



Year 2011
Air Quality Division

ANNUAL AIR EMISSIONS INVENTORY QUESTIONNAIRE

Asphalt Plant

The 2011 Asphalt Plant Annual Emissions Inventory Questionnaire includes 4 forms that are required to be completed and submitted to the Air Quality Division. Instructions for each form are included below. Upon completion, submit all forms along with the signature by the Responsible Official of the facility within 90 days of receipt of a letter from the Department to the address below.

FORM 1: Facility General Information

Complete all information as requested.

FORM 2: Equipment, Stack & Operating Location

Equipment Information: List all the on-site equipment along with the Authorization To Operate (ATO) number where available. Indicate, if not available.

Stack Information: Provide details of each stack.

Operating Location: List the different locations the portable equipment was moved, list the dates, the cities & counties, the latitude & longitude or address/driving direction for the portable equipment that was operated during the year 2011.

FORM 3A-E: Emissions Data - Point & Fugitive Emissions

Input all calculation results in the appropriate spaces provided in the form.

FORM 3A: If a drum mix process was operational, skip this section and complete Form 3B? Based on the type of fuel used, select the appropriate column and row to calculate the rotary drum dryer batch mix process. Depending on the control used in this process (Scrubber or Fabric Filter), input the total tonnage of asphalt produced. You will then multiply the emission factor (pounds/ton) by the total tonnage of asphalt produced and divide by 2000 to calculate PM & PM10. To calculate the VOC that are emitted from this process, you will need to input the total tonnage, depending whether crumb rubber was used or not. If only a portion of crumb rubber was used, input the amount in the appropriate row, and multiply by the emission factor, and divide by 2000. All remaining pollutants for this process will be calculated in the same manner.

FORM 3B: Based on the type of fuel used for the rotary drum dryer drum mix process, select the appropriate column and row to calculate the emissions. Depending on the control used in this process (Scrubber or Fabric Filter), input the total tonnage of asphalt produced. You will then multiply the emission factor (pounds/ton) by the total tonnage of asphalt produced and divide by 2000 to calculate PM & PM10. To calculate the VOC that are emitted from this process you will need to input the total tonnage depending, whether crumb rubber was used or not. If only a portion of crumb rubber was used, input the amount in the appropriate row, and multiply by the emission factor, and divide by 2000. All remaining pollutants for this process will be calculated in the same manner.

FORM 3C: Based on the type of fuel used, choose the appropriate table and input the actual gallons of fuel used for the asphalt cement storage heaters. Calculate the emissions by multiplying gallons used by emission factor and dividing by 2000.

FORM 3D: Based on the type of fuel used, choose the appropriate table, input the horsepower of the generator and the total hours operated during the calendar year 2011. To calculate the emissions, you take the horsepower and multiply by the hours operated, then multiply by the emission factor and divide by 2000. If you used commercial electricity to power your equipment covered under your permit, please check the box at the bottom of the page 10.

FORM 3E: Enter the total tonnage for HMA load-out and total silo filling from production operations. To calculate emissions take the total tonnage, multiply by the emission factor, and divide by 2000. Enter the number of emission points and total tonnage of materials processed through each point process. All calculations are calculated by taking total number of points, multiply by amount processed, multiply by emission factor, and divided by 2000. The miles travelled on the haul roads emission can be calculate by total miles driven, multiply by emission factor, and divide by 2000. The storage piles emission are calculated by the number of piles material that was stored, and processed multiplied by emission factor, and divide by 2000. If the number of hours stored is unknown, use 8760 hours to obtain a worst-case estimate. Input the screening operations, transfer points by entering the amount processed multiply by number of screening transfer points, multiply by emission factor, and divide by 2000.

