NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Issue Date: October 19, 2021

Region: Winston-Salem Regional Office

Permit Applicability (this application only)

NSPS: Yes (40 CFR 60, Subparts I and OOO)

County: Caswell

NESHAP: No PSD: No

112(r): No

NC Facility ID: 1700016

Inspector's Name: To be assigned Date of Last Inspection: N/A Compliance Code: N/A

Facility Data

Applicant (Facility's Name): Carolina Sunrock LLC - Burlington North

Facility Address:

12971 S NC Highway 62

Burlington, NC 27127

Contact Data

Authorized Contact

2951 / Paving Mixtures and Blocks

NAICS: 324121 / Asphalt Paving Mixture and Block Manufacturing

Facility Classification: Before: Permit Pending After: Synthetic Minor

Gregg Bowler

(919) 747-6400

200 Horizon Drive

Raleigh, NC 27615

CFO

Suite 100

Fee Classification:

Compliance Manager

Scott Martino

(984) 202-4761

Suite 100

200 Horizon Drive

Raleigh, NC 27615

Facility Contact

Before: N/A

After: Synthetic Minor

Other: Recycled Fuel Oil

NC Toxics: Yes (2D .1100 and 2O .0711)

Application Data Application Number: 1700016.21A Technical Contact Date Received: April 22, 2021

PSD Avoidance: Yes (SO₂)

Application Type: Greenfield Facility

Application Schedule: State **Existing Permit Data**

Existing Permit Number: N/A Existing Permit Issue Date: N/A

Existing Permit Expiration Date: N/A Comments / Recommendations:

Review Engineer: Leo L. Governale, P.E

Review Engineer's Signature:

Date:

JAHDAL

Scott Martino

(984) 202-4761

Suite 100

200 Horizon Drive

Raleigh, NC 27615

Compliance Manager

Issue Permit Number: 10693R00

Permit Issue Date: October 19, 2021

Permit Expiration Date: September 30, 2029

PURPOSE OF APPLICATION

On April 22, 2021, WSRO-DAQ received an application package from Carolina Sunrock LLC, requesting an Air Permit for a new facility located at 12971 S NC Highway 62, Burlington, Caswell County, NC. Included in the submittal were the appropriate A, B, C and D forms along with supporting documentation and a check in the amount \$400, the application fee required for a Greenfield Synthetic Minor facility. It is noted that this proposed site is located in an area without zoning; therefore, the applicant is required to publish a legal notice in accordance with 2Q .0113. The application also contained a letter that stated that a public notice was published on April 7, 2021 in the Caswell Messenger and a sign was posted on April 1, 2021. A notarized Affidavit of Publication was also included with a scanned copy of the newspaper clipping. Date-stamped photographs provided indicate that the sign was posted as required on April 1, 2021.

The contact information provided in the application was entered in the IBEAM database. Carolina Sunrock LLC is duly registered under this name with the North Carolina Secretary of State (NCSOS) - Division of Corporations and holds a current-active status, as verified by this reviewer via online search of the NCSOS database.

Application Chronology

	Application Chronology	
Date	Event	Comment
April 22, 2021	Application received	Application deemed complete; clock started
June 14, 2021	Request for additional information; need completed C1 forms for Bagfilters and revised modeling analysis	Clock stopped
July 8, 2021	Additional information received	Clock restarted
August 9, 2021	Facility notified that draft permit will be noticed to the public and posted for public comment period.	Clock stopped

Application Chronology (continued)

da Date	Event	Comment
September 20, 2021	Public Hearing	Clock restarted
September 22, 2021	Public comment period ends	Clock remains on
October 19, 2021	Hearing Officer Report submitted	Clock remains on
October 19, 2021	Hearing Officer Report approval	
October 19, 2021	Permit issued	

II. DESCRIPTION OF BUSINESS

Information contained in the application states that this facility will include a Drum Mix Asphalt Plant (250 tons per hour maximum capacity), RAP Crushing System, and a Truck Mix Concrete Batch Plant (120 cubic yards per hour). The Permitted Emission Sources and Insignificant/Exempt Activities are listed in the following tables:

Permitted Emission Sources

Emission Source ID	Emission Source Description	Control System ID	Control System Description
Source 19	One Drum Mix Asphalt Plant (250 tons per hour maximum	E 8:10:0001000000000000000000000000000000	ACCUSED BY A CONTRACT OF THE C
HMA-1 (NSPS-I)	Propane/Natural Gas/No. 2 Fuel Oil/Recycled No. 2 Fuel Oil/Recycled No. 4 Fuel Oil-fired Drum-type Hot Mix Asphalt Plant (80 million Btu per hour maximum heat input capacity)	HMA-CD1	Cyclone in series with Bagfilter (9,299 square feet of filter area)
HMA-Silo1	Hot Mix Asphalt Storage Silo (150 tons maximum capacity)	N/A	N/A
HMA-Silo2	Hot Mix Asphalt Storage Silo (150 tons maximum capacity)	N/A	N/A
HMA-Silo3	Hot Mix Asphalt Storage Silo (200 tons maximum capacity)	N/A	N/A
HMA-Silo4	Hot Mix Asphalt Storage Silo (200 tons maximum capacity)	N/A	N/A
HMA-Silo5	Hot Mix Asphalt Storage Silo (200 tons maximum capacity)	N/A	N/A
HMA-LO1	Asphalt Loadout Operation Silo 1	N/A	N/A
HMA-LO2	Asphalt Loadout Operation Silo 2	N/A	N/A
HMA-LO3	Asphalt Loadout Operation Silo 3	N/A	N/A
HMA-LO4	Asphalt Loadout Operation Silo 4	N/A	N/A
HMA-LO5	Asphalt Loadout Operation Silo 5	N/A	N/A
HMA-H1	Natural Gas/No. 2 Fuel ULSD Oil-fired Liquid Asphalt Cement Heater (1.2 million Btu per hour maximum heat input)	N/A	N/A
HMA-H2	Natural Gas/No. 2 Fuel ULSD Oil-fired Liquid Asphalt Cement Heater (1.1 million Btu per hour maximum heat input)	N/A	N/A
apodes 25 octobro do estado de El camado Saulin alta partiral	RAP Crushing System* consisting of		
RAP-CRSH [NSPS-OOO]	RAP Impact Crusher (65 tons per hour maximum rated capacity)	N/A	N/A
RAP-CNV [NSPS-OOO]	Four (4) Conveyors	N/A	N/A
RAP-SCN [NSPS-OOO]	8' x 20' Double Deck Screen	N/A	N/A

Permitted Emission Sources (continued)

oscialite de la maria de la constanta de la co	Truck Mix Concrete Batch Plant (120 cubic yards per hour maxin	num capacity), con	sisting of:
RM-1	Cement Storage Silo (200-ton capacity)	RMC-CD2	Bagfilter (1,433 square feet of filter area)
RM-2	Flyash Storage Silo (200-ton capacity)	The state of the s	
RM-3	Truck Loadout Point	N/A	N/A
RM-4	Cement/Flyash Weigh Batcher (5-ton maximum capacity)	14/1	11//1
RM-5	Aggregate Weigh Batcher (20-ton maximum capacity)	1.	

^{*} According to the narrative submitted, the RAP Crushing System will also periodically use a mobile crusher (also rated at 65 tph) which may temporarily reside at the new Burlington facility but moves from site to site. This crusher has an associated diesel-fired generator. This mobile crusher is exempt from permitting in accordance with 15A NCAC 2Q.0902, which exempts temporary crushers. It is DAQ's policy, per the March 13, 2003 memorandum from Keith Overcash, that portable crushers are exempt from air permitting requirements.

Insignificant/Exempt Sources

Source	Exemption Regulation	Source of TAPs?	Source of Title V Pollutants?
IES-1, IES-2 - Two (2) Used Oil Storage Tanks associated with Asphalt Plant (20,000-gallon capacity, each)	2Q .0102 (g)(4) "storage tanks with		
IES-3, IES-4 - Two (2) Liquid Asphalt Storage Tanks (30,000-gallon capacity, each)	no applicable requirements other than Stage I controls pursuant to 15A NCAC 02D .0928,	Yes	Yes
IES-5, IES-6 - Two (2) Diesel Fuel Storage Tanks associated with Asphalt Plant (20,000-gallon capacity, each)	Gasoline Service Stations Stage I"		

III. REVIEW OF REGULATIONS

The following North Carolina Administrative Code Title 15A regulations were evaluated under this review:

- 2D .0202 Registration of Air Pollution Sources
- 2D .0501(c) Compliance with National Ambient Air Quality Standards
- 2D .0503 Particulates from Fuel Burning Indirect Heat Exchangers
- 2D .0506 Particulates from Hot Mix Asphalt (HMA) Plants
- 2D .0510 Particulates from Sand, Gravel, or Crushed Stone Operations
- 2D .0515 Particulates from Miscellaneous Industrial Processes
- 2D .0516 Sulfur Dioxide (SO₂) Emissions from Combustion Sources
- 2D .0521 Control of Visible Emissions (VE)
- 2D .0524 New Source Performance Standards (NSPS)
- 2D .0535 Excess Emissions Reporting and Malfunctions
- 2D .0540 Particulates from Fugitive Dust Emission Sources
- 2D .0605 General Recordkeeping and Reporting Requirements
- 2D .0611 Monitoring Emissions from Other Sources
- 2D .1100 Control of Toxic Air Pollutants (TAPs)
- 2D .1806 Control and Prohibition of Odorous Emissions
- 2Q .0304 Zoning Specific Condition (Not Listed on Permit)
- 2Q .0315 Synthetic Minor Facilities
- 2Q .0317 Avoidance Condition (PSD and Toxics)
- 2Q .0711 Emission Rates Requiring a Permit

CONTROL DEVICE EVALUATION Bagfilter HMA-CD1

The proposed Bagfilter (HMA-CD1), associated with the Hot Mix Asphalt Plant (HMA-1), was evaluated using the NCDENR Bagfilter Evaluation Spreadsheet - Version 3.3, September 23, 1999 (see Attachment A1). The following table lists the characteristics based on the data provided on revised Form C1 dated July 7, 2021.

Material Controlled	Abrasive Dust
No. of Compartments	12
No. of Bags per Compartment	64
Bag Length / Bag Diameter	120 in. / 4 5/8 in.
Filter Surface Area	9,299 ft²
Inlet Air Flow Rate:	51,111 ACFM
Air to Cloth Ratio	5.5:1
Filter Material	Aramid (Nomex)
Max. Operation Temperature	325 °F
Cleaning Procedure	Air Pulse
Claimed Capture Efficiency	99% for PM/PM ₁₀

According to the spreadsheet, the filtering velocity of 5.5 fpm does not exceed the typical filtering velocity of 10.0 fpm and the filter fabric is appropriate for both the maximum operating temperature and chemical resistance to acids, alkalis, and organics. Also, the control efficiency as stated in the application seems reasonable, so the Bagfilter was assessed as an adequate control device. Pursuant to 15A NCAC 02Q .0112, the technical portions of the permit application related equipment controlling emissions of particulate matter with air flow rates of greater than 10,000 actual cubic feet per minute are required to be sealed by a licensed Professional Engineer (P.E.). This certification was provided on Application Form D5, bearing the seal and signature of Aimee L. Andrews, P.E., NC Professional Engineer No. 029987.

Bagfilter RMC-CD2

The proposed Bagfilter (RMC-CD2), associated with the Concrete Batch Plant, was evaluated using the NCDENR Bagfilter Evaluation Spreadsheet - Version 3.3, September 23, 1999 (see Attachment A2). The following table lists the characteristics based on the data provided on revised Form C1 dated July 7, 2021.

Material Controlled	Cement/Fly Ash
No. of Compartments	1
No. of Bags per Compartment	72
Bag Length / Bag Diameter	114 in. / 8 in.
Filter Surface Area	1,433 ft²
Inlet Air Flow Rate:	6,500 ACFM
Air to Cloth Ratio	4.54:1
Filter Material	Felt Polyester (Dacron)
Max. Operation Temperature	70 °F
Cleaning Procedure	Air Pulse
Claimed Capture Efficiency	99% for PM/PM ₁₀

According to the spreadsheet, the filtering velocity of 4.5 fpm does not exceed the typical filtering velocity of 8.0 fpm and the filter fabric is appropriate for both the maximum operating temperature and chemical resistance to acids, alkalis, and organics. Also, the control efficiency as stated in the application seems reasonable, so the Bagfilter was assessed as an adequate control device. It is noted that, because the air flow rate does not exceed 10,000 ACFM, a P.E. seal is not required.

2D .0202 - Registration of Air Pollution Sources

This regulation allows the Director to require a facility to report, as in this case, total weights and kinds of air pollution released as well as any other information considered essential in evaluating the potential of the source to cause air pollution. In accordance with this regulation, the facility will be required to submit a CY 2028 Emissions Inventory at least ninety (90) days prior to September 30, 2029, which is the expiration date of this Air Permit.

It is reasonable to anticipate compliance.

2D .0501(c) - Compliance with National Ambient Air Quality Standards

In addition to any control or manner of operation necessary to meet emission standards in 2D .0500, any source of air pollution shall be operated with such control or in such manner that the source shall not cause the ambient air quality standards pursuant to 2D .0400 to be exceeded at any point beyond the premises on which the source is located. When controls more stringent than those named in the applicable emission standards in this Section are required to prevent violation of the ambient air quality standards or are required to create an offset, the permit shall contain a condition requiring these controls.

A sitewide National Ambient Air Quality Standards (NAAQS) dispersion modeling analysis was reviewed by Matthew Porter, Meteorologist, Air Quality Analysis Branch (AQAB), based on information submitted by the Permittee on March 2, 2021, and revised March 10, 2021. The dispersion modeling analysis was conducted to evaluate the combined criteria air pollutant ambient impacts from all operations located at the site, which included emissions from the proposed construction and operation of a hot mix asphalt plant and concrete batch plant. Sitewide criteria pollutants including particulate matter (PM, PM_{2.5} and PM₁₀), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) were modeled for comparison with the NAAQS. Subsequently, Mr. Porter issued a memorandum, dated March 23, 2021, stating that the sitewide dispersion modeling analysis of criteria air pollutant emissions adequately demonstrated compliance with the NAAQS, on a source-by-source basis. The maximum modeled impacts are provided in following table.

Pollutant	Averaging Period	NÄAQS (µg/m3)	Background Concentration (µg/m3)	Modeled Impact (µg/m3)	Total Impact (μg/m3)	% of NAAQS
	24-hour	150		145.32	145.32	97%
PM	Annual	75		27.36	27.36	36%
PM ₁₀	24-hour	150	17	54.48	71.48	48%
	24-hour	35	15	8.80	23.80	68%
PM _{2,5}	Annual	12	7.3	1.35	8.65	72%
SO_2	1-hour	196	83.8	39.87	123.67	63%
NO ₂	1-hour	188	15.3	129.73	145.03	77%

The following requirements will be placed in the permit under this condition:

Placement of the emission sources, configuration of the emission points, and operation of the sources shall be in accordance with the submitted sitewide NAAQS dispersion modeling analysis and should reflect the modeling analysis that was approved by the DAQ Air Quality Analysis Branch (AQAB) on March 23, 2021.

- a. Production Limitations To ensure compliance with 2D.0501(c), the Permittee shall operate the modeled sources in accordance with the operating restrictions presented in 2Q .0315 Synthetic Minor condition, below.
- b. Water Truck An operable water truck shall be available on site at all times while the plant is operating. The roads and front end loader work area shall be adequately maintained by wet suppression to minimize fugitive emissions.

2D .0503 - Particulates from Fuel Burning Indirect Heat Exchangers

This regulation applies to the two (2) Natural Gas/No. 2 Fuel ULSD Oil-fired Asphalt Cement Heaters (HMA-H1 and HMA-H2), and it limits particulate emissions according to the following equation:

$$E = 1.09 \times O^{-0.2594}$$

where: E = allowable emission limit for particulate matter in lb./MMBtu

Q = maximum total heat input of all fuel burning indirect heat exchangers in MMBtu/hr.,

except where the maximum total heat input is ≤ 10 MMBtu/hr., as in this case, then E = 0.60 lb./MMBtu

Using the AP-42 emission factor for Fuel Oil – Tables 1.3-1 and 1.3-2, rev 5/10, and Natural Gas – Table 1.4-2, rev 7/98, the actual emissions rates are calculated as follows:

 $E_{actual - Natural Gas} = 7.6 \text{ lb. } PM_{total}/10^6 \text{ scf} / 1,020 \text{ MMBtu}/10^6 \text{ scf} = \underline{0.007 \text{ lb. } PM/MMBtu}$

 $E_{\text{actual} - \text{No. 2 Fuel Oil}} = (2 \text{ lb. PM}_{\text{filterable}} + 1.3 \text{ lb. PM}_{\text{condensable}})/10^3 \text{ gallons} / 140 \text{ MMBtu}/10^3 \text{ gallons} = 0.024 \text{ lb. PM}/\text{MMBtu}/10^3 \text{ lb. PM}/\text{MMBtu}/$

0.007; 0.024 lb. PM/MMBtu < 0.60 lb. PM/MMBtu \rightarrow O.K.

Based on the foregoing, actual emissions for combustion of No. 2 Fuel ULSD Oil and Natural Gas are less than the allowable emissions limit; therefore, compliance is demonstrated.

2D .0506 - "Particulates from Hot Mix Asphalt Plants"

This regulation is applicable to both filterable and condensable particulate emissions from the plant. It limits the allowable particulate matter emissions from Hot Mix Asphalt Plants as calculated by the following equations:

 $E = 4.9445(P)^{0.4376}$

if P < 300 tons/hr.

E = 60.00

if $P \ge 300$ tons/hr.

where: P = the process rate in tons/hr.

E = the maximum allowable emission rate for PM in lb./hr.

Since the permitted process rate is 250 tons per hour, this plant's allowable PM emission rate is calculated as follows:

$$E = 4.9445(250)^{0.4376} = 55.4 \text{ lb. PM/hr.}$$

Using AP-42 emission factor for Drum Mix Asphalt Plants (Table 11.1-3, 3/04), the emission factor total PM for a Drum Mix HMA plant controlled by a fabric filter is 0.033 lb. PM/ton of asphalt; therefore, the actual expected PM emission rate is calculated as follows:

 $PM = 0.033 \text{ lb. } PM/ton \times 250 \text{ ton/hr.} = 8.25 \text{ lb. } PM/hr.$

8.25 lb, PM/hr,
$$<$$
 55.4 lb. PM/hr. \rightarrow O.K.

Also, this regulation requires that visible emissions from stacks or vents at a HMA plant shall be less than 20% opacity when averaged over a six-minute period and that fugitive dust shall be controlled as required by 2D .0540 (discussed below). A source test on the Drum-type Hot Mix Asphalt Plant (HMA-1) controlled by a Bagfilter (HMA-CD1) will be required within 60 days after achieving the maximum production rate at which the affected source(s) will be operated, but not later than 180 days after the initial start-up of the affected source(s), the Permittee shall conduct the required performance test(s) to verify compliance with this rule and Subpart I. See 2D .0605 of this review for more details regarding testing. Per the Memorandum "Hot Mix Asphalt Plant Performance Testing/Emission Testing Frequency" issued August 13, 2013, by Sheila Holman, former DAQ Director, the facility must test for compliance at least once every ten (10) years. If the emission sources operate according to manufacturer specifications and with the permitted bagfilter, the sources should be in compliance with this regulation.

2D .0510 - Particulates from Sand, Gravel, or Crushed Stone Operations

This facility, engaging in sand, gravel, recycled asphalt pavement (RAP), or crushed stone operations, must not cause, allow, or permit any material to be produced, handled, transported, or stockpiled without taking measures to reduce to a minimum any particulate matter from becoming airborne. This is in order to prevent exceeding the ambient air quality standards beyond the property line for particulate matter. Fugitive dust shall be controlled as required by 2D .0540 as discussed below. Process generated emissions from crushers, conveyors, screens, and transfer points shall be controlled so that opacity standards required by 2D .0521 and 2D. 0524, as applicable, are not exceeded. It seems reasonable to anticipate compliance.

2D .0515 - Particulates from Miscellaneous Industrial Processes

This rule is applicable to particulate matter (PM) emissions from all Concrete Batch Plant sources at this facility and it limits the allowable PM emissions as derived by the following equations:

 $E = 4.10 (P)^{0.67}$

if $P \le 30$ tons per hour

or

 $E = 55.0 (P)^{0.11} - 40$

if P > 30 tons per hour

where: P = the process rate in tons per hour, and

E = maximum allowable emission rate of PM in pounds per hour

Expected actual controlled emission rates were calculated using the NCDENR Concrete Batch Plant Emissions Calculator Spreadsheet, Revision D - October 15, 2015. The process weight rates for the Cement Silo and Flyash Silo were taken from information provided with the application. Process weight rates for the Truck Loadout Point, Cement/Flyash Weigh Batcher and Aggregate Weigh Batcher were calculated by this reviewer as indicated in the table footnotes. The following table indicates that the facility can comply with this rule when the Bagfilter (RMC-CD2) is installed and properly operated and maintained on the respective emission sources.

Emission Source (ID No.)	Process Weight Rate (P) [tons/hr.]	Allowable Emissions Rate (E) 2D .0515 Limit [lb. PM/hr.]	Expected Controlled Actual Emissions Rate ⁵ [lb. PM/hr.]	Expected Uncontrolled Actual Emissions Rate [lb, PM/hr.]
Cement Silo (RM-1)	40.001	42.53	0.027	27.007
Flyash Silo (RM-2)	50.00¹	44.58	0.079	79.0 ⁷
Truck Loadout Point (RM-3)	240.96 ²	60.55	1.001	52.21 ⁷
Cement/Flyash Weigh Batcher (RM-4)	35.76 ³	41.51	1.0016	52.217
Aggregate Weigh Batcher (RM-5)	205.20 ⁴	58.78	N/A	0.985 ⁸

Taken from information provided with the application and as shown on the NCDENR Spreadsheet.

2D .0516 - Sulfur Dioxide Emissions from Combustion Sources

This regulation applies to the Propane/Natural Gas/No. 2 Fuel Oil/Recycled No. 2 Fuel Oil/Recycled No. 4 Fuel Oil-fired Drum-type Asphalt Plant (HMA-1) and the two (2) Natural Gas/No. 2 ULSD Fuel Oil-fired Asphalt Heaters (HMA-H1 and HMA-H2), and it limits the emissions of sulfur dioxide (SO₂) from any source of combustion that is discharged from any vent, stack, or chimney to 2.3 lb. SO₂ /MMBtu input.

For the drum dryer/mixer associated with the Asphalt Plant (HMA-1), the SO₂ emission rate is equal to 0.0003 lb./MMBtu when combusting Natural Gas, 0.253 lb./MMBtu when combusting No. 2 Fuel Oil, and 0.262 lb./MMBtu when combusting No. 4 Fuel Oil, as demonstrated below. It is assumed that No. 4 Fuel Oil has the same emission factor as Waste Oil and the emission factor for Propane is similar to that for Natural Gas.

² 120 yd³/hr. × (448 lb. Cement/yd³ + 148 lb. Flyash/yd³ + 1,980 lb. Coarse Aggregate/yd³ + 1,440 lb. Sand/yd³) ÷ 2,000 lb./ton = 240.96 ton/hr.

 $^{^{3}}$ 120 yd 3 /hr. × (448 lb. Cement/yd 3 + 148 lb. Flyash/yd 3) ÷ 2,000 lb./ton = 35.76 ton/hr.

⁴ 120 yd³/hr. × (1,980 lb. Coarse Aggregate/yd³ + 1,440 lb. Sand/yd³) ÷ 2,000 lb./ton = 205.20 ton/hr.

⁵ From the NCDENR Spreadsheet. Aggregate Weigh Batcher emissions are uncontrolled.

⁶ As noted in the spreadsheet "Truck/Central Mix emission factors include emissions from cement and supplement weigh hoppers," and so, to be conservative, the Cement/Flyash Weigh Batcher emission rate is shown the same as the Truck Loadout emission rate.

From NCDENR Concrete Batch Emissions Calculator Spreadsheet – Revision D, October 15, 2015.

⁸ 205.20 tons/hr. x 0.0048 lb. PM/ton (uncontrolled PM emission factor from AP-42 Table 11.12-2) = 0.985 lb. PM/hr.

Natural Gas (AP-42, Table 11.1-7)

 $\overline{SO_2} = 0.0001$ lb./ton of asphalt produced × 250 ton/hr. + 80 MMBtu/hr. = 0.0003 lb./MMBtu < 2.3 lb./MMBtu \rightarrow O.K.

No. 2 Fuel Oil - 0.50% sulfur (NCDENR Asphalt Emissions Calculator Spreadsheet Revision G, 08/30/2019)

 $SO_2 = 0.0811$ lb./ton of asphalt produced \times 250 ton/hr. \div 80 MMBtu/hr. = 0.253 lb./MMBtu < 2.3 lb./MMBtu \rightarrow O.K.

No. 4 Fuel Oil - 0.50% sulfur (NCDENR Asphalt Emissions Calculator Spreadsheet Revision G, 08/30/2019)

 $SO_2 = 0.0837$ lb./ton of asphalt produced \times 250 ton/hr. \div 80 MMBtu/hr. = 0.262 lb./MMBtu < 2.3 lb./MMBtu \rightarrow O.K.

For the two (2) Natural Gas/No. 2 Fuel Oil-fired Asphalt Heaters (HMA-H1 and HMA-H2), the SO₂ emission rate is equal to 0.00059 lb./MMBtu when combusting Natural Gas and 0.00152 lb./MMBtu when combusting No. 2 ULSD Fuel Oil as demonstrated below. The first equation assumes the sulfur content of Natural Gas is 2,000 grains/10⁶ scf, and the average heating value of Natural Gas is 1,020 Btu/scf. The second equation assumes a No. 2 ULSD Fuel Oil sulfur content (S) of 0.0015% by weight, and the average heating value of No. 2 Fuel Oil is 140,000 Btu/gal. Compliance is demonstrated.

Natural Gas (AP-42, Table 1.4-2)

 $SO_2 = 0.6 \text{ lb.}/10^6 \text{ scf} \times (10^6 \text{ scf}/1,020 \text{ MMBtu}) = 0.00059 \text{ lb.}/\text{MMBtu} < 2.3 \text{ lb.}/\text{MMBtu} \rightarrow \text{O.K.}$

No. 2 Fuel Oil (AP-42, Table 1.3-1)

 $SO_2 = 142 \times S$ (S = 0.0015) lb./10³ gal × (10³ gal/140 MMBtu) = 0.00152 lb./MMBtu < 2.3 lb./MMBtu \rightarrow O.K.

2D .0521 - Control of Visible Emissions

This rule applies to all fuel burning operations and industrial processes where visible emissions can reasonably be expected to occur and limits visible emissions to 40% opacity for sources manufactured as of July 1, 1971 and to 20% opacity for sources manufactured after July 1, 1971, when averaged over a six-minute period. The visible emissions from the Drum-mix Hot Mix Asphalt Plant (HMA-1) is subject to both 2D .0506 and 2D .0524, and the RAP Operations are subject to 2D .0524. Therefore, this rule regulates visible emissions from the rest of the emission sources. Because all sources are new, it is reasonable to assume that they were manufactured after July 1, 1971, and so the 20% opacity limit applies. Compliance is expected with proper operation and maintenance of the subject equipment and associated control devices, where applicable.

2D .0524 - New Source Performance Standards (NSPS)

This facility is subject to 40 CFR Part 60, Subpart I – "Standards of Performance for Hot Mix Asphalt Plants," and it applies to particulate emissions from hot mix asphalt facilities that commence construction or modification after June 11, 1973, as in this case. Within 15 days after start-up of the HMA plant, the Permittee is required to notify the DAQ of the start-up date in writing. The facility shall not discharge into the atmosphere from the affected source any gases which contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf) or exhibit 20% opacity or greater. A source test on the HMA plant (HMA-1), controlled by a Bagfilter (HMA-CD1) will need to be conducted to determine the HMA plant's particulate matter and visible emissions. See 2D .0605 below for additional details regarding testing. It is reasonable to anticipate compliance.

The facility is also subject to 40 CFR 60, Subpart QOO for "Nonmetallic Mineral Processing Plants." This rule applies to each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck, or railcar loading station (sources) at fixed or portable nonmetallic mineral processing plants that commenced construction, reconstruction, or modification after August 31, 1983, except, in part, to fixed plants with capacities of 25 tons per hour or less or portable plants with capacities of 150 tons per hour or less. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this Subpart. Therefore, the RAP Crushing System, comprising of the Crusher, four (4) Conveyors, and a Screen (RAP-CRSH, RAP-CNV, and ES-SCN, respectively), is subject to this rule. Within 15 days after start-up of each source, the facility is required to notify the DAQ of the start-up date in writing. For affected sources that commenced construction, modification, or reconstruction after August 31, 1983, but before April 22, 2008, visible emissions are limited to 15% opacity for crushers and 10% opacity for fugitive emissions from conveyor belts, screening operations, and other affected sources.

For sources constructed, modified, or reconstructed on or after April 22, 2008, visible emissions are limited to 12% opacity for crushers and 7% opacity for fugitive emissions from conveyor belts, screening operations, and other affected sources. Monthly inspection requirements apply for affected sources that were constructed on or after April 22, 2008, and that use wet suppression to control emissions. A source test using EPA Method 9 on the crusher, screen, and conveyor will need to be conducted to determine their compliance with the respective opacity limits. It is reasonable to anticipate compliance.

2D. 0535 - Excess Emissions Reporting and Malfunctions

This facility is subject to this regulation. In accordance with section (f) of this rule, the Permittee must notify DAQ in the event of a source of excess emissions that last for more than four (4) hours and that result from a malfunction, a breakdown of process or control equipment, or any other abnormal conditions. It is reasonable to anticipate compliance.

2D .0540 - Particulates from Fugitive Dust Emission Sources

This facility is subject to this regulation. It applies to particulate emissions that do not pass through a process stack or vent and are generated within plant property boundaries. If fugitive dust emissions cause excessive visible emissions beyond property boundaries, or cause substantive complaints, the Director may require the facility to develop, implement, and comply with a fugitive dust control plan. It is reasonable to anticipate compliance.

2D .0605 - General Recordkeeping and Reporting Requirements

This rule allows the DAQ to require any monitoring, recordkeeping, reporting, or testing it deems necessary for the facility to demonstrate compliance with an emission standard or permit condition. As mentioned previously, a memorandum titled "Hot Mix Asphalt Plant Performance Testing/Emission Testing Frequency" was issued August 13, 2013, by Sheila Holman, former DAQ Director. This requires all hot mix asphalt plants to test for compliance with 2D .0506 at least once every 10 years. The results also happen to reinforce compliance with 2D .0524 (NSPS Subpart I). The stack testing is for filterable and condensable particulate matter using EPA Methods 5 and 202, respectively. Additionally, EPA Method 9 is required for visible emissions from the HMA plant, as this is the initial test. The tests must be conducted within 60 days after achieving the maximum production rate at which the affected source(s) will be operated, but not later than 180 days after the initial start-up of the affected source(s), the Permittee shall conduct the required performance test(s) and submit two copies of a written report of the test(s) to the Regional Supervisor, DAQ. The facility must test while combusting the fuel that will be utilized for the majority of the operating time. In accordance with 2D .2602, a testing protocol must be provided to DAQ prior to testing. Protocols are not required to be approved before the test date, but those that are received at least 45 days prior to the test date will be reviewed. The facility must provide at least 30 days notice in written form of any required performance testing, to provide DAQ the opportunity to have an observer present. It is reasonable to anticipate compliance.

2D .0611 - Monitoring Emissions from Other Sources

This rule applies to the Cyclone in series with Bagfilter (HMA-CD1) associated with the Drum Mix Asphalt Plant and Bagfilter (RMC-CD2) associated with the Truck Mix Concrete Batch Plant. It allows the Director to require the facility to conduct monitoring in order to demonstrate compliance with rules in Subchapters 2D and 2Q and is the basis for requiring control device inspections in the Air Permit. This facility will be required to perform periodic inspections and maintenance (I&M) as recommended by the manufacturer. At a minimum, this facility will be required to perform an annual internal inspection of each bagfilter. Records of all inspections and maintenance with dates and descriptions should be kept in a log book (written or electronic format) located on-site. This log book should be made available to DAQ personnel upon request. It is reasonable to anticipate compliance.

