

CBEC

Boiler PM & PM10

	Results from Emission Test June 19-21, 2006				Emission Factors (lb/mmBtu)		
	lb/mmBtu	lb/mmBtu	lb/mmBtu	Ave lb/mmBtu	PM	PM10	PM2.5
EP1	0.1	0.146	0.144	0.1300	1.3000E-01	9.4333E-02	3.7700E-02
EP2	0.041	0.04	0.035	0.0387	5.2333E-02	5.2333E-02	1.5177E-02
EP3	0.029	0.032	0.035	0.0320	3.2000E-02	2.1440E-02	9.2800E-03
EP1	0.077	0.113	0.093	0.0943			
EP2	0.061	0.047	0.049	0.0523			

Formula: PM Emission Factor = PM Test Results
 PM10 (Units 1 & 2) Emission Factor = Test Results
 PM10 (Unit 3) Emission Factor = PM Test Results x PM10 Particle Distribution
 PM2.5 Emission Factor = PM Test Results x PM2.5 Particle Distribution

PM Test Results from most recent particulate test results as reported to the IDNR.
 PM10 Particle Distribution from AP-42.
 PM2.5 Particle Distribution from AP-42.

Coal Handling Dust Collectors

Emission Point	Emission Unit	PM Test lb/hr	Coal Tons/Hr	Emission Factor lb/Ton
EP6	EU6	1.13	2800.00	4.0357E-04
EP9	EU9	0.65	3200.00	2.0313E-04
EP10	EU10, EU1	1.26	1480.00	8.5135E-04
EP11	EU11	0.61	1480.00	4.1216E-04
EP13	EU13	1.42	900.00	1.5778E-03
EP14	EU14	3.11	450.00	6.9111E-03
EP15	EU15	2.59	450.00	5.7556E-03
EP16	EU16	0.52	460.00	1.1304E-03
EP17	EU17	0.84	460.00	1.8261E-03

Formula: EF lb/Ton = PM Test lb/hr / Coal Tons/hr

Where: PM Test lb/hr = emissions test results as reported to the IDNR
 Coal Tons/hr = coal system throughput recorded during the test
 EF lb/Ton = Emission factor from calculation

EP20, EP21 PM10 Emission factor from 30500619 - Portland cement load out
 PM Emission factor = PM10/particle distribution factor factor from AP-42 Bituminous and subbituminous coal combustion Table 1.1-6 (ESP -- 0.67)
 Emission factor
 PM10 0.2000
 PM 0.2985

EU30, EU31A-D, EU117-EU117B

Coal Handling Emission Factor - AP42 13.2.4 Aggregate Handling And Storage Piles
 Applicable to coal continuous drop process such as stocking out and conveyor belt feeds.

Emission Factor PM2.5

$$E = k(0.0032)((U/5)^{1.3}/(M/2)^{1.4})$$

$$E = (0.11 * 0.0032) * (((10.07/5)^{1.3}) / (4.2/2)^{1.4})$$

$$E = 0.00028$$

Emission Factor PM10

$$E = k(0.0032)((U/5)^{1.3}/(M/2)^{1.4})$$

$$E = (0.35 * 0.0032) * (((10.07/5)^{1.3}) / (4.5/2)^{1.4})$$

$$E = 0.00089 \text{ lbs/ton}$$

Emission Factor PM

$$E = k(0.0032)((U/5)^{1.3}/(M/2)^{1.4})$$

$$E = (0.74 * 0.0032) * (((10.07/5)^{1.3}) / (4.5/2)^{1.4})$$

$$E = 0.00189 \text{ lbs/ton}$$

E = emission factor
 k = particle size multiplier PM2.5 = 0.11 PM10 = 0.35 PM = 0.74
 U = mean wind speed - mph¹ Omaha Average = 10.07 mph
 M = material moisture content Table 13.2.4-1 mean for as received coal 4.5

¹Average Wind Speed from IDNR Aermet Omaha Data 00-04