TRANSMITTAL

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TO: Elizabeth Basil
Director, Engineering Services Division
SC DHEC Bureau of Air Quality
2600 Bull Street
Columbia, SC 29201
Cc: John Aultman - Vulcan

DATE: December 16, 2015
FROM: Andrea Kehn
PROJECT NAME: Vulcan Construction Materials
PROJECT NUMBER: 963.02.08

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Item No.	Rev. No.	Copies	Description	Action*
1		1	Response to request for additional information	FYU

***ACTION SCHEDULE:**

NET	NO EXCEPTIONS TAKEN	IFA	ISSUED FOR APPROVAL
MCN	MAKE CORRECTIONS NOTED	IFC	ISSUED FOR CONSTRUCTION
R	REJECTED	IFR	ISSUED FOR REVIEW
FYU	FOR YOUR USE	IFI	ISSUED FOR INFORMATION
RR	REVISE AND RESUBMIT	IFP	ISSUED FOR PERMITTING

BY: AKehn

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synTerra

December 16, 2015

Ms. Elizabeth Basil
Director, Engineering Services Division
Bureau of Air Quality
SC DHEC
2600 Bull Street
Columbia, South Carolina 29201

SUBJECT: **Vulcan Construction Materials, LLC - Lexington Quarry**
Synthetic Minor Construction Permit Application
Response to DHEC request for additional information

Dear Ms. Basil:

Vulcan Construction Materials, LLC submitted construction permit application on November 20, 2015. After review by Mareesa Singleton at DHEC, a request for additional information was received on December 1, 2015. This letter presents the information requested and should be added as an addendum to the original application.

1. *PSD applicability depends upon the PM emissions. Therefore, provide controlled and uncontrolled PM emission rates (pounds per hour and tons per year) for all sources, including fugitives. Please also provide the basis for the emission rates. Additionally, the facility will also need to request PM PSD avoidance limits if it does not wish to be a PSD source.*

   PM/TSP Emissions have been added to the emissions calculations and revised Tables C-1 and C-2. Revised Form D-2569 have been provided. The summary of facility wide emissions is included as Attachment 1.

   Because PM/TSP potential emissions are above the PSD applicability threshold, Vulcan requests a plantwide limit on PM and PM_{10} to avoid PSD applicability.

INNOVATE 148 River Street, Suite 220 Greenville, SC 29601 (864)421-9999 Fax (864)421-9909 www.synterracorp.com

2. *Please provide all fugitive emission rates (pounds per hour and tons per year), including haul roads, customer roads, storage piles, etc. and the basis for these rates.*

Fugitive emission rates have been calculated for haul roads, customer roads, and storage piles. The emission rates were estimated using AP-42 equations for paved and unpaved roads. Detailed emission calculations for Paved and Unpaved roads are included in Attachment 2. Emission calculations from Storage Piles are included in Attachment 3.

The proposed quarry Paved and Unpaved roads and storage piles are shown on Figure 3. This figure has been modified from the original submittal to add the roadways to the legend.

The uncontrolled emissions from Unpaved roads (primarily Haul Roads and some sections of Customer Roads) are estimated using the following equation for average annual emission rate from AP-42 13.2.2:

$$\frac{lbs}{VMT} = k\left(\frac{s}{12}\right)^{A}\left(\frac{W}{3}\right)^{B}\left(\frac{365-p}{365}\right)$$

Where

k=	Particle Size Multiplier (1.5 for PM10, 0.15 for PM2.5, 4.9 for TSP per AP-42 Table 13.2.2-2 Industrial Roads)
s=	Silt Content (%) Silt Content mean from Stone Quarrying and Processing Haul Road to from Pit = 8.3 and from Stone Quarrying and Processing Plant Road = 10 ; Table 13.2.2-1
W=	Mean Vehicle Weight (tons) (Haul trucks weigh 182 tons loaded)
p=	Days per year with at least 0.01 inch precipitation (110 from AP-42 Figure 13.2.2-1)
A=	Empirical constant (0.9 for PM10/PM2.5, 0.7 for TSP per AP-42 Table 13.2.2-2)
B=	Empirical constant (0.45 for PM10/PM2.5/TSP per AP-42 Table 13.2.2-2)

For unpaved roads, the mileage of a one way trip for the Haul Trucks is estimated to be 1.03 miles and the total number of one way trips estimated per day is 204. For the Customer Roads, there are 0.14 miles of unpaved roads, and an estimate of 440 one-way trips per day. Vulcan also assumed that at the Lexington Quarry there would be three haul trucks operating; operating hours at the quarry would be 12 hours per day, 365 days per year.

The uncontrolled emissions from Paved roads (most of the Customer Roads) are estimated using the following equation for average annual emission rate from AP-42 13.2.1:

$$\frac{lbs}{VMT} = \left[k(sL)^{0.91}(W)^{1.02}\right]\left(1-\frac{P}{4N}\right)$$

Where

k=	Particle Size Multiplier (0.0022 for PM10, 0.00054 for PM2.5 per AP42 Table 13.2.1-1)
sL=	Road surface silt loading (g/m^2) (mean from Quarry = 8.2 from Table 13.2.1-3)
W=	Mean Vehicle Weight (tons) (Customer trucks weigh 34.9 tons loaded)
P=	Number of days with at least 0.01 inch precipitation during the averaging period (110 from AP-42 Figure 13.2.2-1)
N=	Number of days in the averaging period

For Paved roads, the mileage of a one way trip for the Customer Trucks is estimated to be 0.70 miles and the total number of one way trips estimated per day is 440 based on annual sales projections. Vulcan also assumed that at the Lexington Quarry operating hours would be 12 hours per day, 365 days per year.

Modified equations were used for the maximum hourly emission rates and are also shown in Attachment 2.

Controlled emissions from Unpaved roads were estimated using guidance from the National Stone, Sand, and Gravel Association's (NSSGA) document titled "Modeling Fugitive Dust Sources with AERMOD, January 2007". The Lexington Quarry intends to use wet suppression (road watering) to control emissions. In the NSSGA document, Method 2 for estimating the control efficiency using water provides the following model, taken from pages 141-144 of the Air Pollution Engineering Manual (AWMA, 1992, Cowherd, Jr., Chatten and Kinsey):

$$C = 100 - ((0.8*p*d*t)/i)$$

Where

C=	average control efficiency (percent)	
p=	potential average hourly daytime evaporation rate (mm/hour)	0.245 mm/hr from AP-42 Figure 13.2.2-3
d=	average hourly daytime traffic rate	34 trips per hour for Haul Trucks 73.4 trips per hour for Customer Trucks
i=	application intensity (liters/square meter)	Estimate of 1.0 l/m^2 from Vulcan water truck study
t=	time between applications (hours)	Estimate of 0.45 hours from Vulcan water truck study

This equation yields a control efficiency of 97.0% for unpaved Haul roads, and a control efficiency of 93.5% for unpaved Customer roads. However, Vulcan has taken a conservative approach and has set the control efficiency at 90% to estimate potential emissions on both Haul and Customer unpaved roads.

Controlled emissions from Paved roads were estimated considering that both mitigative (water truck) and preventative control (wheel wash) methods will be used. Control efficiency from paved roads can be estimated using the following equation (based on PM15) from Table 2.3 of EPA document EPA-450/3-88-008.

$$C=0.69-0.23V$$

Where V is the number of vehicle passes since the last application.

This equation however yields a control efficiency of 69% (at best) which is lower than the calculated control efficiency for unpaved roads. Because Vulcan intends to use mitigative and preventative control methods on paved roads, a control factor of 95% was used to estimate potential emissions for the paved roadways.

Emissions from Storage Piles were estimated using the following equation from EPA's Control of Open Fugitive Dust Sources, EPA-450/3-88-008, September 1988, page 4-17:

$$E = 1.7x\left(\frac{s}{1.5}\right)x\left(\frac{365-p}{235}\right)x\left(\frac{f}{15}\right)$$

Where

E=	wind erosion emission factor (lbs/day/acre)	
s=	silt content of aggregate (%)	Table 4-1, EPA-450/3-88-008] (adjusted for PM10=0.5*1.6=0.8)
p=	number of days with > or = 0.01 inches of precipitation per year	110 from AP-42 Figure 13.2.2-1
f=	% of the time that the unobstructed wind speed exceeds 12 mph at the mean pile height	100% worst case

There are a total of 9 proposed storage piles for the Lexington quarry, each with a radius of 21.64 feet and a maximum height of 60 feet. Vulcan plans to use surface treatment methods to control wind erosion of the storage piles as necessary.

