Stage A Land Formation of Marshland (4th quarter 2011 to 1st quarter 2012)

Dust emission from unloading of materials for Ponds Filling
(USEPA AP-42 Section 13.2.4)

Emission factor for truck unloading (kg/Mg), E = $k(0.0016)(U/2.2)^{1.3}/(M/2)^{1.4}$

where
- k = particle size multiplier (dimensionless) = 0.74
- U = mean wind speed (m/s) = 3.0
- M = material moisture content (%) = 4.0

Emission factor for unloading of fill materials = 0.0007 kg/Mg
Control efficiency = 75 %

Unloading Point	Works Area (m^2)	Amount of fill materials needed (m^3)	Rate of Import (Mg/ hr) *	Unmitigated Emission Factor (g/s)	Mitigated Emission Factor (g/s)
1 (For Filling of Pond 61, 56 and 50)	27614	41420	55.32	0.010317	0.002579
2 (For Filling of Pond 52, 53 and 55)	18488	27732	37.04	0.006908	0.001727
3 (For Filling of Pond 54, 57 and 58)	24091	36137	48.26	0.009001	0.002250
4 (For Filling of Pond 20, 22 and 24)	18274	27411	36.61	0.006828	0.001707

Wind erosion of the whole exposed Marshland area
(USEPA AP-42 fifth edition Table 11.9-4)
TSP emission factor = 0.85 **(Mg/hectare/yr)**
Control efficiency = 70 %
Unmitigated emission rate = 2.695E-06 g/m^2-s
Mitigated emission rate = 8.086E-07 g/m^2-s

Dust emission from unpaved road
(USEPA AP-42 Section 13.2.2)

Emission factor for unpaved road (kg/v-km), E = $k(s/12)^a(W/3)^b/(M/0.2)^c$

where
- k = 10
- a = 0.8
- b = 0.5
- c = 0.4
- s = 4.8
- W = 11.5 unladen
- 24 laden
- M = 4.0

with s = surface material silt content (%)
W = mean vehilce weight (tons)
M = surface material moisture content (%)

Emission factor from unpaved road (lb/VMT) = 2.8381 unladen
Emission factor from unpaved road (lb/VMT) = 4.1000 laden

Emission factor from unpaved road (g/v-m) = 0.8001 unladen
Emission factor from unpaved road (g/v-m) = 1.1558 laden

Capacity of each truck = 12.50 Mg
Control efficiency = 75 %

			Unmitigated		Mitigated	
Label of Haul Road (Refer to Figure for its location)	Distance (m)	veh/hr (one way)	Emission factor (unladen) (g/m-s)	Emission factor (laden) (g/m-s)	Emission factor (unladen) (g/m-s)	Emission factor (laden) (g/m-s)
Haul Road A	61.9	13	0.002889	0.004174	0.000722	0.001043
Haul Road B	282.3	3	0.000667	0.000963	0.000167	0.000241
Haul Road C	127.7	3	0.000667	0.000963	0.000167	0.000241
Haul Road D	87.2	7	0.001556	0.002247	0.000389	0.000562
Haul Road E	106.0	4	0.000889	0.001284	0.000222	0.000321
Haul Road F	124.4	4	0.000889	0.001284	0.000222	0.000321
Haul Road G	172.0	1	0.000222	0.000321	0.000056	0.000080

* Assuming density of fill material is 2.5 Mg/m^3
* Assuming 26 working days per month and 12 working hours per day
* Assuming it takes 2 quarters to import fill materials for formation of marshland

Stage B Site Formation of Footprint (2nd quarter 2012 to 4th quarter 2012)

Dust emission from unloading of materials for Ponds Filling
(USEPA AP-42 Section 13.2.4)

Emission factor for truck unloading (kg/Mg), E = $k(0.0016)(U/2.2)^{1.3}/(M/2)^{1.4}$

where	k =	particle size multiplier (dimensionless) =	0.74
	U =	mean wind speed (m/s) =	3.0
	M =	material moisture content (%) =	4.0

Emission factor for unloading of fill materials = 0.0007 kg/Mg
Control efficiency = 75 %

Unloading Point	Works Area (m^2)	Amount of fill materials needed (m^3)	Rate of Import (Mg/ hr) *	Unmitigated Emission Factor (g/s)	Mitigated Emission Factor (g/s)
1 (For Filling of Pond 59)	7782	14636	19.55	0.003646	0.000911
2 (For Filling of Pond 62 and 25)	11834	22257	29.72	0.005544	0.001386
3 (For Filling of Pond 23 and 19)	11222	21107	28.19	0.005258	0.001314

Wind erosion of the whole exposed Footprint area
(USEPA AP-42 fifth edition Table 11.9-4)

TSP emission factor = 0.85 **(Mg/hectare/yr)**
Control efficiency = 70 %
Unmitigated emission rate = 2.695E-06 g/m^2-s
Mitigated emission rate = 8.086E-07 g/m^2-s

Dust emission from unpaved road
(USEPA AP-42 Section 13.2.2)

Emission factor for unpaved road (kg/v-km), E = $k(s/12)^a(W/3)^b/(M/0.2)^c$

where	k =	10
	a =	0.8
	b =	0.5
	c =	0.4
	s =	4.8
	W =	11.5 unladen
		24 laden
	M =	4.0

with s = surface material silt content (%)
W = mean vehilce weight (tons)
M = surface material moisture content (%)

Emission factor from unpaved road (lb/VMT) = 2.8381 unladen
Emission factor from unpaved road (lb/VMT) = 4.1000 laden

Emission factor from unpaved road (g/v-m) = 0.8001 unladen
Emission factor from unpaved road (g/v-m) = 1.1558 laden

Capacity of each truck = 12.50 Mg
Control efficiency = 75 %

			Unmitigated		Mitigated	
Label of Haul Road (Refer to Figure for its location)	Distance (m)	veh/hr (one way)	Emission factor (unladen) (g/m-s)	Emission factor (laden) (g/m-s)	Emission factor (unladen) (g/m-s)	Emission factor (laden) (g/m-s)
Haul Road A	61.9	6	0.001333	0.001926	0.000333	0.000482
Haul Road B	108.2	4	0.000889	0.001284	0.000222	0.000321
Haul Road C	127.7	2	0.000444	0.000642	0.000111	0.000161
Haul Road D	281.9	2	0.000444	0.000642	0.000111	0.000161

* Assuming density of fill material is 2.5 Mg/m^3
* Assuming 26 working days per month and 12 working hours per day
* Assuming it takes 2 quarters to import fill materials for pond filling at footprint area