

**Appendix 5.2 Calculations of Emission Rates (SCL (HUH - ADM))**  
**Short-Term Tier 1 Assessment (1-hr & 24-hr)**

Location	Source	Emission Rates	Parameters	Remarks
Hungghom Landfall	Tunnel Construction (Cut & Cover) ID: HLF	Heavy Construction Area Source (g/m <sup>2</sup> /s) <b>1.722762E-05</b>	TSP emission factor (Mg/hectare/month of activity) Percentage area actively operating (%) no. of operation hour (hr) % of dust suppression	2.69 from AP-42, S13.2.3, 1/95 ed. 100 Tier 1 testing 12 from engineer 91.7 for watering once on active construction areas for every working hour
		Wind erosion (g/m <sup>2</sup> /s) <b>2.695332E-06</b>	TSP emission factor (Mg/hectare/yr) Percentage area exposed (%)	0.85 from AP-42, Table 11.9.4, 5th edition 100 from engineer

**Annual Assessment**

Location	Source	Emission Rates	Parameters	Remarks
Hungghom Landfall	Tunnel Construction (Cut & Cover) ID: HLF	<b>Individual Emission Rates</b>		
		Heavy Construction Area Source (g/m <sup>2</sup> /s) <b>1.722762E-05</b>	TSP emission factor (Mg/hectare/month of activity) Emission strength (%) no. of operation hour (hr) % of dust suppression	2.69 from AP-42, S13.2.3, 1/95 ed. 100 full strength 12 from engineer 91.7 for watering once on active construction areas for every working hour
		Wind erosion (g/m <sup>2</sup> /s) <b>2.237126E-07</b>	TSP emission factor (Mg/hectare/yr) Emission strength (%) Dust suppression (%)	0.85 from AP-42, Table 11.9.4, 5th edition 100 full strength 91.7 for watering once on active construction areas for every working hour
		<b>Total Effective Emission Rates</b> (At working hour) <b>1.047080E-06</b> (At non-working hour) <b>1.617199E-07</b>	Percentage area actively operating (%)	6 Due to the uncertainty on works location throughout a year, works are assumed to distributed evenly in the area. A factor is therefore applied to the emission rate. Derivation of the percentage refers to Appendix 5.5 (Heavy Construction + Wind erosion) * Percentage area actively operating Wind erosion (Unmitigated) * Percentage area actively operating

**Remarks:**

Percentage of Dust Suppression by Watering is derived from the equation  $C = 100 - 0.8pdt/i$  (USEPA, Control of Open Fugitive Dust Sources, 1998)  
 where p = potential average hourly daytime evaporation rate, mm/h = 0.25916 ([http://www.weather.gov.hk/cis/normal/1971\\_2000/normals\\_e.htm](http://www.weather.gov.hk/cis/normal/1971_2000/normals_e.htm))  
 d = average hourly daytime traffic rate per hour = 69.5  
 i = application intensity, L/m<sup>2</sup> = 1.74  
 t = time between applications, hr = 1

The water intensity is an assumption used in the dust modeling only. Any potential dust impact and mitigation would be subject to actual site condition and managed by the EM&A programme during the construction stage

**Appendix 5.2 Calculation of Emission Rates (SCL (HUH - ADM))**

**Hunghom Landfall Dust Sources**

Source	Type	X1	Y1	X2	Y2	Height (m)	Width / Angle	Working Hour	Tier 1		Annual	
									Working emission (g/m <sup>2</sup> -s)	Wind erosion (g/m <sup>2</sup> -s)	Working emission (g/m <sup>2</sup> -s)	Wind erosion (g/m <sup>2</sup> -s)
HLF1	Area	836787.08	817912.00	49.22	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF2	Area	836783.40	817873.59	26.63	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF3	Area	836781.58	817846.69	26.63	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF4	Area	836779.76	817820.18	26.63	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF5	Area	836778.00	817793.60	26.63	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF6	Area	836776.01	817767.04	26.63	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07
HLF7	Area	836773.79	817738.18	31.24	26.63	0.5	84.53	07:00 - 19:00	1.723E-05	2.695E-06	1.047E-06	1.617E-07