2D .1100 - Control of Toxic Air Pollutants (TAPs)

A toxics review has been triggered because the HMA plant and associated sources will emit toxic air pollutants (TAPs). The facility modeled for Arsenic, Benzene, Formaldehyde, Mercury, and Nickel due to expected actual emissions of these TAPs being above their respective toxic permit emission rates (TPERs) listed at 2Q .0711. The sources of these TAP emissions are the HMA Plant (HMA1), the five (5) HMA Storage Silos (HMA-Silo1 through HMA-Silo5), the Asphalt Loadout Operations (HMA-LO1 through HMA-LO5), the two (2) Asphalt Cement Heaters (HMA-H1 and HMA-H2), and the Concrete Batch Plant. Note that the heaters cannot be exempt from toxics per 2Q .0702 (a)(18), because they are combustion sources permitted after July 10, 2010. TAPs are also expected to be emitted from the exempt storage tanks containing No. 4/Used Oil/Diesel Fuel¹ (IES-1, IES-2 and IES-3) and Liquid Asphalt² (IES-4 and IES-5), but these sources currently qualify for exemption from toxics rules per 2Q .0702 (a)(19)(B) for "storage tanks used only to store: fuel oils [...] or petroleum products with a true vapor pressure (TVP) less than 1.5 pounds per square inch absolute."

On July 27, 2021, Nancy Jones, Meteorologist, Air Quality Analysis Branch (AQAB) issued a Memorandum regarding the analysis stating that "The purpose for modeling was to demonstrate compliance with guidelines specified in 15A NCAC 2D .1104 for Toxic Air Pollutants (TAPs) emitted in excess of the Toxic Permitting Emission Rates (TPERs) listed in 15A NCAC 2Q .0711. The modeling adequately demonstrates compliance, on a source-by-source basis, for all toxics modeled."

¹ Distillate Fuel Oil has a TVP of 0.062 kPa (0.0090 psi) at 700 F (AP-42 7.1, Organic Liquid Storage Tanks, rev. 11/06, Table 7.1-2).

² Liquid Asphalt has a TVP less than 0.12 kPa (0.017 psi) at 325° F (AP-42 11.1 HMA plants, background document, 2/2004, p. 4-82).

The following table illustrates the maximum impacts from the modeling:

Maximum Modeled TAP Impacts

TAP Averaging Period AAL [μg/m³] AAL [%]					
Arsenic	Annual	0.0021	5		
Benzene	Aimuai	0.12	10		
Formaldehyde	1-h r	150	4		
Mercury	24-hr	0.60	<1		
Nickel	∠4• III	6	1		

TAP Emission Limits

Emission(s) Source	TAP (CAS#)	Emission Limit
Propane/Natural Gas/No. 2 Fuel Oil/Recycled No. 2	Arsenic unlisted compounds (ASC-other)	1.23 lb./yr.
Fuel Oil/Recycled No. 4 Fuel Oil-fired	Benzene (71-43-2)	854.0 lb./yr.
Drum-type	Formaldehyde (50-00-0)	0.775 lb./hr.
Hot Mix Asphalt Plant	Mercury vapor (7439-97-6)	0.0156 lb./24-hr
Baghouse (HMA-CD1)	Nickel metal (7440-02-0)	0.379 lb./24-hr
Truck Mix Concrete Batch Plant Bagfilter	Arsenic unlisted compounds (ASC-other)	0.577 lb./yr.
(RMC-CD2)	Nickel metal (7440-02-0)	0.00462 lb./24-hr
	Arsenic unlisted compounds (ASC-other)	0.042 lb./yr.
Natural Gas/No. 2	Benzene (71-43-2)	0.206 lb./yr.
Fuel Oil-fired Asphalt Cement Heater	Formaldehyde (50-00-0)	0.000411 lb./hr.
(HMA-H1)	Mercury vapor (7439-97-6)	0.0000864 lb./24-hr
	Nickel metal (7440-02-0)	0.0000864 lb./24-hr
	Arsenic unlisted compounds (ASC-other)	0.0385 lb./yr.
Natural Gas/No. 2 Fuel Oil-fired	Benzene (71-43-2)	0.189 lb./yr.
Asphalt Cement Heater	Formaldehyde (50-00-0)	0.000377 lb./hr.
(HMA-H2)	Mercury vapor (7439-97-6)	0.0000792 lb./24-hr
-	Nickel metal (7440-02-0)	0.0000792 lb./24-hr
Five (5) Hot Mix Asphalt Storage Silos	Benzene (71-43-2)	8.54 lb./yr.
(HMA-Silo 1 through HMA-Silo 5)	Formaldehyde (50-00-0)	0.021 lb./hr.
Five (5) Asphalt Loadout Operation Silos (HMA-	Benzene (71-43-2)	4.73 lb./yr.
LO1 through HMA-LO5)	Formaldehyde (50-00-0)	0.000915 lb./hr.

Compliance with the above is demonstrated by complying with the Synthetic Minor limits noted under 2Q .0315 below. The heights and geodetic positions of the stacks and release points, as specified in the modeling and contained in this permit condition, shall remain unchanged. It is reasonable to anticipate compliance.

2D .1806 - Control and Prohibition of Odorous Emissions

This rule requires the facility to utilize management practices or odor control equipment sufficient to prevent odorous emissions from causing or contributing to objectionable emissions beyond the facility's boundaries. It is reasonable to anticipate compliance.

2Q .0304 - Zoning Specific Condition

This regulation is the basis for requesting that, prior to construction or operation of the facility under this permit, as prescribed by NCGS 143-215.108(f), "An applicant for a permit under this section for a new facility or for the expansion of a facility permitted under this section shall request each local government having jurisdiction over any part of the land on which the facility and its appurtenances are to be located to issue a determination as to whether the local government has in effect a zoning or subdivision ordinance applicable to the facility and whether the proposed facility or expansion would be consistent with the ordinance." As mentioned under Section I. of this review, this site is located in an area without zoning and the Applicant was required to publish a legal notice pursuant to 15A NCAC 02Q .0113. On Aril 7, 2021, the required legal notice was published in The Caswell Messenger, a local publication that services the area of the proposed facility. In addition, a sign was posted on the property on April 1, 2021. Since the facility completed all of the tasks that are required by 15A NCAC 02Q .0113, a permit condition for this rule will not appear in the permit.

2Q .0315 - Synthetic Minor Facilities

The facility is subject to this rule. It allows the facility to choose to have terms and conditions placed in their permit to restrict operation to limit the potential for the facility to emit in order to avoid Title V applicability and thus be classified as a Synthetic Minor facility. The facility has the potential without controls and limits to emit more than 100 tons of CO and SO_2 each per year. To ensure that the facility emits less than 100 tons of CO and SO_2 per year, the Permittee has requested via the application that production be limited to 500,000 tons of asphalt per consecutive 12-month period (see Attachment B for an excerpted copy of the application narrative requesting this production limit). According to the DAQ Asphalt Emissions Calculator Spreadsheet, Revision G = 0.8/30/2019 (Attachment E1), and based on a maximum annual asphalt production of 500,000 tons per year and a fuel sulfur content of 0.5% for Recycled No. 4 Fuel Oil (worst case), this facility would remain under the Synthetic Minor limits for SO_2 and CO of 100 tons per year, each. Therefore, the requested annual production limit is acceptable. This production limit will be placed in the permit under the Synthetic Minor condition.

The Permittee will be required to record monthly and total annually the amount of asphalt produced and keep fuel supplier certifications on-site and made available to DAQ personnel upon request. Within 30 days after each calendar year, regardless of actual emissions, the following data, including monthly and 12-month totals for the previous 12-month totals, should be reported to the Regional Supervisor: CO and SO₂ emissions, monthly asphalt production, and a summary of the sulfur content of the fuel oils from the fuel certification records for the previous 12 months. It is noted that the above production limit is required only to keep CO emissions below 100 tons per year. Compliance with SO₂ emission limitations is achieved by burning No. 2 Fuel Oil with a maximum sulfur content of 0.5%. It is reasonable to anticipate compliance.

20 .0317 - Avoidance Conditions (2D .0530 PSD - Sulfur Dioxide)

This facility has the potential to emit more than 250 tons per year of sulfur dioxide (SO_2) emissions before controls and limits (see SECTION V. FACILITY-WIDE EMISSIONS). Compliance with the SO_2 emissions limit set forth under 2Q .0315 above ensures compliance with this regulation and will make the facility minor for PSD. Nonetheless, a PSD avoidance condition will be placed in this permit.

20 .0317 - Avoidance Conditions (2Q .0700 - Recycled Fuel Oil)

This facility is subject to this rule for the avoidance of 2D .0530 "Prevention of Significant Deterioration" as previously mentioned above. It is also subject to this rule for the avoidance of 2Q .0700 "Toxic Air Pollutant Procedures" due to the use of recycled No. 2 and No. 4 fuel oils. The recycled fuel oil must be equivalent to its virgin counterpart. This can be met by following the allowable levels for arsenic, cadmium, chromium, lead, total halogens, flash point, sulfur, and ash as listed in the permit condition. The facility must record and maintain for a minimum of three (3) years the actual amount of recycled fuel oil delivered to and combusted on an annual basis. Each load received shall include a delivery manifest, a batch specific analytical report, batch signature information, and a certification indicating there were no detectable PCBs (<2ppm). It is reasonable to anticipate compliance.

20.0711 - Emission Rates Requiring a Permit (Toxics)

As previously discussed under 2D .1100, a toxics review has been triggered for this facility for certain TAP (i.e., Arsenic, Benzene, Formaldehyde, Mercury, and Nickel) because they are expected to be emitted above their respective toxic permit emission rates (TPER).

In addition, this facility will emit additional TAP as shown in the table below that are not expected to be emitted above their respective TPER.

This facility must be operated and maintained so that any toxic air pollutant (TAP) emitted does not exceed its respective toxic permit emission rate (TPER). Prior to exceeding any TPER, the facility must modify their air quality permit. The Permittee shall maintain records of operational information demonstrating that the TAP emissions do not exceed the TPERs. A toxics review has been triggered for this initial review for the emissions of TAPs listed in the table below due to the new HMA and Concrete Batch plants. The Hot Mix Asphalt Plant (HMA-1), the five HMA Storage Silos (HMA-Silo 1 through HMA-Silo 5) and five (5) Asphalt Loadout Operation Silos (HMA LO1 through HMA-LO5-5), the two (2) Asphalt Cement Heaters (HMA-H1 and HMA-H2), and the Concrete Batch Plant will be sources of these TAPs. The expected potential controlled emission rates of these TAPs were calculated using the NCDEQ Concrete Batch Plant, Asphalt, and Fuel Oil Combustion spreadsheets (Attachments C, D, E2 and E3) and the submitted spreadsheets. Expected potential controlled emission rates for the HMA plant are based on either Natural Gas or No. 4/No. 6 Fuel Oil combustion, to obtain the worst-case TAP emissions, and 500,000 tons of asphalt production per year. These emission rates will not exceed the TPERs as demonstrated below. It is reasonable to anticipate compliance.

Expected Potential Controlled Emission Rates

Toxic Air Pollutant (CAS#)	TPER per 2Q .0711(a)	Expected Potential Controlled Emission Rate	
Acetaldehyde (75-07-0)	6.8 lb./hr.	0.325 lb./hr.	
Acrolein (107-02-8)	0.02 lb./hr.	0.0065 lb./hr.	
Ammonia (as NH3) (7664-41-7)	0.68 lb./hr.	0.00717 lb./hr.	
Benzo(a)pyrene (Component of 83329/POMTV & 56553/7PAH) (50-32-8)	2.2 lb./yr.	0.0088 lb./yr.	
Beryllium Metal (7440-41-7)	0.28 lb./yr.	0.10 lb./yr.	
Cadmium metal (7440-43-9)	0.37 lb./yr.	0.27 lb./yr.	
Carbon disulfide (75-15-0)	3.9 lb./day	0.015 lb./day	
Chromium (VI) Soluble Chromate Compounds (Component of CRC) (SolCR6)	0.013 lb./day	0.0067 lb./day	
Fluorides (16984-48-8)	0.34 lb./day 0.064 lb./hr.	0.0147 lb./day 0.00061 lb./hr.	
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (57653-85-7)	0.0051 lb./yr.	6.50×10 ⁻⁷ lb./yr.	
Hexane, n- (110-54-3)	23 lb./day	5.74 lb./day	
Hydrogen sulfide (7783-06-4)	1.7 lb./day	0.328 lb./day	
MEK (methyl ethyl ketone, 2-butanone) (78-93-3)	78 lb./day 22.4 lb./hr.	0.161 lb./day 0.0067 lb./hr.	
Manganese unlisted compounds (MNC)	0.63 lb./day	0.0645 lb./day	
Methyl chloroform (71-55-6)	250 lb./day 64 lb./hr.	0.288 lb./day 0.012 lb./hr.	
Methylene chloride (75-09-2)	1,600 lb./yr. 0.39 lb./hr.	0.0165 lb./yr. 8.23×10 ⁻⁶ lb./hr.	
Perchloroethylene (tetrachloroethylene) (127-18-4)	13,000 lb./yr.	0.160 lb./yr.	
Phenol (108-95-2)	0.24 lb./hr.	0.0010 lb./hr.	
Styrene (100-42-5)	2.7 lb./hr.	0.00024 lb./hr.	

Expected Potential Controlled Emission Rates (continued)

Toyic Air Pollutant (CAS#)		Expected Potential Controlled Emission Rate
Tetrachlorodibenzo-p-dioxin 2,3,7,8 (1746-01-6)	0.00020 lb./yr.	1.05×10 ⁻⁷ lb./yr.

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*Toluene (10X-XX-3)		17.53 lb./day 0.73 lb./hr.
Yylana (miyad isomers) (1330-70-7)	57 lb./day 16.4 lb./hr.	1.45 lb./day 0.0604 lb./hr.

IV. NEW SOURCE PERFORMANCE STANDARDS (NSPS) / NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) / PREVENTION OF SIGNIFICANT DETERIORATION (PSD) / EPA SECTION 112r / ATTAINMENT/NON-ATTAINMENT STATUS

NSPS APPLICABILITY - As discussed in Section III. under 2D .0524, the facility is subject to 40 CFR 60 Subpart I – "Standards of Performance for Hot Mix Asphalt Facilities" and Subpart OOO for "Nonmetallic Mineral Processing Plants."

The two Asphalt Cement Heaters (HMA-H1 and HMA-H2) <u>are not</u> subject to 40 CFR Part 60, Subpart Dc because the maximum heat input of each is less than 10 million Btu per hour.

The insignificant aboveground storage tanks containing fuel oil and liquid asphalt (IES-1, IES-2, IES-4 and IES-5) are not subject to 40 CFR Part 60, Subpart Kb, because fuel oil has a true vapor pressure (TVP) less than 0.062 kilopascals (kPa), or 0.0090 psi, at 70° F. (AP-42 7.1, Organic Liquid Storage Tanks, rev. 11/06, Table 7.1-2), and liquid asphalt has a TVP of 0.12 kPa (0.017 psi) at 325 °F (AP-42 11.1 HMA plants, background document, 2/2004, p. 4-82).

• NESHAP APPLICABILITY - This facility is not subject to any current NESHAP regulation.

The two Asphalt Cement Heaters (HMA-H1 and HMA-H2) <u>are not</u> subject to 40 CFR 63 Subpart JJJJJJ for Industrial, Commercial, and Institutional Boilers at Area Sources. This rule defines boilers as "an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam or hot water." These heaters are not considered boilers as defined by this rule, i.e., it is not used to create steam, and so this rule <u>does not</u> apply.

The facility <u>is not</u> subject to 40 CFR 63 Subpart LLLLL - National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing. This facility is not defined as an asphalt processing plant or asphalt roofing manufacturer in this Subpart, and is classified as minor for HAP emissions, and so this rule <u>does not</u> apply.

- PSD APPLICABILITY As discussed in Section III. under 2Q .0317, this facility has the potential to emit greater than 250 tons per year (after controls) of a criteria pollutant (SO₂) but has a permit condition under rule 2Q .0317 so that it can be considered minor for PSD purposes. This facility is not one of the twenty-eight named PSD source categories limited to 100 tons per year (after controls) of any criteria pollutant. Caswell County has not yet triggered a PSD baseline date. Therefore, increment tracking is not required.
- TOXICS APPLICABILITY The facility will emit toxics and <u>is</u> subject to 2D .1100 and 2Q .0711. See Section III. for further discussion.
- EPA SECTION 112(r) This facility is subject to the "General Duty Clause" of EPA Section 112(r) regulations; however, it is not subject to the Risk Management Plan (RMP) requirement.
- ATTAINMENT/NON-ATTAINMENT STATUS Caswell County is considered in attainment or unclassifiable for all regulated pollutants.

V. FACILITY - WIDE EMISSIONS

The following table summarizes the facility-wide emissions. Potential emissions (before and after controls/limits) were calculated by adding emissions from the NCDEQ Asphalt, Fuel Oil Combustion, and Concrete Batch spreadsheets (Attachments C, D, E3, E4 and E5) as applicable. Potential emissions before controls/limits are based on the maximum rate of 250 tons per hour, for 8,760 hours per year with a

worst-case sulfur content of 2.1%. Potential emissions after controls/limits are based on the Synthetic Minor limits of 500,000 tons of asphalt per year and 0.5% sulfur content. As the asphalt spreadsheets do not include HAPs from the heaters, the NCDEQ Fuel Oil Combustion Emissions Calculator spreadsheet (Attachment D) was used to add potential HAPs from the heaters to the total potential HAPs from the plant. PM and PM₁₀ emissions include fugitive emissions, as provided in the application, from paved/unpaved roads within the facility and stockpiles due to unloading and wind erosion. See Attachment E9 for a breakdown of facility-wide emissions.

	Potential Emissions [tons/year]						
Pollutant	Before controls/limits	After controls/limits					
PM	544.85	38.05					
PM ₁₀	212.22	19.00					
PM ₁₀ for Title V ^{1,2}	$39.00 + 0.23^1 + 0.99^2 = 40.22$	$7.34 + 0.23^{1} + 0.99^{2} = 8.56$					
SO_2	665.81	26.06					
NO _x	63.10	16.63					
СО	145.84	33.85					
VOC	52.70	12.06					
HAP _{Total}	11.32	2,59					
HAP _{Highest} (Formaldehyde)	3.49	0.80					

For Title V applicability, only emissions from the cement and fly ash storage silos after controls are considered from the Concrete Batch Plant, because the EPA considers emissions from cement/fly ash scales (weigh batchers) and truck loading operations to be fugitive and uncontrolled. In addition, the EPA considers the bagfilter for the cement and fly ash silos to be integral. Therefore, the facility does not trigger Synthetic Minor for PM₁₀.

VI. COMPLIANCE

There is no compliance history as this is a Greenfield facility. This facility will be targeted for a compliance inspection upon issuance of this permit.

VII. APPLICATION FEE

An application fee of \$400, the required fee for a new permit for a Greenfield facility, was submitted along with the application.

VIII. ZONING CONSISTENCY DETERMINATION (ZCD)

A ZCD, signed by Bryan S. Miller, County Manager, Caswell County Local Government, dated March 30, 2021, attesting that "the "proposed operation is consistent with applicable zoning and subdivision ordinances," was received with the application. Also, as mentioned previously, a sign was posted on the property on April 1, 2021 and a public notice was published in The Caswell Messenger on April 7, 2021. Photo images of the sign placement and Affidavit of Publication were also received with the application.

IX. RECOMMENDATION

It is recommended that Air Quality Permit No. 10693R00 be issued to Carolina Sunrock LLC - Burlington North.

X. SUMMARY OF ATTACHMENTS

The following attachments accompany this review:

	Attachmen	t Description
	A1	Bagfilter Evaluation for HMA-CD1
Γ	A2	Bagfilter Evaluation for RMC-CD2
	В	Application narrative requesting asphalt production to be limited to 500,000 tons per year
	С	NCDENR Concrete Batch Emissions Calculator spreadsheet

² Combined fugitive emissions from paved/unpaved roads and stockpiles are not considered with regard to Title V applicability. Also, all applicable NSPS and NESHAP emission standards can be considered when calculating emissions for Title V applicability.

Attachment	Description
D	NCDENR Fuel Oil Emissions Calculator spreadsheet
E1	NCDENR Asphalt Emissions Calculator spreadsheet for Actual SO ₂ and CO Emissions w/ Synthetic Minor Limits
E2	NCDENR Asphalt Emissions Calculator spreadsheet for Expected Actual Emissions using Natural Gas
E3	NCDENR Asphalt Emissions Calculator spreadsheet for Expected Actual Emissions using Waste/No. 4 Fuel Oil
E4	NCDENR Asphalt Emissions Calculator spreadsheet for Potential Emissions before controls/limits
E5	NCDENR Asphalt Emissions Calculator spreadsheet for Potential Emissions after controls/limits
E6	NCDENR Asphalt Emissions Calculator spreadsheet for Potential TAP Emissions using Natural Gas
E7	NCDENR Asphalt Emissions Calculator spreadsheet for Potential TAP Emissions using No. 4/No. 6 Fuel Oil
E8	NCDENR Concrete Batch Emissions Calculator spreadsheet for Potential TAP Emissions
E9	Facility-Wide Emissions Summary Spreadsheet

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aluation - Carolina Sunrock - Burlington North - HMA-CD1	Program Output	Filtering Velocity Analysis	Typical Filtering Velocity (fpm) Applicant Filtering Velocity (fpm)	Typical filtering velocity not exceeded.	Fabric Durability Analysis Chemical Resistance Acid ——Akali ——Organics	-	Controlled Particulate Rate (lb/hr) Gas Stream Particulate Loadings (gr/dscf) Uncontrolled 10.953 Note: Correct gas stream temperature and Controlled 0.1171 Impisture content must be entered		Allowable Emissions per 2D .0515 (lb/hr)	Maximum Areal Dust Loading (grisq ft) Dust drag (K2) parameter ((inH2O/fpm)/(ib/sq ft))	Efficiency Calculations	Mass in Range Control Efficiency eta-m	(%)	5.8 98.00 5.68 10.7	99.90	11.3 99.99 11.30		ol Efficiency =	Penetration ≈ 0.16 %	Baofilter evaluation developed by:	William D. Willets, M.S., E.I.T.	North Carolina Division of Environmental Management	Air Quality Permitting Version 3.3; September 23, 1999
Bagfilter Evaluation -	User Input User must supply information in blue (double outline).	Optional user information is single outlined.	Particulate Material Estimated Efficiency (%) Abraine dust 99	Actual Air Flow Rate (acfm) Cloth Area (sq ft) 51,111 9,299	Maximum Operating Temperature (F) Proposed Cloth Material	Pulse Jet? Iyes	Uncontrolled Particulate Rate (lb/hr) 7,000.0 7,000.0	Maximum Pressure Drop (in H2O) No. of compartments	Gas Stream Moisture (%) Felted?	Time Between Cleanings (min) Cleaning Time (min)	Particle Size Distribution	ze Size Ranges Size Cumul. Mass	%) (mn) (mn)	3.75 0 -2.5 0 5.8 0 3.8 16.5 16.5 16.5 16.5 16.5 16.5 16.5 16.5	5-10 5	12.5 10-15 10 51.6	> 20 20		1. C	* Filter Material -> Aramid = Nomex	**Process Rate = 250 tons/hr x 2,000 lb/ton = 500,000 lb/hr		

ATACHMENT AZ

2.2.2 Truck Mix Concrete Batch Plant

Carolina Sunrock is proposing a truck mix concrete batch plant (120 cubic yards per hour) consisting of:

- > Cement silo (200 tons maximum capacity)
- > Fly ash silo (200 tons maximum capacity)
- > Truck loadout point
- > Cement/flyash weight batcher (25 tons maximum capacity)
- > Aggregate weigh batcher (50 tons maximum capacity)

Note that all the sources in the truck mix concrete batch plant except for the aggregate weight batcher will be controlled by a bagfilter.

2.2.3 Insignificant Activities

Carolina Sunrock is proposing the following insignificant activities which are exempt from permitting under 15A NCAC 02Q .0102:

- > Two (2) Used Oil Storage Tank associated with HMA plant (20,000 gallons capacity each)
- > Two (2) Diesel Fuel Storage Tanks associated with HMA plant (20,000 gallons capacity each)
- > Liquid Asphalt Tank (30,000 gallons capacity); and
- > Liquid Asphalt Tank (30,000 gallons capacity)

2.3 Synthetic Minor Permit Limitation Request

Unrestricted facility wide PTE emissions are over 100 tpy for PM and CO. Therefore, Carolina Sunrock is requesting synthetic minor limitations be included in the permit to limit PM and CO emissions and avoid major source status under the Title V regulations.

Carolina Sunrock is proposing the following synthetic minor limitations to ensure that the PM and CO PTE remains below 100 tpy:

- > Production of the HMA plant (maximum design production of 250 tph) will be capped at / 500,000 tpy./
- > The facility requests no limitation on the concrete batch operations.

Car	olina	Sunro	ick LL	C	
Air	Quali	ty Per	mit A	pplication	ì

Trinity Consultants

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - INPUT SCREEN REVISION D; October 15, 2015



instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on he bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible or errors or omissions that may be contained herein.

120

448

148

1980

1440

140

432,000

Directions: Enter and select information in the boxes that are highlighted in blue:

General Facility Information	
COMPANY NAME:	Crolina Sunrock, LLC - Burlington North
FACILITY ID NUMBER:	1700016
PERMIT NUMBER	10628R00
FACILITY CITY:	Burlingto
FACILITY COUNTY:	Caswell
SPREADSHEET PREPARED BY:	LLG

General Facility Information

MAXIMUM HOURLY THROUGHPUT AT TRUCK LOAD OUT

ACTUAL ANNUAL PRODUCTION

MAXIMUM ANNUAL PRODUCTION*

1,051,200 (yd³/year) *Default maximum annual production is maximum hourly throughput times 8,760 hours per year. Enter another limit if applicable (i.e. for arsenic modeling).

Facility Production Information

PERCENT OF ANNUAL LOADOUT THROUGH TRUCK MIX PERCENT OF ANNUAL LOADOUT THROUGH CENTRAL MIX

100	(% by volume)
0-	(% by volume)

(yd3/hour)

(yd3/year)

ACTUAL PRODUCTION

3600 412 x 120 to

432,000 4

* 12412 x 60AYS x 50WE

Facility Emissions Control Information

IS THERE A CONTROL DEVICE ON THE TRUCK MIX? IS THERE A CONTROL DEVICE ON THE CENTRAL MIX?

2	(1=No, 2=Yes)	
1	(1=No, 2=Yes)	

lhs

lbs

lbs

lbs

lbs

Typical NC Comp.*

410 lbs

120 lbs

1884 lbs

1443 lbs

167 lbs

4024 lbs

Material Composition Information

Cement Supplement Coarse Aggregate

Sand Water Total

4	156		lbs	
ry contacts.	User may e	nt	ter site-specific	d

* North Carolina typical material composition is based on data from industr

15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes"

Enter the process rate if different from default, otherwise leave blank Process Rate² Maximum Allowable Emission Rate³ PM Emission Rate Before controls PM Emission Rate After Controls Assumed control device efficiency for v Complies with 2D .0515? Control device required to comply?

Cement Silo	<u>Flyash sìlo</u>	Sand&Agg Weigh hopper	mix ¹	Central mix ¹	
			•		
25	25	205.200	240.96	0.000	tons/hr
35.4	35.4	58.8	60.5	0.0	lbs/hr
18.250	78.500	0.985	52.210	0.000	lbs/hr
0.025	0.223	0.001	1.001	0.000	ibs/hr
weigh hopper	4	99.9%			_
yes	yes	yes	yes	yes	}
no	yes	no	по	no	j

¹ Emission factors for truck/central mix include emissions from cement & supplement weigh hoppers.

ATTACHMENT C

² Default process rate for sito loading is 25 tons per hour. Default process weight for sand & aggr weigh hopper includes only aggr & sand. Default process rate for truck mix and central mix includes all components except water since assumes water is added directly to truck.

³ Allowable emission rate should be calculated to 3 significant digits.

⁴ Default efficiency is 99.9% for bagfilters. Enter 0 if weigh hopper is not controlled.

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - OUTPUT SCREEN



REVISION D; October 15, 2015

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SOURCE/FACILITY/USER INPUT SUMMARY (FROM INPUT SCREEN)

General Facility Information

COMPANY NAME:

FACILITY ID NUMBER:

PERMIT NUMBER

FACILITY CITY:

FACILITY COUNTY:

SPREADSHEET PREPARED BY:

General Facility Information

MAXIMUM HOURLY THROUGHPUT AT TRUCK LOAD OUT

ACTUAL ANNUAL PRODUCTION

Facility Production Information

PERCENT OF ANNUAL LOADOUT THROUGH TRUCK MIX

PERCENT OF ANNUAL LOADOUT THROUGH CENTRAL MIX

Facility Emissions Control Information

IS THERE A CONTROL DEVICE ON THE TRUCK MIX? IS THERE A CONTROL DEVICE ON THE CENTRAL MIX?

Material Composition Information

Cement

Supplement

Coarse Aggregate

Sand

Water

Total

Carolina Sunrock, LLC - Burlington North					
1700016					
10628R00					
Burlingyon					
Caswell					
LLG					

120	(yd³/hour)	
432000	(yd³/year)	

100	(% by volume)	
0	(% by volume)	

2	(1=No, 2=Yes)	
1	(1=No, 2=Yes)	

		Typical NC Comp.*
448	lbs	410 lbs
148	lbs	120 lbs
1980	lbs	1884 lbs
1440	lbs	1443 lbs
140	lbs	167 lbs
4156	lbs	4024 lbs

^{*}North Carolina typical material composition is based on data from industry contacts. User may enter site-specific data.

PARTICULATE EMISSIONS		ACTUAL EMISSIONS		POTENTIAL EMISSIONS				
<u> </u>		(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)		
	Pollutant	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
truck mix*	PM	1.001	1.802	52.210	228,678	1.001	4.38	
	PM10	0.375	0.676	14.912	65.314	0.375		
central mix*	PM	0.000	0.000	0.000	0.000	0.000	1.64	
	PM10	0.000	0.000	0.000	0.000	0.000	0.00	
cement silo	PM	0.027	0.048	19.622	85.946	0.000	0.00	
	PM10	0.009	0.016	12.634	55,335	0.027	0.11	
suppi. Silo	PM	0.079	0.142	27.883	122,128		0.04	
	PM10	0.044	0.078	9.768	42.784	0.079	0.346	
veigh hopper**	PM	0.985	1.773	0.985		0.044	0.19	
[sand & aggr.]	PM10	0.575	1.034	0.575	4.314	0.985	4.314	
sand & aggr.	PM	3.003	5.406		2.517	0.575	2.517	
	PM10	1.433		3.003	13.155	3.003	13.15	
OTAL PM	PM		2.579	1.433	6.275	1.433	6.27	
OTAL PM10	PM10	5.095	9.172	103.704	454.222	5.095	22.318	
7	FWIU	2.435	4.384	39.321	172.225	2.435	10.66	
itle V Potential ruck/Central mix emission factors include	PM10			1 2 11			0.231	

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - OUTPUT SCREEN REVISION D; October 15, 2015



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POLLUTANT	CAS NUMBER	CAS NUMBER ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)			POTENTIAL EMSSIONS				
722017111	ONO NOMBER			(BEFORE CO	NTROLS / LIMITS)	(AFTER CONTROLS / LIMITS)			
		lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/уг		
Arsenic Unlisted Compounds (TH)	ASC-OTHER	6.59E-05	2.37E-01	2.49E-03	2.18E+01	6.59E-05	5.77E-01		
Beryllium metal (TH)	7440-41-7	4.53E-06	1.63E-02	1.00E-05	8.77E-02	4.53E-06	3.97E-02		
Cadmium Metal (TH)	7440-43-9	5.00E-07	1.80E-03	7,69E-06	6.74E-02	5.00E-07	4.38E-03		
Chromic Acid (TH)	7738-94-5	1,58E-04	5.70E-01	4.25E-04	3.73E+00	1.58E-04	1.39E+00		
Lead Unlisted Compounds (H)	PBC-OTHER	5.96E-05	2.15E-01	1.32E-03	1.16E+01	5.96E-05	5.22E-01		
Manganese Unlisted compounds (TH)	MNC-OTHER	7.49E-04	2.70E+00	7.67E-03	6.72E+01	7.49E-04	6,56E+00		
Nickel metal (TH)	7440-02-0	1.92E-04	6.92E-01	9.19E-04	8,05E+00	1.92E-04	1.68E+00		
Phosphorus Metal Yellow or White (H)	7223-14-0	4.71E-04	1.70E+00	1.72E-03	1.51E+01	4.71E-04	4.13E+00		
Selenium compounds (H)	SEC	4.68E-06	1.69E-02	9.43E-05	8.26E-01	4.68E-06	4.10E-02		
		<u> </u>							
Total HAPs		1.71E-03	6.14E+00	1.47E-02	1.28E+02	1.71E-03	1.49E+01		
Highest HAP Manganese		7.49E-04	2.70E+00	7.67E-03	6.72E+01	7.49E-04	6.56E+00		

EXPECTED EMISSIONS AFTER CONTROLS / LIMITATIONS

(Dally calculations are based on maximum hourly plant capacity operating at 24 hours per day. If over the TPER, the facility should more closely analyze the maximum daily emisions based on actual operation. Annual calculations are based on the actual annual production as entered on the INPUT worksheet.)

