

Table 2 - Tier 2 Site Specific Risk Assessment Modelling: Changes to Typical Default Data Parameters ¹

DEFAULT DATA PARAMETER ¹	Change Permitted to Default Parameter ³ Yes/No	Change Must Result in Conditional Closure ⁴ Yes/No	Remediation Pathway Options ⁵ With Changed Defaults Limited Remediation, Full Property Remediation or Either
Human Exposure Parameters ²			
Body Weight	No		
Exposure Duration – non-carcinogens	Yes	Yes	Limited Remediation
Exposure Duration – carcinogens	Yes	Yes	Limited Remediation
Exposure Frequency (indoor air)	Yes	Yes	Limited Remediation
Exposure Frequency (soil ingestion)	Yes	Yes	Limited Remediation
Exposure Frequency (potable water ingestion)	Yes	Yes	Limited Remediation
Averaging Time for non-carcinogens	No		
Averaging Time for carcinogens	No		
Ingestion Rate of water – non-carcinogens	No		
Ingestion Rate of water – carcinogens	No		
Ingestion Rate of soil – non-carcinogens	No		
Ingestion Rate of soil - carcinogens	No		
Inhalation Rate	No		
Skin Surface Area – non-carcinogens	No		
Skin Surface Area - carcinogens	No		
Soil to Skin Adherence factor	No		
Risk Targets ²			
Target ILCR (Incremental Lifetime Cancer Risk) 1 in 100,000 (1×10^{-5})	No		
Target Hazard Index of 1.0 (Petroleum Hydrocarbon mixtures excluding Toluene, Ethylbenzene and Xylenes)	No		
Target Hazard Quotient of 0.5 (Toluene, Ethylbenzene and Xylenes only)	No		
Target Hazard Quotient of <0.2 for all other Substances in	Yes	No	Either

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	Yes/No	Yes/No	Limited Remediation, Full Property Remediation or Either
each affected media			
Model Parameters ²			
Indoor Air Volatilization Model -Johnson & Ettinger Model with advection	No		
Outdoor Air Volatilization Model - ASTM surface & subsurface models	Yes	No	Either
Soil Leaching Model -ASTM model	Yes	No	Either
Surface Soil Parameters			
Soil source zone area (m ²)	Yes	No	Either
Length of source zone area parallel to wind (m)	Yes	No	Either
Length of source zone area parallel to GW flow (m)	Yes	No	Either
Ambient air velocity in mixing zone (m/s)	Yes	No	Either
Air mixing zone height (m)	Yes	No	Either
Areal particulate emission rate (g/cm ² /s)	Yes	No	Either
Soil Column Parameters			
Capillary zone thickness (m)	Yes	No	Either
Vadose zone thickness (m)	Yes	No	Either
Soil bulk density	Yes	No	Either
Fraction of organic carbon (vadose zone)	Yes	No	Either
Soil total porosity	Yes	No	Either
Vertical hydraulic conductivity (cm/s)	Yes	No	Either
Vapour permeability (m ²)	Yes	No	Either
Depth to groundwater (m)	Yes	No	Either
Depth to top of affected soils (m)	Yes	No	Either
Depth to base of affected soils (m)	Yes	No	Either
Thickness of affected soils (m)	Yes	No	Either
pH of Soil	Yes	No	Either

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	Yes/No	Yes/No	Limited Remediation, Full Property Remediation or Either
Volumetric water content, vadose zone	Yes	No	Either
Volumetric air content, vadose zone	Yes	No	Either
Volumetric water content, capillary fringe	Yes	No	Either
Volumetric air content, capillary fringe	Yes	No	Either
Foundation volumetric water and air content	No		
Building Parameters			
Building volume/area ratio (m)	Yes	No	Either
Foundation area (m ²)	Yes	No	Either
Foundation Perimeter (m)	Yes	No	Either
Building air exchange rate (1/s)	Yes	Yes	Limited Remediation
Foundation thickness (m)	Yes	No	Either
Depth to bottom of foundation slab (m)	Yes	No	Either
Foundation crack fraction	No		
Indoor – outdoor pressure differential (g/cm/s ²)	No		
Convective air flow through slab (m ³ /s)	No		
Adjustment Factor for Indoor Air Pathway (10X)	No		
Groundwater Parameters			
Groundwater mixing zone depth (cm)	Yes	No	Either
Net groundwater infiltration rate (cm/yr)	Yes	No	Either
Groundwater Darcy velocity (cm/s)	Yes	No	Either
Groundwater seepage velocity (cm/s)	Yes	No	Either
Saturated hydraulic conductivity (cm/s)	Yes	No	Either
Groundwater gradient	Yes	No	Either
Width of GW source zone (m)	Yes	No	Either
Depth of (to) GW source zone (m)	Yes	No	Either
Effective porosity in water-bearing unit	Yes	No	Either
Fraction of organic carbon (saturated zone)	Yes	No	Either

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Groundwater pH	Yes	No	Either

1. The actual default parameter values for petroleum hydrocarbon Tier 2 modelling are shown in the current Atlantic RBCA User Guidance. These are to be used as defaults values when conducting Tier 2 SSRA for any substance.
2. Changes to Human Exposure Parameters, Risk Targets, and Model Parameters that are justified by site data and result in a more conservative assessment will also be considered for conditional closure under Limited Remediation.
3. Documentation of detailed soil geotechnical analyses or relevant monitoring results will be necessary to justify changes to these parameters where permitted.
4. Conditional closure refers to the conditions required for closure that involve long-term requirements to maintain specific site conditions and manage risks. Conditional closure is only allowable within the context of Limited Remediation.. Note that changes to a default parameter may result in alternate exposure pathways becoming limiting. Therefore, the conditional closure decision in the table applies to the exposure pathway the default parameter is controlling.
5. Remediation pathway options are provided in the *Contaminated Sites Regulations*.