Scenario 3: Decommissioning of Fill Bank

ID	Source	Detailed Emission Source	Source Type	Location	X	Y	Peak Hourly Truckload	Normal Hourly Truckload	Non-Peak Hourly Truckload	Peak Emission Rate	Normal Emission Rate	Non-Peak Emission Rate	Unit	Note
1	Fill Bank	Wind Erosion	Area	A5	Please refer to figure			NA		8.080E-07	8.080E-07	8.080E-07	g/m^2/s	a
2	Fill Bank	Material Handling - loading/unloading	Area	SP7	Please refer to figure		0.625	0.625	0.625	2.486E-08	2.486E-08	2.486E-08	g/m^2/s	b
3	Fill Bank	Material Handling - loading/unloading	Area	SP8	Please refer to figure		0.625	0.625	0.625	2.486E-08	2.486E-08	2.486E-08	g/m^2/s	b
4	Fill Bank	Material Handling - loading/unloading	Area	SP9	Please refer to figure		0.625	0.625	0.625	2.486E-08	2.486E-08	2.486E-08	g/m^2/s	b
5	Fill Bank	Material Handling - loading/unloading	Area	SP10	Please refer to figure		0.625	0.625	0.625	2.486E-08	2.486E-08	2.486E-08	g/m^2/s	b
6	Fill Bank	Material Handling - loadout of Materials	Area	DG7	Please refer to figure		30.3	30.3	30.3	1.205E-06	1.205E-06	1.205E-06	g/m^2/s	b
7	Fill Bank	Material Handling - loadout of Materials	Area	DG8	Please refer to figure		30.3	30.3	30.3	1.205E-06	1.205E-06	1.205E-06	g/m^2/s	b
8	Fill Bank	Material Handling - loadout of Materials	Area	DG9	Please refer to figure		30.3	30.3	30.3	1.205E-06	1.205E-06	1.205E-06	g/m^2/s	b
9	Fill Bank	Material Handling - loadout of Materials	Area	DG10	Please refer to figure		30.3	30.3	30.3	1.205E-06	1.205E-06	1.205E-06	g/m^2/s	b
10	Fill Bank	Material Handling - loading/unloading	Point	BP5	810917	824950	40.9	40.9	40.9	0.0163	0.0163	0.0163	g/s	b
11	PBR2 Sorting Facility	Screening	Point	SF2	811089	824957	75.8	75.8	75.8	0.363	0.363	0.363	g/s	c
12	PBR2 Sorting Facility	Material Handling - loading/unloading (2 opns)	Point	SF2	811089	824957	75.8	75.8	75.8	0.0603	0.0603	0.0603	g/s	b
13	PBR2 Sorting Facility	Material Handling - loading/unloading	Point	SFB1	811003	824876	37.9	37.9	37.9	0.0151	0.0151	0.0151	g/s	b
14	PBR2 Sorting Facility	Material Handling - loading/unloading	Point	SFB2	811045	824848	37.9	37.9	37.9	0.0151	0.0151	0.0151	g/s	b
15	C&DMSF	Oversized material crushing	Point	SF1	811179	824897	7.8	7.8	7.8	0.000819	0.000819	0.000819	g/s	c
16	C&DMSF	Screening	Point	SF1	811179	824897	7.8	7.8	7.8	0.0373	0.0373	0.0373	g/s	c
17	C&DMSF	Material Handling - loading/unloading (2 opns)	Point	SF1	811179	824897	7.8	7.8	7.8	0.006205	0.006205	0.006205	g/s	b

ID	Source	Detailed Emission Source	Source Type	Location	X	Y	Peak Hourly Truckload				Normal Hourly Truckload				Non-Peak Hourly Truckload				Peak Emission Rate	Normal Emission Rate	Non-Peak Emission Rate	Unit	Note
							Unladen	Public fill laden	Mixed material laden	Waste laden	Unladen	Public fill laden	Mixed material laden	Waste laden	Unladen	Public fill laden	Mixed material laden	Waste laden					
18	Fill Bank	Road Emission (A)+(B)+(E)	Line	R1	Please refer to figure		22.8	6.5	11.1	5.2	17.50	4.50	7.8	5.2	12	2.5	4.3	5.2	0.000192	0.000192	0.000129	g/m/s	d
19-21	Fill Bank	Road Emission (C)	Line	R2+ R3+ R4	Please refer to figure		9	9			7.0	7.0			5	5			0.0001143	0.0000889	0.0000635	g/m/s	d
22-23	Fill Bank	Road Emission (A)+(B)+(C)	Line	R11+R12	Please refer to figure		18.8	2.5	11.1	5.2	15.5	2.5	7.8	5.2	12	2.5	4.3	5.2	0.000202	0.000167	0.000129	g/m/s	d
24-25	Fill Bank	Road Emission (F)	Line	R8c+R9c	Please refer to figure		40.9	40.9			40.9	40.9			40.9	40.9			0.000520	0.000520	0.000520	g/m/s	d
26	Fill Bank	Road Emission (C)	Line	R13c	Please refer to figure		9	9			7	7			5	5			0.000384	0.000298	0.000213	g/m/s	e
27	Fill Bank	Road Emission (D)+(F)	Line	R14c	Please refer to figure		116.7	116.7			116.7	116.7			116.7	116.7			0.004976	0.004976	0.004976	g/m/s	e
28-30	Fill Bank	Road Emission (C)/4	Line	R15c-R17c	Please refer to figure		2.25	2.25			1.75	1.75			1.25	1.25			0.0000959	0.0000746	0.0000533	g/m/s	e
31-33	Fill Bank	Road Emission (D)+(F)/4	Line	R18c-R20c	Please refer to figure		29.2	29.2			29.2	29.2			29.2	29.2			0.001244	0.001244	0.001244	g/m/s	e

