

Appendix H4

RESRAD-Offsite 3.1 Input Param differ from defaults

- Area 2

Attachment H4: RESRAD-Offsite 3.1 Inputs Parameters for Area 2 that differ from defaults

Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
Preliminary Inputs				
Exposure Duration	30	1	1	Yearly dose estimates calculated.
Site Layout				
X dimension of Primary Contamination	100	7	20	Google® Maps used to estimate distances using satellite images.
Y dimension of Primary Contamination	100	6	17.5	
Non-Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 1	X: 0 / 1	
	Y: 234 / 266	Y: 0 / 1	Y: 0 / 1	
Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 1	X: 0 / 1	
	Y: 234 / 266	Y: 0 / 1	Y: 0 / 1	
Pasture (Smaller / Larger)	X: 0 / 100	X: -133.6 / 33.4	X: -115.3 / 115.3	
	Y: 450 / 550	Y: -267.2 / 66.8	Y: -164.7 / 164.7	
Grain (Smaller / Larger)	X: 0 / 100	X: 0 / 1	X: 0 / 1	
	Y: 300 / 400	Y: 0 / 1	Y: 0 / 1	
Dwelling (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 1	X: 0 / 1	
	Y: 134 / 166	Y: 0 / 1	Y: 0 / 1	
Surface-water Body (Smaller / Larger)	X: -100 / 200	X: 33.4 / 83.4	X: 115.3 / 165.3	
	Y: 550 / 850	Y: -267.2 / 66.8	Y: -164.7 / 164.7	
Distribution Coefficients				
Ac-227	20	n/a	n/a	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Am-241	20	n/a	n/a	
Cs-137	4600	Sediment: 480	Sediment: 480	
		All others: 280	All others: 280	
Np-237	257	n/a	n/a	
Pa-231	50	n/a	n/a	
Pu-239	2000	n/a	n/a	
Sr-90	30	Sediment: 15		
		All others: 5	n/a	
Th-229	60000	n/a	n/a	
U-233	50	n/a	n/a	
U-235	50	n/a	n/a	
Pathways				
Include	External, Inhalation, Plant Ingestion, Meat Ingestion, Milk Ingestion, Aquatic Foods, Drinking Water, Soil Ingestion	External, Inhalation, Meat Ingestion, Soil Ingestion	External, Inhalation, Meat Ingestion, Soil Ingestion	No consumption of fish based on land use surveys. Meat consumption for Area 2 is assumed to be deer meat. No milk or water consumption available for Area 2.
Physical and Hydrological				
Precipitation	1	1.16	1.16	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.

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Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
Wind Speed	0.89 (calculated)	Wind Rose	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	165	165	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C; Selected to achieve site specific groundwater dilution factor of 0.2, based on DEIS groundwater model correlation.
Irrigation	0.2	0	0	Irrigation only assumed for feed grain. No other crops produced.
Evapotranspiration coefficient	0.5	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.
Runoff	0.2	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Total Porosity	0.5	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Soil erodibility factor	0.4	0.5	0.5	Set to 0.5 for Area 2 to maximize surface water pathway associated with deer drinking water.
Field Capacity	0.3	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	10	140	140	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.

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Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
Effective Porosity	0.4	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	Non-Leafy: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Leafy: 0.2	Leafy: 0	Leafy: 0	
	Pasture: 0.2	Pasture: 0	Pasture: 0	
	Grain: 0.2	Grain: 0	Grain: 0	
	Dwelling: 0.2	Dwelling: 0	Dwelling: 0	
Evapotranspiration coefficient	Non-Leafy: 0.5	Non-Leafy: 0.62	Non-Leafy: 0.62	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: 0.5	Leafy: 0.62	Leafy: 0.62	
	Pasture: 0.5	Pasture: 0.62	Pasture: 0.62	
	Grain: 0.5	Grain: 0.62	Grain: 0.62	
	Dwelling: 0.5	Dwelling: 0.62	Dwelling: 0.62	
Runoff	Non-Leafy: 0.2	Non-Leafy: 0.41	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	Leafy: 0.41	
	Pasture: 0.2	Pasture: 0.41	Pasture: 0.41	
	Grain: 0.2	Grain: 0.41	Grain: 0.41	
	Dwelling: 0.2	Dwelling: 0.41	Dwelling: 0.41	
Dry bulk density	Non-Leafy: 1.5	Non-Leafy: 1.7	Non-Leafy: 1.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Leafy: 1.5	Leafy: 1.7	Leafy: 1.7	
	Pasture: 1.5	Pasture: 1.7	Pasture: 1.7	
	Grain: 1.5	Grain: 1.7	Grain: 1.7	
	Dwelling: 1.5	Dwelling: 1.7	Dwelling: 1.7	
Soil erodibility factor	Non-Leafy: 0.4	Non-Leafy: 0	Non-Leafy: 0	Set to 0.5 for Area 2 to maximize surface water pathway associated with deer drinking water
	Leafy: 0.4	Leafy: 0	Leafy: 0	
	Pasture: 0.4	Pasture: 0.5	Pasture: 0.5	
	Grain: 0.4	Grain: 0	Grain: 0	
	Dwelling: 0	Dwelling: 0	Dwelling: 0	
Atmospheric Transport				
Joint Metrological Data (Wind Speed/ Stability class frequency)	n/a	Wind Rose	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Dry bulk density	1.5	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Effective Porosity	0.2	0.25	0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.

