E-04	3.305E-09	0.000E+00
Pb-210	Ra-226	1.000E+00	1.306E-04	3.827E-04	8.480E-04	2.121E-03	3.720E-03	2.492E-03	1.243E-05	0.000E+00
Pb-210	Th-230	1.000E+00	1.137E-07	7.837E-07	4.004E-06	3.177E-05	1.933E-04	8.024E-04	7.870E-05	0.000E+00
Pb-210	U-234	1.000E+00	2.461E-15	3.637E-14	4.103E-13	9.643E-12	1.685E-10	2.082E-09	3.674E-10	0.000E+00
Pb-210	U-238	9.999E-01	1.395E-21	4.259E-20	1.038E-18	7.188E-17	3.624E-15	1.398E-13	5.242E-14	0.000E+00
Pb-210	∑DOSE(j)		8.515E-03	8.440E-03	8.290E-03	7.778E-03	6.445E-03	3.449E-03	9.113E-05	0.000E+00
Po-210	Pb-210	1.000E+00	1.306E-03	2.139E-03	2.119E-03	1.606E-03	7.244E-04	4.460E-05	4.469E-10	0.000E+00
Po-210	Ra-226	1.000E+00	1.540E-05	7.272E-05	2.040E-04	5.709E-04	1.038E-03	7.080E-04	1.656E-06	0.000E+00
Po-210	Th-230	1.000E+00	1.085E-08	1.203E-07	8.422E-07	8.111E-06	5.277E-05	2.257E-04	1.042E-05	0.000E+00
Po-210	U-234	1.000E+00	1.982E-16	4.760E-15	7.723E-14	2.351E-12	4.525E-11	5.833E-10	4.862E-11	0.000E+00
Po-210	U-238	9.999E-01	9.724E-23	4.898E-21	1.773E-19	1.677E-17	9.571E-16	3.897E-14	6.932E-15	0.000E+00
Po-210	∑DOSE(j)		1.321E-03	2.212E-03	2.324E-03	2.185E-03	1.815E-03	9.783E-04	1.207E-05	0.000E+00
Ra-226	Ra-226	1.000E+00	5.024E+00	4.956E+00	4.822E+00	4.380E+00	3.324E+00	1.238E+00	3.527E-03	0.000E+00
Ra-226	Th-230	1.000E+00	6.543E-03	1.950E-02	4.486E-02	1.280E-01	3.227E-01	6.613E-01	3.335E-02	0.000E+00
Ra-226	U-234	1.000E+00	1.884E-10	1.307E-09	6.762E-09	5.609E-08	3.816E-07	2.000E-06	1.586E-07	0.000E+00
Ra-226	U-238	9.999E-01	1.333E-16	1.977E-15	2.251E-14	5.466E-13	1.039E-11	1.555E-10	2.335E-11	0.000E+00
Ra-226	∑DOSE(j)		5.031E+00	4.975E+00	4.866E+00	4.508E+00	3.646E+00	1.899E+00	3.688E-02	0.000E+00
Ra-228	Ra-228	1.000E+00	1.276E-01	1.116E-01	8.540E-02	3.348E-02	2.302E-03	1.924E-07	2.082E-20	0.000E+00
Ra-228	Th-232	1.000E+00	7.858E-03	2.224E-02	4.579E-02	9.218E-02	1.184E-01	1.112E-01	4.273E-03	0.000E+00
Ra-228	∑DOSE(j)		1.354E-01	1.338E-01	1.312E-01	1.257E-01	1.207E-01	1.112E-01	4.273E-03	0.000E+00
Th-228	Ra-228	1.000E+00	3.416E-02	8.258E-02	1.207E-01	7.821E-02	5.887E-03	4.846E-07	4.920E-20	0.000E+00
Th-228	Th-228	1.000E+00	1.861E-01	1.294E-01	6.259E-02	4.922E-03	3.436E-06	3.018E-17	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	1.430E-03	8.733E-03	3.437E-02	1.238E-01	1.898E-01	1.772E-01	6.392E-03	0.000E+00
Th-228	∑DOSE(j)		2.217E-01	2.207E-01	2.177E-01	2.070E-01	1.957E-01	1.772E-01	6.392E-03	0.000E+00
Th-230	Th-230	1.000E+00	3.005E-01	3.004E-01	3.004E-01	3.004E-01	3.002E-01	2.997E-01	8.798E-03	0.000E+00
Th-230	U-234	1.000E+00	1.295E-08	3.854E-08	8.842E-08	2.499E-07	6.159E-07	1.233E-06	4.359E-08	0.000E+00
Th-230	U-238	9.999E-01	1.220E-14	8.455E-14	4.370E-13	3.608E-12	2.428E-11	1.269E-10	6.901E-12	0.000E+00
Th-230	∑DOSE(j)		3.005E-01	3.004E-01	3.004E-01	3.004E-01	3.002E-01	2.997E-01	8.798E-03	0.000E+00
Th-232	Th-232	1.000E+00	1.229E-02	1.229E-02	1.229E-02	1.229E-02	1.229E-02	1.228E-02	3.527E-04	0.000E+00
U-234	U-234	1.000E+00	1.161E-03	1.141E-03	1.102E-03	9.754E-04	6.883E-04	2.032E-04	1.953E-07	0.000E+00
U-234	U-238	9.999E-01	1.641E-09	4.847E-09	1.093E-08	2.903E-08	5.952E-08	5.790E-08	1.664E-10	0.000E+00
U-234	∑DOSE(j)		1.161E-03	1.141E-03	1.102E-03	9.755E-04	6.884E-04	2.033E-04	1.954E-07	0.000E+00
U-235	U-235	1.000E+00	1.134E-03	1.114E-03	1.075E-03	9.497E-04	6.655E-04	1.905E-04	2.083E-07	0.000E+00

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:20 Page 26
Summary : SU12 Elevated Area #4 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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	5.562E-08	5.466E-08	5.279E-08	4.673E-08	3.298E-08	9.739E-09	9.225E-12	0.000E+00
U-238	U-238	9.999E-01	5.291E-03	5.197E-03	5.014E-03	4.423E-03	3.090E-03	8.706E-04	1.046E-06	0.000E+00
U-238	∑DOSE(j)		5.291E-03	5.197E-03	5.014E-03	4.424E-03	3.090E-03	8.706E-04	1.046E-06	0.000E+00

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

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:20 Page 27
Summary : SU12 Elevated Area #4 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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	1.800E-01	1.670E-01	1.437E-01	8.492E-02	1.890E-02	9.833E-05	2.934E-11	4.259E-34
Ac-227	Pa-231	1.000E+00	0.000E+00	5.472E-03	1.498E-02	3.657E-02	4.843E-02	1.730E-02	5.299E-04	2.634E-09
Ac-227	U-235	1.000E+00	0.000E+00	5.845E-08	4.892E-07	4.239E-06	1.960E-05	3.041E-05	3.179E-06	5.534E-11
Ac-227	∑S(j):		1.800E-01	1.724E-01	1.587E-01	1.215E-01	6.736E-02	1.743E-02	5.331E-04	2.689E-09
Pa-231	Pa-231	1.000E+00	1.800E-01	1.769E-01	1.708E-01	1.512E-01	1.067E-01	3.145E-02	9.601E-04	4.772E-09
Pa-231	U-235	1.000E+00	0.000E+00	3.743E-06	1.084E-05	3.199E-05	6.772E-05	6.661E-05	6.114E-06	1.021E-10
Pa-231	∑S(j):		1.800E-01	1.769E-01	1.708E-01	1.512E-01	1.067E-01	3.152E-02	9.662E-04	4.874E-09
Pb-210	Pb-210	1.000E+00	6.715E+01	6.453E+01	5.959E+01	4.510E+01	2.034E+01	1.253E+00	4.363E-04	3.438E-16
Pb-210	Ra-226	1.000E+00	0.000E+00	2.033E+00	5.787E+00	1.609E+01	2.918E+01	1.991E+01	1.620E+00	1.948E-04
Pb-210	Th-230	1.000E+00	0.000E+00	2.665E-03	2.317E-02	2.283E-01	1.485E+00	6.350E+00	1.019E+01	1.035E+01
Pb-210	U-234	1.000E+00	0.000E+00	7.703E-11	2.008E-09	6.591E-08	1.273E-06	1.641E-05	4.757E-05	5.154E-05
Pb-210	U-238	9.999E-01	0.000E+00	5.459E-17	4.270E-15	4.669E-13	2.693E-11	1.097E-09	6.782E-09	8.396E-09
Pb-210	∑S(j):		6.715E+01	6.656E+01	6.540E+01	6.141E+01	5.100E+01	2.751E+01	1.181E+01	1.035E+01
Po-210	Pb-210	1.000E+00	0.000E+00	5.330E+01	5.792E+01	4.399E+01	1.984E+01	1.222E+00	4.257E-04	3.354E-16
Po-210	Ra-226	1.000E+00	0.000E+00	1.084E+00	4.619E+00	1.475E+01	2.774E+01	1.913E+01	1.558E+00	1.874E-04
Po-210	Th-230	1.000E+00	0.000E+00	1.075E-03	1.586E-02	1.981E-01	1.381E+00	6.040E+00	9.734E+00	9.884E+00
Po-210	U-234	1.000E+00	0.000E+00	2.517E-11	1.212E-09	5.449E-08	1.165E-06	1.555E-05	4.541E-05	4.923E-05
Po-210	U-238	9.999E-01	0.000E+00	1.504E-17	2.307E-15	3.687E-13	2.422E-11	1.034E-09	6.470E-09	8.020E-09
Po-210	∑S(j):		0.000E+00	5.439E+01	6.256E+01	5.894E+01	4.896E+01	2.639E+01	1.129E+01	9.884E+00
Ra-226	Ra-226	1.000E+00	6.715E+01	6.629E+01	6.460E+01	5.903E+01	4.561E+01	1.850E+01	1.403E+00	1.687E-04
Ra-226	Th-230	1.000E+00	0.000E+00	1.734E-01	5.136E-01	1.637E+00	4.341E+00	9.794E+00	1.318E+01	1.325E+01
Ra-226	U-234	1.000E+00	0.000E+00	7.489E-09	6.606E-08	6.842E-07	5.058E-06	2.953E-05	6.268E-05	6.598E-05
Ra-226	U-238	9.999E-01	0.000E+00	7.064E-15	1.862E-13	6.347E-12	1.355E-10	2.287E-09	9.224E-09	1.075E-08
Ra-226	∑S(j):		6.715E+01	6.646E+01	6.512E+01	6.066E+01	4.995E+01	2.829E+01	1.459E+01	1.325E+01
Ra-228	Ra-228	1.000E+00	3.320E+00	2.907E+00	2.228E+00	8.780E-01	6.140E-02	5.555E-06	1.555E-17	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	3.747E-01	9.900E-01	2.213E+00	2.952E+00	3.005E+00	2.996E+00	2.966E+00
Ra-228	∑S(j):		3.320E+00	3.281E+00	3.218E+00	3.091E+00	3.014E+00	3.005E+00	2.996E+00	2.966E+00
Th-228	Ra-228	1.000E+00	0.000E+00	9.411E-01	1.751E+00	1.247E+00	9.691E-02	8.776E-06	2.457E-17	0.000E+00
Th-228	Th-228	1.000E+00	3.320E+00	2.311E+00	1.120E+00	8.862E-02	6.315E-05	6.100E-16	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	6.164E-02	4.075E-01	1.798E+00	2.920E+00	3.005E+00	2.996E+00	2.966E+00
Th-228	∑S(j):		3.320E+00	3.314E+00	3.278E+00	3.134E+00	3.017E+00	3.005E+00	2.996E+00	2.966E+00
Th-230	Th-230	1.000E+00	4.029E+02	4.029E+02	4.029E+02	4.028E+02	4.026E+02	4.020E+02	4.001E+02	3.935E+02
Th-230	U-234	1.000E+00	0.000E+00	3.462E-05	1.021E-04	3.205E-04	8.157E-04	1.651E-03	1.982E-03	1.960E-03
Th-230	U-238	9.999E-01	0.000E+00	4.893E-11	4.303E-10	4.411E-09	3.168E-08	1.693E-07	3.137E-07	3.193E-07
Th-230	∑S(j):		4.029E+02	4.029E+02	4.029E+02	4.028E+02	4.026E+02	4.020E+02	4.001E+02	3.935E+02
Th-232	Th-232	1.000E+00	3.320E+00	3.320E+00	3.320E+00	3.320E+00	3.319E+00	3.315E+00	3.306E+00	3.272E+00
U-234	U-234	1.000E+00	3.880E+00	3.813E+00	3.682E+00	3.259E+00	2.300E+00	6.792E-01	2.081E-02	1.048E-07
U-234	U-238	9.999E-01	0.000E+00	1.081E-05	3.132E-05	9.240E-05	1.956E-04	1.926E-04	1.770E-05	2.974E-10
U-234	∑S(j):		3.880E+00	3.813E+00	3.682E+00	3.260E+00	2.300E+00	6.794E-01	2.083E-02	1.051E-07
U-235	U-235	1.000E+00	1.800E-01	1.769E-01	1.708E-01	1.512E-01	1.067E-01	3.152E-02	9.662E-04	4.874E-09

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:20 Page 28
Summary : SU12 Elevated Area #4 In-site Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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	2.095E-04	2.059E-04	1.988E-04	1.760E-04	1.242E-04	3.669E-05	1.125E-06	5.674E-12
U-238	U-238	9.999E-01	3.880E+00	3.813E+00	3.682E+00	3.259E+00	2.300E+00	6.793E-01	2.083E-02	1.051E-07
U-238	∑S(j):		3.880E+00	3.813E+00	3.682E+00	3.260E+00	2.300E+00	6.794E-01	2.083E-02	1.051E-07

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

RESCALC.EXE execution time = 1.92 seconds

APPENDIX E

RESRAD v6.5 Summary Report for Elevated Area #1 Excavation Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:25 Page 1
Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 EXCAVATION.RAD

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RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:25 Page 2
Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 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 10/18/2013 11:25 Page 3
Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 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)	1.340E+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	5.300E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	5.300E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	2.566E+02	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	2.566E+02	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	2.363E+01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	2.363E+01	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.500E+03	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	2.363E+01	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	1.154E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	5.300E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	1.154E+01	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)	2.100E-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 : SU12 Elevated Area #1 Excavation Model
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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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Summary : SU12 Elevated Area #1 Excavation Model
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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	13.40 square meters	Ac-227	5.300E-01
Thickness:	0.30 meters	Pa-231	5.300E-01
Cover Depth:	0.00 meters	Pb-210	2.566E+02
		Ra-226	2.566E+02
		Ra-228	2.363E+01
		Th-228	2.363E+01
		Th-230	1.500E+03
		Th-232	2.363E+01
		U-234	1.154E+01
		U-235	5.300E-01
		U-238	1.154E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.209E-01	3.175E-01	3.108E-01	2.890E-01	2.390E-01	1.385E-01	0.000E+00	0.000E+00
M(t):	1.284E-02	1.270E-02	1.243E-02	1.156E-02	9.559E-03	5.541E-03	0.000E+00	0.000E+00

Maximum TDOSE(t): 3.209E-01 mrem/yr at t = 0.000E+00 years

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Summary : SU12 Elevated Area #1 Excavation Model
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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	1.108E-04	0.0003	1.390E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.757E-07	0.0000
Pa-231	1.252E-05	0.0000	2.946E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.844E-07	0.0000
Pb-210	1.718E-04	0.0005	1.915E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.650E-04	0.0005
Ra-226	2.803E-01	0.8736	9.152E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.706E-05	0.0001
Ra-228	1.675E-02	0.0522	5.545E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.579E-06	0.0000
Th-228	1.924E-02	0.0600	2.773E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.646E-06	0.0000
Th-230	5.643E-04	0.0018	1.980E-03	0.0062	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.447E-05	0.0003
Th-232	9.635E-04	0.0030	1.572E-04	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.840E-06	0.0000
U-234	5.455E-07	0.0000	6.115E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.325E-07	0.0000
U-235	4.434E-05	0.0001	2.617E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.443E-08	0.0000
U-238	1.796E-04	0.0006	5.468E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.157E-07	0.0000
Total	3.184E-01	0.9921	2.228E-03	0.0069	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.006E-04	0.0009

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	1.254E-04	0.0004
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	1.605E-05	0.0001
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	3.559E-04	0.0011
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	2.804E-01	0.8737
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	1.676E-02	0.0522
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	1.927E-02	0.0600
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	2.629E-03	0.0082
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	1.128E-03	0.0035
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	6.993E-06	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	4.461E-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	1.854E-04	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	3.209E-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	1.026E-04	0.0003	1.288E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.191E-07	0.0000
Pa-231	1.566E-05	0.0000	3.317E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.977E-07	0.0000
Pb-210	1.655E-04	0.0005	2.185E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.762E-04	0.0006
Ra-226	2.765E-01	0.8708	9.683E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.193E-05	0.0001
Ra-228	2.010E-02	0.0633	1.271E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.599E-06	0.0000
Th-228	1.338E-02	0.0421	1.930E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.146E-06	0.0000
Th-230	1.269E-03	0.0040	1.980E-03	0.0062	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.457E-05	0.0003
Th-232	3.209E-03	0.0101	1.583E-04	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.275E-06	0.0000
U-234	5.360E-07	0.0000	6.008E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.267E-07	0.0000
U-235	4.355E-05	0.0001	2.572E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.419E-08	0.0000
U-238	1.764E-04	0.0006	5.372E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.102E-07	0.0000
Total	3.150E-01	0.9920	2.230E-03	0.0070	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.167E-04	0.0010