FORM 4: Summary & Certification

A summarization of all the emissions by each pollutant will be listed within this form. All reports submitted to the Department should be certified true and accurate by the Responsible Official of the facility. This person is the owner or operator of the facility. **If there is a change of the Responsible Official of the facility, please notify the Department with an additional letter stating the change.**

If you have any question or have difficulty completing this form, please contact Darlene Celaya at (602) 771-7662. Remember to make photocopies of the completed questionnaire prior to mailing for your records/reference. Please mail the emission inventory questionnaire form to the following address:

**Arizona Department of Environmental Quality
Attention: Darlene Celaya, Emission Inventory Team
Air Quality Division, Compliance Section 3415A-3
1110 West Washington Street
Phoenix, AZ 85007**

SECTION I: Plant Identification & Mailing Information

Company Name: _____

Place Name: _____ Place ID #: _____

Mailing Address: _____ City: _____ State: _____

County: _____ Zip Code: _____

Phone: _____ Fax: _____

Permit # or LTF #: _____ General Permit: Yes No

SECTION II: Emissions Inventory Contact

Name: _____ Title: _____

Phone: _____ Fax: _____

E-mail Address: _____

SECTION III: Confidential Request

Pursuant to Arizona Revised Statutes §49-432 and §49-201, do you claim the Emissions Inventory data submittal confidential. Yes No

If yes include which portions of the inventory are confidential along with a brief explanation:

Equipment Information

Equipment Type	Equipment ID	ATO #	Max. Rated Capacity	Amount Processed	Hours Operated

Stack Information

	Stack #1	Stack #2	Stack #3
Process Type/Description			
Height (feet)			
Diameter (feet)			
Velocity (feet/second)			
Exhaust Gas Temperature (F)			
Flow Rate (actual cubic feet per minute)			

Operating Location

Date		City & County of Operation	Latitude	Longitude	Address or Driving Directions
From	To				

FORM 3A. ROTARY DRUM DRYER - BATCH MIX

YEAR 2011

If a Drum Mix process is employed, skip this section and complete Section B.

Based on the fuel type used and the control used, please input the actual tons of asphalt produced in the appropriate column and row.

If this processed included making Crumb Rubber / or Non-crumb rubber please input the actual tons of product produced in the appropriate column and row.

Conversion Factor: 1 ton = 2000 lbs

Controls/Process	Pollutant	Natural Gas fired			No. 2 Oil fired (Distillate Oil)		
		(3) Amount Processed tons/year	(4) Emission Factor pounds/ton	Emission = (3)x(4)/2000 tons/year	(6) Amount Processed tons/year	(7) Emission Factor pounds/ton	Emission = (6)x(7)/2000 tons/year
Venturi Scrubber	PM		0.14			0.14	
	PM10		0.09			0.09	
Fabric Filter	PM		0.042			0.042	
	PM10		0.027			0.027	
Crumb Rubber	VOC		0.188			0.217	
Non-crumb Rubber	VOC		0.0082			0.0082	
	SOx		0.0046			0.088	
	CO		0.4			0.4	
	NOx		0.025			0.12	
Hazard Air Pollutants	Acenaphthene		9.00E-07			9.00E-07	
	Acenaphylene		5.80E-07			5.80E-07	
	Acetaldehyde***		3.20E-04			3.20E-04	
	Anthracene		2.10E-07			2.10E-07	
	Arsenic**		4.60E-07			4.60E-07	
	Benzene***		2.80E-04			2.80E-04	
	Benzo(a)anthracene		4.60E-09			4.60E-09	
	Benzo(a)fluoranthene		9.40E-09			9.40E-09	
	Benzo(a)pyrene		3.10E-10			3.10E-10	
	Benzo(k)fluoranthene		1.30E-08			1.30E-08	
	Beryllium**		1.50E-07			1.50E-07	
	Cadmium**		6.10E-07			6.10E-07	
	Chromium**		5.70E-07			5.70E-07	
	Chrysene		3.80E-09			3.80E-09	
	Dibenz(a,h)anthracene		9.50E-11			9.50E-11	
	Dibenz(g,h,i)perylene		5.00E-10			5.00E-10	
	Ethylbenzene***		2.20E-03			2.20E-03	
	Fluoranthene		1.60E-07			1.60E-07	
	Fluorene		1.60E-06			1.60E-06	
	Formaldehyde***		7.40E-04			7.40E-04	
	Hexavalent Chromium**		4.80E-08			4.80E-08	
	Indeno(1,2,3-cd)pyrene		3.00E-10			3.00E-10	
	Lead**		8.90E-07			8.90E-07	
	2-Methylnaphthalene		7.50E-05			7.50E-05	
	Manganese**		6.90E-06			6.90E-06	
	Mercury**		4.10E-07			4.10E-07	
	Naphthalene		3.60E-05			3.60E-05	
	Nickel**		3.00E-06			3.00E-06	
	Phenanthrene		2.60E-06			2.60E-06	
	Pyrene		6.20E-08			6.20E-08	
	Quinone***		2.70E-04			2.70E-04	
	Selenium**		4.90E-07			4.90E-07	
Toluene***		1.00E-03			1.00E-03		
Xylene***		2.70E-03			2.70E-03		

FORM 3A. ROTARY DRUM DRYER - BATCH MIX

YEAR 2011

If a Drum Mix process is employed, skip this section and complete Section B.