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Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
Field Capacity	0.3	0.2	0.2	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	10	140	140	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
B parameter	5.3	1.4	1.4	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Saturated Zone Hydrology				
Dry bulk density	1.5	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Effective Porosity	0.2	0.25	0.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic conductivity	100	1400	1400	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Hydraulic Gradient	0.02	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Water Usage				
Consumption	510	0	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Number of Humans	4	0	0	No water well in Area 2.
Dwelling	225	0	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Beef Cattle	50	50	50	No water well in Area 2.
Number of Beef Cattle	2	5	5	Area 2 beef cattle represent deer; Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Surface/Well	0/1	1/0	1/0	No water well in Area 2.
Dairy Cattle	160	0	0	No water well in Area 2.
Number of Dairy Cattle	2	0	0	No dairy cattle in Area 2.
Irrigation Non-Leafy	0.2	0	0	No water well in Area 2.
Irrigation Leafy	0.2	0	0	No water well in Area 2.
Irrigation Pasture	0.2	0	0	No water well in Area 2.
Irrigation Grain	0.2	0	0	No water well in Area 2.
Irrigation Dwelling	0.2	0	0	No water well in Area 2.
Well Pump Rate	5100	0	0	No water well in Area 2.

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Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
Surface Water Body				
Volume	150000	16700	16470	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Fish Consumption Rate/Fraction Affected	5.4/0.9	0/1	0/1	No consumption of fish based on land use surveys.
Crustacea Consumption Rate/Fraction Affected	0.9/0.5	0/1	0/1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Non-Leafy Consumption Rate/Fraction Affected	160/0.5	0/1	0/1	No non-leafy vegetation grown.
Leafy Consumption Rate/Fraction Affected	14/0.5	0/1	0/1	No leafy vegetation grown.
Meat Consumption Rate/Fraction Affected	63/1	65/1	65/1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. For Area 2, meat consumption represents deer meat.
Milk Consumption Rate/Fraction Affected	92/1	0/1	0/1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle in Area 2.
Soil Consumption Rate	36.5	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle in Area 2. In Area 2, Beef cattle represent deer.
	Dairy: 160	Dairy: 0	Dairy: 0	
Pasture	Beef: 14	Beef: 2.25	Beef: 2.25	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no dairy cattle in Area 2. In Area 2, Beef cattle represent deer.
	Dairy: 44	Dairy: 0	Dairy: 0	
Grain	Beef: 54	Beef: 0	Beef: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no crops in Area 2. In Area 2, Beef cattle represent deer.
	Dairy: 11	Dairy: 0	Dairy: 0	
Soil from Pasture	Beef: 0.1	Beef: 0.5	Beef: 0.5	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev

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Parameter	RESRAD-Offsite Default	Area 2.1	Area 2.2	Basis
	Dairy: 0.4	Dairy: 0	Dairy: 0	2 Attachment C. There are no dairy cattle in Area 2. In Area 2, Beef cattle represent deer.
Soil from Grain	Beef: 0.4	Beef: 0	Beef: 0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. There are no crops in Area 2.
	Dairy: 0.1	Dairy: 0	Dairy: 0	
Livestock Feed Factors				
Wet weight crop yield	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	
	Non-leafy: 0.1	Non-leafy: 1.75	Non-leafy: 1.75	
	Leafy: 1.5	Leafy: 1.5	Leafy: 1.5	
Weathering removal constant	Pasture: 20	Pasture: 18	Pasture: 18	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Grain: 20	Grain: 18	Grain: 18	
	Non-leafy: 20	Non-leafy: 18	Non-leafy: 18	
	Leafy: 20	Leafy: 18	Leafy: 18	
Foliar interception factor for irrigation	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	
	Non-leafy: 0.25	Non-leafy: 0.25	Non-leafy: 0.25	
	Leafy: 0.25	Leafy: 0.67	Leafy: 0.67	
Root depth	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	Grain: 0.9	
	Non-leafy: 1.2	Non-leafy: 0.9	Non-leafy: 0.9	
	Leafy: 0.9	Leafy: 0.9	Leafy: 0.9	
Inhalation and External Gamma				
Mass loading	0.0001	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
External gamma penetrating factor	0.7	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	No indoor area is located in Area 2.
Primary contamination outdoor	0	0.011416	0.011416	Assumes a recreational hiker spends 100 hours/year in contaminated Area 2.
Offsite dwelling indoor	0.5	0	0	Offsite dwelling is assumed to be unaffected and therefore not included.
Offsite dwelling outdoor	0.1	0	0	Offsite dwelling is assumed to be unaffected and therefore not included.
Non-leafy vegetable fields	0.1	0	0	No non-leafy crops.
Leafy vegetable fields	0.1	0	0	No leafy crops.
Pasture and silage fields	0.1	0	0	No livestock.
Livestock grain fields	0.1	0	0	No livestock.