

Attachment H6: RESRAD-Offsite 3.1 Inputs Parameters for Area 4 that differ from defaults

Parameter	RESRAD-Offsite Default	Area 4.1	Area 4.2	Area 4.3	Area 4.4	Area 4.5	Basis
Preliminary Inputs							
Exposure Duration	30	1	1	1	1	1	Yearly dose estimates calculated.
Site Layout							
Degrees North is from X-axis	90	90	90	90	100	100	The difference between the minimum and maximum latitude and longitude coordinates were used to determine a length-to-width ratio for the contaminated and pasture areas. These ratios were then used to convert the irregular shape areas into representative rectangular area. The center of each of the rectangular areas was placed at the average of the minimum and maximum latitude and longitude coordinates.
X dimension of Primary Contamination	100	153	90	150	113	154	
Y dimension of Primary Contamination	100	121	112	171	42	102	
Non-Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: -110 / 790	X: -358 / 542	X: -540 / 360	X: -253 / 597	X: -535 / 315	
	Y: 234 / 266	Y: -225 / 275	Y: -110 / 390	Y: -215 / 285	Y: -130 / 145	Y: -68 / 207	
Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: -110 / 790	X: -358 / 542	X: -540 / 360	X: -253 / 597	X: -535 / 315	
	Y: 234 / 266	Y: -225 / 275	Y: -110 / 390	Y: -215 / 285	Y: -130 / 145	Y: -68 / 207	
Pasture (Smaller / Larger)	X: 0 / 100	X: -110 / 790	X: -358 / 542	X: -540 / 360	X: -253 / 597	X: -535 / 315	
	Y: 450 / 550	Y: -225 / 275	Y: -110 / 390	Y: -215 / 285	Y: -130 / 145	Y: -68 / 207	
Grain (Smaller / Larger)	X: 0 / 100	X: -110 / 790	X: -358 / 542	X: -540 / 360	X: -253 / 597	X: -535 / 315	
	Y: 300 / 400	Y: -225 / 275	Y: -110 / 390	Y: -215 / 285	Y: -130 / 145	Y: -68 / 207	
Dwelling (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 1					
	Y: 134 / 166	Y: 0 / 1					
Surface-water Body (Smaller / Larger)	X: -100 / 200	X: -110 / 990	X: -358 / 742	X: -540 / 560	X: -377 / 623	X: -660 / 340	
	Y: 550 / 850	Y: -325 / -225	Y: -210 / -110	Y: -315 / -215	Y: 145 / 245	Y: 207 / 307	
Distribution Coefficients							
Ac-227	20	1740	1740	1740	1740	1740	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Am-241	20	Sediment: 4000					
		All others: 1900					
Cs-137	4600	Sediment: 480					
		All others: 280					
Np-237	257	Sediment: 3					
		All others: 2.3					
Pa-231	50	2040	2040	2040	2040	2040	
Pu-239	2000	Sediment: 3000					
		All others: 2600					
Sr-90	30	Sediment: 15					
		All others: 5					
Th-229	60000	5890	5890	5890	5890	5890	
U-233	50	Sediment: 10					
		All others: 35					

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U-235	50	Sediment: 10					
		All others: 35					
Pathways							
Include	External, Inhalation, Plant Ingestion, Meat Ingestion, Milk Ingestion, Aquatic Foods, Drinking Water, Soil Ingestion	External, Inhalation, Plant Ingestion, Meat Ingestion, Aquatic Foods, Soil Ingestion	External, Inhalation, Plant Ingestion, Meat Ingestion, Aquatic Foods, Soil Ingestion	External, Inhalation, Plant Ingestion, Meat Ingestion, Aquatic Foods, Soil Ingestion	External, Inhalation, Plant Ingestion, Meat Ingestion, Aquatic Foods, Soil Ingestion	External, Inhalation, Plant Ingestion, Meat Ingestion, Aquatic Foods, Soil Ingestion	Based on land use survey.
Physical and Hydrological							
Precipitation	1	1.16	1.16	1.16	1.16	1.16	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Wind Speed	0.89 (calculated)	Wind Rose	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Table 3-10: Wind Speed and Direction Frequency Distributions at 10 Meters.				
Primary Contamination							
Length of contamination parallel to aquifer flow	100	136	100	160	69	125	Square root of the area.
Irrigation	0.2	0.05875	0.05875	0.05875	0	0	For Areas 4.1, 4.2, and 4.3, less than 25% of defined vegetation area are crop fields (the rest is forested land). Therefore, 25% of the farmers irrigation rate (Based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C) was used. $0.47 \times 0.25 = 0.05875$  For Areas 4.4 and 4.5 no irrigation is used per land use survey.
Evapotranspiration coefficient	0.5	0.62 (for areas with no irrigation) 0.65 (for areas with 0.05875 irrigation).	0.62 (for areas with no irrigation) 0.65 (for areas with 0.05875 irrigation).	0.62 (for areas with no irrigation) 0.65 (for areas with 0.05875 irrigation).	0.62	0.62	Based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C; Evapotranspiration and runoff coefficients selected to achieve infiltration rate of 0.26 m/y.