POLLUTANT	CAS NUMBER	lb/hr	lb/day	lb/yr
Arsenic Unlisted Compounds (TH)	ASC-OTHER		"我们的"等表现的"A	0.2371
Beryllium metal (TH)	7440-41-7		rus il describility (file de l'Horiz	0.016
Cadmium Metal (TH)	7440-43-9			0.002
Chromic Acid (TH)	7738-94-5		0.0038	
Manganese Unlisted compounds (TH)	MNC-OTHER		0.018	
Nickel metal (TH)	7440-02-0	50 플러지 및 NA 151 H H H H H	0.005	

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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Directions: Enter and select information in the boxes that are highlighted in blue:			
		1	
COMPANY NAME:	Carolina Sunrock, LLC - Burtington North	1	
FACILITY ID NUMBER:	1700016	<u> </u>	
PERMIT NUMBER	10682R00	1	
FACILITY CITY:	Burlington	1	
FACILITY COUNTY:	Caswell	ł	
SPREADSHEET PREPARED BY:	ΓΓG	J	
EMISSION SOURCE DESCRIPTION:	No. 2 oii-fired Boiler]	
EMISSION SOURCE ID NO.:	HMA- H1 & HMA-H2	•	
LATEST CONSTRUCTION/MODIFICATION DATE:	2021	1	
SELECT THE TYPE OF BOILER FROM THE LISTS BELOW:	26		
]	
Bollers=>100 mmBtu/hr 1 = No. 6 oil-fired, normal firing (U)	Bollers=>100 mmBtu/hr (cont'd) 17 = No. 2 oil-fired (C)		
2 = No. 6 oil-fired, normal firing (I)	18 = No. 2 oil-fired, LNB/FGR (U)		
[3 ≠ No. 6 oil-fired, normal firing (C) 4 ≠ No. 6 oil-fired, normal firing, low Nox burner (U)	19 = No. 2 oil-fired, LNB/FGR (I) 20 = No. 2 oil-fired, LNB/FGR (C)		
5 = No. 6 oil-fired, normal firing, low Nox burner (I)			
6 = No. 6 oil-fired, normal firing, fow Nox burner (C) 7 = No. 6 oil-fired, tangential firing (U)	21 Vertical fired utility boiler		
8 = No. 6 oit fired, tangential firing, low Nox burner (LI)	Small Boilers <100 mmBtu/hr	1	
9 = No. 5 oil-fired, normal firing (U) 10 = No. 5 oil-fired, normal firing (I)	22 = No. 8 oil-fired (I) 23 = No. 6 oil-fired (C)		
t1 = No. 5 oil-fired, tangential firing (U)	24 = No. 5 oil-fired (C)	! !	
12 = No. 4 oil-fired, normal firing (U) 13 = No. 4 oil-fired, normal firing (i)	25 = No. 4 dil-fired (C) 26 = No. 2 dil-fired (I)		
14 = No. 4 oil-fired, tangential firing (U)	27 = No. 2 oil-fired (C)		
15 = No. 2 oil-fired (U) 16 = No. 2 oil-fired (I)	28 = Residential Furnace	ĺ	
to = No. 2 vii-liteu (v)	20 - Residentia Funde		
Note: The emission factors for fuel oil-fired boilers depend on the boiler size and application to	pe. In the listing of boiler types, the following notation is used: U = Utility boilers]	
(producing steam for the generation of electricity), i = Industrial bollers (generating steam or h or institutional (used for space heating of commercial or institutional facilities) and residential (f		1	
boller from the lists above.			
EMISSION SOURCE INPUT DATA			
MAXIMUM HEAT INPUT (MILLION BTU PER HOUR):	2.30 MMBTU/HR / 2	11.0 4 21	منايات
ACTUAL ANNUAL FUEL USAGE (GALLONS PER YEAR):	59,142.9 GALYR - (2, 7 MW D)	100 774	UD MA 148
MAXIMUM ANNUAL FUEL USAGE (GALLONS PER YEAR)	143,914.3 GALYR X (000,000)	1/140,04	20 300 Carlo
MAXIMUM FUEL SULFUR CONTENT (%):	0.0015 % - (TYPEOVER IF NECESSARY - DEFAUL	1 CC+ 140	
FUEL HEATING VALUE	2.30 MMBTU/HR 59,142.9 GALYR (1.73 M/H BTU) 143,914.3 GALYR (1.70 C) 0.0015 % - (TYPEOVER IF NECESSARY - DEFAUL VALUE = 2.1 FOR RESIDUAL FUEL OIL OR 0.5 FOR DISTRILATE FUEL OIL) 140,000	かいれん	T.9al/41.
FUEL HEATING VALUE (BTU/GAL):	140,000 BTU/GAL		0 1
DEFAULT WILL APPEAR AS FOLLOWS (not used for Greenhouse Gas calcs	-See below for GHG defaults):	1	
150,000 BTU/GAL FOR No. 6, 5, and 4 FUEL OIL	-See below for GHG defaulte):		
	-See Delow for GHG defaulte):		
150,000 BTU/GAL FOR No. 6, 5, and 4 FUEL OIL 140,000 BTU/GAL ALL OTHERS	-See Delow for GHG defaulte):		
150,000 BTU/GAL FOR No. 6, 5, and 4 FUEL OIL 140,000 BTU/GAL ALL OTHERS (TYPE OVER NUMBER AT RIGHT IF YOU HAVE SITE SPECIFIC DATA) CONTROL DEVICE INPUT DATA [Note: Select the type of control devices from the pull-down menus below. Default control of			
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ATTACHMENT D

FUEL OIL COMBUSTION EMISSIONS CALCULATOR REVISION G 11/5/2012 - OUTPUT SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

COMPANY: FACILITY ID NO.:		SOURCE / FAC	JUTY/USER	MOTO STIME	ABV /EBA	u want eras	EXI	ng ng makasa maga	ra, ar darparente, ettera part		
						MUNICUL GOILE	EAST	77 T.	45.08.25 (50.00)	RECEDENT CONTRACTOR	
	Caroli	ina Sunrock,							2.30	MMBTU/HR	
FACILITY ID NO	170001	6				AT VALUE:		·· · · · · · · · · · · · · · · · · · ·	140,000	BTU/GAL	
PERMIT NUMBER:	10682F	800			HHV for G	HG CALCULAT	IONS:		0.138	mm BTU/GAL	
FACILITY CITY:	Burling					AL ANNUAL FUEL USAGE: 59,143				GAL/YR	
FACILITY COUNTY:	Caswel	<u> </u>				AXIMUM ANNUAL FUEL USAGE: 143,914 AXIMUM SULFUR CONTENT: 0.0				GAL/YR %	
USER NAME: EMISSION SOURCE DESC	LLG CRIPTION: No. 2 of	il-fired Bailer				REQU		RMITTIM		76	
EMISSION SOURCE ID NO).: HMA- F	11				L USAGE:	-415415	CHAIL S. ILLIYA	143,914	GALMR	
							ī:		0.0015	%	
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)				erational photographic	PO	LLUTANT	Sumpression.	CO		an gap Ar SAS of the Appendix of	
	NONEX				ļ	PM SO2	 		0		
	NONE/C		······································	····	·	NOx	 		0		
METHOD USED TO COMP				TIER 1: DEF	FAULT HIGH	H HEAT VALUE	AND DEFA	AULT EF			
CARBON CONTENT USED	FOR GHGS (kg C					OT USED FOR (
	pana e se a	CRITE			SIONS INFO	RMATION					
			ACTUAL E		1	POTENTIAL E				ION FACTOR	
UR POLLUTANT EMITTEI	n		(AFTER CONTR	tons/yr	(BEFORE (tons/yr	(AFTER CONTI	tons/yr	uncontrolled	(10 ³ gel)	
OTAL PARTICULATE MAT		CPM)	0.05	0,10	0.05	0.24	0.05	0.24	3.30E+00		
ILTERABLE PM (FPM)		Y: 1311	0.03	0.06	0.03	0.14	0,03	0.14	2.00E+00		
ONDENSABLE PM (CPM)	·	0.02	0.04	0.02	0.09	0.02	0.09	1.30E+00	1.30E+00	
LTERABLE PM<10 MICR			0.02	0.03	0.02	0.07	0.02	0.07	1.00E+00		
LTERABLE PM<2.5 MICE			0.00	0.01	0.00	0.02	0.00	0.02	2.50E-01		
ULFUR DIOXIDE (SO2)			0,00	0.01	0.00	0,02	0.00	0.02	2.13E-01	2.13E-01	
ITROGEN OXIDES (NO _x)			0.33	0.59	0.33	1,44	0.33	1.44	2.00E+01	2.00E+01	
ARBON MONOXIDE (CO)			0.08	0.15	80.0	0.36	0.08	0.36	5.00E+00		
OLATILE ORGANIC COM	POUNDS (VOC)		0.00	0,01	0.00	0.01	0.00	0.01	2.00E-01		
EAD		STATE OF THE PARTY	0.00	0.00	0.00	0.00	0.00	0.00	1.26E-03	1.26E-03	
			ACTUAL E			POTENTIAL E			enies!	ON FACTOR	
		CAS	ACTUAL E		(BEFORE (POTENTIAL EI XONTROLS (LIMITS)	Masions After conti	ROLS / LIMITED		ION PAGTOR ION PAGTOR	
DXIC / HAZARDOUS AIR POLLU	UTANT	NUMBER	fb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	uncontrolled		
ntimony Unlisted Compounds	(H)	SBC-Other	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00			
senic Unlisted Compounds	(TH)	A8C-Other	9.2E-06	3.3E-02	9.2E-06			8.1E-02	5.60E-04		
arizana	(TH)	71432	4.5E-05 6.9E-06	1.6E-01	4.5E-05 6.9E-06	4.0E-01 6.0E-02		4.0E-01 6.0E-02	2.75E-03 4.20E-04		
eryllium Metal (unreacted) adium Metal (elemental unreacted	(TH) d) (TH)	7440417 7440439	6.9E-06	2.5E-02 2.5E-02	6.9E-06	6.0E-02		6.0E-02	4.20E-04		
Tromic Acid (Vi)	(TH)	7738945	6.9E-06	2,5E-02	6.9E-06	6,0E-02		6.0E-02	4.20E-04		
obalt Unlisted Compounds	(H)	COC-Other	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.00E+00	0.00E+00	
hylbenzene	(H)	100414	1.3E-05	4.8E-02	1.3E-05	1.2E-01		1.2E-01	8.17E-04		
uorides (sum fluoride compounds		16984488	6.1E-04	2.2E+00	6.1E-04	5.4E+00		5.4E+00	3.73E-02		
ormaldehyde ead Unlisted Compounds	(TH) _	50000 PBC-Other	7.9E-04 2.1E-05	2.8E+00 7.5E-02	7.9E-04 2.1E-05	6.9E+00 1.8E-01		6.9E+00 1.8E-01	4.80E-02 1.26E-03		
anganese Unlisted Compounds	(H) (TH)	MNC-Other	1.4E-05	5.0E-02	1.4E-05	1.2E-01		1.2E-01	8.40E-04		
orcury, vapor	(TH)	7439976	6.9E-06	2.5E-02	6.9E-06	6.0E-02		6.0E-02	4.20E-04		
ethyl chloroform	(TH)	71566	3.9E-06	1,4E-02	3.9E-06	3.4E-02		3.4E-02	2.36E-04		
apthalene	(H)	91203	5.5E-06	2.0E-02	5.5E-06	4.8E-02		4.8E-02	3.33E-04		
ickle Metal rosphorus Metal, Yellow or White	(TH) (H)	7440020 7723140	6.9E-06 0.0E+00	2.5E-02 0.0E+00	6.9E-06 0.0E+00	6.0E-02 0.0E+00		6.0E-02 0.0E+00	4,20E-04 0.00E+00		
OM rates uncontrolled	, (m) (H)	POM .	5.4E-05	2.0E-01	5.4E-05	4.7E-01		4.7E-01	3.30E-03		
elenium compounds	(H)	SEC	3.5E-05	1.2E-01	3.5E-05	3.0E-01		3.0E-01	2.10E-03		
luene	(TH)	108883	1.3E-03	4.7E+00	1.3E-03	1.1E+01		1.1E+01	7.97E-02		
fene	(TH)	1330207	2.3E-05	8.3E-02	2.3E-05	2.0E-01		2.0E-01	1.40E-03		
otal HAP	(H)		2.4E-03	8.5E+00	2.4E-03	2.1E+01	2.4E-03	2.1E+01 1.15E+01	1.4E-01 7.97E-02	1.4E-01	
rgest HAP	(H)		1.31E-03	4.71E+00	1.31E-03	1.15E+01 ERMITTING PL	1,31E-09	1.105+01	1.81E-UZ	7.97E-02	
							a to an a to a to a to a to a to a to a		EMISSI	ON FACTOR	
	EXPEC	CTED ACTUAL EMI	SOUNS AFTER CO	ON I KOTS / FIWI	ITATIONS			i		/10 ³ gal)	
DXIC AIR POLLUTANT		CAS Num.	lb/l			lb/day		'yr	uncontrolled		
senic Unlisted Compounds	(TH)	ASC-Other	9.20			21E-04	8.06		5.60E-04		
nzene nyllium Metal (unreacted)	(TH) (TH)	71432 7449417	4.52E 6.90E			08E-03 66E-04	3.96	E-01 E-02	2.75E-03 4.20E-04		
idium Metal (elemental unreacted		7440417	6.90			66E-04	6.04		4.20E-04		
lubie chromate compounds, as c		SolCR6	6.90	E-06	1.	66E-04	6.04	E-02	4.20E-04	4.20E-04	
uorides (sum fluoride compounds		16984468	6.136			47E-02		+00	3.73E-02		
rmaldehyde	(TH)	50000	7.89E 1.38E			89E-02	6,91 1,21		4.80E-02 8.40E-04		
angenese Unlisted Compounds accury, vapor	(TH) (TH)	MNC-Other 7439976	1.38E 6.90E			31E-04 66E-04	6.04		8.40E-04 4.20E-04		
sthyl chloroform	(TH)	71566	3.885			31E-05		E-02	2.36E-04		
ckle Metal	(TH)	7440020	6,90			66E-04	6.04		4.20E-04		
luene	(TH)	108883	1.318			14E-02		E+01	7.97E-02		
lene	(TH)	1330207	2.30	-05	5.	52E-04	2.02	E-01	1.40E-03	1.40E-03	
GREENHOUSE GAS EMI CONSISTENT W	SSIONS INFORMA UTH EPA MANDA						No		POTENTIAL ON EPA M	TO EMIT RR METHOD	er de forkeren gelijk. 18 styl 1991 (f.)
Distillate Fuel Oli No. 2		ACTUA	L EMISSIONS			POTENTIAL input capa		PA MRR E		POTENTIAL E Requested Emis utilize requested MRR Emis	islon Limita fuel limit an
GREENHOUSE GAS	EPA I	MRR CALCUL	ATION METH	OD: TIER 1						MINE SHIP	
POLLUTANT				•				t .	tons/yr,		short ton
	metric tons/yr	metric tons		short to		short to			D2e	short tons/yr	CO2
ARBON DIOXIDE (CO2)	603.64	603	3.64	665.	.40	1,642.		1,6	42.60	1,642.60	1,642.0
MÉTHANE (CH₄)	2,45E-02		E-01	2.708	2.00	6.66E-	no.	4 4	0E+00	6.66E-02	1.40E+

4.90E-03

NITROUS OXIDE (N2O)

5.40E-03

1.33E-02

4.13E+00

1,648.13

1.33E-02

4.13E+00

1,648.13

1.52E+00

605.67

ACTUAL 302 : CO EMISSIONS / TAP EMISSIONS



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Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

Company Name:	Carilina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10682R00
Facility City:	Burlington
Facility County:	Caswell
Spreadsheet Prepared by:	LLG

	preadsheet b emissions Inv		2. NO		▼ :
	Plant type:	Drum mix		T	
X	Fuel type:	Waste, No.4	or No.5 fuel o	oil-fired 🔻	
	Fuel Sulf	ur Content:	0.50	%	default value is 0.5 %
	Controls:	Fabric filter	controls	▼	

Dryer heat input:	80	million Btu per hour	
Plant maximum production capacity:	250	tons per hour	
			_
Asphalt Prop	ortice	·	
Aspitale 1 10p	CIUCO		
Asphalt temperature:		degrees	(default

YES

Silo

value of 325 degrees F) value of -0.5 %)

Lumât	<u> </u>		
AP crushing on site?	YES	V :	

	ushing on ite?	YES	<u>▼</u> :	·
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:	8760	hours per year	No. of screens:	1
			No. of conveyors:	4

Asphalt Cement Heater		_
AC heater heat input:	2.3	million Btu per hour
Fuel Sulfur Content:	0.50	%
Hours of operation:	8760	hours per year

(No.2 or diesel fuel oil -fired assumed) (default value is 0.5 %) (default is 8760 hours per year unless specified otherwise)

Calculated Annual Production Limit:	1,488,581	tons per year
Requested Annual Production Limit:	500,000	tons per year
Requested Daily Production Limit:		tons per day

(if none desired leave default value =8760*tph) Are you SURE you want a restriction? If you do not want a dally restriction, make sure the cell has the value 24 hours/day *250 tons per hour = 6000 tons per day.

Is this plant NSPS Subpart I affected?	YES	*
Stack gas flow rate :	68,145	ACFM
Stack gas temperature :	240	oF
Stack % moisture:	33	%
Allowable emission rate under NSPS Subpart I:	11.81	lb/hr
Control efficiency required:	99.831	%
Does Method 5 data already exist?:	NO	▼:
Method 5 determined emission tate Control efficiency based on test date	40.00	lb/fm %

Allowable emission rate under 2 D .0506:	55.39	lb/hr
Does this plant emit less than this limit ?:	<u>Yes</u>	(based on emission factors)
Control efficiency required:	99.209] %

* SHATHETIC MINOR CIMITS

ATTACHMENT EI

Dryer Emissions Criteria Pollutants							
Park. co. ct	Uncontrolled Emission Factor (lb/ton)	Controlled Emission Factor (lb/ton)	uncontrolled emission rate (lb/hr)	controlled emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (with controls, 8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Pollutant Condensible PM (or PM ₁₀)	0.0654	0.0194	16.35	4.85			
Condensible PM (or PM ₁₀) Filterable PM	28	0.0194	7000	3.5			
Filterable PM10	6.4	0.0039	1600	0.975			
Total PM	28	0.033	7000	8.25	73.0	36.1	8.3
Total PM10	6.5	0.023	1625	5.75	33,1	25.2	5.8
SO2	0.0837	0.0837	20.93	20.93	91.69	91.69	20.93
co	0.1300	0.130	32.5	32.5	142.4	142.4	32.5
NOx	0.0550	0.055	13.75	13.75	60.2	60.2	13.8
Voc	0.0320	0.032	8	8	35.0	35.0	8.0
HAPs, TOTAL		0.010		2.5	11.0	11.0	2.5
Silo Filling plus Loa	d Out Emis	sions, Crit	eria Pollutants				
	Emission Factor, combined			emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Pollutant	(lb/ton)			ettilesioti tete (intili)	operation)	operation)	,
Total PM	1.11E-03			2,77E-01	1.2	1.2	0.3
CO				6.32E-01	2.8	2.8	0.6
voc				4.02E+00	17.6	17.6	4.0
HAPs, TOTAL				6.85E-02	0.3	0.3	0.1
Rap Crusher Emiss	Emission						
Poliutant	Factor, all sources combined (lb/ton)			emission rate (ib/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Total PM	0.0424			2.76E+00	12.1	12.1	2.8
Total PM10				1.01E+00	4.4	4.4	1.0
Asphalt Cement He	ater Emissi	ons					
Palludand	Uncontrolled Emission Factor (lb/MMBtu)			emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Pollutant				5.42E-02	0.2	0.2	0.2
Total PM Total PM10				5.42E-02 5.42E-02	0.2	0.2	0.2
10tal PM10 SO2		100		1.17E+00	5.1	5.1	5.1
SO2 CO				8.21E-02	0.4	0.4	0.4
NOx				3.29E-01	1.4	1.4	1,4
	0.0024286			5.59E-03	0.0	0.0	0.0
Facility-wide Criteri	a Pollutant	Emissions	Summary				
Pollutant				Controlled Emission Rate, lb/hr	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Total PM				1.11E+01	86.5	49.7	11.5
Total PM10				6.81E+00	38.9	31.0	7.3
SO2				2.21E+01	96,8	96.8	26.0
co				3.32E+01	145.5	145.5	33.5
NOx				1.41E+01	61.7	61.7	15.2
VOC				1.20E+01 2.57E+00	52.7	52.7 11.3	12.0 2.6
HAPS, TOTAL				2.0/ = 700	11.3	1 11.0	2.0
Facility-wide Toxic	Air Pollutan	ts Summai	ту			······································	
TAP		CAS No.	Action	TAP	CAS No.	Action	
Ace	taldehyde (TH)	75070	NOTE 1		Mercury, vapor (TH) 7439976	NOTE 2 NOTE 1:10	nclude TAP in TPER stipulation.
	Acrolein (TH)	107028	NOTE 1	M	dethyl ethyl ketone (TH) 78933	NOIET	noted (7), if ITER supulation.
Arsenic unlisted cmpds (comp	of ASC) (TH)	ASC-other	NOTE 3	ا	Methylene chloride (TH) 75092	NOTE 1 NOTE 2: I	nclude TAP in TPER stipulation
	Benzene (TH)	71432	NOTE 3		Nickel metal (TH) 7440020	NOTE 2 with oners	ition restrictions.
	o(a)pyrene (T)	50328	NOTE 1	Perchloroethylene (le	etrachtoroethylene) (TH) 127184	NOIE 1	
Beryllium metal (u		7440417	NOTE 1		Phenol (TH) 108952		Modeling Required. See "Toxic
Cadmium metal (elemental u		7440439	NOTE 2	Soluble Chromate Compou			ns" worksheet.
	n disulfide (TH)	75150	NOTE 1		Styrene (TH) 100425	NOTE 1	
	natdehyde (TH)	50000	NOTE 3	Tetrachlorodibenzo	-p-dioxin, 2,3,7,8- (TH) 1746016	NOTE 1	İ
Hexachlorodibenzo-p-dioxin 1		57653857	NOTE 1		Trichloroethylene (TH) 79016	NOTE 1 NOTE 1	j
	texane, n- (TH)	110543	NOTE 1		Trichtoroethylene (TH) 79016 Xylene (TH) 1330207	NOTE 1	j
	gen Sulfide (T)	7783064 MNC-other	NOTE 1		VAIGUE (114) 1930/201		
Manganese unlisted Methyl r	compounds (1) chloroform (TH)	71556	NOTE 1			1	
анавтун с		504	\$4000000000000000000000000000000000000	·			

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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	SOURCE/	FACILITY / USER INPUT SUMMAR	RY (FROM INPUT SO	CREEN)	
COMPANY	C	Sine Currock LLC		FACILITY ID NO.:	1700016
COMPANY:	Car	ilina Sunrock, LLC		PERMIT NUMBER:	10682R00
EMISSION SOURCE	NSPS affected	250 tph Waste, No.4 or No.6 fuel oil	-fired, Drum mix asp	halt FACILITY CITY:	Burlington
DESCRIPTION:	plant (80 mmBt	u/hr heat input, w/silofill, with RAP, s	ulfur=0.5%)	FACILITY COUNTY:	Caswell
Annual Production	500 000 tank	Polity Bracksotlan Limits	^	ton/day	

Limit: 500,000 ton/year Daily Production Limit: 0 ton/day

SPREADSHEET PREPARED BY: LLG

	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS				
AIR POLLUTANT EMITTED	(AFTER CONTROLS / LIMITS)		(BEFORE CON	fROLS / LIMITS)	(AFTER CONTI	(AFTER CONTROLS / LIMITS)	
	lb/hr	b/hr tons/yr lb/hr ton		tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)	11.06	11.52		86.48		11.52	
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	6.81	7.27		38.93		7.27	
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO2)	22.10	26.04		96.80		26.04	
NITROGEN OXIDES (NOx)	14.08	15.19		61.66		15.19	
CARBON MONOXIDE (CO)	33.21	33.49		145.48		33.49	
VOLATILE ORGANIC COMPOUNDS (VOC)	12.03	12.05		52.69		12.05	
TOTAL HAP	2.57	2.57		11.25		2.57	
LARGEST HAP (formaldehyde)	0.80	0.80		3.49		0.80	

Attach INPUT worksheet
TOXIC/HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION

CAS Number CAS	0.015 / LIMITS) Ib/yr 6.50E+02 1.30E+01 9.00E-02 2.80E-01 1.98E+02 8.82E-03 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02 2.29E+00	2.6E-05 1.8E-07 5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07
Number N	Ib/yr 6,50E+02 1,30E+01 9,00E-02 2,80E-01 1,98E+02 8,82E-03 0,00E+00 2,05E-01 1,25E+00 2,53E+00 2,25E-01 1,30E-02	1.3E-03 2.6E-05 1.8E-07 5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07
Acetaldehyde (TH) 75070 3.25E-01 6.50E+02 3.25E-01 2847.00 3.25E-01 1.07028 6.50E-03 1.30E+01 6.50E-03 56.94 6.50E-03 6.50E+02 1,30E+01 9.00E-02 2.80E-01 1.98E+02 8.82E-03 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	2.6E-05 1.8E-07 5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07	
Acrolein (TH) 107028 6.50E-03 1.30E+01 6.50E-03 56.94 6.50E-03 Antimony unisted compounds (H) SBC-other 4.50E-05 9.00E-02 4.50E-05 0.39 4.50E-05 Arsenic unilisted cmpds (comp. of ASC) (TH) ASC-other 1.40E-04 2.80E-01 1.40E-04 1.23 1.40E-04 Benzane (TH) 71432 9.90E-02 1.98E+02 9.90E-02 867.38 9.90E-02 Benzo(a)pyrene (T) 50328 4.41E-06 8.82E-03 4.41E-06 0.04 4.41E-06 Beryllium metal (unreacted) (TH) 7440417 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00 0.	1,30E+01 9,00E-02 2,80E-01 1,98E+02 8,82E-03 0,00E+00 2,05E-01 1,25E+00 2,53E+00 2,25E-01 1,30E-02	2.6E-05 1.8E-07 5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07
Antimony unlisted compounds (H) SBC-other 4.50E-05 9.00E-02 4.50E-05 0.39 4.50E-05 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other 1.40E-04 2.80E-01 1.40E-04 1.23 1.40E-04 Benzene (TH) 71432 9.90E-02 1.98E+02 9.90E-02 867.38 9.90E-02 Benzo(a)pyrene (T) 50328 4.41E-06 8.82E-03 4.41E-06 0.04 4.41E-06 Beryllium metal (unreacted) (TH) 7440417 0.00E+00 0.00E+00 0.00E+00 0.00 0.00E+00 0.00 0.	9.00E-02 2.80E-01 1.98E+02 8.82E-03 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	1.8E-07 5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07
Arsenic unlisted cmpds (comp. of ASC) (TH) Benzene (TH) T1432 9,90E-02 1,98E+02 9,90E-02 867,38 9,90E-02 Benzo(a)pyrene (T) 50328 4,41E-06 8,82E-03 4,41E-06 0,04 4,41E-06 Cadmium metal (unreacted) (TH) T440417 0,00E+00	2.80E-01 1.98E+02 8.82E-03 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	5.6E-07 4.0E-04 1.8E-08 0.0E+00 4.1E-07
Benzene (TH) 71432 9,90E-02 1,98E+02 9,90E-02 867.36 9,90E-02	1.98E+02 8.82E-03 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	4.0E-04 1.8E-08 0.0E+00 4.1E-07
Benzo(a)pyrene (T) 50328	8,82E-03 0.00E+00 2,05E-01 1,25E+00 2,53E+00 2,25E-01 1,30E-02	1.8E-08 0.0E+00 4.1E-07
Beryllium metal (unreacted) (TH) 7440417 0.00E+00 0.00E+00 2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	0.0E+00 4.1E-07	
Cadmium metal (elemental unreacted) (TH) 7440439 1,03E-04 2,05E-01 1,03E-04 0,90 1,03E-04	2.05E-01 1.25E+00 2.53E+00 2.25E-01 1.30E-02	4.1E-07
Carbon disulfide (TH) 75150 6.23E-04 1.25E+00 6.23E-04 5.45 6.23E-04 Chromium unlisted cmpds (add w/chrom acid to get CRC) (H) CRC-other (1.26E-03) 2.53E+00 1.26E-03 11.08 1.26E-03 Chromic acid (VI) (component of solCR6 and CRC) (TH) 7738945 1.13E-04 2.25E-01 1.13E-04 0.99 1.13E-04 Cobalt unlisted compounds (H) COC-other 6.50E-06 1.30E-02 6.50E-06 0.06 6.50E-06 Cumene (H) 98828 1.14E-03 2.29E+00 1.14E-03 10.02 1.14E-03 Ethyl benzene (H) 100414 6.41E-02 1.28E+02 6.41E-02 561.24 6.41E-02 Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E-02 5.25E-02 459.90 5.26E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-03 16.86 1.33E-03 Manganese unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Methyl chloride (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.20E-02 105.12 1.20E-02 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	1.25E+00 2.53E+00 2.25E-01 1.30E-02	ļ.,·
Chromium unlisted cmpds (add w/chrom acid to get CRC) (H) (CRC-other (H) (CRC-other (H) (CRC-other (H)	2.53E+00 2.25E-01 1.30E-02	2.5E-06
(H) CRC-otner 1.26E-03 2.53E+00 1.26E-03 11.06 1.26E-03 Chromic acid (VI) (component of solCR6 and CRC) (TH) 7738945 1.13E-04 2.25E-01 1.13E-04 0.99 1.13E-04 Cobalt unlisted compounds (H) COC-other 6.50E-06 1.30E-02 6.50E-06 0.06 6.50E-06 Cumene (H) 98828 1.14E-03 2.29E+00 1.14E-03 10.02 1.14E-03 Ethyl benzene (H) 100414 6.41E-02 1.28E+02 6.41E-02 561.24 6.41E-02 Ethyl chloride (chtoroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.25E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02	2.25E-01 1.30E-02	
Cobalt unlisted compounds (H) COC-other 6,50E-06 1,30E-02 6,50E-06 0,06 6,50E-06 Cumene (H) 98828 1,14E-03 2,29E+00 1,14E-03 10,02 1,14E-03 Ethyl benzene (H) 100414 6,41E-02 1,28E+02 6,41E-02 561,24 6,41E-02 Ethyl chloride (chloroethane) (H) 75003 2,18E-06 4,37E-03 2,18E-06 0,02 2,18E-06 Formaldehyde (TH) 50000 7,97E-01 1,59E+03 7,97E-01 6981,17 7,97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3,25E-10 6,50E-07 3,25E-10 0,00 3,25E-10 Hexane, n- (TH) 110543 2,39E-01 4,78E+02 2,39E-01 2095,50 2,39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5,25E-02 1,05E+02 5,25E-02 459,90 5,25E-02 Hydrogen Sulfide (T) 7783064 1,37E-02 2,74E+01 1,37E-02 119,84 1,37E-02 Lead unlisted compounds (H) PBC-other 3,75E-03 7,50E+00 3,75E-03 32,85 3,75E-03 Manganese unlisted compounds (T) MNC-other 1,93E-03 3,85E+00 1,93E-03 16,86 1,93E-03 Methyl bromide (H) 74839 2,49E-04 4,98E-01 2,49E-04 2,18 2,49E-04 Methyl chloride (H) 74873 1,56E-04 3,12E-01 1,20E-02 105,12 1,20E-02 1,20E-02 105,12 1,20E-02	1.30E-02	
Cumene (H) 98828 1.14E-03 2.29E+00 1.14E-03 10.02 1.14E-03 Ethyl benzene (H) 100414 6.41E-02 1.28E+02 6.41E-02 561.24 6.41E-02 Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2.095.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other		4.5E-07
Ethyl benzene (H) 100414 6.41E-02 1.28E+02 6.41E-02 581.24 6.41E-02 Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653867 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2096.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl chloride (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	2 20E+00	2.6E-08
Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2095.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl chloride (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	2.200700	4.6E-06
Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 2.18E-06 Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2095.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl chloride (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	1.28E+02	2.6E-04
Formaldehyde (TH) 50000 7.97E-01 1.59E+03 7.97E-01 6981.17 7.97E-01 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3.25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2095.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl chloride (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	4.37E-03	8.7E-09
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 3,25E-10 6.50E-07 3.25E-10 0.00 3.25E-10 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2096.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	1.59E+03	3.2E-03
Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2096.50 2.39E-01 Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Suffide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	6.50E-07	1.3E-12
Hydrogen Chloride (hydrochloric acid) (TH) 7647010 5.25E-02 1.05E+02 5.26E-02 459.90 5.25E-02 Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	4.78E+02	9.6E-04
Hydrogen Sulfide (T) 7783064 1.37E-02 2.74E+01 1.37E-02 119.84 1.37E-02 Lead unlisted compounds (H) PBC-other 3.75E-03 7.50E+00 3.75E-03 32.85 3.75E-03 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	1.05E+02	2.1E-04
Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	2.74E+01	5.5€-05
Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 16.86 1.93E-03 Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	7.50E+00	1.5E-05
Mercury, vapor (TH) 7439976 6.50E-04 1.30E+00 6.50E-04 5.69 6.50E-04 Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	3.85E+00	7.7E-06
Methyl bromide (H) 74839 2.49E-04 4.98E-01 2.49E-04 2.18 2.49E-04 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	1.30E+00	2.6E-06
Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.37 1.56E-04 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	4.98E-01	1.0E-06
Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 1.20E-02	3,12E-01	6.2E-07
	2.40E+01	4.8E-05
	1.34E+01	2.7E-05
Methylene chloride (TH) 75092 8.23E-06 1.65E-02 8.23E-06 0.07 8.23E-06	1.65E-02	
Napthalene (H) 91203 1.65E-01 3.29E+02 1.65E-01 1442.95 1.65E-01	3.29E+02	
Nickel metal (TH) 7440020 1.58E-02 3.15E+01 1.58E-02 137.97 1.58E-02	3.15E+01	6.3E-05
Perchloroethylene (tetrachloroethylene) (TH) 127184 8.01E-05 1.60E-01 8.01E-05 0.70 8.01E-05	1.60E-01	3.2E-07
Phenol (TH) 108952 1.01E-03 2.01E+00 1.01E-03 8.81 1.01E-03	2.01E+00	4.0E-06
Phosphorus Metal, Yellow or White (H) 7723140 7.00E-03 1.40E+01 7.00E-03 61.32 7.00E-03	1.40E+01	·
Polycyclic Organic Matter (H) POM 2.20E-01 4.40E+02 2.20E-01 1927.20 2.20E-01	4.40E+02	
Propionaldehyde (H) 123386 3.25E-02 6.50E+01 3.25E-02 284.70 3.25E-02	6.50E+01	1.3E-04
Quinone (H) 106514 4.00E-02 8.00E+01 4.00E-02 350.40 4.00E-02	8.00E+01	1.6E-04
Selenium compounds (H) SEC 8.75E-05 1.75E-01 8.75E-05 0.77 8.75E-05	1.75E-01	

