

Details of Dust Emission Sources for Annual RSP

Details of Dust Emission Sources for Annual RSP Assessment (Tier 1)

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po	Heavy construction Source ID: 1 - 22, 24 - 52	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	13.6 % 91.7 % 26 days 10 hour 2.69 Mg/hectare/month of activity 30 % of TSP 0.81 Mg/hectare/year 1.17636E-05 g/m²/s (unmitigated) 9.76376E-07 g/m²/s (mitigated)	Assume % works area for heavy construction Water spraying 8 times a day (once every 1.25 hours) Mon to Sat, 8:00 to 18:00 AP42, Section 13.2.3.3 =2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	13.6 % 91.7 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 1.10325E-07 g/m²/s (unmitigated) 9.157E-09 g/m²/s (mitigated)	Water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	100 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 8.086E-07 g/m²/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Details of Dust Emission Sources for Annual RSP Assessment

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po Roadworks - at grade	Heavy construction Source ID: R24 - R40	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	13 % 91.7 % 26 days 10 hour 2.69 Mg/hectare/month of activity 30 % of TSP 0.81 Mg/hectare/year 1.33909E-04 g/m/s (unmitigated) 1.11144E-05 g/m/s (mitigated)	Assume % works area for heavy construction Water spraying 8 times a day (once every 1.25 hours) Mon to Sat, 8:00 to 18:00 AP42, Section 13.2.3.3 Assume road width equals 12m, therefore multiply emission rate by 12m. '=2.69*0.3*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	13 % 91.7 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 1.25587E-06 g/m/s (unmitigated) 1.04237E-07 g/m/s (mitigated)	Water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *12
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	100 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 9.7032E-06 g/m/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *12

Details of Dust Emission Sources for Daily and Annual RSP Assessment

Kong Nga Po - Feasibility Study

Description	Sources	Parameter	Emission Rate		Remarks
C&D Stockpile Area	Material handling and storage piles Source ID: 23	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. k (particle size < 10µm) From engineer from PATH mm5 data grids (25,43), (25,44), (25,45) and (26,44), maximum annual average wind speed for 2010 $E=k*0.0016*[(U/2.2)^{1.3}/(M/2)^{1.4}]$ From engineer 26 days per month, 10 working hours per day Assumed capacity of dump truck is 15,000kg/2,000kg/m³=7.5m³ and 15 tons Unmitigated Emission Rate= $E*1000*op/(A*60*60)$ Mitigated Emission Rate'= $E*1000*op/(A*60*60)*p/100$
		Particle size multiplier, k	0.35		
		Moisture content, M	14	%	
		Average wind speed, U	2.9	m/s	
		Emission Factor, E	5.2604E-05	kg/Mg	
		Monthly output	20,000	m3/month	
		Maximum hourly output, op	76.9	m3/hr	
			153.8	Mg/hr	
		Area of stockpile, A	7,569	m²	
		Emission Rate	2.97005E-07	g/m²/s (unmitigated)	
			5.94011E-08	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	80% stockpiling area is covered by impervious sheets AP42, Section 11.9.4 $=0.85*1000000/(10000*365*24*60*60)*p/100$
			20	% (mitigated)	
		Emission Factor	0.85	Mg/hectare/year	
		Emission Rate	2.69533E-06	g/m²/s (unmitigated)	
			5.39066E-07	g/m²/s (mitigated)	