3. *Please provide emission rates from drilling operations.*
The PM_{10} emission factor used for Wet Drilling – Unfragmented Stone is found on Table 11.19.2-2. Using that emission factor and the plant operating rate of 1700 tph, the emission rates from drilling operations would be 0.136 lb/hr and 0.596 tons per year.

4. *Please provide the basis for the following emission factors as they are not provided in AP-42:*
   a. *Controlled and Uncontrolled Truck Unloading $PM_{2.5}$*
   b. *Uncontrolled Primary, Secondary, and Tertiary Crushing $PM_{2.5}$*
   c. *Uncontrolled Screening $PM_{2.5}$*
   d. *Uncontrolled Conveying $PM_{2.5}$*

   See Attachment 4 - Explanation of Controlled and Uncontrolled Emission Factors from AP-42. The $PM_{2.5}$ uncontrolled emission factor for the Grizzly Feeder & Truck Unloading is calculated assuming it is proportional to the $PM_{2.5}$ /PM_{10} Screen factor. The Controlled Grizzly Feeder emission factors are all calculated assuming the same control efficiency as a Screen.

   The other $PM_{2.5}$ uncontrolled factors for Crushers, Screens, and Conveyors/Bins were calculated assuming the same control efficiency as PM_{10}. An example calculation is provided in Attachment 4.

5. *It does not appear that the dewatering pump is subject to Standard 1 (per the definition of a fuel burning source in **S.C. Regulation 61-62.1**). However, the pump may be subject to the opacity limits of Standard 4. Please review the pump for Standard 1 and Standard 4 applicability.*

   After review of the definition of "fuel burning operation" in S. C. Regulation 61-62.1, Vulcan believes that the dewatering pump is not subject to Standard 1, as it is not a "fuel burning operation".

   Per Standard 4, the facility will be subject to Section VIII-Other Manufacturing and Section IX – Visible Emissions for all particulate emission sources that are constructed after December 31, 1985. The facility will also be subject to Section X – Non-Enclosed Operations.

6. *Please provide how the VOC emission factor for the dewatering was determined from Table 3.3-1.*

   The emission factor used for VOC was from AP-42 Table 3.4-1; however, based on the size of the engine (220 hp) the VOC emission factor from Table 3.3-1 should be used. Table C-3 has been updated to reflect this change as well as the facility wide total VOC emissions (Attachment 1) and a revised Form D-2569.

7. *Is the facility saying that the true potential of the dewatering pump is 2300 hours per year and that there are no circumstances where the pump would operate more? If not, it may be best to permit the pump to operate 8760 hours per year as it does not appear that there would be any additional requirements for the pump. Please review.*

   The 2,300 operating hours per year were based on the average annual rainfall for Lexington County (50 inches per year). Vulcan does not believe the pump will need to operate more than that, but concur with DHEC that it would be best to permit the pump to operate 8,760 hours per year.

Please contact John Aultman at (864) 299-4785 or myself if you have any further questions or concerns regarding the permit application or this additional information.

Sincerely,
SYNTERRA

Andrea Kehn

Andrea Kehn, PE
Project Engineer

Cc: John Aultman, Vulcan Construction Materials
File

Attachments:
Attachment 1 – Facility wide Emissions from Quarry and Fugitive Sources
Attachment 2 – Emissions from Paved and Unpaved roads
Attachment 3 – Emissions from Storage Piles
Attachment 4 - Explanation of Controlled and Uncontrolled Emission Factors from AP-42
Figure 3 revised
Revised Tables - C-1, C-2, and C-3
DHEC Form D-2569

Attachment 1

FACILITY-WIDE CRITERIA POLLUTANT EMISSIONS								
Pollutant	Quarry Operations				Fugitive Emissions from Roadways, Stockpiles			
	Potential Uncontrolled (tpy)	Potential Controlled (tpy)	Potential Uncontrolled (lb/hr)	Potential Controlled (lb/hr)	Potential Uncontrolled (tpy)	Potential Controlled (tpy)	Potential Uncontrolled (lb/hr)	Potential Controlled (lb/hr)
PM	1,325.98	113.01	302.74	25.80	1,429.35	134.56	858.86	83.31
PM_{10}	477.71	40.25	109.07	9.19	390.91	37.99	240.15	23.63
$PM_{2.5}$	67.94	5.17	15.51	1.18	46.05	5.06	25.99	2.67
SO_2	1.98	1.98	0.45	0.45				
NO_x	3.17	3.17	0.72	0.72				
CO	6.44	6.44	1.47	1.47				
VOC	2.38	2.38	0.54	0.54				
Lead (Pb)	0	0	0	0				
CO_2	399.78	399.78	91.27	91.27				
CH_4	7.40E-04	7.40E-04	1.69E-04	1.69E-04				
N_2O	2.74E-10	2.74E-10	6.26E-11	6.26E-11				
CO_2e	399.80	399.80	91.28	91.28				

Attachment 2

Vulcan Construction Materials, LLC - Lexington Quarry
Fugitive Emissions Calculations from Travel on Paved and Unpaved Roads

Haul Roads	
UNPAVED	
1700	operating rate of quarry (tph)
3.00	number of haul trucks operating
182.00	haul truck loaded weight (tons)
82.00	haul truck empty weight (tons)
17.00	haul truck height (ft)
17.10	haul truck width (ft)
34.50	haul truck length (ft)
14.90	haul truck wheel base (ft)
30.00	single lane width (ft)
60.00	total road width (ft)
1.03	one way distance per trip (miles)
17.00	one way trips per hour
204.00	one way trips per day
210.12	one way distance per day (miles)
420.24	total distance per day (miles)

Quarry Operates 12 hours per day, 365 days per year

Customer Roads		
UNPAVED	PAVED	
34.9		customer truck loaded weight (tons)
12.9		customer truck empty weight (tons)
10		customer truck height (ft)
8		customer truck width (ft)
23.3		customer truck length (ft)
14.5		customer truck wheel base (ft)
12		single lane width (ft)
24		total road width (ft)
0.10	0.68	distance per trip for empty truck (miles)
0.12	0.68	distance per trip for full truck (miles)
0.02	0.02	distance per trip for empty truck (miles) SHORT LEG
0.02	0.02	distance per trip for full truck (miles) SHORT LEG
36.7	36.7	one way trips per hour
440.4	440.4	one way trips per day
44.17	297.43	distance per day for full truck (miles)
51.94	297.43	distance per day for empty truck (miles)

FUGITIVE EMISSIONS - UNPAVED ROADS AP-42, 13.2.2 Unpaved Roads

E (lbs/VMT) = Annual average emission rate

$$\frac{lbs}{VMT} = k\left(\frac{s}{12}\right)^{A}\left(\frac{W}{3}\right)^{B}\left(\frac{365-p}{365}\right)$$

E (lbs/VMT) = Maximum hourly emission rate

$$\frac{lbs}{VMT} = k\left(\frac{s}{12}\right)^{A}\left(\frac{W}{3}\right)^{B}$$

k= Particle Size Multiplier
s= Silt Content (%)
W= Mean Vehicle Weight (tons)
p= Days per year with at least 0.01 inch precipitation
A= Empirical constant
B= Empirical constant

FUGITIVE EMISSIONS - PAVED ROADWAYS AP-42, 13.2.1 Paved Roads

E (lbs/VMT) = Annual average emission rate

$$\frac{lbs}{VMT} = \left[k(sL)^{0.91}(W)^{1.02}\right]\left(1-\frac{P}{4N}\right)$$

E (lbs/VMT) = Maximum hourly emission rate

$$\frac{lbs}{VMT} = \left[k(sL)^{0.91}(W)^{1.02}\right]\left(1-\frac{1.2P}{N}\right)$$

k= Particle Size Multiplier
sL= Road surface silt loading (g/m^2),
W= Mean Vehicle Weight (tons)
P= Number of days with at least 0.01 inch precipitation during the averaging period
N= Number of days in the averaging period

