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Approval expires 4/30/2017

United States Environmental Protection Agency
General Air Quality Permit for New or Modified Minor Sources of Air Pollution in Indian Country

http://www.epa.gov/air/tribal/tribalnsr.html

Request for Coverage under the General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants in Indian Country

Last Modified: March 23, 2015
Version 1.0

Prior to construction or modification, complete this application and submit it to your reviewing authority. A list of reviewing authorities, their area of coverage, and contact information can be found in Attachment D to the General Air Quality Permit for Minor Source Hot Mix Asphalt Facilities or visit: http://www.epa.gov/air/tribal/tribalnsr.html.

For assistance with this application please contact your reviewing authority.

For instructions on completing this application please see the document "Instructions for Requesting Coverage under the General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants In Indian Country."

Section 1: Contact Information

1. Business Name: GRANITE CONSTRUCTION INC.	2. Date: 7/11/2016
3. Site Address: 2149-B RODEO TRAIL DRIVE	4. County: OKANOGAN
5. Name of Operator at Site (if different from owner): GRANITE CONSTRUCTION INC.	6. Phone of Operator or Contact at Site (if different from owner): 509 930 4863
7. Owner: GRANITE CONSTRUCTION INC.	8. Telephone Number of Owner: 509 930 4863
9. Owner's Mailing Address: 80 POND ROAD YAKIMA, WA 98901	10. Send all correspondence regarding this application to: Company Name: GRANITE CONSTRUCTION INC. c/o: KEVEN SAMUELSON Address: 80 POND ROAD YAKIMA, WA 98901
11. Authorized contact regarding this permit application: Name: KEVEN SAMUELSON Title: ENVIRONMENTAL COORDINATOR Phone: 509 930 4863	Email: Keven.Samuelson@gcinc.com FAX:

Section 2: Facility Information for Requesting Coverage under the General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants

12. Please list all of the site locations for which you want approval to locate your hot mix asphalt plant. Include the site name (if any), street address, city, state, and name of the Indian Reservation. If needed, use additional paper. You may seek approval for additional locations in the future.

Site Name	Street Address	City/Town	Area of Indian Country
RODEO TRAIL	249-B RODEO TRAIL, OKANOGAN, WA	OKANOGAN	COLVILLE

13. This application is for (check all that apply):

☐ Construction/Relocation of a new hot mix asphalt facillty in Indian country – no current general permit (please describe the proposed new source or location).

_____

_____

☐ Add a new location for your hot mix asphalt facility already covered by the General Permit (please describe the proposed new location).

_____

_____

☐ Modification of an existing hot mix asphalt facility. Please describe the modification below. The definition of "modification" can be found at 40 CFR 49.152(d), and in the "Instructions" document.

_____

_____

☑ A hot mix asphalt operation co-located with a stone quarrying, crushing, and screening operation and seeking to limit combined emissions to less than 100 tpy for NSR-regulated pollutants. You must comply with Conditions 17. and 20.b. in the General Permit. This option is not available in serious, severe and extreme ozone nonattainment areas and serious CO nonattainment areas (please describe the proposed source).

_____

_____

14. North American Industry Classification System/Standard Industrial Classification Code and/or description of the facility: 324121

15. Type of Asphalt Plant: (check all that apply):

☑ Stationary ☐ Portable ☐ Batch Mix ☑ Parallel Flow Drum Mix ☐ Counterflow Drum Mix

16. Will your new or modified facility be located in an ozone nonattainment area? Information on the ozone attainment status of the area where your facility is/will be located can be found at: http://www.epa.gov/airquality/greenbook/

☐ Yes ☑ No

If you answered **'Yes,'** specify the classification of the ozone nonattainment area:

☐ Marginal ☐ Moderate ☐ Serious ☐ Severe ☐ Extreme

Note: If your facility will be located in severe or extreme ozone nonattainment area, it does not qualify for this General Permit and you must obtain a site-specific permit from the reviewing authority.

17. Will your new or modified facility be located in a particulate matter (PM_{10}) nonattainment area? Information on the attainment status of the area where your facility is or will be located can be found at: http://www.epa.gov/airquality/greenbook/.

☐ Yes ☑ No

If you answered **'Yes,'** specify the classification of the PM_{10} nonattainment area:

☐ Moderate ☐ Serious

18. Will your new or modified facility be located in a particulate matter ($PM_{2.5}$) nonattainment area? Information on the attainment status of the area where your facility is or will be located can be found at: http://www.epa.gov/airquality/greenbook/.