Based on the fuel type used and the control used, please input the actual tons of asphalt produced in the appropriate column and row.

If this processed included Crumb Rubber / or Non-crumb rubber please input the actual tons of product produced in the appropriate column and row.

		No. 6/ Waste Oil fired		
Controls/Process	Pollutant	(6) Amount Processed tons/year	(7) Emission Factor pounds/ton	Emission = (6)x(7)/2000 tons/year
Venturi Scrubber	PM		0.14	
	PM10		0.09	
Fabric Filter	PM		0.042	
	PM10		0.027	
Crumb Rubber	VOC		0.217	
Non-crumb Rubber	VOC		0.0082	
	SOx		0.088	
	CO		0.4	
	NOx		0.12	
Hazard Air Pollutants	Acenaphthene		1.40E-06	
	Acenaphylene		2.20E-05	
	Acetaldehyde***		1.30E-03	
	Acrolein***		2.60E-05	
	Anthracene		3.10E-06	
	Arsenic**		4.60E-07	
	Benzene***		3.90E-04	
	Benzo(a)anthracene		2.10E-07	
	Benzo(a)fluoranthene		1.00E-07	
	Benzo(a)pyrene		9.80E-09	
	Benzo(e)pyrene		1.10E-07	
	Benzo(k)fluoranthene		4.10E-08	
	Beryllium**		1.50E-07	
	Cadmium**		6.10E-07	
	Chromium**		5.70E-07	
	Chrysene		1.80E-07	
	Dibenz(g,h,i)perylene		4.00E-08	
	Ethylbenzene***		2.40E-04	
	Fluoranthene		6.10E-07	
	Fluorene		1.10E-05	
	Formaldehyde***		3.10E-03	
	Hexane***		9.20E-04	
	Hexavalent Chromium**		4.80E-08	
	Indeno(1,2,3-cd)pyrene		7.00E-09	
	trimethylpentane)		4.00E-05	
	Lead**		1.00E-05	
	2-Methylnaphthalene		1.70E-04	
	Manganese**		6.90E-06	
	Mercury**		4.10E-07	
	Methyle Chloroform***		4.80E-05	
	Methyl Ethyl Ketone***		2.00E-05	
	Naphthalene		6.50E-04	
	Nickel**		3.00E-06	
	Perylene		8.80E-09	
	Phenanthrene		2.30E-05	
	Propionaldehyde***		1.30E-04	
	Pyrene		3.00E-06	
	Quinone***		1.60E-04	
	Selenium**		4.90E-07	
	Toluene***		2.90E-03	
Xylene***		2.00E-04		

FORM 3B. ROTARY DRUM DRYER - DRUM MIX PROCESS

YEAR 2011

Based on the fuel type used and the control used, please input the actual tons of asphalt produced in the appropriate column and row.

If this processed included making Crumb Rubber / or Non-crumb rubber please input the actual tons of product produced in the appropriate Conversion Factor: 1 ton = 2000 lbs