Road Surface	k (lb/VMT)			Silt	P (days)	A			B		
	PM/TSP	PM10	PM2.5			PM/TSP	PM10	PM2.5	PM/TSP	PM10	PM2.5
Paved	0.011	0.0022	0.00054	8.2	110						
Unpaved Haul Road	4.9	1.5	0.15	8.3	110	0.7	0.9	0.9	0.45	0.45	0.45
Unpaved Cust. Road				10.0							

Particle size multiplier from Table 13.2.2-2 Industrial Roads for Unpaved roads and Table 13.2.1-1 for Paved roads
Silt Loading mean from Quarry = 8.2 from Table 13.2.1-3 for Paved roads
Silt Content mean from Stone Quarrying and Processing Haul Road to from Pit = 8.3 from Table 13.2.2-1
Silt Content mean from Stone Quarrying and Processing Plant Road = 10 from Table 13.2.2-1
Days per year with at least 0.01 inch precipitation from AP-42 Figure 13.2.2-1
110 days per year = 1 day every 3.32 days (use this for hourly rate)
Empirical Constants A and B for Unpaved roads from Table 13.2.2-2

Vulcan Construction Materials, LLC - Lexington Quarry
Fugitive Emissions Calculations from Travel on Paved and Unpaved Roads
Un-Controlled Fugitive Emissions

Vehicle Type	Vehicle wt (tons)	Road Surface	Annual E (lb/VMT)			Maximum Hourly E (lb/VMT)			VMT		Emissions (ton/yr)			Emissions (lb/hr)		
			PM/TSP	PM10	PM2.5	PM/TSP	PM10	PM2.5	(mi yr)	(mi/hr)	PM/TSP	PM10	PM2.5	PM/TSP	PM10	PM2.5
Haul Trucks Empty	82.0	Paved														
		Unpaved	11.72	3.33	0.33	16.77	4.77	0.48	76694	17.51	449.38	127.79	12.78	293.71	83.52	8.35
Haul Truck Full	182.0	Paved														
		Unpaved	16.78	4.77	0.48	24.01	6.83	0.68	76694	17.51	643.32	182.94	18.29	420.47	119.57	11.96
Customer Trucks Empty	12.9	Paved	1.01	0.20	0.05	0.65	0.13	0.03	108561	24.79	54.83	10.97	2.69	16.04	3.21	0.79
		Unpaved	5.81	1.71	0.17	8.31	2.45	0.25	18959	4.33	55.06	16.25	1.63	35.99	10.62	1.06
Customer Trucks full	34.9	Paved	2.79	0.56	0.14	1.79	0.36	0.09	108561	24.79	151.33	30.27	7.43	44.26	8.85	2.17
		Unpaved	9.09	2.68	0.27	13.01	3.84	0.38	16122	3.68	73.28	21.63	2.16	47.89	14.14	1.41
Customer Trucks Empty - short section	12.9	Paved	1.01	0.20	0.05	0.65	0.13	0.03	3744	0.85	1.89	0.38	0.09	0.55	0.11	0.03
		Unpaved	5.81	1.71	0.17	8.31	2.45	0.25	3187	0.73	9.25	2.73	0.27	6.05	1.79	0.18
Customer Trucks full - short section	34.9	Paved	2.79	0.56	0.14	1.79	0.36	0.09	3744	0.85	5.22	1.04	0.26	1.53	0.31	0.07
		Unpaved	9.09	2.68	0.27	13.01	3.84	0.38	3187	0.73	14.48	4.28	0.43	9.47	2.79	0.28
										TOTALS	1,427.21	389.84	44.98	858.37	239.91	25.74

For annual E on Paved Customer Roads use 8760 hours per year to provide worst case estimate of emission factor.

Vulcan Construction Materials, LLC - Lexington Quarry
Fugitive Emissions Calculations from Travel on Paved and Unpaved Roads

Unpaved roadway fugitive emission control efficiency: Wet Suppression Control Method 2 in NSSGA guidance
From pages 141-144 of the Air Pollution Engineering Manual (AWMA, 1992, Cowherd, Jr., Chatten and Kinsey)

C = 100 - ((0.8*p*d*t)/i)

Where
C = average control efficiency (percent)
p = potential average hourly daytime evaporation rate (mm/hour)
d = average hourly daytime traffic rate
i = application intensity (liters/square meter)
t = time between applications (hours)

Specifics	p =	0.245	mm/hr	From AP-42 Figure 13.2.2-3 = 50*0.0049
				The potential hourly evaporation rate in mm/hr is calculated by multiplying the annual rate by 0.0049
	dq =	34.00	trips/hour (for Haul Trucks) [tph at crusher/q x2 (in + out)]	
	dc =	73.4	trips/hour (for Customer Trucks) [on unpaved roads only x2 in + out)]	
	i =	1	Liter/m^2	from Vulcan water truck study
	t =	0.45	hr	from Vulcan water truck study
Calculated	C =	97.0	% control for unpaved roads traveled by Haul Trucks	
Calculated	C =	93.5	% control for unpaved roads traveled by Customer Trucks	
Conservative Estimate	C =	90.00	% control for unpaved roads traveled by Haul Trucks	
Conservative Estimate	C =	90.00	% control for unpaved roads traveled by Customer Trucks	

Paved roadway fugitive emission control efficiency:

Water truck (mitigative control) and wheel wash (preventative control) From Table 2.3 (PM15) of EPA document EPA-450/3-88-008

E = 0.69-0.231*V

73.4 trips/hour (for Customer Trucks) [on Paved roads only x2 in + out)]

time between applications= 0 hours
v= 0 vehicle passes since last application

Calculated	E=	69.00	
Conservative Estimate	E=	95.00 percent	[Average control efficiency for Customer Trucks on unpaved}

Controlled Fugitive Emissions

Vehicle Type	Surface	Control Factor	Emissions (ton/yr)			Emissions (lb/hr)		
			PM/TSP	PM10	PM2.5	PM/TSP	PM10	PM2.5
Haul Trucks Empty	Paved	95.00	0.00	0.00	0.00	0.00	0.00	0.00
	Unpaved	90.00	44.94	12.78	1.28	29.37	8.35	0.84
Haul Truck Full	Paved	95.00	0.00	0.00	0.00	0.00	0.00	0.00
	Unpaved	90.00	64.33	18.29	1.83	42.05	11.96	1.20
Customer Trucks Empty	Paved	95.00	2.74	0.55	0.13	0.80	0.16	0.04
	Unpaved	90.00	5.51	1.63	0.16	3.60	1.06	0.11
Customer Trucks full	Paved	95.00	7.57	1.51	0.37	2.21	0.44	0.11
	Unpaved	90.00	7.33	2.16	0.22	4.79	1.41	0.14
Customer Trucks Empty - short section	Paved	95.00	0.09	0.02	0.00	0.03	0.01	0.00
	Unpaved	90.00	0.93	0.27	0.03	0.60	0.18	0.02
Customer Trucks full - short section	Paved	95.00	0.26	0.05	0.01	0.08	0.02	0.00
	Unpaved	90.00	1.45	0.43	0.04	0.95	0.28	0.03
			132.41	36.92	3.99	82.82	23.39	2.43

Attachment 3

Vulcan Construction Materials, LLC - Lexington Quarry
Fugitive Emissions Calculations from Stockpile Areas

Stockpile fugitive emission factor (wind erosion): **Equation. 4-9, Control of Open Fugitive Dust Sources, EPA-450/3-88-008, September 1988**

$$E = 1.7x\left(\frac{s}{1.5}\right)x\left(\frac{365-p}{235}\right)x\left(\frac{f}{15}\right)$$

Where
E = wind erosion emission factor (lbs/day/acre)
s = silt content of aggregate (%)
p = number of days with > or = 0.01 inches of precipitation per year
f = % of the time that the unobstructed wind speed exceeds 12 mph at the mean pile height

Specifics

s =	0.8	%	[Table 4-1, EPA-450/3-88-008] (adjusted for PM10=0.5*TSP)
p =	110	days	[Figure 3-1, EPA-450/3-88-008]
f =	100	%	worst case estimate
E =	6.56	lbs/acre/day	
E =	0.27	lbs/acre/hr	

Potential fugitive stockpile emissions:

PE = ((A*E*365)/2000*(1-CE)

Number of stockpiles	9			
Radius of stockpile	21.64	ft		
Stockpile height	60	ft		
Surface Area of stockpile	4336.23748	ft2	1 acre =	43560 ft2
	0.10	acres per stockpile		

Specifics

A =	0.10	acres per stockpile	
E (PM10)=	6.56	lbs/acre/day (emission factor)	
E (PM10) =	0.27	lbs/acre/hr	
E (PM)=	13.12	lbs/acre/day (emission factor)	
E (PM) =	0.55	lbs/acre/hr	
CE =	0%	% (control efficiency)	Use water cannons or sprinklers as needed. Assume no control for worst case potential
days =	365		

Uncontrolled Emissions (no control)

	Emissions (ton/yr)			Emissions (lb/hr)		
	PM/TSP	PM10	PM2.5	PM/TSP	PM10	PM2.5
Each Stockpile	0.24	0.12	0.12	0.05	0.03	0.03
Total	**2.14**	**1.07**	**1.07**	**0.49**	**0.24**	**0.24**

Attachment 4

Emission Factors
AP-42 Table 11.19.2-2 Emission Factors

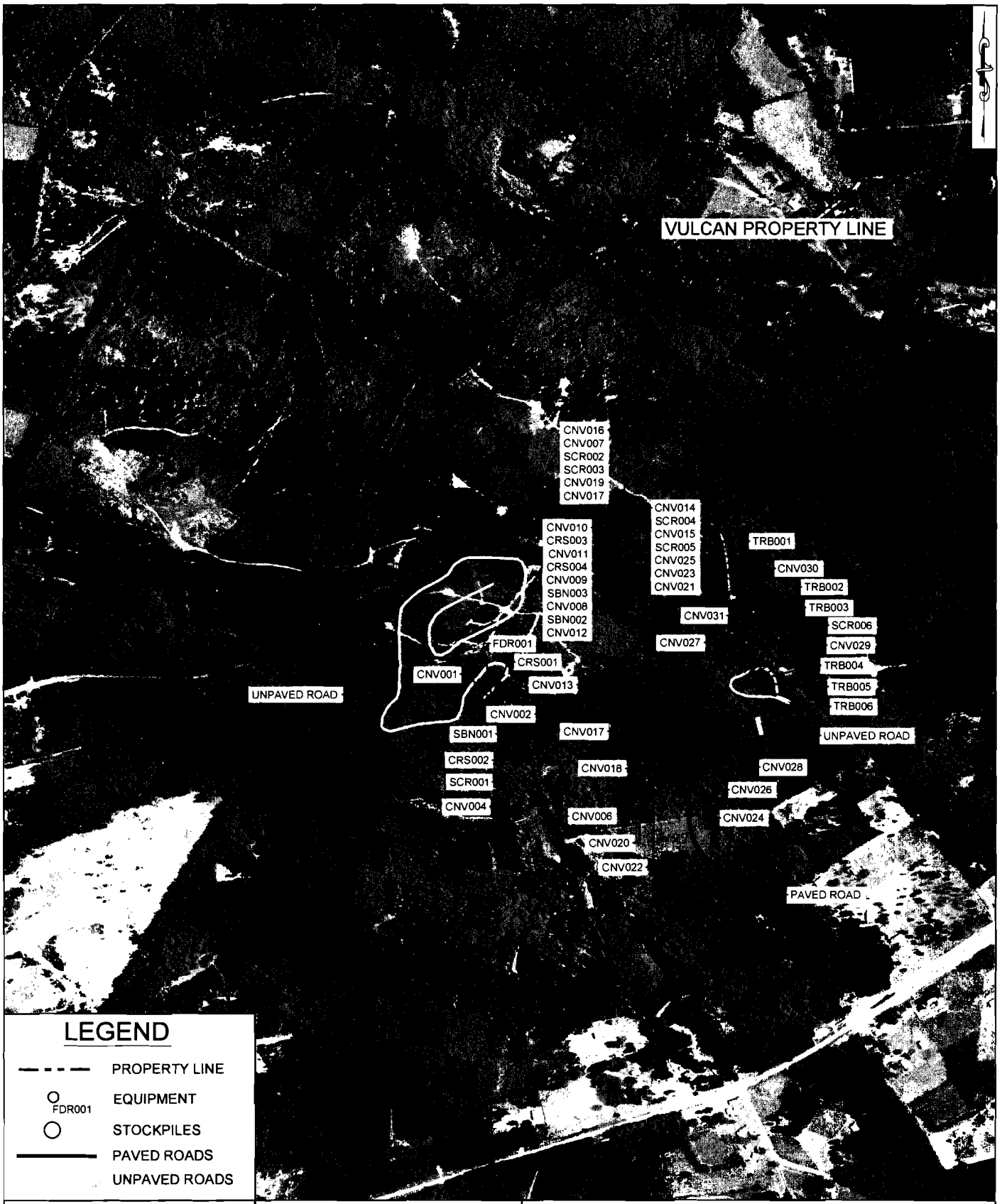
Equipment	AP-42 Source Name	Controlled			Un-Controlled			Calculated % control based on AP-42 Factors		
		TSP (lb/ton)	PM 10 (lb/ton)	PM2.6 (lb/ton)	TSP (lb/ton)	PM 10 (lb/ton)	PM2.5 [b] (lb/ton)	TSP	PM 10	PM2.6
Crushers	Tertiary Crushing						0.0004444			77.5%
Screens	Screening						0.0005878			91.5%
Conveyors and Bins	Conveyor Transfer Point						0.0003109			95.8%
Grizzly & Truck Unloading	Grizzly Feeder and Truck Unloading [a]	0.0000029	0.00000136	0.00000009	0.000034		0.0000011	91.5%	91.5%	91.5%
Drilling	Wet Drilling Unfragmented Stone [c]		0.00000680					NA	91.5%	NA

estimated

[a] The uncontrolled PM10 emission factor for the Grizzly Feeder and Truck Unloading is from the 1995 AP-42 Table 11.19.2-2.
Uncontrolled TSP for the Grizzly Feeder is estimated to be 2.1 x PM10
Controlled Grizzly Feeder emission factors are calculated assuming the same control efficiency as a screen.
Grizzly Feeder PM2.5 uncontrolled emissions factor is calculated assuming it is proportional to PM2.5/PM10 screen factor,
for example- 0.00000136 * (0.000050/0.00074) = 0.0000011

[b] PM 2.5 uncontrolled factors for Crushers, Screens, and Conveyors/Bins were calculated assuming the same control efficiency as the PM10
for example Crushers = 0.00010 * (100-77.5%) = 0.0004444

Revised Figures



GRAPHIC SCALE
150 0 150 300
IN METERS

148 RIVER STREET, SUITE 220
GREENVILLE, SOUTH CAROLINA 29601
PHONE 864-421-9999
www.synterracorp.com

DRAWN BY: C. NEWELL
PROJECT MANAGER: A. KEHN
LAYOUT: FIGURE 3
DATE: 11/11/2015

12/14/2015 4:50 PM P:\Vulcan Construction Materials.963\02.Air Modeling\08.Lexington Air Permit\DWG\9631007-MINE LAND USE MAP-UTM.dwg