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	1.162E-04	0.0004
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	1.958E-05	0.0001
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	3.636E-04	0.0011
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	2.766E-01	0.8710
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	2.012E-02	0.0634
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	1.340E-02	0.0422
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-03	0.0105
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	3.375E-03	0.0106
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	6.871E-06	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	4.382E-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	1.821E-04	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	3.175E-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 = 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	8.816E-05	0.0003	1.107E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.179E-07	0.0000
Pa-231	2.106E-05	0.0001	3.949E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.186E-07	0.0000
Pb-210	1.528E-04	0.0005	2.073E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.656E-04	0.0005
Ra-226	2.691E-01	0.8656	1.075E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.137E-05	0.0002
Ra-228	2.133E-02	0.0686	1.833E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.268E-06	0.0000
Th-228	6.473E-03	0.0208	9.350E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.552E-07	0.0000
Th-230	2.648E-03	0.0085	1.980E-03	0.0064	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.480E-05	0.0003
Th-232	8.302E-03	0.0267	1.622E-04	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.109E-06	0.0000
U-234	5.175E-07	0.0000	5.799E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.153E-07	0.0000
U-235	4.203E-05	0.0001	2.484E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.372E-08	0.0000
U-238	1.702E-04	0.0005	5.185E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.994E-07	0.0000
Total	3.083E-01	0.9918	2.228E-03	0.0072	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.156E-04	0.0010

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	9.985E-05	0.0003
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	2.563E-05	0.0001
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	3.391E-04	0.0011
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	2.691E-01	0.8658
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	2.135E-02	0.0687
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	6.483E-03	0.0209
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	4.714E-03	0.0152
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	8.472E-03	0.0273
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	6.632E-06	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	4.229E-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	1.756E-04	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	3.108E-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	5.176E-05	0.0002	6.512E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.635E-07	0.0000
Pa-231	3.280E-05	0.0001	5.279E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.463E-07	0.0000
Pb-210	1.154E-04	0.0004	1.569E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.252E-04	0.0004
Ra-226	2.444E-01	0.8459	1.356E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.685E-05	0.0003
Ra-228	1.156E-02	0.0400	1.186E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.562E-06	0.0000
Th-228	5.096E-04	0.0018	7.401E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.394E-08	0.0000
Th-230	7.175E-03	0.0248	1.980E-03	0.0069	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.594E-05	0.0003
Th-232	2.238E-02	0.0774	1.759E-04	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.011E-05	0.0000
U-234	4.594E-07	0.0000	5.124E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.786E-07	0.0000
U-235	3.709E-05	0.0001	2.201E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.221E-08	0.0000
U-238	1.499E-04	0.0005	4.581E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.645E-07	0.0000
Total	2.865E-01	0.9913	2.220E-03	0.0077	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.013E-04	0.0010

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	5.864E-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	3.873E-05	0.0001
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	2.564E-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	2.445E-01	0.8462
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	1.157E-02	0.0400
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	5.104E-04	0.0018
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	9.241E-03	0.0320
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	2.257E-02	0.0781
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	5.862E-06	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	3.732E-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	1.548E-04	0.0005
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	2.890E-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 = 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	1.130E-05	0.0000	1.430E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.978E-08	0.0000
Pa-231	3.649E-05	0.0002	5.423E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.494E-07	0.0000
Pb-210	5.178E-05	0.0002	7.055E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.633E-05	0.0002
Ra-226	1.856E-01	0.7766	1.624E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.055E-04	0.0004
Ra-228	8.471E-04	0.0035	9.072E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.136E-07	0.0000
Th-228	3.570E-07	0.0000	5.274E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.131E-11	0.0000
Th-230	1.782E-02	0.0746	1.980E-03	0.0083	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.073E-05	0.0004
Th-232	3.202E-02	0.1340	1.864E-04	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.146E-05	0.0000
U-234	3.372E-07	0.0000	3.598E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.956E-07	0.0000
U-235	2.595E-05	0.0001	1.565E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.787E-09	0.0000
U-238	1.043E-04	0.0004	3.215E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.856E-07	0.0000
Total	2.365E-01	0.9897	2.205E-03	0.0092	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.652E-04	0.0011

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	1.281E-05	0.0001
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	4.246E-05	0.0002
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	1.152E-04	0.0005
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	1.857E-01	0.7771
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	8.482E-04	0.0035
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	3.575E-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	1.989E-02	0.0832
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	3.222E-02	0.1348
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	4.131E-06	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	2.612E-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	1.077E-04	0.0005
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	2.390E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 Excavation Model
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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	5.432E-08	0.0000	7.085E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.954E-10	0.0000
Pa-231	1.194E-05	0.0001	1.791E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.713E-07	0.0000
Pb-210	3.117E-06	0.0000	4.304E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.436E-06	0.0000
Ra-226	6.915E-02	0.4992	9.262E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.428E-05	0.0005
Ra-228	6.986E-08	0.0000	8.100E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.014E-11	0.0000
Th-228	3.166E-18	0.0000	5.094E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.024E-22	0.0000
Th-230	3.663E-02	0.2644	1.979E-03	0.0143	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.065E-04	0.0008
Th-232	3.033E-02	0.2189	1.870E-04	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.155E-05	0.0001
U-234	1.805E-07	0.0000	1.047E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.692E-08	0.0000
U-235	7.391E-06	0.0001	4.790E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.794E-09	0.0000
U-238	2.886E-05	0.0002	9.314E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.377E-08	0.0000
Total	1.362E-01	0.9829	2.180E-03	0.0157	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.861E-04	0.0013

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	6.180E-08	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	1.390E-05	0.0001
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	6.983E-06	0.0001
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	6.922E-02	0.4997
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	6.995E-08	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	3.171E-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	3.872E-02	0.2795
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	3.052E-02	0.2203
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	1.285E-06	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	7.442E-06	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	2.985E-05	0.0002
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	1.385E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #1 Excavation Model
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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	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+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	2.367E-04	2.193E-04	1.884E-04	1.106E-04	2.417E-05	1.166E-07	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	2.649E-05	2.602E-05	2.510E-05	2.215E-05	1.547E-05	4.367E-06	0.000E+00	0.000E+00
Pa-231	Ac-227+D	1.000E+00	3.792E-06	1.091E-05	2.325E-05	5.093E-05	6.464E-05	2.186E-05	0.000E+00	0.000E+00
Pa-231	∑DSR(j)		3.028E-05	3.693E-05	4.835E-05	7.307E-05	8.011E-05	2.623E-05	0.000E+00	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	1.263E-06	1.213E-06	1.120E-06	8.463E-07	3.801E-07	2.303E-08	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	1.245E-07	2.038E-07	2.018E-07	1.528E-07	6.872E-08	4.188E-09	0.000E+00	0.000E+00
Pb-210+D	∑DSR(j)		1.387E-06	1.417E-06	1.322E-06	9.991E-07	4.488E-07	2.722E-08	0.000E+00	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	1.093E-03	1.078E-03	1.049E-03	9.527E-04	7.232E-04	2.694E-04	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	1.967E-08	5.763E-08	1.277E-07	3.190E-07	5.580E-07	3.696E-07	0.000E+00	0.000E+00
Ra-226+D	Po-210	1.000E+00	1.468E-09	6.929E-09	1.942E-08	5.430E-08	9.834E-08	6.620E-08	0.000E+00	0.000E+00
Ra-226+D	∑DSR(j)		1.093E-03	1.078E-03	1.049E-03	9.530E-04	7.238E-04	2.698E-04	0.000E+00	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	5.595E-04	4.895E-04	3.746E-04	1.469E-04	1.011E-05	8.459E-10	0.000E+00	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.497E-04	3.618E-04	5.290E-04	3.427E-04	2.579E-05	2.115E-09	0.000E+00	0.000E+00
Ra-228+D	∑DSR(j)		7.092E-04	8.513E-04	9.036E-04	4.896E-04	3.589E-05	2.960E-09	0.000E+00	0.000E+00
Th-228+D	Th-228+D	1.000E+00	8.154E-04	5.671E-04	2.743E-04	2.160E-05	1.513E-08	1.342E-19	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	1.516E-06	1.516E-06	1.515E-06	1.515E-06	1.514E-06	1.511E-06	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	2.372E-07	7.070E-07	1.627E-06	4.645E-06	1.174E-05	2.428E-05	0.000E+00	0.000E+00
Th-230	Pb-210+D	1.000E+00	2.853E-12	1.967E-11	1.005E-10	7.970E-10	4.843E-09	2.002E-08	0.000E+00	0.000E+00
Th-230	Po-210	1.000E+00	1.724E-13	1.910E-12	1.337E-11	1.287E-10	8.351E-10	3.549E-09	0.000E+00	0.000E+00
Th-230	∑DSR(j)		1.753E-06	2.223E-06	3.142E-06	6.161E-06	1.326E-05	2.581E-05	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	6.984E-06	6.984E-06	6.984E-06	6.983E-06	6.981E-06	6.973E-06	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	3.447E-05	9.756E-05	2.009E-04	4.049E-04	5.221E-04	4.978E-04	0.000E+00	0.000E+00
Th-232	Th-228+D	1.000E+00	6.263E-06	3.826E-05	1.506E-04	5.431E-04	8.344E-04	7.870E-04	0.000E+00	0.000E+00
Th-232	∑DSR(j)		4.772E-05	1.428E-04	3.585E-04	9.550E-04	1.363E-03	1.292E-03	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	6.060E-07	5.953E-07	5.746E-07	5.076E-07	3.562E-07	1.031E-07	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	6.782E-12	2.019E-11	4.629E-11	1.307E-10	3.213E-10	6.391E-10	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	7.093E-13	4.919E-12	2.546E-11	2.112E-10	1.439E-09	7.582E-09	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	6.414E-18	9.478E-17	1.069E-15	2.511E-14	4.378E-13	5.368E-12	0.000E+00	0.000E+00
U-234	Po-210	1.000E+00	3.269E-19	7.851E-18	1.273E-16	3.871E-15	7.427E-14	9.479E-13	0.000E+00	0.000E+00
U-234	∑DSR(j)		6.060E-07	5.954E-07	5.747E-07	5.080E-07	3.580E-07	1.113E-07	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	8.418E-05	8.269E-05	7.979E-05	7.041E-05	4.925E-05	1.399E-05	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	2.794E-10	8.250E-10	1.858E-09	4.920E-09	9.985E-09	9.296E-09	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	2.683E-11	1.820E-10	8.954E-10	6.232E-09	2.672E-08	3.869E-08	0.000E+00	0.000E+00
U-235+D	∑DSR(j)		8.418E-05	8.269E-05	7.979E-05	7.042E-05	4.928E-05	1.404E-05	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	2.773E-11	2.724E-11	2.630E-11	2.323E-11	1.630E-11	4.722E-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	1.607E-05	1.578E-05	1.522E-05	1.341E-05	9.335E-06	2.586E-06	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	8.564E-13	2.529E-12	5.699E-12	1.511E-11	3.080E-11	2.938E-11	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	6.389E-18	4.428E-17	2.287E-16	1.886E-15	1.265E-14	6.540E-14	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	5.017E-19	7.444E-18	8.475E-17	2.058E-15	3.913E-14	5.874E-13	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	3.635E-24	1.110E-22	2.703E-21	1.871E-19	9.406E-18	3.593E-16	0.000E+00	0.000E+00
U-238+D	Po-210	9.999E-01	1.604E-25	8.077E-24	2.922E-22	2.761E-20	1.570E-18	6.315E-17	0.000E+00	0.000E+00
U-238+D	∑DSR(j)		1.607E-05	1.578E-05	1.522E-05	1.341E-05	9.335E-06	2.586E-06	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	1.056E+05	1.140E+05	1.327E+05	2.260E+05	1.034E+06	2.144E+08	*7.232E+13	*7.232E+13
Pa-231	8.256E+05	6.769E+05	5.170E+05	3.421E+05	3.121E+05	9.532E+05	*4.723E+10	*4.723E+10
Pb-210	1.802E+07	1.764E+07	1.891E+07	2.502E+07	5.570E+07	9.185E+08	*7.634E+13	*7.634E+13
Ra-226	2.288E+04	2.319E+04	2.384E+04	2.623E+04	3.454E+04	9.266E+04	*9.885E+11	*9.885E+11
Ra-228	3.525E+04	2.937E+04	2.767E+04	5.106E+04	6.965E+05	8.445E+09	*2.726E+14	*2.726E+14
Th-228	3.066E+04	4.408E+04	9.113E+04	1.157E+06	1.652E+09	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	1.426E+07	1.125E+07	7.956E+06	4.058E+06	1.885E+06	9.685E+05	*2.018E+10	*2.018E+10
Th-232	*1.097E+05	*1.097E+05	6.973E+04	2.618E+04	1.834E+04	1.935E+04	*1.097E+05	*1.097E+05
U-234	4.125E+07	4.199E+07	4.350E+07	4.921E+07	6.983E+07	2.245E+08	*6.247E+09	*6.247E+09
U-235	2.970E+05	3.023E+05	3.133E+05	3.550E+05	5.073E+05	1.781E+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

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:25 Page 24
Summary : SU12 Elevated Area #1 Excavation Model
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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	5.300E-01	0.000E+00	2.367E-04	1.056E+05	2.367E-04	1.056E+05
Pa-231	5.300E-01	21.22 ± 0.04	8.348E-05	2.995E+05	3.028E-05	8.256E+05
Pb-210	2.566E+02	0.642 ± 0.001	1.423E-06	1.757E+07	1.387E-06	1.802E+07
Ra-226	2.566E+02	0.000E+00	1.093E-03	2.288E+04	1.093E-03	2.288E+04
Ra-228	2.363E+01	2.440 ± 0.005	9.099E-04	2.748E+04	7.092E-04	3.525E+04
Th-228	2.363E+01	0.000E+00	8.154E-04	3.066E+04	8.154E-04	3.066E+04
Th-230	1.500E+03	144.7 ± 0.3	2.758E-05	9.066E+05	1.753E-06	1.426E+07
Th-232	2.363E+01	39.47 ± 0.08	1.376E-03	1.817E+04	4.772E-05	*1.097E+05
U-234	1.154E+01	0.000E+00	6.060E-07	4.125E+07	6.060E-07	4.125E+07
U-235	5.300E-01	0.000E+00	8.418E-05	2.970E+05	8.418E-05	2.970E+05
U-238	1.154E+01	0.000E+00	1.607E-05	*3.361E+05	1.607E-05	*3.361E+05

*At specific activity limit

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:25 Page 25
Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 EXCAVATION.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
Ac-227	Ac-227	1.000E+00	1.254E-04	1.162E-04	9.985E-05	5.864E-05	1.281E-05	6.180E-08	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	2.010E-06	5.784E-06	1.232E-05	2.699E-05	3.426E-05	1.159E-05	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	1.422E-11	9.643E-11	4.746E-10	3.303E-09	1.416E-08	2.051E-08	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		1.274E-04	1.220E-04	1.122E-04	8.563E-05	4.708E-05	1.167E-05	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	1.404E-05	1.379E-05	1.331E-05	1.174E-05	8.199E-06	2.315E-06	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	1.481E-10	4.373E-10	9.850E-10	2.607E-09	5.292E-09	4.927E-09	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		1.404E-05	1.379E-05	1.331E-05	1.174E-05	8.204E-06	2.320E-06	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	3.240E-04	3.113E-04	2.873E-04	2.171E-04	9.753E-05	5.909E-06	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	5.047E-06	1.479E-05	3.275E-05	8.185E-05	1.432E-04	9.484E-05	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	4.279E-09	2.950E-08	1.507E-07	1.195E-06	7.265E-06	3.002E-05	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	7.402E-17	1.094E-15	1.234E-14	2.897E-13	5.052E-12	6.195E-11	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	4.195E-23	1.281E-21	3.120E-20	2.159E-18	1.085E-16	4.146E-15	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		3.290E-04	3.261E-04	3.202E-04	3.002E-04	2.480E-04	1.308E-04	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	3.193E-05	5.228E-05	5.179E-05	3.921E-05	1.763E-05	1.074E-06	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	3.766E-07	1.778E-06	4.984E-06	1.393E-05	2.523E-05	1.699E-05	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	2.586E-10	2.866E-09	2.006E-08	1.930E-07	1.253E-06	5.323E-06	0.000E+00	0.000E+00
Po-210	U-234	1.000E+00	3.773E-18	9.060E-17	1.469E-15	4.467E-14	8.570E-13	1.094E-11	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	1.851E-24	9.321E-23	3.372E-21	3.186E-19	1.812E-17	7.287E-16	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		3.231E-05	5.406E-05	5.679E-05	5.334E-05	4.412E-05	2.338E-05	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	2.804E-01	2.766E-01	2.691E-01	2.444E-01	1.855E-01	6.911E-02	0.000E+00	0.000E+00
Ra-226	Th-230	1.000E+00	3.558E-04	1.061E-03	2.440E-03	6.967E-03	1.761E-02	3.642E-02	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	8.185E-12	5.677E-11	2.938E-10	2.438E-09	1.661E-08	8.750E-08	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	5.789E-18	8.590E-17	9.780E-16	2.375E-14	4.516E-13	6.778E-12	0.000E+00	0.000E+00
Ra-226	∑DOSE(j)		2.807E-01	2.776E-01	2.715E-01	2.514E-01	2.032E-01	1.055E-01	0.000E+00	0.000E+00
Ra-228	Ra-228	1.000E+00	1.322E-02	1.157E-02	8.852E-03	3.471E-03	2.388E-04	1.999E-08	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	8.145E-04	2.305E-03	4.748E-03	9.568E-03	1.234E-02	1.176E-02	0.000E+00	0.000E+00
Ra-228	∑DOSE(j)		1.404E-02	1.387E-02	1.360E-02	1.304E-02	1.258E-02	1.176E-02	0.000E+00	0.000E+00
Th-228	Ra-228	1.000E+00	3.537E-03	8.550E-03	1.250E-02	8.099E-03	6.093E-04	4.997E-08	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	1.927E-02	1.340E-02	6.483E-03	5.104E-04	3.575E-07	3.171E-18	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	1.480E-04	9.042E-04	3.559E-03	1.283E-02	1.972E-02	1.860E-02	0.000E+00	0.000E+00
Th-228	∑DOSE(j)		2.295E-02	2.286E-02	2.254E-02	2.144E-02	2.033E-02	1.860E-02	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	2.273E-03	2.273E-03	2.273E-03	2.273E-03	2.271E-03	2.266E-03	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	7.826E-11	2.329E-10	5.342E-10	1.508E-09	3.708E-09	7.375E-09	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	7.373E-17	5.109E-16	2.640E-15	2.177E-14	1.460E-13	7.547E-13	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		2.273E-03	2.273E-03	2.273E-03	2.273E-03	2.271E-03	2.266E-03	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	1.650E-04	1.650E-04	1.650E-04	1.650E-04	1.650E-04	1.648E-04	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	6.993E-06	6.870E-06	6.631E-06	5.858E-06	4.111E-06	1.190E-06	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	9.883E-12	2.919E-11	6.577E-11	1.743E-10	3.554E-10	3.391E-10	0.000E+00	0.000E+00
U-234	∑DOSE(j)		6.993E-06	6.870E-06	6.631E-06	5.858E-06	4.111E-06	1.190E-06	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	4.461E-05	4.382E-05	4.229E-05	3.732E-05	2.610E-05	7.416E-06	0.000E+00	0.000E+00