* BELOW SYNTHETIC MINOR LIMITS OF 100 TONS/YR, EACH

					······································	· · · · · · · · · · · · · · · · · · ·		
Styrene (TH)		2.40E-04	4.81€-01	2.40E-04	2.11	2.40E-04	4.81E-01	9.6E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	1,05E-07	5.25E-11	0.00	5.25E-11	1.05E-07	2.1E-13
Toluene (TH)	108883	7.29E-01	1.46E+03	7.29E-01	6386.67	7.29E-01	1.46E+03	2.9E-03
Trichloroethylene (TH)		0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane, 2,2,4- (H)		1.00E-02	2.01E+01	1.00E-02	87.85	1.00E-02	2.01E+01	4.0E-05
Xylene (TH)	1330207	6.04E-02	1.21E+02	6.04E-02	528.72	6.04E-02	1.21E+02	2.4E-04
Xylene, o- (H)		2.57E-03	5.14E+00	2.57E-03	22.50	2.57E-03	5.14E+00	1.0E-05
TOXIC AIR P	OLLUTAN	TEMISSIONS	INFORMATI	ON (FOR PE	RMITTING PL	JRPOSES)		
Expected actual emissions after controls a	nd limitati	one consisting	of an annu	al production	n limit of 500	NNO tone and	ulich e	EMISSION FACTOR
Expected actual emissions after controls a		duction limit of		ai productioi	ii iiiiik Or Soo	VVV LVIIS ZIIU	a uany	(lb/ton asphalt produced,
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	ib/day	lb/yr	Mode	eling Required	d?	with Fabric filter controls)
Acetaldehyde (TH)	75070	3.25E-01	0.00E+00	6.50E+02		on facility-wide p		1.30E-03
Acrofein (TH)	107028	6.50E-03	0.00E+00	1.30E+01	NO. Based	on facility-wide p	otential.	2.60E-05
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	0.00E+00	2.80E-01	YES.	Modeling require	ed .	5.60E-07
Benzene (TH)	71432	9.90E-02	0.00E+00	1.98E+02	YES.	Modeling require	eď	3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	0.00E+00	8.82E-03	NO. Based	on facility-wide p	otential.	1.76E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+0D	NO. Based	on facility-wide p	otential.	0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	0.00E+00	2.05E-01	NO. Becaus	se of operating re	striction	4.10E-07
Carbon disulfide (TH)	75150	6.23E-04	0.00E+00	1.25E+00	NO. Based	on facility-wide p	otential.	2.49E-06
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	1.13E-04	0.00E+00	2.25E-01	NO. Based	on facility-wide p	otential.	4.50E-07
Formaldehyde (TH)	50000	7.97E-01	0.00E+00	1.59E+03	YES.	Modeling require	ed	3.19E-03
Hexane, n- (TH)	110543	2.39E-01	0.00E+00	4.78E+02	NO. Based	on facility-wide p	otential.	9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	3.25E-10	0.00E+00	6.50E-07	NO. Based	on facility-wide p	otentlal.	1.30E-12
Hydrogen Sulfide (T)	7783064	1.37E-02	0.00E+00	2.74E+01	NO. Based	on facility-wide p	otentiai.	5.47E-05
Manganese unlisted compounds (T)		1.93E-03	0.00E+00	3.85E+00	NO. Based	on facility-wide p	otential.	7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	0.00E+00	1.30E+00	NO. Becaus	e of operating re	striction	2.60E-06
Methylene chloride (TH)	75092	8.23E-06	0.00E+00	1.65E-02	NO. Based	on facility-wide p	otential.	3.29E-08
Methyl chloroform (TH)	71556	1.20E-02	0.00E+00	2.40E+01	NO. Based	on facility-wide p	otential.	4.80E-05
Methyl ethyl ketone (TH)	78933	6.70E-03	0.00E+00	1.34E+01	NO. Based	on facility-wide p	otential.	2.68E-05
Nickei metal (TH)	7440020	1.58E-02	0.00E+00	3.15E+01	NO. Becaus	e of operating re	striction	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	0.00E+00	1.60E-01	NO. Based	on facility-wide p	otential.	3.20E-07
Phenol (TH)	108952	1.01E-03	0.00E+00	2.01E+00	NO. Based	on facility-wide p	otential.	4.02E-06
Styrene (TH)	100425	2.40E-04	0.00E+00	4.81E-01	NO. Based	on facility-wide p	otential.	9.62E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	0.00E+00	1.05E-07		on facility-wide p		2.10E-13
Toluene (TH)	108883	7.29E-01	0.00E+00	1.46E+03	NO. Based	on facility-wide p	otential.	2.92E-03
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide pe	otential.	0.00E+00
Xylene (TH)	1330207	6.04E-02	0.00E+00	1.21E+02	NO. Based	on facility-wide pe	otential.	2.41E-04

EXPECTED ACTUAL GMISSIONS - NATURAL GAS

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill In all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
preadsheet Prepared by:	LLG

oreadsheet b missions inv		~
Plant type:	Drum mix ▼	
Fuel type:	Natural gas-fired ▼	
	ur Conseint 2000 96	
Controls:	Fabric fifter controls	

Dryer heat input:	80	million Btu per hour
Plant maximum production capacity:	250	tons per hour

Asphalt Properties							
Asphalt temperature:	325	degrees					
Volatility loss (V):	-0.5	%					

(default value of 325 degrees F) (default value of -0.5 %)

Silo	No.	
Filling?	YES	

	ishing on te?	YES	▼	
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:	8760	hours per year	No. of screens:	1
,			No. of conveyors:	4

Asphalt Cement Heater		
AC heater heat input:	2.3	million Btu per hour
Fuel Sulfur Content:	0.50]%
Hours of approxions	9760	houre per veer

(No.2 or diesel fuel oil -fired assumed) (default value is 0.5 %)

(default is 8760 hours per year unless specified otherwise)

Calculated Annual Production Limit:	1,488,581	tons per year	
Requested Annual Production Limit:	500,000	tons per year	(if none desired leave default value =8760*tph)
Requested Daily Production Limit:	6,000	tons per day	(if none desired leave default value = 24*tph)

is this plant NSPS Subpart I affected?	YES	▼
Stack gas flow rate :	68,145	ACFM
Stack gas temperature :	240	oF
Stack % moisture:	33	%
Allowable emission rate under NSPS Subpart I:	11.81	lb/hr
Control efficiency required:	99.831	%
Does Method 5 data already exist?:	NO	
Method Cogle/fillred emission rate Control efficiency based on lest data	(419,419)	lb/hr %

Allowable emission rate under 2 D .0506:	55.39	lb/hr
Does this plant emit less than this limit ?:	Yes	(based on emission factors)
Control efficiency required:	99.209	%

ATTACHIMENT EZ

Pollulant Poll	Dryer Emissions Criteria Pollutants									
Continues Cont	D . U . L	Emission	Emission Factor		esion rate		(no controls, 6760 hours pe	eryear	(tpy) (with controls, 87	60 Synthetic Milior, Potential Emissions (tp.
Palestein No. 28 0.014 7700 3.5 5 5 5 5 5 5 5 5 5		0.0854		16.35		4.85				
Research Nation 24										
Total PM 28 0.033 7600 8.25 75.0 35.1 8.3 Train Miles 0.5 0.022 16.05 5.75 33.1 22.2 5.8 Train Miles 0.5 0.022 16.05 5.75 33.1 22.2 5.8 Train Miles 0.022 0.032 0.032 8 6.0 2.3 6.0 2.5 6.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 0.032 8 8 8 33.0 35.0 8.0 Train Miles 0.022 0.032 0.032 0.032 0.032 0.032 0.032 Train Miles 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 Train Miles 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 Train Miles 0.032 0.										
Total Paths						8.25	73.0		36.1	8.3
No.				1625		5.75	33,1		25.2	
No.	802	0.0001	0.0001	0.02		0.02	0.10			
No.	co	0.1300	0.130	32.5		32.5				
Silo Filling plus Load Out Emissions, Criteria Pollutants Emission Formation of Control of Cont	NOx	0.0260	0.026							
Silo Filling plus Load Out Emissions, Critaria Pollutanta Pollutan	Voc	0.0320		8						
Time V, Positivité Emissions (pp) PSD, Poleminé Birisaions (pp) (poleminé privation)	HAPs, TOTAL		0.005			1.325	5.8		5,8	1.3
Poliularity	Silo Filling plus Loa	d Out Emis	sions, Crit	eria Pollutants						
Poliutant Communication					Г		Title V, Potential Emissions			
Pollutant	5 - W. 4 4	combined				emission rate (lb/hr)		er year I		
Controlled Emissions			Sein Herenter (Menter 18	PA 4510 1 27700 00 00 00 00	en visa interprintes.	2775 84	12		12	0.3
NaPk, TOTAL 17.6 4.0 0.3 0.1										
Pollutant										
Rap Crusher Emissions Factor, all sources Commissions Factor, all sources Commissions Factor, all sources Commissions Commissi										
Pollutant	MAPS, TOTAL	2.746-04				0.002.02	0.5	1		
Pollutant	Rap Crusher Emiss									
Pollutant		Factor, all sources combined				emission rate (lb/hr)	(no controls, 8760 hours pe		(tpy) (8760 hours per y	Synthetic Minor, Potential Chiestons (4
Total PMF		` '	NGSARAGERAN MERITAN DE	Concept of the North April 1995		0.785+00	12.1		191	28
Asphalt Cement Heater Emissions			NAME OF THE PROPERTY OF STREET							
Uncontrolled Emission (which all operation Controlled Emission Controlled Controlled Emission Controlled Emission Controlled Emission Controlled Controlled Emission Controlled Controlled Emission Controlled Contr	Total PM10	0.0155				1.01E+00	4,4		7.7	1.7
Total PM1	Pollutant	Factor					operation)	er year	operation)	ear (with all operation restrictions)
Solidity-wide Criteria Color C	Total PM	0.0235714								
Controlled Emission Rate, Title V, Potential Emissions (tp.) PSD, Potential Emissions (tp.) (potential Emissions (tp.) (pot	Total PM10									
Controlled Emission Rate, Driver Pollutant Pol										
Pollutant							<u> </u>			
Controlled Emission Rate, Itile V, Potential Emissions (tpy) (properation) (properatio										
Pollutant	VOC	0.0024286				3.345-03	0.0		<u> </u>	
Pollutant	Facility-wide Criter	a Poliutant	Emissions	Summary						
Total PM							(no controls, 8760 hours pe		(tpy) (8760 hours per y	Synthetic Minor, Potenzai Emissions (F
Cas No. Action Arsenic unlisted cmps (comp. of ASC) (TH) Acrollen (TH)		V/Ass/Contractor	(952 to \$1000 to \$1000		Water below to the second	3 336 64	90.5		10.7	11.5
1.19E+00 5.2 5.2 5.1							<u> </u>			
3.32E+01							<u> </u>			
Soluble Chromate Compounds of Include TAP in TPER stipulation NOTE 1										
1.20E+01 52.7 52.7 12.0										7.9
TAP										
TAP CAS No. Action Acetaldehyde (TH) 75070 NOTE 1 Acrolein (TH) 107028 NOTE 1 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other Benzene (TH) 71432 NOTE 3 Benzene (TH) 744021 NOTE 1 Benzilium metal (elementel unreacted) (TH) 7440417 NOTE 1 Cadmium metal (elementel unreacted) (TH) 7550 NOTE 1 Cadmium metal (elementel unreacted) (TH) 7550 NOTE 1 Formaldehyde (TH) 5765387 NOTE 1 Bexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 110543 NOTE 1 Hydrogen Sulfide (T) 776394 NOTE 1 Mercury, vapor (TH) 743978 NOTE 1 Mercury, vapor (TH) 743978 NOTE 1 Mercury, vapor (TH) 743978 NOTE 1 Methyl ethyl ketone (TH) 78933 NOTE 1 Methyl ethyl ketone (TH) 78933 NOTE 1 NOTE 3 Methyl ethyl ketone (TH) 76902 NOTE 1 Perchloroethylene (tetrachloroethylene) (TH) 104020 NOTE 3 Perchloroethylene (tetrachloroethylene) (TH) 106852 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) 7738945 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 1748016 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Hydrogen Sulfide (T) 7763964 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 Mercury, vapor (TH) 7439978 NOTE 1 Methyl ethyl ketone (TH) 78993 NOTE 1 Methyl ethyl ketone (TH) 78993 NOTE 1 Methyl ethyl ketone (TH) 78993 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 1748016 NOTE 1				62 (8) (-12)		1.39E+00	6,1		6.1	1.4
Acetaldehyde (TH)		Air Poliutan	ts Summa	ry						
Acrolein (TH) 107028 NOTE 1 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other Benzene (TH) 71432 NOTE 3 Benzene (TH) 71432 NOTE 1 Benzene (TH) 744047 NOTE 1 Cadmium metal (unreacted) (TH) 744043 NOTE 1 Cadmium metal (elemental unreacted) (TH) 744043 NOTE 1 Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 110543 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 110543 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 1748046 NOTE 1 Hexachloro	TAP		CAS No.			TAP				
Acrolein (TH) 107028 NOTE 1 Methylene chloride (TH) 78933 NOTE 1 NOTE 3 Methylene chloride (TH) 740020 NOTE 3 NOTE 4 NOTE 3 NOTE 4 NOTE 5 NOTE	Ac									1: Include TAP in TPER stipulation
Renzene (TH) 71432 NOTE 3 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) Total Cadmium metal (unreacted) (TH) 7440417 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) Total Cadmium metal (elemental unreacted) (TH) 744049 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) Total Carbon disulfide (TH) 5150 NOTE 1 Total Compounds as Chrome VI (TH) Total Cadmium metal (elemental unreacted) (TH) Total Carbon disulfide (TH) Total Carbon dis				200						
Benzo(a)pyrene (T) 50328 NOTE 1 Perchloroethylene (tetrachtoroethylene) (TH) 127184 NOTE 1 108952 NOTE 1 108952 NOTE 1 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) T440439 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) T440439 NOTE 3 Soluble Chromate Compounds as Chrome VI (TH) T440439 NOTE 1 T440439 NOTE 3 T440439 NOTE 1 T440439 NOTE 3 T440439 NOTE 1	Arsenic unlisted cmpds (comp			5867			•		NOTE 3 INUIE	
Beryflium metal (unreacted) (TH) 7440417 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) Totachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) Hoxane, n- (TH) Hydrogen Sulfide (T) Hydrogen Sulfide (T) Hydrogen Sulfide (T) MNC-other	=	, ,		265	100	Darehlavasihula #				eration restrictions.
Cadmium metal (elemented unreacted) (TH) 7440439 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) 7738945 NOTE 1 Calculations" worksheet.				56		Lateriorearisheire (f				3: Modelina Required See "Toxic
Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Hydrogen Sulfide (T) 7783084 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	•					Soluble Chromate Compo	· ·			
Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 1748016 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hydrogen Sulfide (T) 7783084 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	· ·			385		COMPRESSION COMPO				
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 NOTE 1 Toluene (TH) 108883 NOTE 1 N						Tetrachlomdihena	• • •			
Hexans, n- (TH) 110543 NOTE 1 Hydrogen Sulfide (T) 7783064 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 More than 1 10543 NOTE 1 Xylene (TH) 79016 NOTE 1 Xylene (TH) 1330207 NOTE 1						1 Att dividing in the last of				
Hydrogen Sulfide (T) 7783084 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	•						• •			
Manganese unlisted compounds (T) MNC-other NOTE 1										
		-		7/20 1/20			,		1	
	<u>₹</u>									

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

	SOURCE/FACILITY/USER INPUT SUMMARY (FROM INPUT SC	REEN)	Andreas de la companya del companya del companya de la companya de
	Cavalina Company LLC	FACILITY ID NO.:	1700016
COMPANY:	Carolina Sunrock, LLC	PERMIT NUMBER:	10628R00
EMISSION SOURCE	NSPS affected 250 tph Natural gas-fired, Drum mix asphalt plant (80	FACILITY CITY:	Burlington
DESCRIPTION:	mmBtu/hr heat input, w/silofill, with RAP, sulfur=n/a%)	FACILITY COUNTY:	Caswell

Annual Production Daily Production Limit: n/a ton/day 500,000 ton/year Limit:

SPREADSHEET PREPARED BY: LLG

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION POTENTIAL EMISSIONS ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS) (BEFORE CONTROLS / LIMITS) (AFTER CONTROLS / LIMITS) AIR POLLUTANT EMITTED lb/hr tons/vr lb/hr tons/yr lb/hr tons/vr PARTICULATE MATTER (PM) 11.52 86.48 11.52 11.06 7.27 PARTICULATE MATTER<10 MICRONS (PM₁₀) 6.81 7.27 38.93 PARTICULATE MATTER<2.5 MICRONS (PM2.5) 5.13 SULFUR DIOXIDE (SO2 1.19 5.13 5.21 7.94 29.91 7.94 6.83 NITROGEN OXIDES (NOx) 33.49 145.48 33.49 CARBON MONOXIDE (CO 33.21 12.05 12.05 52.69 VOLATILE ORGANIC COMPOUNDS (VOC) 12.03 1.39 1.39 1.39 6.10 TOTAL HAP 0.80 LARGEST HAP (formaldehyde) 0.80 0.80 3.49

Attach INPUT worksheet TOXIC/HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION. **EMISSION FACTOR ACTUAL EMISSIONS** POTENTIAL EMISSIONS (lb/ton asphalt produced, CAS **TOXIC / HAZARDOUS AIR POLLUTANT** (BEFORE CONTROLS / LIMITS) (AFTER CONTROLS / LIMITS) (AFTER CONTROLS / LIMITS) with Fabric filter controls) Number lh/hr b/vr lb/yr lb/hr b/vr 0.0E+00 0.00E+00 0.00E+00 0.00E+00 Acetaldehyde (TH) 75070 0,00E+00 0.00E+00 ብ በበ 0.0E+00 Acrolein (TH) 0.00E+00 0.00E+00 0.00 0.00E+00 0.00E+00 107028 0.00E+00 1.8E-07 0.39 4.50E-05 9.00E-02 Antimony unlisted compounds (H) SBC-other 9,00E-02 4.50E-05 4.50E-05 5.6E-07 1.40F-04 2.80E-01 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other 1.40E-04 2.80E-01 1.40E-04 1.23 867.38 9,90E-02 1.98E+02 4.0E-04 71432 9.90E-02 Benzene (TH) 9 90F-02 1.98F+02 1.8E-08 4.41E-06 8.82E-03 Benzo(a)pyrene (T) 50328 4.41E-06 8.82E-03 4.41E-06 0.0E+00 Beryllium metal (unreacted) (TH) 7440417 0.00E+00 0.00E+00 0.00€+00 0.00 0.00E+00 0.00E+00 4.1E-07 1.03E-04 2.05E-01 7440439 1.03E-04 0.90 Cadmium metal (elemental unreacted) (TH) 1.03E-04 2.05E-01 2.5E-06 Carbon disutfide (TH) 75150 6,23E-04 1.25E+00 6.23E-04 5.45 6.23E-04 1.25E+00 Chromium unlisted cmpds (add w/chrom acid to get CRC 5.1E-06 CRC-other 2.53E+00 1.26E-03 11.06 1,26E-03 2.53E+00 1.26E-03 4.5E-07 2.25E-01 Chromic acid (VI) (component of solCR6 and CRC) (TH) 7738945 0.99 1.13E-04 1.13E-04 2.25E-01 1.13E-04 2.6E-08 1.30E-02 Cobalt unlisted compounds (H) COC-other 6.50E-06 1.30E-02 6.50E-06 0.06 6.50E-06 4.6E-06 Cumene (H 98828 2.29E+00 1.14E-03 10.02 1.14E-03 2.29E+00 1.14F-03 2.6E-04 6.41E-02 561.24 6.41E-02 1.28E+02 Ethyl benzene (H) 100414 6.41E-02 1.28E+02 8.7E-09 4.37E-03 2.18E-06 Ethyl chloride (chloroethane) (H) 75003 2.18E-06 4.37E-03 2.18E-06 0.02 Formaldehyde (TH) 7.97E-01 1.59E+03 3.2E-03 50000 7.97E-01 6981.17 1.59E+03 7.97E-01 0.0E+00 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 0.00E+00 0.00E+00 0.00E+00 0.00 0.00E+00 0.00E+00 9.6E-04 4.78E+02 2095.50 Hexane, n- (TH) 110543 2.39E-01 4.78E+02 2.39E-01 2.39E-01 0.0E+00 Hydrogen Chloride (hydrochloric acid) (TH) 0.00E+00 0.00E+00 0.00 0.00E+00 0.00E+00 7647010 0.00E+00 5.5E-05 119.84 1.37E-02 2.74E+01 Hydrogen Sulfide (T) 7783064 2.74E+01 1.37E-02 1.37E-02 1.55F-04 3.10E-01 6.2E-07 Lead unlisted compounds (H) PBC-other 3.10E-01 1.55E-04 1.36 1.55E-04 7.7E-06 16.86 1.93E-03 3.85E+00 Manganese unlisted compounds (T) MNC-other 1.93E-03 3.85E+00 1.93E-03 2.4E-07 6.00E-05 1.20E-01 Mercury, vapor (TH) 7439976 1.20E-01 6.00E-05 0.53 6.00E-05 1.0E-06 Methyl bromide (H) 74839 4.98E-01 2.49E-04 2.18 2.49E-04 4.98E-01 2.49E-04 1.37 1.56E-04 3.12E-01 6.2E-07 Methyl chloride (H) 74873 1.56E-04 3.12E-01 1.56E-04 1.20E-02 2.40E+01 4.8E-05 Methyl chloroform (TH) 71556 1.20E-02 2.40E+01 1.20E-02 105.12 6.8E-06 3.40E+00 Methyl ethyl ketone (TH) 78933 1,70E-03 3.40E+00 1.70E-03 14.87 1.70E-03 8.23E-06 1.65E-02 3.3E-08 75092 0.07 8.23E-06 Methylene chloride (TH) 8.23E-06 1.65E-02 9.9E-05 2.47E-02 4.94E+01 Napthalene (H) 91203 2.47E-02 4.94E+01 2.47E-02 216.55 6,3E-05 3.15E+01 Nickel metal (TH) 7440020 3.15E+01 1.58E-02 137.97 1.58E-02 1.58E-02 3.2E-07 0.70 8.01E-05 1.60E-01 127184 1.60E-01 8.01E-05 Perchloroethylene (tetrachloroethylene) (TH) 8.01E-05 4.0E-06 2.01E+00 1.01E-03 2.01E+00 Phenol (TH) 108952 1.01E-03 8.81 1.01E-03 1,40E+01 2.8E-05 Phosphorus Metal, Yellow or White (H) 7723140 1.40E+01 7.00E-03 61.32 7.00E-03 7.00E-03 1.9E-04 9.50E+01 Polycyclic Organic Matter (H) POM 4.75E-02 9.50E+01 4.75E-02 416.10 4.75E-02 0.0E+00 Propionaldehyde (H) 123386 0.00E+00 0.00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.0E+00

0.00E+00

1.75E-01

Quinone (H

Selenium compounds (H

106514

SEC

0.00E+00

8.75E-05

0.00

0.77

0.00E+00

8.75E-05

0.00E+00

8.75E-05

0.00E+00

1.75E-01

3.5E-07

Sty	rene (TH)	100425	2.40E-04	4.81E-01	2.40E-04	2.11	2.40E-04	4.81E-01	
Tetrachlorodibenzo-p-dioxin, 2,3,	7,8- (TH)	1746016	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	
Tol	uene (TH)	108883	4.16E-02	8.31E+01	4.16E-02	364.17	4.16E-02	8.31E+01	1.7E-04
Trichloroeth	lene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane,	2,2,4- (H)	540841	1.00E-02	2.01E+01	1.00E-02	87.85	1.00E-02	2.01E+01	4.0E-05
X	lene (TH)	1330207	6.04E-02	1.21E+02	6.04E-02	528.72	6.04E-02	1.21E+02	2.4E-04
Xyle	ne, o- (H)	95476	2.57E-03	5.14E+00	2.57E-03	22,50	2.57E-03	5.14E+00	1.0E-05
TOX	C AIR F	OLLUTAN	T EMISSIONS	INFORMATI	ON (FOR PE	RMITTING P	JRPOSES)		
Expected actual emissions after controls and limitations consisting of an annual production limit of 500000 tons .									
TOXIC AIR POLLUTANT		CAS Num.	lb/hr	lb/day	lb/yr		eling Required		
Acetaide	hyde (TH)	75070	0.00E+00	0.00E+00	0.00E+00		on facility-wide p		0.00E+00
Acı	olein (TH)	107028	0.00E+00	0.00E+00	0.00E+00		on facility-wide p		0.00E+00
Arsenic unlisted cmpds (comp. of /	ASC) (TH)	ASC-other	1.40E-04	3.36E-03	2,80E-01		Modeling require		5.60E-07
Ben	zene (TH)	71432	9,90E-02	2.38E+00	1.98E+02		Modeling require		3,96E-04
Benzo(a)p	yrene (T)	50328	4.41E-06	1.06E-04	8.82E-03		on facility-wide p		1.76E-08
Beryilium metal (unrea	cted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide p	otential.	0.00E+00
Cadmium metal (elemental unrea	cted) (TH)	7440439	1.03E-04	2.46E-03	2.05E-01		se of operating re	i	4.10E-07
Carbon dist	ılfide (TH)	75150	6.23E-04	1.49E-02	1.25E+00		on facility-wide p		2,49E-06
Soluble Chromate compounds as Chrome	(VI) (TH)	SOLCR6	1.13E-04	2.70E-03	2.25E-01	NO. Based	on facility-wide p	otential.	4.50E-07
Formalde	hyde (TH)	50000	7.97E-01	1.91E+01	1,59E+03		Modeling require		3.19E-03
Hexar	e, n- (TH)	110543	2.39E-01	5.74E+00	4.78E+02		on facility-wide p		9,57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,	6,7,8 (TH)	57653857	0.00E+00	0.00E+00	0.00E+00		on facility-wide p		0.00E+00
Hydrogen	Sulfide (T)	7783064	1.37E-02	3.28E-01	2.74E+01	NO. Based	on facility-wide p	otential.	5.47E-05
Manganese unlisted comp	ounds (T)	MNC-other	1.93E-03	4.62E-02	3.85E+00		on facility-wide p		7.70E-06
Mercury, v	apor (TH)	7439976	6.00E-05	1.44E-03	1.20E-01	NO. Based	on facility-wide p	otential.	2.40E-07
Methylene chi	oride (TH)	75092	8.23E-06	1.97E-04	1.65E-02	NO. Based	on facility-wide p	otential.	3.29E-08
Methyl chloro	form (TH)	71556	1.20E-02	2.88E-01	2.40E+01	NO. Based	on facility-wide p	otential.	4,80E-05
Methyl ethyl ke	tone (TH)	78933	1.70E-03	4.07E-02	3.40E+00	NO. Based	on facility-wide p	otential.	6.79E-06
Nickel r	netal (TH)	7440020	1.58E-02	3.78E-01	3.15E+01	YES	Modeling require	d	6.30E-05
Perchloroethylene (tetrachloroethy	lene) (TH)	127184	8.01E-05	1.92E-03	1.60E-01	NO. Based	on facility-wide p	otential.	3.20E-07
Pi	nenol (TH)	108952	1.01E-03	2.41E-02	2.01E+00	NO. Based	on facility-wide p	otential.	4.02E-06
Sty	rene (TH)	100425	2.40E-04	5.77E-03	4.81E-01	NO. Based	on facility-wide p	otentiai.	9.62E-07
Tetrachlorodibenzo-p-dioxin, 2,3	7,8- (TH)	1746016	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide p	otential.	0.00E+00
Tol	uene (TH)	108883	4,16E-02	9.98E-01	8.31E+01	NO. Based	on facility-wide p	otential.	1.66E-04
	done (TLI)	79016	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide p	otential.	0.00E+00
Trichloroeth	yletie (III)	19010	0.000.00	0.00E.00	0.002-00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	on leading mas p		

EXPECTED ACTUAL EMISSIONS - WASTE OIL NO. 4 FUEL OIL

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
Spreadsheet Prepared by:	Ll.G

Is this spreadshe for emissions			2. NO			~	
Plant typ	е: [Drum mix			▼		
Fuel typ	a : [-	Waste, No.4	or No.6 fuel oil-fired				
Fuel	Fuel Sulfur Content:			%		(default valu	ıe is 0.5 %)
Controls	: [Fabric filter	controls		•		

3	Dryer heat input:	80	million Btu per nour	i
١	Plant maximum production capacity:	250	tons per hour	
•				
I	Asphalt Proper	ties		_
I	Asphalt temperature:	325	degrees	(default value of 325 degrees F)
1	Volatility loss (V):	-0.5	%	_d(default value of -0.5 %)
•				

	ushing on te?	YES		,
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:		hours per year	No. of screens:	1
		-	No. of conveyors:	4

YES

Silo

Filling?