Controls/Process	Pollutant	Natural Gas fired			No. 2 Oil fired (Distillate Oil)		
		(3) Amount Processed tons/year	(4) Emission Factor pounds/ton	Emission = (3)x(4)/2000 tons/year	(6) Amount Processed tons/year	(7) Emission Factor pounds/ton	Emission = (6)x(7)/2000 tons/year
Venturi Scrubber	PM		0.045			0.045	
	PM10		0.031			0.031	
Fabric Filter	PM		0.033			0.033	
	PM10		0.023			0.023	
Crumb Rubber	VOC		0.221			0.24	
Non-crumb Rubber	VOC		0.032			0.032	
	SOx		0.0034			0.058	
	CO		0.13			0.13	
	NOx		0.026			0.055	
Hazard Air Pollutants	Acenaphthene		1.40E-06			1.40E-06	
	Acenaphylene		8.60E-06			2.20E-05	
	Anthracene		2.20E-07			3.10E-06	
	Antimony**		1.80E-07			1.80E-07	
	Arsenic**		5.60E-07			5.60E-07	
	Benzene		3.90E-04			3.90E-04	
	Benzo(a)anthracene		2.10E-07			2.10E-07	
	Benzo(a)pyrene		9.80E-09			9.80E-09	
	Benzo(b)fluoranthene		1.00E-07			1.00E-07	
	Benzo(e)pyrene		1.10E-07			1.10E-07	
	Benzo(k)fluoranthene		4.10E-08			4.10E-08	
	Cadmium**		4.10E-07			4.10E-07	
	Chromium**		5.50E-06			5.50E-06	
	Chrysene		1.80E-07			1.80E-07	
	Cobalt		2.60E-08			2.60E-08	
	Dibenz(g,h,i)perylene		4.00E-08			4.00E-08	
	Ethylbenzene		2.40E-04			2.40E-04	
	Fluoranthene		1.60E-07			6.10E-07	
	Fluorene		1.60E-06			1.10E-05	
	Formaldehyde		3.10E-03			3.10E-03	
	Hexavalent Chromium		4.50E-07			4.50E-07	
	Indeno(1,2,3-cd)pyrene		7.00E-09			7.00E-09	
	Lead		6.20E-07			1.50E-05	
	Manganese		7.70E-06			7.70E-06	
	Mercury		2.40E-07			2.60E-06	
	Methyl Chloroform		4.80E-05			4.80E-05	
	2-Methylnaphthalene		7.50E-05			1.70E-04	
	Naphthalene		9.00E-05			6.50E-04	
	Nickel		6.30E-05			6.30E-05	
	Perylene		ND	-		8.80E-09	
	Phenanthrene		2.60E-06			2.30E-05	
	Pyrene		6.20E-08			3.00E-06	
	Quinone		2.70E-04			ND	-
Selenium		3.50E-07			3.50E-07		
2,3,7,8-TCDD Equivalents		ND	-		3.06E-12		
Toluene		1.50E-04			2.90E-03		
Total Dioxins		ND	-		7.90E-11		
Total Furans		ND	-		4.00E-11		
Xylene		2.00E-04			2.00E-04		

FORM 3B. ROTARY DRUM DRYER - DRUM MIX PROCESS

YEAR 2011

Conversion Factor: 1 ton = 2000 lbs

Based on the fuel type used and the control used, please input the actual tons of asphalt produced in the appropriate column and row.

If this processed included Crumb Rubber / or Non-crumb rubber please input the actual tons of product produced in the appropriate column and row.

Controls/Process	Pollutant	No. 6/ Waste Oil fired		
		(6) Amount Processed tons/year	(7) Emission Factor pounds/ton	Emission = (6)x(7)/2000 tons/year
Venturi Scrubber	PM		0.045	
	PM10		0.031	
Fabric Filter	PM		0.033	
	PM10		0.023	
Crumb Rubber	VOC		0.24	
Non-crumb Rubber	VOC		0.032	
	SOx		0.058	
	CO		0.13	
	NOx		0.055	
Hazard Air Pollutants	Acenaphthene		1.40E-06	
	Acenaphylene		2.20E-05	
	Acetaldehyde		1.30E-03	
	Acrolein		2.60E-05	
	Anthracene		3.10E-06	
	Antimony**		1.80E-07	
	Arsenic**		5.60E-07	
	Benzene		3.90E-04	
	Benzo(a)anthracene		2.10E-07	
	Benzo(a)pyrene		9.80E-09	
	Benzo(b)fluoranthene		1.00E-07	
	Benzo(e)pyrene		1.10E-07	
	Benzo(k)fluoranthene		4.10E-08	
	Cadmium**		4.10E-07	
	Chromium**		5.50E-06	
	Chrysene		1.80E-07	
	Cobalt		2.60E-08	
	Dibenz(g,h,i)perylene		4.00E-08	
	Ethylbenzene		2.40E-04	
	Fluoranthene		6.10E-07	
	Fluorene		1.10E-05	
	Formaldehyde		3.10E-03	
	Hexavalent Chromium		4.50E-07	
	Indeno(1,2,3-cd)pyrene		7.00E-09	
	Lead		1.50E-05	
	Manganese		7.70E-06	
	Mercury		2.60E-06	
	Methyl Chloroform		4.80E-05	
	Methyl Ethyl Ketone		2.00E-05	
	2-Methylnaphthalene		1.70E-04	
	Naphthalene		6.50E-04	
	Nickel		6.30E-05	
	Perylene		8.80E-09	
	Phenanthrene		2.30E-05	
	Pyrene		3.00E-06	
	Quinone		1.60E-04	
	Selenium		3.50E-07	
	2,3,7,8-TCDD Equivalents		3.06E-12	
	Toluene		2.90E-03	
	Total Dioxins		7.90E-11	
Total Furans		4.00E-11		
Xylene		2.00E-04		