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Parameter	RESRAD-Offsite Default	Area 4.1	Area 4.2	Area 4.3	Area 4.4	Area 4.5	Basis
Runoff	0.2	0.41	0.41	0.41	0.41	0.41	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C; Evapotranspiration and runoff coefficients selected to achieve infiltration rate of 0.26 m/y.
Thickness	2	1	1	1	1	1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Total Porosity	0.5	0.36	0.36	0.36	0.36	0.36	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Dry bulk density	1.5	1.7	1.7	1.7	1.7	1.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Soil erodibility factor	0.4	0	0	0	0	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Field Capacity	0.3	0.2	0.2	0.2	0.2	0.2	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
B parameter	5.3	1.4	1.4	1.4	1.4	1.4	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	10	140	140	140	140	140	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Effective Porosity	0.4	0.25	0.25	0.25	0.25	0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Agricultural Areas							
Irrigation	Non-Leafy: 0.2	Non-Leafy: 0.05875	Non-Leafy: 0.05875	Non-Leafy: 0.05875	Non-Leafy: 0	Non-Leafy: 0	Based on land use survey.
	Leafy: 0.2	Leafy: 0.05875	Leafy: 0.05875	Leafy: 0.05875	Leafy: 0	Leafy: 0	
	Pasture: 0.2	Pasture: 0	Pasture: 0	Pasture: 0	Pasture: 0	Pasture: 0	
	Grain: 0.2	Grain: 0	Grain: 0	Grain: 0	Grain: 0	Grain: 0	
	Dwelling: 0.2	Dwelling: 0	Dwelling: 0	Dwelling: 0	Dwelling: 0	Dwelling: 0	
Evapotranspiration coefficient	Non-Leafy: 0.5	Non-Leafy: 0.65	Non-Leafy: 0.65	Non-Leafy: 0.65	Non-Leafy: 0.62	Non-Leafy: 0.62	Phase 1 Decommissioning Plan

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	Leafy: 0.5	Leafy: 0.65	Leafy: 0.65	Leafy: 0.65	Leafy: 0.62	Leafy: 0.62	for the West Valley Demonstration Project Rev 2 Attachment C. Evapotranspiration and runoff coefficients selected to achieve infiltration rate of 0.26 m/y.
	Pasture: 0.5	Pasture: 0.62					
	Grain: 0.5	Grain: 0.62					
	Dwelling: 0.5	Dwelling: 0.62					
Runoff	Non-Leafy: 0.2	Non-Leafy: 0.41	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. Evapotranspiration and runoff coefficients selected to achieve infiltration rate of 0.26 m/y.				
	Leafy: 0.2	Leafy: 0.41					
	Pasture: 0.2	Pasture: 0.41					
	Grain: 0.2	Grain: 0.41					
	Dwelling: 0.2	Dwelling: 0.41					
Dry bulk density	Non-Leafy: 1.5	Non-Leafy: 1.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.				
	Leafy: 1.5	Leafy: 1.7					
	Pasture: 1.5	Pasture: 1.7					
	Grain: 1.5	Grain: 1.7					
	Dwelling: 1.5	Dwelling: 1.7					
Soil erodibility factor	Non-Leafy: 0.4	Non-Leafy: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.				
	Leafy: 0.4	Leafy: 0					
	Pasture: 0.4	Pasture: 0					
	Grain: 0.4	Grain: 0					
	Dwelling: 0	Dwelling: 0	Dwelling: 0	Dwelling: 0	Dwelling: 0	Dwelling: 0	
Atmospheric Transport							
Joint Metrological Data (Wind Speed/ Stability class frequency)	n/a	Wind Rose	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Table 3-10: Wind Speed and Direction Frequency Distributions at 10 Meters				
Unsaturated Zone Hydrology							
Thickness	4	2	2	2	2	2	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Dry bulk density	1.5	1.7	1.7	1.7	1.7	1.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.