Asphalt Cement Heater			
AC heater heat input:	2.3	Imillion Btu per hour	(No.2 or diesel fuel oil -fired assumed)
Fuel Sulfur Content:			(default value is 0.5 %)
Hours of operation:		hours per year	(default is 8760 hours per year unless specified otherwise)

	Calculated Annual Production Limit:	1,488,581	tons per year	
	Requested Annual Production Limit:	500,000	tons per year	(if none desired leave default value =8760*tph)
ļ	Requested Daily Production Limit:	6,000	tons per day	(if none desired leave default value = 24*tph)

8,145 ACFM 240 oF 33 %
33 %
d Od Ib/br
11.81 Ib/hr
9.831 %
10.00 IB/hr

Allowable emission rate under 2 D .0506:	55.39	lb/hr
Does this plant emit less than this limit ?:	Yes	(based on emission factors)
Control efficiency required:	99.209	%

ATTACHMENT E3

Dryer Emissions Criteria Pollutants								
Pollutant	Uncontrolled Emission Factor (lb/ton)	Controlled Emission Factor (lb/ton)	uncontrolled emiss (lb/hr)	sion rate	controlled emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (with controls, 8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Condensible PM (or PM ₁₀)	0.0654	0.0194	16.35		4.85			
Filterable PM	28	0.014	7000		3.5			No. of the second second
Fitterable PM10		0.0039	1600		0.975	70.0	26.4	8.3
Total PM	28	0.033	7000		8.25	73.0 33.1	36.1 25.2	5.8
Total PM10	6.5	0.023	1625 20.93	+	5.75 20.93	91.69	91.69	20.93
SO2	0.0837 0.1300	0.0837 0.130	32.5		32.5	142.4	142.4	32.5
NO _X	0.0550	0.055	13.75		13.75	60.2	60.2	13.8
VOC	0.0320	0.032	8		8	35.0	35.0	8,0
HAPs, TOTAL	CHICAGO CANTANA MANGEMENTA CANTANA CANTANA	0.010			2.5	11.0	11.0	2.5
Silo Filling plus Loa	ad Out Emis	sions, Crit	eria Pollutants				· 	
	Emission Factor,			Г		Title V, Potential Emissions (tpy)	PSD, Potential Emissions,	Synthetic Minor, Potential Emissions (tpy)
Pollutant	combined (lb/ton)				emission rate (lb/hr)	(no controls, 8760 hours per year operation)	(tpy) (8760 hours per year operation)	(with all operation restrictions)
Total PM	1.11E-03				2.77E-01	1.2	1.2	0.3
co					6.32E-01	2.8	2.8	0.6 4.0
Voc					4.02E+00	17.6 0.3	17.6 0.3	0,1
HAPs, TOTAL	2.74E-04				6.85E-02	U.3	1 0.3	V.I
Rap Crusher Emiss	ions Emission							
95 - H 4 4	Factor, all sources combined (lb/ton)				emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Pollutant Total PM					2.76E+00	12.1	12.1	2.8
Total PM10					1.01E+00	4.4	4.4	1.0
Annhalt Comout Us	ator Emissi	220						
Asphalt Cement He	ater Emissi	JII8						
Dell'stant	Uncontrolled Emission Factor (lb/MMBtu)				emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
Pollutant	0.0235714	NEW YORK OF THE PERSON NAMED IN		CHECK SHIP CONTROL	5.42E-02	0.2	0.2	0.2
Total PM10			2000		5,42E-02	0.2	0.2	0.2
	0.5071429		90.70	3 2 2 2	1.17E+00	5.1	5.1	5.1
co					8.21E-02	0.4	0,4	0.4
NOx					3.29E-01	1.4	1.4	1.4
VOC	0.0024286				5.59E-03	0.0	0.0	0,0
EOtt Jalo Outon	a Dalludană	Emississa	Summan					
Facility-wide Criter	ia Poliutant	Emissions	Summary	ſ		 	1	
7 . (1.4.4.)					Controlled Emission Rate, lb/hr	Title V, Potential Emissions (tpy) (no controls, B760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (tpy): (with all operation restrictions)
Pollutant Total PM					1.11E+01	86.5	49.7	11.5
Total PM10	The state of the s				6,81E+00	38.9	31.0	7.3
SO2	ANALYSIS OF CHARLES AND				2.21E+01	96.8	96.8	26.0
co	\$3607 ANNA 2022 ANNA 00 08/00/2046	N. A. C. C. C.			3.32E+01	145,5	145.5	33.5
NOx					1.41E+01	61.7	61.7 52.7	15.2 12.0
VOC					1.20E+01 2.57E+00	52.7 11.3	11.3	2.6
HAPs, TOTAL					2.01 2.00	1 11.00	1	
Facility-wide Toxic	Air Pollutan	ts Summa	ry				· · · · · · · · · · · · · · · ·	
TAP		CAS No.	Action		TAP	CAS No.	Action	
Ac	etaldehyde (TH)	75070	NOTE 1			Mercury, vapor (TH) 7439976	NOTE 3 NOTE 1	nctude TAP in TPER stipulation.
	Acrolein (TH)	107028	NOTE 1			Methyl ethyl ketone (TH) 78933 Methylene chloride (TH) 75092		
Arsenic unlisted cmpds (com	p. of ASC) (TH) Benzene (TH)	ASC-other 71432	NOTE 3 NOTE 3		l	Nickel metal (TH) 7440020	NOTE 2 NOTE 2. (nclude TAP in TPER stipulation
Ren	enzene (۱۲) zo(a)pyrene (T)	50328	NOTE 1		Perchioroethylene (te	etrachloroethylene) (TH) 127184	NOTE 1 with opera	tion restrictions.
Beryllium metal (7440417	NOTE 1			Phenol (TH) 108952		Modeling Required. See "Toxic
Cadmium metal (elemental		7440439	NOTE 2		Soluble Chromate Compou			ns" worksheet.
Carbo	on disulfide (TH)	75150	NOTE 1		!	Styrene (TH) 100425	NOTE 1	
	maldehyde (TH)		NOTE 3		Tetrachlorodibenzo	p-p-dioxin, 2,3,7,8- (TH) 1746016	NOTE 1	ı
Hexachlorodibenzo-p-dioxin			NOTE 1			Toluene (TH) 108883 Trichtoroethylene (TH) 79016	NOTE 1 NOTE 1	
	Hexane, n- (TH)	110543	NOTE 1 NOTE 1			Trichtoroethylene (TH) 79016 Xylene (TH) 1330207	NOTE 1	
Hydr Manganese unlisted	ogen Sulfide (1) Leomounds (1)	7783084 MNC-other	NOTE 1			Appens (111) 1000207		•
	chloroform (TH)		NOTE 1	4				
Janiji	(11)		NIIIV	The state of the s				

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



TOTAL HAP

LARGEST HAP (formaldehyde)

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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	SO	URCE / FACIL	ITY/LUSER INPUT SUMMARY	FROM INPUT	SCREEN)	
	30/30			FACILITY ID NO.:	1700016	
COMPANY:	NY: Carolina Sunrock, LLC					10628R00
EMISSION SOURCE	INSPS :	affected 250 to	h Waste, No.4 or No.6 fuel oil-fire	d, Drum mix a	sphait FACILITY CITY:	Burlington
DESCRIPTION:			eat input, w/silofill, with RAP, sulfu	FACILITY COUNTY:	Casweli	
Annual Production	500,000	ton/year	Daily Production Limit:	n/a	ton/day	

SPREADSHEET PREPARED BY: LLG

Limit:

CRIT	ERIA AIR POLLU	TANT EMIS	SIONS INFOR	MATION			
AIR POLLUTANT EMITTED	ACTUAL E	MISSIONS ROLS / LIMITS)	(BEFORE CON	POTENTIAL TROLS / LIMITS)	EMISSIONS (AFTER CONTROLS / LIMITS)		
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)	11.06	11.52		86.48		11.52	
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	6.81	7.27	j	38.93		7.27	
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO2)	22.10	26.04		96.80		26.04	
NITROGEN OXIDES (NOx)	14.08	15.19		61.66		15.19	
CARBON MONOXIDE (CO)	33.21	33.49		145.48		33.49	
MOLATILE ODGANIC COMPOLINDS (MOC)	12 03	12 05		52.69		12.05	

2.57

0.80

0.80 **Attach INPUT worksheet** TOYIC LUAZARDOUS AIR ROLL ITANTEMISSIONS INFORMATION

2.57

11.25

2.57

0.80

								EMISSION FACTOR
TOXIC / HAZARDOUS AIR POLLUTANT	CAS Number	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMISSIONS				(lb/ton asphalt produced
				(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)		with Fabric filter controls
		lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	
Acetaldehyde (TH)	75070	3.25E-01	6.50E+02	3.25E-01	2847,00	3.25E-01	6.50E+02	1.3E-03
Acrolein (TH)	107028	6.50E-03	1.30E+01	6.50E-03	56.94	6.50E-03	1,30E+01	2.6E-05
Antimony unlisted compounds (H)	SBC-other	4.50E-05	9.00E-02	4.50E-05	0.39	4.50E-05	9.00E-02	1.8E-07
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	2.80E-01	1.40E-04	1.23	1.40E-04	2.80E-01	5.6E-07
Benzene (TH)	71432	9.90E-02	1.98E+02	9.90E-02	867.38	9.90E-02	1.98E+02	4.0E-04
Benzo(a)pyrene (T)	50328	4.41E-06	8.82E-03	4.41E-06	0.04	4.41E-06	8.82E-03	1.8E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	2.05E-01	1.03E-04	0.90	1,03E-04	2.05E-01	4.1E-07
Carbon disulfide (TH)	75150	6.23E-04	1.25E+0Ò	6.23E-04	5.45	6.23E-04	1.25E+00	2.5E-06
Chromium unlisted cmpds (add w/chrom acid to get CRC)	CRC-other			4.005.00	44.00	1.26E-03	2.53E+00	5.1E-06
(H)		1.26E-03	2.53E+00	1.26E-03	11.06	1.13E-04	2,25E-01	4.5E-07
Chromic acid (VI) (component of solCR6 and CRC) (TH)		1,13E-04	2.25E-01	1.13E-04	0.99			2.6E-08
Cobalt unlisted compounds (H)		6.50E-06	1.30E-02	6.50E-06	0.06	6.50E-06	1.30E-02	
Cumene (H)	98828	1.14E-03	2.29E+00	1.14E-03	10.02	1.14E-03	2.29E+00	2.6E-04
Ethyl benzene (H)	100414	6.41E-02	1.28E+02	6.41E-02	561.24	6.41E-02	1.28E+02	8.7E-09
Ethyl chloride (chloroethane) (H)	_	2.18E-06	4.37E-03	2.18E-06	0.02	2.18E-06	4.37E-03	3.2E-03
Formaldehyde (TH)		7.97E-01	1.59E+03	7.97E-01	6981.17	7.97E-01	1.59E+03	
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)		3.25E-10	6.50E-07	3.25E-10	0,00	3.25E-10	6.50E-07	1.3E-12
Hexane, n- (TH)		2.39E-01	4.78E+02	2.39E-01	2095.50	2.39E-01	4.78E+02	9.6E-04
Hydrogen Chloride (hydrochloric acid) (TH)	7647010	5.25E-02	1.05E+02	5.25E-02	459.90	5.25E-02	1.05E+02	2.1E-04
Hydrogen Sulfide (T)		1.37E-02	2.74E+01	1.37E-02	119.84	1.37E-02	2.74E+01	5.5E-05
Lead unlisted compounds (H)	PBC-other	3.75E-03	7.50E+00	3.75E-03	32.85	3.75E-03	7.50E+00	
Manganese unlisted compounds (T)	MNC-other	1.93E-03	3.85E+00	1.93E-03	16.86	1.93E-03	3,85E+00	
Mercury, vapor (TH)	7439976	6.50E-04	1.30E+00	6.50E-04	5.69	6.50E-04	1.30E+00	
Methyl bromide (H)	74839	2.49E-04	4.98E-01	2.49E-04	2.18	2.49E-04	4.98E-01	1.0E-06
Methyl chloride (H)	74873	1.56E-04	3.12E-01	1.56E-04	1.37	1.56E-04	3.12E-01	6.2E-07
Methyl chloroform (TH)	71556	1.20E-02	2.40E+01	1.20E-02	105.12	1.20E-02	2.40E+01	4.8E-05
Methyl ethyl ketone (TH)	78933	6.70E-03	1.34E+01	6.70E-03	58.67	6.70E-03	1.34E+01	2.7E-05
Methylene chloride (TH)	75092	8.23E-06	1.65E-02	8.23E-06	0.07	8.23E-06	1.65E-02	3.3E-08
Napthalene (H)	91203	1.65E-01	3.29E+02	1.65E-01	1442.95	1.65E-01	3.29E+02	6.6E-04
Nickel metal (TH)	7440020	1.58E-02	3.15E+01	1.58E-02	137.97	1.58E-02	3.15E+01	6.3E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	1.60E-01	8.01E-05	0.70	8,01E-05	1.60E-01	3.2E-07
Phenol (TH)		1.01E-03	2.01E+00	1.01E-03	8.81	1,01E-03	2.01E+00	4.0E-06
Phosphorus Metal, Yellow or White (H)		7.00E-03	1.40E+01	7.00E-03	61.32	7.00E-03	1.40E+01	2.8E-05
Potycyclic Organic Matter (H)		2.20E-01	4.40E+02	2.20E-01	1927.20	2.20E-01	4.40E+02	8.8E-04
Propionaldehyde (H)		3.25E-02	6.50E+01	3,25E-02	284.70	3.25E-02	6.50E+01	1.3E-04
Quinone (H)		4.00E-02	8.00E+01	4.00E-02	350.40	4.00E-02	8,00E+01	1.6E-04
Selenium compounds (H)		8.75E-05	1.75E-01	8.75E-05	0.77	8,75E-05	1.75E-01	3.5E-07

Styrene (TH)	100425	2.40E-04	4.81E-01	2.40E-04	2.11	2.40E-04	4.81E-01	9.6E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	1.05E-07	5.25E-11	0.00	5.25E-11	1.05E-07	2.1E-13
Toluene (TH)	108883	7.29E-01	1.46E+03	7.29E-01	6386.67	7.29E-01	1.46E+03	2.9E-03
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane, 2,2,4- (H)	540841	1.00E-02	2.01E+01	1.00E-02	87.85	1.00E-02	2.01E+01	4.0E-05
Xylene (TH)	1330207	6.04E-02	1.21E+02	6.04E-02	528.72	6.04E-02	1.21E+02	2.4E-04
Xylene, o- (H)	95476	2.57E-03	5.14E+00	2.57E-03	22.50	2.57E-03	5.14E+00	1.0E-05
TOXICAIRP	OLLUTAN	T EMISSIONS	INFORMATI	ON (FOR PE	RMITTING PL	JRPOSES)	(VN:55.51	totti elle itleni.
								EMISSION FACTOR
Expected actual emissions after contr	ols and lir	nitations consi	isting of an	annual produ	uction limit o	f 500000 tons	٠.	(lb/ton asphalt produced,
			•	•				with Fabric filter controls)
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	lb/day	lb/yr	Mode	with Fabric filter controls)		
Acetaldehyde (TH)	75070	3.25E-01	7.80E+00	6.50E+02	NO. Based on facility-wide potential.			1.30E-03
Acrolein (TH)	107028	6.50E-03	1.56E-01	1.30E+01	NO. Based on facility-wide potential.			2.60E-05
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	3.36E-03	2.80E-01	YES. Modeling required			5.60E-07
Benzene (TH)	71432	9.90E-02	2.38E+00	1.98E+02	YES. Modeling required			3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	1.06E-04	8.82E-03	NO. Based on facility-wide potential.			1.76E-08
Bervillum metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	NO. Based on facility-wide potential.			0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	2.46E-03	2.05E-01	NO. Because of operating restriction			4.10E-07
Carbon disulfide (TH)	75150	6.23E-04	1.49E-02	1.25E+00	NO. Based on facility-wide potential.			2.49E-06
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	1.13E-04	2.70E-03	2.25E-01	NO. Based on facility-wide potential.			4.50E-07
Formaldehyde (TH)		7.97E-01	1.91E+01	1.59E+03	YES. Modeling required			3.19E-03
Hexane, n- (TH)	110543	2.39E-01	5.74E+00	4.78E+02	NO. Based on facility-wide potential.			9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	3.25E-10	7.80E-09	6.50E-07	NO. Based on facility-wide potential.			1.30E-12
Hydrogen Sulfide (T)	7783064	1.37E-02	3.28E-01	2.74E+01	NO. Based on facility-wide potential.		5.47E-05	
Manganese unlisted compounds (T)	MNC-other	1.93E-03	4.82E-02	3.85E+00	NO. Based on facility-wide potential.			7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	1.56E-02	1.30E+00	YES. Modeling required			2.60E-06
Methylene chloride (TH)	75092	8.23E-06	1.97E-04	1.65E-02	NO. Based on facility-wide potential.		3.29E-08	
Methyl chloroform (TH)	71556	1.20E-02	2.88E-01	2.40E+01	NO. Based on facility-wide potential.			4.80E-05
Methyl ethyl ketoле (ТН)	78933	6.70E-03	1.61E-01	1.34E+01	NO. Based on facility-wide potential.			2.68E-05
Nickei metal (TH)	7440020	1.58E-02	3.78E-01	3.15E+01	YES. Modeling required		6.30E-05	
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	1.92E-03	1.60E-01	NO. Based on facility-wide potential.			3.20E-07
Phenoi (TH)	108952	1.01E-03	2.41E-02	2.01E+00	NO. Based on facility-wide potential.			4.02E-06
		2,40E-04	5.77E-03	4.81E-01	NO. Based on facility-wide potential.			9.62E-07
Styrene (TH)	100425	2.400-04			NO. Based on facility-wide potential.		0.405.40	
Styrene (TH) Tetrachtorodibenzo-p-dioxin, 2,3,7,8- (TH)	100425 1746016	5.25E-11	1.26E-09	1.05E-07	NO. Based	on facility-wide po	otential.	2.10E-13
			1.26E-09 1.75E+01	1.05E-07 1.46E+03		on facility-wide po		2.10E-13 2.92E-03
Tetrachtorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11			NO. Based		otential.	

OTENTIAL EMISSIONS - PEFONE CONTROLS/LIMITS

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

_	
Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
Spreadsheet Prepared by:	ITG

Is this spreadsheat for emissions in			▼
Plant type	Drum mix	▼.	
Fuel type:	Waste, No.4 or No.6 fuel oil-fire	; ▼	
Fuel Su	fur Content: 2,10 %		(default value is 0.5 %
Controls:	Fabric filter controls	▼	

Diyel Heat Input.	OU	THENCH OF PER HOUR	
Plant maximum production capacity:	250	tons per hour	
			<u> </u>
Asphalt Prope	erties		
Asphalt temperature:	325	degrees	(default value of 325 degrees F)
Volatility loss (V):	-0.5	%	(default value of -0.5 %)

	ishing on te?	YES	.	
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:	8760	hours per year	No. of screens:	1
· ·		-	No. of conveyors:	4

YES

Filling?

	Asphalt Cement Heater			
١	AC heater heat input:	2.3	million Btu per hour	(No.2 or diesel fuel oil -fired assumed)
	Fuel Sulfur Content:	0.50		(default value is 0.5 %)
	Hours of operation:	8760	hours per year	(default is 8760 hours per year unless specified otherwise)

Calculated Annual Production Limit:	311,227	tons per year	
Requested Annual Production Limit:	2,190,000	J	INVALID ENTRY. Value must be less than or equal to 311227 tpy.
Requested Daily Production Limit:	6,000	tons per day	(if none desired leave default value = 24*tph)

is this plant NSPS Subpart I affected?	YES	▼:
Stack gas flow rate :	68,145	ACFM
Stack gas temperature :	240	oF
Stack % moisture:	33	%
Allowable emission rate under NSPS Subpart I:	11.81	lb/hr
Control efficiency required:	99.831	%
Does Method 5 data already exist?:	NO	
Method 5 determined emission rete.	40.00	Hi/hr
Control efficiency based on test data:	89.429	186

Allowable emission rate under 2 D .0506:	55.39	ib/hr
Does this plant emit less than this limit ?:	Yes	(based on emission factors)
Control efficiency required:	99.209	%

ATTACHMENT E4

	Dryer Emissions	*** ! *									
	Criteria Pollutants		··								
	Pollutant	Uncontrolled Emission Factor (lb/ton)	Controlled Emission Factor (lb/ton)	n uncontrolled emission rate controlled emission rate (no controlled emission rate operation) (typ) (with controls, 8760 hours per year operation)			(no controls, 8760 hours per year (tpy) (with co		ntrois, 8760	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)	
	Condensible PM (or PM ₁₀)	0.0654	0.0194	16.	35	4.85					
	Fitterable PM	28	0.014	700		3.5					
	Filterable PM10	6.4	0.0039	160		0,975	73.0		36		36.1
	Total PM	28 6.5	0.033	700 163		8.25 5.75	33.1		25		25.2
	Total PM10 SO2	0.6034	0.6034	150		150.84	660.68		660		660.68
	CO	0.1300	0.130	32		32.5	142.4		142	2.4	142.4
	NOx	0.0550	0.055	13.	75	13.75	60.2		60		60.2
	VOC	0.0320	0.032	8		8	35.0		35		35.0 11.0
	HAPS, TOTAL		0.010			2.5	11.0		11	.0	11.0
	Silo Filling plus Los	d Out Emis	sions, Crit	erla Pollutan	ts						
		Emission Factor, combined				emission rate ((b/hr)	Title V, Potential Emissi (no controls, 8760 hours operation)		PSD, Potentia (tpy) (8760 ha	ours per year	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
	Pollutant	(lb/ton)	New York And the Control of the Cont	Histories and Alberta Commence	n Minterson belandaring	0.775.04	43		1.	2	1.2
	Total PM CO					2.77E-01 6.32E-01	1,2		2.		2.8
	voc					4,02E+00	17.6		17		17.6
	HAPs, TOTAL	2.74E-04				6,85E-02	0.3		0.	3	0.3
			A STATE OF THE STA								
	Rap Crusher Emiss										
		Emission							·		
		Factor, all sources			1		Title V, Potential Emissi		PSD, Potentia (!py) (8760 h		Synthetic Minor, Potential Emissions (tpy).
		combined				emission rate (tb/hr)	(no controls, 8760 hours operation)	i per year	open		(with all operation restrictions)
	Pollutant	(ib/ton)					·				
	Total PM					2.76E+00	12.1		12		12.1 4.4
	Total PM10	0.0155				1.01E+00	4.4		4.	-4	4,4
	Asphalt Cement He	uncontrolled	ons				Title V, Potential Emissi	one (tru)	PSD, Potentia	al Emissions	
	Pollutant	Emission Factor (lb/MMBtu)				emission rate (lb/hr)	(no controls, 8760 hours operation)		(tpy) (8760 ho open	ours per year ation)	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
		0.0235714				5.42E-02	0.2		0.		0.2 0.2
	·	0.0235714				5,42E-02	0.2 5.1		0. 5.		5.1
		0.5071429				1.17E+00 8.21E-02	0.4		0.		0.4
	CO					3.29E-01	1.4		1.		1.4
	VOC					5.59E-03	0.0 0.0			0.0	
					S STATE OF THE PARTY OF THE PAR						
	Facility-wide Criteri	a Pollutant	Emissions	Summary					1		
	Pollutant				i	Controlled Emission Rate, lb/hr	Title V, Potential Emissi (no controls, 8760 hours operation)		PSD, Potenti (tpy) (8760 h opera	ours per year	Synthetic Minor, Potential Emissions (tpy) (with all operation restrictions)
	Total PM					1.11E+01	86.5		49		49.7
	Total PM10					6.81E+00	38.9		31		31.0
	SO2					1.52E+02	665.8		66		665.8 145.5
	CO				+	3.32E+01 1.41E+01	145.5 61.7		61		61.7
	NOx VOC					1,20E+01	52.7		52		52.7
	HAPs, TOTAL				0.5	2.57E+00	11.3		11		11.3
	Facility-wide Toxic	Air Pollutan	ts Summa	ry					··-		
	TAP		CAS No.	Action		TAP	T	CAS No.	Action	<u> </u>	
		taldehyde (TH)	75070	NOTE 1			Mercury, vapor (TH)	7439976	NOTE 3	NOTE 1:1	nclude TAP in TPER stipulation.
		Acrolein (TH)	107028	NOTE 1			Methyl ethyl ketone (TH)	78933	NOTE 1		The state of the s
Α	rsenic unlisted cmpds (comp			NOTE 3		!	Methylene chloride (TH)	75092	NOTE 1		nclude TAP in TPER stipulation
	=	Benzene (TH)	71432	NOTE 3		Openham - Hedaa - #:	Nickel metal (TH)	7440020 127184	NOTE 3 NOTE 1	with opera	ition restrictions.
		co(a)pyrene (T)	50328 7440417	NOTE 1 NOTE 1		наголютоетпунале (te	etrachlorcethylene) (TH) Phenol (TH)	108952	NOTE 1	NOTE 3: 1	Modeling Required. See "Toxic
	Beryllium metal (Cadmium metal (elemental :		7440417 7440439	NOTE 3		Soluble Chromate Compo		7738945	NOTE 1		ns" worksheet.
	•	on disulfide (TH)	75150	NOTE 1		_2.22.4 201110.0 44111900	Styrene (TH)	100425	NOTE 1		
		maldehyde (TH)	50000	NOTE 3		Tetrachlorodibenzo	p-p-dioxin, 2,3,7,8- (TH)	1746016	NOTE 1	I	
ı	Hexachlorod/benzo-p-dioxin		57653857	NOTE 1			Toluene (TH)	108583	NOTE 1		
		texane, n- (TH)	110543	NOTE 1			Trichloroethylene (TH)	79016	NOTE 1	1	
	•	ogen Sulfide (T)	7783064	NOTE 1			Xylene (TH)	1330207	NOTE 1	Į.	
	Manganese unlisted	-		NOTE 1 NOTE 1	100					l	
	Methyl	chtoroform (TH)	71556	140112	EXPERIMENTAL PROPERTY.	l				L	

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



COMPANY:

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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Carte Court Care Care Care	SOURCE/FACILITY//USER INPUT SUMMARY (FROM INPUT SCRE	EN)	e To King Kanga and
	Onneline Commonly 11 C	FACILITY ID NO.:	1700016
IPANY:	Carolina Sunrock, LLC	PERMIT NUMBER:	10628R00
EMISSION SOURCE	NSPS affected 250 tph Waste, No.4 or No.6 fuel oil-fired, Drum mix asphalt	FACILITY CITY:	Burlington
DESCRIPTION:		FACILITY COUNTY:	Caswell

Annual Production ton/day **Daily Production Limit:** n/a 2,190,000 ton/year Limit:

SPREADSHEET PREPARED BY: LLG

CRITE	RIA AIR POLLU	ITANT EMISS	IONS INFOR	RMATION	and the second s		to the second
	ACTUAL E	MISSIONS		POTENTIAL	EMISSIONS		
AIR POLLUTANT EMITTED	(AFTER CONTI	ROLS / LIMITS)	(BEFORE CON	ITROLS / LIMITS)	(AFTER CONT	ROLS / LIMITS)	
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)	11.06	49.66		86.48		49.66	
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	6.81	31.05		38.93∖		31.05	
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO2)	152.01	665.79		665.79		665.79	
NITROGEN OXIDES (NOx)	14.08	61.66		61.66		61.66	
CARBON MONOXIDE (CO)	33.21	145.48		145.48		145.48	
VOLATILE ORGANIC COMPOUNDS (VOC)	12.03	52.69		52.69		52.69	
TOTAL HAP	2.57	11.25		11.25		11.25	
LARGEST HAP (formaldehyde)	0.80	3.49	-1	3.49		3.49	a de la companya de

Attach INPUT worksheet TOXIC/HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION

		ACTUAL EM	ISSIONS		POTENTIAL I		(lb/ton asphalt produced,	
TOXIC / HAZARDOUS AIR POLLUTANT	CAS Number	(AFTER CONTRO	LS/LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTRO	OLS / LIMITS)	with Fabric filter controls)
	Manager	lb/hr	lb/yr	lb/hr	lb/yr	ib/hr	lb/уг	With Februarines controlsy
Acetaldehyde (TH)	75070	3.25E-01	2.85E+03	3.25E-01	2847.00	3.25E-01	2.85E+03	1.3E-03
Acrolein (TH)		6.50E-03	5,69E+01	6.50E-03	56.94	6.50E-03	5.69E+01	2.6E-05
Antimony unlisted compounds (H)	SBC-other	4.50E-05	3.94E-01	4.50E-05	0.39	4.50E-05	3.94E-01	1.8E-07
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	1.23E+00	1.40E-04	1.23	1.40E-04	1.23E+00	5,6E-07
Benzene (TH)	71432	9.90E-02	8.67E+02	9.90E-02	867.38	9.90E-02	8.67E+02	4.0E-04
Benzo(a)pyrene (T)	50328	4.41E-06	3.86E-02	4.41E-06	0.04	4.41E-06	3.86E-02	1.8E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1,03E-04	8.98E-01	1.03E-04	0.90	1.03E-04	8.98E-01	4.1E-07
Carbon disulfide (TH)	75150	6.23E-04	5,45E+00	6.23E-04	5.45	6.23E-04	5.45E+00	2.5E-06
Chromium unlisted cmpds (add w/chrom acid to get CRC) (H)	CRC-other	1.26E-03	1.11E+01	1.26E-03	11.06	1.26E-03	1.11E+01	5.1E-06
Chromic acid (VI) (component of solCR6 and CRC) (TH)	7738945	1.13E-04	9.86E-01	1.13E-04	0.99	1.13E-04	9.86E-01	4.5E-07
Cobalt unlisted compounds (H)	COC-other	6.50E-06	5.69E-02	6,50E-06	0.06	6.50E-06	5,69E-02	2.6E-08
Cumene (H)	98828	1.14E-03	1.00E+01	1.14E-03	10.02	1.14E-03	1.00E+01	4.6E-06
Ethyl benzene (H)	100414	6.41E-02	5.61E+02	6.41E-02	561.24	6.41E-02	5.61E+02	2.6E-04
Ethyl chloride (chloroethane) (H)	75003	2.18E-06	1.91E-02	2,18E-06	0.02	2.18E-06	1.91E-02	8.7E-09
Formaldehyde (TH)	50000	7.97E-01	6.98E+03	7.97E-01	6981,17	7.97E-01	6.98E+03	3.2E-03
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	3.25E-10	2.85E-06	3.25E-10	0.00	3.25E-10	2.85E-06	1.3E-12
Hexane, n- (TH)	110543	2.39E-01	2.10E+03	2.39E-01	2095.50	2.39E-01	2.10E+03	9.6E-04
Hydrogen Chloride (hydrochloric acid) (TH)	7647010	5.25E-02	4.60E+02	5.25E-02	459.90	5.25E-02	4.60E+02	2.1E-04
Hydrogen Sulfide (T)	7783064	1.37E-02	1.20E+02	1.37E-02	119.84	1.37E-02	1.20E+02	5.5E-05
Lead unlisted compounds (H)	PBC-other	3.75E-03	3.29E+01	3.75E-03	32.85	3.75E-03	3.29E+01	1.5E-05
Manganese unlisted compounds (T)	MNC-other	1,93E-03	1.69E+01	1.93E-03	16.86	1.93E-03	1.69E+01	7.7E-08
Mercury, vapor (TH)	7439976	6.50E-04	5.69E+00	6.50E-04	5.69	6.50E-04	5.69E+00	2.6E-06
Methyl bromide (H)	74839	2.49E-04	2.18E+00	2.49E-04	2.18	2.49E-04	2.18E+00	1,0E-06
Methyl chloride (H)	74873	1.56E-04	1.37E+00	1.56E-04	1.37	1.56E-04	1.37E+00	6,2E-07
Methyl chloroform (TH)	71556	1.20E-02	1.05E+02	1.20E-02	105.12	1.20E-02	1.05E+02	4.8E-05
Methyl ethyl ketone (TH)	78933	6,70E-03	5.87E+01	6.70E-03	58.67	6.70E-03	5.87E+01	2.7E-05
Methylene chloride (TH)	75092	8,23E-06	7.21E-02	8.23E-06	0.07	8.23E-06	7.21E-02	3.3E-08
Napthalene (H)	91203	1.65£-01	1.44E+03	1.65E-01	1442.95	1.65E-01	1.44E+03	
Nickel metal (TH)	7440020	1.58E-02	1.38E+02	1.58E-02	137.97	1.58E-02	1.38E+02	
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	7.01E-01	8.01E-05	0,70	8.01E-05	7.01E-01	3.2E-07
Phenol (TH)	108952	1.01E-03	8.81E+00	1.01E-03	8.81	1.01E-03	8,81E+00	
Phosphorus Metal, Yellow or White (H)	7723140	7.00E-03	6.13E+01	7.00E-03	61.32	7.00E-03	6.13E+01	2.8E-05
Polycyclic Organic Matter (H)	POM	2.20E-01	1.93E+03	2.20E-01	1927.20	2.20E-01	1.93E+03	
Propionaldehyde (H)	123386	3.25E-02	2.85E+02	3.25E-02	284.70	3.25E-02	2.85E+02	1.3E-04
Quinone (H)	106514	4.00E-02	3.50E+02	4.00E-02	350.40	4.00E-02	3.50E+02	1.6E-04
Selenium compounds (H)	SEC	8.75E-05	7,67E-01	8.75E-05	0.77	8.75E-05	7.67E-01	3.5E-07

