North Coast Unified Air
Quality Management District
707 L Street
Eureka, CA 95501
(707) 443-3093

HOT MIX ASPHALT PLANT
FORM 1310

Form 1300 must also accompany all submittals

Part I - Facility Information

Section I-A: Production Status

What is the facility's maximum production rate in tons?

Current	Hourly:	Daily:	Annually:
Proposed	Hourly:	Daily:	Annually:

Section I-B: Proposed Operating Schedule

Facility maximum operating ($\frac{\text{hours}}{\text{day}}$):		($\frac{\text{days}}{\text{week}}$):		($\frac{\text{weeks}}{\text{year}}$):		($\frac{\text{hours}}{\text{year}}$):	
Facility's maximum daily operating schedule:	Start:	☐ AM ☐ PM		End:		☐ AM ☐ PM	
Month and year of anticipated startup of new or modified facility:							

Section I-C: Plant Type

What type of plant will be used? Batch mix _____ Drum mix _____

Section I-D: Equipment

List number of: Screens _____ Conveyors ____ Generators/Engines _____ Burners/Dryers ____ Silos ____ Pug Mills ____

Section I-E: Haul Road

What is the haul road length from the asphalt plant to the nearest public road? _____
Complete Table II-A and Table II-B of this application.

Section 1-F: Dust Control

Unpaved roads: ☐ water ☐ base coarse ☐ surfactant ☐ paving ☐ sweeping ☐ other _____

Track out: (check all to be used): ☐ grizzly ☐ tire washing ☐ 50 ft of paving ☐ wet sweeping ☐ HEPA vacuum

SECTION I-G: Emissions Calculations

Complete Part II Tables where applicable. Also attach calculations for dryer.

AQMD USE ONLY	TRACKING #	SIC/SCC CODES	PERMIT REVIEW	ENFORCEMENT REVIEW
	__ __ __ __ __ __	_____/_____		
FEE SCHEDULE:	CHECK/MONEY ORDER	AMOUNT		
$	#	$		

Part II – Emissions Calculations

Table II-A: PM Road Emissions [AP-42, Fifth Edition, Volume I, CHAPTER 13, Miscellaneous Sources, 13.2.2 Unpaved Roads (Supplement E)]

Variable →	T	L	VMT	W	E*	UC	EF	PTE
Road Segment	Average Number of Round Trips per Hour	One way road length (miles)	Vehicle Mile Traveled per Hour (miles/hr)	Average Vehicle Weight (Loaded truck + Empty truck) / 2 (tons)	PM Emission Rate (lb/VMT)	PM Emission Rate Uncontrolled (lb/hr)	RoadControl Efficiency Factor (Table II-C)	Hourly PM PTE Controlled (lb/hr)
PM								
			$2 \times T \times L = VMT$		$2.77 \times W^{0.5} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
PM								
			$2 \times T \times L = VMT$		$2.77 \times W^{0.5} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
PM								
			$2 \times T \times L = VMT$		$2.77 \times W^{0.5} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
							← Sum →	

Table II-B: PM10 Road Emissions [AP-42, Fifth Edition, Volume I, CHAPTER 13, Miscellaneous Sources, 13.2.2 Unpaved Roads (Supplement E)]

Variable →	T	L	VMT	W	E*	UC	EF	PTE
Road Segment	Average Number of Round Trips per Hour	One way road length (miles)	Vehicle Mile Traveled per Hour (miles/hr)	Average Vehicle Weight (Loaded truck + Empty truck) / 2 (tons)	PM10 Emission Rate (lb/VMT)	PM10 Emission Rate Uncontrolled (lb/hr)	RoadControl Efficiency Factor (Table II-C)	Hourly PM10 PTE Controlled (lb/hr)
PM10								
			$2 \times T \times L = VMT$		$0.805 \times W^{0.4} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
PM10								
			$2 \times T \times L = VMT$		$0.805 \times W^{0.4} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
PM10								
			$2 \times T \times L = VMT$		$0.805 \times W^{0.4} = E^*$	$VMT \times E = UC$		$UC \times EF = PTE$
							← Sum →	

*E = k x (s/12)^a x (W/3)^b / (Mdry/0.2)^c = lbs/VMT, where k, a, b, and c are empirical constants, E = size-specific emission factor (lb/VMT), s = surface material silt content (%), W = mean vehicle weight (tons), M = surface material moisture content (%), Mdry = 0.2%, AP-42, Section 13.2.2 (9/98) Equations 1 & 2

Table II-C: Unpaved Roads Control Methods and Control Factors

Control Method	Efficiency (Eff.)	Efficiency Factor (EF)	Control Method	Efficiency (Eff.)	Efficiency Factor (EF)
Base Course **or** Watering	60%	0.40	Base Course **and** Surfactants	90%	0.10
Base Course **and** Watering	80%	0.20	Paved **and** Swept	95%	0.05

Table II-D: Emissions to Atmosphere (After Control Measures) (Use additional sheets if necessary)