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Total Porosity	0.4	0.36	0.36	0.36	0.36	0.36	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Effective Porosity	0.2	0.25	0.25	0.25	0.25	0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Field Capacity	0.3	0.2	0.2	0.2	0.2	0.2	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	10	140	140	140	140	140	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
B parameter	5.3	1.4	1.4	1.4	1.4	1.4	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
<b>Saturated Zone Hydrology</b>							
Dry bulk density	1.5	1.7	1.7	1.7	1.7	1.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Total Porosity	0.4	0.36	0.36	0.36	0.36	0.36	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Effective Porosity	0.2	0.25	0.25	0.25	0.25	0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	100	1400	1400	1400	1400	1400	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic Gradient	0.02	0.03	0.03	0.03	0.03	0.03	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Depth of aquifer contributing	10	5	5	5	5	5	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
<b>Water Usage</b>							
Consumption	510	0	0	0	0	0	Based on land use survey.
Number of Humans	4	0	0	0	0	0	n/a
Dwelling	225	0	0	0	0	0	Based on land use survey.

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Beef Cattle	50	50	50	50	50	50	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. Beef cattle represent wild game.
Number of Beef Cattle	2	5	5	5	6	6	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. Beef cattle represent wild game.
Surface/Well	0/1	0.5/0.5	0.5/0.5	0.5/0.5	1/0	1/0	Assumed to be a 50%/50% split
Dairy Cattle	160	0	0	0	0	0	Based on land use survey.
Number of Dairy Cattle	2	0	0	0	0	0	n/a
Irrigation Non-Leafy	0.2	0.05875	0.05875	0.05875	0	0	Based on land use survey.
Irrigation Leafy	0.2	0.05875	0.05875	0.05875	0	0	Based on land use survey.
Irrigation Pasture	0.2	0	0	0	0	0	Based on land use survey.
Irrigation Grain	0.2	0	0	0	0	0	Based on land use survey.
Irrigation Dwelling	0.2	0	0	0	0	0	Based on land use survey.
Well Pump Rate	5100	42274	42274	42274	0	0	Based on 50% irrigation coming from well.
Surface Water Body							
Volume	150000	110000	110000	110000	100000	100000	Based on Surface-water Body layout and an average water depth of 1 meter.
Ingestion Rates							
Drinking Water Consumption Rate/Fraction Affected	510/1	0/1	0/1	0/1	0/1	0/1	Based on land use survey.
Fish Consumption Rate/Fraction Affected	5.4/0.9	Collector: 16.3/1 Hunter: 49.0/1	Collector: 16.3/1 Hunter: 49.0/1	Collector: 16.3/1 Hunter: 49.0/1	Collector: 16.3/1 Hunter: 49.0/1	Collector: 16.3/1 Hunter: 49.0/1	Based on land use survey.
Crustacea Consumption Rate/Fraction Affected	0.9/0.5	0/1	0/1	0/1	0/1	0/1	Based on land use survey.
Non-Leafy Consumption Rate/Fraction Affected	160/0.5	165.2/1	165.2/1	165.2/1	165.2/1	165.2/1	Based on land use survey.
Leafy Consumption Rate/Fraction Affected	14/0.5	118/1	118/1	118/1	118/1	118/1	Based on land use survey.
Meat Consumption Rate/Fraction Affected	63/1	52.2/1	52.2/1	52.2/1	Collector: 71.4/1 Hunter: 72.6/1	Collector: 71.4/1 Hunter: 72.6/1f	Based on land use survey.
Milk Consumption Rate/Fraction Affected	92/1	0/1	0/1	0/1	0/1	0/1	Based on land use survey.