☐ Yes ☑ No

19. Will your new or modified facility be located in a carbon monoxide (CO) nonattainment area? Information on the attainment status of the area where your facility is or will be located can be found at: http://www.epa.gov/airquality/greenbook/.

☐ Yes ☑ No

If you answered **'Yes,'** specify the classification of the CO nonattainment area:

☐ Moderate ☐ Serious

20. Will the PTE of your new facility, or the increase in potential emissions from your modified existing facility, be equal to or above the applicable minor NSR thresholds listed below for ANY of the listed pollutants, both in tpy? Emissions from your facility may be calculated using the calculator available online at: http://www.epa.gov/air/tribal/tribalnsr.html. Be sure to include all new or modified emission units at your facility.

Pollutant	Attainment Area	Nonattainment Area
CO	10 tpy	5 tpy
Particulate Matter (PM)	10 tpy	5 tpy
Particulate Matter (PM_{10})	5 tpy	1 tpy
Particulate Matter ($PM_{2.5}$)	3 tpy	0.6 tpy
Sulfur Dioxide (SO_2)	10 tpy	5 tpy
Nitrogen Oxides (NO_x)	10 tpy	5 tpy
Volatile Organic Compounds (VOC)	5 tpy	2 tpy

☑ Yes ☐ No

If you answered **'No,'** your source is likely exempt from the minor NSR program. Please contact your reviewing authority to confirm that your facility will not need a permit. If you answered **'Yes,'** continue on to the next question.

21. If located in an attainment, attainment/unclassifiable or unclassifiable area, will the PTE of your facility be less than 250 tpy for PM, PM_{10}, $PM_{2.5}$, VOC, NO_x, CO, and SO_2, each individually? Be sure to include all existing, new, and modified emission units at the facility.

☑ Yes ☐ No

If you answered **'No,'** your source does not qualify for the General Permit. Please contact your reviewing authority to apply for a site-specific permit. If you answered **'Yes,'** continue on to the next question.

22. If located in a nonattainment area, will the PTE of your facility for the particular nonattainment pollutant be less than the NSR major source thresholds below for ALL pollutants? Be sure to include all existing, new, and modified emission units at the facility.

Pollutant	Nonattainment Classification	NSR Major Source Threshold
Ozone	Marginal	100 tpy of VOC or NO_x
	Moderate	100 tpy of VOC or NO_x
	Serious	50 tpy of VOC or NO_x
	Severe	25 tpy of VOC or NO_x

Pollutant	Nonattainment Classification	NSR Major Source Threshold
	Extreme	10 tpy of VOC or NO_x
PM_{10}	Moderate	100 tpy
	Serious	70 tpy
CO	Moderate	100 tpy
	Serious	50 tpy
SO_2, NO_2, $PM_{2.5}$	No nonattainment classification	100 tpy

☐ Yes ☐ No ☑ N/A - Not located in any nonattainment area

If you answered **'No,'** your source does not qualify for the General Permit. Please contact reviewing authority to apply for a site-specific permit. If you answered **'Yes' or 'N/A,'** continue on to the next question.

23. Projected asphalt production rate after construction/modification/relocation:
Tons/month: 10,000

24. Does or will this facility perform contaminated soil remediation?

☐ Yes ☑ No

If you answered **'Yes'** to this question, your facility does not qualify for a general permit and you must obtain a site-specific permit from your reviewing authority.

Section 3: Technical Information for Requesting Coverage under the General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants

Information regarding the emission units at your facility is required by 40 CFR 49.154 and 40.160. Please provide the information below for all equipment at your facility. For each emissions unit, include supporting documentation for the PTE of the unit with your Request for Coverage. In addition, for existing emissions units, include the most recent actual annual emissions. See 40 CFR 49.154(a)(2). (For more information on how to calculate actual emissions, you may go to: http://www.epa.gov/air/tribal/tribalnsrcalculators.html.) As needed, please include other relevant information with your notification (including any equipment not identified below).

Dryer

25. Dryer ID: 91-124

26. Construction/Modification Date of the Dryer (mm/dd/yyyy; actual or anticipated): EXISTING (PRIOR TO 1996)

27. Dryer Burner Capacity (MMBtu/hour): 75.6 MMBTU

28. Fuel(s) Used in the Dryer:

☐ Natural Gas ☑ Propane ☐ Distillate Fuel ☐ Biodiesel

29. Is the dryer/mixer controlled by a baghouse (fabric filter) or venturi scrubber?

☑ Yes ☐ No

If you answered No to this question, your facility does not qualify for a general permit and you must obtain a site-specific permit from reviewing authority.

30. **Internal Combustion Engines** (including emergency generators)

Unit ID #	Unit Description	Maximum Rated Capacity (HP)	Types of Fuel(s) Used[1]	Manufactured Date (mm/dd/yyyy)	Model Year
N/A					

31. **Auxiliary Heaters**

Unit ID #	Unit Description	Maximum Heat Input Capacity (MMBtu/hour)	Types of Fuel(s) Used[2]	Construction Date (mm/dd/yyyy)
86-807	TANK HEATERS ARE ELECTRIC			
86-808	" ↓ "			
Total Heat Input Capacity:[3]				

[1] Only diesel fuel or biodiesel are allowed in this General Permit.
[2] Only natural gas, propane, distillate fuel and biodiesel are allowed in this General Permit.
[3] In order to qualify for this General Permit, the total heat input capacity of the auxiliary heaters cannot exceed 10 MMBtu/hour.

32. **Material Handling, Transferring, Loading, and Storage Equipment**

Unit ID #	Unit Description	Maximum Capacity (ton/hour)	Construction Date (mm/dd/yyyy)	Type of Control (if any)
83-398	VIRGIN COLLECTOR	200	PRE 1996	UNCONTROLLED
80-1980	VIRGIN BELT SCALE	200	" "	" "
86-746	VIRGIN SLINGER	200		
80-1963	RAP CONVEYOR	100		
83-390	RAP CONVEYOR	100		
80-1963	RAP SCREEN	100		
83-398	COLD FEEDER 1	50		
83-398	COLD FEEDER 2	50		
83-398	COLD FEEDER 3	50		
83-390	1 BIN RAP FEEDER	40		
966-CAT	FRONT END LOADER	200		
91-126	SILO 1	100		
91-128	SILO 2	100		

33. **Volatile Liquid Storage Tanks**

This section applies to storage tanks used to store liquid materials. Please provide the following information for each storage tank.

Unit ID#	Type of Liquid	Capacity (gallons)	Vapor pressure of liquid (psi)	Is the tank above or underground?	Date of installation (if existing)
86-807	ASPHALT	20,000	0.026	ABOVE	PRE 1996
86-808	ASPHALT	10,000	0.026		
03-1864	PROPANE	20,000	0.022		
05-509	DIESEL	10,000	0.022		

Section 4: Information on Completing Screening Processes that Have to Be Satisfied to Request Coverage under the General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants

34. **Threatened or Endangered Species**

Have you demonstrated that you meet one of the criteria listed in Appendix A with respect to the protection of any and all species that are federally listed as threatened or endangered under the ESA or of habitat that is federally designated as "critical habitat" under the ESA? If you answered **'No,'** you cannot request coverage under this permit.

☑ Yes ☐ No

If you answered **'Yes,'** then you need to provide the appropriate documentation to the EPA to qualify for coverage under this permit. Please indicate under which criterion in Appendix A you are satisfying this requirement:

☐ A ☑ B ☐ C ☐ D ☐ E

35. **Historic Properties**

Have you completed the screening process in Appendix B to determine if the construction, modification or operation of your new or modified minor source of air pollutants has the potential to cause effects to historic properties (pursuant to the NHPA)? If you answered **'No,'** you cannot request coverage under this permit.

☑ Yes ☐ No

If you answered **'Yes,'** then provide the appropriate documentation to the EPA to qualify for coverage under this permit.

Section 5: Additional Information about this General Air Quality Permit for New or Modified Minor Source Hot Mix Asphalt Plants

This section provides information on the sizes of sources in terms of emissions that are eligible for the General Permit. The emission limitations and standards in this permit are expected to ensure that source-wide emissions are below the rates shown in the following table:

Pollutant of Concern	Attainment, Unclassifiable or Attainment/Unclassifiable Areas	Nonattainment Areas
CO	80 tpy	80 tpy (moderate areas)
		40 tpy (serious areas)
PM_{10}	26 tpy	26 tpy (moderate areas)
		26 tpy (serious areas)
$PM_{2.5}$	14 tpy	14 tpy

Pollutant of Concern	Attainment, Unclassifiable or Attainment/Unclassifiable Areas	Nonattainment Areas
SO_2	18 tpy	18 tpy
NO_X	71 tpy	71 tpy (marginal and moderate ozone areas) 45 tpy (serious ozone areas)
VOC	28 tpy	28 tpy (marginal and moderate ozone areas) 18 tpy (serious ozone areas)

For a hot mix asphalt operation co-located with a stone quarrying, crushing, and screening operation, the emission limitations and standards in Conditions 17. and 20.b of the General Permit are expected to ensure the source-wide emissions are below the rates shown in the following table:

Pollutant of Concern	Attainment, Unclassifiable or Attainment/Unclassifiable Areas	Nonattainment Areas
CO	78 tpy	78 tpy (moderate areas)
		Not applicable (serious areas)
PM	86 tpy	Not applicable
PM_{10}	63 tpy	63 tpy (moderate areas)
		63 tpy (serious areas)
$PM_{2.5}$	30 tpy	30 tpy
SO_2	18 tpy	18 tpy
NO_X	90 tpy	Not applicable (serious and above ozone areas)
		90 tpy (marginal and moderate ozone areas)
VOC	27 tpy	Not applicable (serious and above ozone areas)
		27 tpy (marginal and moderate ozone areas)

You should contact your reviewing authority if you intend to rely on the emission limitations and standards in this General Permit to prevent having to obtain a Title V permit.

Applicant's Statement (to be signed by the applicant)
I certify that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Name: _____ Name: KEVEN K SAMUELSON Date: 8/8/16
(Signature) (Print or Type)

Title: ENVIRONMENTAL COORDINATOR

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

This spreadsheet helps estimate a facility's potential to emit. It is provided for the convenience of the permitted community. EPA does not guarantee the accuracy or appropriateness of this information. Emission factor sources are subject to revision or correction. It is the permittee's responsibility to verify the accuracy of the information. EPA is not liable for errors or omissions.

Directions - Enter the facility's information below.
Write the letter "Y" or "N" next to each fuel type to indicate that the facility does or does not burn that type of fuel.

The potential emissions of criteria pollutants for the facility will be displayed under the "Output - Criteria" tab.

This PTE calculator is only applicable to the asphalt plants subject to NSPS, Subpart I (i.e. all PM emission units are controlled) and only applicable to the asphalt plants with the dryers controlled by dry filters. The emission factors for the dryers controlled by scrubbers are not included in this spreadsheet since the use of scrubbers to control asphalt plants are rare.

If you are NOT subject to NSPS, Subpart I, the PM/PM10/PM2.5 emission factors in this spreadsheet need to be revised to be based on the uncontrolled emission factors.

Equipment ID	**Facility Profile**				
	Type of Plant-		Drum		Select "Drum" or "Batch" from the drop-down menu.
	Plant Capacity-	200.00	(tons/hr)	146000	
	Burner Size-	75.6	(MMBtu/hr)		
	Fuels Used in Dryer				
	Propane	Y	(Y or N)		
	Liquid Fuel (distillate, diesel, etc.)	n	(Y or N)		
	Max Lime Usage-	0%	(weight %)	Default = 1%	
	Max Hourly Lime Loading-	0	(ton)	Default = 25	
	Bin Vent Efficiency-	10000%	(%)	Default = 98%	
	Aggregate				
	Max. RAP Used-	50%	(%)	Default = 50%	RAP = Reclaimed Asphalt Pavement
83-398, 80-1980, 86-746, 83-398	# of Virgin Agg. Conveyors-	6	(#)		
	# of Virgin Agg. Screens-	0	(#)		
80-1963, 83-390	# of RAP Conveyors-	2	(#)		
80-1963	# of RAP Screens-	1	(#)		
	Aggregate Moisture-	1.8	(%)	Default = 1.8%	
	Auxiliary Heaters Capacity -	200	(MMBtu/hr)	Total	
86.807, 86.808	Fuels Used: Electric				
	Natural Gas-	n	(Y or N)		
	Propane-	n	(Y or N)	Sulfur %	
	Liquid Fuel (distillate, diesel, etc.)	n	(Y or N)	Default = 0.0015	
	Generator/Engine Size-	N/A	(hp)		Note: Engines that are considered portable nonroad engines do not need to be included (see 40 CFR 1068.30)
	Fuels Used			Sulfur %	
	Diesel-	N/A	(Y or N)	Default = 0.0015	
	Other Parameters				
	Asphalt Properties				
	Temperature-	325	(F)	Default = 325	
	Volatility-	-0.5	(unitless)	Default = -0.5	
	Weather				
	Mean Wind Speed-	15	(MPH)	Worse Case = 15	

DO NOT TOUCH

#REF! Hours/yr

Drum
Batch

Types

1 Drop-Down Output Control Type

Scrubber
Fabric Filter

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Type of Mixer: Drum Mix

PTE (ton/yr)

Process	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC
Dryer/Mixer	28.9	20.1	2.54	9.64	33.3	113.9	28.0
Load-out/Silo Filling	0.97	0.97	0.97	-	-	2.15	14.10
Conveying	21.02	7.71	7.71	-	-	-	-
Screening	0.96	0.32	0.02	-	-	-	-
Storage Piles	5.01	2.37	0.36	-	-	-	-
Lime Silo Loading	0.00	0.00	0.00	-	-	-	-
Auxiliary Heater	0.00	0.00	0.00	0.0	0.00	0.00	0.00
Engine/Generator	0.00	0.00	0.00	0.00	0.0	0.0	0.00
Total PTE	**56.88**	**31.52**	**11.60**	**9.64**	**33.29**	**116.03**	**42.13**

Maximum Fuel Usage		
Operation Description	gal/year	gal/month
Diesel Engine	0	0

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Drum Mix Hot Mix Asphalt Production - Criteria Pollutants

Facility Capacity: 200 ton/hr

Purple values are pulled from other worksheet
Blue values are results

Worst Case Totals

Pollutant	PTE (lb/hr)	PTE (ton/yr)
PM	6.60	28.91
PM_{10}	8.25	20.15
$PM_{2.5}$	0.58	2.54
SO_2	0.68	9.64
NO_X	5.20	33.29
CO	26.00	113.88
VOC	6.40	28.03

PTE of PM/PM_{10}

Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
PM	0.033	6.60	28.91
PM_{10}	0.023	8.25	20.15

Note: These are the emission factors for the dryers controlled by dry filters.

PTE of $PM_{2.5}$

Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
$PM_{2.5}$	0.0029	0.58	2.54

Note: This is the emission factor for the dryers controlled by dry filters.

$SO_2/NO_X/CO$

Natural Gas				Liquid Fuel			
Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)	Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
SO_2	0.0034	0.68	2.98	SO_2	0.011	0.00	9.64
NO_X	0.026	5.20	22.78	NO_X	0.038	0.00	33.29
CO	0.13	26.00	113.88	CO	0.13	0.00	113.88

VOC

Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
VOC	0.032	6.40	28.03

Note:

1. Emission factors are from AP-42, Chapter 11.1, Tables 11.1-3, 11.1-4, 11.1-7, and 11.1-8 for Hot Mix Asphalt Plants (updated 03/2004), except for NOx -see Note 2.
2. NOx emission factor for liquid fuel based on Technical Support Document for Asphalt Plants by Washington's Department of Ecology (updated 01/2011). Value based on 20 sets of performance test data - 75th percentile plus 10%.

Methodology

PTE (lb/hr) = Facility Capacity (ton/hr) x EF (lb/ton)
PTE (ton/yr) = PTE (lbs/hr) x 8760 hr/yr x 1 ton/2000 lb

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Batch Mix Asphalt Production - Criteria Pollutants

Facility Capacity: 200 ton/hr

Purple values are pulled from other worksheet
Blue values are results

DO NOT USE THESE, YOU SPECIFIED DRUM MIX IN THE INPUTS!

Worst Case Totals

Pollutant	PTE (lb/hr)	PTE (ton/yr)
PM	8.40	36.79
PM_{10}	5.40	23.65
$PM_{2.5}$	1.66	7.27
SO_2	0.92	77.09
NO_X	5.00	100.74
CO	80.00	350.40
VOC	1.64	7.18

PM/PM_{10}

Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
PM	0.042	8.40	36.79
PM_{10}	0.027	5.40	23.65

Note: These are the emission factors for the dryers controlled by dry filters.

$PM_{2.5}$

Controlled/Limited PTE			
Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
$PM_{2.5}$	0.0083	1.66	7.27

Note: This is the emission factor for the dryers controlled by dry filters.

$SO_2/NO_X/CO$

PTE – Natural Gas				PTE – Liquid Fuel			
Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)	Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
SO_2	0.0046	0.92	4.03	SO_2	0.088	0.00	77.09
NO_X	0.025	5.00	21.90	NO_X	0.12	0.00	100.74
CO	0.4	80.00	350.40	CO	0.4	0.00	350.40

VOC

PTE			
Pollutant	Emission Factor (lb/ton)	Emissions (lb/hr)	Emissions (ton/yr)
VOC	0.0082	1.64	7.18

Note:

1. Emission factors are from AP-42, Chapter 11.1, Tables 11.1-1, 11.1-5, 11.1-5, and 11.1-6 for Hot Mix Asphalt Plants (Updated 03/04).

Methodology

PTE (lb/hr) = Facility Capacity (ton/hr) x EF (lb/ton)
PTE (ton/yr) = PTE (lbs/hr) x 8760 hr/yr x 1 ton/2000 lb

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Load-Out and Silo Filling Operations - Criteria Pollutants

200 Facility Capacity (ton/hr)
325 Temp (used to calculate EF)
-0.5 Volatility (used to calculate EF)

Purple values are pulled from other worksheet
Blue values are results

Totals

Pollutant	PTE (lb/hr)	PTE (ton/yr)
PM	0.2216	0.97
PM_{10}	0.2216	0.97
$PM_{2.5}$	0.2216	0.97
VOC	3.2192	14.10
CO	0.4917	2.15

Load-Out	Pollutant	Emission Factor [1] (lb/ton)	PTE (lb/hr)	PTE (ton/yr)
	Total PM	0.000522	0.1044	0.46
	PM_{10} [2]	0.000522	0.1044	0.46
	$PM_{2.5}$ [2]	0.000522	0.1044	0.46
	VOC [3]	0.003909	0.7819	3.42
	CO	0.001349	0.2698	1.18

Silo Filling	Pollutant	Emission Factor [1] (lb/ton)	PTE (lb/hr)	PTE (ton/yr)
	Total PM	0.000586	0.1172	0.51
	PM_{10} [2]	0.000586	0.1172	0.51
	$PM_{2.5}$ [2]	0.000586	0.1172	0.51
	VOC [3]	0.012187	2.4373	10.68
	CO	0.001109	0.2218	0.97

Note:

1. Emission factors are from AP-42, Chapter 11.1, Tables 11.1-14 and 11.1-16 for Hot Mix Asphalt Plants (Updated 03/04).
2. Assume PM_{10} and $PM_{2.5}$ emissions are equal to PM emissions.
3. According to AP-42, Table 11.1-16, 94% of the TOC emissions from load-out operations are VOC. 100% of the TOC emissions from silo filling operations are VOC.

Methodology

PTE (lb/hr) = Facility Capacity (ton/hr) x EF (lb/ton)
PTE (ton/hr) = PTE (lbs/hr) x 8760 hr/yr x 1 ton/2000 lb

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Aggregate Handling Operations

200	Facility Capacity (tons/hr)
50%	Max. RAP Used (%)
6	# of Virgin Agg. Conveyors (#)
0	# of Virgin Agg. Screens (#)
2	# of RAP Conveyors (#)
1	# of RAP Screens (#)

Purple values are pulled from other worksheet
Blue values are results

	Pollutant	PTE (tons/yr)
Conveying Total	PM	21.02
	PM_{10}	7.71
	$PM_{2.5}$	7.71
Screening Total	PM	0.96
	PM_{10}	0.32
	$PM_{2.5}$	0.02

Conveying				Controlled								
				PM			PM_{10}			$PM_{2.5}$[2]		
Table 11.19.2-2 (8/04)	Source	Number of Units	Max. Capacity (ton/hr/unit)	Emission Factor[1] (lbs/ton)	PTE (lbs/hr/unit)	PTE (tons/yr)	Emission Factor[1] (lbs/ton)	PTE (lbs/hr/unit)	PTE (tons/yr)	Emission Factor[1] (lbs/ton)	PTE (lbs/hr/unit)	PTE (tons/yr)
	Virgin Agg. Conveyors	6	100	0.0030	0.300	15.77	0.0011	0.110	5.78	0.0011	0.110	5.78
	RAP Conveyors	2	100	0.0030	0.300	5.26	0.0011	0.110	1.93	0.0011	0.110	1.93

Screening				Controlled								
				PM			PM_{10}			$PM_{2.5}$		
Table 11.19.2-2 (8/04)	Source	Number of Units	Max. Capacity (ton/hr/unit)	Emission Factor[1] (lbs/ton)	Limited PTE (lbs/hr/unit)	Limited PTE (tons/yr)	Emission Factor[1] (lbs/ton)	Limited PTE (lbs/hr/unit)	Limited PTE (tons/yr)	Emission Factor[1] (lbs/ton)	Limited PTE (lbs/hr/unit)	Limited PTE (tons/yr)
	Virgin Agg. Screens	0	100	0.0011	0.110	0.00	0.00037	0.037	0.00	0.000025	0.003	0.00
	RAP Screens	1	100	0.0011	0.110	0.96	0.00037	0.037	0.32	0.000025	0.003	0.02

Note:

1. Emission factors are from AP-42, Chapter 11.19, Table 11.19.2-2 for Crushed Stone Processing and Pulverized Mineral Processing (Updated 08/04).
   The emission factors selected are the ones with controlled since this facility is subject to NSPS, Subpart I.
2. Assume $PM_{2.5}$ emissions are equal to PM_{10} emissions.

Methodology

PTE (lb/hr/unit) = Max. Capacity (ton/hr/unit) x EF (lb/ton)

PTE (ton/yr) = PTE (lbs/hr/unit) x 8760 (hr/yr) x 1 ton/2000 lb x Number of Units

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Storage Piles

200	Facility Capacity (tons/hr)
1,752,000	Max. Annual Production (ton/yr), based on the operation of 8760 hr/yr.
1.8	Agg. Moisture (%)
15	Mean Wind Speed (MPH)

Purple values are pulled from other worksheet

Blue values are results

According to AP42, Chapter 13.2.4 - Aggregate Handling and Storage Piles (updated 11/06), the particulate emission factors for storage piles can be estimated from the following equation:

$$Ef = \frac{k \times 0.0032 \times (U/5)^{1.3}}{(M/2)^{1.4}}$$

where:

Ef = Emission Factor (lbs/ton)

k = Particle size multipliers = 0.74 for PM, 0.35 for PM_{10}, and 0.053 for $PM_{2.5}$

U = Mean wind speed (MPH) = 15 MPH (provided by the facility)

M = Moisture content (%) = 1.8 % (provided by the facility)

Pollutant	Emission Factor (lb/ton)	Control Efficiency[1] (%)	PTE (tons/yr)
PM	0.01145	50%	5.01
PM_{10}	0.00541	50%	2.37
$PM_{2.5}$	0.00082	50%	0.36

Note:

1. Since this facility is subject to NSPS, Subpart I, the particulate emissions control efficiency for storage piles is assumed to be 50%.

Methodology

PTE (ton/yr) = Max. Annual Production (ton/yr) x EF (lb/ton) x 1 ton/2000 lb x (1-Control Efficiency)

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Lime Silo Loading

0 Max. Hourly Load (ton/hr)

10000% Bin Vent Control Efficiency (%)

Purple values are pulled from other worksheet

Blue values are results

Lime Silo Loading	Controlled (8,760 hr/yr)				
	Pollutant	Emission Factor	Control Eff.	PTE	
		(lb/ton)	%	(lb/hr)	(ton/yr)
	PM	2.2	10000%	0.000	0.00
	PM_{10} [2]	2.2	10000%	0.000	0.00
	$PM_{2.5}$ [2]	2.2	10000%	0.000	0.00

Note:

1. Emission factors are from AP-42, Chapter 11.17, Table 11.17-4 for Lime Manufacturing (Updated 02/98)(SCC 3-05-016-15).
2. Assume PM_{10} and $PM_{2.5}$ emissions are equal to PM emissions.

Methodology

PTE (lb/hr) = Max. Hourly Load (ton/hr) x EF (lb/ton) x (1-Control Eff.)

PTE (ton/hr) = PTE (lb/hr) x 8760 hr/yr x 1 ton/2000 lbs

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Auxiliary Heaters - Criteria Pollutants

200 Heat Input (MMBtu/hr)

Purple values are pulled from other worksheet
Blue values are results

Worst Case PTE (ton/yr)

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC
0.00	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Fuel Type: **Natural Gas** Used: n

	Pollutant						
	PM	PM_{10}[2]	$PM_{2.5}$[3]	SO_2	NO_X	CO	VOC
Emission Factor[1] (lb/MMSCF)	1.9	7.6	7.6	0.6	100	84	5.5
PTE (ton/yr)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note:

1. Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2 (updated 07/98).
2. PM_{10} emission factor is condensable and filterable PM combined. PM emission factor is for filterable PM only.
3. Assume $PM_{2.5}$ emissions are equal to PM_{10} emissions.

Methodology

PTE (ton/yr) = Heat Input (MMBtu/hr) x 1 MMSCF/1,020 MMBtu x EF (lb/MMSCF) x 8760 hr/yr x 1 ton/2000 lb

Fuel Type: **Propane** Used: n Sulfur Content: 0.00 %

	Pollutant						
	PM	PM_{10}[2]	$PM_{2.5}$[3]	SO_2	NO_X	CO	VOC
Emission Factor[1] (lbs/kgal)	0.2	0.7	0.7	0	13	7.5	1.0
PTE (ton/yr)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note:

1. Emission factors are from AP-42, Chapter 1.5, Tables 1.5 (updated 07/08).
2. PM_{10} emission factor is condensable and filterable PM combined. PM emission factor is for filterable PM only.
3. Assume $PM_{2.5}$ emissions are equal to PM_{10} emissions.

Methodology

PTE (ton/yr) = Heat Input (MMBtu/hr) x 1 kgal/91.5 MMBtu x EF (lb/kgal) x 8760 hr/yr x 1 ton/2000 lb

Fuel Type: **Liquid Fuel** Used: n Sulfur Content: 0.000 %

	Pollutant						
	PM	PM_{10}[2]	$PM_{2.5}$	SO_2	NO_X	CO	VOC
Emission Factor[1] (lb/kgal)	2.0	3.3	2.55	0	20	5.0	0.34
PTE (ton/yr)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note:

1. Emission factors are from AP-42, Chapter 1.3, Tables 1.3-1, 1.3-2, and 1.3-3 for Fuel Oil Combustion (updated 05/10).
2. PM_{10} emission factor is condensable and filterable PM combined. PM emission factor is for filterable PM only.

Methodology

PTE (ton/yr) = Heat Input (MMBtu/hr) x 1 kgal/140 MMBtu x EF (lb/kgal) x 8760 hr/yr x 1 ton/2000 lb

Potential To Emit Calculator for Hot Mix Asphalt Plants

3/23/2015

Emissions from Generator/Engine - Criteria Pollutants

Engine Size: hp

Purple values are pulled from other worksheet
Blue values are results

Diesel Used: N/A

Worst Case PTE (ton/yr)

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC
0.00	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Engine Type: **Diesel Engine (<= 600 hp)** Used: N

	Pollutant						
	PM^2	PM_{10}	$PM_{2.5}{}^2$	SO_2	NO_X	CO	VOC^3
Emission Factor[1] (lbs/hp-hr)	2.20E-03	2.20E-03	2.20E-03	2.05E-03	3.10E-02	6.68E-03	2.47E-03
PTE (ton/yr)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note:

1. Emission factors are from Chapter 3.3, Table 3.3-1 (updated 10/96).
2. Assume PM and $PM_{2.5}$ emissions are equal to PM_{10} emissions.
3. Assume TOC (total organic compounds) emissions equal to VOC emissions.

Methodology

PTE (ton/yr) = Engine Capacity (hp) x EF (lb/hp-hr) x 8760 hr x 1 ton/2000 lb

Engine Type: **Diesel (> 600 hp)** Used: N Sulfur Content: 0.00 %

	Pollutant						
	PM	PM_{10}	$PM_{2.5}{}^2$	SO_2	NO_X	CO	VOC^3
Emission Factor[1] (lbs/hp-hr)	0.0007	0.0007	0.0007	0.00E+00	0.024	5.50E-03	7.05E-04
Limited PTE (ton/yr)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note:

1. Emission factors are from Chapter 3.4, Tables 3.4-1 and 3.4-2 for Large Stationary Diesel and Dual Fuel Engines (updated 10/96).
2. Assume $PM_{2.5}$ emissions are equal to PM_{10} emissions.
3. Assume TOC (total organic compounds) emissions equal to VOC emissions.

Methodology

PTE (ton/yr) = Engine Capacity (hp) x EF (lb/hp-hr) x 8760 hr x 1 ton/2000 lb

Fuel Usage (gal/yr)	**0**

Methodology:

Fuel Usage (gal/yr) = Total Engine Horsepower (hp) x 8,760 hr/yr x 7,000 Btu/hp-hr x 1 lb fuel/19,300 Btu x 1 gal/7.1 lb