Note

a. Emission rate derived for wind erosion based on USEPA AP-42 Section 11.9 (edition 10/98), E (Mg/ha/yr) = 0.85
   Control efficiency = 70%

b. Emission rate for material handling derived based on USEPA AP-42 Section 13.2.4 (edition 01/95), E (kg/Mg) = $k(0.0016)(U/2.2)^{1.3}/(M/2)^{1.4}$
   Where k = 0.74, U = 2.4m/s, M = 2.0%
   Capacity of a typical truck = 10.8 tons   (Information from CED)
   Control efficiency = 90%   (USEPA AP-42 Section 13.2.4.4 - Control efficiency up to 90% by continuous chemical treating of materials, coupled with watering)

c. Emission rate for oversized material crushing/screening derived based on USEPA AP-42 Section 11.19.2 (edition 01/95), E (kg/Mg) = 0.00035 kg/Mg and 0.01596 kg/Mg for crushing and screening respectively
   Capacity of a typical truck = 10.8 tons   (Information from CED)
   Control efficiency = 90%   (Control Techniques for Particulate Emissions from Stationary Sources Vo..2 Section 9.7.1.2.2 - efficiency is more than 99% for fabric filters with continuous cleaning)

d. Emission rates for paved haul road based on USEPA AP-42 Section 13.2.1 (edition 10/97) E (kg/v-km) = $k(sL/2)0.65(W/3)1.5/500$
   Where k = 24, sL = 2.4   (silt loading based on Table 13.2.1-3 - quarry in AP-42)
   W = 14 ton (unladen), 24.8 ton (public fill laden), 21 ton (mixed material laden), 19.2 ton (waste laden)   (Information based on typical unladen truck weight and typical truckload capacity)
   Control efficiency = 95%   (Control Techniques for Particulate Emissions from Stationary Sources Vo..2 Section 9.12.2.2.1 - a dust control efficiency of up to 95% is achievable when a dust suppression chemical is used)

e. Emission rates for unpaved road based on USEPA AP-42 Section 13.2.2 (edition 09/98) E (kg/v-km) = $k(s/12)^a(W/3)^b/(M/0.2)^c(S/15)$
   Where k = 10, a = 0.8, b = 0.5, c = 0.4, S = 6.2 mph, M = 2%, s=7.1%   (average vehicle speed = 10km/h; moisture content of 2% same as b, silt content based on Table 13.2.2-1 - material storage area for sand/ gravel processing in AP-42;)
   W = 14 ton (unladen) & 24.8 ton (laden)   (Information based on typical unladen and laden truck weight)
   Control efficiency = 90%   (Control Techniques for Particulate Emissions from Stationary Sources Vo..2 Section 9.12.2.2.1 - a dust control efficiency of up to 95% is achievable when a dust suppression chemical is used)

^ Particle distribution - 80% (30mm) & 20% (10mm)   (Guide to Rock and Soil Descriptions issued by Geotechnical Control Office, Civil Engineering Department, Hong Kong (1988))

(A) From Outside to C&DMSF
   1 truck carries 7 tonnes, 500 tonnes of sorted material estimated, daily vehicle trip = 500/7 = 85.7, peak hourly vehicle trip = 85.7*0.13 = 11.1, normal hourly vehicle trip = 85.7/11 = 7.8, non-peak hourly vehicle trip = 85.7*0.05 = 4.3

(B) From C&DMSF to Landfill
   1 truck carries 5.2 tonnes, 300 tonnes of waste estimated, daily vehicle trip = 300/5.2 = 57.7, peak/normal/non-peak hourly vehicle trip = 57.7/11 = 5.2

(C) From C&DMSF to Stockpiled Area
   1 truck carries 10.8 tonnes, 300 tonnes of sorted material estimated, daily vehicle trip = 300/10.8 = 27.8, peak/normal/non-peak hourly vehicle trip = 27.8/11 = 2.5

(D) From Stockpiled Area to PBR2 Sorting Facility
   1 truck carries 10.8 tonnes, 9,000 tons of daily capacity, daily vehicle trip = 9000/10.8 = 833.3, peak/normal/non-peak hourly vehicle trip = 833.3/11=75.8

(E) From Stockpiled Area to Outside
   1 truck carries 10.8 tonnes, 500*10%=50 daily vehicle trip, peak hourly vehicle trip = 50*0.13=6.5, normal hourly vehicle trip = 50/11=4.5, non-peak hourly vehicle trip = 50*0.05=2.5

(F) From Stockpiled Area to Barging Point
   1 truck carries 10.8 tonnes, 500*90%=450 daily vehicle trip, peak/normal/non-peak hourly vehicle trip = 450/11=40.9