Details of Dust Emission Sources for Annual RSP Assessment

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po Concurrent Project: Columbarium Crematorium and Related Facilities at Sandy Ridge Area Sources	Heavy construction Source ID:	Percentage active area, p	13 %	Assume % works area for heavy construction (same as for along Kong Nga Po Road)
	C3, C6, C7, C8, C10, C11	Mitigation efficiency	91.7 %	Assume water spraying 8 times a day (once every 1.25 hours)
		No. of working days per month, d	26 days	
		No. of working hours per day, h	10 hour	Assume Mon to Sat, 8:00 to 18:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of RSP	30 % of TSP	
		Emission Factor for RSP	0.81 Mg/hectare/year	
		Emission Rate for RSP	1.11591E-05 g/m²/s (unmitigated) 9.26201E-07 g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	13 % 91.7 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 1.04656E-07 g/m²/s (unmitigated) 8.68643E-09 g/m²/s (mitigated)	Assume water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	100 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 8.086E-07 g/m²/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100
Kong Nga Po Concurrent Project: Columbarium Crematorium and Related Facilities at Sandy Ridge Line Sources	Heavy construction Source ID:	Percentage active area, p	13 %	Assume % works area for heavy construction (same as for along Kong Nga Po Road)
	C1, C2, C4, C5, C9, C12, C13, C14	Mitigation efficiency	91.7 %	Assume water spraying 8 times a day (once every 1.25 hours)
		No. of working days per month, d	26 days	
		No. of working hours per day, h	10 hour	Assume Mon to Sat, 8:00 to 18:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of RSP	30 % of TSP	
		Emission Factor for RSP	0.81 Mg/hectare/year	
	Emission Rate (C1, C2)		3.34772E-04 g/m/s (unmitigated)	Assume road width equals 30m, therefore multiply emission rate by 30m
			2.7786E-05 g/m/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100 *30
	Emission Rate (C4, C5, C9)		2.23181E-04 g/m/s (unmitigated)	Assume road width equals 20m, therefore multiply emission rate by 20m
			1.8524E-05 g/m/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100 *20
	Emission Rate (C12, C13, C14)		1.67386E-04 g/m/s (unmitigated)	Assume road width equals 15m, therefore multiply emission rate by 15m
			1.3893E-05 g/m/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100 *15
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate (C1, C2)	13 % 91.7 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 3.13967E-06 g/m/s (unmitigated) 2.60593E-07 g/m/s (mitigated)	Assume water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *30
	Emission Rate (C4, C5, C9)		2.09312E-06 g/m/s (unmitigated)	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *20
			1.73729E-07 g/m/s (mitigated)	
	Emission Rate (C12, C13, C14)		1.56984E-06 g/m/s (unmitigated)	=0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *15
			1.30296E-07 g/m/s (mitigated)	
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate (C1, C2) Emission Rate (C4, C5, C9) Emission Rate (C12, C13, C14)	100 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 2.42580E-05 g/m/s (unmitigated) 1.61720E-05 g/m/s (unmitigated) 1.21290E-05 g/m/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *30 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *20 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100 *15
Kong Nga Po Concurrent Project: Organic Waste Treatment Facilities (Phase 2)	Heavy construction Source ID:	Percentage active area, p	100.00 %	Assume % works area for heavy construction (From EIA)
	S2 - S7	Mitigation efficiency	87.5 %	Water suppression 8 times a day
		No. of working days per month, d	26 days	From EIA
		No. of working hours per day, h	12 hour	From EIA, assume Mon to Sat, 8:00 to 20:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of RSP	30 % of TSP	
		Emission Factor for RSP	0.81 Mg/hectare/year	
		Emission Rate for RSP	7.18483E-05 g/m²/s (unmitigated) 8.98104E-06 g/m²/s (mitigated)	=2.69*0.3*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of RSP Emission Factor for RSP Emission Rate for RSP	100.00 % 0.85 Mg/hectare/year 30 % of TSP 0.26 Mg/hectare/year 8.086E-07 g/m²/s	AP42, Table 11.9-4 =0.85*0.3*1000000/(10000*365*24*60*60)*p/100

