

Appendix H5 –  
RESRAD-Offsite 3.11 Input Param differ from defaults  
- Area 3

**Attachment H5: RESRAD-Offsite 3.1 Inputs Parameters for Area 3 that differ from defaults**

Parameter	RESRAD-Offsite Default	Area 3.1	Area 3.2	Basis	
Preliminary Inputs					
Exposure Duration	30	1	1	Yearly dose estimates calculated.	
Site Layout					
X dimension of Primary Contamination	100	254	32	Google® Maps used to estimate distances using satellite images.	
Y dimension of Primary Contamination	100	254	32		
Non-Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625 Y: 234 / 266	X: 0 / 1 Y: 0 / 1	X: -502 / -501 Y: 17.5 / 18.5		
Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625 Y: 234 / 266	X: 0 / 1 Y: 0 / 1	X: -502 / -501 Y: 17.5 / 18.5		
Pasture (Smaller / Larger)	X: 0 / 100 Y: 450 / 550	X: 484 / 599 Y: 81 / 149	X: -18 / 97 Y: 98.5 / 166.5		
Grain (Smaller / Larger)	X: 0 / 100 Y: 300 / 400	X: 0 / 254 Y: 0 / 254	X: -502 / -248 Y: 17.5 / 271.5		
Dwelling (Smaller / Larger)	X: 34.375 / 65.625 Y: 134 / 166	X: 548 / 595 Y: -46 / 47	X: 46 / 93 Y: -28.5 / 64.5		
Surface-water Body (Smaller / Larger)	X: -100 / 200 Y: 550 / 850	X: 310 / 360 Y: 0 / 254	X: -192 / -142 Y: 17.5 / 271.5		
Distribution Coefficients					
Ac-227	20	1740	1740	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.	
Am-241	20	Sediment: 4000 All others: 1900	Sediment: 4000 All others: 1900		
Cs-137	4600	Sediment: 480 All others: 280	Sediment: 480 All others: 280		
Np-237	257	Sediment: 3 All others: 2.3	Sediment: 3 All others: 2.3		
Pa-231	50	2040	2040		
Pu-239	2000	Sediment: 3000 All others: 2600	Sediment: 3000 All others: 2600		
Sr-90	30	Sediment: 15 All others: 5	Sediment: 15 All others: 5		
Th-229	60000	5890	5890		
U-233	50	Sediment: 10 All others: 35	Sediment: 10 All others: 35		
U-235	50	Sediment: 10 All others: 35	Sediment: 10 All others: 35		
Pathways					
Include	External, Inhalation, Plant Ingestion, Meat Ingestion, Milk Ingestion, Aquatic Foods, Drinking Water, Soil Ingestion	External, Inhalation, Meat Ingestion, Drinking Water, Soil Ingestion	External, Inhalation, Meat Ingestion, Drinking Water, Soil Ingestion		No consumption of fish based on land use surveys. No dairy cattle.
Physical and Hydrological					
Precipitation	1	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	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.	

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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	0.47	0	Irrigation only assumed for feed grain. No other crops produced.
Evapotranspiration coefficient	0.5	0.78	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	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
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.
Effective Porosity	0.4	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 3.1	Area 3.2	Basis
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: 0.47	Grain: 0.47	
	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: 0.78	Grain: 0.78	
	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	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Leafy: 0.4	Leafy: 0	Leafy: 0	
	Pasture: 0.4	Pasture: 0	Pasture: 0	
	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.

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Parameter	RESRAD-Offsite Default	Area 3.1	Area 3.2	Basis
Effective Porosity	0.2	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	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.
<b>Saturated Zone Hydrology</b>				
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.
<b>Water Usage</b>				
Consumption	510	730	730	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Number of Humans	4	4	4	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Dwelling	225	225	225	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Beef Cattle	50	50	50	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.

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Parameter	RESRAD-Offsite Default	Area 3.1	Area 3.2	Basis
Number of Beef Cattle	2	10	10	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. No dairy cattle. All cattle are maintained for consumption of beef.
Surface/Well	0/1	0/1	0/1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Dairy Cattle	160	0	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. No dairy cattle.
Number of Dairy Cattle	2	0	0	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. No dairy cattle.
Irrigation Non-Leafy	0.2	0	0	Irrigation only assumed for crop field.
Irrigation Leafy	0.2	0	0	Irrigation only assumed for crop field.
Irrigation Pasture	0.2	0	0	Irrigation only assumed for crop field.
Irrigation Grain	0.2	0.47	0.47	Irrigation only assumed for crop field.
Irrigation Dwelling	0.2	0	0	Irrigation only assumed for crop field.
Well Pump Rate	5100	31899	31899	$31899 \text{ m}^3/\text{y} = 730 \text{ L/d} \times 4 \text{ humans} + 225 \text{ L/d} \times 4 \text{ humans} + 50 \text{ L/d} \times 10 \text{ Beef Cattle} + 0.47 \text{ m/y} \times 64516 \text{ m}^2$
Surface Water Body				
Volume	150000	15000	15000	Based on Surface-water Body layout and an average water depth of 1 meter.
Ingestion Rates				
Drinking Water Consumption Rate/Fraction Affected	510/1	730/1	730/1	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.

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Parameter	RESRAD-Offsite Default	Area 3.1	Area 3.2	Basis
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. No dairy cattle.
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. No dairy cattle.
	Dairy: 160	Dairy: 0	Dairy: 0	
Pasture	Beef: 14	Beef: 5.6	Beef: 5.6	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. The total livestock fodder intake (27.3) provided in the Decommissioning Plan was split based on the default ratios in RESRAD.  Beef: $5.6=(14/(14+54))\times27.3$ Dairy: No dairy cattle.
	Dairy: 44	Dairy: 0	Dairy: 0	
Grain	Beef: 54	Beef: 21.7	Beef: 21.7	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. The total livestock fodder intake (27.3) provided in the Decommissioning Plan was split based on the default ratios in RESRAD.  Beef: $21.7=(54/(14+54))\times27.3$ Dairy: No dairy cattle.
	Dairy: 11	Dairy: 0	Dairy: 0	
Soil from Pasture	Beef: 0.1	Beef: 0.1	Beef: 0.1	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. No dairy cattle.
	Dairy: 0.4	Dairy: 0	Dairy: 0	
Soil from Grain	Beef: 0.4	Beef: 0.4	Beef: 0.4	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C. No dairy cattle.
	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	

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Parameter	RESRAD-Offsite Default	Area 3.1	Area 3.2	Basis
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	0.0114	Outdoor occupancy in the primary contamination area accounted for in the livestock grain fields. Area 3.2 is a section of overgrowth that generally would not be occupied for a real amount of time. However, an occupancy assumption of 100 hours/year, consistent with the Recreational Hiker to be able to assess any dose from the 2015 WVDP Aerial Radiological Survey data.
Primary contamination outdoor	0	0	0.0114	Outdoor occupancy in the primary contamination area accounted for in the livestock grain fields.
Offsite dwelling indoor	0.5	0.66	0.66	Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Offsite dwelling outdoor	0.1	0.1116	0.1002	Remainder of time for residential farmer assumed to be associated with time outside their dwelling.
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	0.1142	0.1142	Residential farmer is assumed to spend 2000 hours/year associated farming activities. Half is associated with crops and half with livestock.



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Parameter	RESRAD-Offsite Default	Area 3:1	Area 3:2	Basis
Livestock grain fields	0.1	0.1142	0.1142	Residential farmer is assumed to spend 2000 hours/year associated farming activities. Half is associated with crops and half with livestock.