

Attachment H66: RESRAD-Offsite 3.1 Inputs Parameters for Reach Areas that differ from defaults

Parameter	RESRAD-Offsite Default	Reach 7	Reach 21	Basis
Preliminary Inputs				
Exposure Duration	30	1	1	Yearly dose estimates calculated.
Site Layout				
Degrees North is from X-axis	90	105	120	Based on land use survey.
X dimension of Primary Contamination	100	150	275	
Y dimension of Primary Contamination	100	150	275	
Non-Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 150	X: 0 / 275	
	Y: 234 / 266	Y: 0 / 150	Y: 0 / 275	
Leafy Plot (Smaller / Larger)	X: 34.375 / 65.625	X: 0 / 150	X: 0 / 275	
	Y: 234 / 266	Y: 0 / 150	Y: 0 / 275	
Pasture (Smaller / Larger)	X: 0 / 100	X: 0 / 150	X: 0 / 275	
	Y: 450 / 550	Y: 0 / 150	Y: 0 / 275	
Grain (Smaller / Larger)	X: 0 / 100	X: 0 / 150	X: 0 / 275	
	Y: 300 / 400	Y: 0 / 150	Y: 0 / 275	
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: -80 / 0	X: -337 / 763	
	Y: 550 / 850	Y: -0 / 275	Y: -200 / 0	
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	Sediment: 4000	
		All others: 1900	All others: 1900	
Cs-137	4600	Sediment: 480	Sediment: 480	
		All others: 280	All others: 280	
Np-237	257	Sediment: 3	Sediment: 3	
		All others: 2.3	All others: 2.3	
Pa-231	50	2040	2040	
Pu-239	2000	Sediment: 3000	Sediment: 3000	
		All others: 2600	All others: 2600	
Sr-90	30	Sediment: 15	Sediment: 15	
		All others: 5	All others: 5	
Th-229	60000	5890	5890	
U-233	50	Sediment: 10	Sediment: 10	
		All others: 35	All others: 35	
U-235	50	Sediment: 10	Sediment: 10	
		All others: 35	All others: 35	

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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	Based on land use survey.
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.
Primary Contamination				
Length of contamination parallel to aquifer flow	100	150	275	Square root of the area.
Irrigation	0.2	0.47	0.0118	Reach 7: Mainly crop fields. Reach 21: About 5% crop fields, so irrigation rate prorated to 5% of a farmers irrigation rate based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Evapotranspiration coefficient	0.5	0.78	0.63	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.

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Parameter	RESRAD-Offsite Default	Reach 7	Reach 21	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: 0.47	Non-Leafy: 0.0118	Reach 7: Mainly crop fields. Reach 21: About 5% crop fields, so irrigation rate prorated to 5% of a farmers irrigation rate based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
	Leafy: 0.2	Leafy: 0.47	Leafy: 0.0118	
	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: 0.78	Non-Leafy: 0.63	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: 0.78	Leafy: 0.63	
	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	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	

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Parameter	RESRAD-Offsite Default	Reach 7	Reach 21	Basis
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.
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	Based on land use survey.
Number of Humans	4	0	0	n/a
Dwelling	225	0	0	Based on land use survey.
Beef Cattle	50	0	0	No wild game per land use survey.
Number of Beef Cattle	2	0	0	No wild game per land use survey.
Surface/Well	0/1	0	0	Based on land use survey.
Dairy Cattle	160	0	0	Based on land use survey.
Number of Dairy Cattle	2	0	0	Based on land use survey.

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Irrigation Non-Leafy	0.2	0.47	0.0118	Reach 7: Mainly crop fields. Reach 21: About 5% crop fields, so irrigation rate prorated to 5% of a farmers irrigation rate based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Irrigation Leafy	0.2	0.47	0.0118	Reach 7: Mainly crop fields. Reach 21: About 5% crop fields, so irrigation rate prorated to 5% of a farmers irrigation rate based on the Phase 1 Decommissioning Plan for the West Valley Demonstration Project Rev 2 Attachment C.
Irrigation Pasture	0.2	0	0	Based on land use survey.
Irrigation Grain	0.2	0	0	Based on land use survey.
Irrigation Dwelling	0.2	0	0	Based on land use survey.
Well Pump Rate	5100	0	0	No well in area per land use survey.
Surface Water Body				
Volume	150000	22000	220000	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	Based on a telephone conference call with SNI, the original consumption rates provided by SNI for the Reach Areas were adjusted using Area 4.1/4.2/4.3 yield rate for the vegetation and surface water areas basis for crop and fish yield for an undeveloped area. The fish yield rate is the ratio of 4.1 fish consumption rate (108 pounds/year) to surface water area (110,000 m2). The vegetation is the ratio of the non-leafy consumption rate (365 pounds/year) and leafy consumption rate (260 pounds/year) to vegetation area (450,000 m2). These yield rates (pounds/ m2) was then applied the to Reach 7 vegetation and surface water areas.
Fish Consumption Rate/Fraction Affected	5.4/0.9	9.8/1	16.3/1	
Crustacea Consumption Rate/Fraction Affected	0.9/0.5	0/1	0/1	
Non-Leafy Consumption Rate/Fraction Affected	160/0.5	8.3/1	27.7/1	
Leafy Consumption Rate/Fraction Affected	14/0.5	5.9/1	19.8/1	
Meat Consumption Rate/Fraction Affected	63/1	2.6/1	8.8/1	
Milk Consumption Rate/Fraction Affected	92/1	0/1	0/1	
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: 0	Beef: 0	No wild game per land use survey.
	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. Beef cattle represent wild game.
	Dairy: 44	Dairy: 0	Dairy: 0	

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Parameter	RESRAD-Offsite Default	Reach 7	Reach 21	Basis
Grain	Beef: 54	Beef: 0	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	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 2 Attachment C. There are no dairy cattle. Beef cattle represent wild game.
	Dairy: 0.4	Dairy: 0	Dairy: 0	
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 grain crops grown.
	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	Based on land use survey. Based on the adjustment to the consumption rates, the collection times for non-leafy and leafy vegetation were adjusted to account for the reduction in consumption rates. The recreational occupancy time, used for the Primary contamination outdoor, was not adjusted.
Primary contamination outdoor	0	Collector: 0.1256 Hunter: 0.3333	Collector: 0.1256 Hunter: 0.3333	
Offsite dwelling indoor	0.5	0	0	
Offsite dwelling outdoor	0.1	0	0	
Non-leafy vegetable fields	0.1	Collector: 0.0052 Hunter: 0.0021	Collector: 0.0176 Hunter: 0.0070	
Leafy vegetable fields	0.1	Collector: 0.0042 Hunter: 0.0031	Collector: 0.0140 Hunter: 0.0106	
Pasture and silage fields	0.1	0	0	
Livestock grain fields	0.1	0	0	