FIGURE 3
EQUIPMENT LOCATIONS
VULCAN MATERIALS COMPANY
LEXINGTON QUARRY
LEESVILLE, SOUTH CAROLINA

Revised Tables

Table C-1 - CONTROLLED EMISSIONS

Vulcan Construction Materials, LLC - Lexington Quarry

Emission Unit Description	Equipment ID	Description	Subject to NSPS OOO	Capacity (TPH)	Emission Factor (PM10) (lb/ton)	Emission Factor (PM2.5) (lb/ton)	Emission Factor (TSP) (lb/ton)	Emission Control System	Emissions						STD 2 & 7 Emission Rate Exempt from Modeling (lbs/hr)	PM 10 Modeling Required?	PM 2.5 Modeling Required?
									PM10 (lb/hr)	PM2.5 (lb/hr)	TSP (lb/hr)	PM10 (tpy)	PM2.5 (tpy)	TSP (tpy)			
GRIZZLY FEEDER & TRK UNLOADING	FDR001	62"x12'x28' Grizzly feeder assembly	YES	1700	0.00000136	0.000000	0.000003	WS	0.002	0.000	0.005	0.010	0.001	0.021	1	no	no
PRIMARY CRUSHER #1	CRS001	C160 Jaw Crusher @ 10"CSS	YES	1100	0.00054	0.00010	0.0012	WS	0.594	0.110	1.320	2.602	0.482	5.782	1	no	no
SECONDARY CRUSHER #2	CRS002	XL900 Standard Cone Crusher	YES	1100	0.00054	0.00010	0.0012	WS	0.594	0.110	1.320	2.602	0.482	5.782	1	no	no
TERTIARY CRUSHER #3	CRS003	Crusher	YES	850	0.00054	0.00010	0.0012	WS	0.459	0.085	1.020	2.010	0.372	4.468	1	no	no
TERTIARY CRUSHER #4	CRS004	Crusher	YES	850	0.00054	0.00010	0.0012	WS	0.459	0.085	1.020	2.010	0.372	4.468	1	no	no
SCREEN #1	SCR001	8'X20' TD Scalping Screen	YES	1700	0.00074	0.000050	0.0022	WCO	1.258	0.085	3.740	5.510	0.372	16.381	1	yes	no
SCREEN #2	SCR002	8'X20' TD Scalping Screen	YES	1500	0.00074	0.000050	0.0022	WCO	1.110	0.075	3.300	4.862	0.329	14.454	1	yes	no
SCREEN #3	SCR003	8'X20' TD Scalping Screen	YES	1500	0.00074	0.000050	0.0022	WCO	1.110	0.075	3.300	4.862	0.329	14.454	1	yes	no
SCREEN #4	SCR004	8'X20' TD Sizing Screen	YES	1500	0.00074	0.000050	0.0022	WCO	1.110	0.075	3.300	4.862	0.329	14.454	1	yes	no
SCREEN #5	SCR005	8'X20' TD Sizing Screen	YES	1500	0.00074	0.000050	0.0022	WCO	1.110	0.075	3.300	4.862	0.329	14.454	1	yes	no
CONVEYOR #1	CNV001	54" Short Primary Belt	YES	1700	0.000046	0.000013	0.00014	WS	0.078	0.022	0.238	0.343	0.097	1.042	1	no	no
CONVEYOR #2	CNV002	54" Main Primary Belt	YES	1700	0.000046	0.000013	0.00014	WCO	0.078	0.022	0.238	0.343	0.097	1.042	1	no	no
CONVEYOR #3	CNV003	36" Primary Tunnel Belt	YES	1700	0.000046	0.000013	0.00014	WS	0.078	0.022	0.238	0.343	0.097	1.042	1	no	no
CONVEYOR #4	CNV004	36" Crusher Run Transfer Belt	YES	550	0.000046	0.000013	0.00014	WS	0.025	0.007	0.077	0.111	0.031	0.337	1	no	no
CONVEYOR #5	CNV005	36" Crusher Run Stacker	YES	550	0.000046	0.000013	0.00014	WCO	0.025	0.007	0.077	0.111	0.031	0.337	1	no	no
CONVEYOR #6	CNV006	48" Rip Rap Belt	YES	600	0.000046	0.000013	0.00014	WS	0.028	0.008	0.084	0.121	0.034	0.368	1	no	no
CONVEYOR #7	CNV007	48" Tower 2 Feed Belt	YES	3000	0.000046	0.000013	0.00014	WS	0.138	0.039	0.420	0.604	0.171	1.840	1	no	no
CONVEYOR #8	CNV008	42" Crusher Feed Bin Belt	YES	800	0.000046	0.000013	0.00014	WCO	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #9	CNV009	42" Crusher Feed Bin Belt	YES	800	0.000046	0.000013	0.00014	WS	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #10	CNV010	42" Crusher Feeder Belt	YES	800	0.000046	0.000013	0.00014	WCO	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #11	CNV011	42" Crusher Feeder Belt	YES	800	0.000046	0.000013	0.00014	WCO	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #12	CNV012	48" Crusher Discharge Belt	YES	1600	0.000046	0.000013	0.00014	WS	0.074	0.021	0.224	0.322	0.091	0.981	1	no	no
CONVEYOR #13	CNV013	48" Crusher Return Belt	YES	1600	0.000046	0.000013	0.00014	WS	0.074	0.021	0.224	0.322	0.091	0.981	1	no	no
CONVEYOR #14	CNV014	42" Tower 3 Feed Belt	YES	800	0.000046	0.000013	0.00014	WS	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #15	CNV015	42" Tower 3 Feed Belt	YES	800	0.000046	0.000013	0.00014	WS	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
CONVEYOR #16	CNV016	36" 3/4" Recrush Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #17	CNV017	36" Screenings Transfer Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #18	CNV018	36" Screenings Stacker Belt	YES	500	0.000046	0.000013	0.00014	WCO	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #19	CNV019	36" 5's Transfer Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #20	CNV020	36" 5's Stacker Belt	YES	500	0.000046	0.000013	0.00014	WCO	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #21	CNV021	36" 6's Transfer Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #22	CNV022	36" 6's Stacker Belt	YES	500	0.000046	0.000013	0.00014	WCO	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #23	CNV023	36" 7's Transfer Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #24	CNV024	36" 7's Stacker Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #25	CNV025	36" 89's Transfer Belt	YES	500	0.000046	0.000013	0.00014	WS	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #26	CNV026	36" 89's Stacker Belt	YES	500	0.000046	0.000013	0.00014	WCO	0.023	0.007	0.070	0.101	0.028	0.307	1	no	no
CONVEYOR #27	CNV027	42" Blending Tunnel Belt	YES	1500	0.000046	0.000013	0.00014	WCO	0.069	0.020	0.210	0.302	0.085	0.920	1	no	no
CONVEYOR #28	CNV028	36" Dry Blend Stacker Belt	YES	700	0.000046	0.000013	0.00014	WS	0.032	0.009	0.098	0.141	0.040	0.429	1	no	no
CONVEYOR #29	CNV029	42" Tower 4 Feed Belt	YES	1500	0.000046	0.000013	0.00014	WS	0.069	0.020	0.210	0.302	0.085	0.920	1	no	no
BIN #1	SBN001	120 Ton Crusher Feed Bin	YES	1100	0.000046	0.000013	0.00014	WS	0.051	0.014	0.154	0.222	0.063	0.675	1	no	no
BIN #2	SBN002	121 Ton Crusher Feed Bin	YES	800	0.000046	0.000013	0.00014	WCO	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
BIN #3	SBN003	122 Ton Crusher Feed Bin	YES	800	0.000046	0.000013	0.00014	WCO	0.037	0.010	0.112	0.161	0.046	0.491	1	no	no
WASH PROCESS																	
SCREEN #6	SCR006	8'x20' TD Wash Screen	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
CONVEYOR #30	CNV030	42" Shuttle Belt	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
CONVEYOR #31	CNV031	30" Manufactured Stand Stacker Belt	NO	400				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #1	TRB001	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #2	TRB002	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #3	TRB003	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #4	TRB004	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #5	TRB005	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			
WASH BIN #6	TRB006	400 T Washed Stone Storage Bin	NO	1500				WP	0.000	0.000	0.000	0.000	0.000	0.000			

NOTES:

WS = WET SUPRESSION
WP = WET PROCESS
WCO = CARRY OVER MOISTURE

TOTAL POTENTIAL PM-10 EMISSIONS	**9.17**	**Lb/Hr**	
TOTAL POTENTIAL CONTROLLED PM-10 EMISSIONS	**40.18**	**Tons/Year**	**@ (8760 Hours/Year)**
TOTAL POTENTIAL PM-2.5 EMISSIONS	**1.16**	**Lb/Hr**	
TOTAL POTENTIAL CONTROLLED PM-2.5 EMISSIONS	**5.09**	**Tons/Year**	**@ (8760 Hours/Year)**
TOTAL POTENTIAL TSP EMISSIONS	**25.78**	**Lb/Hr**	
TOTAL POTENTIAL CONTROLLED TSP EMISSIONS	**112.93**	**Tons/Year**	**@ (8760 Hours/Year)**