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Summary : SU12 Elevated Area #1 Excavation Model
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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	3.200E-10	3.144E-10	3.035E-10	2.681E-10	1.882E-10	5.449E-11	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	1.854E-04	1.821E-04	1.756E-04	1.548E-04	1.077E-04	2.985E-05	0.000E+00	0.000E+00
U-238	∑DOSE(j)		1.854E-04	1.821E-04	1.756E-04	1.548E-04	1.077E-04	2.985E-05	0.000E+00	0.000E+00

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

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Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 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
Ac-227	Ac-227	1.000E+00	5.300E-01	4.913E-01	4.222E-01	2.483E-01	5.451E-02	2.701E-04	7.018E-11	6.273E-34
Ac-227	Pa-231	1.000E+00	0.000E+00	1.610E-02	4.405E-02	1.072E-01	1.408E-01	4.920E-02	1.425E-03	5.827E-09
Ac-227	U-235	1.000E+00	0.000E+00	1.720E-07	1.439E-06	1.243E-05	5.706E-05	8.658E-05	8.551E-06	1.224E-10
Ac-227	∑S(j):		5.300E-01	5.074E-01	4.662E-01	3.555E-01	1.954E-01	4.956E-02	1.433E-03	5.949E-09
Pa-231	Pa-231	1.000E+00	5.300E-01	5.207E-01	5.026E-01	4.439E-01	3.114E-01	9.006E-02	2.600E-03	1.063E-08
Pa-231	U-235	1.000E+00	0.000E+00	1.102E-05	3.190E-05	9.393E-05	1.977E-04	1.907E-04	1.656E-05	2.274E-10
Pa-231	∑S(j):		5.300E-01	5.207E-01	5.026E-01	4.440E-01	3.116E-01	9.025E-02	2.617E-03	1.086E-08
Pb-210	Pb-210	1.000E+00	2.566E+02	2.465E+02	2.276E+02	1.721E+02	7.739E+01	4.722E+00	1.599E-03	1.142E-15
Pb-210	Ra-226	1.000E+00	0.000E+00	7.767E+00	2.210E+01	6.136E+01	1.109E+02	7.470E+01	5.842E+00	6.112E-04
Pb-210	Th-230	1.000E+00	0.000E+00	9.922E-03	8.622E-02	8.491E-01	5.510E+00	2.342E+01	3.730E+01	3.779E+01
Pb-210	U-234	1.000E+00	0.000E+00	2.291E-10	5.970E-09	1.957E-07	3.770E-06	4.814E-05	1.373E-04	1.480E-04
Pb-210	U-238	9.999E-01	0.000E+00	1.623E-16	1.269E-14	1.386E-12	7.967E-11	3.208E-09	1.938E-08	2.373E-08
Pb-210	∑S(j):		2.566E+02	2.543E+02	2.498E+02	2.343E+02	1.938E+02	1.028E+02	4.314E+01	3.779E+01
Po-210	Pb-210	1.000E+00	0.000E+00	2.035E+02	2.211E+02	1.678E+02	7.545E+01	4.603E+00	1.559E-03	1.114E-15
Po-210	Ra-226	1.000E+00	0.000E+00	4.141E+00	1.763E+01	5.623E+01	1.054E+02	7.173E+01	5.615E+00	5.875E-04
Po-210	Th-230	1.000E+00	0.000E+00	4.000E-03	5.901E-02	7.362E-01	5.121E+00	2.227E+01	3.560E+01	3.608E+01
Po-210	U-234	1.000E+00	0.000E+00	7.482E-11	3.600E-09	1.617E-07	3.446E-06	4.557E-05	1.310E-04	1.413E-04
Po-210	U-238	9.999E-01	0.000E+00	4.470E-17	6.854E-15	1.094E-12	7.162E-11	3.022E-09	1.848E-08	2.266E-08
Po-210	∑S(j):		0.000E+00	2.077E+02	2.388E+02	2.247E+02	1.859E+02	9.859E+01	4.121E+01	3.608E+01
Ra-226	Ra-226	1.000E+00	2.566E+02	2.532E+02	2.467E+02	2.251E+02	1.732E+02	6.927E+01	5.050E+00	5.282E-04
Ra-226	Th-230	1.000E+00	0.000E+00	6.456E-01	1.912E+00	6.090E+00	1.612E+01	3.618E+01	4.839E+01	4.855E+01
Ra-226	U-234	1.000E+00	0.000E+00	2.227E-08	1.964E-07	2.032E-06	1.498E-05	8.664E-05	1.814E-04	1.901E-04
Ra-226	U-238	9.999E-01	0.000E+00	2.101E-14	5.536E-13	1.884E-11	4.009E-10	6.686E-09	2.639E-08	3.049E-08
Ra-226	∑S(j):		2.566E+02	2.539E+02	2.486E+02	2.312E+02	1.893E+02	1.055E+02	5.344E+01	4.855E+01
Ra-228	Ra-228	1.000E+00	2.363E+01	2.068E+01	1.585E+01	6.237E+00	4.344E-01	3.875E-05	1.042E-16	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	2.667E+00	7.044E+00	1.574E+01	2.098E+01	2.135E+01	2.129E+01	2.107E+01
Ra-228	∑S(j):		2.363E+01	2.335E+01	2.289E+01	2.198E+01	2.142E+01	2.135E+01	2.129E+01	2.107E+01
Th-228	Ra-228	1.000E+00	0.000E+00	6.697E+00	1.246E+01	8.865E+00	6.863E-01	6.128E-05	1.648E-16	0.000E+00
Th-228	Th-228	1.000E+00	2.363E+01	1.645E+01	7.969E+00	6.308E-01	4.495E-04	4.341E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	4.387E-01	2.900E+00	1.279E+01	2.076E+01	2.135E+01	2.129E+01	2.107E+01
Th-228	∑S(j):		2.363E+01	2.358E+01	2.332E+01	2.228E+01	2.144E+01	2.135E+01	2.129E+01	2.107E+01
Th-230	Th-230	1.000E+00	1.500E+03	1.500E+03	1.500E+03	1.500E+03	1.499E+03	1.496E+03	1.489E+03	1.465E+03
Th-230	U-234	1.000E+00	0.000E+00	1.030E-04	3.035E-04	9.519E-04	2.417E-03	4.861E-03	5.804E-03	5.737E-03
Th-230	U-238	9.999E-01	0.000E+00	1.455E-10	1.279E-09	1.310E-08	9.373E-08	4.958E-07	9.060E-07	9.198E-07
Th-230	∑S(j):		1.500E+03	1.500E+03	1.500E+03	1.500E+03	1.499E+03	1.496E+03	1.489E+03	1.465E+03
Th-232	Th-232	1.000E+00	2.363E+01	2.363E+01	2.363E+01	2.363E+01	2.362E+01	2.360E+01	2.353E+01	2.328E+01
U-234	U-234	1.000E+00	1.154E+01	1.134E+01	1.094E+01	9.667E+00	6.784E+00	1.964E+00	5.693E-02	2.358E-07
U-234	U-238	9.999E-01	0.000E+00	3.214E-05	9.306E-05	2.741E-04	5.770E-04	5.570E-04	4.843E-05	6.694E-10
U-234	∑S(j):		1.154E+01	1.134E+01	1.094E+01	9.668E+00	6.785E+00	1.965E+00	5.697E-02	2.365E-07
U-235	U-235	1.000E+00	5.300E-01	5.207E-01	5.026E-01	4.440E-01	3.116E-01	9.025E-02	2.617E-03	1.086E-08

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Summary : SU12 Elevated Area #1 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA1 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	6.232E-04	6.122E-04	5.909E-04	5.221E-04	3.664E-04	1.061E-04	3.077E-06	1.277E-11
U-238	U-238	9.999E-01	1.154E+01	1.134E+01	1.094E+01	9.667E+00	6.785E+00	1.965E+00	5.697E-02	2.365E-07
U-238	∑S(j):		1.154E+01	1.134E+01	1.094E+01	9.668E+00	6.785E+00	1.965E+00	5.697E-02	2.365E-07

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

RESCALC.EXE execution time = 1.68 seconds

APPENDIX F

RESRAD v6.5 Summary Report for Elevated Area #2 Excavation Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 11:30 Page 1
Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 EXCAVATION.RAD

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Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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 10/18/2013 11:30 Page 3
Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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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Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 EXCAVATION.RAD

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)	9.100E+00	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	1.130E+00	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.130E+00	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	3.197E+01	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	3.197E+01	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	5.780E+00	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	5.780E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	1.918E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	5.780E+00	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	2.485E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.130E+00	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	2.485E+01	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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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)	5.800E-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 : S12 Elevated Area #2 Excavation Model
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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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Summary : S12 Elevated Area #2 Excavation Model
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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	9.10 square meters	Ac-227	1.130E+00
Thickness:	0.30 meters	Pa-231	1.130E+00
Cover Depth:	0.00 meters	Pb-210	3.197E+01
		Ra-226	3.197E+01
		Ra-228	5.780E+00
		Th-228	5.780E+00
		Th-230	1.918E+02
		Th-232	5.780E+00
		U-234	2.485E+01
		U-235	1.130E+00
		U-238	2.485E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	1.060E-01	1.049E-01	1.027E-01	9.561E-02	8.009E-02	4.939E-02	0.000E+00	0.000E+00
M(t):	4.241E-03	4.197E-03	4.109E-03	3.824E-03	3.204E-03	1.976E-03	0.000E+00	0.000E+00

Maximum TDOSE(t): 1.060E-01 mrem/yr at t = 0.000E+00 years

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Summary : S12 Elevated Area #2 Excavation Model
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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	5.571E-04	0.0053	7.841E-05	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.102E-06	0.0000
Pa-231	6.292E-05	0.0006	1.662E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.337E-06	0.0000
Pb-210	5.088E-05	0.0005	6.314E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.857E-05	0.0004
Ra-226	8.184E-02	0.7719	3.017E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.660E-06	0.0001
Ra-228	9.602E-03	0.0906	3.589E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.642E-06	0.0000
Th-228	1.101E-02	0.1038	1.794E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.553E-07	0.0000
Th-230	1.701E-04	0.0016	6.701E-04	0.0063	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.026E-05	0.0002
Th-232	5.525E-04	0.0052	1.017E-04	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.138E-06	0.0000
U-234	2.807E-06	0.0000	3.484E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.343E-06	0.0000
U-235	2.237E-04	0.0021	1.477E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.771E-08	0.0000
U-238	9.107E-04	0.0086	3.116E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.275E-06	0.0000
Total	1.050E-01	0.9901	9.653E-04	0.0091	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.114E-05	0.0008

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	6.387E-04	0.0060
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	8.187E-05	0.0008
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	9.576E-05	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	8.185E-02	0.7720
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	9.608E-03	0.0906
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	1.103E-02	0.1040
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	8.605E-04	0.0081
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	6.574E-04	0.0062
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	3.899E-05	0.0004
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	2.253E-04	0.0021
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	9.432E-04	0.0089
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	1.060E-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	5.163E-04	0.0049	7.269E-05	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.876E-06	0.0000
Pa-231	7.872E-05	0.0008	1.871E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.390E-06	0.0000
Pb-210	4.902E-05	0.0005	7.204E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.119E-05	0.0004
Ra-226	8.073E-02	0.7694	3.192E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.799E-06	0.0001
Ra-228	1.152E-02	0.1098	8.227E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.651E-06	0.0000
Th-228	7.655E-03	0.0730	1.249E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.257E-07	0.0000
Th-230	3.812E-04	0.0036	6.701E-04	0.0064	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.028E-05	0.0002
Th-232	1.839E-03	0.0175	1.025E-04	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.338E-06	0.0000
U-234	2.758E-06	0.0000	3.423E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.319E-06	0.0000
U-235	2.198E-04	0.0021	1.451E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.675E-08	0.0000
U-238	8.944E-04	0.0085	3.061E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.253E-06	0.0000
Total	1.039E-01	0.9900	9.614E-04	0.0092	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.468E-05	0.0008

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	5.919E-04	0.0056
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	9.982E-05	0.0010
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	9.741E-05	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	8.074E-02	0.7695
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	1.153E-02	0.1099
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	7.668E-03	0.0731
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	1.072E-03	0.0102
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	1.945E-03	0.0185
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	3.831E-05	0.0004
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	2.213E-04	0.0021
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	9.262E-04	0.0088
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	1.049E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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	4.434E-04	0.0043	6.246E-05	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.471E-06	0.0000
Pa-231	1.059E-04	0.0010	2.228E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.474E-06	0.0000
Pb-210	4.527E-05	0.0004	6.836E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.870E-05	0.0004
Ra-226	7.854E-02	0.7646	3.543E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.201E-05	0.0001
Ra-228	1.222E-02	0.1189	1.187E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.499E-06	0.0000
Th-228	3.703E-03	0.0361	6.051E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.547E-07	0.0000
Th-230	7.945E-04	0.0077	6.701E-04	0.0065	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.034E-05	0.0002
Th-232	4.756E-03	0.0463	1.050E-04	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.720E-06	0.0000
U-234	2.663E-06	0.0000	3.304E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.273E-06	0.0000
U-235	2.120E-04	0.0021	1.401E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.488E-08	0.0000
U-238	8.626E-04	0.0084	2.955E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.209E-06	0.0000
Total	1.017E-01	0.9899	9.521E-04	0.0093	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.400E-05	0.0008

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	5.084E-04	0.0049
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	1.306E-04	0.0013
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	9.080E-05	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	7.855E-02	0.7648
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	1.223E-02	0.1191
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	3.709E-03	0.0361
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	1.485E-03	0.0145
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	4.865E-03	0.0474
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	3.698E-05	0.0004
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	2.135E-04	0.0021
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	8.933E-04	0.0087
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	1.027E-01	1.0000

*Sum of all water independent and dependent pathways.

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Summary : S12 Elevated Area #2 Excavation Model
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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	2.603E-04	0.0027	3.674E-05	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.453E-06	0.0000
Pa-231	1.649E-04	0.0017	2.978E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.585E-06	0.0000
Pb-210	3.419E-05	0.0004	5.171E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.927E-05	0.0003
Ra-226	7.133E-02	0.7460	4.471E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.796E-05	0.0002
Ra-228	6.614E-03	0.0692	7.679E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.167E-07	0.0000
Th-228	2.914E-04	0.0030	4.790E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.016E-08	0.0000
Th-230	2.150E-03	0.0225	6.701E-04	0.0070	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.061E-05	0.0002
Th-232	1.281E-02	0.1340	1.138E-04	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.640E-06	0.0000
U-234	2.363E-06	0.0000	2.920E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.125E-06	0.0000
U-235	1.871E-04	0.0020	1.242E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.884E-08	0.0000
U-238	7.597E-04	0.0079	2.610E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.068E-06	0.0000
Total	9.461E-02	0.9895	9.248E-04	0.0097	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.950E-05	0.0008

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	2.985E-04	0.0031
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	1.973E-04	0.0021
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	6.863E-05	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	7.135E-02	0.7463
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	6.622E-03	0.0693
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	2.919E-04	0.0031
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	2.841E-03	0.0297
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	1.293E-02	0.1352
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	3.269E-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	1.884E-04	0.0020
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	7.869E-04	0.0082
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	9.561E-02	1.0000

*Sum of all water independent and dependent pathways.