FORM 3C. EMISSIONS FROM ASPHALT CEMENT STORAGE TANK HEATERS

YEAR 2011

Based on the fuel type used, input the actual gallons of fuel used in the appropriate box.

Pollutants	Natural Gas fired		LPG fired		No. 2 Oil fired (Distillate Oil)		Residual Oil fired	
	(1) Fuel consumed: =	Emissions = (1)x(2)/2000 tons/year	(3) Fuel consumed: =	Emissions = (3)x(4)/2000 tons/year	(5) Fuel consumed: =	Emissions = (5)x(6)/2000 tons/year	(7) Fuel consumed: =	(7)x(8)/2000 tons/year
	(2) Emission Factor pounds/gallon		(4) Emission Factor pounds/gallon		(6) Emission Factor pounds/gallon		(8) Emission Factor pounds/gallon	
PM	0.0001		0.0005		0.0011		0.0139	
PM10	0.0001		0.0005		0.0011		0.0139	
NOx	0.0007		0.0145		0.0200		0.0550	
SOx	4.49E-06		2.60E-06		0.0046		0.1570	
VOC	4.11E-05		6.00E-04		0.0006		0.0016	
CO	0.0006		0.0020		0.0050		0.0050	
Acenaphthene	1.35E-11		ND	-	5.30E-07		2.11E-08	
Acenaphthylene	1.35E-11		ND	-	2.00E-07		2.53E-10	
Anthracene	1.80E-11		ND	-	1.80E-07		1.22E-09	
Benz(a)anthracene	1.35E-11		ND	-	ND	-	4.01E-09	
Benzene	1.57E-08		ND	-	ND	-	2.14E-07	
Benzo(b)fluoranthene	1.35E-11		ND	-	1.00E-07		1.48E-09	
Benzo(g,h,i)perylene	8.98E-12		ND	-	ND	-	2.26E-09	
Benzo(k)fluoranthene	1.35E-11		ND	-	ND	-	1.48E-09	
Chrysene	1.35E-11		ND	-	ND	-	2.38E-09	
Dibenzo(a,h)anthracene	8.98E-12		ND	-	ND	-	1.67E-09	
Dichlorobenzene	8.98E-09		ND	-	ND	-	ND	-
Ethylbenzene	ND	-	ND	-	ND	-	6.36E-08	
Fluoranthene	2.24E-11		ND	-	4.40E-08		4.84E-09	
Fluorene	2.09E-11		ND	-	3.20E-08		4.47E-09	
Formaldehyde	5.61E-07		ND	-	2.70E-02		6.10E-05	
Hexane	1.35E-05		ND	-	ND	-	ND	-
Indeno(1,2,3-cd)Pyrene	1.35E-11		ND	-	ND	-	2.14E-09	
Naphthalene	4.56E-09		ND	-	1.70E-05		1.13E-06	
2-Methylnaphthalene	1.80E-10		ND	-	ND	-	ND	-
3-Methylchloranthrene	1.35E-11		ND	-	ND	-	ND	-
Phenanthrene	1.27E-10		ND	-	4.90E-06		1.05E-08	
Pyrene	3.74E-11		ND	-	3.20E-08		4.25E-09	
Toluene	2.54E-08		ND	-	ND	-	6.20E-06	
Antimony	ND	-	ND	-	ND	-	5.25E-06	
Arsenic	1.50E-09		ND	-	5.48E-07		1.32E-06	
Beryllium	8.98E-11		ND	-	4.11E-07		2.78E-08	
Cadmium	8.23E-09		ND	-	4.11E-07		9.80E-07	
Chromium	1.05E-08		ND	-	4.11E-07		8.45E-07	
Chromium VI	ND	-	ND	-	ND	-	2.48E-07	
Cobalt	6.28E-10		ND	-	ND	-	6.02E-06	
Maganese	2.84E-08		ND	-	8.22E-07		3.00E-06	
Mercury	1.94E-09		ND	-	4.11E-07		1.13E-07	
Nickel	1.57E-08		ND	-	4.11E-07		8.45E-05	
Phosphorous	ND	-	ND	-	ND	-	9.46E-06	
Selenium	1.80E-10		ND	-	2.06E-06		6.83E-07	

