

## Appendix 3A

### Calculation of TSP Emission Rate (Unmitigated and Mitigated Scenarios)

#### General construction activities

TSP emission factor (Mg/hectare/month)	=	2.69 from AP-42 5th edition (Section 13.2.3.3)
Site area (hectare)	=	0.55
Effective construction area factor	=	50%
TSP emission rate (g/m <sup>2</sup> /s)	=	1.25E-04
TSP emission rate (g/s)	=	6.85E-01
Mitigated TSP emission rate (g/m <sup>2</sup> /s)	=	1.25E-05 (Control Techniques for Particulate Emissions from Stationary Sources, Volume 2, US Environmental Protection Agency 1982)
Mitigated TSP emission rate (g/s)	=	6.85E-02
TSP emission period	=	8am to 6 pm (site working hour)

#### Concrete batching

Concrete batching plant Capacity (Mg of materials/hr)	=	24.00
Mass of cement and cement supplement handled (Mg/hr)	=	4.80 (assume 20% w/w of total mass)
Emission factor (kg of TSP/ Mg of materials)	=	0.0035 from AP-42 5th edition (Table 11.12-1), for uncontrolled aggregate transfer
	=	0.0000 from AP-42 5th edition (Table 11.12-1), for controlled aggregate transfer
	=	0.0011 from AP-42 5th edition (Table 11.12-1), for uncontrolled sand transfer
	=	0.0000 from AP-42 5th edition (Table 11.12-1), for controlled sand transfer
	=	0.1100 from AP-42 5th edition (Table 11.12-1), for uncontrolled mixer loading
	=	0.0056 from AP-42 5th edition (Table 11.12-1), for controlled mixer loading
TSP emission rate (g/s)	=	1.77E-01
Mitigated TSP emission rate (g/s)	=	7.47E-03
Area of each batching unit (m <sup>2</sup> )	=	4
No. of concrete batching units	=	2
Total concrete batching area (m <sup>2</sup> )	=	8
TSP emission rate (g/m <sup>2</sup> /s)	=	2.22E-02
Mitigated TSP emission rate (g/m <sup>2</sup> /s)	=	9.33E-04
TSP emission period	=	1 pm to 5 pm

#### Wind erosion of exposed areas

Site Area (hectare)	=	0.55
% exposure (%)	=	50%
TSP Emission factor (Mg/hectare*yr)	=	0.85 from AP-42 5th edition (Table 11.9-4) for wind erosion of exposed areas
TSP Emission rate (g/m <sup>2</sup> /s)	=	1.35E-06
TSP Emission rate (g/s)	=	7.41E-03
TSP emission period	=	Whole day

From 0800 to 1800,

<b>Total unmitigated day-time TSP emission rate (g/s)</b>	=	8.70E-01
<b>Total mitigated day-time TSP emission rate (g/s)</b>	=	8.34E-02

From 1800 to 0800,

<b>Total night-time TSP emission rate (g/s)</b>	=	7.41E-03
---	---	----------