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Summary : S12 Elevated Area #2 Excavation Model
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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	5.678E-05	0.0007	8.065E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.190E-07	0.0000
Pa-231	1.833E-04	0.0023	3.060E-05	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.197E-06	0.0000
Pb-210	1.533E-05	0.0002	2.326E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.316E-05	0.0002
Ra-226	5.410E-02	0.6755	5.355E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.466E-05	0.0003
Ra-228	4.843E-04	0.0060	5.871E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.212E-08	0.0000
Th-228	2.039E-07	0.0000	3.413E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.437E-11	0.0000
Th-230	5.332E-03	0.0666	6.700E-04	0.0084	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.176E-05	0.0003
Th-232	1.831E-02	0.2286	1.206E-04	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.259E-06	0.0001
U-234	1.733E-06	0.0000	2.050E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.901E-07	0.0000
U-235	1.308E-04	0.0016	8.828E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.514E-08	0.0000
U-238	5.282E-04	0.0066	1.832E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.497E-07	0.0000
Total	7.915E-02	0.9882	8.773E-04	0.0110	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.898E-05	0.0009

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	6.516E-05	0.0008
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	2.161E-04	0.0027
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	3.082E-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	5.413E-02	0.6759
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	4.850E-04	0.0061
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	2.043E-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	6.024E-03	0.0752
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	1.844E-02	0.2302
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	2.303E-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	1.318E-04	0.0016
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	5.473E-04	0.0068
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	8.009E-02	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+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	2.721E-07	0.0000	3.997E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.581E-09	0.0000
Pa-231	5.979E-05	0.0012	1.010E-05	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.851E-07	0.0000
Pb-210	9.208E-07	0.0000	1.419E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.031E-07	0.0000
Ra-226	2.008E-02	0.4066	3.054E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.502E-05	0.0003
Ra-228	3.980E-08	0.0000	5.243E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.652E-12	0.0000
Th-228	1.803E-18	0.0000	3.297E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.388E-22	0.0000
Th-230	1.092E-02	0.2211	6.697E-04	0.0136	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.554E-05	0.0005
Th-232	1.728E-02	0.3499	1.210E-04	0.0025	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.300E-06	0.0001
U-234	9.173E-07	0.0000	5.968E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.299E-07	0.0000
U-235	3.717E-05	0.0008	2.702E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.117E-08	0.0000
U-238	1.457E-04	0.0029	5.307E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.172E-07	0.0000
Total	4.853E-02	0.9825	8.156E-04	0.0165	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.781E-05	0.0010

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	3.137E-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	7.058E-05	0.0014
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	1.866E-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	2.010E-02	0.4070
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	3.986E-08	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	1.806E-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	1.162E-02	0.2352
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	1.741E-02	0.3524
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	7.115E-06	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	3.745E-05	0.0008
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	1.512E-04	0.0031
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	4.939E-02	1.0000

*Sum of all water independent and dependent pathways.

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Summary : S12 Elevated Area #2 Excavation Model
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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	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+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	5.652E-04	5.238E-04	4.499E-04	2.641E-04	5.767E-05	2.776E-07	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	6.340E-05	6.227E-05	6.008E-05	5.298E-05	3.698E-05	1.042E-05	0.000E+00	0.000E+00
Pa-231	Ac-227+D	1.000E+00	9.056E-06	2.606E-05	5.552E-05	1.216E-04	1.542E-04	5.204E-05	0.000E+00	0.000E+00
Pa-231	∑DSR(j)		7.245E-05	8.833E-05	1.156E-04	1.746E-04	1.912E-04	6.246E-05	0.000E+00	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	2.745E-06	2.638E-06	2.435E-06	1.840E-06	8.259E-07	4.995E-08	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	2.500E-07	4.094E-07	4.055E-07	3.070E-07	1.380E-07	8.410E-09	0.000E+00	0.000E+00
Pb-210+D	∑DSR(j)		2.995E-06	3.047E-06	2.840E-06	2.147E-06	9.639E-07	5.836E-08	0.000E+00	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	2.560E-03	2.525E-03	2.457E-03	2.231E-03	1.692E-03	6.278E-04	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	4.276E-08	1.253E-07	2.775E-07	6.934E-07	1.212E-06	8.017E-07	0.000E+00	0.000E+00
Ra-226+D	Po-210	1.000E+00	2.949E-09	1.392E-08	3.902E-08	1.091E-07	1.975E-07	1.329E-07	0.000E+00	0.000E+00
Ra-226+D	∑DSR(j)		2.560E-03	2.525E-03	2.457E-03	2.232E-03	1.693E-03	6.288E-04	0.000E+00	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	1.312E-03	1.148E-03	8.783E-04	3.442E-04	2.367E-05	1.973E-09	0.000E+00	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	3.501E-04	8.465E-04	1.237E-03	8.014E-04	6.024E-05	4.923E-09	0.000E+00	0.000E+00
Ra-228+D	∑DSR(j)		1.662E-03	1.994E-03	2.116E-03	1.146E-03	8.390E-05	6.896E-09	0.000E+00	0.000E+00
Th-228+D	Th-228+D	1.000E+00	1.908E-03	1.327E-03	6.417E-04	5.051E-05	3.535E-08	3.125E-19	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	3.930E-06	3.930E-06	3.930E-06	3.929E-06	3.927E-06	3.918E-06	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	5.557E-07	1.657E-06	3.811E-06	1.088E-05	2.746E-05	5.659E-05	0.000E+00	0.000E+00
Th-230	Pb-210+D	1.000E+00	6.202E-12	4.276E-11	2.185E-10	1.732E-09	1.052E-08	4.342E-08	0.000E+00	0.000E+00
Th-230	Po-210	1.000E+00	3.464E-13	3.838E-12	2.686E-11	2.585E-10	1.678E-09	7.127E-09	0.000E+00	0.000E+00
Th-230	∑DSR(j)		4.486E-06	5.587E-06	7.741E-06	1.481E-05	3.140E-05	6.055E-05	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	1.825E-05	1.825E-05	1.825E-05	1.825E-05	1.824E-05	1.822E-05	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	8.083E-05	2.288E-04	4.711E-04	9.491E-04	1.222E-03	1.161E-03	0.000E+00	0.000E+00
Th-232	Th-228+D	1.000E+00	1.465E-05	8.951E-05	3.523E-04	1.270E-03	1.949E-03	1.832E-03	0.000E+00	0.000E+00
Th-232	∑DSR(j)		1.137E-04	3.365E-04	8.417E-04	2.237E-03	3.190E-03	3.011E-03	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	1.569E-06	1.542E-06	1.488E-06	1.314E-06	9.224E-07	2.670E-07	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	1.759E-11	5.235E-11	1.200E-10	3.389E-10	8.333E-10	1.657E-09	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	1.662E-12	1.152E-11	5.964E-11	4.947E-10	3.367E-09	1.767E-08	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	1.395E-17	2.060E-16	2.324E-15	5.457E-14	9.512E-13	1.164E-11	0.000E+00	0.000E+00
U-234	Po-210	1.000E+00	6.568E-19	1.577E-17	2.558E-16	7.776E-15	1.492E-13	1.904E-12	0.000E+00	0.000E+00
U-234	∑DSR(j)		1.569E-06	1.542E-06	1.488E-06	1.315E-06	9.266E-07	2.863E-07	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	1.993E-04	1.958E-04	1.889E-04	1.667E-04	1.165E-04	3.303E-05	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	6.687E-10	1.974E-09	4.447E-09	1.177E-08	2.387E-08	2.218E-08	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	6.408E-11	4.345E-10	2.138E-09	1.488E-08	6.376E-08	9.211E-08	0.000E+00	0.000E+00
U-235+D	∑DSR(j)		1.993E-04	1.958E-04	1.889E-04	1.667E-04	1.166E-04	3.314E-05	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	7.213E-11	7.087E-11	6.840E-11	6.043E-11	4.241E-11	1.228E-11	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	3.795E-05	3.727E-05	3.595E-05	3.167E-05	2.202E-05	6.085E-06	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	2.218E-12	6.549E-12	1.476E-11	3.912E-11	7.975E-11	7.607E-11	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	1.657E-17	1.148E-16	5.932E-16	4.891E-15	3.280E-14	1.696E-13	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	1.175E-18	1.744E-17	1.985E-16	4.819E-15	9.154E-14	1.369E-12	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	7.903E-24	2.413E-22	5.877E-21	4.066E-19	2.044E-17	7.793E-16	0.000E+00	0.000E+00
U-238+D	Po-210	9.999E-01	3.223E-25	1.623E-23	5.871E-22	5.547E-20	3.153E-18	1.268E-16	0.000E+00	0.000E+00
U-238+D	∑DSR(j)		3.795E-05	3.727E-05	3.595E-05	3.167E-05	2.202E-05	6.085E-06	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	4.423E+04	4.773E+04	5.557E+04	9.464E+04	4.335E+05	9.006E+07	*7.232E+13	*7.232E+13
Pa-231	3.450E+05	2.830E+05	2.163E+05	1.432E+05	1.307E+05	4.003E+05	*4.723E+10	*4.723E+10
Pb-210	8.346E+06	8.205E+06	8.802E+06	1.165E+07	2.594E+07	4.284E+08	*7.634E+13	*7.634E+13
Ra-226	9.764E+03	9.899E+03	1.017E+04	1.120E+04	1.477E+04	3.976E+04	*9.885E+11	*9.885E+11
Ra-228	1.504E+04	1.254E+04	1.182E+04	2.182E+04	2.980E+05	3.625E+09	*2.726E+14	*2.726E+14
Th-228	1.311E+04	1.884E+04	3.896E+04	4.950E+05	7.073E+08	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	5.573E+06	4.475E+06	3.229E+06	1.688E+06	7.961E+05	4.129E+05	*2.018E+10	*2.018E+10
Th-232	*1.097E+05	7.429E+04	2.970E+04	1.117E+04	7.837E+03	8.302E+03	*1.097E+05	*1.097E+05
U-234	1.593E+07	1.622E+07	1.680E+07	1.901E+07	2.698E+07	8.731E+07	*6.247E+09	*6.247E+09
U-235	1.254E+05	1.277E+05	1.323E+05	1.500E+05	2.144E+05	7.543E+05	*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	1.130E+00	0.000E+00	5.652E-04	4.423E+04	5.652E-04	4.423E+04
Pa-231	1.130E+00	21.19 ± 0.04	1.993E-04	1.254E+05	7.245E-05	3.450E+05
Pb-210	3.197E+01	0.605 ± 0.001	3.061E-06	8.166E+06	2.995E-06	8.346E+06
Ra-226	3.197E+01	0.000E+00	2.560E-03	9.764E+03	2.560E-03	9.764E+03
Ra-228	5.780E+00	2.436 ± 0.005	2.131E-03	1.173E+04	1.662E-03	1.504E+04
Th-228	5.780E+00	0.000E+00	1.908E-03	1.311E+04	1.908E-03	1.311E+04
Th-230	1.918E+02	143.8 ± 0.3	6.452E-05	3.875E+05	4.486E-06	5.573E+06
Th-232	5.780E+00	39.07 ± 0.08	3.217E-03	7.772E+03	1.137E-04	*1.097E+05
U-234	2.485E+01	0.000E+00	1.569E-06	1.593E+07	1.569E-06	1.593E+07
U-235	1.130E+00	0.000E+00	1.993E-04	1.254E+05	1.993E-04	1.254E+05
U-238	2.485E+01	0.000E+00	3.795E-05	*3.361E+05	3.795E-05	*3.361E+05

*At specific activity limit

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Summary : S12 Elevated Area #2 Excavation Model
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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	6.387E-04	5.919E-04	5.084E-04	2.985E-04	6.516E-05	3.137E-07	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	1.023E-05	2.945E-05	6.274E-05	1.374E-04	1.743E-04	5.881E-05	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	7.241E-11	4.910E-10	2.416E-09	1.681E-08	7.205E-08	1.041E-07	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		6.489E-04	6.213E-04	5.711E-04	4.359E-04	2.395E-04	5.922E-05	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	7.164E-05	7.037E-05	6.789E-05	5.987E-05	4.179E-05	1.177E-05	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	7.556E-10	2.231E-09	5.025E-09	1.330E-08	2.698E-08	2.506E-08	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		7.164E-05	7.037E-05	6.789E-05	5.988E-05	4.182E-05	1.180E-05	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	8.777E-05	8.433E-05	7.784E-05	5.881E-05	2.640E-05	1.597E-06	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	1.367E-06	4.006E-06	8.873E-06	2.217E-05	3.876E-05	2.563E-05	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	1.190E-09	8.203E-09	4.190E-08	3.323E-07	2.018E-06	8.328E-06	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	3.466E-16	5.120E-15	5.775E-14	1.356E-12	2.364E-11	2.893E-10	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	1.964E-22	5.996E-21	1.460E-19	1.010E-17	5.079E-16	1.936E-14	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		8.914E-05	8.834E-05	8.675E-05	8.131E-05	6.718E-05	3.556E-05	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	7.993E-06	1.309E-05	1.296E-05	9.816E-06	4.413E-06	2.689E-07	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	9.428E-08	4.450E-07	1.248E-06	3.488E-06	6.316E-06	4.250E-06	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	6.644E-11	7.362E-10	5.153E-09	4.958E-08	3.218E-07	1.367E-06	0.000E+00	0.000E+00
Po-210	U-234	1.000E+00	1.632E-17	3.919E-16	6.356E-15	1.932E-13	3.707E-12	4.730E-11	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	8.008E-24	4.032E-22	1.459E-20	1.378E-18	7.836E-17	3.151E-15	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		8.088E-06	1.353E-05	1.422E-05	1.335E-05	1.105E-05	5.886E-06	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	8.185E-02	8.073E-02	7.854E-02	7.133E-02	5.409E-02	2.007E-02	0.000E+00	0.000E+00
Ra-226	Th-230	1.000E+00	1.066E-04	3.178E-04	7.310E-04	2.086E-03	5.268E-03	1.085E-02	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	4.130E-11	2.864E-10	1.482E-09	1.229E-08	8.366E-08	4.391E-07	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	2.921E-17	4.334E-16	4.934E-15	1.198E-13	2.275E-12	3.402E-11	0.000E+00	0.000E+00
Ra-226	∑DOSE(j)		8.196E-02	8.105E-02	7.928E-02	7.341E-02	5.935E-02	3.093E-02	0.000E+00	0.000E+00
Ra-228	Ra-228	1.000E+00	7.584E-03	6.634E-03	5.077E-03	1.990E-03	1.368E-04	1.140E-08	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	4.672E-04	1.322E-03	2.723E-03	5.486E-03	7.065E-03	6.712E-03	0.000E+00	0.000E+00
Ra-228	∑DOSE(j)		8.051E-03	7.956E-03	7.800E-03	7.475E-03	7.202E-03	6.712E-03	0.000E+00	0.000E+00
Th-228	Ra-228	1.000E+00	2.024E-03	4.892E-03	7.152E-03	4.632E-03	3.482E-04	2.845E-08	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	1.103E-02	7.668E-03	3.709E-03	2.919E-04	2.043E-07	1.806E-18	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	8.469E-05	5.174E-04	2.036E-03	7.340E-03	1.127E-02	1.059E-02	0.000E+00	0.000E+00
Th-228	∑DOSE(j)		1.313E-02	1.308E-02	1.290E-02	1.226E-02	1.162E-02	1.059E-02	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	7.539E-04	7.539E-04	7.539E-04	7.537E-04	7.532E-04	7.515E-04	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	4.370E-10	1.301E-09	2.983E-09	8.422E-09	2.071E-08	4.118E-08	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	4.117E-16	2.853E-15	1.474E-14	1.215E-13	8.152E-13	4.214E-12	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		7.539E-04	7.539E-04	7.539E-04	7.537E-04	7.532E-04	7.515E-04	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	1.055E-04	1.055E-04	1.055E-04	1.055E-04	1.054E-04	1.053E-04	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	3.899E-05	3.831E-05	3.698E-05	3.266E-05	2.292E-05	6.635E-06	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	5.511E-11	1.627E-10	3.667E-10	9.721E-10	1.982E-09	1.890E-09	0.000E+00	0.000E+00
U-234	∑DOSE(j)		3.899E-05	3.831E-05	3.698E-05	3.267E-05	2.292E-05	6.636E-06	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	2.253E-04	2.213E-04	2.135E-04	1.884E-04	1.317E-04	3.732E-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	1.793E-09	1.761E-09	1.700E-09	1.502E-09	1.054E-09	3.052E-10	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	9.432E-04	9.262E-04	8.933E-04	7.869E-04	5.473E-04	1.512E-04	0.000E+00	0.000E+00
U-238	∑DOSE(j)		9.432E-04	9.262E-04	8.933E-04	7.869E-04	5.473E-04	1.512E-04	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	1.130E+00	1.047E+00	9.001E-01	5.294E-01	1.162E-01	5.760E-04	1.496E-10	1.337E-33
Ac-227	Pa-231	1.000E+00	0.000E+00	3.433E-02	9.391E-02	2.285E-01	3.002E-01	1.049E-01	3.038E-03	1.242E-08
Ac-227	U-235	1.000E+00	0.000E+00	3.668E-07	3.067E-06	2.651E-05	1.217E-04	1.846E-04	1.823E-05	2.610E-10
Ac-227	∑S(j):		1.130E+00	1.082E+00	9.940E-01	7.580E-01	4.165E-01	1.057E-01	3.056E-03	1.268E-08
Pa-231	Pa-231	1.000E+00	1.130E+00	1.110E+00	1.071E+00	9.465E-01	6.640E-01	1.920E-01	5.544E-03	2.267E-08
Pa-231	U-235	1.000E+00	0.000E+00	2.349E-05	6.801E-05	2.003E-04	4.216E-04	4.067E-04	3.530E-05	4.848E-10
Pa-231	∑S(j):		1.130E+00	1.110E+00	1.072E+00	9.467E-01	6.644E-01	1.924E-01	5.579E-03	2.316E-08
Pb-210	Pb-210	1.000E+00	3.197E+01	3.072E+01	2.836E+01	2.144E+01	9.643E+00	5.883E-01	1.992E-04	1.423E-16
Pb-210	Ra-226	1.000E+00	0.000E+00	9.677E-01	2.754E+00	7.645E+00	1.382E+01	9.308E+00	7.279E-01	7.616E-05
Pb-210	Th-230	1.000E+00	0.000E+00	1.269E-03	1.103E-02	1.086E-01	7.046E-01	2.995E+00	4.769E+00	4.833E+00
Pb-210	U-234	1.000E+00	0.000E+00	4.932E-10	1.286E-08	4.215E-07	8.119E-06	1.037E-04	2.957E-04	3.187E-04
Pb-210	U-238	9.999E-01	0.000E+00	3.496E-16	2.733E-14	2.985E-12	1.716E-10	6.907E-09	4.173E-08	5.111E-08
Pb-210	∑S(j):		3.197E+01	3.169E+01	3.112E+01	2.919E+01	2.417E+01	1.289E+01	5.498E+00	4.833E+00
Po-210	Pb-210	1.000E+00	0.000E+00	2.536E+01	2.755E+01	2.090E+01	9.401E+00	5.735E-01	1.942E-04	1.388E-16
Po-210	Ra-226	1.000E+00	0.000E+00	5.160E-01	2.197E+00	7.007E+00	1.313E+01	8.937E+00	6.996E-01	7.320E-05
Po-210	Th-230	1.000E+00	0.000E+00	5.115E-04	7.546E-03	9.415E-02	6.548E-01	2.847E+00	4.552E+00	4.614E+00
Po-210	U-234	1.000E+00	0.000E+00	1.611E-10	7.753E-09	3.483E-07	7.420E-06	9.813E-05	2.821E-04	3.043E-04
Po-210	U-238	9.999E-01	0.000E+00	9.626E-17	1.476E-14	2.356E-12	1.542E-10	6.508E-09	3.979E-08	4.879E-08
Po-210	∑S(j):		0.000E+00	2.588E+01	2.975E+01	2.800E+01	2.318E+01	1.236E+01	5.252E+00	4.614E+00
Ra-226	Ra-226	1.000E+00	3.197E+01	3.155E+01	3.074E+01	2.805E+01	2.158E+01	8.632E+00	6.292E-01	6.581E-05
Ra-226	Th-230	1.000E+00	0.000E+00	8.256E-02	2.445E-01	7.788E-01	2.061E+00	4.626E+00	6.188E+00	6.209E+00
Ra-226	U-234	1.000E+00	0.000E+00	4.796E-08	4.229E-07	4.375E-06	3.225E-05	1.866E-04	3.906E-04	4.095E-04
Ra-226	U-238	9.999E-01	0.000E+00	4.523E-14	1.192E-12	4.058E-11	8.632E-10	1.440E-08	5.684E-08	6.565E-08
Ra-226	∑S(j):		3.197E+01	3.164E+01	3.098E+01	2.883E+01	2.365E+01	1.326E+01	6.817E+00	6.209E+00
Ra-228	Ra-228	1.000E+00	5.780E+00	5.059E+00	3.876E+00	1.526E+00	1.063E-01	9.480E-06	2.550E-17	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	6.523E-01	1.723E+00	3.850E+00	5.133E+00	5.223E+00	5.208E+00	5.154E+00
Ra-228	∑S(j):		5.780E+00	5.711E+00	5.599E+00	5.375E+00	5.239E+00	5.223E+00	5.208E+00	5.154E+00
Th-228	Ra-228	1.000E+00	0.000E+00	1.638E+00	3.047E+00	2.168E+00	1.679E-01	1.499E-05	4.032E-17	0.000E+00
Th-228	Th-228	1.000E+00	5.780E+00	4.023E+00	1.949E+00	1.543E-01	1.099E-04	1.062E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	1.073E-01	7.094E-01	3.128E+00	5.077E+00	5.223E+00	5.208E+00	5.154E+00
Th-228	∑S(j):		5.780E+00	5.769E+00	5.705E+00	5.451E+00	5.245E+00	5.223E+00	5.208E+00	5.154E+00
Th-230	Th-230	1.000E+00	1.918E+02	1.918E+02	1.918E+02	1.918E+02	1.917E+02	1.914E+02	1.905E+02	1.873E+02
Th-230	U-234	1.000E+00	0.000E+00	2.217E-04	6.536E-04	2.050E-03	5.204E-03	1.047E-02	1.250E-02	1.235E-02
Th-230	U-238	9.999E-01	0.000E+00	3.133E-10	2.754E-09	2.820E-08	2.018E-07	1.068E-06	1.951E-06	1.981E-06
Th-230	∑S(j):		1.918E+02	1.918E+02	1.918E+02	1.918E+02	1.917E+02	1.914E+02	1.905E+02	1.873E+02
Th-232	Th-232	1.000E+00	5.780E+00	5.780E+00	5.780E+00	5.779E+00	5.777E+00	5.771E+00	5.754E+00	5.695E+00
U-234	U-234	1.000E+00	2.485E+01	2.441E+01	2.356E+01	2.082E+01	1.461E+01	4.230E+00	1.226E-01	5.078E-07
U-234	U-238	9.999E-01	0.000E+00	6.921E-05	2.004E-04	5.901E-04	1.243E-03	1.199E-03	1.043E-04	1.441E-09
U-234	∑S(j):		2.485E+01	2.441E+01	2.356E+01	2.082E+01	1.461E+01	4.231E+00	1.227E-01	5.092E-07
U-235	U-235	1.000E+00	1.130E+00	1.110E+00	1.072E+00	9.467E-01	6.644E-01	1.924E-01	5.579E-03	2.316E-08