Details of Dust Emission Sources for Daily and Annual RSP Assessment

Kong Nga Po - Feasibility Study

Description	Sources	Parameter	Emission Rate		Remarks
Kong Nga Po Concurrent Project: Organic Waste Treatment Facilities (Phase 2) C&D Stockpile Area	Material handling and storage piles Source ID: S1 & S8	Percentage open stockpile area, p	20	%	From EIA: 80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. k (particle size < 10µm) Assume made by engineer, worst case scenario Annual mean wind speed from mm5 year 2010 (date 2 Jan to 30 Dec) E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4] From engineer Total volume of output: 25,000 m³ Anticipated dusty construction activities duration: 9 months (assume 26 working days per month) 12 hours per day Assume capacity of dump truck is 6m³ and 15 tons Assumption made by consultant Unmitigated Emission Rate=E*1000*op/(A*60*60) Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Particle size multiplier, k	0.35		
		Moisture content, M	5	%	
		Average wind speed, U	2.5	m/s	
		Emission Factor, E	0.000183335	kg/Mg	
		Maximum daily average output	106.8	m³/day	
		Maximum hourly average output, op	8.9	m³/hr	
			22	Mg/hr	
		Area of the stockpile, A	4012.08	m²	
		Emission Rate	2.82524E-07	g/m²/s (unmitigated)	
	Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	80% stockpiling area is covered by impervious sheets AP42, Table 11.9.4 =0.85*1000000/(10000*365*24*60*60)*p/100
			20	% (mitigated)	
			0.85	Mg/hectare/year	
			2.69533E-06	g/m²/s (unmitigated)	
	As above	Emission Factor	5.39066E-07	g/m²/s (mitigated)	

Details of Dust Emission Sources for Annual FSP

Details of Dust Emission Sources for Annual FSP Assessment (Tier 1)

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po	Heavy construction Source ID: 1 - 22, 24 - 52	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	13.6 % 91.7 % 26 days 10 hour 2.69 Mg/hectare/month of activity 3 % of TSP 0.08 Mg/hectare/year 1.17636E-06 g/m²/s (unmitigated) 9.76376E-08 g/m²/s (mitigated)	Assume % works area for heavy construction Water spraying 8 times a day (once every 1.25 hours) Mon to Sat, 8:00 to 18:00 AP42, Section 13.2.3.3 =2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	13.6 % 91.7 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 1.10325E-08 g/m²/s (unmitigated) 9.157E-10 g/m²/s (mitigated)	Water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	100 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 8.086E-08 g/m²/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Details of Dust Emission Sources for Annual FSP Assessment

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po Roadworks - at grade	Heavy construction Source ID: R24 - R40	Percentage active area, p Mitigation efficiency No. of working days per month, d No. of working hours per day, h Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	13 % 91.7 % 26 days 10 hour 2.69 Mg/hectare/month of activity 3 % of TSP 0.08 Mg/hectare/year 1.33909E-05 g/m/s (unmitigated) 1.11144E-06 g/m/s (mitigated)	Assume % works area for heavy construction Water spraying 8 times a day (once every 1.25 hours) Mon to Sat, 8:00 to 18:00 AP42, Section 13.2.3.3 Assume road width equals 12m, therefore multiply emission rate by 12m. '=2.69*0.03*1000000/(10000*d*h*60*60)*p/100 * 12
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	13 % 91.7 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 1.25587E-07 g/m/s (unmitigated) 1.04237E-08 g/m/s (mitigated)	Water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *12
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	100 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 9.7032E-07 g/m/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *12