Table C-2 - UNCONTROLLED EMISSIONS

Vulcan Construction Materials, LLC - Lexington Quarry

Emission Unit Description	Equipment ID	Description	Subject to NSPS OOO	Capacity (TPH)	Emission Factor (PM10) (lb/ton)	Emission Factor (PM2.5) (lb/ton)	Emission Factor (TSP) (lb/ton)	Emission Control System	Emissions					
									PM10 (lb/hr)	PM2.5 (lb/hr)	TSP (lb/hr)	PM10 (tpy)	PM2.5 (tpy)	TSP (tpy)
GRIZZLY FEEDER & TRK UNLOADING	FDR001	62"x12'x28' Grizzly feeder assembly	YES	1700	0.000016	0.0000011	0.0000336	NONE	0.027	0.002	0.057	0.119	0.008	0.250
PRIMARY CRUSHER #1	CRS001	C160 Jaw Crusher @ 10"CSS	YES	1100	0.0024	0.00044	0.00540	NONE	2.640	0.489	5.940	11.563	2.141	26.017
SECONDARY CRUSHER #2	CRS002	XL900 Standard Cone Crusher	YES	1100	0.0024	0.00044	0.00540	NONE	2.640	0.489	5.940	11.563	2.141	26.017
TERTIARY CRUSHER #3	CRS003	XL900 Shorthead Cone Crusher	YES	850	0.0024	0.00044	0.00540	NONE	2.040	0.378	4.590	8.935	1.655	20.104
TERTIARY CRUSHER #4	CRS004	XL900 Shorthead Cone Crusher	YES	850	0.0024	0.00044	0.00540	NONE	2.040	0.378	4.590	8.935	1.655	20.104
SCREEN #1	SCR001	8'X20' TD Scalping Screen	YES	1700	0.0087	0.00059	0.025	NONE	14.790	0.999	42.500	64.780	4.377	186.150
SCREEN #2	SCR002	8'X20' TD Scalping Screen	YES	1500	0.0087	0.00059	0.025	NONE	13.050	0.882	37.500	57.159	3.862	164.250
SCREEN #3	SCR003	8'X20' TD Scalping Screen	YES	1500	0.0087	0.00059	0.025	NONE	13.050	0.882	37.500	57.159	3.862	164.250
SCREEN #4	SCR004	8'X20' TD Sizing Screen	YES	1500	0.0087	0.00059	0.025	NONE	13.050	0.882	37.500	57.159	3.862	164.250
SCREEN #5	SCR005	8'X20' TD Sizing Screen	YES	1500	0.0087	0.00059	0.025	NONE	13.050	0.882	37.500	57.159	3.862	164.250
CONVEYOR #1	CNV001	54" Short Primary Belt	YES	1700	0.0011	0.00031	0.003	NONE	1.870	0.528	5.100	8.191	2.315	22.338
CONVEYOR #2	CNV002	54" Main Primary Belt	YES	1700	0.0011	0.00031	0.003	NONE	1.870	0.528	5.100	8.191	2.315	22.338
CONVEYOR #3	CNV003	36" Primary Tunnel Belt	YES	1700	0.0011	0.00031	0.003	NONE	1.870	0.528	5.100	8.191	2.315	22.338
CONVEYOR #4	CNV004	36" Crusher Run Transfer Belt	YES	550	0.0011	0.00031	0.003	NONE	0.605	0.171	1.650	2.650	0.749	7.227
CONVEYOR #5	CNV005	36" Crusher Run Stacker	YES	550	0.0011	0.00031	0.003	NONE	0.605	0.171	1.650	2.650	0.749	7.227
CONVEYOR #6	CNV006	48" Rip Rap Belt	YES	600	0.0011	0.00031	0.003	NONE	0.660	0.187	1.800	2.891	0.817	7.884
CONVEYOR #7	CNV007	48" Tower 2 Feed Belt	YES	3000	0.0011	0.00031	0.003	NONE	3.300	0.933	9.000	14.454	4.085	39.420
CONVEYOR #8	CNV008	42" Crusher Feed Bin Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #9	CNV009	42" Crusher Feed Bin Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #10	CNV010	42" Crusher Feeder Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #11	CNV011	42" Crusher Feeder Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #12	CNV012	48" Crusher Discharge Belt	YES	1600	0.0011	0.00031	0.003	NONE	1.760	0.497	4.800	7.709	2.179	21.024
CONVEYOR #13	CNV013	48" Crusher Return Belt	YES	1600	0.0011	0.00031	0.003	NONE	1.760	0.497	4.800	7.709	2.179	21.024
CONVEYOR #14	CNV014	42" Tower 3 Feed Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #15	CNV015	42" Tower 3 Feed Belt	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
CONVEYOR #16	CNV016	36" 3/4" Recrush Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #17	CNV017	36" Screenings Transfer Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #18	CNV018	36" Screenings Stacker Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #19	CNV019	36" 5's Transfer Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #20	CNV020	36" 5's Stacker Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #21	CNV021	36" 6's Transfer Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #22	CNV022	36" 6's Stacker Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #23	CNV023	36" 7's Transfer Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #24	CNV024	36" 7's Stacker Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #25	CNV025	36" 89's Transfer Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #26	CNV026	36" 89's Stacker Belt	YES	500	0.0011	0.00031	0.003	NONE	0.550	0.155	1.500	2.409	0.681	6.570
CONVEYOR #27	CNV027	42" Blending Tunnel Belt	YES	1500	0.0011	0.00031	0.003	NONE	1.650	0.466	4.500	7.227	2.042	19.710
CONVEYOR #28	CNV028	36" Dry Blend Stacker Belt	YES	700	0.0011	0.00031	0.003	NONE	0.770	0.218	2.100	3.373	0.953	9.198
CONVEYOR #29	CNV029	42" Tower 4 Feed Belt	YES	1500	0.0011	0.00031	0.003	NONE	1.650	0.466	4.500	7.227	2.042	19.710
BIN #1	SBN001	120 Ton Crusher Feed Bin	YES	1100	0.0011	0.00031	0.003	NONE	1.210	0.342	3.300	5.300	1.498	14.454
BIN #2	SBN002	121 Ton Crusher Feed Bin	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
BIN #3	SBN003	122 Ton Crusher Feed Bin	YES	800	0.0011	0.00031	0.003	NONE	0.880	0.249	2.400	3.854	1.089	10.512
WASH PROCESS														
SCREEN #6	SCR006	8'x20' TD Wash Screen	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
CONVEYOR #30	CNV030	42" Shuttle Belt	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
CONVEYOR #31	CNV031	30" Manufactured Stand Stacker Belt	NO	400					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #1	TRB001	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #2	TRB002	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #3	TRB003	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #4	TRB004	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #5	TRB005	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000
WASH BIN #6	TRB006	400 T Washed Stone Storage Bin	NO	1500					0.000	0.000	0.000	0.000	0.000	0.000

TOTAL POTENTIAL PM-10 EMISSIONS **109.05** **Lb/Hr**
TOTAL POTENTIAL UN-CONTROLLED PM-10 EMISSIONS **477.63** **Tons/Year** **@ (8760 Hours/Year)**

TOTAL POTENTIAL PM-2.5 EMISSIONS **15.49** **Lb/Hr**
TOTAL POTENTIAL UN-CONTROLLED PM-2.5 EMISSIONS **67.87** **Tons/Year** **@ (8760 Hours/Year)**

TOTAL POTENTIAL TSP EMISSIONS **302.72** **Lb/Hr**
TOTAL POTENTIAL UN-CONTROLLED TSP EMISSIONS **1325.90** **Tons/Year** **@ (8760 Hours/Year)**

Vulcan Construction Materials, LLC - Lexington Quarry
Construction Permit Application
Dewatering Pump (Diesel)

Hours operated per year	8,760		
Pump Capacity	1200	gpm	
Average Rainfall	50	in/yr	
Drainage Basin	122	acres	calculated
Water Inflow to Quarry	165,629,640	gallons/yr	rainfall/12*acres*43560*7.48
Annual Pumping time	2,300.4	hrs	pump capacity / inflow / 60
	287.6	days	pumping time / 8
Tier 4 Engine capacity	220	hp	
	0.560	MMBTU/hr	

Table C-3

Emission Factors	PM-10 [1]	PM-2.5 [1]	NOx [1]	CO [2]	SOx [2]	VOC [2]	CO_2 [3]	CH_4 [3]	N_2O [3]	CO_2e [3]
lb/hp-hr	0.000082	0.000082	0.0033	0.00668	0.00205	2.47E-03				
kg/MMBTU							73.96	3.00E-03	6.00E-04	74.21

[1] John Deere engine Emissions Information; Page 6 of Off-Highway Diesel Engine Ratings publication. PM g/kWh = 0.05, NOx g/kWH = 2 1 kW - 1.34 hp

[2] AP-42 Table 3.3-1 Stationary Diesel Fuel engines 0.0015 % sulfur in No. 2 Fuel Oil

[3] Emission factors for greenhouse gases from distillate fuel oil No.2 combustion are from Tables C-1 and C-2 of 40 CFR 98, Subpart C.