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Summary : S12 Elevated Area #2 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA2 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	1.342E-03	1.318E-03	1.272E-03	1.124E-03	7.890E-04	2.285E-04	6.625E-06	2.750E-11
U-238	U-238	9.999E-01	2.485E+01	2.441E+01	2.356E+01	2.082E+01	1.461E+01	4.231E+00	1.227E-01	5.092E-07
U-238	∑S(j):		2.485E+01	2.441E+01	2.356E+01	2.082E+01	1.461E+01	4.231E+00	1.227E-01	5.092E-07

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

RESCALC.EXE execution time = 1.62 seconds

APPENDIX G

RESRAD v6.5 Summary Report for Elevated Area #3 Excavation Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:23 Page 1
Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 EXCAVATION.RAD

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RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:23 Page 2
Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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 10/18/2013 10:23 Page 3
Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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				

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:23 Page 4
Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 EXCAVATION.RAD

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)	1.440E+00	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	5.900E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	5.900E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	1.310E+02	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	1.310E+02	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	1.880E+01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	1.880E+01	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	7.860E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	1.880E+01	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	1.295E+01	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	5.900E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	1.295E+01	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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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)	9.100E-05	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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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:	1.44 square meters	Ac-227	5.900E-01
Thickness:	0.30 meters	Pa-231	5.900E-01
Cover Depth:	0.00 meters	Pb-210	1.310E+02
		Ra-226	1.310E+02
		Ra-228	1.880E+01
		Th-228	1.880E+01
		Th-230	7.860E+02
		Th-232	1.880E+01
		U-234	1.295E+01
		U-235	5.900E-01
		U-238	1.295E+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+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	1.937E-02	1.918E-02	1.878E-02	1.749E-02	1.461E-02	8.861E-03	0.000E+00	0.000E+00
M(t):	7.750E-04	7.670E-04	7.511E-04	6.995E-04	5.844E-04	3.544E-04	0.000E+00	0.000E+00

Maximum TDOSE(t): 1.937E-02 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	1.388E-05	0.0007	5.231E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.021E-08	0.0000
Pa-231	1.562E-06	0.0001	1.109E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.029E-08	0.0000
Pb-210	1.036E-05	0.0005	3.306E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.924E-06	0.0002
Ra-226	1.565E-02	0.8079	1.580E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.810E-07	0.0000
Ra-228	1.459E-03	0.0753	1.492E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.326E-07	0.0000
Th-228	1.666E-03	0.0860	7.458E-06	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.099E-08	0.0000
Th-230	3.333E-05	0.0017	3.509E-04	0.0181	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.061E-06	0.0001
Th-232	8.396E-05	0.0043	4.228E-05	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.534E-07	0.0000
U-234	7.363E-08	0.0000	2.320E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.737E-08	0.0000
U-235	5.613E-06	0.0003	9.851E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.481E-10	0.0000
U-238	2.256E-05	0.0012	2.075E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.650E-08	0.0000
Total	1.895E-02	0.9781	4.178E-04	0.0216	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.418E-06	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 = 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	1.915E-05	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	2.701E-06	0.0001
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	1.759E-05	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	1.566E-02	0.8081
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	1.460E-03	0.0754
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	1.673E-03	0.0864
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	3.863E-04	0.0199
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	1.265E-04	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	2.411E-06	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	5.712E-06	0.0003
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	2.465E-05	0.0013
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	1.937E-02	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	1.286E-05	0.0007	4.849E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.728E-08	0.0000
Pa-231	1.956E-06	0.0001	1.248E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.098E-08	0.0000
Pb-210	9.978E-06	0.0005	3.772E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.190E-06	0.0002
Ra-226	1.544E-02	0.8051	1.671E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.969E-07	0.0001
Ra-228	1.748E-03	0.0911	3.419E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.334E-07	0.0000
Th-228	1.159E-03	0.0604	5.191E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.245E-08	0.0000
Th-230	7.371E-05	0.0038	3.509E-04	0.0183	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.064E-06	0.0001
Th-232	2.793E-04	0.0146	4.259E-05	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.695E-07	0.0000
U-234	7.234E-08	0.0000	2.280E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.707E-08	0.0000
U-235	5.513E-06	0.0003	9.681E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.356E-10	0.0000
U-238	2.215E-05	0.0012	2.038E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.621E-08	0.0000
Total	1.875E-02	0.9778	4.180E-04	0.0218	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.798E-06	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+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	1.775E-05	0.0009
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	3.235E-06	0.0002
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	1.794E-05	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	1.544E-02	0.8052
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	1.751E-03	0.0913
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	1.164E-03	0.0607
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	4.266E-04	0.0222
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	3.222E-04	0.0168
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	2.369E-06	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	5.610E-06	0.0003
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	2.421E-05	0.0013
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	1.918E-02	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	1.104E-05	0.0006	4.167E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.203E-08	0.0000
Pa-231	2.632E-06	0.0001	1.486E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.207E-08	0.0000
Pb-210	9.212E-06	0.0005	3.579E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.937E-06	0.0002
Ra-226	1.502E-02	0.7997	1.855E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.221E-06	0.0001
Ra-228	1.852E-03	0.0986	4.931E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.211E-07	0.0000
Th-228	5.603E-04	0.0298	2.515E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.057E-08	0.0000
Th-230	1.527E-04	0.0081	3.509E-04	0.0187	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.069E-06	0.0001
Th-232	7.215E-04	0.0384	4.364E-05	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.004E-07	0.0000
U-234	6.984E-08	0.0000	2.200E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.648E-08	0.0000
U-235	5.318E-06	0.0003	9.350E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.114E-10	0.0000
U-238	2.136E-05	0.0011	1.967E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.564E-08	0.0000
Total	1.835E-02	0.9774	4.173E-04	0.0222	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.767E-06	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+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	1.524E-05	0.0008
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	4.150E-06	0.0002
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	1.673E-05	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	1.502E-02	0.7999
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	1.857E-03	0.0989
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	5.628E-04	0.0300
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	5.056E-04	0.0269
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	7.655E-04	0.0408
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	2.287E-06	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	5.412E-06	0.0003
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	2.334E-05	0.0012
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	1.878E-02	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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+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	6.476E-06	0.0004	2.451E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.884E-08	0.0000
Pa-231	4.098E-06	0.0002	1.987E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.351E-08	0.0000
Pb-210	6.954E-06	0.0004	2.708E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.978E-06	0.0002
Ra-226	1.363E-02	0.7792	2.341E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.827E-06	0.0001
Ra-228	1.001E-03	0.0573	3.191E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.788E-08	0.0000
Th-228	4.406E-05	0.0025	1.991E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.628E-09	0.0000
Th-230	4.115E-04	0.0235	3.508E-04	0.0201	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.097E-06	0.0001
Th-232	1.941E-03	0.1110	4.731E-05	0.0027	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.747E-07	0.0000
U-234	6.193E-08	0.0000	1.944E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.456E-08	0.0000
U-235	4.688E-06	0.0003	8.285E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.331E-10	0.0000
U-238	1.880E-05	0.0011	1.738E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.382E-08	0.0000
Total	1.706E-02	0.9759	4.148E-04	0.0237	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.418E-06	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+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	8.946E-06	0.0005
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	6.119E-06	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	1.264E-05	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	1.363E-02	0.7794
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	1.005E-03	0.0574
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	4.426E-05	0.0025
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	7.644E-04	0.0437
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	1.989E-03	0.1137
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	2.021E-06	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	4.772E-06	0.0003
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	2.055E-05	0.0012
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	1.749E-02	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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	1.409E-06	0.0001	5.380E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.136E-09	0.0000
Pa-231	4.544E-06	0.0003	2.041E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.848E-08	0.0000
Pb-210	3.113E-06	0.0002	1.218E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.339E-06	0.0001
Ra-226	1.031E-02	0.7057	2.804E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.508E-06	0.0002
Ra-228	7.316E-05	0.0050	2.440E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.209E-09	0.0000
Th-228	3.077E-08	0.0000	1.419E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.160E-12	0.0000
Th-230	1.017E-03	0.0696	3.508E-04	0.0240	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.214E-06	0.0002
Th-232	2.767E-03	0.1894	5.014E-05	0.0034	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.246E-07	0.0000
U-234	4.522E-08	0.0000	1.365E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.022E-08	0.0000
U-235	3.271E-06	0.0002	5.890E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.555E-10	0.0000
U-238	1.304E-05	0.0009	1.220E-06	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.700E-09	0.0000
Total	1.419E-02	0.9715	4.104E-04	0.0281	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.543E-06	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	1.951E-06	0.0001
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	6.614E-06	0.0005
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	5.670E-06	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	1.031E-02	0.7061
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	7.340E-05	0.0050
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	3.092E-08	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	1.370E-03	0.0938
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	2.818E-03	0.1929
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	1.421E-06	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	3.330E-06	0.0002
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	1.427E-05	0.0010
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	1.461E-02	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 Excavation Model
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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	6.688E-09	0.0000	2.666E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.050E-11	0.0000
Pa-231	1.468E-06	0.0002	6.741E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.881E-09	0.0000
Pb-210	1.861E-07	0.0000	7.430E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.170E-08	0.0000
Ra-226	3.793E-03	0.4281	1.599E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.528E-06	0.0002
Ra-228	5.964E-09	0.0000	2.179E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.757E-13	0.0000
Th-228	2.700E-19	0.0000	1.370E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.121E-23	0.0000
Th-230	2.063E-03	0.2329	3.506E-04	0.0396	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.599E-06	0.0003
Th-232	2.590E-03	0.2923	5.031E-05	0.0057	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.280E-07	0.0000
U-234	2.302E-08	0.0000	3.974E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.974E-09	0.0000
U-235	9.215E-07	0.0001	1.803E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.449E-10	0.0000
U-238	3.567E-06	0.0004	3.534E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.810E-09	0.0000
Total	8.452E-03	0.9539	4.041E-04	0.0456	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.651E-06	0.0005