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Soil Consumption Rate	36.5	18.3	18.3	18.3	18.3	18.3	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Livestock Intakes							
Water	Beef: 50	Beef: 50	Beef: 50	Beef: 50	Beef: 50	Beef: 50	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle. Beef cattle represent wild game.
	Dairy: 160	Dairy: 0					
Pasture	Beef: 14	Beef: 2.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle. Beef cattle represent wild game.				
	Dairy: 44	Dairy: 0					
Grain	Beef: 54	Beef: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no grain crops grown.				
	Dairy: 11	Dairy: 0					
Soil from Pasture	Beef: 0.1	Beef: 0.5	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle. Beef cattle represent wild game.				
	Dairy: 0.4	Dairy: 0					
Soil from Grain	Beef: 0.4	Beef: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no grain crops grown.				
	Dairy: 0.1	Dairy: 0					
Livestock Feed Factors							
Wet weight crop yield	Pasture: 1.1	Pasture: 1.1	Pasture: 1.1	Pasture: 1.1	Pasture: 1.1	Pasture: 1.1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Grain: 0.7	Grain: 0.7	Grain: 0.7	Grain: 0.7	Grain: 0.7	Grain: 0.7	
	Non-leafy: 0.1	Non-leafy: 1.75					
	Leafy: 1.5	Leafy: 1.5	Leafy: 1.5	Leafy: 1.5	Leafy: 1.5	Leafy: 1.5	
Weathering removal constant	Pasture: 20	Pasture: 18	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.				
	Grain: 20	Grain: 18					
	Non-leafy: 20	Non-leafy: 18					
	Leafy: 20	Leafy: 18					
Foliar interception factor for irrigation	Pasture: 0.25	Pasture: 0.25	Pasture: 0.25	Pasture: 0.25	Pasture: 0.25	Pasture: 0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Grain: 0.25	Grain: 0.25	Grain: 0.25	Grain: 0.25	Grain: 0.25	Grain: 0.25	
	Non-leafy: 0.25	Non-leafy: 0.25	Non-leafy: 0.25	Non-leafy: 0.25	Non-leafy: 0.25	Non-leafy: 0.25	
	Leafy: 0.25	Leafy: 0.67					

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Root depth	Pasture: 0.9	Pasture: 0.9	Pasture: 0.9	Pasture: 0.9	Pasture: 0.9	Pasture: 0.9	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Grain: 1.2	Grain: 0.9					
	Non-leafy: 1.2	Non-leafy: 0.9	Non-leafy: 0.9	Non-leafy: 0.9	Non-leafy: 0.9	Non-leafy: 0.9	
	Leafy: 0.9	Leafy: 0.9	Leafy: 0.9	Leafy: 0.9	Leafy: 0.9	Leafy: 0.9	
Inhalation and External Gamma							
Mass loading	0.0001	0.0000148	0.0000148	0.0000148	0.0000148	0.0000148	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Indoor to outdoor	0.4	1	1	1	1	1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
External gamma penetrating factor	0.7	0.273	0.273	0.273	0.273	0.273	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Occupancy							
Primary contamination indoor	0	0	0	0	0	0	Based on land use survey.
Primary contamination outdoor	0	Collector: 0.1358 Hunter: 0.3436	Collector: 0.1358 Hunter: 0.3436	Collector: 0.1358 Hunter: 0.3436	Collector: 0.1256 Hunter: 0.3333	Collector: 0.1256 Hunter: 0.3333	
Offsite dwelling indoor	0.5	0	0	0	0	0	
Offsite dwelling outdoor	0.1	0	0	0	0	0	
Non-leafy vegetable fields	0.1	Collector: 0.1045 Hunter: 0.0417	Collector: 0.1045 Hunter: 0.0417	Collector: 0.1045 Hunter: 0.0417	Collector: 0.1045 Hunter: 0.0417	Collector: 0.1045 Hunter: 0.0417	
Leafy vegetable fields	0.1	Collector: 0.0833 Hunter: 0.0628	Collector: 0.0833 Hunter: 0.0628	Collector: 0.0833 Hunter: 0.0628	Collector: 0.0628 Hunter: 0.0628	Collector: 0.0628 Hunter: 0.0628	
Pasture and silage fields	0.1	0	0	0	0	0	
Livestock grain fields	0.1	0	0	0	0	0	