FORM 3D: EMISSIONS FROM PROCESS SUPPORT GENERATORS

YEAR 2011

Pollutants	FUEL - DIESEL - LESS THAN OR EQUAL TO 600 HP				FUEL - DIESEL - GREATER THAN 600 HP			
	Generator #1		Generator #2		Generator #1		Generator #2	
	Max. Capacity (HP) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP) (4)	(hours/year) (5)	(1)	(hours/year) (2)	(4)	(hours/year) (5)
	Emission Factor (3) pounds/hp-hour	(1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	(4)x(5)x(6)/2000 tons/year	Emission Factor (3) pounds/hp-hour	(1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	(4)x(5)x(6)/2000 tons/year
PM	0.0022		0.0022		0.0007		0.0007	
PM10	0.0022		0.0022		0.0006		0.0006	
NOx	0.0310		0.0310		0.0240		0.0240	
SOx	0.0021		0.0021		0.0073		0.0073	
VOC	0.0025		0.0025		0.0007		0.0007	
CO	0.0067		0.0067		0.0055		0.0055	
Acenaphthene	9.94E-09		9.94E-09		3.28E-08		3.28E-08	
Acenaphthylene	3.54E-08		3.54E-08		6.46E-08		6.46E-08	
Acetaldehyde	5.37E-06		5.37E-06		1.76E-07		1.76E-07	
Acrolein	6.48E-07		6.48E-07		5.52E-08		5.52E-08	
Anthracene	1.31E-08		1.31E-08		8.61E-09		8.61E-09	
Benzene	6.53E-06		6.53E-06		5.43E-06		5.43E-06	
Benzo(a)anthracene	1.18E-08		1.18E-08		4.35E-09		4.35E-09	
Benzo(a)pyrene	1.32E-09		1.32E-09		1.80E-09		1.80E-09	
Benzo(b)fluoranthene	6.94E-10		6.94E-10		7.77E-09		7.77E-09	
Benzo(g,h,i)perylene	3.42E-09		3.42E-09		3.89E-09		3.89E-09	
Benzo(k)fluoranthene	1.09E-09		1.09E-09		1.53E-09		1.53E-09	
1,3-Butadiene	2.74E-07		2.74E-07		-	-	-	-
Chrysene	2.47E-09		2.47E-09		1.07E-08		1.07E-08	
Dibenz(a,h)anthracene	4.08E-09		4.08E-09		2.42E-09		2.42E-09	
Fluoranthene	5.33E-08		5.33E-08		2.82E-08		2.82E-08	
Fluorene	2.04E-07		2.04E-07		8.96E-08		8.96E-08	
Formaldehyde	8.26E-06		8.26E-06		5.52E-07		5.52E-07	
Indeno(1,2,3-cd)pyrene	2.63E-09		2.63E-09		2.90E-09		2.90E-09	
Naphthalene	5.94E-07		5.94E-07		9.10E-07		9.10E-07	
Phenanthrene	2.06E-07		2.06E-07		2.86E-07		2.86E-07	
Propylene	1.81E-05		1.81E-05		1.95E-05		1.95E-05	
Pyrene	3.35E-08		3.35E-08		2.60E-08		2.60E-08	
Toluene	2.86E-06		2.86E-06		1.97E-06		1.97E-06	
Xylene	2.00E-06		2.00E-06		1.35E-06		1.35E-06	

Check Box, if you used commercial electricity to power your permitted equipment.