Criteria Pollutant Emissions

Equipment ID	Operating hours per year MAX	Capacity (hp)	Uncontrolled Emissions																	
			PM-10			PM-2.5			NOx			CO			SOx			VOC		
			lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr
Dewatering Pump	8760	220	158.39	0.079	0.018	158.39	0.079	0.018	6335.72	3.168	0.723	12873.70	6.437	1.470	3950.76	1.975	0.451	4760.18	2.38	0.543

Greenhouse Gas Emissions

Equipment ID	Operating hours per year MAX	Capacity (hp)	Uncontrolled Emissions											
			CO2			CH4			N2O			CO2e		
			lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr	lbs/yr	tons/yr	lb/hr
Dewatering Pump	8760	220	799559.39	399.78	91.27	1.48	7.40E-04	1.69E-04	5.48E-07	2.74E-10	6.26E-11	799596.39	399.80	91.28

HAP/TAP	Emission Factor [3]	Uncontrolled HAP Emissions		Daily De-minimus [4]
	lb/MMBtu	lb/hr	tons/yr	lb/day
Benzene	9.33E-04	5.22E-04	6.01E-04	1.8
Toluene	4.09E-04	2.29E-04	2.63E-04	24
Xylene	2.85E-04	1.60E-04	1.83E-04	52.2
1,3-Butadiene	3.91E-05	2.19E-05	2.52E-05	1.326
Formaldehyde	1.18E-03	6.61E-04	7.60E-04	0.18
Acetaldehyde	7.67E-04	4.29E-04	4.94E-04	21.6
Acrolein	9.25E-05	5.18E-05	5.96E-05	0.015
Total HAPs		**2.07E-03**	**2.39E-03**	

[3] AP-42 Table 3.3-2 Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines

[4] Table 1 - Modeling De Minimus Levels for Air Toxics listed in Standard No. 8. South Carolina Air Quality Modeling Guidelines, July 2001

Revised Forms

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Emissions

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* Vulcan Construction Materials, LLC (Lexington Quarry)	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* -	Application Date November 20, 2015

ATTACHMENTS *(Check all the appropriate checkboxes if included as an attachment)*	
☒ Sample Calculations, Emission Factors Used, etc.	☒ Detailed Explanation of Assumptions, Bottlenecks, etc.
☒ Supporting Information: Manufacturer's Data, etc.	☐ Source Test Information
☒ Details on Limits Being Taken for Limited Emissions	☐ NSR Analysis

SUMMARY OF PROJECTED CHANGE IN FACILITY WIDE POTENTIAL EMISSIONS
(Calculated at maximum design capacity.)

Pollutants	Emission Rates Prior to Construction / Modification (tons/year)			Emission Rates After Construction / Modification (tons/year)		
	Uncontrolled	Controlled	Limited	Uncontrolled	Controlled	Limited
Particulate Matter (PM)	N/A	N/A		1325.98	113.01	250
Particulate Matter <10 Microns (PM_{10})	N/A	N/A		477.71	40.25	100
Particulate Matter <2.5 Microns ($PM_{2.5}$)	N/A	N/A		67.94	5.17	
Sulfur Dioxide (SO_2)	N/A	N/A		1.98	1.98	
Nitrogen Oxides (NO_x)	N/A	N/A		3.17	3.17	
Carbon Monoxide (CO)	N/A	N/A		6.44	6.44	
Volatile Organic Compounds (VOC)	N/A	N/A		2.38	2.38	
Lead (Pb)	N/A	N/A		0.000	0.000	
Highest HAP Prior to Construction (CAS #:)	N/A	N/A		N/A	N/A	
Highest HAP After Construction (CAS #: 50000)	N/A	N/A		7.60E-04	0.000	
Total HAP Emissions*	N/A	N/A		2.39E-03	0.000	

Include emissions from exempt equipment and emission increases from process changes that were exempt from construction permits.
(*All HAP emitted from the various equipment or processes must be listed in the appropriate "Potential Emission Rates at Maximum Design Capacity" Table)

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants** (Include CAS #)	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
FDR001	FDR001	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.027	0.119	0.002	0.010	22.8	100
CRS001	CRS001	PM10	AP-42 Table 11.19.2-2 Emission Factors	2.640	11.563	0.594	2.602	22.8	100
CRS002	CRS002	PM10	AP-42 Table 11.19.2-2 Emission Factors	2.640	11.563	0.594	2.602	22.8	100
CRS003	CRS003	PM10	AP-42 Table 11.19.2-2 Emission Factors	2.040	8.935	0.459	2.010	22.8	100
CRS004	CRS004	PM10	AP-42 Table 11.19.2-2 Emission Factors	2.040	8.935	0.459	2.010	22.8	100
SCR001	SCR001	PM10	AP-42 Table 11.19.2-2 Emission Factors	14.790	64.780	1.258	5.510	22.8	100
SCR002	SCR002	PM10	AP-42 Table 11.19.2-2 Emission Factors	13.050	57.159	1.110	4.862	22.8	100
SCR003	SCR003	PM10	AP-42 Table 11.19.2-2 Emission Factors	13.050	57.159	1.110	4.862	22.8	100
SCR004	SCR004	PM10	AP-42 Table 11.19.2-2 Emission Factors	13.050	57.159	1.110	4.862	22.8	100
SCR005	SCR005	PM10	AP-42 Table 11.19.2-2 Emission Factors	13.050	57.159	1.110	4.862	22.8	100
CNV001	CNV001	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.870	8.191	0.078	0.343	22.8	100
CNV002	CNV002	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.870	8.191	0.078	0.343	22.8	100
CNV003	CNV003	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.870	8.191	0.078	0.343	22.8	100
CNV004	CNV004	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.605	2.650	0.025	0.111	22.8	100
CNV005	CNV005	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.605	2.650	0.025	0.111	22.8	100
CNV006	CNV006	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.660	2.891	0.028	0.121	22.8	100
CNV007	CNV007	PM10	AP-42 Table 11.19.2-2 Emission Factors	3.300	14.454	0.138	0.604	22.8	100
CNV008	CNV008	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV009	CNV009	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV010	CNV010	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV011	CNV011	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV012	CNV012	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.760	7.709	0.074	0.322	22.8	100
CNV013	CNV013	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.760	7.709	0.074	0.322	22.8	100
CNV014	CNV014	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV015	CNV015	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
CNV016	CNV016	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV017	CNV017	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV018	CNV018	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV019	CNV019	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV020	CNV020	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV021	CNV021	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV022	CNV022	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV023	CNV023	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV024	CNV024	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants** (Include CAS #)	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
CNV025	CNV025	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV026	CNV026	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.550	2.409	0.023	0.101	22.8	100
CNV027	CNV027	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.650	7.227	0.069	0.302	22.8	100
CNV028	CNV028	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.770	3.373	0.032	0.141	22.8	100
CNV029	CNV029	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.650	7.227	0.069	0.302	22.8	100
SBN001	SBN001	PM10	AP-42 Table 11.19.2-2 Emission Factors	1.210	5.300	0.051	0.222	22.8	100
SBN002	SBN002	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
SBN003	SBN003	PM10	AP-42 Table 11.19.2-2 Emission Factors	0.880	3.854	0.037	0.161	22.8	100
FDR001	FDR001	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.002	0.008	0.000	0.001		
CRS001	CRS001	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.489	2.141	0.110	0.482		
CRS002	CRS002	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.489	2.141	0.110	0.482		
CRS003	CRS003	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.378	1.655	0.085	0.372		
CRS004	CRS004	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.378	1.655	0.085	0.372		
SCR001	SCR001	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.999	4.377	0.085	0.372		
SCR002	SCR002	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.882	3.862	0.075	0.329		
SCR003	SCR003	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.882	3.862	0.075	0.329		
SCR004	SCR004	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.882	3.862	0.075	0.329		
SCR005	SCR005	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.882	3.862	0.075	0.329		
CNV001	CNV001	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.539	2.361	0.022	0.097		
CNV002	CNV002	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.539	2.361	0.022	0.097		
CNV003	CNV003	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.539	2.361	0.022	0.097		
CNV004	CNV004	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.174	0.764	0.007	0.031		
CNV005	CNV005	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.174	0.764	0.007	0.031		
CNV006	CNV006	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.190	0.833	0.008	0.034		
CNV007	CNV007	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.951	4.166	0.039	0.171		
CNV008	CNV008	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV009	CNV009	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV010	CNV010	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV011	CNV011	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV012	CNV012	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.507	2.222	0.021	0.091		
CNV013	CNV013	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.507	2.222	0.021	0.091		
CNV014	CNV014	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV015	CNV015	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
CNV016	CNV016	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants** (Include CAS #)	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
CNV017	CNV017	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV018	CNV018	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV019	CNV019	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV020	CNV020	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV021	CNV021	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV022	CNV022	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV023	CNV023	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV024	CNV024	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV025	CNV025	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV026	CNV026	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.159	0.694	0.007	0.028		
CNV027	CNV027	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.476	2.083	0.020	0.085		
CNV028	CNV028	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.222	0.972	0.009	0.040		
CNV029	CNV029	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.476	2.083	0.020	0.085		
SBN001	SBN001	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.349	1.528	0.014	0.063		
SBN002	SBN002	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
SBN003	SBN003	PM2.5	AP-42 Table 11.19.2-2 Emission Factors	0.254	1.111	0.010	0.046		
SCR006	SCR006	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
CNV030	CNV030	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
CNV031	CNV031	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB001	TRB001	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB002	TRB002	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB003	TRB003	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB004	TRB004	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB005	TRB005	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
TRB006	TRB006	PM10/ PM2.5	Engineering Calculations	0.000	0.000	0.000	0.000		
PUMP1	PUMP1	PM10/PM2.5	AP-42 Table 3.3-1	0.018	0.079	0.018	0.079		
PUMP1	PUMP1	VOC	AP-42 Table 3.3-1	0.543	2.38	0.543	2.38		
PUMP1	PUMP1	NOx	AP-42 Table 3.3-1	0.723	3.168	0.723	3.168		
PUMP1	PUMP1	SOx	AP-42 Table 3.3-1	0.451	1.975	0.451	1.975		
PUMP1	PUMP1	CO	AP-42 Table 3.3-1	1.470	6.437	1.470	6.437		
PUMP1	PUMP1	HAP/TAP Xylene (CAS# 1330207)	AP-42 Table 3.3-2	1.60E-04	1.83E-04	1.60E-04	1.83E-04		