Kong Nga Po - Feasibility Study

Description	Sources	Parameter	Emission Rate		Remarks
C&D Stockpile Area	Material handling and storage piles Source ID: 23	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. k (particle size < 2.5µm) From engineer from PATH mm5 data grids (25,43), (25,44), (25,45) and (26,44), maximum annual average wind speed for 2010 $E=k*0.0016*[(U/2.2)^{1.3}/(M/2)^{1.4}]$ From engineer 26 days per month, 10 working hours per day Assumed capacity of dump truck is 15,000kg/2,000kg/m³=7.5m³ and 15 tons Unmitigated Emission Rate= $E*1000*op/(A*60*60)$ Mitigated Emission Rate'= $E*1000*op/(A*60*60)*p/100$
		Particle size multiplier, k	0.053		
		Moisture content, M	14	%	
		Average wind speed, U	2.9	m/s	
		Emission Factor, E	7.96575E-06	kg/Mg	
		Monthly output	20,000	m3/month	
		Maximum hourly output, op	76.9	m3/hr	
			153.8	Mg/hr	
		Area of stockpile, A	7,569	m²	
		Emission Rate	4.49751E-08	g/m²/s (unmitigated)	
			8.99502E-09	g/m²/s (mitigated)	
	Wind erosion Source ID: As above	Percentage open stockpile area, p	100	% (unmitigated)	80% stockpiling area is covered by impervious sheets AP42, Section 11.9.4 $=0.85*1000000/(10000*365*24*60*60)*p/100$
			20	% (mitigated)	
		Emission Factor	0.85	Mg/hectare/year	
		Emission Rate	2.69533E-06	g/m²/s (unmitigated)	
			5.39066E-07	g/m²/s (mitigated)	

Details of Dust Emission Sources for Annual FSP Assessment

Kong Nga Po - Feasibility Study

Work Area	Sources	Parameter		Remarks
Kong Nga Po Concurrent Project: Columbarium Crematorium and Related Facilities at Sandy Ridge Area Sources	Heavy construction Source ID:	Percentage active area, p	13 %	Assume % works area for heavy construction (same as for along Kong Nga Po Road)
	C3, C6, C7, C8, C10, C11	Mitigation efficiency	91.7 %	Assume water spraying 8 times a day (once every 1.25 hours)
		No. of working days per month, d	26 days	
		No. of working hours per day, h	10 hour	Assume Mon to Sat, 8:00 to 18:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of FSP	3 % of TSP	
		Emission Factor for FSP	0.08 Mg/hectare/year	
		Emission Rate for FSP	1.11591E-06 g/m²/s (unmitigated) 9.26201E-08 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	13 % 91.7 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 1.04656E-08 g/m²/s (unmitigated) 8.68643E-10 g/m²/s (mitigated)	Assume water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
	Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	100 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 8.086E-08 g/m²/s (unmitigated)	AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100
Kong Nga Po Concurrent Project: Columbarium Crematorium and Related Facilities at Sandy Ridge Line Sources	Heavy construction Source ID:	Percentage active area, p	13 %	Assume % works area for heavy construction (same as for along Kong Nga Po Road)
	C1, C2, C4, C5, C9, C12, C13, C14	Mitigation efficiency	91.7 %	Assume water spraying 8 times a day (once every 1.25 hours)
		No. of working days per month, d	26 days	
		No. of working hours per day, h	10 hour	Assume Mon to Sat, 8:00 to 18:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of FSP	3 % of TSP	
		Emission Factor for FSP	0.08 Mg/hectare/year	
		Emission Rate (C1, C2)	3.34772E-05 g/m/s (unmitigated) 2.7786E-06 g/m/s (mitigated)	Assume road width equals 30m, therefore multiply emission rate by 30m: =2.69*0.03*1000000/(10000*d*h*60*60)*p/100 *30
		Emission Rate (C4, C5, C9)	2.23181E-05 g/m/s (unmitigated) 1.8524E-06 g/m/s (mitigated)	Assume road width equals 20m, therefore multiply emission rate by 20m: =2.69*0.03*1000000/(10000*d*h*60*60)*p/100 *20
		Emission Rate (C12, C13, C14)	1.67386E-05 g/m/s (unmitigated) 1.3893E-06 g/m/s (mitigated)	Assume road width equals 15m, therefore multiply emission rate by 15m: =2.69*0.03*1000000/(10000*d*h*60*60)*p/100 *15
		Wind Erosion for Working Hours Source ID: Same as above	Percentage active area, p Mitigation efficiency Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate (C1, C2) Emission Rate (C4, C5, C9) Emission Rate (C12, C13, C14)	13 % 91.7 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 3.13967E-07 g/m/s (unmitigated) 2.60593E-08 g/m/s (mitigated) 2.09312E-07 g/m/s (unmitigated) 1.73729E-08 g/m/s (mitigated) 1.56984E-07 g/m/s (unmitigated) 1.30296E-08 g/m/s (mitigated)
				Assume water spraying 8 times a day (once every 1.25 hours) AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *30 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *20 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *15
		Wind Erosion for Non-Working Hours Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate (C1, C2) Emission Rate (C4, C5, C9) Emission Rate (C12, C13, C14)	100 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 2.4258E-06 g/m/s (unmitigated) 1.6172E-06 g/m/s (unmitigated) 1.2129E-06 g/m/s (unmitigated)
				AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *30 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *20 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100 *15
Kong Nga Po Concurrent Project: Organic Waste Treatment Facilities (Phase 2)	Heavy construction Source ID:	Percentage active area, p	100.00 %	Assume % works area for heavy construction (From EIA)
	S2 - S7	Mitigation efficiency	87.5 %	Water suppression 8 times a day
		No. of working days per month, d	26 days	From EIA
		No. of working hours per day, h	12 hour	From EIA, assume Mon to Sat, 8:00 to 20:00
		Emission Factor for TSP	2.69 Mg/hectare/month of activity	AP42, Section 13.2.3.3
		% content of FSP	3 % of TSP	
		Emission Factor for FSP	0.08 Mg/hectare/year	
		Emission Rate for FSP	7.18483E-06 g/m²/s (unmitigated) 8.98104E-07 g/m²/s (mitigated)	=2.69*0.03*1000000/(10000*d*h*60*60)*p/100
	Wind Erosion Source ID: Same as above	Percentage active area, p Emission Factor for TSP % content of FSP Emission Factor for FSP Emission Rate for FSP	100.00 % 0.85 Mg/hectare/year 3 % of TSP 0.03 Mg/hectare/year 8.086E-08 g/m²/s	AP42, Table 11.9-4 =0.85*0.03*1000000/(10000*365*24*60*60)*p/100