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	9.375E-09	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	2.151E-06	0.0002
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	3.421E-07	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	3.796E-03	0.4284
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	5.986E-09	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	2.714E-19	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	2.417E-03	0.2727
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	2.640E-03	0.2980
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	4.234E-07	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	9.397E-07	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	3.923E-06	0.0004
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	8.861E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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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Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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+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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Summary : SU12 Elevated Area #3 Excavation Model
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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	3.246E-05	3.008E-05	2.583E-05	1.516E-05	3.307E-06	1.589E-08	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	4.058E-06	3.986E-06	3.845E-06	3.391E-06	2.366E-06	6.672E-07	0.000E+00	0.000E+00
Pa-231	Ac-227+D	1.000E+00	5.201E-07	1.497E-06	3.188E-06	6.980E-06	8.844E-06	2.979E-06	0.000E+00	0.000E+00
Pa-231	∑DSR(j)		4.579E-06	5.483E-06	7.034E-06	1.037E-05	1.121E-05	3.646E-06	0.000E+00	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	1.225E-07	1.177E-07	1.086E-07	8.204E-08	3.679E-08	2.216E-09	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	1.176E-08	1.926E-08	1.908E-08	1.444E-08	6.494E-09	3.955E-10	0.000E+00	0.000E+00
Pb-210+D	∑DSR(j)		1.343E-07	1.369E-07	1.277E-07	9.648E-08	4.328E-08	2.611E-09	0.000E+00	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	1.195E-04	1.179E-04	1.146E-04	1.040E-04	7.868E-05	2.894E-05	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	1.908E-09	5.591E-09	1.238E-08	3.092E-08	5.401E-08	3.556E-08	0.000E+00	0.000E+00
Ra-226+D	Po-210	1.000E+00	1.387E-10	6.548E-10	1.836E-09	5.132E-09	9.292E-09	6.252E-09	0.000E+00	0.000E+00
Ra-226+D	∑DSR(j)		1.195E-04	1.179E-04	1.146E-04	1.040E-04	7.874E-05	2.898E-05	0.000E+00	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	6.134E-05	5.365E-05	4.104E-05	1.607E-05	1.102E-06	9.098E-11	0.000E+00	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	1.634E-05	3.949E-05	5.772E-05	3.736E-05	2.802E-06	2.274E-10	0.000E+00	0.000E+00
Ra-228+D	∑DSR(j)		7.768E-05	9.314E-05	9.876E-05	5.343E-05	3.904E-06	3.184E-10	0.000E+00	0.000E+00
Th-228+D	Th-228+D	1.000E+00	8.901E-05	6.190E-05	2.994E-05	2.354E-06	1.644E-09	1.443E-20	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	4.655E-07	4.655E-07	4.655E-07	4.654E-07	4.651E-07	4.641E-07	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	2.594E-08	7.731E-08	1.778E-07	5.071E-07	1.277E-06	2.608E-06	0.000E+00	0.000E+00
Th-230	Pb-210+D	1.000E+00	2.768E-13	1.908E-12	9.746E-12	7.726E-11	4.687E-10	1.926E-09	0.000E+00	0.000E+00
Th-230	Po-210	1.000E+00	1.629E-14	1.805E-13	1.264E-12	1.216E-11	7.891E-11	3.352E-10	0.000E+00	0.000E+00
Th-230	∑DSR(j)		4.914E-07	5.428E-07	6.433E-07	9.725E-07	1.743E-06	3.075E-06	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	2.266E-06	2.266E-06	2.266E-06	2.266E-06	2.265E-06	2.263E-06	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	3.779E-06	1.069E-05	2.202E-05	4.431E-05	5.692E-05	5.355E-05	0.000E+00	0.000E+00
Th-232	Th-228+D	1.000E+00	6.837E-07	4.176E-06	1.643E-05	5.920E-05	9.069E-05	8.464E-05	0.000E+00	0.000E+00
Th-232	∑DSR(j)		6.729E-06	1.714E-05	4.072E-05	1.058E-04	1.499E-04	1.404E-04	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	1.862E-07	1.829E-07	1.766E-07	1.560E-07	1.095E-07	3.168E-08	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	2.083E-12	6.200E-12	1.422E-11	4.014E-11	9.870E-11	1.963E-10	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	7.757E-14	5.379E-13	2.783E-12	2.306E-11	1.566E-10	8.145E-10	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	6.223E-19	9.194E-18	1.037E-16	2.434E-15	4.237E-14	5.165E-13	0.000E+00	0.000E+00
U-234	Po-210	1.000E+00	3.090E-20	7.420E-19	1.203E-17	3.658E-16	7.017E-15	8.952E-14	0.000E+00	0.000E+00
U-234	∑DSR(j)		1.862E-07	1.829E-07	1.766E-07	1.560E-07	1.097E-07	3.269E-08	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	9.681E-06	9.509E-06	9.173E-06	8.086E-06	5.639E-06	1.586E-06	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	4.281E-11	1.264E-10	2.847E-10	7.533E-10	1.527E-09	1.420E-09	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	3.680E-12	2.496E-11	1.228E-10	8.541E-10	3.656E-09	5.273E-09	0.000E+00	0.000E+00
U-235+D	∑DSR(j)		9.682E-06	9.509E-06	9.173E-06	8.088E-06	5.645E-06	1.593E-06	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	8.813E-12	8.658E-12	8.357E-12	7.383E-12	5.182E-12	1.501E-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	1.904E-06	1.869E-06	1.803E-06	1.587E-06	1.102E-06	3.029E-07	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	2.631E-13	7.771E-13	1.751E-12	4.642E-12	9.463E-12	9.028E-12	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	1.962E-18	1.360E-17	7.025E-17	5.793E-16	3.885E-15	2.009E-14	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	5.486E-20	8.139E-19	9.264E-18	2.247E-16	4.257E-15	6.310E-14	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	3.527E-25	1.077E-23	2.622E-22	1.813E-20	9.103E-19	3.456E-17	0.000E+00	0.000E+00
U-238+D	Po-210	9.999E-01	1.516E-26	7.634E-25	2.762E-23	2.609E-21	1.483E-19	5.964E-18	0.000E+00	0.000E+00
U-238+D	∑DSR(j)		1.904E-06	1.869E-06	1.803E-06	1.587E-06	1.102E-06	3.029E-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	7.701E+05	8.310E+05	9.677E+05	1.649E+06	7.560E+06	1.573E+09	*7.232E+13	*7.232E+13
Pa-231	5.460E+06	4.560E+06	3.554E+06	2.411E+06	2.230E+06	6.856E+06	*4.723E+10	*4.723E+10
Pb-210	1.862E+08	1.826E+08	1.958E+08	2.591E+08	5.776E+08	9.574E+09	*7.634E+13	*7.634E+13
Ra-226	2.092E+05	2.121E+05	2.181E+05	2.403E+05	3.175E+05	8.627E+05	*9.885E+11	*9.885E+11
Ra-228	3.218E+05	2.684E+05	2.531E+05	4.679E+05	6.403E+06	7.852E+10	*2.726E+14	*2.726E+14
Th-228	2.809E+05	4.039E+05	8.351E+05	1.062E+07	1.520E+10	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	5.087E+07	4.606E+07	3.886E+07	2.571E+07	1.434E+07	8.131E+06	*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	1.343E+08	1.367E+08	1.416E+08	1.602E+08	2.279E+08	7.646E+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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Summary : SU12 Elevated Area #3 Excavation Model
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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	5.900E-01	0.000E+00	3.246E-05	7.701E+05	3.246E-05	7.701E+05
Pa-231	5.900E-01	20.83 ± 0.04	1.172E-05	2.133E+06	4.579E-06	5.460E+06
Pb-210	1.310E+02	0.629 ± 0.001	1.375E-07	1.818E+08	1.343E-07	1.862E+08
Ra-226	1.310E+02	0.000E+00	1.195E-04	2.092E+05	1.195E-04	2.092E+05
Ra-228	1.880E+01	2.432 ± 0.005	9.948E-05	2.513E+05	7.768E-05	3.218E+05
Th-228	1.880E+01	0.000E+00	8.901E-05	2.809E+05	8.901E-05	2.809E+05
Th-230	7.860E+02	141.7 ± 0.3	3.241E-06	7.714E+06	4.914E-07	5.087E+07
Th-232	1.880E+01	38.25 ± 0.08	1.510E-04	*1.097E+05	6.729E-06	*1.097E+05
U-234	1.295E+01	0.000E+00	1.862E-07	1.343E+08	1.862E-07	1.343E+08
U-235	5.900E-01	0.000E+00	9.682E-06	*2.161E+06	9.682E-06	*2.161E+06
U-238	1.295E+01	0.000E+00	1.904E-06	*3.361E+05	1.904E-06	*3.361E+05

*At specific activity limit

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:23 Page 25
Summary : SU12 Elevated Area #3 Excavation Model
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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	1.915E-05	1.775E-05	1.524E-05	8.946E-06	1.951E-06	9.375E-09	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	3.069E-07	8.832E-07	1.881E-06	4.118E-06	5.218E-06	1.758E-06	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	2.171E-12	1.472E-11	7.245E-11	5.039E-10	2.157E-09	3.111E-09	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		1.946E-05	1.863E-05	1.712E-05	1.306E-05	7.171E-06	1.770E-06	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	2.394E-06	2.352E-06	2.269E-06	2.001E-06	1.396E-06	3.936E-07	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	2.526E-11	7.457E-11	1.679E-10	4.444E-10	9.011E-10	8.379E-10	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		2.394E-06	2.352E-06	2.269E-06	2.001E-06	1.397E-06	3.945E-07	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	1.605E-05	1.542E-05	1.423E-05	1.075E-05	4.819E-06	2.902E-07	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	2.500E-07	7.324E-07	1.622E-06	4.051E-06	7.075E-06	4.659E-06	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	2.175E-10	1.500E-09	7.660E-09	6.072E-08	3.684E-07	1.514E-06	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	8.059E-18	1.191E-16	1.343E-15	3.152E-14	5.487E-13	6.688E-12	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	4.567E-24	1.394E-22	3.396E-21	2.348E-19	1.179E-17	4.476E-16	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		1.630E-05	1.615E-05	1.586E-05	1.486E-05	1.226E-05	6.462E-06	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	1.541E-06	2.523E-06	2.499E-06	1.892E-06	8.506E-07	5.181E-08	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	1.817E-08	8.578E-08	2.405E-07	6.723E-07	1.217E-06	8.190E-07	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	1.281E-11	1.419E-10	9.933E-10	9.556E-09	6.202E-08	2.634E-07	0.000E+00	0.000E+00
Po-210	U-234	1.000E+00	4.001E-19	9.608E-18	1.558E-16	4.737E-15	9.087E-14	1.159E-12	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	1.963E-25	9.885E-24	3.577E-22	3.379E-20	1.921E-18	7.723E-17	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		1.559E-06	2.609E-06	2.740E-06	2.574E-06	2.130E-06	1.134E-06	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	1.566E-02	1.544E-02	1.502E-02	1.363E-02	1.031E-02	3.791E-03	0.000E+00	0.000E+00
Ra-226	Th-230	1.000E+00	2.039E-05	6.077E-05	1.398E-04	3.986E-04	1.004E-03	2.050E-03	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	1.005E-12	6.966E-12	3.604E-11	2.987E-10	2.027E-09	1.055E-08	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	7.105E-19	1.054E-17	1.200E-16	2.910E-15	5.513E-14	8.172E-13	0.000E+00	0.000E+00
Ra-226	∑DOSE(j)		1.568E-02	1.550E-02	1.516E-02	1.402E-02	1.131E-02	5.841E-03	0.000E+00	0.000E+00
Ra-228	Ra-228	1.000E+00	1.153E-03	1.009E-03	7.716E-04	3.021E-04	2.072E-05	1.711E-09	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	7.104E-05	2.010E-04	4.139E-04	8.330E-04	1.070E-03	1.007E-03	0.000E+00	0.000E+00
Ra-228	∑DOSE(j)		1.224E-03	1.210E-03	1.186E-03	1.135E-03	1.091E-03	1.007E-03	0.000E+00	0.000E+00
Th-228	Ra-228	1.000E+00	3.072E-04	7.425E-04	1.085E-03	7.024E-04	5.269E-05	4.275E-09	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	1.673E-03	1.164E-03	5.628E-04	4.426E-05	3.092E-08	2.714E-19	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	1.285E-05	7.852E-05	3.090E-04	1.113E-03	1.705E-03	1.591E-03	0.000E+00	0.000E+00
Th-228	∑DOSE(j)		1.993E-03	1.985E-03	1.957E-03	1.860E-03	1.758E-03	1.591E-03	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	3.659E-04	3.659E-04	3.658E-04	3.658E-04	3.656E-04	3.648E-04	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	2.697E-11	8.029E-11	1.841E-10	5.198E-10	1.278E-09	2.542E-09	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	2.541E-17	1.761E-16	9.098E-16	7.502E-15	5.032E-14	2.602E-13	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		3.659E-04	3.659E-04	3.658E-04	3.658E-04	3.656E-04	3.648E-04	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	4.260E-05	4.260E-05	4.260E-05	4.260E-05	4.259E-05	4.254E-05	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	2.411E-06	2.369E-06	2.286E-06	2.020E-06	1.417E-06	4.103E-07	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	3.407E-12	1.006E-11	2.268E-11	6.011E-11	1.225E-10	1.169E-10	0.000E+00	0.000E+00
U-234	∑DOSE(j)		2.411E-06	2.369E-06	2.286E-06	2.020E-06	1.418E-06	4.104E-07	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	5.712E-06	5.610E-06	5.412E-06	4.771E-06	3.327E-06	9.358E-07	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	1.141E-10	1.121E-10	1.082E-10	9.561E-11	6.710E-11	1.943E-11	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	2.465E-05	2.421E-05	2.334E-05	2.055E-05	1.427E-05	3.923E-06	0.000E+00	0.000E+00
U-238	∑DOSE(j)		2.465E-05	2.421E-05	2.334E-05	2.055E-05	1.427E-05	3.923E-06	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	5.900E-01	5.469E-01	4.700E-01	2.764E-01	6.068E-02	3.007E-04	7.813E-11	6.983E-34
Ac-227	Pa-231	1.000E+00	0.000E+00	1.793E-02	4.903E-02	1.193E-01	1.567E-01	5.477E-02	1.586E-03	6.487E-09
Ac-227	U-235	1.000E+00	0.000E+00	1.915E-07	1.601E-06	1.384E-05	6.352E-05	9.638E-05	9.519E-06	1.363E-10
Ac-227	∑S(j):		5.900E-01	5.648E-01	5.190E-01	3.958E-01	2.175E-01	5.517E-02	1.596E-03	6.623E-09
Pa-231	Pa-231	1.000E+00	5.900E-01	5.796E-01	5.594E-01	4.942E-01	3.467E-01	1.003E-01	2.894E-03	1.184E-08
Pa-231	U-235	1.000E+00	0.000E+00	1.226E-05	3.551E-05	1.046E-04	2.201E-04	2.123E-04	1.843E-05	2.531E-10
Pa-231	∑S(j):		5.900E-01	5.796E-01	5.595E-01	4.943E-01	3.469E-01	1.005E-01	2.913E-03	1.209E-08
Pb-210	Pb-210	1.000E+00	1.310E+02	1.259E+02	1.162E+02	8.785E+01	3.951E+01	2.411E+00	8.163E-04	5.833E-16
Pb-210	Ra-226	1.000E+00	0.000E+00	3.965E+00	1.128E+01	3.133E+01	5.663E+01	3.814E+01	2.983E+00	3.121E-04
Pb-210	Th-230	1.000E+00	0.000E+00	5.199E-03	4.518E-02	4.449E-01	2.887E+00	1.227E+01	1.954E+01	1.980E+01
Pb-210	U-234	1.000E+00	0.000E+00	2.570E-10	6.700E-09	2.196E-07	4.231E-06	5.402E-05	1.541E-04	1.661E-04
Pb-210	U-238	9.999E-01	0.000E+00	1.822E-16	1.424E-14	1.556E-12	8.941E-11	3.599E-09	2.175E-08	2.663E-08
Pb-210	∑S(j):		1.310E+02	1.298E+02	1.275E+02	1.196E+02	9.903E+01	5.283E+01	2.253E+01	1.980E+01
Po-210	Pb-210	1.000E+00	0.000E+00	1.039E+02	1.129E+02	8.565E+01	3.852E+01	2.350E+00	7.958E-04	5.686E-16
Po-210	Ra-226	1.000E+00	0.000E+00	2.114E+00	9.003E+00	2.871E+01	5.380E+01	3.662E+01	2.867E+00	2.999E-04
Po-210	Th-230	1.000E+00	0.000E+00	2.096E-03	3.092E-02	3.858E-01	2.683E+00	1.167E+01	1.865E+01	1.890E+01
Po-210	U-234	1.000E+00	0.000E+00	8.396E-11	4.040E-09	1.815E-07	3.867E-06	5.114E-05	1.470E-04	1.586E-04
Po-210	U-238	9.999E-01	0.000E+00	5.016E-17	7.692E-15	1.228E-12	8.037E-11	3.392E-09	2.073E-08	2.542E-08
Po-210	∑S(j):		0.000E+00	1.060E+02	1.219E+02	1.147E+02	9.500E+01	5.064E+01	2.152E+01	1.890E+01
Ra-226	Ra-226	1.000E+00	1.310E+02	1.293E+02	1.260E+02	1.149E+02	8.845E+01	3.537E+01	2.578E+00	2.697E-04
Ra-226	Th-230	1.000E+00	0.000E+00	3.383E-01	1.002E+00	3.191E+00	8.445E+00	1.896E+01	2.535E+01	2.544E+01
Ra-226	U-234	1.000E+00	0.000E+00	2.499E-08	2.204E-07	2.280E-06	1.680E-05	9.723E-05	2.035E-04	2.134E-04
Ra-226	U-238	9.999E-01	0.000E+00	2.357E-14	6.212E-13	2.115E-11	4.499E-10	7.503E-09	2.962E-08	3.421E-08
Ra-226	∑S(j):		1.310E+02	1.296E+02	1.270E+02	1.181E+02	9.689E+01	5.433E+01	2.793E+01	2.544E+01
Ra-228	Ra-228	1.000E+00	1.880E+01	1.646E+01	1.261E+01	4.962E+00	3.456E-01	3.083E-05	8.294E-17	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	2.122E+00	5.604E+00	1.252E+01	1.669E+01	1.699E+01	1.694E+01	1.676E+01
Ra-228	∑S(j):		1.880E+01	1.858E+01	1.821E+01	1.748E+01	1.704E+01	1.699E+01	1.694E+01	1.676E+01
Th-228	Ra-228	1.000E+00	0.000E+00	5.328E+00	9.910E+00	7.053E+00	5.460E-01	4.876E-05	1.311E-16	0.000E+00
Th-228	Th-228	1.000E+00	1.880E+01	1.309E+01	6.340E+00	5.019E-01	3.576E-04	3.454E-15	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	3.490E-01	2.307E+00	1.018E+01	1.651E+01	1.699E+01	1.694E+01	1.676E+01
Th-228	∑S(j):		1.880E+01	1.876E+01	1.856E+01	1.773E+01	1.706E+01	1.699E+01	1.694E+01	1.676E+01
Th-230	Th-230	1.000E+00	7.860E+02	7.860E+02	7.859E+02	7.858E+02	7.854E+02	7.841E+02	7.804E+02	7.675E+02
Th-230	U-234	1.000E+00	0.000E+00	1.155E-04	3.406E-04	1.068E-03	2.712E-03	5.455E-03	6.513E-03	6.438E-03
Th-230	U-238	9.999E-01	0.000E+00	1.633E-10	1.435E-09	1.470E-08	1.052E-07	5.564E-07	1.017E-06	1.032E-06
Th-230	∑S(j):		7.860E+02	7.860E+02	7.859E+02	7.858E+02	7.854E+02	7.841E+02	7.804E+02	7.675E+02
Th-232	Th-232	1.000E+00	1.880E+01	1.880E+01	1.880E+01	1.880E+01	1.879E+01	1.877E+01	1.872E+01	1.852E+01
U-234	U-234	1.000E+00	1.295E+01	1.272E+01	1.228E+01	1.085E+01	7.613E+00	2.204E+00	6.388E-02	2.646E-07
U-234	U-238	9.999E-01	0.000E+00	3.607E-05	1.044E-04	3.075E-04	6.475E-04	6.250E-04	5.435E-05	7.512E-10
U-234	∑S(j):		1.295E+01	1.272E+01	1.228E+01	1.085E+01	7.614E+00	2.205E+00	6.394E-02	2.654E-07
U-235	U-235	1.000E+00	5.900E-01	5.796E-01	5.595E-01	4.943E-01	3.469E-01	1.005E-01	2.913E-03	1.209E-08

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Summary : SU12 Elevated Area #3 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA3 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	6.993E-04	6.870E-04	6.631E-04	5.858E-04	4.112E-04	1.191E-04	3.453E-06	1.433E-11
U-238	U-238	9.999E-01	1.295E+01	1.272E+01	1.228E+01	1.085E+01	7.614E+00	2.205E+00	6.393E-02	2.653E-07
U-238	∑S(j):		1.295E+01	1.272E+01	1.228E+01	1.085E+01	7.614E+00	2.205E+00	6.394E-02	2.654E-07

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

RESCALC.EXE execution time = 1.56 seconds

APPENDIX H

RESRAD v6.5 Summary Report for Elevated Area #4 Excavation Model

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 1
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.RAD

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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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 10/18/2013 10:35 Page 3
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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				

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 4
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.RAD

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				

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 5
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.RAD

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.