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants (Include CAS #)**	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
PUMP1	PUMP1	HAP/TAP 1,3-Butadiene (CAS# 106990)	AP-42 Table 3.3-2	2.19E-05	2.52E-05	2.19E-05	2.52E-05		
PUMP1	PUMP1	HAP/TAP Formaldehyde (CAS# 50000)	AP-42 Table 3.3-2	6.61E-04	7.60E-04	6.61E-04	7.60E-04		
PUMP1	PUMP1	HAP/TAP Acetaldehyde (CAS# 75070)	AP-42 Table 3.3-2	4.29E-04	4.94E-04	4.29E-04	4.94E-04		
PUMP1	PUMP1	HAP/TAP Acrolein (CAS# 107028)	AP-42 Table 3.3-2	5.18E-05	5.96E-05	5.18E-05	5.96E-05		
PUMP1	PUMP1	HAP/TAP Benzene (CAS# 71432)	AP-42 Table 3.3-2	5.22E-04	6.01e-04	5.22E-04	6.01e-04		
PUMP1	PUMP1	HAP/TAP Toluene (CAS# 108883)	AP-42 Table 3.3-2	2.29e-04	2.63e-04	2.29e-04	2.63e-04		
FDR001	FDR001	PM	AP-42 Table 11.19.2-2 Emission Factors	0.057	0.250	0.005	0.021	57.1	250
CRS001	CRS001	PM	AP-42 Table 11.19.2-2 Emission Factors	5.940	26.017	1.320	5.782	57.1	250
CRS002	CRS002	PM	AP-42 Table 11.19.2-2 Emission Factors	5.940	26.017	1.320	5.782	57.1	250
CRS003	CRS003	PM	AP-42 Table 11.19.2-2 Emission Factors	4.590	20.104	1.020	4.468	57.1	250
CRS004	CRS004	PM	AP-42 Table 11.19.2-2 Emission Factors	4.590	20.104	1.020	4.468	57.1	250
SCR001	SCR001	PM	AP-42 Table 11.19.2-2 Emission Factors	42.500	186.150	3.740	16.381	57.1	250
SCR002	SCR002	PM	AP-42 Table 11.19.2-2 Emission Factors	37.500	164.250	3.300	14.454	57.1	250
SCR003	SCR003	PM	AP-42 Table 11.19.2-2 Emission Factors	37.500	164.250	3.300	14.454	57.1	250
SCR004	SCR004	PM	AP-42 Table 11.19.2-2 Emission Factors	37.500	164.250	3.300	14.454	57.1	250
SCR005	SCR005	PM	AP-42 Table 11.19.2-2 Emission Factors	37.500	164.250	3.300	14.454	57.1	250
CNV001	CNV001	PM	AP-42 Table 11.19.2-2 Emission Factors	5.100	22.338	0.238	1.042	57.1	250
CNV002	CNV002	PM	AP-42 Table 11.19.2-2 Emission Factors	5.100	22.338	0.238	1.042	57.1	250
CNV003	CNV003	PM	AP-42 Table 11.19.2-2 Emission Factors	5.100	22.338	0.238	1.042	57.1	250
CNV004	CNV004	PM	AP-42 Table 11.19.2-2 Emission Factors	1.650	7.227	0.077	0.337	57.1	250
CNV005	CNV005	PM	AP-42 Table 11.19.2-2 Emission Factors	1.650	7.227	0.077	0.337	57.1	250
CNV006	CNV006	PM	AP-42 Table 11.19.2-2 Emission Factors	1.800	7.884	0.084	0.368	57.1	250

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants** (Include CAS #)	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
CNV007	CNV007	PM	AP-42 Table 11.19.2-2 Emission Factors	9.000	39.420	0.420	1.840	57.1	250
CNV008	CNV008	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV009	CNV009	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV010	CNV010	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV011	CNV011	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV012	CNV012	PM	AP-42 Table 11.19.2-2 Emission Factors	4.800	21.024	0.224	0.981	57.1	250
CNV013	CNV013	PM	AP-42 Table 11.19.2-2 Emission Factors	4.800	21.024	0.224	0.981	57.1	250
CNV014	CNV014	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV015	CNV015	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
CNV016	CNV016	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV017	CNV017	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV018	CNV018	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV019	CNV019	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV020	CNV020	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV021	CNV021	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV022	CNV022	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV023	CNV023	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV024	CNV024	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV025	CNV025	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV026	CNV026	PM	AP-42 Table 11.19.2-2 Emission Factors	1.500	6.570	0.070	0.307	57.1	250
CNV027	CNV027	PM	AP-42 Table 11.19.2-2 Emission Factors	4.500	19.710	0.210	0.920	57.1	250
CNV028	CNV028	PM	AP-42 Table 11.19.2-2 Emission Factors	2.100	9.198	0.098	0.429	57.1	250
CNV029	CNV029	PM	AP-42 Table 11.19.2-2 Emission Factors	4.500	19.710	0.210	0.920	57.1	250
SBN001	SBN001	PM	AP-42 Table 11.19.2-2 Emission Factors	3.300	14.454	0.154	0.675	57.1	250
SBN002	SBN002	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250
SBN003	SBN003	PM	AP-42 Table 11.19.2-2 Emission Factors	2.400	10.512	0.112	0.491	57.1	250