Styrene (TH)	100425	2.40E-04	2.11E+00	2,40E-04	2.11	2.40E-04	2.11E+00	9.6E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	4.60E-07	5.25E-11	0.00	5.25E-11	4.60E-07	2.1E-13
Toluene (TH)	108883	7.29E-01	6.39E+03	7.29E-01	6386.67	7,29E-01	6.39E+03	2.9E-03
Trichioroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane, 2,2,4- (H)	540841	1.00E-02	8.78E+01	1.00E-02	87.85	1.00E-02	8.78E+01	4.0E-05
Xylene (TH)	1330207	6.04E-02	5.29E+02	6.04E-02	528.72	6.04E-02	5,29E+02	2.4E-04
Xylene, o- (H)	95476	2.57E-03	2.25E+01	2.57E-03	22.50	2.57E-03	2.25E+01	1.0E-05
		T EMISSIONS						et disension de la companion d
IOAIC AIN E	OFFOIVI	I Limbolotto					and the second s	EMISSION FACTOR
Expected actual emissions after control	sie and lim	itatione consi	etina of an a	nausi produ	ection limit of	2190000 tor	ns .	(lb/ton asphalt produce
Expected actual emissions after confit	ns and m	iliations consi	sung or an a	imuai produ	iction mant of	£100000 to:		
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	ib/day	lb/yr	Mode	elina Require	d?	with Fabric filter control
Acetaldehyde (TH)	75070	3.25E-01	7.80E+00	2.85E+03		on facility-wide		1.30E-03
Acrolein (TH)	107028	6.50E-03	1.56E-01	5.69E+01		on facility-wide		2.60E-05
Arsenic unlisted cmpds (comp. of ASC) (TH)		1.40E-04	3.36E-03	1.23E+00		Modeling requir		5.60E-07
Benzene (TH)	71432	9.90E-02	2.38E+00	8.67E+02		Modeling require		3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	1.06E-04	3.86E-02		on facility-wide r		1.76E-08
Beryllium metal (unreacted) (TH)		0.00E+00	0.00E+00	0.00E+00		on facility-wide r		0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	2.46E-03	8.98E-01		Modeling requir		4.10E-07
Carbon disuffide (TH)	75150	6.23E-04	1.49E-02	5.45E+00	NO. Based on facility-wide potential.		2.49E-06	
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	1.13E-04	2.70E-03	9.86E-01	NO. Based	on facility-wide	ootential.	4.50E-07
Formaldehyde (TH)	50000	7.97E-01	1.91E+01	6.98E+03		Modeling requir		3.19E-03
Hexane, n- (TH)	110543	2,39E-01	5.74E+00	2.10E+03		on facility-wide		9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	3.25E-10	7.80E-09	2.85E-06	NO. Based	on facility-wide	potential.	1.30E-12
Hydrogen Sulfide (T)	7783064	1,37E-02	3.28E-01	1.20E+02	NO. Based	on facility-wide p	ootential.	5.47E-05
	MNC-other	1,93E-03	4.62E-02	1.69E+01		on facility-wide		7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	1.56E-02	5.69E+00	YES.	Modeling requir	ed	2.60E-06
Methylene chloride (TH)	75092	8.23E-06	1.97E-04	7.21E-02	NO. Based	on facility-wide p	potential.	3.29E-08
Methyl chloroform (TH)	71556	1.20E-02	2.88E-01	1.05E+02	NO. Based	on facility-wide	potential.	4.80E-05
Methyl ethyl ketone (TH)	78933	6.70E-03	1.61E-01	5.87E+01	NO. Based	on facility-wide	potential.	2.68E-05
Nickel metal (TH)	7440020	1.58E-02	3.78E-01	1.38E+02	YES.	Modeling requir	ed	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	1.92E-03	7.01E-01	NO. Based	on facility-wide	potential.	3.20E-07
Phenol (TH)	108952	1.01E-03	2.41E-02	8.81E+00	NO. Based	on facility-wide	ootential.	4.02E-06
Styrene (TH)	100425	2.40E-04	5.77E-03	2.11E+00		on facility-wide		9.62E-07
	1746016	5,25E-11	1,26E-09	4.60E-07		on facility-wide		2.10E-13
Tetrachlorodinenzo-p-dioxin, 2.3.7.8- (183)	11-10010			6.39E+03	NO Based	on facility-wide	ootential.	2.92E-03
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH) Toluene (TH)	108883	I 7.29E-01	1 1./5E+U1 I					
Tetrachiorodibenzo-p-dioxin, 2,3,7,8- (1H) Toluene (TH) Trichioroethylene (TH)	108883 79016	7.29E-01 0.00E+00	1.75E+01 0.00E+00	0.00E+00		on facility-wide		0.00E+00

POTENTIAL EMISSIONS - AFTER CONTROLS/CIMITS

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
preadsheet Prepared by:	LLG

ls this sprea for emiss			2. NO			▼
Pla	nt type:	Drum mix		•	7	
Fue	el type:	Waste, No.4	or No.6 fuel o	oil-fired \	7	
	Fuel Sulfu	r Content:	0.50	%		(default value is 0.5 %
Co	ntrols:	Fabric filter	controls	_	₹	

Dryer neat input: [80	Imilion Biu per nour	i
Plant maximum production capacity:	250	tons per hour	
Asphalt Prope	erties		7
Asphalt temperature:	325	degrees	(default value of 325 degrees F)
Volatility loss (V):	-0.5	%	(default value of -0.5 %)
Cite			

	ushing on ite?	YES		
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:	8760	hours per year	No. of screens:	1
			No of conveyors:	4

Filling?

			-
Asphalt Cement Heater		_	i
AC heater heat input:	2.3	million Btu per hour	(No.2 or diesei fuel oil -fired assumed)
Fuel Sulfur Content:	0.50	%	(default value is 0.5 %)
Hours of operation:	8760	hours per year	(default is 8760 hours per year unless specified otherwise)

Calculated Annual Production Limit:	1,488,581	tons per year	
Requested Annual Production Limit:	500,000	tons per year	(if none desired leave default value ≈8760*tph)
Requested Daily Production Limit:	6,000	tons per day	(if none desired leave default value = 24*tph)

Is this plant NSPS Subpart I affected?	YES	* :
Stack gas flow rate :	68,145	ACFM
Stack gas temperature :	240]oF
Stack % moisture:	33	1 %
Allowable emission rate under NSPS Subpart I:	11.81	lb/hr
Control efficiency required:	99.831	%
Does Method 5 data already exist?:	NO	
Mathod 5 determined emission rate:	2000	Jib/hit of the constraints
Control efficiency based on test date:	99 629	76

Allowable emission rate under 2 D .0506:	55.39	lb/hr
Does this plant emit less than this limit ?:	Yes	(based on emission factors)
Control efficiency required:	99.209	%

ATTACHMENT ES

Dryer Emissions Criteria Pollutants							
	Uncontrolled Emission Factor (lb/ton)	Controlled Emission Factor	uncontrolled emission rate (lb/hr)	controlled emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (with controls, 6760 hours per year operation)	Synthetic Minor, Potential Emissions (with all operation restrictions)
Pollutant		(ib/ton)					
Condensible PM (or PM ₁₀)		0.0194	16,35	4.85 3.5	A CALL TO SECURE A SECURE	Professional Company	and the second of the second of
Filterable PM	28 6,4	0.014 0.0039	7000 1600	0.975			
Fitterable PM10	28	0.033	7000	8.25	73.0	36.1	8.3
Total PM Total PM10	6.5	0.023	1625	5.75	33.1	25.2	5.8
SO2	0.0837	0.0837	20.93	20.93	91.69	91.69	20.93
co	0.1300	0.130	32.5	32.5	142.4	142.4	32.5
NOx	0.0550	0.055	13.75	13.75	60.2	60.2	13.8
VOC	0.0320	0.032	8	8	35.0	35.0	8.0
HAPs, TOTAL		0.010		2.5	11.0	11.0	2.5
Silo Filling plus Loa	d Out Emis	sions, Crit	eria Pollutants				
	Emission					DOD Datastic Federica	
	Factor,				Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic Minor, Potential Emissions
	combined			emission rate (lb/hr)	operation)	operation)	(with all operation restrictions)
Pollutant	(lb/ton)				<u> </u>		
Total PM	1.11E-03			2.77E-01	1.2	1.2	0.3
co				6.32E-01	2.8	2.8	0.6
VOC	1.61E-02			4.02E+00	17.6	17.6	4.0
HAPs, TOTAL	2.74E-04			6.85E-02	0.3	0.3	0.1
Rap Crusher Emiss	ions						
-	Emission Factor, ali sources				Title V, Potential Emissions (tpy)	PSD, Potential Emissions,	Synthetic Minor, Potential Emissions
Pollutant	combined (lb/ton)			emission rate (lb/hr)	(no controls, 8760 hours per year operation)	(ipy) (8760 hours per year operation)	(with all operation restrictions)
Pollutant Total PM	0.0424	(100 MEN 1870)		2.76E+00	12.1	12.1	2.8
Total PM Total PM10	0.0424			1.01E+00	4.4	4,4	1.0
Asphalt Cement He	ater Emissic	ons					
	Uncontrolled Emission Factor			emission rate (lb/hr)	Title V, Potential Emissions (tpy) (no controle, 8760 hours per year operation)	PSD, Potential Emissions, (tpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (with all operation restrictions)
Pollutant	(lb/MMBtu)	E KAN O NAMENONA PORO GOSAGO	A TANANG TANANG MANAGEMATAN MANAGAN TANANG T	F 485 68	0.3	0.2	0.2
	0.0235714			5.42E-02 5,42E-02	0.2	0.2	0.2
	0.0235714				5.1	5.1	5.1
	0.5071429			1.17E+00 8.21E-02	0.4	0.4	0.4
	0.0357143			3.29E-01	1.4	1.4	1.4
NOx				5.59E-03	0.0	0.0	0.0
VOC	0.0024286		1 ** 1	3.0at00	0.0		
Facility-wide Criteri	a Pollutant	Emissions	Summary				I
Pollutant				Controlled Emission Rate, lb/hr	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)	PSD, Potential Emissions, (lpy) (8760 hours per year operation)	Synthetic Minor, Potential Emissions (with all operation restrictions)
Total PM				1.11E+01	86.5	49.7	11.5
Total PM10	PETERS IN COURSE ON A PROVINCE AND COMME.	4		6.81E+00	38.9	31.0	7.3
SO2	CASSACTION CONSTRUCTION CONTRACTOR			2.21E+01	96.8	96.8	26.0
co			Marine Commission (Commission)	3.32E+01	145.5	145.5	33.5
NOx	The state of the s			1.41E+01	61.7	61.7	15.2
	45 35 35 35				FO.77	52.7	12.0
VOC				1.20E+01	52.7		
VOC HAPs, TOTAL	12 (1) (1) (1)			1.20E+01 2.57E+00	11.3	11.3	2.6
	Air Pollutan	ts Summa	ry				2.6
HAPS, TOTAL	Air Pollutan		-		11.3		2.6
HAPs, TOTAL Facility-wide Toxic TAP	etaldehyde (TH)	CAS No. 75070	Action NOTE 1	2.57E+00	11.3 CAS No. Mercury, vapor (TH) 7439976	Action NOTE 1:1	
HAPS, TOTAL Facility-wide Toxic TAP Ace	etaldehyde (TH) Acrolein (TH)	CAS No. 75070 107028	Action NOTE 1 NOTE 1	2.57E+00	11.3 CAS No. Mercury, vapor (TH) 7439978 Methyl ethyl ketone (TH) 78933	Action NOTE 3 NOTE 1: I	nclude TAP in TPER stipulati
HAPs, TOTAL Facility-wide Toxic TAP Ace	etaldehyde (TH) Acrolein (TH) p. of ASC) (TH)	CAS No. 75070 107028 ASC-other	Action NOTE 1 NOTE 1 NOTE 3	2.57E+00	T11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 76993 Methylene chloride (TH) 75092	11.3 Action NOTE 3 NOTE 1 NOTE 1 NOTE 2: I	nclude TAP in TPER stipulati
HAPs, TOTAL Facility-wide Toxic TAP Ace	etaldehyde (TH) Acrolein (TH) o. of ASC) (TH) Benzene (TH)	CAS No. 75070 107028 ASC-other 71432	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3	2.57E+00	T11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 78933 Methylene chloride (TH) 75092 Nickel metal (TH) 7440020	Action NOTE 3 NOTE 1 NOTE 1 NOTE 2 NOTE 2 with oper	nctude TAP in TPER stipulati
HAPs, TOTAL Facility-wide Toxic TAP Accepted to the companies of the compa	etaldehyde (TH) Acrolein (TH) D. of ASC) (TH) Benzene (TH) zo(a)pyrene (T)	75070 107028 ASC-other 71432 50328	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 3	2.57E+00	CAS No. Mercury, vapor (TH) 7439978 Methyl ethyl ketone (TH) 78933 Methylene chloride (TH) 75092 Nickel metal (TH) 7440020 etrachloroethylene) (TH) 127184	Action NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 3 NOTE 1 With opera	nclude TAP in TPER stipulati nclude TAP in TPER stipulati tion restrictions.
HAPs, TOTAL Facility-wide Toxic TAP Acceptable and the companion of the co	etaldehyde (TH) Acrolein (TH) b. of ASC) (TH) Benzene (TH) zo(a)pyrene (T) unreacted) (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1	2.57E+00 TAF Perchloroethylene (t	T11.3 CAS No. Mercury, vapor (TH) Methyl ethyl ketone (TH) Methylene chloride (TH) Nickel metal (TH) Phenol (TH) 108952	11.3 Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 2: With opera NOTE 1 NOTE 1 NOTE 3: 1	nclude TAP in TPER stipulati nclude TAP in TPER stipulati ation restrictions. Modeling Required. See "Tox
HAPs, TOTAL Facility-wide Toxic TAP Accepted the Accepted Company of the Ac	etaldehyde (TH) Acrolein (TH) b. of ASC) (TH) Benzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 2	2.57E+00	Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 78933 Methylene chloride (TH) 75092 Nickel metal (TH) 744020 etrachloroethylene) (TH) 127184 Phenol (TH) 108952 unds as Chrome VI (TH) 7738945	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 Calculation	nclude TAP in TPER stipulati nclude TAP in TPER stipulati tion restrictions.
HAPs, TOTAL Facility-wide Toxic TAP According to the composition of	etaldehyde (TH) Acrolein (TH) b. of ASC) (TH) Benzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) on disulfide (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 2 NOTE 1	2.57E+00 TAP Perchloroethylene (t	CAS No. Mercury, vapor (TH) 7439978 Methyl ethyl ketone (TH) 75092 Nickel metal (TH) 127184 Phenol (TH) 108952 unds as Chrome VI (TH) Styrene (TH) 100925	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1	nclude TAP in TPER stipulati nclude TAP in TPER stipulati ation restrictions. Modeling Required, See "Tox
HAPs, TOTAL Facility-wide Toxic TAP According to the properties of the properties	etaldehyde (TH) Acrolein (TH) o. of ASC) (TH) Enzone (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) on disulfide (TH) maldehyde (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150 50000	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 2 NOTE 1 NOTE 3	2.57E+00 TAP Perchloroethylene (t	T11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) Nickel metal (TH) Phenol (TH) unds as Chrome VI (TH) Styrene (TH) 0-p-dioxin, 2,3,7,8- (TH) CAS No. 7439976 78933 75092 7440020 127184 108952 100425 100425	Action NOTE 3 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1	nclude TAP in TPER stipulati nclude TAP in TPER stipulati ation restrictions. Modeling Required. See "Tox
HAPs, TOTAL Facility-wide Toxic TAP Acesenic unlisted cmpds (companies of the companies	etaldehyde (TH) Acrolein (TH) p. of ASC) (TH) Benzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) on disulfide (TH) maldehyde (TH) 1,2,3,6,7,8 (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150 50000 57653857	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 2 NOTE 1 NOTE 3 NOTE 1	2.57E+00 TAP Perchloroethylene (t	CAS No. Mercury, vapor (TH) 7439978 78933 Methyl ethyl ketone (TH) 75092 Nickel metal (TH) 127184 Phenol (TH) 108952 values as Chrome VI (TH) 1748016 Styrene (TH) 1746016 Toluene (TH) 108883 108	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1	nclude TAP in TPER stipulati nclude TAP in TPER stipulati ation restrictions. Modeling Required, See "Tox
HAPs, TOTAL Facility-wide Toxic TAP Ace senic unlisted cmpds (comp Benz Benzlium metal (cadmium metal (elemental to Carbo Form exachlorodibenzo-p-dioxin	etaldehyde (TH) Acrolein (TH) Do of ASC) (TH) Benzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) maidehyde (TH) 1,2,3,6,7,8 (TH) Hexane, n- (TH)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150 50000 57653857 110543	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 2 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1 N	2.57E+00 TAP Perchloroethylene (t	CAS No. Mercury, vapor (TH) 7439978 78933 Methylene chloride (TH) 75092 Nickel metal (TH) 127184 Phenol (TH) 100425 charles as Chrome VI (TH) 7738945 Styrene (TH) 10425 charles as Chrome VI (TH) 1748016 Toluene (TH) 108883 Trichloroethylene (TH) 79016	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1	nctude TAP in TPER stipulation nctude TAP in TPER stipulation restrictions. Modeling Required, See "Toxi
HAPs, TOTAL Facility-wide Toxic TAP Acceptable Accep	ataldehyde (TH) Acrolein (TH) Denzene (TH) Denzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) unreacted) (TH) unreacted) (TH) 1,2,3,6,7,8 (TH) Hexane, n- (TH) ogen Sulfide (T)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150 50000 57653857 110543 7783064	Action NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 3 NOTE 1 N	2.57E+00 TAP Perchloroethylene (t	CAS No. Mercury, vapor (TH) 7439978 78933 Methyl ethyl ketone (TH) 75092 Nickel metal (TH) 127184 Phenol (TH) 108952 values as Chrome VI (TH) 1748016 Styrene (TH) 1746016 Toluene (TH) 108883 108	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1	nctude TAP in TPER stipulation nctude TAP in TPER stipulation attion restrictions. Modeling Required. See "Toxi
HAPs, TOTAL Facility-wide Toxic TAP Acesenic unlisted cmpds (comp Benzilium metal (comp Carbo Form lexachlorodibenzo-p-dioxin Hydre Manganese unlisted	ataldehyde (TH) Acrolein (TH) Denzene (TH) Denzene (TH) zo(a)pyrene (T) unreacted) (TH) unreacted) (TH) unreacted) (TH) unreacted) (TH) 1,2,3,6,7,8 (TH) Hexane, n- (TH) ogen Sulfide (T)	CAS No. 75070 107028 ASC-other 71432 50328 7440417 7440439 75150 50000 57653857 110543 7783064	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 2 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1 N	2.57E+00 TAP Perchloroethylene (t	CAS No. Mercury, vapor (TH) 7439978 78933 Methylene chloride (TH) 75092 Nickel metal (TH) 127184 Phenol (TH) 100425 charles as Chrome VI (TH) 7738945 Styrene (TH) 10425 charles as Chrome VI (TH) 1748016 Toluene (TH) 108883 Trichloroethylene (TH) 79016	Action NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1	nctude TAP in TPER stipulation nctude TAP in TPER stipulation attion restrictions. Modeling Required. See "Toxion

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

r til til att skriver kan have til skriver i	SO	URCE / FACIL	ITY//USER INPUT SUMMARY (FROM INPUT	SCREEN)	And the second s
					FACILITY ID NO.:	1700016
COMPANY:		Carolina	a Sunrock, LLC		PERMIT NUMBER:	10628R00
EMISSION SOURCE	NSPS a	ffected 250 tp	h Waste, No.4 or No.6 fuel oil-fire	d, Drum mix as	sphalt FACILITY CITY:	Burlington
DESCRIPTION:			eat input, w/silofill, with RAP, sulfu		FACILITY COUNTY:	Caswell
Annual Production	500,000	ton/year	Daily Production Limit:	n/a	ton/day	

Limit: SPREADSHEET PREPARED BY: LLG

CRITERIA AIR POLLUTANT EMISS	IONS INFORMATION

	ACTUAL E	MISSIONS		POTENTIAL	EMISSIONS	
AIR POLLUTANT EMITTED	(AFTER CONTR	(BEFORE CO	NTROLS / LIMITS)	(AFTER CONTROLS / LIMITS		
	lb/hr	tons/yr	lb/hr	tons/yr	ib/hr	tons/yr
PARTICULATE MATTER (PM)	11.06	11.52		86.48		11.52
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	6.81	7.27		38.93		7.27
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})						
SULFUR DIOXIDE (SO2)	22.10	26.04		96.80		26.04
NITROGEN OXIDES (NOx)	14.08	15.19		61.66		15.19
CARBON MONOXIDE (CO)	33.21	33.49		145.48		33.49
VOLATILE ORGANIC COMPOUNDS (VOC)	12.03	12.05		52.69	100	12.05
TOTAL HAP	2.57	2.57		11.25		2.57
LARGEST HAP (formaldehyde)	0.80	0.80		3.49		0.80

Attach INPUT worksheet

10)		RDOUS AIR PO			manifest and a series of the series on			EMISSION FACTOR
		ACTUAL EM	ISSIONS	POTENTIAL EMISSIONS			(lb/ton asphalt produced	
TOXIC / HAZARDOUS AIR POLLUTANT	CAS	(AFTER CONTRO	LS / LIMITS)	(BEFORE CONT	TROLS / LIMITS)	(AFTER CONTRO	LS / LIMITS)	with Fabric filter controls
	Number	lb/hr	lb/yr	ib/hr (lb/yr	ib/hr	lb/yr	with Fabric filter controls)
Acetaldehyde (TH	75070	3.25E-01	6.50E+02	3.25E-01	2847.00	3.25E-01	6.50E+02	1.3E-03
Acrolein (TH)	107028	6.50E-03	1.30E+01	6.50E-03	56.94	6.50E-03	1.30E+01	2.6E-05
Antimony unlisted compounds (H)	SBC-other	4.50E-05	9.00E-02	4.50E-05	0.39	4.50E-05	9.00E-02	1.8E-07
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	2.80E-01	1.40E-04	1.23	1.40E-04	2.80E-01	5.6E-07
Benzene (TH)	71432	9.90E-02	1.98E+02	9.90E-02	867.38	9.90E-02	1.98E+02	4.0E-04
Benzo(a)pyrene (T	50328	4.41E-06	8.82E-03	4.41E-06	0.04	4.41E-06	8.82E-03	1.8E-08
Beryllium metal (unreacted) (TH		0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0,0E+00
Cadmium metal (elemental unreacted) (TH	7440439	1.03E-04	2.05E-01	1.03E-04	0.90	1.03E-04	2.05E-01	4.1E-07
Carbon disulfide (TH	75150	6.23E-04	1.25E+00	6,23E-04	5.45	6.23E-04	1.25E+00	2.5E-06
Chromium unlisted cmpds (add w/chrom acid to get CRC (H	CRC-other	1.26E-03	2.53E+00	1.26E-03	11.06	1.26E-03	2.53E+00	5,1E-06
Chromic acid (VI) (component of solCR6 and CRC) (TH	7738945	1.13E-04	2.25E-01	1.13E-04	0.99	1.13E-04	2.25E-01	4.5E-07
Cobalt unlisted compounds (H	COC-other	6.50E-06	1.30E-02	6.50E-06	0.06	6.50E-06	1.30E-02	2.6E-08
Cumene (H	98828	1.14E-03	2.29E+00	1.14E-03	10.02	1.14E-03	2.29E+00	
Ethyt benzene (H	100414	6.41E-02	1.28E+02	6.41E-02	561.24	6.41E-02	1.28E+02	2.6E-04
Ethyl chloride (chloroethane) (H	75003	2.18E-06	4.37E-03	2.18E-06	0.02	2.18E-06	4.37E-03	8.7E-09
Formaldehyde (TH	50000	7.97E-01	1.59E+03	7.97E-01	6981.17	7.97E-01	1.59E+03	3.2E-03
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH	57653857	3.25E-10	6.50E-07	3.25E-10	0.00	3.25E-10	6.50E-07	1.3E-12
Hexane, n- (TH	110543	2.39E-01	4.78E+02	2.39E-01	2095.50	2.39E-01	4.78E+02	9.6E-04
Hydrogen Chloride (hydrochloric acld) (TH	7647010	5.25E-02	1,05E+02	5.25E-02	459.90	5.25E-02	1.05E+02	2.1E-04
Hydrogen Sulfide (T	7783064	1.37E-02	2.74E+01	1.37E-02	119.84	1.37E-02	2.74E+01	5.5E-05
Lead unlisted compounds (H	PBC-other	3.75E-03	7.50E+00	3.75E-03	32.85	3.75E-03	7.50E+00	1.5E-05
Manganese unlisted compounds (T	MNC-other	1.93E-03	3.85E+00	1.93E-03	16.86	1.93E-03	3,85E+00	7.7E-06
Mercury, vapor (TH	7439976	6.50E-04	1.30E+00	6.50E-04	5.69	6.50E-04	1.30E+00	2.6E-06
Methyl bromide (H	74839	2.49E-04	4.98E-01	2.49E-04	2.18	2.49E-04	4.98E-01	1.0E-06
Methyl chloride (H	74873	1.56E-04	3.12E-01	1.56E-04	1.37	1.56E-04	3.12E-01	6.2E-07
Methyl chloroform (TH	71556	1.20E-02	2.40E+01	1.20E-02	105.12	1.20E-02	2.40E+01	4.8E-05
Methyl ethyl ketone (TH	78933	6.70E-03	1.34E+01	6.70E-03	58.67	6.70E-03	1.34E+01	2.7E-05
Methylene chloride (TH	75092	8.23E-06	1.65E-02	8.23E-06	0.07	8.23E-06	1.65E-02	3.3E-08
Napthalene (H	91203	1.65E-01	3.29E+02	1.65E-01	1442.95	1.65E-01	3.29E+02	6.6E-04
Nickel metal (TH	7440020	1.58E-02	3.15E+01	1.58E-02	137.97	1.58E-02	3.15E+01	6.3E-05
Perchloroethylene (tetrachloroethylene) (TH	127184	8.01E-05	1.60E-01	8.01E-05	0.70	8.01E-05	1.60E-01	3.2E-07
Phenol (TH		1.01E-03	2.01E+00	1.01E-03	8.81	1.01E-03	2,01E+00	
Phosphorus Metal, Yellow or White (H	7723140	7.00E-03	1.40E+01	7.00E-03	61.32	7.00E-03	1.40E+01	2.8E-05
Polycyclic Organic Matter (H		2.20E-01	4.40E+02	2,20E-01	1927.20	2.20E-01	4.40E+02	8.8E-04
Propionaldehyde (H	123386	3.25E-02	6.50E+01	3.25E-02	284.70	3.25E-02	6.50E+01	1.3E-04
Quinone (H	106514	4.00E-02	8.00E+01	4.00E-02	350.40	4.00E-02	8.00E+01	1.6E-04
Sejenjum compounds (H) SEC	8.75E-05	1.75E-01	8.75E-05	0.77	8.75E-05	1.75E-01	3.5E-07

						2 105 81	1045.04	9.6E-07
Styrene (TH)	100425	2.40E-04	4,81E-01	2.40E-04	2.11	2.40E-04	4.81E-01	9.6E-07 2.1E-13
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	1.05E-07	5.25E-11	0.00	5.25E-11	1.05E-07	
Toluene (TH)	108883	7.29E-01	1.46E+03	7.29E-01	6386.67	7.29E-01	1.46E+03	2.9E-03
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane, 2,2,4- (H)	540841	1.00E-02	2.01E+01	1.00E-02	87.85	1.00E-02	2.01E+01	4.0E-05
Xylene (TH)	1330207	6.04E-02	1.21E+02	6.04E-02	528.72	6.04E-02	1,21E+02	2.4E-04
Xylene, o- (H)	95476	2.57E-03	5.14E+00	2.57E-03	22.50	2.57E-03	5.14E+00	1.0E-05
TOXIC AIR P	OLLUTAN	T EMISSIONS	INFORMATI	ON (FOR PE	RMITTING PU	JRPOSES)	Note that	
Expected actual emissions after contr								EMISSION FACTOR (lb/ton asphalt produced, with Fabric filter controls)
	CAS Num.	lb/hr	lb/day	lb/yr		eling Required		
Acetaldehyde (TH)	75070	3.25E-01	7.80E+00	6.50E+02		on facility-wide po		1.30E-03
Acrotein (TH)	107028	6.50E-03	1.56E-01	1.30E+01		on facility-wide po		2.60E-05
Arsenic untisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	3.36E-03	2.80E-01		Modeling require		5.60E-07
Benzene (TH)	71432	9.90E-02	2.38E+00	1.98E+02		Modeling require		3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	1.06E-04	8.82E-03		on facility-wide po		1.76E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide po	otential.	0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	2.46E-03	2.05E-01	NO. Becaus	se of operating re	striction	4.10E-07
Carbon disulfide (TH)	75150	6.23E-04	1.49E-02	1.25E+00	NO. Based	on facility-wide po	otential.	2.49E-06
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	1.13E-04	2,70E-03	2.25E-01	NO. Based	on facility-wide po	otential.	4.50E-07
Formaldehyde (TH)	50000	7.97E-01	1.91E+01	1.59E+03	YES.	Modeling require	d	3.19E-03
Hexane, n- (TH)	110543	2.39E-01	5.74E+00	4.78E+02	NO. Based	on facility-wide po	otential.	9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	3.25E-10	7.80E-09	6.50E-07	NO. Based	on facility-wide po	otential.	1.30E-12
Hydrogen Sulfide (T)	7783064	1.37E-02	3.28E-01	2.74E+01	NO. Based	on facility-wide po	otential.	5.47E-05
Manganese unlisted compounds (T)	MNC-other	1.93E-03	4.62E-02	3,85E+00	NO. Based	on facility-wide po	otential.	7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	1.56E-02	1.30E+00	YES.	Modeling require	d	2.60E-06
Methylene chloride (TH)	75092	8,23E-06	1.97E-04	1.65E-02	NO. Based	on facility-wide po	otential.	3.29E-08
Methyl chloroform (TH)	71556	1.20E-02	2.88E-01	2.40E+01	NO. Based	on facility-wide po	otential.	4.80E-05
Methyl ethyl ketone (TH)	78933	6,70E-03	1.61E-01	1.34E+01	NO. Based	on facility-wide po	otential.	2.68E-05
Nickel metal (TH)	7440020	1.58E-02	3.78E-01	3.15E+01	YES.	Modeling require	d	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	1.92E-03	1.60E-01	NO. Based	on facility-wide po	otential.	3.20E-07
Phenol (TH)	108952	1.01E-03	2.41E-02	2.01E+00	NO. Based	on facility-wide po	otential.	4.02E-06
Styrene (TH)	100425	2.40E-04	5.77E-03	4.81E-01	NO. Based	on facility-wide po	otential.	9.62E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	1.26E-09	1.05E-07	NO. Based	on facility-wide po	otential.	2.10E-13
Toluene (TH)	108883	7,29E-01	1.75E+01	1.46E+03	NO. Based	on facility-wide po	tential.	2.92E-03
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide po	otential.	0.00E+00
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					NO. Based			2.41E-04

POTENTIAL TAP EMISSIONS - NATURAL GAS

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

_	
Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
Spreadsheet Prepared by:	LI.G

preadsheet b emissions inv		2. NO		•
Plant type:	Drum mix			
Fuel type:	Natural gas	-fired	₩.	
		0.50		
Controls:	Fabric filte	r controls	▼	

Dryer heat input:	80	million Btu per hour
Plant maximum production capacity:		tons per hour
6 - J. 16 Days	41	

Asphalt Prop			_
Asphalt temperature:	325	degrees	
Volatility loss (V):	-0.5	%	_

(default value of 325 degrees F) (default value of -0.5 %)

Silo	VEC	_	
Filling?	163		

RAP crushing or site?	YES	V	
Crushing Capacity? 65 Hours of operation: 8760	tons per hour hours per year	No. of crushers: No. of screens: No. of conveyors:	1 1 4

1	Asphalt Cement Heater		
i	AC heater heat input:	2.3	million Btu per hour
1	Fuel Sulfur Content:	0.50]%
	Hours of operation:	8760	hours per year

(No.2 or diesel fuel oil -fired assumed) (default value is 0.5 %)

(default is 8760 hours per year unless specified otherwise)

