

Alberta Tier 1 Soil and Groundwater Remediation Guidelines

Summary of Changes

Text

Section 2.3.2 – Delineation

Section 2.3.3 – Contaminant Management

Section 2.4.4 – Relationship to Air and Water Quality

Section 4.3.1 – Direct Contact

Section 5.1.4 – Contaminant Characteristics and Distribution

Section 5.1.6 – Source Length Greater than 10m

Guidelines

Table 1 footnotes – Carcinogenic PAHs

Soil Guidelines, see Table 1

Groundwater Guidelines, see Table 2

Appendix C

Section 2.2.4 – Petroleum hydrocarbon fractions calculation boundaries

Section 2.2.5 – Polycyclic aromatic hydrocarbons (formerly in Section 3.1)

Section 2.2.6 – Water quality guidelines calculation

Section 3.1 – Human direct contact (PAH calculation removed)

Section 4.3 – Soil and food ingestion (PAH added)

Section 5.1.2 – Guideline calculation, clarification to source width and length relative to groundwater flow

Tables – See Table 3

Table 1. Summary of Tier 1 Soil Guideline Changes

Receptor	Overall Guideline		Human								Eco														Other		
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	-	Fine	Coarse	-	-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	-	Fine	Coarse	
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,2,4,5-Tetrachlorobenzene	All	NA/C/I	-	-	-	-	-	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pentachlorobenzene	-	-	-	-	-	-	-	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hexachlorobenzene	Res	All	-	Ag/Res	Ag/Res/C/I	Ag/Res	Ag/Res/C/I	-	-	C/I	-	Res	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2,3,4,6-Tetrachlorophenol	-	-	Ag/Res	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pesticides																											
Atrazine and metabolites	-	-	-	-	-	-	-	All	All		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DDT	-	-	-	-	-	-	-	All	All		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Organics																											
Bischloromethylether	All	All	Removed																								
Bis(2-ethyl-hexyl)phthalate	-	-	-	-	-	-	-	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibutyl phthalate	-	-	-	-	-	Ag/Res	C/I	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIPA	-	-	Ag/Res/C/I	-	-	-	-	All	All	C/I	All	All	-	-	-	-	-	Ag	Ag	NA/Ag	NA/Ag	Ag	Ag	C/I	-	-	
Methylmethacrylate	All	NA	-	-	-	-	-	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MTBE	All	NA/C/I	-	-	-	-	-	All	All	C/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfolane	All	All	Ag/Res/C/I	-	-	-	-	All	All	-	All	All	-	-	-	-	-	-	-	-	-	-	-	Ag	Ag	C/I	-

Table 2. Summary of Tier 1 Groundwater Guideline Changes

Water Use	Lowest Guideline		Potable	Inhalation		Eco Soil Contact		Aquatic Life		Irrigation	Livestock	Wildlife Watering	
	Fine	Coarse		All	Fine	Coarse	Fine	Coarse	Fine			Coarse	All
PCBs	-	-	-	-	-	-	-	-	-	-	Ag	NA/Ag	NA/Ag
<i>Pesticides</i>													
Atrazine and metabolites	-	-	All	-	-	-	-	-	-	-	Ag	-	-
DDT	-	-	All	-	-	-	-	-	-	-	-	-	-
<i>Other Organics</i>													
Bischloromethylether	All	All	Removed										
Bis(2-ethyl-hexyl)phthalate	-	-	All	-	-	-	-	-	-	-	-	-	-
Dibutyl phthalate	-	-	All	-	-	-	-	-	-	-	-	-	-
DIPA	-	-	All	-	-	All	All	-	-	Ag	Ag	NA/Ag	NA/Ag
Methylmethacrylate	All	All	All	Ag/Res	Ag/Res	-	-	-	-	-	-	-	-
MTBE	All	All	All	-	-	-	-	-	-	-	-	-	-
Sulfolane	All	All	All	-	-	All	All	-	-	Ag	Ag	NA/Ag	NA/Ag

Table 3. Summary of Appendix C Table Changes

	Appendix C Table				
	C-6	C-7	C-8	C-9	C-11
<i>General and Inorganic Parameters</i>					
Fluoride					Aquatic life
Nitrate+Nitrite (as nitrogen)					Name change
Nitrite (as nitrogen)					Name change, Drinking water, Aquatic life
Sodium					Drinking water
<i>Metals</i>					
Arsenic					Drinking water
Cadmium					Livestock
<i>Hydrocarbons</i>					
Aliphatic C _{>21} -C ₃₄	K _{oc} , H ⁺ , D _a				
Aliphatic C _{>34}	K _{oc} , H ⁺ , D _a				
Aromatic C _{>34}	K _{oc} , H ⁺ , D _a				
Acenaphthene					Livestock, Wildlife, DTED
Acenaphthylene					Livestock, Wildlife, DTED
Fluoranthene					Livestock, Wildlife, DTED
Fluorene					Livestock, Wildlife, DTED
Naphthalene					Livestock, Wildlife, DTED
Phenanthrene	H ⁺				Livestock, Wildlife, DTED
Pyrene					Livestock, Wildlife, DTED
Benz[a]anthracene					Livestock, Wildlife, DTED
Benzo[b+j]fluoranthene					Aquatic Life, Livestock, Wildlife, DTED
Benzo[k]fluoranthene	K _{oc}				Aquatic Life, Livestock, Wildlife, DTED
Benzo[g,h,i]perylene					Aquatic Life,
Benzo[a]pyrene					Livestock, Wildlife, DTED
Chrysene					Aquatic Life, Livestock, Wildlife, DTED
Dibenz[a,h]anthracene					Aquatic Life, Livestock, Wildlife, DTED
Indeno[1,2,3-c,d]pyrene					Aquatic Life,
<i>Chlorinated Aliphatics</i>					
Trichloromethane					Drinking water

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	Appendix C Table				
	C-6	C-7	C-8	C-9	C-11
<i>Chlorinated Aromatics</i>					
1,2,3-Trichlorobenzene					Drinking water
1,2,4-Trichlorobenzene					Drinking water
1,3,5-Trichlorobenzene					Drinking water
1,2,3,4-Tetrachlorobenzene					Drinking water
1,2,3,5-Tetrachlorobenzene					Drinking water
1,2,4,5-Tetrachlorobenzene					Drinking water
Pentachlorobenzene					Drinking water
2,4-Dichlorophenol		Name change			
2,4,6-Trichlorophenol		Name change			
2,3,4,6-Tetrachlorophenol		Name change			
<i>Pesticides</i>					
Atrazine and metabolites					Drinking water
DDT					Drinking water
<i>Other Organics</i>					
Bis(2-ethyl-hexyl)phthalate					Drinking water
Dibutyl phthalate					Drinking water
Diisopropanolamine			Skin AF		Drinking water, Irrigation, Livestock, DTED
Methylmethacrylate					Drinking water
MTBE					Drinking water
Sulfolane				SAF	Drinking water, Irrigation, Livestock, Wildlife, DTED