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 6
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.RAD

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+00	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	1.800E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Pa-231	1.800E-01	0.000E+00	---	S1(2)
R012	Initial principal radionuclide (pCi/g): Pb-210	6.715E+01	0.000E+00	---	S1(3)
R012	Initial principal radionuclide (pCi/g): Ra-226	6.715E+01	0.000E+00	---	S1(5)
R012	Initial principal radionuclide (pCi/g): Ra-228	3.320E+00	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): Th-228	3.320E+00	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): Th-230	4.029E+02	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Th-232	3.320E+00	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): U-234	3.880E+00	0.000E+00	---	S1(10)
R012	Initial principal radionuclide (pCi/g): U-235	1.800E-01	0.000E+00	---	S1(11)
R012	Initial principal radionuclide (pCi/g): U-238	3.880E+00	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)	5.700E-05	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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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 : SU12 Elevated Area #4 Excavation Model
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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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Summary : SU12 Elevated Area #4 Excavation Model
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Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	1.00 square meters	Ac-227	1.800E-01
Thickness:	0.30 meters	Pa-231	1.800E-01
Cover Depth:	0.00 meters	Pb-210	6.715E+01
		Ra-226	6.715E+01
		Ra-228	3.320E+00
		Th-228	3.320E+00
		Th-230	4.029E+02
		Th-232	3.320E+00
		U-234	3.880E+00
		U-235	1.800E-01
		U-238	3.880E+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):	4.117E-03	4.073E-03	3.987E-03	3.702E-03	3.039E-03	1.709E-03	0.000E+00	0.000E+00
M(t):	1.647E-04	1.629E-04	1.595E-04	1.481E-04	1.216E-04	6.838E-05	0.000E+00	0.000E+00

Maximum TDOSE(t): 4.117E-03 mrem/yr at t = 0.000E+00 years

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Summary : SU12 Elevated Area #4 Excavation Model
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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	1.984E-06	0.0005	9.597E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.337E-09	0.0000
Pa-231	2.230E-07	0.0001	2.034E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.020E-09	0.0000
Pb-210	2.536E-06	0.0006	1.019E-06	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.748E-07	0.0002
Ra-226	3.719E-03	0.9034	4.870E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.964E-07	0.0000
Ra-228	1.194E-04	0.0290	1.584E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.019E-08	0.0000
Th-228	1.362E-04	0.0331	7.920E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.685E-09	0.0000
Th-230	8.015E-06	0.0019	1.082E-04	0.0263	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.596E-07	0.0001
Th-232	6.876E-06	0.0017	4.490E-06	0.0011	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.947E-08	0.0000
U-234	1.060E-08	0.0000	4.180E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.264E-09	0.0000
U-235	8.051E-07	0.0002	1.807E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.928E-11	0.0000
U-238	3.162E-06	0.0008	3.738E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.150E-09	0.0000
Total	3.999E-03	0.9712	1.171E-04	0.0284	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.579E-06	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 = 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	2.950E-06	0.0007
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	4.304E-07	0.0001
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	4.430E-06	0.0011
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	3.720E-03	0.9035
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	1.196E-04	0.0291
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	1.370E-04	0.0333
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	1.166E-04	0.0283
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	1.139E-05	0.0028
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	4.309E-07	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	8.233E-07	0.0002
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	3.538E-06	0.0009
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	4.117E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 Excavation Model
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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	1.839E-06	0.0005	8.897E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.947E-09	0.0000
Pa-231	2.792E-07	0.0001	2.290E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.112E-09	0.0000
Pb-210	2.442E-06	0.0006	1.163E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.343E-07	0.0002
Ra-226	3.668E-03	0.9005	5.152E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.223E-07	0.0001
Ra-228	1.430E-04	0.0351	3.631E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.024E-08	0.0000
Th-228	9.468E-05	0.0232	5.513E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.261E-09	0.0000
Th-230	1.761E-05	0.0043	1.082E-04	0.0266	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.601E-07	0.0001
Th-232	2.287E-05	0.0056	4.523E-06	0.0011	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.070E-08	0.0000
U-234	1.041E-08	0.0000	4.107E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.225E-09	0.0000
U-235	7.907E-07	0.0002	1.776E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.762E-11	0.0000
U-238	3.104E-06	0.0008	3.672E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.112E-09	0.0000
Total	3.955E-03	0.9708	1.172E-04	0.0288	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.664E-06	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+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	2.733E-06	0.0007
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	5.123E-07	0.0001
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	4.539E-06	0.0011
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	3.669E-03	0.9006
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	1.434E-04	0.0352
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	9.524E-05	0.0234
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	1.262E-04	0.0310
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	2.741E-05	0.0067
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	4.233E-07	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	8.086E-07	0.0002
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	3.474E-06	0.0009
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	4.073E-03	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	1.578E-06	0.0004	7.645E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.251E-09	0.0000
Pa-231	3.758E-07	0.0001	2.727E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.255E-09	0.0000
Pb-210	2.255E-06	0.0006	1.103E-06	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.778E-07	0.0002
Ra-226	3.567E-03	0.8948	5.719E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.723E-07	0.0001
Ra-228	1.515E-04	0.0380	5.237E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.300E-09	0.0000
Th-228	4.578E-05	0.0115	2.671E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.580E-09	0.0000
Th-230	3.637E-05	0.0091	1.081E-04	0.0271	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.614E-07	0.0001
Th-232	5.904E-05	0.0148	4.634E-06	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.308E-08	0.0000
U-234	1.005E-08	0.0000	3.964E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.147E-09	0.0000
U-235	7.627E-07	0.0002	1.715E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.440E-11	0.0000
U-238	2.993E-06	0.0008	3.545E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.039E-09	0.0000
Total	3.868E-03	0.9702	1.171E-04	0.0294	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.658E-06	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+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	2.347E-06	0.0006
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	6.527E-07	0.0002
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	4.236E-06	0.0011
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	3.568E-03	0.8950
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	1.520E-04	0.0381
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	4.605E-05	0.0116
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	1.450E-04	0.0364
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	6.370E-05	0.0160
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	4.086E-07	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	7.799E-07	0.0002
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	3.349E-06	0.0008
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	3.987E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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+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	9.253E-07	0.0002	4.497E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.500E-09	0.0000
Pa-231	5.852E-07	0.0002	3.645E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.446E-09	0.0000
Pb-210	1.702E-06	0.0005	8.346E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.639E-07	0.0002
Ra-226	3.236E-03	0.8740	7.216E-07	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.074E-07	0.0001
Ra-228	8.185E-05	0.0221	3.389E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.446E-09	0.0000
Th-228	3.599E-06	0.0010	2.114E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.251E-10	0.0000
Th-230	9.781E-05	0.0264	1.081E-04	0.0292	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.676E-07	0.0001
Th-232	1.587E-04	0.0429	5.024E-06	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.878E-08	0.0000
U-234	8.910E-09	0.0000	3.503E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.897E-09	0.0000
U-235	6.721E-07	0.0002	1.520E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.401E-11	0.0000
U-238	2.633E-06	0.0007	3.132E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.801E-09	0.0000
Total	3.584E-03	0.9681	1.166E-04	0.0315	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.583E-06	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+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	1.377E-06	0.0004
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	9.541E-07	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	3.200E-06	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	3.237E-03	0.8743
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	8.219E-05	0.0222
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	3.621E-06	0.0010
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	2.064E-04	0.0558
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	1.637E-04	0.0442
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	3.611E-07	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	6.874E-07	0.0002
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	2.948E-06	0.0008
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	3.702E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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	2.010E-07	0.0001	9.871E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.489E-10	0.0000
Pa-231	6.481E-07	0.0002	3.745E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.780E-09	0.0000
Pb-210	7.612E-07	0.0003	3.754E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.986E-07	0.0001
Ra-226	2.445E-03	0.8045	8.643E-07	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.593E-07	0.0002
Ra-228	5.973E-06	0.0020	2.591E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.233E-10	0.0000
Th-228	2.511E-09	0.0000	1.506E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.912E-14	0.0000
Th-230	2.413E-04	0.0794	1.081E-04	0.0356	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.936E-07	0.0002
Th-232	2.260E-04	0.0744	5.325E-06	0.0018	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.262E-08	0.0000
U-234	6.493E-09	0.0000	2.460E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.332E-09	0.0000
U-235	4.684E-07	0.0002	1.081E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.045E-11	0.0000
U-238	1.824E-06	0.0006	2.198E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.264E-09	0.0000
Total	2.922E-03	0.9615	1.157E-04	0.0381	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.391E-06	0.0005

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	3.003E-07	0.0001
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	1.026E-06	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	1.435E-06	0.0005
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	2.446E-03	0.8050
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	5.999E-06	0.0020
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	2.526E-09	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	3.499E-04	0.1151
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	2.313E-04	0.0761
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	2.538E-07	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	4.793E-07	0.0002
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	2.045E-06	0.0007
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	3.039E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 Excavation Model
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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	9.498E-10	0.0000	4.892E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.720E-12	0.0000
Pa-231	2.084E-07	0.0001	1.237E-07	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.179E-09	0.0000
Pb-210	4.539E-08	0.0000	2.290E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.822E-08	0.0000
Ra-226	8.955E-04	0.5239	4.928E-07	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.408E-07	0.0002
Ra-228	4.850E-10	0.0000	2.314E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.886E-14	0.0000
Th-228	2.195E-20	0.0000	1.455E-22	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.607E-25	0.0000
Th-230	4.872E-04	0.2850	1.081E-04	0.0632	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.794E-07	0.0003
Th-232	2.106E-04	0.1232	5.342E-06	0.0031	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.288E-08	0.0000
U-234	3.247E-09	0.0000	7.160E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.877E-10	0.0000
U-235	1.314E-07	0.0001	3.307E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.922E-11	0.0000
U-238	4.969E-07	0.0003	6.367E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.662E-10	0.0000
Total	1.594E-03	0.9326	1.142E-04	0.0668	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.732E-07	0.0006

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	1.442E-09	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	3.333E-07	0.0002
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	8.651E-08	0.0001
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	8.964E-04	0.5244
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	4.873E-10	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	2.210E-20	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	5.959E-04	0.3486
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	2.160E-04	0.1263
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	7.523E-08	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	1.348E-07	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	5.609E-07	0.0003
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	1.709E-03	1.0000

*Sum of all water independent and dependent pathways.

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Summary : SU12 Elevated Area #4 Excavation Model
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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	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+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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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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+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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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.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	1.639E-05	1.518E-05	1.304E-05	7.652E-06	1.668E-06	8.009E-09	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	2.129E-06	2.091E-06	2.017E-06	1.778E-06	1.241E-06	3.499E-07	0.000E+00	0.000E+00
Pa-231	Ac-227+D	1.000E+00	2.625E-07	7.556E-07	1.609E-06	3.522E-06	4.462E-06	1.502E-06	0.000E+00	0.000E+00
Pa-231	∑DSR(j)		2.391E-06	2.846E-06	3.626E-06	5.301E-06	5.702E-06	1.852E-06	0.000E+00	0.000E+00
Pb-210+D	Pb-210+D	1.000E+00	5.973E-08	5.738E-08	5.296E-08	3.999E-08	1.793E-08	1.078E-09	0.000E+00	0.000E+00
Pb-210+D	Po-210	1.000E+00	6.243E-09	1.022E-08	1.012E-08	7.666E-09	3.446E-09	2.099E-10	0.000E+00	0.000E+00
Pb-210+D	∑DSR(j)		6.597E-08	6.760E-08	6.308E-08	4.766E-08	2.137E-08	1.288E-09	0.000E+00	0.000E+00
Ra-226+D	Ra-226+D	1.000E+00	5.540E-05	5.463E-05	5.313E-05	4.818E-05	3.640E-05	1.333E-05	0.000E+00	0.000E+00
Ra-226+D	Pb-210+D	1.000E+00	9.303E-10	2.726E-09	6.036E-09	1.507E-08	2.632E-08	1.731E-08	0.000E+00	0.000E+00
Ra-226+D	Po-210	1.000E+00	7.363E-11	3.476E-10	9.743E-10	2.724E-09	4.932E-09	3.319E-09	0.000E+00	0.000E+00
Ra-226+D	∑DSR(j)		5.540E-05	5.463E-05	5.314E-05	4.820E-05	3.643E-05	1.335E-05	0.000E+00	0.000E+00
Ra-228+D	Ra-228+D	1.000E+00	2.846E-05	2.489E-05	1.904E-05	7.451E-06	5.102E-07	4.192E-11	0.000E+00	0.000E+00
Ra-228+D	Th-228+D	1.000E+00	7.572E-06	1.830E-05	2.675E-05	1.731E-05	1.297E-06	1.049E-10	0.000E+00	0.000E+00
Ra-228+D	∑DSR(j)		3.603E-05	4.319E-05	4.578E-05	2.476E-05	1.807E-06	1.468E-10	0.000E+00	0.000E+00
Th-228+D	Th-228+D	1.000E+00	4.125E-05	2.869E-05	1.387E-05	1.091E-06	7.610E-10	6.656E-21	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	2.774E-07	2.774E-07	2.774E-07	2.774E-07	2.772E-07	2.766E-07	0.000E+00	0.000E+00
Th-230	Ra-226+D	1.000E+00	1.202E-08	3.584E-08	8.241E-08	2.349E-07	5.910E-07	1.201E-06	0.000E+00	0.000E+00
Th-230	Pb-210+D	1.000E+00	1.349E-13	9.303E-13	4.751E-12	3.766E-11	2.284E-10	9.372E-10	0.000E+00	0.000E+00
Th-230	Po-210	1.000E+00	8.648E-15	9.582E-14	6.707E-13	6.453E-12	4.188E-11	1.779E-10	0.000E+00	0.000E+00
Th-230	∑DSR(j)		2.895E-07	3.133E-07	3.598E-07	5.123E-07	8.684E-07	1.479E-06	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	1.360E-06	1.360E-06	1.360E-06	1.359E-06	1.359E-06	1.358E-06	0.000E+00	0.000E+00
Th-232	Ra-228+D	1.000E+00	1.753E-06	4.961E-06	1.021E-05	2.054E-05	2.635E-05	2.467E-05	0.000E+00	0.000E+00
Th-232	Th-228+D	1.000E+00	3.169E-07	1.935E-06	7.615E-06	2.742E-05	4.197E-05	3.903E-05	0.000E+00	0.000E+00
Th-232	∑DSR(j)		3.429E-06	8.256E-06	1.919E-05	4.932E-05	6.968E-05	6.505E-05	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	1.111E-07	1.091E-07	1.053E-07	9.303E-08	6.528E-08	1.890E-08	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	1.241E-12	3.695E-12	8.474E-12	2.393E-11	5.883E-11	1.170E-10	0.000E+00	0.000E+00
U-234	Ra-226+D	1.000E+00	3.596E-14	2.493E-13	1.290E-12	1.068E-11	7.244E-11	3.752E-10	0.000E+00	0.000E+00
U-234	Pb-210+D	1.000E+00	3.034E-19	4.482E-18	5.055E-17	1.186E-15	2.065E-14	2.514E-13	0.000E+00	0.000E+00
U-234	Po-210	1.000E+00	1.640E-20	3.938E-19	6.386E-18	1.942E-16	3.725E-15	4.752E-14	0.000E+00	0.000E+00
U-234	∑DSR(j)		1.111E-07	1.091E-07	1.053E-07	9.306E-08	6.541E-08	1.939E-08	0.000E+00	0.000E+00
U-235+D	U-235+D	1.000E+00	4.574E-06	4.492E-06	4.333E-06	3.818E-06	2.660E-06	7.452E-07	0.000E+00	0.000E+00
U-235+D	Pa-231	1.000E+00	2.245E-11	6.629E-11	1.493E-10	3.950E-10	8.009E-10	7.449E-10	0.000E+00	0.000E+00
U-235+D	Ac-227+D	1.000E+00	1.858E-12	1.260E-11	6.198E-11	4.311E-10	1.844E-09	2.658E-09	0.000E+00	0.000E+00
U-235+D	∑DSR(j)		4.574E-06	4.492E-06	4.333E-06	3.819E-06	2.663E-06	7.486E-07	0.000E+00	0.000E+00
U-238	U-238	5.400E-05	5.278E-12	5.186E-12	5.005E-12	4.422E-12	3.103E-12	8.987E-13	0.000E+00	0.000E+00

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Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.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
U-238+D	U-238+D	9.999E-01	9.118E-07	8.953E-07	8.632E-07	7.597E-07	5.271E-07	1.446E-07	0.000E+00	0.000E+00
U-238+D	U-234	9.999E-01	1.569E-13	4.635E-13	1.044E-12	2.769E-12	5.644E-12	5.385E-12	0.000E+00	0.000E+00
U-238+D	Th-230	9.999E-01	1.170E-18	8.105E-18	4.187E-17	3.453E-16	2.316E-15	1.197E-14	0.000E+00	0.000E+00
U-238+D	Ra-226+D	9.999E-01	2.543E-20	3.773E-19	4.294E-18	1.041E-16	1.970E-15	2.906E-14	0.000E+00	0.000E+00
U-238+D	Pb-210+D	9.999E-01	1.719E-25	5.249E-24	1.278E-22	8.840E-21	4.436E-19	1.682E-17	0.000E+00	0.000E+00
U-238+D	Po-210	9.999E-01	8.046E-27	4.052E-25	1.466E-23	1.385E-21	7.873E-20	3.166E-18	0.000E+00	0.000E+00
U-238+D	∑DSR(j)		9.118E-07	8.953E-07	8.632E-07	7.597E-07	5.271E-07	1.446E-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	1.526E+06	1.646E+06	1.917E+06	3.267E+06	1.499E+07	3.121E+09	*7.232E+13	*7.232E+13
Pa-231	1.046E+07	8.783E+06	6.895E+06	4.716E+06	4.384E+06	1.350E+07	*4.723E+10	*4.723E+10
Pb-210	3.790E+08	3.698E+08	3.963E+08	5.246E+08	1.170E+09	1.941E+10	*7.634E+13	*7.634E+13
Ra-226	4.513E+05	4.576E+05	4.705E+05	5.186E+05	6.862E+05	1.873E+06	*9.885E+11	*9.885E+11
Ra-228	6.939E+05	5.789E+05	5.461E+05	1.010E+06	1.383E+07	1.703E+11	*2.726E+14	*2.726E+14
Th-228	6.061E+05	8.715E+05	1.802E+06	2.292E+07	3.285E+10	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	8.636E+07	7.980E+07	6.947E+07	4.880E+07	2.879E+07	1.690E+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	2.251E+08	2.291E+08	2.374E+08	2.686E+08	3.822E+08	1.289E+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

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 24
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.RAD

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	1.800E-01	0.000E+00	1.639E-05	1.526E+06	1.639E-05	1.526E+06
Pa-231	1.800E-01	20.70 ± 0.04	5.970E-06	4.187E+06	2.391E-06	1.046E+07
Pb-210	6.715E+01	0.666 ± 0.001	6.784E-08	3.685E+08	6.597E-08	3.790E+08
Ra-226	6.715E+01	0.000E+00	5.540E-05	4.513E+05	5.540E-05	4.513E+05
Ra-228	3.320E+00	2.429 ± 0.005	4.611E-05	5.421E+05	3.603E-05	6.939E+05
Th-228	3.320E+00	0.000E+00	4.125E-05	6.061E+05	4.125E-05	6.061E+05
Th-230	4.029E+02	140.6 ± 0.3	1.552E-06	1.611E+07	2.895E-07	8.636E+07
Th-232	3.320E+00	37.87 ± 0.08	7.016E-05	*1.097E+05	3.429E-06	*1.097E+05
U-234	3.880E+00	0.000E+00	1.111E-07	2.251E+08	1.111E-07	2.251E+08
U-235	1.800E-01	0.000E+00	4.574E-06	*2.161E+06	4.574E-06	*2.161E+06
U-238	3.880E+00	0.000E+00	9.118E-07	*3.361E+05	9.118E-07	*3.361E+05

*At specific activity limit

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 25
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 EXCAVATION.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
Ac-227	Ac-227	1.000E+00	2.950E-06	2.733E-06	2.347E-06	1.377E-06	3.003E-07	1.442E-09	0.000E+00	0.000E+00
Ac-227	Pa-231	1.000E+00	4.726E-08	1.360E-07	2.897E-07	6.340E-07	8.031E-07	2.703E-07	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	3.344E-13	2.267E-12	1.116E-11	7.759E-11	3.320E-10	4.784E-10	0.000E+00	0.000E+00
Ac-227	∑DOSE(j)		2.997E-06	2.869E-06	2.637E-06	2.012E-06	1.104E-06	2.722E-07	0.000E+00	0.000E+00
Pa-231	Pa-231	1.000E+00	3.831E-07	3.763E-07	3.630E-07	3.201E-07	2.233E-07	6.299E-08	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	4.041E-12	1.193E-11	2.687E-11	7.111E-11	1.442E-10	1.341E-10	0.000E+00	0.000E+00
Pa-231	∑DOSE(j)		3.832E-07	3.763E-07	3.631E-07	3.202E-07	2.235E-07	6.312E-08	0.000E+00	0.000E+00
Pb-210	Pb-210	1.000E+00	4.011E-06	3.853E-06	3.556E-06	2.685E-06	1.204E-06	7.241E-08	0.000E+00	0.000E+00
Pb-210	Ra-226	1.000E+00	6.247E-08	1.830E-07	4.054E-07	1.012E-06	1.767E-06	1.162E-06	0.000E+00	0.000E+00
Pb-210	Th-230	1.000E+00	5.437E-11	3.748E-10	1.914E-09	1.517E-08	9.202E-08	3.776E-07	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	1.177E-18	1.739E-17	1.961E-16	4.603E-15	8.011E-14	9.753E-13	0.000E+00	0.000E+00
Pb-210	U-238	9.999E-01	6.671E-25	2.036E-23	4.960E-22	3.430E-20	1.721E-18	6.527E-17	0.000E+00	0.000E+00
Pb-210	∑DOSE(j)		4.073E-06	4.036E-06	3.963E-06	3.713E-06	3.063E-06	1.612E-06	0.000E+00	0.000E+00
Po-210	Pb-210	1.000E+00	4.192E-07	6.863E-07	6.798E-07	5.148E-07	2.314E-07	1.410E-08	0.000E+00	0.000E+00
Po-210	Ra-226	1.000E+00	4.944E-09	2.334E-08	6.543E-08	1.829E-07	3.312E-07	2.228E-07	0.000E+00	0.000E+00
Po-210	Th-230	1.000E+00	3.484E-12	3.861E-11	2.702E-10	2.600E-09	1.687E-08	7.168E-08	0.000E+00	0.000E+00
Po-210	U-234	1.000E+00	6.363E-20	1.528E-18	2.478E-17	7.533E-16	1.445E-14	1.844E-13	0.000E+00	0.000E+00
Po-210	U-238	9.999E-01	3.122E-26	1.572E-24	5.687E-23	5.373E-21	3.055E-19	1.228E-17	0.000E+00	0.000E+00
Po-210	∑DOSE(j)		4.241E-07	7.097E-07	7.455E-07	7.003E-07	5.795E-07	3.086E-07	0.000E+00	0.000E+00
Ra-226	Ra-226	1.000E+00	3.720E-03	3.668E-03	3.568E-03	3.236E-03	2.444E-03	8.950E-04	0.000E+00	0.000E+00
Ra-226	Th-230	1.000E+00	4.844E-06	1.444E-05	3.320E-05	9.465E-05	2.381E-04	4.840E-04	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	1.395E-13	9.673E-13	5.004E-12	4.145E-11	2.811E-10	1.456E-09	0.000E+00	0.000E+00
Ra-226	U-238	9.999E-01	9.867E-20	1.464E-18	1.666E-17	4.038E-16	7.643E-15	1.128E-13	0.000E+00	0.000E+00
Ra-226	∑DOSE(j)		3.725E-03	3.683E-03	3.601E-03	3.330E-03	2.682E-03	1.379E-03	0.000E+00	0.000E+00
Ra-228	Ra-228	1.000E+00	9.447E-05	8.263E-05	6.320E-05	2.474E-05	1.694E-06	1.392E-10	0.000E+00	0.000E+00
Ra-228	Th-232	1.000E+00	5.820E-06	1.647E-05	3.390E-05	6.820E-05	8.749E-05	8.190E-05	0.000E+00	0.000E+00
Ra-228	∑DOSE(j)		1.003E-04	9.909E-05	9.711E-05	9.294E-05	8.918E-05	8.190E-05	0.000E+00	0.000E+00
Th-228	Ra-228	1.000E+00	2.514E-05	6.076E-05	8.879E-05	5.745E-05	4.305E-06	3.481E-10	0.000E+00	0.000E+00
Th-228	Th-228	1.000E+00	1.370E-04	9.524E-05	4.605E-05	3.621E-06	2.526E-09	2.210E-20	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	1.052E-06	6.425E-06	2.528E-05	9.103E-05	1.393E-04	1.296E-04	0.000E+00	0.000E+00
Th-228	∑DOSE(j)		1.631E-04	1.624E-04	1.601E-04	1.521E-04	1.436E-04	1.296E-04	0.000E+00	0.000E+00
Th-230	Th-230	1.000E+00	1.118E-04	1.118E-04	1.118E-04	1.118E-04	1.117E-04	1.115E-04	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	4.817E-12	1.434E-11	3.288E-11	9.283E-11	2.282E-10	4.540E-10	0.000E+00	0.000E+00
Th-230	U-238	9.999E-01	4.538E-18	3.145E-17	1.625E-16	1.340E-15	8.985E-15	4.646E-14	0.000E+00	0.000E+00
Th-230	∑DOSE(j)		1.118E-04	1.118E-04	1.118E-04	1.118E-04	1.117E-04	1.115E-04	0.000E+00	0.000E+00
Th-232	Th-232	1.000E+00	4.514E-06	4.514E-06	4.514E-06	4.513E-06	4.512E-06	4.507E-06	0.000E+00	0.000E+00
U-234	U-234	1.000E+00	4.309E-07	4.233E-07	4.086E-07	3.609E-07	2.533E-07	7.332E-08	0.000E+00	0.000E+00
U-234	U-238	9.999E-01	6.089E-13	1.798E-12	4.052E-12	1.074E-11	2.190E-11	2.089E-11	0.000E+00	0.000E+00
U-234	∑DOSE(j)		4.309E-07	4.233E-07	4.086E-07	3.610E-07	2.533E-07	7.334E-08	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	8.233E-07	8.085E-07	7.799E-07	6.873E-07	4.788E-07	1.341E-07	0.000E+00	0.000E+00

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Summary : SU12 Elevated Area #4 Excavation Model
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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	2.048E-11	2.012E-11	1.942E-11	1.716E-11	1.204E-11	3.487E-12	0.000E+00	0.000E+00
U-238	U-238	9.999E-01	3.538E-06	3.474E-06	3.349E-06	2.948E-06	2.045E-06	5.609E-07	0.000E+00	0.000E+00
U-238	∑DOSE(j)		3.538E-06	3.474E-06	3.349E-06	2.948E-06	2.045E-06	5.609E-07	0.000E+00	0.000E+00

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

RESRAD, Version 6.5 T½ Limit = 30 days 10/18/2013 10:35 Page 27
Summary : SU12 Elevated Area #4 Excavation Model
File : C:\PROJECTS\2013\RESRAD MODELS\SU12 EA4 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
Ac-227	Ac-227	1.000E+00	1.800E-01	1.669E-01	1.434E-01	8.433E-02	1.851E-02	9.175E-05	2.384E-11	2.130E-34
Ac-227	Pa-231	1.000E+00	0.000E+00	5.469E-03	1.496E-02	3.640E-02	4.782E-02	1.671E-02	4.839E-04	1.979E-09
Ac-227	U-235	1.000E+00	0.000E+00	5.842E-08	4.886E-07	4.222E-06	1.938E-05	2.940E-05	2.904E-06	4.158E-11
Ac-227	∑S(j):		1.800E-01	1.723E-01	1.583E-01	1.207E-01	6.635E-02	1.683E-02	4.868E-04	2.021E-09
Pa-231	Pa-231	1.000E+00	1.800E-01	1.768E-01	1.707E-01	1.508E-01	1.058E-01	3.059E-02	8.831E-04	3.611E-09
Pa-231	U-235	1.000E+00	0.000E+00	3.742E-06	1.083E-05	3.190E-05	6.716E-05	6.478E-05	5.623E-06	7.722E-11
Pa-231	∑S(j):		1.800E-01	1.768E-01	1.707E-01	1.508E-01	1.058E-01	3.065E-02	8.887E-04	3.688E-09
Pb-210	Pb-210	1.000E+00	6.715E+01	6.452E+01	5.957E+01	4.503E+01	2.025E+01	1.236E+00	4.184E-04	2.990E-16
Pb-210	Ra-226	1.000E+00	0.000E+00	2.033E+00	5.784E+00	1.606E+01	2.903E+01	1.955E+01	1.529E+00	1.600E-04
Pb-210	Th-230	1.000E+00	0.000E+00	2.665E-03	2.316E-02	2.281E-01	1.480E+00	6.292E+00	1.002E+01	1.015E+01
Pb-210	U-234	1.000E+00	0.000E+00	7.701E-11	2.007E-09	6.581E-08	1.268E-06	1.619E-05	4.617E-05	4.977E-05
Pb-210	U-238	9.999E-01	0.000E+00	5.458E-17	4.268E-15	4.661E-13	2.679E-11	1.078E-09	6.516E-09	7.980E-09
Pb-210	∑S(j):		6.715E+01	6.656E+01	6.537E+01	6.132E+01	5.076E+01	2.708E+01	1.155E+01	1.015E+01
Po-210	Pb-210	1.000E+00	0.000E+00	5.327E+01	5.786E+01	4.390E+01	1.975E+01	1.205E+00	4.079E-04	2.915E-16
Po-210	Ra-226	1.000E+00	0.000E+00	1.084E+00	4.615E+00	1.472E+01	2.758E+01	1.877E+01	1.470E+00	1.537E-04
Po-210	Th-230	1.000E+00	0.000E+00	1.074E-03	1.585E-02	1.977E-01	1.375E+00	5.981E+00	9.561E+00	9.690E+00
Po-210	U-234	1.000E+00	0.000E+00	2.516E-11	1.211E-09	5.438E-08	1.159E-06	1.532E-05	4.404E-05	4.751E-05
Po-210	U-238	9.999E-01	0.000E+00	1.503E-17	2.305E-15	3.679E-13	2.408E-11	1.016E-09	6.212E-09	7.617E-09
Po-210	∑S(j):		0.000E+00	5.436E+01	6.249E+01	5.882E+01	4.870E+01	2.596E+01	1.103E+01	9.690E+00
Ra-226	Ra-226	1.000E+00	6.715E+01	6.628E+01	6.456E+01	5.891E+01	4.534E+01	1.813E+01	1.322E+00	1.382E-04
Ra-226	Th-230	1.000E+00	0.000E+00	1.734E-01	5.135E-01	1.636E+00	4.329E+00	9.717E+00	1.300E+01	1.304E+01
Ra-226	U-234	1.000E+00	0.000E+00	7.488E-09	6.603E-08	6.832E-07	5.035E-06	2.913E-05	6.098E-05	6.393E-05
Ra-226	U-238	9.999E-01	0.000E+00	7.063E-15	1.861E-13	6.336E-12	1.348E-10	2.248E-09	8.875E-09	1.025E-08
Ra-226	∑S(j):		6.715E+01	6.645E+01	6.508E+01	6.054E+01	4.967E+01	2.785E+01	1.432E+01	1.304E+01
Ra-228	Ra-228	1.000E+00	3.320E+00	2.906E+00	2.226E+00	8.762E-01	6.104E-02	5.445E-06	1.465E-17	0.000E+00
Ra-228	Th-232	1.000E+00	0.000E+00	3.747E-01	9.897E-01	2.211E+00	2.948E+00	3.000E+00	2.991E+00	2.961E+00
Ra-228	∑S(j):		3.320E+00	3.281E+00	3.216E+00	3.088E+00	3.009E+00	3.000E+00	2.991E+00	2.961E+00
Th-228	Ra-228	1.000E+00	0.000E+00	9.410E-01	1.750E+00	1.245E+00	9.642E-02	8.610E-06	2.316E-17	0.000E+00
Th-228	Th-228	1.000E+00	3.320E+00	2.311E+00	1.120E+00	8.862E-02	6.315E-05	6.100E-16	0.000E+00	0.000E+00
Th-228	Th-232	1.000E+00	0.000E+00	6.163E-02	4.075E-01	1.797E+00	2.916E+00	3.000E+00	2.991E+00	2.961E+00
Th-228	∑S(j):		3.320E+00	3.313E+00	3.277E+00	3.131E+00	3.013E+00	3.000E+00	2.991E+00	2.961E+00
Th-230	Th-230	1.000E+00	4.029E+02	4.029E+02	4.029E+02	4.028E+02	4.026E+02	4.019E+02	4.000E+02	3.934E+02
Th-230	U-234	1.000E+00	0.000E+00	3.462E-05	1.020E-04	3.201E-04	8.126E-04	1.634E-03	1.951E-03	1.929E-03
Th-230	U-238	9.999E-01	0.000E+00	4.893E-11	4.301E-10	4.403E-09	3.151E-08	1.667E-07	3.046E-07	3.093E-07
Th-230	∑S(j):		4.029E+02	4.029E+02	4.029E+02	4.028E+02	4.026E+02	4.019E+02	4.000E+02	3.934E+02
Th-232	Th-232	1.000E+00	3.320E+00	3.320E+00	3.320E+00	3.320E+00	3.319E+00	3.315E+00	3.305E+00	3.271E+00
U-234	U-234	1.000E+00	3.880E+00	3.812E+00	3.679E+00	3.250E+00	2.281E+00	6.605E-01	1.914E-02	7.928E-08
U-234	U-238	9.999E-01	0.000E+00	1.081E-05	3.129E-05	9.214E-05	1.940E-04	1.873E-04	1.628E-05	2.251E-10
U-234	∑S(j):		3.880E+00	3.812E+00	3.679E+00	3.250E+00	2.281E+00	6.607E-01	1.916E-02	7.951E-08
U-235	U-235	1.000E+00	1.800E-01	1.768E-01	1.707E-01	1.508E-01	1.058E-01	3.065E-02	8.887E-04	3.688E-09

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Summary : SU12 Elevated Area #4 Excavation Model
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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
U-238	U-238	5.400E-05	2.095E-04	2.058E-04	1.987E-04	1.755E-04	1.232E-04	3.568E-05	1.034E-06	4.293E-12
U-238	U-238	9.999E-01	3.880E+00	3.812E+00	3.679E+00	3.250E+00	2.281E+00	6.606E-01	1.915E-02	7.950E-08
U-238	∑S(j):		3.880E+00	3.812E+00	3.679E+00	3.250E+00	2.281E+00	6.607E-01	1.916E-02	7.951E-08

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

RESCALC.EXE execution time = 1.53 seconds