Calculated Annual Production Limit:	1,488,581	tons per year	
Requested Annual Production Limit:	500,000	tons per year	(if none desired leave default value =8760*tph)
Requested Daily Production Limit:	6,800	tons per day	(if none desired leave default value = 24*tph)

YES	₩
68,145	ACFM
240	oF
33	7%
11.81	lb/hr
99.831	%
МО	▼
40.00	lib/hr
	88,145 240 33 11.81

Does this plant emit less than this limit 7: Yes (based on emission factors)	Allowable emission rate under 2 D .0506:	55,39	lb/hr
	Does this plant emit less than this limit ?:	<u>Yes</u>	(based on emission factors)
Control efficiency required: 99.209 %	Control efficiency required:	99.209	%

ATTACHMENT EG

Criteria Pollutants							
!		Controlled	ו			Γ .	1
	Uncontrolled Emission	Emission			Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (with controls, 8760	Synthetic Minor, Potential Emissions (tr
	Factor (lb/ton)	Factor	uncontrolled emission rate (lb/hr)	controlled emission rate (ib/hr)	operation)	hours per year operation)	(with all operation restrictions)
Pollutant		(ib/ton)					
Condensible PM (or PM ₁₀)	0.0654	0.0194	16.35	4,85			
Filterable PM Filterable PM10	28 6.4	0.014 0.0039	7000 1600	3.5 0.975			Control of the Contro
Total PM	28	0.0039	7000	8.25	73.0	36,1	8.3
Total PM10	6.5	0.023	1625	5.75	33,1	25.2	5.8
SO2	0,0001	0.0001	0.02	0.02	0.10	0.10	0.02
co	0.1300	0.130	32.5	32.5	142,4	142.4	32.5
NOx	0.0260	0.026	6.5	6.5	28.5	28.5	6.5
voc	0.0320	0.032	8	8	35.0	35.0	8.0
HAPs, TOTAL		0.005		1.325	5.8	5.8	1.3
Silo Filling plus Los	d Out Emla	eione Crit	aria Dollutante				
One i ming plus Los	d Out Little	aluna, ont	eria i Vitatante				
	Emission						
	Factor,				Title V, Potential Emissions (Ipy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic Minor, Potential Emissions (I)
	combined (lb/ton)			emission rate (lb/hr)	operation)	operation)	(with all operation restrictions)
Pollutant	• • • • • • • • • • • • • • • • • • • •	en de la Selection de la Company de la Compa	Augustanianna de avonatelyte eatrock followerske ou				
Total PM				2.77E-01	1.2	1.2	0.3
co voc	2.53E-03 1.61E-02			6.32E-01 4.02E+00	2.8 17.6	2.8 17.6	0.6 4.0
HAPs, TOTAL				4.02E+00 6.85E-02	0.3	0.3	0.1
- INFS, TOTAL							· · · · · · · · · · · · · · · · · · ·
Rap Crusher Emiss	ons						
ŀ	Emission					ı	
	Factor, atl				Title V, Potential Emissions (tpy)	PSD, Potential Emissions,	l
	combined			emission rate (lb/hr)	(no controts, 8760 hours per year	(tpy) (8760 hours per year	Synthetic Minor, Potential Emissions (to (with all operation restrictions)
Pollutant	(lb/ton)			ditiasion rate (ibirit)	operation)	operation)	(will all operation realizations)
Total PM	0.0424			2.76E+00	12.1	12.1	2.8
Total PM10	0.0155			1.01E+00	4.4	4.4	1.0
A	4						
Asphalt Cement Hea	iter Emissic	ons					
i	Uncontrolled						•
	Emission				Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic Minor, Potential Emissions (tp
5 - 11 - 4 1	Factor (Ib/MMB(u)			emission rate (lb/hr)	operation)	operation)	(with all operation restrictions)
Pollutant	<u> </u>	(10 C)(10(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)	accidental and the second seco	E 48 00	6.0	0.0	0.0
	0.0235714			5.42E-02 5.42E-02	0.2	0.2 0.2	0.2 0.2
	0.0235714			1.17E+00	5.1	5.1	5.1
	0.0357143			8.21E-02	0.4	0.4	0.4
	0.1428571			3.29E-01	1.4	1.4	1.4
voc	0.0024286			5.59E-03	0.0	0.0	0.0
	- H. 11		_				
Facility-wide Criteria	i Pollutant E	Emissions	Summary	f	1		
				Controlled Emission Rate,	Title V, Potential Emissions (tpy)	PSD, Potential Emissions,	Synthetic Minor, Potential Emissions (tp:
				lb/hr	(no controls, 8760 hours per year operation)	(tpy) (8760 hours per year operation)	(with all operation restrictions)
Pollutant	Market Control of the	*10.100.86.5309 (0.00.31).838899					
Total PM			· · · · · · · · · · · · · · · · · · ·	1.11E+01	86.5	49.7	11.5
Total PM10 SO2				6.81E+00 1.19E+00	38.9 5.2	31.0 5,2	7.3 5.1
SU2 CO				3.32E+01	145.5	145.5	33.5
NOx				6.83E+00	29.9	29.9	7.9
voc				1.20E+01	52.7	52.7	12.0
HAPs, TOTAL				1.39E+00	6.1	6.1	1.4
- III							
Facility-wide Toxic	ur Pollutant	s Summar	У				
TAP	Т	CAS No.	Action	TAP	CAS No.	Action	
Ace	aldehyde (TH)	75070	NOTE 1		Mercury, vapor (TH) 7439976	NOTE 1 NOTE 1: I	nclude TAP in TPER stipulation.
	Acrolein (TH)	107028	NOTE 1	٨	fethyl ethyl ketone (TH) 78933	NOTE 1	iologe IAF III IFER Supulation.
senic unlisted cmpds (comp.		ASC-other	NOTE 3	!	Methyleлe chloride (ТН) 75092	NOTE 1 NOTE 2: I	clude TAP in TPER stipulation
	Benzene (TH)	71432	NOTE 3		Nickel metal (TH) 7440020	NOTE 2 with operat	tion restrictions.
	o(a)pyrene (T)	50328	NOTE 1	Perchloroethylene (te	trachloroethylene) (TH) 127184	NOIET	
			NOTE 1		Phenol (TH) 108952		lodeling Required. See "Toxic
Beryllium metat (ur	nreacted) (TH)	7440417			. 4		
Beryllium metal (ui Cadmium metal (elemental ui	nreacted) (TH) nreacted) (TH)	7440439	NOTE 2	Soluble Chromate Compou		NOTE 1 calculation	s worksneer.
Beryllium metal (ur Cadmium metal (elemental ur Carbon	nreacted) (TH) nreacted) (TH) i disulfide (TH)	7440439 75150	NOTE 2 NOTE 1	-	Styrene (TH) 100425	NOTE 1	s worksneet.
Beryllium metal (ui Cadmium metal (elemental ui Carbon Form	nreacted) (TH) nreacted) (TH) disulfide (TH) aldehyde (TH)	7440439 75150 50000	NOTE 2 NOTE 1 NOTE 3	-	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016	NOTE 1 NOTE 1	s worksneet.
Beryllium metal (ur Cadmium metal (elemental ur Carbon Form exachlorodibenzo-p-dioxin 1,	nreacted) (TH) nreacted) (TH) disulfide (TH) aldehyde (TH) 2,3,6,7,8 (TH)	7440439 75150 50000 57653657	NOTE 2 NOTE 1 NOTE 3 NOTE 1	-	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016 Toluene (TH) 108883	NOTE 1 NOTE 1 NOTE 1	s worksneet.
Beryllium metal (ur Cadmium metal (elemental ur Carbon Form exachlorodibenzo-p-dioxin 1, Hi	nreacted) (TH) nreacted) (TH) disulfide (TH) addehyde (TH) .2,3,6,7,8 (TH) exane, n- (TH)	7440439 75150 50000 57653657 110543	NOTE 2 NOTE 1 NOTE 3 NOTE 1 NOTE 1	-	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016 Toluene (TH) 108883 Trichloroethylene (TH) 79016	NOTE 1 NOTE 1 NOTE 1 NOTE 1	s worksneet.
Beryllium metal (ur Cadmium metal (elemental ur Carbon Form exachlorodibenzo-p-dioxin 1, H Hydrog	nreacted) (TH) nreacted) (TH) i disulfide (TH) isidehyde (TH) i2,3,6,7,8 (TH) exane, n- (TH) gen Sulfide (T)	7440439 75150 50000 57653857 110543 7783064	NOTE 2 NOTE 1 NOTE 3 NOTE 1 NOTE 1 NOTE 1	-	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016 Toluene (TH) 108883	NOTE 1 NOTE 1 NOTE 1	s worksneet.
Beryllium metal (ur Cadmium metal (elemental ur Carbon Form exachlorodibenzo-p-dioxin 1, H Hydrog Manganese unlisted o	nreacted) (TH) nreacted) (TH) i disulfide (TH) isidehyde (TH) i2,3,6,7,8 (TH) exane, n- (TH) gen Sulfide (T)	7440439 75150 50000 57653857 110543 7783064	NOTE 2 NOTE 1 NOTE 3 NOTE 1 NOTE 1	-	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016 Toluene (TH) 108883 Trichloroethylene (TH) 79016	NOTE 1 NOTE 1 NOTE 1 NOTE 1	s worksneet.

Dryer Emissions

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 OUTPUT SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

n/a

ton/day

This spreadsheet is for your use only and should be used with caution, DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

	SOURCE/ FACI	LITY/LUSER INPUT SUMMARY.	(FROM INPUT SC	REEN)	
0010111	Caralla	- Commonly III C		FACILITY ID NO.:	1700016
COMPANY:	Carolina	a Sunrock, LLC		PERMIT NUMBER:	10628R00
EMISSION SOURCE	NSPS affected 250 tr	oh Natural gas-fired, Drum mix as	phait plant (80	FACILITY CITY:	Burlington
DESCRIPTION:	mmBtu/hr heat input,	w/sitofill, with RAP, sulfur=n/a%)		FACILITY COUNTY:	Caswell
Annual Production	500 000 tophrops	Deily Braduction Limits	nto	ton/day	

Limit: SPREADSHEET PREPARED BY: LLG

500,000

ton/year

CRITERIA AIR P	OLLUTANT EMISSIONS INFORMATION

Daily Production Limit:

	ACTUAL E	MISSIONS		POTENTIAL	EMISSIONS	
AIR POLLUTANT EMITTED	(AFTER CONTR	OLS / LIMITS)	(BEFORE CO	NTROLS / LIMITS)	(AFTER CONTR	(OLS / LIMITS)
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	11.06	11.52		86.48		11.52
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	6.81	7.27		38.93		7.27
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})						
SULFUR DIOXIDE (SO2)	1.19	5.13		5.21		5.13
NITROGEN OXIDES (NOx)	6.83	7.94		29.91		7.94
CARBON MONOXIDE (CO)	33.21	33.49		145.48		33.49
VOLATILE ORGANIC COMPOUNDS (VOC)	12.03	12.05		52.69	- And Greek Control	12.05
TOTAL HAP	1.39	1.39		6.10		1.39
LARGEST HAP (formaldehyde)	0.80	0.80		3.49		0.80

Attach INPUT worksheet

								EMISSION FACTOR
	240	ACTUAL EN	ISSIONS		POTENTIAL I	MISSIONS		(lb/ton asphalt produced
TOXIC / HAZARDOUS AIR POLLUTANT	CAS Number	(AFTER CONTRO	DLS/LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTRO	LS / LIMITS)	with Fabric filter controls
	Idailipai	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	
Acetaldehyde (TH)	75070	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Acrolein (TH)	107028	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Antimony unlisted compounds (H)	SBC-other	4.50E-05	9.00E-02	4.50E-05	0.39	4.50E-05	9.00E-02	1.8E-07
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	2.80E-01	1.40E-04	1.23	1.40E-04	2.80E-01	5,6E-07
Benzene (TH)	71432	9.90E-02	1.98E+02	9.90E-02	867.38	9.90E-02	1.98E+02	4.0E-04
Benzo(a)pyrene (T)	50328	4.41E-06	8.82E-03	4,41E-06	0.04	4.41E-06	8.82E-03	1.8E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	2.05E-01	1.03E-04	0,90	1.03E-04	2.05E-01	4.1E-07
Carbon disulfide (TH)	75150	6.23E-04	1.25E+00	6.23E-04	5.45	6.23E-04	1,25E+00	2.5E-06
Chromium unlisted cmpds (add w/chrom acid to get CRC)(H)	CRC-other	1.26E-03	2.53E+00	1.26E-03	11.06	1.26E-03	2.53E+00	5.1E-06
Chromic acid (VI) (component of solCR6 and CRC) (TH)	7738945	1.13E-04	2.25E-01	1.13E-04	0.99	1.13E-04	2.25E-01	4.5E-07
Cobalt unlisted compounds (H)	COC-other	6.50E-06	1.30E-02	6.50E-06	0.06	6.50E-06	1.30E-02	2.6E-08
Cumene (H)	98828	1.14E-03	2.29E+00	1.14E-03	10.02	1.14E-03	2.29E+00	4.6E-06
Ethyl benzene (H)	100414	6.41E-02	1.28E+02	6.41E-02	561.24	6.41E-02	1.28E+02	2.6E-04
Ethyl chloride (chloroethane) (H)	75003	2.18E-06	4,37E-03	2.18E-06	0.02	2.18E-06	4.37E-03	8.7E-09
Formaldehyde (TH)	50000	7.97E-01	1.59E+03	7.97E-01	6981.17	7.97E-01	1.59E+03	3.2E-03
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH)	57653857	0.00E+00	0,00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Hexane, n- (TH)	110543	2.39E-01	4.78E+02	2.39E-01	2095.50	2.39E-01	4.78E+02	9.6E-04
Hydrogen Chloride (hydrochloric acid) (TH)	7647010	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Hydrogen Sulfide (T)	7783064	1.37E-02	2.74E+01	1.37E-02	119,84	1.37E-02	2,74E+01	5.5E-05
Lead unlisted compounds (H)	PBC-other	1.55E-04	3.10E-01	1,55E-04	1.36	1.55E-04	3.10E-01	6.2E-07
Manganese unlisted compounds (T)	MNC-other	1.93E-03	3.85E+00	1.93E-03	16.86	1.93E-03	3,85E+00	7.7E-06
Mercury, vapor (TH)	7439976	6,00E-05	1.20E-01	6.00E-05	0.53	6.00E-05	1.20E-01	2.4E-07
Methyl bromide (H)	74839	2.49E-04	4.98E-01	2.49E-04	2.18	2.49E-04	4.98E-01	1.0E-06
Methyl chloride (H)	74873	1.56E-04	3.12E-01	1.56E-04	1.37	1.56E-04	3,12E-01	6.2E-07
Methyl chloroform (TH)	71556	1.20E-02	2.40E+01	1.20E-02	105.12	1.20E-02	2.40E+01	4.8E-05
Methyl ethyl ketone (TH)	78933	1.70E-03	3.40E+00	1.70E-03	14.87	1.70E-03	3.40E+00	6.8E-06
Methylene chloride (TH)	75092	8.23E-06	1.65E-02	8.23E-06	0.07	8.23E-06	1.65E-02	3.3E-08
Napthalene (H)	91203	2.47E-02	4.94E+01	2.47E-02	216.55	2.47E-02	4.94E+01	9,9E-05
Nickel metal (TH)	7440020	1.58E-02	3.15E+01	1.58E-02	137.97	1.58E-02	3.15E+01	6.3E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	1,60E-01	8.01E-05	0.70	8.01E-05	1.60E-01	3.2E-07
Phenol (TH)	108952	1.01E-03	2.01E+00	1.01E-03	8.81	1.01E-03	2.01E+00	4.0E-06
Phosphorus Metal, Yellow or White (H)	7723140	7.00E-03	1.40E+01	7.00E-03	61.32	7.00E-03	1.40E+01	2.8E-05
Polycyclic Organic Matter (H)	POM	4.75E-02	9.50E+01	4.75E-02	416.10	4.75E-02	9.50E+01	1.9E-04
Propionaldehyde (H)	123386	0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Quinone (H)		0.00E+00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.0E+00
Selenium compounds (H)	SEC	8.75E-05	1.75E-01	8.75E-05	0.77	8.75E-05	1.75E-01	3.5E-07

Styrene (TH) 100425 2,40E-04 4.81E-01 2,40E-04 2.11 2,40E-04 4.81E-02 Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH) 1746016 0,00E+00 0,00E+00 0,00E+00 0.00E+00 <	0 0.0E+00 1 1.7E-04 0 0.0E+00 1 4.0E-05 2 2.4E-04
Toluene (TH) 108883 4.16E-02 8.31E+01 4.16E-02 364.17 4.16E-02 8.31E+0 Trichloroethylene (TH) 79016 0.00E+00 0.00E+00 0.00E+00 0.00 0.00E+00 0.00E+	1 1.7E-04 0 0.0E+00 1 4.0E-05 2 2.4E-04
Trichloroethylene (TH) 79016 0.00E+00 0.00E+00 0.00E+00 0.00 0.00E+00 0.00E	0 0.0E+00 1 4.0E-05 2 2.4E-04
Trimethylpentane, 2,2,4- (H) 540841 1.00E-02 2.01E+01 1.00E-02 87.85 1.00E-02 2.01E+0 Xylene (TH) 1330207 6.04E-02 1.21E+02 6.04E-02 528.72 6.04E-02 1.21E+0	1 4.0E-05 2 2.4E-04
Xylene (TH) 1330207 6.04E-02 1.21E+02 6.04E-02 528.72 6.04E-02 1.21E+0	2 2.4E-04
Xvlene, o- (H) 95476 2.57E-03 5.14E+00 2.57E-03 22.50 2.57E-03 5.14E+0	4 00 00
	0 1.0E-05
TOXIC AIR POLLUTANT EMISSIONS INFORMATION (FOR PERMITTING PURPOSES)	and the second second second second second
Expected actual emissions after controls and limitations consisting of an annual production limit of 500000 tons and a daily production limit of 0 tons.	EMISSION FACTOR (lb/ton asphalt produced, with Fabric filter controls)
TOXIC AIR POLLUTANT CAS Num. Ib/fir Ib/day Ib/yr Modeling Required?	ļ
Acetaldehyde (TH) 75070 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Acrolein (TH) 107028 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other 1.40E-04 0.00E+00 2.80E-01 YES. Modeling required	5.60E-07
Benzene (TH) 71432 9.90E-02 0.00E+00 1.98E+02 YES. Modeling required	3.96E-04
Benzo(a)pyrene (T) 50328 4.41E-06 0.00E+00 8.82E-03 NO. Based on facility-wide potential.	1.76E-08
Beryllium metal (unreacted) (TH) 7440417 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Cadmium metal (elemental unreacted) (TH) 7440439 1.03E-04 0.00E+00 2.05E-01 NO. Because of operating restriction	4.10E-07
Carbon disulfide (TH) 75150 6.23E-04 0.00E+00 1.25E+00 NO. Based on facility-wide potential.	2.49E-06
Soluble Chromate compounds as Chrome (VI) (TH) SOLCR6 1.13E-04 0.00E+00 2.25E-01 NO. Based on facility-wide potential.	4.50E-07
Formaldehyde (TH) 50000 7.97E-01 0.00E+00 1.59E+03 YES. Modeling required	3.19E-03
Hexane, n- (TH) 110543 2.39E-01 0.00E+00 4.78E+02 NO. Based on facility-wide potential.	9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Hydrogen Sulfide (T) 7783084 1.37E-02 0.00E+00 2.74E+01 NO. Based on facility-wide potential.	5.47E-05
Manganese unlisted compounds (T) MNC-other 1.93E-03 0.00E+00 3.85E+00 NO. Based on facility-wide potential.	7.70E-06
Mercury, vapor (TH) 7439976 6.00E-05 0.00E+00 1.20E-01 NO. Based on facility-wide potential.	2.40E-07
Methylene chloride (TH) 75092 8.23E-06 0.00E+00 1.65E-02 NO. Based on facility-wide potential.	3.29E-08
Methyl chtoroform (TH) 71558 1.20E-02 0.00E+00 2.40E+01 NO. Based on facility-wide potential.	4.80E-05
Methyl ethyl ketone (TH) 78933 1.70E-03 0.00E+00 3.40E+00 NO. Based on facility-wide potential.	6.79E-06
Nickel metal (TH) 7440020 1.58E-02 0.00E+00 3.15E+01 NO. Because of operating restriction	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH) 127184 8.01E-05 0.00E+00 1.60E-01 NO. Based on facility-wide potential.	3.20E-07
Phenol (TH) 108952 1.01E-03 0.00E+00 2.01E+00 NO. Based on facility-wide potential.	4.02E-06
Styrene (TH) 100425 2.40E-04 0.00E+00 4.81E-01 NO. Based on facility-wide potential.	9.62E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH) 1746016 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Toluene (TH) 108883 4.16E-02 0.00E+00 8.31E+01 NO. Based on facility-wide potential.	1.66E-04
Trichloroethylene (TH) 79018 0.00E+00 0.00E+00 0.00E+00 NO. Based on facility-wide potential.	0.00E+00
Xylene (TH) 1330207 6.04E-02 0.00E+00 1.21E+02 NO. Based on facility-wide potential.	2.41E-04

Toxic Air Pollutant (TAP) emission rate calculations page

This sheet presents the emission rate calculations that are necessary for modeling determinations.

							d) de	ons.	Sub Filling	Inobert	Į.	collinariation		tota								l
	•					Controlled	Controlled								Parent Inch	-	1	Controlled	Controlled		Controlled	
	emis eni	ğ	ertissions			Emission	-22	Emission feeting (Manua)	Emission Rate	Emission	Emission Rate E	Emission Factor Emission Rate	Emission Rate	Emission	Emission Rate	Entission Rate	Emission Rate	wLimitations	Emission Rate	ER greater	w/Linkations	Commends
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	90000	S			pin	3.105-03	7.75E-01	8.41E-06	2.10E-02	3.58E.06	9.15E-14	8.775E-05		3.196-03	7.97E-01	1.915+61	6.98E+03	0,005+00	1.59E+03	Yes		NOTE 3
DI (HI) DIAMETER (HI) DI CAMPANTA (HI) D	20000	2 1	£ !	10 to	Ė			0,000-400	COCE+DO	4.02E-06		4.02E-06		4.02E-06	1.01E-03	2415-02	8.815+00	0.005+00	201E-00	2		NOTE1
l	24550		l	١		8	CONTRACTOR OF THE PARTY OF THE)	1.000	27.04E-07	٠.	3.82.E-U7	240E-04	9.62E-07	2405.04	5.77E-03	2,115+00	0.00E+00	4.816-01	å		NOTE 1
	70032	1		5			120E-02	_	0000	0.00=+00	_	0.005+06		4.80E-05	120502	2886-0	1.055-402	0.005+00	2405+01	ş	£	NOTE 1
	10000					_	0.005+00	4 1	9 6	2.045-05	_	6.79E-06		6.79E-06	1.70E-03	4,07E-02	1.49E+01	0.005+00	3.405+00	Ñ	£	NOTE1
•	33007	e s	e i			2000	A.735-02	2 447	2000	8.78 1.74 1.74 1.74 1.74	2 18 18	0.000	200 C	1.665-04	4.185-02	33850	3.64E+02	00000	8.315+01	2	₽:	NOTE:
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	7439076	ŧ,		COS Delay		2,700,6	D-101							7.705-06	1935-03	4.6ZE-0Z	1.696+01	0.000	3.6SE+OD	S:	2	NOTE 1
-	7440020	No.			lb/day	6.30F.05	1.585-02							2405-07	00000	1.446-435 1.01-01	59976	0.000	500	2	€ :	NOTE 1
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ľ	2740040		ľ	l		200		1	4.0/6-04	3.415-04	1.305-04	2485-00	0.235-04	2485-06		748645	3.43E+130	0:00E+00	9	Ş	£	NOTE 1
	6SC-other	<u>e</u> ş	2 8			5 COE OT	1,405.04							0,000,000	0.00=+00	0.000=+00	0.00E+00	0.00E+00	0000	2	ž	NOTE 1
	74629					100000	100000							5.50E-07	1405-64	3.366-03	1.23E+D0	0.00E+00	2.80E-04	Yes	Yes	NOTE 3
	Entering	9 1				3,500,04	9.795402	3,80E-18	9,725,00	2.19C-06	5.47E-04	8,08E-06	1.52E-93	3.96E-94	9,906-02	2.38E+00	8.67E+02	8,00E+00	1,985+02	Yes	Yes	NOTE 3
	97000	Ė.	_		5	8780E-08	2.405-05	DE+00	O.ODE+CO	7.84E-09	1.965-05	7.84E-09	1,96E-06	1.765-08	4.41E-06	1.06E-04	3,865-02	0.00E+00	8.82E-03	Š	Š	NOTE 1
St. (1) BOUNG LEGOING LEGOING	10300	Ľ,	_		è	d district	1305-02	1.465-05	3.656-04	1.46E-08	3,655,04	2925-06	7.305-04	5475-05	1,37E-02	3.28E-01	1.20E+02	0.00E+00	2746+01	ş	8	NOTES
	7440438		2 8	237	8	0.00E+00	0.005+00							0.00E+00	0.005+00	0.00E+00	0.00E+00	0.005+00	0005+00	2	£	NOTE:
	57653657			_			000000							4.105-07	1.035-04	2.485-03	71186	0.00E+00	205E-03	Zes	ş	NOTE 2
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ı	91203	557	ww.			SU-JOUG 4	2255.00	Ļ	4 165 03	A DRE CE	4 075 03	00 000	S S	COURT OF	2000	COLUMN A	CONC.	COMPACE	D'ALE-CO	ω 2	QN.	MOJE 1
,-	723440	Į	. 8			2805.05	1000	ű			LOTEOD	00-300'B	2.625.00	070000	24/15/22	10-25-01	21/E#02	00000	5			
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· _	106514	4	2			0,000:+00	0.00E+00							0.00E+00	0.00E+00	0005+00	00000	0.005+00	00000			
	SEC	8	2			3.50E-07	8.75E-05							3.505-07	8.756-05	2.10E-03	7.67E-01	0.000	755-01			
	540841	£	8			4,006-05	1,005-02	3.78E-08	9.44E-08	7.49E-08	1.875-05	1.13E-07	262E-05	4.01E-05	1,005-02	2415-01	8,785+01	0.00至+00	2.01E+01			
	SBC-other	幺	8			1.80E-07	4.505-05							1.805-07	450E-05	1.08E-03	3.94E-01	0.005+00	9,005-02			
_	CRC-other	100	Đ.			5,05E-05	1,265-03							5.05E-06	1,265-03	3.03E-02	1.115+01	0.000+00	2.536+00			
_	COCOMPE	Đ.	2			260E-08	6.505-06							2.00E-08	6.505-06	1.56E-04	5.88E-02	0.00€+00	1,305,02			
	100414	¥.	Ę			2.405.04	6.00E-02	4.G3E-06	1.16E-03	1.16E-05	2.916-03	1.63E-05	4.07E-03	2,566-04	6.415-02	1.546+00	5,615+02	0.000	1.28E+02			
	PBC-ather	E,	2			6.20E-07	1,56E-04				A CONTRACTOR OF THE PARTY OF TH			6.20E-07	1.956-04	3.72E-03	1.36E+00	0.005+00	3.108-01			
	74639	2	2					5.97E-07	1.495-04	3,995-07	9,98E-05	9.96E-07	249E-04	9.96E-07	2496-04	5,98E-03	2185+00	0.00E+00	4.98E-01			
	928828	2	***					0.00E+00	0.005+00	4.57E-06	1.14E-03	4.57E-DB	1.14E-03	4.57E-06	1.145-03	2.74E-02	1.00E+01	0.005+00	2,29E+00			
	3	2 :						0000	0000	8.735.09	218506	8,787.63	2.185-06	B.73E-09	2185-06	5.24E-05	1,916-02	0,005+00	4,37E-03			
	5/88/3 05436	2 1	ę.					0.005+00	0.005+00	6.245-07	1.56E.04	6.245-07	1,56E-04	6.24E-07	1,56E-04	3.74E-03	1.37E+00	0.005+00	3.125.01			
Ayers, 0-(n)	2/40		800	SCHOOL STATES				8 6.95E-06	1.74E-03	3.335-08	8.32E-04	308-05	25/E-03	1.035-05	2.57E-03	6.15E-02	2.25E+01	0.005+00	5.14E+00			
TACS, IOTAL						23,200	3	1.075.04	4.0NE-0Z	3.00E-05	2.17E-02	274E-04	6.83E-02	5.57E-03	1.39E+00	3346+04	\$ 22E+04	0.00E+00	2.78E+03			

POTENTIAL TAP EMYSSIONS - NO.4/NO.6 FUEL OIL

ASPHALT EMISSIONS CALCULATOR REVISION G 08/30/2019 INPUT SCREEN



NOTICE: This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Instructions: 1. Fill in all BLUE cells.

2.Ensure all pull down boxes and BLUE cells reflect correct conditions.

3. Read the README sheet.

4. Use the mouse pointer to read the tips in the "red cornered" input cells.

(See Tools->Options->Comments if these are not displayed.

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Company Name:	Carolina Sunrock, LLC
Facility ID No.:	1700016
Permit No.:	10628R00
Facility City:	Burlington
Facility County:	Caswell
Spreadsheet Prepared by:	LLG

Is this sprea for emis	dsheet b		2. NO			—
Pla	int type:	Drum mix		_		
Fu	el type:	Waste, No.4 o	r No.6 fuel c	oil-fired ▼	7	
	Fuel Sulf	ur Content:	0.50	%		(default value is 0.5
Co	ntrols:	Fabric filter co	ontrols		7	

Dryer heat input:	80	million Btu per hour	
Plant maximum production capacity:	250	tons per hour	
			•
Asphalt Prop	erties		
Asphalt temperature:	325	degrees	(default value of 325 degrees F)
Volatility loss (V):	-0.5	%	(default value of -0.5 %)

5	ishing on te?	YES	▼	
Crushing Capacity?	65	tons per hour	No. of crushers:	1
Hours of operation:	8760	hours per year	No. of screens:	1
,			No. of conveyors:	4

YES

Filling?