Details of Dust Emission Sources for Daily and Annual FSP Assessment

Kong Nga Po - Feasibility Study

Description	Sources	Parameter	Emission Rate		Remarks
Kong Nga Po Concurrent Project: Organic Waste Treatment Facilities (Phase 2) C&D Stockpile Area	Material handling and storage piles Source ID: S1 & S8	Percentage open stockpile area, p	20	%	From EIA: 80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
		Particle size multiplier, k	0.053		k (particle size < 2.5µm)
		Moisture content, M	5	%	Assume made by engineer, worst case scenario
		Average wind speed, U	2.5	m/s	Annual mean wind speed from mm5 year 2010 (date 2 Jan to 30 Dec)
		Emission Factor, E	2.77621E-05	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4] From engineer
		Maximum daily average output	106.8	m³/day	Total volume of output: 25,000 m³ Anticipated dusty construction activities duration: 9 months (assume 26 working days per month)
		Maximum hourly average output, op	8.9	m³/hr	12 hours per day
			22	Mg/hr	Assume capacity of dump truck is 6m³ and 15 tons
		Area of the stockpile, A	4012.08	m²	Assumption made by consultant
		Emission Rate	4.27822E-08	g/m²/s (unmitigated)	Unmitigated Emission Rate=E*1000*op/(A*60*60)
	Wind erosion		8.55644E-09	g/m²/s (mitigated)	Mitigated Emission Rate'=E*1000*op/(A*60*60)*p/100
		Percentage open stockpile area, p	100	% (unmitigated)	
			20	% (mitigated)	80% stockpiling area is covered by impervious sheets
		Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9.4
As above		Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
			5.39066E-07	g/m²/s (mitigated)	