Unit No.	Control Equipment		PM	PM10	NOx	CO	VOC	SO2	HAPS	Estimation Method
	Type	Manufacturer & Model No.	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	
			(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	
Dryer										Manufacturer __ AP-42 _____ Test _____
Gen/Eng No. 1										Manufacturer __ AP-42 _____ Test _____
Gen/Eng No. 2										Manufacturer __ AP-42 _____ Test _____

Screens: Fill in the sum of the screen processing rates and the annual operating hours, then solve.	lb/hr	**PM(lb/hr) = 0.001764(lb/ton) × _____ (ton/hr)** (sum of screen process rates) .	AP42 - 11.19 1/1995
	ton/yr	**PM(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr)) (hours per year) .	
Conveyors (Transfer): Fill in the sum of the transfer conveyor processing rates and the annual operating hours, then solve.	lb/hr	**PM(lb/hr) = 0.0001(lb/ton) × _____ (ton/hr)** (sum of conveyor process rates) .	AP42 - 11.19 1/1995
	ton/yr	**PM(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr)) (hours per year) .	
Road Fill in sum of PTE (lb/hr) (from Table II-A), annual operating hours, and then solve.	lb/hr	**PM(lb/hr) = _____ (lb/hr)** (sum of PTE, from Table III-A) .	AP42 - 13.2.2 12/2003
	ton/yr	**[2]PM(ton/yr) = 0.0005(ton/lb) × _____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr)) (hours per year) .	
Aggregate Handling: fill in the plant capacity (ton/hr), annual operating hours, and then solve.	lb/hr	**[1]PM(lb/hr) = 0.01 (lb/ton) × _____ (ton/hr)** (process rate) .	AP42 - 13.2.4 1/1995
	ton/yr	**PM(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr) (hours per year)	

TOTALS: PM lbs/hr _____ PM tons/yr _____

[1]PM10 (lb/hr) = k x (0.0032) x (U/5)^1.3 / (M/2)^1.4 x (plant capacity), AP-42, 1/95, Section 13.2.4 where U = 15 mph and M = 2%.

Table II-E: Emissions to Atmosphere (After Control Measures) (Use additional sheets if necessary)			
	PM10 (lbs/hr) (tons/yr)	**Calculation**	**Estimation Method**
Screens: Fill in the sum of the screen processing rates and the annual operating hours, then solve.	lb/hr	**PM10(lb/hr) = 0.00084(lb/ton) × _____ (ton/hr)** (sum of screen process rates) .	AP42 - 11.19 1/1995
	ton/yr	**PM10(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr)) (hours per year) .	
Conveyors (Transfer): Fill in the sum of the transfer conveyor processing rates and the annual operating hours, then solve.	lb/hr	**PM10(lb/hr) = 0.000048(lb/ton) × _____(ton/hr)** (sum of conveyor process rates) .	AP42 - 11.19 1/1995
	ton/yr	**PM10(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr) (hours per year)	
Road Fill in sum of PTE (lb/hr) (from Table II-B), annual operating hours, and then solve.	lb/hr	**PM10(lb/hr) = _____ (lb/hr)** (sum of PTE, from Table III-B)	AP42 - 13.2.2 12/2003
	ton/yr	**PM10(ton/yr) = 0.0005(ton/lb) × _____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr) (hours per year) .	
Aggregate Handling: fill in the plant capacity (ton/hr), annual operating hours, and then solve.	lb/hr	**[1,2]PM10(lb/hr) = 0.01 (lb/ton) × _____ (ton/hr)** (process rate) .	AP42 - 13.2.4 1/1995
	ton/yr	**[2]PM10(ton/yr) = 0.0005(ton/lb) ×_____ (lb/hr) × _____ (hr/yr)** (PM(lb/hr) (hours per year)	
TOTALS: PM 10 lbs/hr ____ PM tons/yr _____			

[1]PM10 (lb/hr) = k x (0.0032) x (U/5)^1.3 / (M/2)^1.4 x (plant capacity), AP-42, 1/95, Section 13.2.4 where U = 15 mph and M = 2%.
[2]PM emission factor divided by 2.1

Table II-G(a): DIESEL Small (up to 600 hp)Generator/Engine Emissions to Atmosphere (Uncontrolled)		
Poll.	**Emissions**	**Calculation** (Emission Factors for Industrial Diesel Engines, AP-42, 10/96 Table 3.3-1 for engines up to 600 hp)
PM	lb/hr	**PM lb/hr = 0.005 x** _____ / sum of engine horsepower
	ton/yr	**PM tons/yr = lb/hr x** _____ **/ 2000** hours per year
PM10	lb/hr	**PM10 lb/hr = 0.002 x** _____ / sum of engine horsepower
	ton/yr	**PM10 tons/yr = lb/hr x** _____ **/ 2000** hours per year
NOx	lb/hr	**NOx lb/hr = 0.031 x** _____ / sum of engine horsepower
	ton/yr	**NOx tons/yr = lb/hr x** _____ **/ 2000** hours per year
CO	lb/hr	**CO lb/hr = 0.007 x** _____ / sum of engine horsepower
	ton/yr	**CO tons/yr = lb/hr x** _____ **/ 2000** hours per year
VOC	lb/hr	**VOC lb/hr = 0.002 x** _____ / sum of engine horsepower
	ton/yr	**VOC tons/yr = (lb/hr) = x** _____ **/ 2000** hours per year
SO2	lb/hr	**SO_2 lb/hr = 0.002 x** _____ / sum of engine horsepower
	ton/yr	**SO_2 tons/yr = (lb/hr) x** _____ **/ 2000** hours per year

Table II-G(b): DIESEL Large (>600 hp) Generator/Engine Emissions to Atmosphere (Uncontrolled)		
Poll.	**Emissions**	**Calculation** (Emission Factors for Industrial Diesel Engines, AP-42, 10/96 Table 3.4-1 for engines > 600 hp)
PM	lb/hr	**PM lb/hr = 0.001 x** _____ / sum of engine horsepower
	ton/yr	**PM tons/yr = lb/hr x** _____ **/ 2000** hours per year
PM10	lb/hr	**PM10 lb/hr = 0.001 x** _____ / sum of engine horsepower
	ton/yr	**PM10 tons/yr = lb/hr x** _____ **/ 2000** hours per year
NOx	lb/hr	**NOx lb/hr = 0.024 x** _____ / sum of engine horsepower
	ton/yr	**NOx tons/yr = lb/hr x** _____ **/ 2000** hours per year
CO	lb/hr	**CO lb/hr = 0.006 x** _____ / sum of engine horsepower
	ton/yr	**CO tons/yr = lb/hr x** _____ **/ 2000** hours per year
VOC	lb/hr	**VOC lb/hr = 0.001 x** _____ / sum of engine horsepower
	ton/yr	**VOC tons/yr = (lb/hr) = x** _____ **/ 2000** hours per year
SO2	lb/hr	**SO_2 lb/hr = 0.0004 x** _____ / sum of engine horsepower
	ton/yr	**SO_2 tons/yr = (lb/hr) = x** _____ **/ 2000** hours per year

Table II-G(c): GASOLINE Small (up to 600 hp)Generator/Engine Emissions to Atmosphere (Uncontrolled)		
Poll.	**Emissions**	**Calculation** (Emission Factors for Industrial Diesel Engines, AP-42, 10/96 Table 3.3-1 for engines up to 600 hp)
PM	lb/hr	**PM lb/hr = 0.002 x** _____ / sum of engine horsepower
	ton/yr	**PM tons/yr = lb/hr x** _____ **/ 2000** / hours per year
PM10	lb/hr	**PM10 lb/hr = 0.0007 x** _____ / sum of engine horsepower
	ton/yr	**PM10 tons/yr = lb/hr x** _____ **/ 2000** / hours per year
NOx	lb/hr	**NOx lb/hr = 0.011 x** _____ / sum of engine horsepower
	ton/yr	**NOx tons/yr = lb/hr x** _____ **/ 2000** / hours per year
CO	lb/hr	**CO lb/hr = 0.439 x** _____ / sum of engine horsepower
	ton/yr	**CO tons/yr = lb/hr x** _____ **/ 2000** / hours per year
VOC	lb/hr	**VOC lb/hr = 0.015 x** _____ / sum of engine horsepower
	ton/yr	**VOC tons/yr = (lb/hr) x** _____ **/ 2000** / hours per year
SO2	lb/hr	**SO_2 lb/hr = 0.0006 x** _____ / sum of engine horsepower
	ton/yr	**SO_2 tons/yr = (lb/hr) x** _____ **/ 2000** / hours per year

Table II-G(d): DUAL FUEL Large (>600 hp) Generator/Engine Emissions to Atmosphere (Uncontrolled)		
Poll.	**Emissions**	**Calculation** (Emission Factors for Industrial Diesel Engines, AP-42, 10/96 Table 3.4-1 for engines > 600 hp. Duel fuel assumes 95% natural gas and 5% diesel fuel).
PM	lb/hr	NO DATA
	ton/yr	NO DATA
PM10	lb/hr	NO DATA
	ton/yr	NO DATA
NOx	lb/hr	**NOx lb/hr = 0.018 x** _____ / sum of engine horsepower
	ton/yr	**NOx tons/yr = lb/hr x** _____ **/ 2,000** / hours per year
CO	lb/hr	**CO lb/hr = 0.008 x** _____ / sum of engine horsepower
	ton/yr	**CO tons/yr = lb/hr x** _____ **/ 2000** / hours per year
VOC	lb/hr	**VOC lb/hr = 0.001 x** _____ / sum of engine horsepower
	ton/yr	**VOC tons/yr = (lb/hr) x** _____ **/ 2000** / hours per year
SO2	lb/hr	**SO_2 lb/hr = 0.0002 x** _____ / sum of engine horsepower
	ton/yr	**SO_2 tons/yr = (lb/hr) x** _____ **/ 2000** / hours per year