			1
Asphalt Cement Heater		_	
AC heater heat input:	2.3	million Btu per hour	(No.2 or diesel fuel oil -fired assumed)
Fuel Sulfur Content:	0.50]%	(default value is 0.5 %)
Hours of operation:	8760	hours per year	(default is 8760 hours per year unless specified otherwise)

1	Calculated Annual Production Limit:	1,488,581	tons per year	
-	Requested Annual Production Limit:	500,000	tons per year	(if none desired leave default value =8760*tph)
	Requested Daily Production Limit:	6.000	tons per day	(if none desired leave default value = 24*tph)

!s this plant NSPS Subpart I affected?	YES	Y
Stack gas flow rate :	68,145	ACFM
Stack gas temperature :	240	oF
Stack % moisture:	33	1 %
Allowable emission rate under NSPS Subpart I:	11.81	lb/hr
Control efficiency required:	99,831	%
Does Method 5 data already exist?:		*
 Method 5 determined emission rate; 		libhr a caolas de la Pre
Control efficiency based on test data	0.0 (2.0)	194

Allowable emission rate under 2 D .0506:	55.39	lb/hr
Does this plant emit less than this limit ?:	Yes	(based on emission factors)
Control efficiency required:	99.209	%

ATTACHMENT ET

Uncontrolled Emission Factor (bifn) Uncontrolled Emission Factor (bifn) Uncontrolled Emission Factor (bifn) Uncontrolled Emission Factor (bifn) Uncontrolled emission rate (bifn) Uncontrolled emissio	Criteria Pollutents							
Contraction Per Contract	··· · · · · · · · · · · · · · · · · ·	Emission	Emission Factor			(no controls, 8760 hours per year	(tpy) (with controls, 8760	Synthetic Minor, Potential Emissions ((with all operation restrictions)
Fliesteils Pill 28 0.014 7606 3.5 7609 7600 1.0 760					i			
Table Tabl								Part of the second second second
Total PM 28								the second second
Teal Parks						- Market District Control of Cont	On the fight dust hand to determine the state of the stat	83
Committee Comm								
Column								
No.								
Most								
### Pollutant Po						35.0	35.0	8.0
Poliural		Authororopeoporanionalista (2.5	11.0	11.0	2.5
Poliural	Silo Filling plus Los	d Out Emis	sions, Crit	eria Pollutants				
Politizant	that I ming plue = se						T	
Politrant Chiefe								Synthetic Minor, Potential Emissions
Poliulant					emission rate ((b/hr)			(with all operation restrictions)
Total PM	Pollutant				,	орычатол)	орегация	1
Controlled Emission Controlled Emission (p) Pall		1.11E-03			2.77E-01	1.2	1.2	
Controller Final Procession Controller	*							
Rap Crusinor Emissions Emission Emissi								4.0
Title V. Potential Emissions (p) Federical Emissions (pp) Federical Emissions (pp) Federical Emissions (pp) Federical Emission (pot operation) Federical Emissions (pp) Federical Emission (pot operation) Federical Emis						· · · · · · · · · · · · · · · · · · ·		
Pollutant Total PM 0.0424 2.78E+00 12.1 12.1 2.8	IIM'S, ICIAL	<u>⊶., ⊤⊨-∀</u> 4			·	<u></u>		
Pollutant Total PM 0.035714 5.42E-02 0.2 0.2 0.2 0.2 0.2 0.2 0.0 0.005714 5.42E-02 0.2 0.2 0.2 0.2 0.0	Rap Crusher Emiss							
Pollutant							DOD Beleef LE 1	
Pollutant								Synthetic Minor, Potential Emissions
Pollutant Controlled Emission Facility-wide Criteria Pollutant Emissions Summary Pollutant Total PM 0.0424 2.768+00 12.1 12.1 2.8					emission rate (lb/hr)			(with all operation restrictions)
Title PMN	Pollutant	(lb/ton)	<u> </u>	· · · · · · · · · · · · · · · · · · ·				
Asphalt Cement Heater Emissions Politutant Control Politutant Politutant Control Politutant Politu	Total PM	0.0424						
Asphalt Cement Heater Emissions Uncontrolled Emission Emission Title V, Potential Emissions (tpy) P80, P80, P80, P80, P80, P80, P80, P80,					1.01E+00	4.4	4.4	1.0
Uncontrolled Emission Factor Fact	Apple Comment !!-	oton Emii	- no					
Pollutant	Aspnatt Cement He	eter Emissic	7112					
Poliutant	i					Title V. Potential Emissions (tru)	PSD. Potential Emissions	
Pollutant Part Pollutant								
Total PM 0.0235714 5.42E-02 0.2					emission rate (lb/hr)			(with all operation restrictions)
Total PM Court C	Pollutant	(Ib/MMBtu)						
Controlled Emission Rate, District Controlled Emission Rate, District Controlled Emission Rate, District Di						· · · · · · · · · · · · · · · · · · ·		
Controlled Emission Rate, Controlled Emissions (tp)	Total PM10							
No.								
Pacility-wide Criteria Pollutant Emissions Summary	co							
Poliutant Poli	NOx	0.1428571						
Poliutant	VOC	0.0024286			5.59E-03	0.0	0.0	0.0
Poliutant	Escillar wide Criteri	a Poliutant I	Emissione	Summary	······································	····	· · · · · · · · · · · · · · · · · · ·	
Pollutant	racinty-wide Offeri	u ronutaitti	L.111001V113	- withing		Title V Polential Emissions (fau)	PSD Potential Emissions	
Poliutant						(no controis, 8760 hours per year	(toy) (8760 hours per year	
Cas No. Action					7 115±01	<u> </u>		11.5
2.21E+01 96.8 96.8 26.0 3.32E+01 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5 33.5 145.5								
3.32E+01 145.5 145.5 33.5						J		
Nox								
TAP						1		
TAP								
TAP CAS No. Action Acetaldehyde (TH) 75070 NOTE 1 Acrolein (TH) 107028 NOTE 1 Benzola)pyrene (T) 50328 NOTE 1 Beryllium metal (elemental unreacted) (TH) 7440419 NOTE 2 Cadmium metal (elemental unreacted) (TH) 75150 NOTE 1 Cadmium metal (elemental unreacted) (TH) 75150 NOTE 1 Carbon disulfide (T								
TAP	HAPS, TOTAL				2.0100	1310	11.0	
Acetaldehyde (TH) 75070 NOTE 1	Facility-wide Toxic	Air Pollutan	ts Summa	у				
Acetaldehyde (TH) 75070 NOTE 1 Acrolein (TH) 107028 NOTE 1 Benzene (TH) 74322 NOTE 3 Benzene (TH) 74322 NOTE 3 Benzene (TH) 744047 NOTE 1 Benyllium metal (unreacted) (TH) 744047 NOTE 1 Cadmium metal (elemental unreacted) (TH) 744047 NOTE 1 Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Benzene (TH) 75500 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Mercury, vapor (TH) 743976 NOTE 1 Methylene chloride (TH) 75092 NOTE 3 NOTE 1 NOTE 1: Include TAP in TPER stipulation NOTE 3 NOTE 1 NOTE 2: Include TAP in TPER stipulation NOTE 3 NOTE 1 NOTE 3: NOTE 1 NOTE 3 NOTE 1 NOTE 3: NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 1746018 NOTE 1 Toluene (TH) 108883 NOTE 1 NOTE 3 NOTE 1 NOTE 3: NOTE 1 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 1746018 NOTE 1 NOTE 1 Trichloroethylene (TH) 108883 NOTE 1	TAP		CAS No.	Action	TAP	CAS No.	Action	
Acrolein (TH) 107028 NOTE 1 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other Benzene (TH) 71432 NOTE 3 Benzoa(a)pyrene (T) 50328 NOTE 1 Beryllium metal (unreacted) (TH) 7440417 NOTE 1 Cadmium metal (elemental unreacted) (TH) 7440439 NOTE 2 Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (tetrachtoroethylene) (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH) 778894 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Ferchloroethylene (TH)			75070	NOTE 1				nclude TAP in TPER stipulation
Benzene (TH) 71432 NOTE 3 Benzene (TH) 71432 NOTE 3 Benzene (TH) 744020 NOTE 3 Benzene (TH) 50328 NOTE 1 Beryllium metal (unreacted) (TH) 7440417 NOTE 1 Cadmium metal (unreacted) (TH) 7440439 NOTE 2 Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dloxin 1,2,3,6,7,8 (TH) 10543 NOTE 1 Hexane, n. (TH) 110543 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 MOTE 3 NOTE 3 NOTE 3 NOTE 1 Perchloroethylene (tetrachtoroethylene) (TH) 108852 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) 109452 NOTE 1 Soluble Chromate Compounds as Chrome VI (TH) 109454 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 1746016 NOTE 1 Trichloroethylene (TH) 108863 NOTE 1 NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1		Acrolein (TH)	107028	TO 11/10/11/11/11/11/11/11/11/11/11/11/11/1	\$		NOTE1	
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Benzo(a)pyrene (T) 50328 NOTE 1 Perchloroethylene (Ith) 127184 NOTE 1 NOTE 1 Perchloroethylene (Ith) 109952 NOTE 3 NOTE 1 N		Benzene (TH)	71432			` .	NOTE 3 with open	
Cadmium metal (elemental unreacted) (TH) 7440439 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) 7738945 NOTE 1 Carbon disulfide (TH) 75150 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8 (TH) 110543 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 MOTE 2 Soluble Chromate Compounds as Chrome VI (TH) 7738945 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 10425 NOTE 1 Tetrachlorodibenzo-p-dioxin, 2,3,7,8 (TH) 108883 NOTE 1 Tritchloroethylene (TH) 79016 NOTE 1 Xylene (TH) 1330207 NOTE 1	Benz	o(a)pyrene (T)	50328	NOTE 1	Perchioroethylene (te	etrachtoroethylene) (TH) 127184	NOTET	
Cadmium metal (elemental unreacted) (TH) 7440439 NOTE 2 Soluble Chromate Compounds as Chrome VI (TH) 7738945 NOTE 1 Calculations" Worksheet. Carbon disulfide (TH) 75150 NOTE 1 Styrene (TH) 100425 NOTE 1 Formaldehyde (TH) 50000 NOTE 3 Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH) 140818 NOTE 1 Hexanchlorodibenzo-p-dioxin, 1,2,3,6,7,8 (TH) 176018 NOTE 1 Hexanch, n- (TH) 110543 NOTE 1 Hydrogen Builde (T) 7783064 NOTE 1 Mnc-other NOT			7440417	NOTE 1		Phenol (TH) 108952		- ,
Carbon disulfide (TH) 75150 NOTE 1 Styrene (TH) 10:0425 NOTE 1 Formaldehyde (TH) 50:000 NOTE 3 Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH) 1748016 NOTE 1 Hexane, n- (TH) 110:543 NOTE 1 Trichloroethylene (TH) 10:883 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Xylene (TH) 1330207 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1					Soluble Chromate Compo		NOTE 1 calculation	ns" worksheet.
Formaldehyde (TH) 50000 NOTE 3 Tetrachlorodibenzo-p-dioxin, 2,3,7,8-(TH) 1746016 NOTE 1 Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8 (TH) 57653857 NOTE 1 Toluene (TH) 108883 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Trichtoroethylene (TH) 79016 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Xylene (TH) 1330207 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	="				,	·	NOTE 1	
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (TH) 57653857 NOTE 1 Toluene (TH) 108883 NOTE 1 Hexane, n- (TH) 110543 NOTE 1 Trichloroethylene (TH) 79016 NOTE 1 Hydrogen Sulfide (T) 7783064 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1 MOTE 1 Xylene (TH) 1330207 NOTE 1					Tetrachlorodibenze		NOTE 1	
Hoxane, n- (TH) 110543 NOTE 1 Trichtoroethylene (TH) 79016 NOTE 1 Hydrogen Suifide (T) 7783064 NOTE 1 Xylene (TH) 1330207 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	1 011			\$3.557.000 \$1.00				
Hydrogen Suifide (T) 7783064 NOTE 1 Xylene (TH) 1330207 NOTE 1 Manganese unlisted compounds (T) MNC-other NOTE 1	Hexachlorodibenzo-n-dioxin 1							
Manganese unlisted compounds (T) MNC-other NOTE 1	•			NOTE 1		Trichtoroethylene (TH) 79016	NOTE 1	
		lexane, n- (TH)	110543					
	Hydro	lexane, n- (TH) gen Suifide (T)	110543 7783064	NOTE 1				

foxic Air Pollutant (TAP) emission rate calculations page

This sheet presents the emission rate calculations that are necessary for modeling determinations.

Publiant Action (TT) avgraph (TT) (HT) avgraph (TT) (HT) avgraph (TT) (HT) avgraph (TT) (HT) avgraph (TT)							-	000	,		1	SUPPLIES STATE			Ī				Committee			_
statdehyde (TH) Acrolein (TH) naldehyde (TH)						Controlled	Controlled							Controlled	Controlled	Controlled			w.Limitations	Controlled	Controlled	
złakielyde (TH) Acrolein (TH) naldelyde (TH)	remiss Troil	Si co	from			Emission	ũ	factor (Britism)	(b/hr) fe	fector (Dron)	(Pafin)	(biton) (bitout)		Emination	Emission Rate E	Emission Rate Emission Rate		Emission Rate	Emission Rate	ER greater	ER granter	Comments
	CAS No. dayer		handing TPER	E Chair	TPER Units	Fector (librory								mana (sound)	increased.	(farant)	(methods)	- 1	(mile)		an TPER?	
	75070	sak		6.8 lb/h	F.	1.30E-03	3,255.01							(,30E-03	328E-0	7.80E+00	285E+03	7.80E+00	6.50E+02	£		NOTE1
_	107028	55.			Ē	2.50E-05	6.505-03				2		2		6,50E-03	1,565-04	5.69E+0*	1,565-01	305+04	2 ;		NOTE 1
	50000	yes			h.	3.10E-03	7.75E-01		2,105-02			8.776E-05	2.19E-02	3.19E-03	7.97E-01	1.916+01	6.985-03	1.915+01	1.59E+03	, kes		NOTES
	108952	2	88.	_	ŀ			0,000,00	0.005+00	4,025-06		4025.06	1.015-03	4.025-06	1016	2416-02	8.81E+00	2,415-02	2015-00	٤.		NO.
	100425	٤				器					┵	3.52E-U	7.4E-14	3.52.5-07	2415-14	5.77E-US	2.1 E+W	5.775.03	4.91E-VI	Q.		SOLE
	71558	yes	yes		8	_	120E-02	0.00E+00	_	0.00E+00		0.000	O.DOE+00	4,80E-05	200	2886-01	1.05E+02	2.88E-01	2.40E+01	2	2:	NO FE
	78933	ğ			22	_	5.00E-03		1.195-03		-	6.795-06	70E-03	2.68E-05	6,70E-03	P 36.	5.875+01	1,616.01	345+03	£;	€ :	NOTE 1
	10,000	ă			8		7.256-01	7.56E-06	1.89E-03	8.735.08	2.18E-03	1.53E-05	4.07E-03	292E-03	7.29E-3	1.75E+01	6.395+03	1,756.43	1.465.+03	2 :	2 :	201
Xylene (TH) 1	1330207	8		16.4 Diffe	ľ	2005-04	5.00E-02	2.44E-CD 3.20E-TB	803E-08		A ZDE-US	4.14E-US	1.04E-02	247E-04	5.04E-02	1.45E-10	7.21F.00	1 97F-04	1867.00	2 2	2 2	NOTE 1
	1995	2	l	ı	2	Ä,	STATE OF THE PROPERTY OF THE P	0.20170	0.000		Contract of						1000	50.00	1000			1 2 200
Soluble Chromate compounds as Chrome (VI) (TH) S	SOLCRE	£ !	2 1	0.013 Baday	À	4.50E-07	1.13E-D4	1 225.05	A PASSETT	SEAST A	1 1456.17	1045-05	463E-173	4.50E-0/	\$ 54 50 50 50 50 50 50 50 50 50 50 50 50 50	2./UE-13	2.105-403	5.745+00	4 785-407	2 2	9 9	NOTE
	2 1	g 1				7705.00	1 000 00							7205.08	20.00	4625.40	1,005-101	4 626.75	SET OF	2	2 2	NOTE:
Am (1) authorities amounts beautishing	7439976	e ș		Ī	ì	2. ROF.06	A 50E.04							2685-38	6.50F-44	1.56F.R2	5.692+00	1.56F.02	1.305+04	S S	ž,	NOTE 3
	744902B	Ĭ			, i	6.30E-05	1.585-02							6.30E-05	1.58E-02	3.78E-01	1,38E+02	3,78E-01	3.15€+01	Yes.	S S	NOTE 3
	75150	. 2						1.85E-06	4.87E-04	5,41E-07	1,35£-04	2,49£-06	8.23E-04	2485-06	8235-04	1.495-02	5.45E+00	1.495-02	1,25E+00	운	£	NOTE 1
ľ	17467HB	ş	ľ	ľ	,	2 10F-13	5.755.41						A STATE OF THE PARTY OF THE PAR	2.10E-13	525E-11	1.26E-09	4.60E-07	1285.09	1.05E.07	2	2	NOTE 1
	ASC-other	ş	2	0.016 lb/yr		5.60E-07	1,40E-04							5.60E-07	1.40E-54	3,365-03	1,23€+00	3,366-03	2.80E-01	Yes	Yes	NOTE3
	71432	Si				3,905.04	9.75E-02	3,90E-06	9.755-04	2.16E-06	5.41E-04	6.06E-06	1.52E-03	3.96E-04	9.90E-02	2.38E+00	8.67E+02	2.38E+00	1,98E+02	Yes	Yes	NOTE3
(T) energialphrene (T)	50328	ę	yes.	22 Ibyr		3.80E-09	2.45E-06	D.00E+00	0.005+00	7.84E-09	1,965-06	7.84E-09	1.96E-06	1.765-08	4.47E-06	1.06E-04	3.865-02	1.065-04	8.82E-03	ž	2	NOTE 1
	7783064	ž.		_	Á	5.186-05	1.30E-02		3.655-04	1.465-08	3.655-04	292E-06	7,305-0	5.47E-06	1.37E-02	3.295-01	1,205+02	3285-01	2.74E+0?	Ŷ	문	NOTE 1
	7440417	9			,	0.00E+00	0.00E+00							00000	0.002+00	0.005+00	0.005+00	0.005+00	0.00E+00	Š	S	NOTE 1
Cadmium metal (elemental unreacted) (TH) 7	7440438	yes			, i	4.10E-07	1.03E-04							4.106-07	1.03E-04	2.48E-03	8.98E-01	2.48E-03	2.05E-01	Yes	No	NOTE 2
_	57653857	10	5	1900C	,	1.30E-12	3.25E-10							1.30E-12	3.25E-10	7,805-09	2.85E-06	7,80E-09	6.50E-07	£	No.	NOTE 1
Hydrogen Chibride (hydrochloric acid) (TH) 754	7547010	8	ē	0.18 lb/hr	The state of the s	2.10E-04	5.25E-02							2105-04	5.25E-02	1265+60	4.60E+02	1.26E+00	1.05E+02	ž		NOTE:
	127184	2	T STATE	13000 15/51	4				0.005+00	ı	8.01E-05	3.20E-07	8.01E-05	3.20E-07	8.D/E-05	1.92E-03	7.01E-01	1.928-03	1.608-01	Š	₩	NOTE 1
	79016	2	3000	4000 Ibv	1,4				0:00E+00		0.00E+00	0.00E+00	0,000=+00	0.00E+00	0,002+00	0.0015+00	0.00E+00	0,00E+00	0.00E+00	ş	No.	NOTE 1
L	81203	8 4	E,			6.50E-04	1,83E-01	4.62E-08	1.16E-03	4.26E-06	1.07E-03	8.88E-06	222E-03	6.59E-04	1,656-01	3,95E+00	1.44E+03	3.95E+00	3,29E+02			
_	7723140	yes	2			2.80E-06	7.00F.03							2.80E-05	7,005-03	1.68E-01	6.13E+01	1.68E-01	1.40E+01			
Polycyclic Organic Matter (H)	WO.	şe,	2			8.80E-04	2205-01							8.800-04	2.20E.01	5285+00	1.90E+03	5.28E+00	40E+02		No.	ì
Proposaldehyde (H)	123386		2			1.305-04	3255-02							1.305.0	350	7,805-01	2.855.402	7,606-01	6.505.40			
(H) Options (H)	10834	E i	5			1.0000	4 C C C C C C C C C C C C C C C C C C C							3.50E-04	9755.0	9.BUE-07	3,50E+02 7,67E,04	2,000	725.04			
(4) Annuciation minimum (7) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	SACON I	9	2)			400.5	1005.00	37.PC_08	9 AAE-DE	7.495-00	1 875-05	1 135,07	2804.05	4015-06	1011	2415.01	2.78F±01	2.61F-04	201-101			
	i de la companya de l	1 5	<u>.</u> 1			1 80E-07	4505.05		- 82					1805.07	450E.05	1 DRE-03	3045.01	1.095.03	4 CONT. 10			
. =	CRC-other	. 9	5			5.055.05	1.26E-03							5.05E-06	1,265-03	3.03E-02	1.116+07	3.036-02	2536+00			
_	20C-other	8	92			2606-08	90-305'9							260E-08	6.50E-06	2000	5.69E-02	1,565.04	1,305.02			
_	100414	8	£			2.40E-04	6.00E-02	4,535-06	1.18E-03	1.186-05	2.91E-03	1.63E-05	4.07E-03	2565-04	6.41E-02	1.54E+00	5.81E+02	1.54E+00	1.28E+02			
PR (H) spungamp operation (H) PR	PBC-other	8	5			1.50E-05	3.75E-03							1.50E-05	3.75E-03	9,005-02	3.29E+01	9.005-02	7.505+00			
Methyt brandde (H)	74839	2	80(5,97E-07	1.49E-04		9,98E-05	70-396E	2.49E-04	9.96E-07	2495.05	5,985,03	2.185+00	5.88E-03	4.985-01			
Cumeric (H)	98828	2	984					0.00E+00	0.00E+00		1.146-03	4,57E-06	1.146-03	4.57E-06	1.14E-03	2.74E-02	3.00E+01	2.74E-02	2.29E+00			
Ethyl chloride (chloroethane) (H)	75003	8	ę.					0.00E+00	0.00E+00		2185-06	8.735.09	2.185-06	B.73E-09	2.18E-06	5.24E-05	1,94E-02	5.245-05	4,37E-09			
Methyl chizride (H)	74873	2	Q.					0.00E+00	0.00E+00	6.245.07	1.586.04	624E-07	2.566.52	6.24E-07	1.586.4	3.745.03	1.37E+00	3.746-03	3.125.01			
Aylene, o- (r.)	0/80%	2	Nece Service					0.800-00	1.745-03	ı	0.325-04	2000	CO. 100	0,000	2012/02	6.456.164	2.CUETU.	0.105-02	5.14E+U0 B			

POTENTIAL TAP EMISSION RATES (ARGENIC, NICKEL)

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - INPUT SCREEN REVISION D; October 15, 2015

NCDENR

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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Directions: Enter and select informa	ation in the	boxes that are	highlighted in	blue:		
General Facility Information						
COMPANY NAME:			Carolina Sunre	ock, LLC - B	urlington No	rth
FACILITY ID NUMBER:			1700016			
PERMIT NUMBER			10628Roo			
FACILITY CITY:			Burlington		1 1	
FACILITY COUNTY:			Caswell			
SPREADSHEET PREPARED BY:			LLG			
General Facility Information						
MAXIMUM HOURLY THROUGHPUT	AT TRUCK I	OAD OUT	120	(yd³/hour)		
ACTUAL ANNUAL PRODUCTION			1,051,200	(yd³/year)		
MAXIMUM ANNUAL PRODUCTION* *Default maximum annual productio iimit if applicable (i.e. for arsenic mo Facility Production Information		n hourly throug	1,051,200 hput times 8,76	(yd ³ /year) 0 hours per	year. Enter	another
PERCENT OF ANNUAL LOADOUT T	HROUGH TI	RUCK MIX	100	(% by volu	me)	
PERCENT OF ANNUAL LOADOUT T	HROUGH C	ENTRAL MIX	0	(% by volu		
Facility Emissions Control Informat	ion					
IS THERE A CONTROL DEVICE ON		MIX?	2	(1=No, 2=1	Yes)	
IS THERE A CONTROL DEVICE ON	THE CENTR	AL MIX?	1	(1=No, 2=	Yes)	
Material Composition Information					Typical No	C Comp.*
Cement			448	lbs	410	
Supplement			148	lbs	120	/bs
Coarse Aggregate			1980	lbs	1884	i ibs
Sand			1440	lbs	1443	3 lbs
Water			140	lbs	167	lbs
Total			4156	lbs	4024	l lbs
* North Carolina typical material composition is	based on data fi	rom industry conta	cts. User may enter	site-specific d	ata.	
15A NCAC 2D .0515 "Particulates fr	om Miscella	neous Industi	rial Processes"			
	Cement Silo	<u>Flyash silo</u>	Sand&Agg Weigh hopper	Truck mix ¹	Central mix ¹	

	Silo	<u>Flyash silo</u>	Weigh hopper	mix ¹	Ľ
Enter the process rate if different from default, otherwise leave blank					
Process Rate ²	25	25	205.200	240.96	
Maximum Allowable Emission Rate ³	35.4	35.4	58.8	60.5	
PM Emission Rate Before controls	18.250	78.500	0.985	52.210	
PM Emission Rate After Controls	0.025	0.223	0.001	1.001	
Assumed control device efficiency for	weigh hoppe	r ⁴	99.9%		
Complies with 2D .0515?	yes	yes	yes	yes	
Control device required to comply?	по	ves	no	no	Г

¹ Emission factors for truck/central mix include emissions from cament & supplement weigh hoppers.

ATTACHMENT ES

0.000 tons/hr 0.0 lbs/hr

yes no

0.0 lbs/hr 0.000 lbs/hr 0.000 lbs/hr

² Default process rate for silo loading is 25 tons per hour. Default process weight for sand & aggr weigh hopper includes only aggr & sand. Default process rate for truck mix and central mix includes all components except water since assumes water is added directly to truck.

³ Allowable emission rate should be calculated to 3 significant digits.

⁴ Default efficiency is 99.9% for bagfiiters. Enter 0 if weigh hopper is not controlled.

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - OUTPUT SCREEN REVISION D; October 15, 2015



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SOURCE/FACILITY/USER INPUT SUMMARY (FROM INPUT SCREEN)

General Facility Information

COMPANY NAME: FACILITY ID NUMBER:

PERMIT NUMBER FACILITY CITY:

FACILITY COUNTY:

SPREADSHEET PREPARED BY:

General Facility Information

MAXIMUM HOURLY THROUGHPUT AT TRUCK LOAD OUT ACTUAL ANNUAL PRODUCTION

Facility Production Information

PERCENT OF ANNUAL LOADOUT THROUGH TRUCK MIX
PERCENT OF ANNUAL LOADOUT THROUGH CENTRAL MIX

Facility Emissions Control Information

IS THERE A CONTROL DEVICE ON THE TRUCK MIX? IS THERE A CONTROL DEVICE ON THE CENTRAL MIX?

Material Composition Information

Cement

Supplement

Coarse Aggregate

Sand

Water

Total

Carolina Sunrock, LLC -	Burlington North
1700016	
10628R00	
Burlingyon	
Caswell	
LLG	

120	(yd³/hour)	
1051200	(yd ³ /year)	

100	(% by volume)	
0	(% by volume)	

2	(1=No, 2=Yes)	
1	(1=No, 2=Yes)	

		Typical NC Comp.*
448	lbs	410 lbs
148	lbs	120 lbs
1980	lbs	1884 lbs
1440	lbs	1443 lbs
140	lbs	167 lbs
4156	lbs	4024 lbs

^{*} North Carolina typical material composition is based on data from industry contacts. User may enter site-specific data.

overes, Proposition of the Color State of the Color of th		ACTUAL E	MISSIONS		POTENTIA	L EMISSIONS	
PARTICULATE EI	WISSIONS	(AFTER CONTR	(CLS/LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS	(ISMITS)
17.11.11.11.11.11.11.11.11.11.11.11.11.1	Pollutant	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
truck mix*	PM	1.001	4.386	52.210	228.678	1.001	4.386
	PM10	0.375	1.645	14.912	65.314	0.375	1.645
central mix*	PM	0.000	0.000	0.000	0.000	0.000	0.000
	PM10	0.000	0.000	0.000	0.000	0.000	0.000
cement silo	PM	0.027	0.117	19.622	85.946	0.027	0.117
	PM10	0.009	0.040	12.634	55.335	0.009	0.040
suppl. Silo	PM	0.079	0.346	27.883	122.128	0.079	0.346
	PM10	0.044	0.191	9.768	42.784	0.044	0.191
weigh hopper**	PM	0.985	4.314	0.985	4.314	0.985	4.314
[sand & aggr.]	PM10	0.575	2.517	0.575	2,517	0.575	2.517
sand & aggr.	PM	3.003	13.155	3,003	13.155	3.003	13.15
	PM10	1.433	6.275	1.433	6.275	1.433	6.27
TOTAL PM	PM	5.095	22.318	103.704	454.222	5.095	22.318
TOTAL PM10	PM10	2.435	10.667	39.321	172,225	2,435	10.667
Title V Potential	PM10			-2 (a 1)	TENNER T		0.231

**Actual/Potential weigh hopper (sand & aggr) emissions assumed uncontrolled since AP-42 reports "no data" for controlled.

CONCRETE BATCH PLANT EMISSIONS CALCULATOR - OUTPUT SCREEN REVISION D; October 15, 2015



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POLLUTANT	CAS NUMBER	ACTUAL	EMISSIONS		POTEN	TIAL EMSSIONS	
POLLUTANT	ONG NUMBER	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	ITROLS / L(MITS)	(AFTER CONTR	OLS/LIMITS)
		lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Arsenic Unlisted Compounds (TH)	ASC-OTHER	6.59E-05	5.77E-01	2.49E-03	2.18E+01	6.59E-05	5.77E-01
Beryllium metal (TH)	7440-41-7	4.53E-06	3.97E-02	1.00E-05	8.77E-02	4.53E-06	3.97E-02
Cadmium Metal (TH)	7440-43-9	5.00E-07	4.38E-03	7.69E-06	6.74E-02	5.00E-07	4.38E-03
Chromic Acid (TH)	7738-94-5	1.58E-04	1.39E+00	4.25E-04	3.73E+00	1.58E-04	1.39E+00
Lead Unlisted Compounds (H)	PBC-OTHER	5.96E-05	5.22E-01	1.32E-03	1.16E+01	5.96E-05	5.22E-01
Manganese Unlisted compounds (TH)	MNC-OTHER	7.49E-04	6.56E+00	7.67E-03	6.72E+01	7.49E-04	6.56E+00
Nickel metal (TH)	7440-02-0	1.92E-04	1.68E+00	9.19E-04	8.05E+00	1.92E-04	1.68E+00
Phosphorus Metal Yellow or White (H)	7223-14-0	4.71E-04	4.13E+00	1.72E-03	1.51E+01	4.71E-04	4.13E+00
Selenium compounds (H)	SEC	4.68E-06	4.10E-02	9.43E-05	8.26E-01	4.68E-06	4.10E-02
Total HAPs		1,71E-03	1.49E+01	1.47E-02	1.28E+02	1.71E-03	1.49E+01
Highest HAP Manganese		7.49E-04	6.56E+00	7.67E-03	6.72E+01	7.49E-04	6.56E+00

EXPECTED EMISSIONS AFTER CONTROLS / LIMITATIONS
(Daily calculations are based on maximum hourly plant capacity operating at 24 hours per day. If over the TPER, the facility should more closely analyze the maximum daily emisions based on actual operation. Annual calculations are based on the actual annual production as entered on the INPUT worksheet.)

POLLUTANT	CAS NUMBER	lb/hr	lb/day	lb/yr
Arsenic Unlisted Compounds (TH)	ASC-OTHER			0.5769
Beryllium metal (TH)	7440-41-7			0.040
Cadmium Metal (TH)	7440-43-9			0,004
Chromic Acid (TH)	7738-94-5		0.0038	
Manganese Unlisted compounds (TH)	MNC-OTHER	The second of the second secon	0.018	
Nickel metal (TH)	7440-02-0		0,005	

DATE BY 1700016 10628R00 I.D. NO. PERMIT NO. FACILITY Carolina Sunrock - Burlington North

LOCATION Caswell

7/20/2021

FACILITY-WIDE EMISSIONS SUMMARY

POTENTIAL EMISSIONS BEFORE CONTROLS/LIMITS

ton HMA-H1 HMA-H1&HMA-H2		1		Ž	3	Š	lotal HAP	Highest HAP
	n/yr	ton/yr		ton/yr	ton/yr	ton/yr	ib/yr	lb/yr
	86.42	38.93		61.66	145.48	52.69	22,500.00	6,980.00 Formaldehyde
	0.24	0.07	0.02	1.44	0.36	0.01	21.00	11.50 Toluene
	54.22	172,23		0.00	0.00	0.00	128.00	67.20 Manganese
	2.37	0.47		0.00	0.00	0.00	0.00	0.00
	1.32	0.38		0.00	0.00	0.00	0.00	0.00
	0.22	0.11		0.00	0.00	0.00	0.00	0.00
Stockpiles-Wind	90.0	0.03		0.00	0.00	0.00	0.00	00:00
OTALS 54	344.85	212.22	665.81	63.10	145.84	52.70	22,649.00 11.325	6,980.00 Formaldehyde 3.490
	<u>=</u>	38.93 + 0.07	$88.93 + 0.07 + 0.23^2 + 0.99^3 = 40.22$).99³ = 40.2	2)		ton/yr	ton/yr

POTENTIAL EMISSIONS AFTER CONTROLS/LIMITS

SOURCE	PM				8	VOC		Highest HAP
	ton/yr				ton/yr	ton/yr		lb/yr
HMA-1					33.49	12.05		1,600.00 Formaldehyde
¹ НМА-Н1 & НМА-Н2	0.24		0.02	1.44	96.0	0.01	21.00	11.50 Toluene
2 RMC - Conc. Plant					0.00	0.00		6.56 Manganese
Paved Roads-Fugitive					0.00	0.00		
Unpaved Roads-Fug					0.00	0.00		
Stockpiles-Unloading					0.00	0.00		
Stockpiles-Wind		0.03			0.00	0.00		
TOTALS	38.05	19.00 8.56	26.06	16.63	33.85	12.06	5,175.90	1,600.00 Formaldehyde 0.800
		$(7.27 + 0.07 + 0.23^2 + 0.99^3 = 8.56)$	+0.232+0	$.99^3 = 8.56$			ton/yr	ton/yr
1.0. 1.00.								

¹ Using ULSD Fuel Oil having 0.0015% suffur content.

In addition, the EPA considers the bagfilter for the cement and fly ash silos to be integral. Therefore, the facility does not trigger Synthetic Minor for PM10. because the EPA considers emissions from cement/fly ash scales (weigh batchers) and truck loading operations to be fugitive and uncontrolled. ² For Title V applicability, only emissions from the cement and fly ash storage silos after controls are considered from the Concrete Batch Plant,

³ Combined fugitive emissions from paved/unpaved roads and stockpiles, also not considered with regard to Title V applicability