FORM 3D: EMISSIONS FROM PROCESS SUPPORT GENERATORS

YEAR 2011

Pollutants	FUEL - GASOLINE				FUEL - NATURAL GAS OR LIQUIFIED PETROLEUM GAS			
	Generator #1		Generator #2		Generator #1		Generator #2	
	Max. Capacity (HP) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP) (4)	(hours/year) (5)	(1)	(hours/year) (2)	(4)	(hours/year) (5)
	Emission Factor (3) pounds/hp-hour	(1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	(4)x(5)x(6)/2000 tons/year	Emission Factor (3) pounds/hp-hour	(1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	(4)x(5)x(6)/2000 tons/year
PM	0.0007		0.0007		0.0001		0.0001	
PM10	0.0007		0.0007		0.0001		0.0001	
NOx	0.0110		0.0110		0.0206		0.0206	
SOx	0.0060		0.0060		4.35E-06		4.35E-06	
VOC	0.0220		0.0220		0.0008		0.0008	
CO	0.4390		0.4390		0.0029		0.0029	
1,3-Butadiene	-	-	-	-	1.69E-06		1.69E-06	
Acetaldehyde	-	-	-	-	7.10E-06		7.10E-06	
Acrolein	-	-	-	-	6.70E-06		6.70E-06	
Benzene	-	-	-	-	4.02E-06		4.02E-06	
Butyr/isobutyraldehyde	-	-	-	-	1.24E-07		1.24E-07	
Carbon Tetrachloride	-	-	-	-	4.51E-08		4.51E-08	
Chlorobenzene	-	-	-	-	3.28E-08		3.28E-08	
Chloroform	-	-	-	-	3.49E-08		3.49E-08	
1,1-Dichloroethane	-	-	-	-	2.88E-08		2.88E-08	
1,2-Dichloroethane	-	-	-	-	2.88E-08		2.88E-08	
1,2-Dichloropropane	-	-	-	-	3.31E-09		3.31E-09	
1,3-Dichloropropene	-	-	-	-	3.23E-08		3.23E-08	
Ethane	-	-	-	-	1.79E-04		1.79E-04	
Ethylbenzene	-	-	-	-	6.31E-08		6.31E-08	
Ethylene Dibromide	-	-	-	-	5.42E-08		5.42E-08	
Formaldehyde	-	-	-	-	5.22E-05		5.22E-05	
Methane	-	-	-	-	5.86E-04		5.86E-04	
Methanol	-	-	-	-	7.79E-06		7.79E-06	
Methylene Chloride	-	-	-	-	1.05E-07		1.05E-07	
Naphthalene	-	-	-	-	2.47E-07		2.47E-07	
Styrene	-	-	-	-	3.03E-08		3.03E-08	
1,1,2,2-Tetrachloroethane	-	-	-	-	6.44E-08		6.44E-08	
1,1,2-Trichloroethane	-	-	-	-	3.90E-08		3.90E-08	
Toluene	-	-	-	-	1.42E-06		1.42E-06	
Vinyl Chloride	-	-	-	-	1.83E-08		1.83E-08	
Xylene	-	-	-	-	4.96E-07		4.96E-07	

FORM 3E. FUGITIVE EMISSIONS

YEAR 2011

Input the actual tonnage for both processes in the appropriate box.

Pollutants	Plant load-out		Silo Filing	
	(3) Amount Processed: =		(3) Amount Processed: =	
	(4) Emission Factor pounds/ton	Emissions = (3)x(4)/2000 tons/year	(5) Emission Factor pounds/ton	Emissions = (3)x(5)/2000 tons/year
PM 10	0.00052		0.00059	
PM	0.00052		0.00059	
VOC	0.0039		0.0122	
CO	0.00135		0.0011	
Acenaphthene	8.86E-07		1.19E-06	
Acenaphthylene	9.55E-08		3.55E-08	
Anthracene	2.39E-07		3.30E-07	
Benz(a)anthracene	6.48E-08		1.42E-07	
Benzo(a)pyrene	7.84E-09		2.41E-08	
Benzo(e)pyrene	2.66E-08		2.41E-08	
Benzo(b)fluoranthene	2.59E-08		-	-
Benzo(g,h,i)perylene	6.48E-09		-	-
Benzo(k)fluoranthene	7.50E-09		2.56E-06	
Chrysene	3.51E-07		5.33E-07	
Dibenzo(a,h)anthracene	1.26E-09		-	-
Fluoranthene	1.70E-07		3.81E-07	
Fluorene	2.63E-06		1.34E-05	
Indeno(1,2,3-cd)pyrene	1.60E-09		-	-
2-Methylnaphthalene	8.11E-06		4.62E-06	
Methylene Chloride	-	-	3.29E-08	
Naphthalene	4.26E-06		7.62E-08	
Perylene	7.50E-08		6.95E-06	
Phenanthrene	2.76E-06		4.57E-06	
Propylene	5.11E-07		6.60E-07	
Pyrene	2.59E-08		1.12E-06	
Phenol	4.02E-06		-	-
Benzene	2.16E-06		3.90E-06	
Bromomethane	3.99E-07		5.97E-07	
2-Butanone	2.04E-06		4.75E-06	
Carbon Disulfide	5.41E-07		1.95E-06	
Chloroethane	8.73E-09		4.87E-07	
Chloromethane	6.24E-07		2.80E-06	
Cumene	4.57E-06		-	-
Ethylbenzene	1.16E-05		4.63E-06	
Formaldehyde	3.66E-06		8.41E-05	
n-Hexane	6.24E-06		1.22E-05	
Isooctane	7.49E-08		3.78E-08	
Styrene	3.04E-07		6.58E-07	
Tetrachloroethene	3.20E-07		-	-
Toluene	8.73E-06		7.56E-06	
Trichlorofluoromethane	5.41E-08		-	-
m/p-Xylene	1.71E-05		2.44E-05	
o-Xylene	3.33E-06		-	-

FORM 3E. FUGITIVE EMISSIONS

YEAR 2011

Input the number of emission points and the actual tons of material processed through each point in the appropriate column & row.

SOURCE	Pollutants	(1) No. of Emission Points quantity	(2) Amount Processed tons/year	(3) Emission Factor lb/ton of asphalt	Emissions = (1)x(2)x(3)/2000 tons/yr
Continuous and Batch Drop Operations	PM			0.00064	
	PM10			0.00033	
hopper, elevated bins & weigh hoppers	PM			0.00064	
	PM10			0.00033	
Cement transfer to silos	PM			0.00001	
	PM10			0.0000034	
Cement transfer to weigh hoppers	PM			0.00015	
	PM10			0.000073	

SOURCE	Pollutants	(1) No. of Transfer/Screening Point quantity	(2) Amount Processed tons/year	(3) Emission Factor lb/ton of asphalt /point	Emissions = (1)x(2)x(3)/ 2000 tons/year
Conveyor transfer points	PM			0.0001	
	PM10			0.000042	
Screening operations	PM			0.002	
	PM10			0.0007	

Input the number of storage pile and hours stored in the appropriate column & row.

SOURCE	Pollutants	(1) No. of Piles quantity	(2) Hours Stored hours/year	(3) Emission Factor pounds/hour/pile	(1)x(2)x(3)/2000 tons/year
Wind erosion from aggregate storage piles	PM			0.0001	
	PM10			0.00005	
Wind erosion from sand storage piles	PM			0.0012	
	PM10			0.0006	

Input the actual vehicle miles travelled in the appropriate column & row.

Conversion Factor - 1 foot = 0.0001894 mile

SOURCE	Pollutants	(1) Vehicles Miles Traveled/ Year VMT/year	(2) Emission Factor pounds/VMT	Emissions = (1)x(2)/2000 tons/year
Vehicle traffic (front end loaders, unpaved roads)	PM		0.73	
	PM10		0.19	
Fugitive Emissions - Haul Roads	PM		0.6555	
	PM10		0.1671	

All the emissions for each pollutant are totalled and entered in the table below.

Pollutant	Tonnage (tons per year)
Particulate Matter (PM)	
Particulate Matter Less Than 10 Microns (PM10)	
Nitrogen Oxides (NOx)	
Sulfur Oxides (SOx)	
Volatile Organic Compounds (VOC)	
Carbon Monoxide (CO)	
Hazard Air Pollutants (HAPs) - Organics & Metals	

Certification of Truth & Accuracy

I certify that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

All information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record.

Signature of Responsible Official:

Date:

Print Name:

Title:
