

# Air Quality Construction Permit Application CAROLINA SUNROCK LLC • PROSPECT HILL, NORTH CAROLINA



Environmental Quality Received

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# **1.1. EXECUTIVE SUMMARY**

Carolina Sunrock LLC (Carolina Sunrock) currently owns and operates several hot mix asphalt and concrete batching plants across North Carolina. Carolina Sunrock plans to build a new hot mix asphalt, truck mix concrete batch plant, and quarry at 1238 Wrenn Road in Prospect Hill, Caswell County, North Carolina. Carolina Sunrock also operates a separate Prospect Hill site located at 57 Wrenn Road. Therefore, to differentiate between the two Prospect Hill facilities, this site will be called Prospect Hill Quarry and Distribution Center.

For this proposed facility, Carolina Sunrock is requesting a construction and operating permit be issued in accordance with Title 15A of North Carolina Administrative Code (15A NCAC) Chapter 2Q.0304 and 2Q.0305. In accordance with 15A NCAC 2Q.0305(a)(1), the required number of copies (3) have been included as required by Rule 2Q.0305(b), and the copies have been signed as required by Rule 2Q .0304(j).

The new facility will be a synthetic minor facility for particulate matter (PM) emissions and carbon monoxide (CO) and an area source of hazardous air pollutants (HAPs). Therefore, the permit application fee for a new synthetic minor facility (\$400) is enclosed as required under 2Q.0304(k) and 2Q.0305(a)(1)(A). Furthermore, as required by 2Q.0304(b)(1), a zoning consistency determination has been submitted as part of this application.

# **1.2. APPLICATION CONTENTS**

Three copies of this air permit application and application processing fee of \$400 are enclosed. This application contains the following information:

- Section 2 provides a project description and discusses air emissions,
- Section 3 discusses regulatory applicability,
- Section 4 contains the air dispersion modeling analysis,
- Section 5 provides general facility permit application forms,
- Section 6 provides source specific permit application forms,
- Appendix A1 contains facility-wide emission summaries,
- Appendix A2 contains combustion source emission summaries,
- Appendix A3 contains DEQ spreadsheet calculations for the HMA plant,
- Appendix A4 contains DEQ spreadsheet calculations for the concrete batch plant,
- Appendix A5 contains DEQ spreadsheet calculations for the quarry operations,
- Appendix B contains the modeling files and protocol,
- Appendix C presents a copy of the local zoning consistency request submitted to the local zoning department, and
- Appendix D contains the quarry operations equipment list and process flow diagram.

# 2.1. BACKGROUND

Carolina Sunrock is submitting this application to build a new hot mix asphalt (HMA), truck mix concrete batch plant, and quarry in Prospect Hill, North Carolina. The facility requests following permitted manufacturing operations be included as emission sources in the permit:

- > Hot mix asphalt plant
- > RAP crushing system
- > Truck mix batch concrete plant
- > Quarry operations
- > Electricity generation (power generators)

The new plant's processes are discussed in detail in Section 2.2. Facility-wide potential emission estimates associated with the facility's operations are included in Appendix A.

A detailed description of the production process and associated emissions sources are provided in the following subsections. NCDEQ's source-specific application forms are included in Section 6 of this application.

# **2.2. PROCESS DESCRIPTION**

### 2.2.1. Hot Mix Asphalt Plant

Carolina Sunrock is proposing the following emission sources associated with a hot mix asphalt plant (250 tons per hour capacity) consisting of:

- 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 MMBtu/hr maximum heat input capacity) – controlled by a 45,000 cfm bagfilter
- > Two (2) hot mix asphalt storage silos (150 tons maximum capacity, each)
- > Three (3) hot mix asphalt storage silos (200 tons maximum capacity, each)
- > Asphalt loadout operation
- > Truck loadout operation

In association with the asphalt plant, Carolina Sunrock is also proposing a reclaimed asphalt pavement (RAP) crushing system consisting of:

- > One crusher (65 tph)
- > One RAP bin and feeder
- > One double deck screen
- > Six conveyors

The RAP crushing system will also periodically use a mobile crusher (also rated at 65 tph) which may temporarily reside at the new Prospect Hill 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. This exemption is discussed further in Section 3.5.12.

### 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 (150 tons maximum capacity)
- Truck loadout point
- > Cement/flyash weight batcher (5 tons maximum capacity)
- > Aggregate weigh batcher (20 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 6500 cfm bagfilter.

# 2.2.3. Quarry Operations

Carolina Sunrock is proposing to operate a quarry operation with a 1500 ton per hour primary crushing, secondary crushing, aggregate screening/washing, and aggregate conveyance. There will be several diesel-fired generators associated with certain quarry equipment such as primary crushers, screens, and cone crushers, and are listed below:

Emission Source ID	Rating	Units
GEN-1 (J50V2)	350	hp
GEN-1a (J45)	350	hp
GEN-2 (S190dt)	125	hp
GEN-3 (PS1300 Maxtrack)	440	hp
GEN-4 (TF80)	125	hp
GEN-5 (PS1300 Maxtrack)	450	hp
GEN-7 (PS100 Maxtrack)	350	hp

The full equipment list and process flow diagram for the quarry are included in Appendix D of this application.

Quarry operations (that are not wet material processing operations) will be subject to NSPS Subpart 000, discussed in Section 3.4.2 below. The diesel generators used to power certain quarry equipment (listed above) will be subject to the RICE MACT (40 CFR 63 Subpart ZZZZ) and subsequently the NSPS Subpart IIII for compression ignition RICE, discussed in Section 3.4.4.

### 2.2.4. Large Natural Gas/Propane Power Generators

The facility will use electricity generated by large natural gas/propane fired generators. Two generators are rated at 2065 hp and one is rated at 1721 hp. Propane will likely only be used for a few weeks during plant startup until the natural gas pipeline is completed. Therefore, to be able to combust either fuel the plant requests the engines be permitted as natural gas and/or propane-fired units.

The potential emissions from these large generators are based on 8,760 hrs/year of operation since they are providing electricity to the site and may be run continuously. The generators will be model year 2019 or later depending on when construction commences at the site; therefore, the generators will be subject to NSPS Subpart JJJJ for spark ignition RICE (discussed in Section 3.4). Each generator will be equipped with catalytic oxidation to mitigate CO emissions.

Potential emissions are included in Appendix A. AP-42 emission factors were used for all pollutants except for NOx, CO, and VOC. The vendor-provided NOx and CO emission factors were used to estimate NOx and CO emissions for each generator. The NSPS emission standard for VOC was used to estimate VOC emissions from each generator.

In order to avoid major source status under Title V, the facility is requesting an operational limitation on the generators such that only two out of three generators may run simultaneously. For conservatism, this application assumes the two largest engines may run at the same time.

### 2.2.5. Insignificant Activities

Carolina Sunrock is proposing the following insignificant activities which are exempt from permitting (See Form D4 in Section 5):

- IES-1 Used Oil Storage Tank associated with asphalt plant (20,000 gallon capacity);
- > IES-2 Used Oil Storage Tank associated with asphalt plant (20,000 gallon capacity);
- IES-3 Liquid Asphalt Tank (30,000 gallon capacity);
- IES-4 Liquid Asphalt Tank (30,000 gallon capacity);
- > IES-5 Diesel Fuel Storage Tank associated with asphalt plant (20,000 gallon capacity);
- > IES-6 Diesel Fuel Storage Tank associated with asphalt plant (20,000 gallon capacity);
- IES-13 Diesel Fuel Storage tank associated with quarry (20,000 gallon capacity);
- > IES-14 Diesel Fuel Storage tank associated with quarry (20,000 gallon capacity);
- > IES-15 Propane Storage Tank (100,000 gallon capacity);
- > IES-16 Natural gas/No. 2 fuel oil-fired Asphalt Cement Heater (1.2 MMBtu/hr); and
- IES-17 Natural gas/No. 2 fuel oil-fired Liquid Asphalt Tank Heater (1.1 MMBtu/hr).

# 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.

The DEQ spreadsheets used for the HMA, concrete batch, and quarry emissions included in Appendix A include emission estimates at a maximum 8760 hours per year of operation. The Emission Summary table on Page 1 in Appendix A includes a summary of the controlled potential emissions at full maximum operation of 8760 hours per year. Table 1 also includes a summary of the potential emissions in tons per year after applying the synthetic minor limitations.

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

Production of the HMA plant (maximum design production of 250 tph) will be capped at 40% of maximum annual operation. Therefore, 250 tph \* 8760 hrs/yr = 2,190,000 tpy \* 40% = 876,000 tpy

Therefore Carolina Sunrock requests an annual production limitation of 876,000 tpy for the HMA plant.

Production of the quarry operations (maximum design production of 1500 tph) will be capped based on a maximum of 4745 hours per year of operation. Therefore, 1500 tph \* 4745 hrs/yr = 7,117,500 tpy

Therefore, Carolina Sunrock requests an annual production limitation of 7,117,500 tpy for the quarry operations. No limit on operating hours is proposed.

- Operation of the large natural gas/propane-fired power generators (each equipped with catalytic oxidation) will be limited to only operating two out of three of the generators simultaneously. Therefore, the generators cannot run more than 17,520 hours per year.
- > The facility requests no limitation on the concrete batch operations.

# 3.1. TITLE V APPLICABILITY

40 CFR Part 70 establishes the federal Title V operating permit program. North Carolina has incorporated the provisions of this federal program in its Title V operating permit program under 15A NCAC 2Q .0500. The major source thresholds with respect to the North Carolina Title V operating permit program regulations are 10 tons per year of a single HAP, 25 tpy of any combination of HAP, 100 tpy of certain other regulated pollutants, and 100,000 tpy for CO<sub>2</sub>e.

The facility is a synthetic minor source because potential uncontrolled emissions for particulate matter (PM) and carbon monoxide (CO) exceeds the applicable threshold of 100 tpy. The facility is a minor source of HAPs because potential uncontrolled HAP emissions are less than 10/25 tpy.

### **3.2. PSD APPLICABILITY**

North Carolina has implemented the federal PSD requirements of 40 CFR 51.166 under North Carolina Regulation 15A NCAC 2D .0530. Under the PSD regulations, a major stationary source for PSD is defined as any source in one of the 28 named source categories with the potential to emit 100 tpy or more of any regulated pollutant, or any source not in one of the 28 named source categories with the potential to emit 250 tpy or more of any regulated pollutant other than carbon dioxide equivalent (CO<sub>2</sub>e), for which the threshold is 100,000 tpy.<sup>1</sup> The facility does not qualify for classification in one of the 28 listed source categories; therefore, the facility's major source threshold for PSD is 250 tpy.

As shown in Appendix A, emissions of PSD-regulated compounds are below PSD thresholds, therefore the facility is not a major stationary source in regards to PSD regulations.

### **3.3. NESHAP APPLICABILITY**

Potential emissions of HAPs are not greater than the major source thresholds of 10/25 tpy for HAPs. Therefore, Carolina Sunrock is a minor source of HAPs.

### 3.3.1. Stationary Reciprocating Internal Combustion Engines MACT [40 CFR 63 Subpart ZZZZ]

40 CFR 63 Subpart ZZZZ applies to reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions. This facility will be an area source of HAPs. A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile.

This facility is proposing three large spark ignition engines to provide electricity generation to the site (ES-PGEN1 through ES-PGEN3). The facility will also be installing diesel fired compression ignition engines for certain quarry equipment (see list in 2.2.3).

<sup>1</sup> 40 CFR §52.21(b)(1)(i)

Stationary RICE at area sources are considered new if construction commences on or after June 12, 2006 (§63.6590(a)(2)(iii)); therefore, all the engines permitted in this application will be new sources.

Per §63.6590(c), a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR 60 Subpart IIII, for compression ignition engines, and 40 CFR 60 Subpart JJJJ, for spark ignition engines. See Section 3.4.3 for more information regarding NSPS Subpart IIII and Section 3.4.4 for Subpart JJJJ.

### **3.4. NSPS APPLICABILITY**

# 3.4.1. Standards of Performance for Hot Mix Asphalt Facilities NSPS [40 CFR 60 Subpart I]

The provisions of this subpart are applicable to hot mix asphalt facilities that commence construction or modification after June 11, 1973; therefore this rule applies to Carolina Sunrock's hot mix asphalt plant (ID No. HMA-1).

### 3.4.1.1. Emission Standards

In accordance with §60.92, Carolina Sunrock must not discharge into the atmosphere any gases which:

- Contain PM in excess of 90 mg/dscm (0.04 gr/dscf)
- > Exhibit 20 percent opacity, or greater.

### 3.4.1.2. Testing Requirements

Per §60.93, the facility shall conduct a performance test as required in §60.8, using the following test methods:

- > Method 5 for determining compliance with PM standard
- Method 9 and §60.11 procedures for determining opacity

### 3.4.2. Standards of Performance for Nonmetallic Mineral Processing Plants NSPS [40 CFR 60 Subpart OOO]

Per §60.670(a)(1), the provisions of this subpart are applicable to crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in RAP up to the first storage silo or bin. Therefore, the RAP Crushing System at the facility is subject to this regulation including the RAP crusher, conveyor, and screen. The quarry operations are also subject to this standard.

#### 3.4.2.1. Emission Standards

In accordance with table 3 and §60.672(b), for affected facilities that commence construction after April 22, 2008, the fugitive emission limit for the RAP Crushing System and quarry crushers (crusher only) is 12 percent opacity. For the RAP and quarry conveyors and screens, the fugitive emissions limit is 7 percent opacity.

The facility must demonstrate compliance with these limits by conducting an initial performance test per §60.11 and §60.675 and perform periodic inspections of water sprays per §60.674(b) and §60.676(b). The facility must also perform a repeat performance test within 5 years from the previous performance test from affected facilities without water sprays (facilities controlled by water carryover from upstream water sprays that are inspected are exempt from the repeat testing requirement).

### 3.4.2.2. Exemption for Portable Crushers

The facility may also periodically utilize a portable RAP crushing system that moves from site to site. It is exempt from Subpart 000 in accordance with 60.670(c)(2) since its capacity is 65 tons per hour, which is less than the 150 tons per hour threshold specified in this exemption. This portable crusher is also exempt from permitting per 15A NCAC 2Q .0902 which is further discussed in Section 3.5.12.

### 3.4.3. NSPS Subpart Subpart IIII - Stationary Compression Ignition Internal Combustion Engines

The NSPS Subpart IIII applicability definition provides:

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition(CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section....

(1) Manufacturers of stationary CI ICE with a displacement of less than 10 liters per cylinder where the model year is:

i. 2007 or later, for engines that are not fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July

11, 2005 where the stationary CI ICE are:

i. Manufactured after April 1, 2006 and are not fire pump engines.

The diesel fired generators associated with quarry equipment, described in Section 2.2.3 above, are non emergency generators (model year 2019 or later depending on the date construction begins) that combust ultra-low sulfur diesel (ULSD). The date of manufacture for the engine and date of construction will occur after the applicability dates specified above. Therefore, the generators are subject to the provisions of Subpart IIII.

Because the engines will be used to operate certain quarry equipment for non-emergency purposes and cylinder displacement is less than 10 liters/cylinder, the engine is subject to the emission limits in 40 CFR §60.4201 and the fuel specifications of 40 CFR 60.4207.

The proposed generator must meet the following Tier 4 emissions and opacity standards:

- > 0.67 grams per kilowatt hour (g/kw-hr) of NOX,
- > 0.19 grams per kilowatt hour (g/kw-hr) of HC<sup>2</sup>
- > 3.5 g/kw-hr of CO, and
- ➢ 0.03 g/kw-hr of PM.

As provided in 40 CFR §60.4211(c), to demonstrate compliance with these emission standards, Carolina Sunrock will purchase certified engines to meet the emission limits listed 40 CFR 60.4201, and will install and configure the engines according to the manufacturer's specifications. No performance testing is required.

Effective October 1, 2010, only diesel fuel that meets the requirements set forth in 40 CFR §80.510(b) may be used in accordance with 40 CFR §60.4207(b). This regulation states that the sulfur content must remain less than or equal to 15 ppm, and either the cetane index must be at least 40, or the aromatic content must be less than or equal to 35 volume percent.

### 3.4.4. NSPS Subpart Subpart JJJJ - Stationary Spark Ignition Internal Combustion Engines

The NSPS Subpart JJJJ applicability definition provides:

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section...

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(6) The provisions of §60.4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.

The three natural gas/propane-fired generators (each equipped with catalytic oxidation) are subject to Subpart JJJJ since they are larger than 500 hp and will commence construction after the applicability dates specified above.

According to §60.4233(e), the facility's large power generators are subject to the emission standards in Table 1 for Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG greater than 500 hp (manufactured after July 1, 2010) must comply with the following emission standards:

➤ 1.0 grams per horsepower hour (g/hp-hr) of NO<sub>X</sub>,

> 2.0 g/hp-hr of CO, and

▶ 0.7g/hp-hr of VOC.

To meet the compliance requirements of §60.4243(b)(1), Carolina Sunrock plans to purchase certified engines where the engine and control device (i.e., catalytic oxidation) are operated and maintained according to the manufacturer's emission-related instructions. The facility will keep records of conducted maintenance to demonstrate compliance. The engine settings will only be adjusted according to and consistent with the manufacturer's instructions. If the site purchases a certified natural gas engine and combusts only natural gas, there are no requirements to keep a maintenance plan, conducting performance tests, or submitting an initial notification.

If the site purchases a certified natural gas unit but combusts propane as the fuel, the site shall treat the unit as a non-certified engine. As such, when combusting propane, the site will demonstrate compliance as follows: Uncertified engines > 500 HP must keep maintenance plan and records demonstrating compliance, conduct initial performance testing within 60 days of startup and subsequent testing every 8760 hours or three years, whichever comes first. An Initial Notification

must be submitted in accordance with 40 CFR 60.7(a)(1) for all SI ICE > 500 HP that have not been certified to meet emissions standards in NSPS JJJJ.

### 3.4.5. Non-Applicable NSPS

The basis for non-applicability of a potential NSPS is provided below.

**Subpart Kb:** Subpart Kb applies to volatile organic liquid storage vessels with a volume greater than 75 m<sup>3</sup> (19,813 gallons). In addition, tanks with capacities of greater than 151 m<sup>3</sup> (39,890 gallons), containing VOCs with a vapor pressure less than 3.5 kPa (0.5 psia) are exempt from this NSPS. This project will add several storage tanks for storing ULSD, used oil, liquid asphalt, and pressurized propane, which all have vapor pressures below the applicability cutoff per AP-42 Table 7.1-2, and are therefore exempt from this regulation.

### **3.5. NORTH CAROLINA REGULATIONS**

The applicability of key North Carolina State Implementation Plan (SIP) regulations is discussed below.

### 3.5.1. Particulates from Hot Mix Asphalt Plants (15A NCAC 2D .0506)

Particulate matter emissions resulting from the operation of a hot mix asphalt plant shall not exceed allowable emission rates. The allowable emission rates are, as defined in 15A NCAC 2D .0506, a function of the process weight rate and shall be determined by the following equation (calculated to three significant figures), where P is the process throughput rate in tons per hour (tons/hr) and E is the allowable emission rate in pounds per hour (lbs/hr).

 $E = 4.9445 * (P) ^{0.4376}$  for P < 300 tons/hr, or E = 60 lbs/hr for P >=300 tons/hr

Since the process weight rate is 250 tons/hour, the allowable emission rate is 55.4 lb/hr. Controlled PM emissions are 1.28 lb/hr, well under the allowable emission rate.

# 3.5.2. Particulates from Sand, Gravel, or Crushed Stone Operations (15A NCAC 2D .0510)

This regulation applies to the RAP crushing system and quarry operations at Carolina Sunrock.

As required by 15A NCAC 2D .0510 "Particulates from Sand, Gravel, or Crushed Stone Operations," the following requirements apply:

a. The Permittee of a sand, gravel, recycled asphalt pavement (RAP), or crushed stone operation shall 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 to prevent exceeding the ambient air quality standards beyond the property line for particulate matter, both PM<sub>10</sub> and total suspended particulates.

- b. Fugitive dust emissions from sand, gravel, RAP, or crushed stone operations shall be controlled by 15A NCAC 2D .0540 "Particulates from Fugitive Dust Emission Sources."
- c. The Permittee of any sand, gravel, RAP, or crushed stone operation shall control process-generated emissions:
  - i. From crushers with wet suppression (excluding RAP crushers); and
  - ii. From conveyors, screens, and transfer points

such that the applicable opacity standards in 15A NCAC 2D .0521 Control of Visible Emissions," or 15A NCAC 2D .0524 "New Source Performance standards" are not exceeded.

# 3.5.3. Particulates from Miscellaneous Industrial Processes (15A NCAC 2D .0515)

This regulation applies to the following truck mix concrete batch plant emission sources: cement/flyash weigh batcher, cement/flyash silos, aggregate weigh batcher, and truck loadout point.

As required by 15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes," particulate matter emissions from the emission sources shall not exceed allowable emission rates. The allowable emission rates are, as defined in 15A NCAC 2D .0515, a function of the process weight rate and shall be determined by the following equation(s), where P is the process throughput rate in tons per hour (tons/hr) and E is the allowable emission rate in pounds per hour (lbs/hr).

 $E = 4.10 * (P) {}^{0.67} for P <= 30 tons/hr, or$  $E = 55 * (P) {}^{0.11} - 40 for P > 30 tons/hr$ 

See Appendix A, Concrete Batch Plant Emissions Calculator – Input Screen, for the allowable emission rate calculation for each source. The emission rate from each source is less than the maximum allowable emission rate, and thus shows compliance with this regulation.

# 3.5.4. Control of Visible Emissions (15A NCAC 2D .0521)

Visible emissions from the HMA plant, concrete batch plant, and quarry's emission sources, manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. However, sources which must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.

### 3.5.5. Particulates from Fugitive Dust Emission Sources (15A NCAC 2D .0540)

The facility shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or

excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 2D .0540(f).

"Fugitive dust emissions" means particulate matter that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

# 3.5.6. Sulfur Dioxide Emissions from Combustion Sources (15A NCAC 2D .0516)

As required by 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources," sulfur dioxide emissions from the combustion sources shall not exceed 2.3 pounds per million Btu heat input. The combustion sources proposed in this application will comply with this regulation through combusting natural gas, propane, or ultra low sulfur diesel fuel.

### 3.5.7. New Source Performance Standards (15A NCAC 2D .0524)

For Propane/Natural Gas/No. 2 fuel oil/recycled No. 2 fuel oil/No. 4 fuel oil/recycled No.4 fuel oil fired batch type hot mix asphalt plant (250 tons/hour maximum capacity, 80 MMBtu/hr maximum heat input) (ID No. ES-1), the facility shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in 15A NCAC 2D .0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, Subpart I, including Subpart A "General Provisions."

For the nonmetallic mineral processing equipment (RAP Crushing System and quarry operations), the facility shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in 15A NCAC 20.0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, Subpart OOO including Subpart A General Provisions.

The power generators and diesel fired quarry equipment generators will be subject to NSPS Subpart JJJJ and IIII, respectively.

See Section 3.4 for further details.

### 3.5.8. Excess Emissions Reporting and Malfunctions (15A NCAC 2D .0535)

As required by 15A NCAC 2D .0535, if a source of excess emissions lasts for more than four hours and results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, the facility shall:

a. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:

i. the name and location of the facility,

ii. the nature and cause of the malfunction or breakdown,

iii.the time when the malfunction or breakdown is first observed,

iv. the expected duration, and

- v. an estimated rate of emissions.
- b. Notify the Director or his designee immediately when the corrective measures have been accomplished.

### 3.5.9. Control and Prohibition of Odorous Emissions (15A NCAC 2D .1806)

The facility shall not operate without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

### 3.5.10. Limitation to Avoid Title V Permit (15A NCAC 2Q .0501)

Pursuant to 15A NCAC 2Q.0315 "Synthetic Minor Facilities," to avoid the applicability of 15A NCAC 2Q.0501 "Purpose of Section and Requirement for a Permit," Carolina Sunrock requests that facility-wide emissions be limited to less than 100 tons per consecutive 12-month period for the following pollutants:

- > PM
- > CO

The facility requests the limitations discussed in Section 2.3 above.

### 3.5.11. Toxic Air Pollutant Procedures (15A NCAC 2Q .0700)

Under the NC air toxics program regulations, facility-wide modeling and permitting is required if total facility-wide emissions of regulated air toxics emitted from non-exempt, new or modified emission units exceed the toxics de minimis emissions rates (a.k.a., "TPERS") established under the 15A NCAC 2Q .0700 regulations.

Carolina Sunrock has triggered modeling for the following pollutants since total facility wide emissions exceed the respective TPERs: arsenic, benzene, cadmium, formaldehyde, and nickel. Therefore, Carolina Sunrock is submitting an air dispersion modeling analysis (See Section 4) and requests TAP limits be added to the permit according to Table 4-6 in the following section.

# 3.5.12. Permit Exemptions - Temporary Crushers (15A NCAC 2Q .0902)

The facility may periodically use a mobile RAP crushing system that moves around other Carolina Sunrock sites. This temporary crusher has a maximum capacity of 65 tons per hour. It is exempt from permitting since it meets the criteria specified in 2Q .0902 and will not be operated at this facility for more than 12 months. In addition, the crusher:

- Will crush no more than 300,000 tons at the facility
- Will burn no more than 17,000 gallons of diesel fuel at the facility
- Does not operate at a quarry that has an air permit
- Will continuously use water spray to control emissions from the crusher, and
- Does not operate at a facility that is required to have a mining permit issued by Division of Energy, Mineral, and Land Resources.

The diesel fired emergency generator associated with this temporary crusher was not included in the TAP modeling demonstration since it is exempt from permitting and will only be operated on a short term basis. The generator is also subject to RICE MACT (40 CFR 63, Subpart ZZZZ).

This section presents the input data and modeling methodology utilized in the TAP modeling compliance demonstration. The modeling methodology conforms to the Guidelines for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina (May 2018) and more recent changes posted on NCDAQ's Air Quality Analysis Branch (AQAB) website. In lieu of a modeling protocol, a protocol checklist is provided in Appendix B.

As previously discussed, potential emissions of five (5) compounds regulated under 15A NCAC 2Q .0700 (NC Air Toxics) exceed their TPER and this air dispersion modeling evaluation has been conducted to demonstrate compliance with all applicable AAL.

# 4.1. FACILITY LOCATION

Figure 4-1 provides a topographical map of the area surrounding the Carolina Sunrock Prospect Hill property. The approximate central Universal Transverse Mercator (UTM) coordinates of the facility are 664.4 kilometers (km) east and 4,018.7 km north in Zone 17 (NAD 83).

For modeling purposes, the appropriate urban/rural land use classification for the area was determined using the Auer technique, which is recommended in the *Guideline on Air Quality Models*. In accordance with this technique, the area within a 3-km radius of the facility was identified on US Geological Survey (USGS) topographic maps (and was delineated by land use type). More than 50 percent of the surrounding land use can be classified as undeveloped rural (i.e., Auer's A4 classification), therefore the area is classified as rural.





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# **4.2. MODEL SELECTION**

The AERMOD dispersion model (version 19091) was used to calculate off-property concentrations in the modeling analysis. AERMOD was promulgated as the preferred model in 40 CFR 51, Appendix W on November 9, 2005 and is recommended by the NCDAQ for evaluating criteria and toxic air pollutant concentrations from industrial facilities such as Carolina Sunrock's Prospect Hill #2 facility.<sup>2</sup> AERMOD was run using the regulatory default option, which automatically implements NCDAQ and U.S. EPA recommended model options.

## **4.3. SOURCE DESCRIPTION**

Tables 4-1 and 4-2 presents a table of the modeled point and volume sources, respectively, including their locations at the facility. All locations are expressed in UTM Zone 18 (NAD83) coordinates.

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	Model ID	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
╞			·		()
	PGEN1	Power Engine 1	664,047.9	4,018,679.7	205.0
	PGEN2	Power Engine 2	664,050.7	4,018,673.3	205.2
ł	PGEN3	Power Engine 3	664,053.4	4,018,667.0	205.4
	CD1	Asphalt Plant Baghouse	664,069.6	4,018,718.7	204.6
	IES4	Asphalt Heater	664,066.8	4,018,732.0	204.7
	IES5	Liquid Asphalt Heater	664,071.1	4,018,735.0	204.8
	HMASIL01	Asphalt Silo 1 Vent	664,109.1	4,018,719.0	205.1
I	HMASILO2	Asphalt Silo 2 Vent	664,112.0	4,018,721.4	205.1
I	HMASILO3	Asphalt Silo 3 Vent	664,115.0	4,018,723.7	205.0
	HMASILO4	Asphalt Silo 4 Vent	664,117.9	4,018,726.2	204.9
l	HMASIL05	Asphalt Silo 5 Vent	664,106.1	4,018,716.5	205.2
	CD2	<b>Concrete Plant Baghouse</b>	664,155.2	4,018,786.6	202.2
	GEN1	Quarry Generator	664,799.0	4,018,997.2	191.0
	GEN1A	Quarry Generator	665,048.1	4,018,924.3	186.6
	GEN2	Quarry Generator	664,815.4	4,019,139.4	190.8
	GEN3	Quarry Generator	664,617.9	4,018,936.2	199.0
	GEN5	Quarry Generator	664,627.5	4,018,930.4	198.4
	GEN7	Quarry Generator	664,636.8	4,018,891.0	197.4
	GEN4	Quarry Generator	665,031.3	4,019,118.9	188.2
L					

#### Table 4-1. Modeled Point Source Locations

<sup>&</sup>lt;sup>2</sup> 40 CFR 51, Appendix W–*Guideline on Air Quality Models*, Appendix A.1– AMS/EPA Regulatory Model (AERMOD).

### Table 4-2. Modeled Volume Source Locations

Model ID	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
HMALO1	Asphalt Loadout 1	664,109.1	4,018,719.0	205.1
HMALO2	Asphalt Loadout 2	664,112.0	4,018,721.4	205.1
HMALO3	Asphalt Loadout 3	664,115.0	4,018,723.7	205.0
HMALO4	Asphalt Loadout 4	664,117.9	4,018,726.2	204.9
HMAL05	Asphalt Loadout 5	664,106.1	4,018,716.5	205.2

Tables 4-3 and 4-4 present the stack parameters input to the model for each of the point and volume sources, respectively. The stacks for sources IES4 and IES5 are vertical stacks but will have raincaps and thus, per NCDAQ guidance, were modeled with an exit velocity of 0.01 m/s. The HMASILO vents are characterized as point sources with ambient release characteristics, so per NCDAQ guidance, were modeled with an exit velocity of 0.01 m/s and exit temperature of 25 deg. C. The volume source parameters were calculated based on NCDAQ *Guidance* for surface-based volume sources.

Model ID	Stack Height (m)	Exit Temp. (K)	Exit Velocity (m/s)	Stack Diameter (m)
PGEN1	5.18	788.71	22.02	0.15
PGEN2	5.18	788.71	22.02	0.15
PGEN3	5.18	788.71	22.02	0.15
CD1	9.22	388.71	29.41	0.96
IES4	2.74	435.93	0.01	0.30
IES5	4.57	435.93	0.01	0.05
HMASILO1	19.81	298.15	0.01	0.30
HMASILO2	19.81	298.15	0.01	0.30
HMASIL03	18.29	298.15	0.01	0.30
HMASILO4	18.29	298.15	0.01	0.30
HMASIL05	18.29	298.15	0.01	0.30
CD2	10.67	298.15	24.38	0.46
GEN1	3.66	797.04	29.11	0.15
GEN1A	3.66	797.04	29.11	0.15
GEN2	3.66	797.04	29.11	0.15
GEN3	3.66	797.04	29.11	0.15
GEN5	3.66	797.04	29.11	0.15
GEN7	3.66	797.04	29.11	0.15
GEN4	1.83	778.71	15.07	0.15

**Table 4-3. Modeled Point Source Parameters** 

**Table 4-4. Modeled Volume Source Parameters** 

Model ID	Release Height (m)	Init. Lat. Dimension (K)	Init. Vert. Dimension (m/s)
HMALO1	3.66	0.15	1.70
HMALO2	3.66	0.15	1.70
HMALO3	3.66	0.15	1.70
HMALO4	3.66	0.15	1.70
HMAL05	3.66	0.15	1.70

Table 4-5 presents the emission rates modeled for each of the triggered TAPs. These rates represent values that are in excess of the calculated potential rates in order to provide the facility with operational flexibility.

		Modeled	Emission Ra	ites (g/s)	
Model ID	FORM	NICKEL	ARSENIC	BENZENE	CADMIUM
PGEN1	1.01E-01	0.00E+00	0.00E+00	3.17E-03	0.00E+00
PGEN2	1.01E-01	0.00E+00	0.00E+00	3.17E-03	0.00E+00
PGEN3	8.38E-02	0.00E+00	0.00E+00	2.64E-03	0.00E+00
CD1	9.77E-02	1.99E-03	1.76E-05	1.23E-02	1.30E-05
IES4	3.56E-05	4.54E-07	6.05E-07	3.10E-07	4.54E-07
IES5	3.27E-05	4.16E-07	5.54E-07	2.84E-07	4.16E-07
HMASIL01	5.29E-04	0.00E+00	0.00E+00	2.46E-05	0.00E+00
HMASILO2	5.29E-04	0.00E+00	0.00E+00	2.46E-05	0.00E+00
HMASILO3	5.29E-04	0.00E+00	0.00E+00	2.46E-05	0.00E+00
HMASILO4	5.29E-04	0.00E+00	0.00E+00	2.46E-05	0.00E+00
HMASIL05	5.29E-04	0.00E+00	0.00E+00	2.46E-05	0.00E+00
CD2	0.00E+00	2.42E-05	8.30E-06	0.00E+00	6.30E-08
GEN1	3.64E-04	9.26E-07	1.24E-06	2.88E-04	9.26E-07
GEN1A	3.64E-04	9.26E-07	1.24E-06	2.88E-04	9.26E-07
GEN2	1.30E-04	3.31E-07	4.41E-07	1.03E-04	3.31E-07
GEN3	4.58E-04	1.16E-06	1.55E-06	3.62E-04	1.16E-06
GEN5	4.68E-04	1.19E-06	1.59E-06	3.70E-04	1.19E-06
GEN7	3.64E-04	9.26E-07	1.24E-06	2.88E-04	9.26E-07
GEN4	1.30E-04	3.31E-07	4.41E-07	1.03E-04	3.31E-07
HMALO1	2.31E-05	0.00E+00	0.00E+00	1.36E-05	0.00E+00
HMALO2	2.31E-05	0.00E+00	0.00E+00	1.36E-05	0.00E+00
HMALO3	2.31E-05	0.00E+00	0.00E+00	1.36E-05	0.00E+00
HMALO4	2.31E-05	0.00E+00	0.00E+00	1.36E-05	0.00E+00
HMALO5	2.31E-05	0.00E+00	0.00E+00	1.36E-05	0.00E+00

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As previously described, the following sources are subject to a NESHAP standard:

- PGEN1
- PGEN2
- PGEN3
- GEN1 (J50V2)
- GEN1A (J45)
- GEN2 (S190dt)
- GEN3 (PS1300 Maxtrack)
- GEN5 (PS1300 Maxtrack)
- GEN7 (PS100 Maxtrack)
- GEN4 (TF80)

Since the above sources were included in the TAP modeling analysis, which demonstrates no unacceptable risk to the public, TAP permit limitations are not required for those sources. As such, Carolina Sunrock is requesting the TAP limits in Table 4-6 be included in the permit, based on the modeled emission rates in Table 4-5 (in g/s) and scaled to the appropriate averaging period.

	<b>Requested Permit Limits</b>						
Model ID	FORM (lb/hr)	NICKEL (lb/day)	ARSENIC (lb/yr)	BENZENE (lb/yr)	CADMIUM (lb/yr)		
CD1	7.75E-01	3.79E-01	1.23E+00	8.54E+02	9.02E-01		
IES4	2.83E-04	8.64E-05	4.20E-02	2.15E-02	3.15E-02		
IES5	2.59E-04	7.92E-05	3.85E-02	1.97E-02	2.89E-02		
HMASIL01	4.20E-03	-	-	1.71E+00	-		
HMASILO2	4.20E-03	-	-	1.71E+00	-		
HMASILO3	4.20E-03	-	-	1.71E+00	-		
HMASIL04	4.20E-03	-	-	1.71E+00	-		
HMASIL05	4.20E-03	-	-	1.71E+00	-		
CD2	0.00E+00	4.62E-03	5.77E-01	0.00E+00	4.38E-03		
HMAL01	1.83E-04	-	-	9.48E-01	-		
HMALO2	1.83E-04	-	-	9.48E-01	-		
HMALO3	1.83E-04	-	-	9.48E-01	-		
HMALO4	1.83E-04	-	-	9.48E-01	-		
HMALO5	1.83E-04	-	-	9.48E-01	-		

#### **Table 4-6. Requested Permit Limits**

### 4.4. METEOROLOGICAL DATA

The AERMOD modeling results were based on sequential hourly surface observations from Danville, NC (DAN) and upper air data also from Greensboro, NC (GSO). These stations are

recommended by NCDAQ for modeling facilities located in Caswell County.<sup>3</sup> The base elevation for the surface station is 174 m.<sup>4</sup>

Since the modeled impacts for at least one modeled TAP exceeded 50% of the AAL, five (5) years of data were modeled. The 5, most recent years of meteorological data (2014-2018) were downloaded from NCDAQ's website and input to AERMOD.

### **4.5. MODELED RECEPTORS**

The receptors included in the modeling analysis consisted of property line receptors, spaced 25 meters (m) apart, and Cartesian receptor points spaced every 100 m, extending out 3 km from the center of the facility. There are no public right-of-ways (e.g. roads) traversing the property line, so only a single property line was included in the modeling. The impacts were reviewed to ensure that the maximum impacts were captured within the 100 m spaced grid. Figure 4-2 shows the receptors included in the modeling analysis.

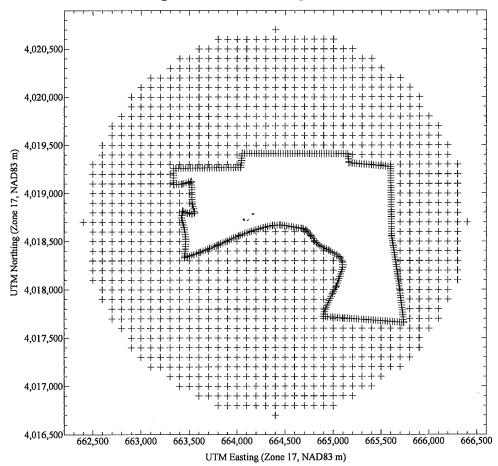


Figure 4-2. Modeled Receptor Grid

<sup>3</sup> <u>https://deq.nc.gov/about/divisions/air-quality/air-quality-permits/modeling-meteorology/meteorological-data</u> <u>4 https://files.nc.gov/ncdeq/Air%20Quality/permits/mets/ProfileBaseElevations\_2018.pdf</u>

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The AERMOD model is capable of handling both simple and complex terrain. Through the use of the AERMOD terrain preprocessor (AERMAP), AERMOD incorporates not only the receptor heights, but also an effective height (hill height scale) that represents the significant terrain features surrounding a given receptor that could lead to plume recirculation and other terrain interaction.<sup>5</sup>

Receptor terrain elevations input to the model were interpolated from National Elevation Database (NED) data obtained from the USGS. NED data consist of arrays of regularly spaced elevations. The array elevations are at a resolution of 1 arcsecond (approximately 30 m intervals) and were interpolated using the latest version of AERMAP (version 18081) to determine elevations at the defined receptor intervals. The data obtained from the NED files were checked for completeness and spot-checked for accuracy against elevations on corresponding USGS 1:24,000 scale topographical quadrangle maps. AERMAP was also used to establish the base elevation of all Carolina Sunrock structures and emission sources.

### 4.6. BUILDING DOWNWASH

AERMOD incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithms. Direction specific building parameters required by AERMOD are calculated using the BPIP-PRIME preprocessor (version 04274).

EPA has promulgated stack height regulations that restrict the use of stack heights in excess of "Good Engineering Practice" (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This essentially prevents the use of excessively tall stacks to reduce ground-level pollutant concentrations. The minimum stack height not subject to the effects of downwash, called the GEP stack height, is defined by the following formula:

 $H_{GEP} = H + 1.5L$ , where:

H<sub>GEP</sub> = minimum GEP stack height,

- H = structure height, and
- L = lesser dimension of the structure (height or projected width).

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure. The wind direction-specific downwash dimensions and the dominant downwash structures used in this analysis are determined using BPIP. In general, the lowest GEP stack height for any source is 65 meters by default.<sup>6</sup> None of the proposed emission units at the Prospect Hill facility will exceed GEP height.

Figures 4-3 presents a site layout for the facility that shows the source and building arrangement as modeled. The electronic BPIP input and output files are included on the CD-ROM in Appendix B.

 <sup>5</sup> US EPA. Users Guide for the AERMOD Terrain Preprocessor (AERMAP), EPA-454/B-03-003, Research Triangle Park, NC.
 <sup>6</sup> 40 CFR §51.100(ii)

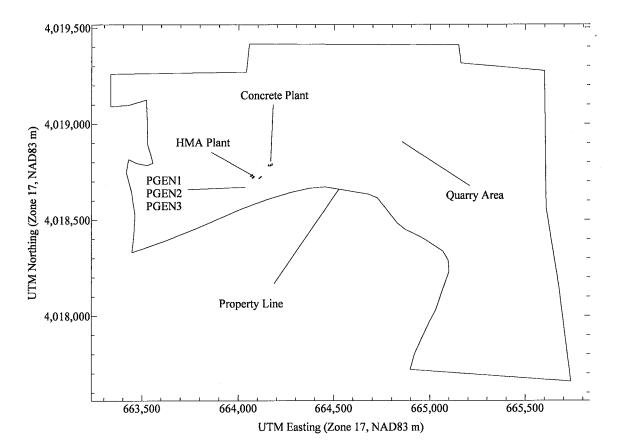


Figure 4-3. Carolina Sunrock Prospect Hill #2 Site Layout

# 4.7. TAP MODELING RESULTS

Table 4-7 presents the model results for each of the triggered TAP. As shown, all impacts are below their respective AAL. The electronic modeling files used in the TAP analysis are contained on the CD-ROM in Appendix B.

				1	Max. Modeled		
Pollutant	Avg. Period	UTM-E (m)	UTM-N (m)	Date/Time or Year	Impact (µg/m³)	AAL (µg/m³)	% of AAL (%)
Formaldehyde	1-Hour	664,020.1	4,018,559.7	14012802	94.50	150	63.00%
Nickel	24-Hour	663,919.1	4,018,515.6	15100424	3.89E-02	6	0.65%
Arsenic	Annual	664,127.9	4,018,599.1	2018	1.20E-04	2.10E-03	5.71%
Benzene	Annual	663,964.9	4,018,535.6	2015	1.14E-01	0.12	94.81%
Cadmium	Annual	664,127.9	4,018,599.1	2018	6.00E-05	5.50E-03	1.09%

### Table 4-7. TAP Modeling Results

Carolina Sunrock US, Inc. Air Quality Permit Application

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This section contains DEQ permit application forms for the general facility.

### FACILITY FORMS

- Form A Facility (General Information)
- Form A2 Emission Source Listing
- Form A3 112(r) Applicability Information
- Form D1 Facility-wide Emissions Summary
- Form D4 Exempt and Insignificant Activities Summary
- Form D5 P.E. Seal Form

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	Responsible Official/Authorized	Contact Signature 📝	P.E. Seal (if required)		Not Required ePayment I Chec	k Enclosed
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Legal Corporate				Carolina Sunro	ck LLC	
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Primary Phone N	lo.: 919) 747-640	Fax No.:	(919) 747-635	7 Primary Phone No.:		47-635
Secondary Phone				Secondary Phone No.:		
Email Address:		hesunrockgi	oup.com	Email Address:	ap@thesunrockgroup.con	n
Facility/Inspection		<u> </u>		Permit/Technical Cont		
Name/Title:	Scott Martin	<u>o - Complian</u>	<u>ce Manager</u>		<u>cott Martino - Compliance Ma</u>	nager
Mailing Address t		orizon Drive	Suite 100	Mailing Address Line 1:	200 Horizon Drive Suite	100
Mailing Address L Dity: <b>Ra</b>		C Zin Code:	27615	Mailing Address Line 2:		04E
Primary Phone No			(919) 747-635	City: Raleig		615 47-635
Secondary Phone			1010/141-000		(984) 202-4761	4/-033
Email Address:		thesunrockg	roup.com		smartino@thesunrockgroup.	com
			APPLICATION IS BE	ING MADE FOR		
✓ New Non-	-permitted Facility/Greenfield	Modification or	Facility (permitted)	Renewal Title V	Renewal Non-Title V	
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rimary SIC/NAICS		<u>1,3273, 1423</u> 36.29	1429	Current/Previous Air Pen		
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ailing Address Lity: WOTTI		Fax No.:			rews@trinityconsultants.col	n
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**Regional Office** Checu# 3293 \$400.00

Received 11/18/2019

#### FORM A (continued, page 2 of 2) GENERAL FACILITY INFORMATION

	GENERAL FACILITY INFORMATION	
REVISED 09/	22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate	A
法使用自己的	SECTION AA1 - APPLICATION FOR NON-TITLE V PERMIT RENEWAL	
	Company Name) hereby formally requests renewal of Air Permit No.	_
	een no modifications to the originally permitted facility or the operations therein that would require an air permit since the last permit was issued.	
	I subject to 40 CFR Part 68 "Prevnetion of Accidental Releases" - Section 112(r) of the Clean Air Act?	
	a current emissions inventory?	-
If no, did you s	submit the inventory via AERO or by mail? 🔲 Via AERO 🗖 Mailed Date Mailed:	
CARGE STATE	SECTION AA2- APPLICATION FOR TITLE V PERMIT RENEWAL	Enternation
	with the provisions of Title 15A 2Q .0513, the responsible official of (Company Name)	
	ly requests renewal of Air Permit No. (Air Permit No.) and further certifies that:	
(1)	The current air quality permit identifies and describes all emissions units at the above subject facility, except where such units are exempted under the North Carolina Title V regulations at 15A NCAC 20, 0500;	
(2)	The current air quality permit cits all applicable requirements and provides the method or methods for determing compliance with the applicable	
	requirements;	
(3)	The facility is currently in compliance, and shall continue to comply, with all applicable requiremetrs. (Note: As provided under 15A NCAC 2Q .0512	
(4)	compliance with the conditions of the permit shall be deemed compliance with the applicable requirements specifically identified in the permit); For applicable requirements that become effective during the term of the renewed permit that the facility shall comply on a timely basis;	
(5)	The facility shall fulfill applicable enhanced monitoring requirements and submit a compliance certification as required by 40 CFR Part 64.	
The responsib	ple official (signature on page 1) certifies under the penalty of law that all information and statements provided above, based on information and belief	
formed after re	easonable inquiry, are true, accurate, and complete.	
54 92858 S - 568	SECTION AA3- APPLICATION FOR NAME CHANGE	u i dan Karanan
New Facility N		
-		
Former Facility		
modifications t	lity name change is requested as described above for the air permit mentioned on page 1 of this form. Complete the other sections if there have been to the originally premitted facility that would requie an air quality permit since the last permit was issued and if ther has been an ownership change	
associated with	th this name change.	
AGNER CHIN	SECTION AA4- APPLICATION FOR AN OWNERSHIP CHANGE	o lista z sta
By this applica	ation we hereby request transfer of Air Quality Permit No. from the former owner to the new owner as described below.	
	f permit responsibility, coverage and liability shall be effective (immediately or insert date.) The legal ownership of the	
	ed on page 1 of this form has been or will be transferred on discussion (date). There have been no modifications to the originally ity that would require an air quality permit since the last permit was issued.	
permitted lacin		
Signature of N	lew (Buver) Responsible Official/Authorized Contact (as typed on page 1);	
X Signature (B	Blue Ink):	
Date:		
New Facility N		
Former Facility		
Former Facility	y name.	
Signature of Fr	ormer (Seller) Responsible Official/Authorized Contact:	
Name (typed o	r print).	1
Title:		
X Signature (B	Jue Ink):	
Date:		
Former Legal C	Corporate/Owner Name:	
	In lieu of the seller's signature on this form, a letter may be submitted with the seller's signature indicating the ownership change	
-10.19.000.00.00004	SECTION AA5- APPLICATION FOR ADMINISTRATIVE AMENDMENT	
Describe the re	equested administrative amendment here (attach additional documents as necessary):	
1		
h	Attach Additional Sheets As Necessary	age 2 of 2

# FORMs A2, A3 EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3						
REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate A2 EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted						
EMISSION SOURCE ENTROL NEW, Modified, Previously Onpermitted, Replaced, Deleted						
ID NO.		DESCRIPTION	ID NO.		ESCRIPTION	
	Equipment To Be ADDED	By This Application (New, Previous)	y Unpermitted	, or Replacemen	<b>b</b>	
		250 tons per hour capacity				
	-	el Oil/Recycled No. 2 Fuel Oil/Recycled				
HMA-1	· · ·	hot asphalt plant (80 MMBtu/hr	HMA-CD1	Bagfilter (7,778 sq	uare feet of filter area)	
	maximum heat					
	input capacity)					
HMA Silo1	Hot mix asphalt storage silo (150 tons maximum capacity)		NA	NA		
HMA Silo2	Hot mix asphalt storage silo (150 tons maximum capacity) NA NA					
HMA Silo3	Hot mix asphalt storage silo (200 tons maximum capacity)		NA	NA		
HMA Silo4	Hot mix asphalt storage silo (200 tons maximum capacity) NA NA					
HMA Silo5	Hot mix asphalt storage silo	(200 tons maximum capacity)	NA	NA		
HMA-LO1	Asphalt Loadout Operation		NA	NA		
HMA-LO2	Truck Loadout Operation			NA		
	RAP Crush	ning System Consisting of t	he Follow	'ing:		
RAP-BF1	RAP bin and feeder		NA	NA		
RAP-CR1	RAP impact Crusher (65 tons	per hour maximum rated capacity)	NA	NA		
RAP-SC1	8' X 20' Double Deck Screen		NA	NA		
RAP-C1	RAP 36" Conveyor (C-1) Feed	er to Crusher (RAP-CR1)	NA	NA		
RAP-C2	RAP 36" Conveyor (C-2) Cursh	er to Screen	NA	NA		
RAP-C3	RAP 36" Conveyor (C-3) Scree	en to Plant	NA	NA		
RAP-C4	RAP 36" Conveyor (C-4) Scree	en to Conveyor (C-5)	NA	NA		
RAP-C5	RAP 36" Conveyor (C-5) Conve	eyor (C-5) to Conveyor (C-6)	NA	NA		
RAP-C5	RAP 36" Conveyor (C-6) Conve	eyor (C-6) to Crusher (RAP-CR1)	NA	NA		
Truck Mix Co	ncrete Batch Plant (	120 cubic yards per hour c	apacity) C	onsisting of	the Following:	
	Cement Storage Silo (200-ton				uare feet of filter area)	
RMC-Silo2	Flyash Storage Silo (150-ton (		RMC-CD2		uare feet of filter area)	
RMC-LO1	Truck Loadout point	supacity)			uare feet of filter area)	
RMC-WB1	Cement/Fiyash Weigh Batcher	r (5-ton max Canacity)			uare feet of filter area)	
RMC-WB2	Aggregate Weigh Batcher (20			NA		
	Quarry List Sea I	Equipment list and Flow Di	agram in (	Appondix D		
0 A D		Equipment list and Flow Di				
See App D	1500 TPH Primary Crusher			NA	····	
See App D	Secondary Crushing	<b>b</b> land		NA		
	Aggregate Screening and Was			NA		
	Aggregate Conveyance			NA		
GEN-1 (J50V2) GEN-1a (J45)	350 hp Primary crusher diese			NA		
	350 hp Primary crusher diesel			NA		
	125 hp screen diesel generate 440 hp cone crusher diesel ge			NA		
	125 hp TF80 diesel generator			NA		
1	450 hp cone crusher diesel ge			NA		
a second and a second	350 hp cone crusher diesel ge			NA		
SER-7 (FSTOO MAXITACK)	550 np cone crusher dieser ge					
		Power Generators				
	2065 hp Natural Gas/Propane			Catalytic Oxidation		
	2065 hp Natural Gas/Propane			Catalytic Oxidation	and the second sec	
	1721 hp Natural Gas/Propane			Catalytic Oxidation		
	Existing Perm	itted Equipment To Be MODIFIED E	By This Applic	ation	a second de la companya de la company	
	un de 18.00 general e des antiques au services de services de la service de la service de la service de la serv		20 × 2 19 10 1 01 01 0101 2 1			
	Equi	pment To Be DELETED By This Ap	plication			
112(r) APPLICABILITY INFORMATION						
s your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act?						
f No, please specify in detail how your facility avoided applicability: The site does not store propane for other purposes than fuel combustic						
f your facility is Subject to 112(r), please complete the following:						
A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant to 40 CFR Part 68.10 or Part 68.150?						
Yes No Specify required RMP submittal date: If submittal, RMP submittal date:						
B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard?						
Yes No If yes, please specify: C. List the processes subject to 112(r) at your facility:						
<ul> <li>List the processes subject</li> </ul>	to riz(r) at your lacility:	1			MAXIMUM INTENDED	
PROCESS	DESCRIPTION	PROCESS LEVEL (1, 2, or 3)	HAZARDO	US CHEMICAL	INVENTORY (LBS)	

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### FORM D4 EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

	EXEMPT AND INSIGNIFICANT ACT		
REVIS	SED: 12/01/01 NCDENR/Division of Air Quality - Application fo ACTV/TIES EXEMPTED PER	r Air Permit to Construct/Ope	erate D4
	INSIGNIFICANT ACTIVITIES PER 20.0503	FOR TITLE V SOU	RCES
	DESCRIPTION OF EMISSION SOURCE	SIZE OR PRODUCTION RATE	BASIS FOR EXEMPTION OR
1.	IES-1 – Used Oil Storage Tank associated with asphalt plant	20,000 gallon	2Q .0102(g)(4)
2.	IES-2 – Used Oil Storage Tank associated with asphalt plant	20,000 gallon	2Q .0102(g)(4)
3.	IES-3 – Liquid Asphalt Tank	30,000 gallon	2Q .0102(g)(14)(B)
4.	IES-4 – Liquid Asphalt Tank	30,000 gallon	2Q .0102(g)(14)(B)
5.	IES-5 – Diesel Fuel Storage Tank associated with asphalt plant	20,000 gallon	2Q .0102(g)(4)
6.	IES-6 – Diesel Fuel Storage Tank associated with asphalt plant	20,000 gallon	2Q .0102(g)(4)
7.	IES-13 – Diesel Fuel Storage tank associated with quarry	20,000 gallon	2Q .0102(g)(4)
8.	IES-14 – Diesel Fuel Storage tank associated with quarry	20,000 gallon	2Q .0102(g)(4)
9.	IES-15 – Propane Storage tank	100,000 gallon	2Q .0102(g)(4)
10.	IES-16 – Natural cas/No. 2 fuel oil-fired Asohalt Cement Heater	1.2 MMBtu/hr	2Q .0102(h)(1)(A)
11.	IES-17 – Natural gas/No. 2 fuel oil-fired Liquid Asphalt Tank Heater	1.1 MMBtu/hr	2Q .0102(h)(1)(A)
	Attach Additional Sheets As	Nocossarv	

Attach Additional Sheets As Necessary

# FORM D1

# FACILITY-WIDE EMISSIONS SUMMARY

		- Application for Air Pe			
CRITERIA AIR PC	LUIANI	EMISSIONS INFORMA	TION - FACILITY-WIC		
			DOTENTIAL ENGLIGH		
1					
		(AFTER CONTROLS / LIMITATIONS)	(BEFORE CONTROLS		
AIR POLLUTANT EMITTED		LIMITATIONS)	· · · · · · · · · · · · · · · · · ·		
PARTICULATE MATTER (PM)	tons/yr	tons/yr	tons/yr		
PARTICULATE MATTER (PM) PARTICULATE MATTER < 10 MICRONS (PI		161.67	94.30		
		79.19	46.17		
PARTICULATE MATTER < 2.5 MICRONS (P		56.65	33.96		
SULFUR DIOXIDE (SO <sub>2</sub> )			70.10	29.55	
NITROGEN OXIDES (NOx)		84.89	44.96		
CARBON MONOXIDE (CO)		196.75	99.22		
VOLATILE ORGANIC COMPOUNDS (VOC)			78.33	43.84	
LEAD					
GREENHOUSE GASES (GHG) (SHORT TO	NS)				
OTHER					
HAZARDOUS AIR P	OLLUTAN	T EMISSIONS INFORM	ATION - FACILITY-W	IDE	
		EXPECTED ACTUAL		1	
				POTENTIAL EMISSION	
		(AFTER CONTROLS /	(BEFORE CONTROLS /	(AFTER CONTROLS /	
		LIMITATIONS)	LIMITATIONS)	LIMITATIONS)	
HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	tons/yr	tons/yr	tons/yr	
Acetaldehyde			2.36E+00	1.37E+00	
Acrolein			1.94E-02	9.68E-03	
Antimony unlisted compounds			1.34E-04	6.70E-05	
Arsenic unlisted cmpds (comp. of ASC)			7.05E-04	4.97E-04	
Benzene			6.70E-01	4.02E-01	
Beryllium metal (unreacted)			1.99E-05	1.99E-05	
Cadmium metal (elemental unreacted)			3.07E-04		
Carbon disulfide				1.55E-04	
Chromium unlisted cmpds (add w/chrom a			1.85E-03	9.27E-04	
		(0)	3.76E-03	1.88E-03	
Chromic acid (VI) (component of solCR6 an Cobalt unlisted compounds			1.03E-03	8.61E-04	
			1.94E-05	9.68E-06	
Cumene			3.41E-03	1.70E-03	
Ethyl benzene			1.91E-01	9.54E-02	
Ethyl chloride (chloroethane)			6.50E-06	3.25E-06	
Formaldehyde			1.24E+01	8.22E+00	
Hexane, n-			7.12E-01	3.56E-01	
Hydrogen Chloride (hydrochloric acid)			1.56E-01	7.82E-02	
Lead unlisted compounds			1.14E-02	5.84E-03	
Mercury, vapor			1.94E-03	9.68E-04	
Methyl bromide			7.42E-04	3.71E-04	
Methyl chloride			4.64E-04	2.32E-04	
Methyl chloroform			3.57E-02	1.79E-02	
Methyl ethyl ketone			1.99E-02	9.97E-03	
Methylene chloride			2.64E-02	1.86E-02	
Napthalene			4.90E-01	2.45E-01	
Nickel metal			4.77E-02		
Perchloroethylene (tetrachloroethylene)				2.43E-02	
Phenol			2.38E-04	1.19E-04	
			1.05E-02	6.83E-03	
Phosphorus Metal, Yellow or White			2.29E-02	1.25E-02	
Polycyclic Organic Matter			6.55E-01	3.27E-01	
Propionaldehyde			9.68E-02	4.84E-02	
Quinone			1.19E-01	5.95E-02	
Selenium compounds		N N	1.29E-03	6.96E-04	
Styrene			1.05E-02	7.30E-03	
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-			1.56E-10	7.82E-11	
Toluene			2.22E+00	1.11E+00	
Trimethylpentane, 2,2,4-			2.99E-02	1.49E-02	

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I. .

OXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Yes	Required ? No	
ee Appendix A1, Facility wide Potenti	al Emission Sun	nmary - Toxi	c Air Polluta	ints			
<b></b>							
······································							
COMMENTS:							

### File: Forms 2019-11-06.xlsx Sheet: D1

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### FORM D5 FORM D5

RE	EVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operat	D5						
	PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPPORT ALL EMISSION, CONTROL, AND REGULATORY DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE A COMPREHENSIVE PROCESS FLOW DIAGRAM AS NECESSARY TO SUPPORT AND CLARIFY CALCULATIONS AND ASSUMPTIONS. ADDRESS THE FOLLOWING SPECIFIC ISSUES ON SEPARATE PAGES:							
	SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B and B1 through B9) - SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, MATERIAL BALANCES, AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL BEFORE AND, WHERE APPLICABLE, AFTER CONTROLS. CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES AS NEEDED TO SUPPORT MATERIAL BALANCE.							
	SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2 - TITLE V ONLY) - PROVIDE AN ANALYSIS OF ANY REGULATIONS APPLICABLE TO INDIVIDUAL SOURCES AND THE FACILITY AS A WHOLE. INCLUDE A DISCUSSION OUTING (e.g. FOR TESTING AND/OR MONITORING REQUIREMENTS) FOR COMPLYING WITH APPLICABLE REGULATIONS, PARTICL REGULATIONS LIMITING EMISSIONS BASED ON PROCESS RATES OR OTHER OPERATIONAL PARAMETERS. PROVIDE JU FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PREVENTION OF SIGNIFICANT DETERIORATION (PSD), NEW SOURC PERFORMANCE STANDARDS (NSPS), NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS) INCLUDING EXEMPTIONS FROM THE FEDERAL REGULATIONS WHICH WOULD OTHERWISE BE APPLICABLE TO THIS FAC	, G METHODS JLARLY THOSE JSTIFICATION E , TITLE V),						
С	CONTROL DEVICE ANALYSIS (FORM C and C1 through C9) - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING RE FOR ANY CONTROL EFFICIENCIES LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULA ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APPLICATION) CRITICAL TO ENSURING PROPER PER OF THE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR THE PARTICULAR CONTROL DEVICED AT THIS FACILITY. DETAIL PROCEEDINES FOR ASSURING PROPER OPERATION OF THE CONTROL DEVICES.	TIONS UNDER RFORMANCE OL DEVICES AS						
D		_ BE ACHIEVED EQUIREMENTS						
	<b>PROFESSIONAL ENGINEERING SEAL -</b> PURSUANT TO 15A NCAC 2Q .0112 "APPLICATION REQUIRING A PROFESSIONAL ENGINEERING A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNICAL PORTIONS OF THIS APPLIC NEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER APPLICABILITY).							
	I, <u>Aimee Andrews</u> attest that this application for <u>Carolina Sunrock</u> has been reviewed by me and is accurate, complete and consistent with the information supplied in the engineering plans, calculations, and all other supporting documentation to the best of my knowledge. I further attest that to the best of my knowledge the proposed design has been prepared in accordance with the applicable regulations. Although certain portions of this submittal package may have been developed by other professionals, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design. Note: In accordance with NC General Statutes 143-215.6A and 143-215.6B, any person who knowingly makes any false statement, representation, or certification in any application shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed \$10,000 as well as civil penalties up to \$25,000 per violation.							
	(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)         NAME:       Aimee L. Andrews, P.E.         DATE:       11         DATE:       11         COMPANY:       Trinity Consultants of NC, PC         ADDRESS:       One Copley Parkway, Suite 205, Morrisville, NC 27560         TELEPHONE:       (919) 462-9693         SIGNATURE:       Campace         Multiple       SEAL         PAGES CERTIFIE All       029987         (IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT THAT IS BEING CERTIFIED BY THIS SEAL)       MG IN EF	HERE						
L	Attach Additional Sheets As Necessary	<u> </u>						

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NOV 18 2019

Winston-Salem Regional Office File: Forms 2019-11-06.xlsx Sheet: D5

## 6. NCDEQ SOURCE SPECIFIC APPLICATION FORMS

This section contains DEQ source-specific permit application forms for the proposed operations.

#### HMA Plant:

- Form B Specific Emissions Source Information (HMA Plant)
- Form B9 Emission Source-Other (HMA Plant)
- Form B1 Emission Source Burner (HMA Dryer Heater)
- Form B6 Emission Source Storage Silo/Bins (HMA Silo 1)
- Form B6 Emission Source Storage Silo/Bins (HMA Silo 2)
- Form B6 Emission Source Storage Silo/Bins (HMA Silo 3)
- Form B6 Emission Source Storage Silo/Bins (HMA Silo 4)
- Form B6 Emission Source Storage Silo/Bins (HMA Silo 5)
- Form C1 Control Device (HMA Fabric Filter)
- Form B Specific Emissions Source Information (RAP Crushing)
- Form B9 Emission Source-Other (RAP Crushing)

#### Truck Mix Concrete Batch Plant:

- Form B Specific Emissions Source Information (Concrete Batch Plant)
- Form B9 Emission Source-Other (Concrete Batch Plant)
- Form C1 Control Device (Concrete Batch Fabric Filter)

#### Quarry Operations:

- Form B Specific Emissions Source Information (Quarry)
- Form B9 Emission Source-Other (Quarry)
- Form B Specific Emissions Source Information (Quarry)
- Form B Specific Emissions Source Information (Quarry) GEN1
- Form B2 Emission Source (ICE) GEN1
- Form B Specific Emissions Source Information (Quarry) GEN1a
- Form B2 Emission Source (ICE) GEN1a
- Form B Specific Emissions Source Information (Quarry) GEN2
- Form B2 Emission Source (ICE) GEN2
- Form B Specific Emissions Source Information (Quarry) GEN3
- Form B2 Emission Source (ICE) GEN3
- Form B Specific Emissions Source Information (Quarry) GEN4
- Form B2 Emission Source (ICE) GEN4
- Form B Specific Emissions Source Information (Quarry) GEN5
- Form B2 Emission Source (ICE) GEN5
- Form B Specific Emissions Source Information (Quarry) GEN7
- Form B2 Emission Source (ICE) GEN7

#### **Power Generators:**

- Form B Specific Emissions Source Information (PGEN1)
- Form B2 Emission Source (ICE) PGEN1
- Form B Specific Emissions Source Information (PGEN1)
- Form B2 Emission Source (ICE) PGEN2
- Form B Specific Emissions Source Information (PGEN2)
- Form B2 Emission Source (ICE) PGEN3

SPECIFIC EMISSION S EVISED 09/22/ NCDEQ/Di	vision of Air							В
MISSION SOURCE DESCRIPTION								
rum Plant				CONTROL	. DEVICE I	D NO(S): H	MA-CD1	
PERATING SCENARIO1	OF	- 1		EMISSION	POINT (S	TACK) ID NO	O(S): <b>EP-'</b>	1
ESCRIBE IN DETAILTHE EMISSIO	ON SOURCE	PROCESS	ATTACH F	LOW DIAG	RAM):			
. Drying of Aggregate (drying	g drum) 2. N	Aixing of A	Aggregate	e, RAP, an	d Liquid	Asphalt (M	lixing Dru	ım) 3.
torage of Final Product (Silos		-						
•	-		- 100000		14 04 00 4			
TYPE OF EMISSION SOURCE (					M B1-B9 (	of chemic	LOWING I	AGES): na/inka (En
Coal, wood, oil, gas, other burner			orking (For	•		neration (For		Janinka (Pu
Int.combustion engine/generator Liquid storage tanks (Form B3)	(Form B2)	_	e silos/bins	rinting (Forn		er (Form B9)	ш вој	
TART CONSTRUCTION DATE:		Storage		NUFACTUR				
ANUFACTURER / MODEL NO.: A	ztec 95-138	3		D OP. SCH		12 HR/D/	AY 6	DAY/W
THIS SOURCE SUBJEC			1			BPARTS?):		
ERCENTAGE ANNUAL THROUGH	IPUT (%): DE	C-FEB	15 M	AR-MAY	30	JUN-AUC	G 30	S
CRITERIA AIR P	OLLUTAN	TEMISS	ONS INF	ORMATI	ON FOR	THIS SO	URCE	$\mathcal{J}_{k}^{\mathcal{M}}\mathcal{J}_{k}^{\mathcal{M}}$ , $\mathcal{J}_{k}^{\mathcal{M}}$ ,
		SOURCE O	-			POTENTIAL		
		-			SEFORE CON	TROLS / LIMITS	AFTER CONT	ROLS / LIMIT
R POLLUTANT EMITTED		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
ARTICULATE MATTER (PM)		See DEQ	Emission	Spreadsh	eet App	endix A3		
ARTICULATE MATTER<10 MICRON	IS (PM <sub>10</sub> )							
ARTICULATE MATTER<2.5 MICROI	NS (PM <sub>2.5</sub> )							
ULFUR DIOXIDE (SO2)								
ITROGEN OXIDES (NOx)								
ARBON MONOXIDE (CO)				<u> </u>				
OLATILE ORGANIC COMPOUNDS	S (VOC)							
EAD			<u> </u>					
THER HAZARDOUS AIR	DALLITA			IEODMA		DTUCC	AUDOE	
HAZARDUCS AIR		SOURCE O				POTENTIAL		
						TROLS / LIMITS		
AZARDOUS AIR POLLUTANT	CAS NO.			tons/vr	lb/hr	tons/yr	lb/hr	tons/yr
ALANDOOD AINT OLLOTAIT				Spreadsh				
			T			T		
			1					
TOXIC AIR PO	<u>LLUTANT</u>		<u>NS INFC</u>	RMATIO	N FOR T	HIS SOU	RCE	1993 - Sec. 17
		SOURCE	XPECTED	ACTUAL E	MISSIONS	AFTER CO	NTROLS /	LIMITATIC
		OF						
DXIC AIR POLLUTANT	CAS NO.	EMISSION		/hr		/day		o/yr
		See DEQ	Emission	Spreadsh	eet App	enaix A3		
		ļ	L		ļ			
			L				· · · ·	

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

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EMISSION SOURCE (WOO		IL. GAS.	OTHER FUE	FIRED BU	RNER)
REVISED 09/22/ NCDEQ/Division of A					B1
EMISSION SOURCE DESCRIPTION: HMA D	um Plant Dryer He		SION SOURCE ID I		
(80 MMBTU/hr burner)			TROL DEVICE ID N	. ,	-
OPERATING SCENARIO:			SION POINT (STAC		1
DESCRIBE USE: PROCESS HEAT			]ELECTRICAL GEN		
			OTHER (DESCRIE	iE):	
	/ U				•
MAX. FIRING RATE (MMBTU/HOUR): 80		EDIBURNE	R	e e e e e e e e e e e e e e e e e e e	
				OTHER (DESCI	
PERCENT MOISTURE OF FUEL:					·····
	ROLLED WITH FLY	ASH REINJE		TROLLED W/O R	EINJECTION
	T TRANSFER		<u>ISTEAM AFT</u>	OTHER (DESC	RIBE)
	COAL-FIRE	ED BURNE	<u>R</u>		1997 S. 1991 M.
TYPE OF BOILER IF OTHER	DESCRIBE:				
	EED STOKER	SPREADER	STOKER F	LUIDIZED BED	
	NTROLLED	UNCONT		CIRCULATING	
					3
	OIL/GAS-FI		SH REINJECTION		ter en
	INDUSTRIAL			ITUTIONAL	
	TANGENTIAL	LOW NOX		OW NOX BURNE	
an a	OTHER FUELS	FIRED BUR	RNER	George (1995) (1997) ar	
TYPE(S) OF FUEL:				TUTIONAL	
	S) OF CONTROL(S			ITO HONAL	
FUEL USA			BACKUP FUELS		1. A.
	МА	XIMUM DESI	GN	REQUESTED C/	APACITY
FUEL TYPE UNITS	CAP	ACITY (UNIT/	'HR)	LIMITATION (U	NIT/HR)
Propane/NG/ #2/ Rec #2/ Re cf/gallons	80 MMBtu/hr				
FUEL CHARACTER	STICS (COMPL	ETEALL	THAT ARE APP	LICABLE)	$(X_{\ell_1}, \ell_2) \in \mathbb{R}^{n_{\ell_1}}$
	SPEC	CIFIC	SULFUR CONTEN	ASH CO	NTENT
FUEL TYPE	BTU CO	NTENT	(% BY WEIGHT)	(% BY W	EIGHT)
			· · · · ·		
COMMENT					

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# Attach Additional Sheets As Necessary

	EMIS	SION SOL			E SILO/BINS	5)	
REVISED 09/22/16 N			•		Permit to Construct	-	<b>B6</b>
EMISSION SOURCE DE	SCRIPTION:			EM	ISSION SOURCE ID	NO: HMA-Silo1	
Hot Mix Aspa	ahlt Sto	rage Sile	o (150-te	<b>on)</b> [CO	NTROL DEVICE ID	NO(S): <b>NA</b>	
OPERATING SCENARIO	D:	_10	F1_	EM	ISSION POINT(STA	CK) ID NO(S): HM	ASILO1
DESCRIBE IN DETAIL T		·			phalt Stora	ige Silo (1	50-Ton)
MATERIAL STORED: H	ot Mix Asp	halt		DENSITY	OF MATERIAL (LB	/FT3):	
CAPACITY				TONS: 1		·	
	HEIGHT: 6					HEIGHT:	
	IUAL PRODUCT THROUGHPUT (TONSACTUAL:				XIMUM DESIGN CA	PACITY: 150	
PNEUMATICALLY	-		HANICALLY			FILLED FROM	
BLOWER         COMPRESSOR         OTHER:			Conveyor Inveyor Elevator		☐ TRU ☐ STO	CAR CK RAGE PILE IER: <b>Plant</b>	
NO. FILL TUBES:							
MAXIMUM ACFM:							
MATERIAL IS UNLOADI			<b>Over the roa</b> OM SILO?	d Truck			
		Gravity	via Hydrau	ic Clam	Hatch		
MAXIMUM DESIGN FILI							
MAXIMUM DESIGN UNI	OADING RA	TE OF MATER	IAL (TONS/HF	(): <b>132</b>			
COMMENTS:		Oil f	illed Seal a	top of S	illo		
	Δ	ttach Addi	tional She	ets As	Necessary		

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		SION SOURC	•		•	De
			oplication for		to Construct/Operate	B6
EMISSION SOURCE DE			50_ton)			51102
		1 OF	<u>30-tonj</u>		L DEVICE ID NO(S): NA N POINT(STACK) ID NO(S	HMASIL02
DESCRIBE IN DETAIL T						<u>): IIIIA01202</u>
Filling, Storag	e, and	loadout of H	lot Mix	Aspha	lt Storage Silo	(150-Ton)
MATERIAL STORED: H	of Mix Asn	halt	DEN		ATERIAL (LB/FT3):	
CAPACITY				S: 150		
DIMENSIONS (FEET)					WIDTH: HEIGHT:	
NNUAL PRODUCT THR					DESIGN CAPACITY: 15	0
PNEUMATICALLY			CALLY FILLI			ROM
BLOWER	1 <b>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </b>			a sa gada ang ang		
		OTHER:	AIOR		OTHER: Plant	i
NO. FILL TUBES:						
MAXIMUM ACFM:		L				
MATERIAL IS UNLOADE	2010:	Over	the road Tr	uck		
BY WHAT METHOD IS N					,	
		INLOADED FROM SIL	.07			
		Gravity via H	lydraulic C	am Hatcl	1	
MAXIMUM DESIGN FILL						
MAXIMUM DESIGN UNL	OADING RA	ATE OF MATERIAL (T	ONS/HR): 13	2		
COMMENTS:						
		Oil filled	Seal at top	of Silo		
	<u> </u>	ttach Addition	al Sheets	As Nec	essarv	

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#### FORM B6 MISSION SOURCE (STORAGE SILO/BINS

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EM	ISSION SOURCE (ST	(ORAGE SILO/BINS)
	•	on for Air Permit to Construct/Operate
EMISSION SOURCE DESCRIPTI		EMISSION SOURCE ID NO: HMA-SII03
<b>Hot Mix Aspahlt S</b>	torage Silo (200-to	ON) CONTROL DEVICE ID NO(S): NA
OPERATING SCENARIO:	1OF1	EMISSION POINT(STACK) ID NO(S): HMASILO3
DESCRIBE IN DETAIL THE PROD		<sup>M):</sup> fix Asphalt Storage Silo (200-To
MATERIAL STORED: Hot Mix A	sphalt	DENSITY OF MATERIAL (LB/FT3):
CAPACITY CUBIC F		TONS: 200
DIMENSIONS (FEET) HEIGHT		
NNUAL PRODUCT THROUGHPL		MAXIMUM DESIGN CAPACITY: 200
		FILLED FROM
BLOWER  COMPRESSOR  OTHER:	BELT CONVEYOR	AILCAR TRUCK STORAGE PILE
NO. FILL TUBES:		
MAXIMUM ACFM:	-	
MATERIAL IS UNLOADED TO: BY WHAT METHOD IS MATERIA	Over the roa . UNLOADED FROM SILO? Gravity via Hydraul	
MAXIMUM DESIGN FILLING RAT MAXIMUM DESIGN UNLOADING		
COMMENTS:	RATE OF MATERIAL (TUNS/H	
	Oil filled Seal at	t top of Silo

Attach Additional Sheets As Necessary

#### FORM B6 MISSION SOURCE (STORAGE SILO/BIN

REVISED 09/22/16 N			SOURCE (S Quality - Applica			Construct/Operate	, Г
EMISSION SOURCE D						URCE ID NO: HN	
Hot Mix Asp	ahlt Sto	orage S	5ilo (200-	ton) co	NTROL DE	VICE ID NO(S):	A
OPERATING SCENARI		_1	OF1			INT(STACK) ID N	
DESCRIBE IN DETAIL				·	phalt :	Storage S	ilo (200-1
MATERIAL STORED: H	ot Mix Asp	halt		DENSITY	OF MATE	RIAL (LB/FT3):	
CAPACITY	CUBIC FEE	T:		TONS: 20	00		
DIMENSIONS (FEET)	HEIGHT: 6	5 DIAN	METER: 14 (0)	) LENGTH:	W	IDTH: HEIGH	IT:
NNUAL PRODUCT THE	the second s		JAL:	MA	KIMUM DE	SIGN CAPACITY:	200
PNEUMATICALLY	FILLED	388. 1988: 1987	MECHANICALL	Y FILLED	法承担 征	FILLED	FROM
COMPRESSOR OTHER:			I CONVEYOR KET ELEVATOR ER:			TRUCK STORAGE PI	
MAXIMUM ACFM:							
MATERIAL IS UNLOAD	ED TO:						
BY WHAT METHOD IS			Over the ro	ad Truck			
		Grav	vity via Hydra	ulic Clam I	Hatch		
MAXIMUM DESIGN FILI	LING RATE (	OF MATERI	AL (TONS/HR):	220			
MAXIMUM DESIGN UN		TE OF MA	TERIAL (TONS/	HR): 200			
COMMENTS:		Ċ	bil filled Seal <i>i</i>	at top of Si	ilo.		

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Attach Additional Sheets As Necessary

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#### FORM B6 EMISSION SOURCE (STORAGE SILO/BINS) NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate REVISED 09/22/16 **B6** EMISSION SOURCE DESCRIPTION: EMISSION SOURCE ID NO: HMA-SII05 Hot Mix Aspahlt Storage Silo (200-ton) CONTROL DEVICE ID NO(S): NA OPERATING SCENARIO: 1 OF EMISSION POINT(STACK) ID NO(S): HMASILO5 1\_ DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM): Filling, Storage, and loadout of Hot Mix Asphalt Storage Silo (200-Ton) MATERIAL STORED: Hot Mix Asphalt DENSITY OF MATERIAL (LB/FT3): CAPACITY CUBIC FEET: TONS: 200 DIMENSIONS (FEET) HEIGHT: 65 DIAMETER: 14 (OR) LENGTH: WIDTH: HEIGHT: NNUAL PRODUCT THROUGHPUT (TONSACTUAL: MAXIMUM DESIGN CAPACITY: 200 PNEUMATICALLY FILLED FILLED FROM MECHANICALLY FILLED BLOWER SCREW CONVEYOR \_\_\_\_ RAILCAR COMPRESSOR | | BELT CONVEYOR 1 | TRUCK **BUCKET ELEVATOR** | | STORAGE PILE OTHER: 11 OTHER: Plant NO. FILL TUBES: MAXIMUM ACFM: MATERIAL IS UNLOADED TO: **Over the road Truck** BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO? **Gravity via Hydraulic Clam Hatch** MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): 220 MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): 200 COMMENTS: Oil filled Seal at top of Silo

#### Attach Additional Sheets As Necessary

## FORM C1 CONTROL DEVICE (FABRIC FILTER)

CONTROLS EMIS		S FRO	M WHICH	EMISSION S			
	RIES O				DURC	E ID NO(S	6): See Form
		F CON	ITROLS	NC	. 1	OF 1	UNITS
B							
				(PER 2q .011	YES		√ NO
BH-45 - 45,000	JCrw	1 10 C	ontroi ei	missions fro	m ary	ying and	mixing arun
	PM		PM10				
:	See A	- lppen	dix A3		_		_
9	9.99	%	99.99	_%	_%		_%
_	90	%	90	%	_%		_%
	93	%	90	%	_%		_%
<del></del>	1	-	1		-		-
	See A	ppen	dix A3		-	. <u></u>	
			NO				
					MAX		
						N.): 120	5
				in the second			
				DIAMETER		<i>y</i> (114. <i>)</i> . 4	
				MATERIAL:	wov	/EN 🗸	FELTED
ONIC				SIZE	WE	EIGHT %	CUMULATIV
MPLE BAG COLI	LAPSE			(MICRONS)	OF	TOTAL	%
ING BAG COLLA	PSE			0-1		40	40.2
				1-10		60	100
m Drying and M	Mixing	g Drur	ns in	10-25			
				25-50			
				50-100			
				>100			
						TOTA	
	GAUGE? GAUGE? IN GR/FT <sup>3</sup> OI R COMPARTME AREA PER CAF R TO CLOTH RA DRCED/POSITIV DNIC MPLE BAG COLLA	See A 99.99 90 93 1 See A GAUGE? ✓ YES INLET TI GR/FT <sup>3</sup> OUTLET FILTER ( R COMPARTMENT: 64 AREA PER CARTRIDO R TO CLOTH RATIO: DRCED/POSITIVE DNIC MPLE BAG COLLAPSE NG BAG COLLAPSE	See Appen 99.99 % 90 % 93 % 1 See Appen GAUGE? ' YES INLET TEMPE GR/FT <sup>3</sup> OUTLET TEMPE GR/FT <sup>3</sup> OUTLET TEMPE FILTER OPER/ R COMPARTMENT: 640 E AREA PER CARTRIDGE (FT R TO CLOTH RATIO: 5.78: DRCED/POSITIVE DNIC MPLE BAG COLLAPSE NG BAG COLLAPSE	See Appendix A3         99.99       %       99.99         90       %       90         93       %       90         1       1       1         See Appendix A3         91       1       1         See Appendix A3         GAUGE?       // YES       NO         INLET TEMPERATURE       NO         GR/FT <sup>3</sup> OUTLET TEMPERATURE         GR/FT <sup>3</sup> OUTLET TEMPERATURE         R COMPARTMENT:       640         AREA PER CARTRIDGE (FT <sup>2</sup> ):       R TO CLOTH RATIO:         R TO CLOTH RATIO:       5.78:1         DRCED/POSITIVE       FILTER IN         ONIC       MPLE BAG COLLAPSE	See Appendix A3         99.99       %         90       %         93       %         93       %         93       %         93       %         93       %         93       %         93       %         94       %         95       %         96       %         97       %         98       %         99       %         90       %         93       %         90       %         91       1         1       1         See Appendix A3         GAUGE?       // YES         NO       INLET TEMPERATURE IMIN         GR/FT <sup>3</sup> OUTLET TEMPERATURE IMIN         FILTER OPERATING TEMP (°f):       R         R COMPARTMENT:       640         LENGTH OF I       AREA PER CARTRIDGE (FT <sup>2</sup> ):         DAMETER O       R         R TO CLOTH RATIO:       5.78:1         DRCED/POSITIVE       FILTER MATERIAL:         NO       MPLE BAG COLLAPSE         NG BAG COLLAPSE       0-1         1-10       1	See Appendix A3         99.99       %       90       %       %         90       %       90       %       %         93       %       90       %       %         1       1       1       %       %         GAUGE?       ✓       YES	See Appendix A3           99.99         %         %         %           90         %         90         %         %           93         %         90         %         %           1         1

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## Attach Additional Sheets As Necessary

SPECIFIC EMISSION SOURCE INFORMATION	(REQUIRED FOR ALL SOURCES)
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REVISED 09/22, NCDEQ/	Division of A	Air Quality -	Application fo	or Air Perm	it to Const	ruct/Operat	te		В	
EMISSION SOURCE DESCRIPTIO	N: RAP Cru	shing Sys	tem	EMISSIO	N SOURCE	ID NO: RA	P-CR1,	RAP-SC1,	RAP-C	1 th
				CONTROL DEVICE ID NO(S): NA						
OPERATING SCENARIO	1	OF	1	EMISSION POINT (STACK) ID NO(S): NA						
DESCRIBE IN DETAILTHE EMISS	ION SOURCE	E PROCESS	(ATTACH FL			·	· /			
1. Recycle Asphalt Crushing			•		•	)' double d	deck sce	ene, and s	ix (6)	36"
conveyor Beits.	•			•						
TYPE OF EMISSION SO	URCE (CHEC		PLETE APP	ROPRIATE	FORM B1-	B9 ON THE	FOLLOW		S):	
Coal,wood,oil, gas, other burner			orking (Form I					ngs/inks (Fo		
Int.combustion engine/generator	r (Form B2)	Coating	/finishing/print	ing (Form I		neration (For				
Liquid storage tanks (Form B3)		Storage	e silos/bins (Fo	rm B6)		er (Form B9)				
START CONSTRUCTION DATE:			DATE MANU							
MANUFACTURER / MODEL NO .: T			EXPECTED (	<u>DP. SCHEE</u>	DULE: 12	HR/DAY	<u> </u>	DAY/WK	50	WK
IS THIS SOURCE SUBJEC			000_		SHAP (SUE	BPARTS?):_				
PERCENTAGE ANNUAL THROUG			15 MAF	R-MAY	30	JUN-AUG	30		-NOV	
CRITERIA	AIRPOLL	UTANTE	MISSIONS	INFORM.	ATION F	OR THIS	SOURC	Engeneration		e sara
			EXPECTED					IISSIONS		
			(AFTER CONTR		BEFORE CON			ER CONTROLS	/ LIMITS)	
AIR POLLUTANT EMITTED		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr		ns/yr	
PARTICULATE MATTER (PM)		See DEQ	Emission S	readshe	et Append					
PARTICULATE MATTER<10 MICRON	NS (PM10)					· · ·				
PARTICULATE MATTER<2.5 MICRO	NS (PM <sub>2.5</sub> )									
SULFUR DIOXIDE (SO2)										
NITROGEN OXIDES (NOx)										
CARBON MONOXIDE (CO)										
VOLATILE ORGANIC COMPOUND	S (VOC)									
LEAD										
OTHER										
HAZARDOU					MATION				$\phi_{ijk} \phi_{ijk} \phi_{ijk}$	an di san An san san
		SOURCE O					NTIAL EM	ISSIONS		
			(AFTER CONTRO			ROLS / LIMITS	(AFTI	ER CONTROLS	/ LIMITS)	
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	to	ns/yr	
		See DEQ	Emission Sp	readshee	et Append	lix A3				
			/							
					ļ					
				-						
<b>77</b> 00								_		
					ļ					
	BBAU		COLONO IL	CODUAT					24453028543	en esta parte
TOXIC AI	R POLLO	I SOURCE I	SSIUNSIN	EUKIMA I	IUN FUH	CIHIS SC	JURUE		<b>书</b> 《月末》《	同行的
		OF	EXPECT	ED ACTUA	L EMISSIO	NS AFTER	CONTRO	DLS / LIMITA	TIONS	;
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lb/h	r	lb/	day		lb/yr		
		See DEQ	Emission Sp	readshee	et Append	ix A3				
Attachments: (1) emissions calculations an	nd supporting do	ocumentation; (	2) indicate all red	quested state	and federal e	enforceable pe	ermit limits	(e.g. hours of a	operation	٦,

emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source. WPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOU, Attach Additional Sheets As Necessary

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## FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality	/ - Applicatio	n for Air Permit to Constru	ct/Operate B9						
EMISSION SOURCE DESCRIPTION: RAP Crushing	System	EMISSION SOURCE ID NO: RAP-CR1, RAP-SC1, RAP-C1 thru C-6							
	-	CONTROL DEVICE ID NO(S): NA							
OPERATING SCENARIO: OF		EMISSION POINT (STACK) ID NO(S): NA							
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLC	OW DIAGRAM	): ,							
1. Recycle Asphalt Crushing consisting of one (1)	65 TPH crush	er, one (1) 8'X20' double d	eck scene, and six (6) 36" conveyor Beits.						
MATERIALS ENTERING PROCESS - CONTINUOU	S PROCESS	MAX. DESIGN	REQUESTED CAPACITY						
			LIMITATION(UNIT/HR)						
ТҮРЕ		CAPACITY (UNIT/RR)							
RAP	tons	65	· · · · · · · · · · · · · · · · · · ·						
MATERIALS ENTERING PROCESS BATCH O	DEDATION	MAX. DESIGN	REQUESTED CAPACITY						
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH	LIMITATION (UNIT/BATCH)						
			·						
		-							
		-							
			terrer en						
MAXIMUM DESIGN (BATCHES / HOUR): REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHE	S/YR):							
FUEL USED:		AXIMUM FIRING RATE (MI							
MAX. CAPACITY HOURLY FUEL USE:		TED CAPACITY ANNUAL F							
COMMENTS:		TED GAI AGITT ANITGAET							
COMMENTS.									

#### Attach Additional Sheets as Necessary

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SPECIFIC	EMISSION	SOUR				FOUIRF		
	/Division of Air				-			B
EMISSION SOURCE DESCRIPT								RMC-Silo2, RMC-LO1, RMC-WB2
		x concret	e batch			D NO(S): R		
Plant (120 cubic vards per l OPERATING SCENARIO	<b>1</b> 0	F 1				TACK) ID N		C-CD2
DESCRIBE IN DETAILTHE EMIS			(ATTACH			····, ···	- (-)	
	Plant (120 cul	bic yards	per hour)	Consiting	of: One (			Silo, One (1) 150-ton Flyash Silo, Batcher.
					ROPRIATE	FORM B1-B	39 ON THE	FOLLOWING PAGES):
Coal,wood,oil, gas, other burn			orking (For					s/inks (Form B7)
Int.combustion engine/general				rinting (Forn		eration (For		
Liquid storage tanks (Form B3		Storage	silos/bins			r (Form B9)		
START CONSTRUCTION DATE:				NUFACTUR		40 110/0	A.V.	
MANUFACTURER / MODEL NO.:		DTOOL	EXPECTE	D OP. SCH		12 HR/D	AY <u>6</u>	DAY/WK 50 WK/YR
IS THIS SOURCE SUBJEC			46 M		SHAP (SUE		20	CED NOV DE
				AR-MAY	30	JUN-AUC		SEP-NOV 25
					NECKM	ATION F		SOURCE
		SOURCE O					POTEN	TIAL EMISSIONS
AIR POLLUTANT EMITTED		FACTOR		ROLS / LIMITS			lle /le e	(AFTER CONTROLS / LIMITS)
PARTICULATE MATTER (PM)			lb/hr	tons/yr Spreadsh	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (10 MICR		See DEQ	LINISSION	opreausr	leet Appe	naix A4		
PARTICULATE MATTER<2.5 MICH								
SULFUR DIOXIDE (SO2)								
NITROGEN OXIDES (NOx)								
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUN								
LEAD								
OTHER								
	ARDOUS AI	RPOLLU	TANTE	NISSION	NEOR	MATION	FOR TH	SSOURCE
		SOURCE O						TIAL EMISSIONS
				ROLS / LIMITS	EFORE CONT	ROLS / LIMITS		(AFTER CONTROLS / LIMITS)
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
				Spreadsh				
$\sim$ 7	OXIC AIR PO	OLLUTAN	<b>IT EMISS</b>	SIONS IN	FORMA	TON FOR	THIS S	OURCE
		SOURCE						
		OF		EXPECT	ED ACTUA	L EMISSIO	NS AFTER	CONTROLS / LIMITATIONS
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lbi	/hr	lb/c	dav		lb/yr
to the second		See DEQ	Emission	Spreadsh				
							• •	
······································								
Attachments: (1) emissions calculations	s and supporting d	ocumentation	: (2) indicate	all requested	state and fe	deral enforce	able permit li	imits (e.g. hours of operation, emission rates)

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and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source. COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE **Attach Additional Sheets As Necessary** 

# FORM C1 CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16       NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate         CONTROL DEVICE ID NO:       RMC-CD2         CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):       See Formation for Air Permit to Construct/Operate										
CONTROL DEVICE ID NO: RMC-CD2	CONTROLS E	MISSION	S FRO	M WHICH	EMISSION SC	URCI	E ID NO(S	s): See Fa	orm A2	
EMISSION POINT (STACK) ID NC EP-2	POSITION IN S	SERIES C	F CON	TROLS	NO	. 1	OF 1	UNITS		
OPERATING SCENARIO:		花服								
		P.E. SE	AL RE	QUIRED (	(PER 2q .011	YES		√ NO		
DESCRIBE CONTROL SYSTEM: C&W Ma	nufacturing - R	RA-140 -	6500	CFM to	control emis	sion	s from c	ement/fly	/ ash	
silos and aggregate and truck loading	g.									
POLLUTANTS COLLECTED:		PM		PM10				_		
		See	- Appen	dix A4		-		-		
BEFORE CONTROL EMISSION RATE (LB/H	R;					-		-		
CAPTURE EFFICIENCY:			%		%	%		%		
		99.9	-	99.9		-		-		
CONTROL DEVICE EFFICIENCY:			_%	33.8	%	_%		_%		
CORRESPONDING OVERALL EFFICIENCY:			%		%	%		%		
			- '0			- '0	<u></u> .	- ~		
EFFICIENCY DETERMINATION CODE:			_		-	-		_		
	/1	See /	- Appen	dix A4		-				
TOTAL AFTER CONTROL EMISSION RATE						-		-		
, <i>Z /</i>	W/ GAUGE?	V YES	<u> </u>	NO						
BULK PARTICLE DENSITY (LB/FT <sup>3</sup> ):	GR/FT <sup>3</sup>	-		RATURE		MAX				
				PERATUR		MAX				
INLET AIR FLOW RATE (ACFM): 6,500 cfr NO. OF COMPARTMENTS: 2 NO. OF BA					EMP (°f): Ambi		N.). 114			
	IRFACE AREA PE				DIAMETER O	<u>,</u>	<u> </u>			
TOTAL FILTER SURFACE AREA (FT <sup>2</sup> ): 1,43					DIAMETERO		, (ii <b>1</b> .). 4			
DRAFT TYPE: // INDUCED/NEGATIVE	FORCED/POSI				MATERIAL:	wov	EN 🗸	FELTED		
	I FURGED/PUSI					-				
DESCRIBE CLEANING PROCED					PARTI	CLE S	IZE DIST	RIBUTION	27. 2000 ja	
					PARTI SIZE		IZE DIST	RIBUTION		
	-		E			WE			ATIVE	
DESCRIBE CLEANING PROCED	] SONIC	COLLAPS	E		SIZE	WE	IGHT %	CUMUL	ATIVE	
DESCRIBE CLEANING PROCED	] SONIC ] SIMPLE BAG C	COLLAPS	E		SIZE (MICRONS)	WE	IGHT % TOTAL	CUMUL %	ATIVE 2	
DESCRIBE CLEANING PROCED	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		Prums	SIZE (MICRONS) 0-1	WE	IGHT % TOTAL <b>40</b>	CUMUL %	ATIVE 2	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		)rums	SIZE (MICRONS) 0-1 1-10	WE	IGHT % TOTAL <b>40</b>	CUMUL %	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		Prums	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	WE	IGHT % TOTAL <b>40</b>	CUMUL %	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		Trums	SIZE (MICRONS) 0-1 1-10 10-25 25-50	WE	IGHT % TOTAL 40 60	CUMUL % 40. 10	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		rums	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	WE	IGHT % TOTAL 40 60	CUMUL %	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		Drums	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	WE	IGHT % TOTAL 40 60	CUMUL % 40. 10	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		Irums	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	WE	IGHT % TOTAL 40 60	CUMUL % 40. 10	ATIVE 2	
DESCRIBE CLEANING PROCED AIR PULSE	SONIC SIMPLE BAG C RING BAG COI	COLLAPS		)rums	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	WE	IGHT % TOTAL 40 60	CUMUL % 40. 10	ATIVE 2	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	king D		SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	
DESCRIBE CLEANING PROCEDI AIR PULSE REVERSE FLOW MECHANICAL/SHAKER OTHER: DESCRIBE INCOMING AIR STREAM: Hot A IN HMA Plant\ ON A SEPARATE PAGE, ATTACH A DIAGR/ COMMENTS:	SONIC SIMPLE BAG C RING BAG CO Air from Drying	COLLAPS LLAPSE	King D	HP OF TH	SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100 >100 HE CONTROL I		TOTAL 40 60 TOTA	CUMUL % 40. 10 L = 100	ATIVE 2 0	

Section 6

6-14

## FORM B6 EMISSION SOURCE (STORAGE SILO/BINS)

				-			Construct		De
	ICDEQ/Divisi	on of Air G	tuality -	Applicati					<b>B6</b>
EMISSION SOURCE DE	SCRIPTION:		CH-	1999				NO: RMC-Silo1	
Ready Mix Ce				(200-					000
OPERATING SCENARIO		_1	OF	1	1	EMISSION	POINT(STAC	CK) ID NO(S): RMC	5-GD2
DESCRIBE IN DETAIL T		·				ent Sto	rage Si	ilo (200-To	n)
MATERIAL STORED: C	ement				DENSIT	Y OF MATE	ERIAL (LB/F	T3):	
CAPACITY	CUBIC FEE	۲.			TONS:				
DIMENSIONS (FEET)	HEIGHT: 8		ETER: 1	12 (OR)			WIDTH:	HEIGHT:	
NNUAL PRODUCT THR							DESIGN CA	PACITY: 200	
PNEUMATICALLY								FILLED FROM	
BLOWER			W CON			ant in the case of the			an inter a contratione
	1		CONVE						
			ET ELE					RAGE PILE	
				VAION			_	ER: <b>Plant</b>	
NO. FILL TUBES: 1									
MAXIMUM ACFM: 25									
MATERIAL IS UNLOADE									
		Ceme	ent and	Flv Ash	Weigh	t Batcher			
BY WHAT METHOD IS N	MATERIAL UN	IOADED	FROM S		<b>.</b>				
				Gravit	cy				
MAXIMUM DESIGN FILL	ING RATE O	F MATERIA	AL (TON	S/HR): 40	כ				
MAXIMUM DESIGN UNL	OADING RAT	TE OF MAT	ERIAL (	TONS/HR	R): <b>5</b>			· · · · · · · · · · · · · · · · · · ·	
COMMENTS:									
	_		1 .1747						

**Attach Additional Sheets As Necessary** 

#### FORM B6 EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 N			lity - Applicatio					
EMISSION SOURCE DE			ing - whhicatic				NO: RMC-Silo2	<b>B6</b>
		orana C	10 (150					
OPERATING SCENARIO			DF 1				CK) ID NO(S): RM(	
DESCRIBE IN DETAIL T								
					sh Sto	orage S	ilo (150-To	n)
MATERIAL STORED: FI	v ash					TERIAL (LB/	ET2).	
CAPACITY	CUBIC FEET	-		TONS			F13).	
	HEIGHT: 65		ER: <b>12</b> (OR)			WIDTH:		
NNUAL PRODUCT THR							HEIGHT: PACITY: 200	
PNEUMATICALLY			CHANICALLY F					at al a la de la dela dela
				IRCED	488 F. <b>189</b> 947 F.		FILLED FROM	
			CONVEYOR					
	ŀ		ONVEYOR					
		_	ELEVATOR				RAGE PILE	
		OTHER:					ER: Plant	
NO. FILL TUBES: 1								
MAXIMUM ACFM: 25								
MATERIAL IS UNLOADE	D TO:	_						
			and Fly Ash	Neigh	t Batcher	r		
BY WHAT METHOD IS N	IATERIAL UN	LOADED FRO	OM SILO?					
			Screw Conv	/eyor				
MAXIMUM DESIGN FILL								
MAXIMUM DESIGN UNL	UADING RAT	E OF MATER	IAL (TONS/HR	): 5			····	
COMMENTS:								

Attach Additional Sheets As Necessary

SPECIFIC EMISS	ON SOL	JRCE IN	FORMA	ATION (	REQUI	RED FO	RALL	SOURCE	ES)
REVISED 09/22 NCDEQ/D	ivision of Ai	r Quality - A	pplication	for Air Per	mit to Con	struct/Oper	ate		В
EMISSION SOURCE DESCRIPTION	1500 TP	H Quarry		EMISSIO	N SOURCE	ID NO: Se	e Equipm	ent List a	nd Flow Di
Oneration					L DEVICE I				
OPERATING SCENARIO 1	C	)F <b>1</b>				STACK) ID N	O(S):		
DESCRIBE IN DETAILTHE EMISSI	ON SOURCE	PROCESS	(ATTACH	FLOW DIA	GRAM):				
Quarry Operations: 1500 TPH						te Screen	ing/Washi	ing, and Ac	areaste
Conveyance. See Equipment								ing, and Ag	la canto
Conveyance. See Equipment	LIST and P	low Diagr	am for de	talis in A	ppenaix i	).			
TYPE OF EMISSION SOU	<b>IRCE (CHEC</b>	K AND CON	IPLETE AF	PROPRIA	TE FORM E	31-B9 ON T	HE FOLLO	WING PAGE	S):
Coal,wood,oil, gas, other burner		Woodw	vorking (For	m B4)	_ Man	uf. of chemi	cals/coating	gs/inks (Form	B7)
Int.combustion engine/generator	(Form B2)		g/finishing/p			neration (For			
Liquid storage tanks (Form B3)		Storage	e silos/bins	(Form B6)	Othe	er (Form B9)	)		
START CONSTRUCTION DATE:				NUFACTÚ					
MANUFACTURER / MODEL NO .:				D OP. SCI			0AY <u>6</u>	DAY/WK	<u>52</u> Wł
	<b>NSPS (SUBF</b>		000		SHAP (SUI				
PERCENTAGE ANNUAL THROUGH				IAR-MAY	25	JUN-AL			P-NOV 25
CRITERIA									的内容的现在分词
		SOURCE O					ENTIAL EM		
		1	A REAL PROPERTY AND A REAL	ROLS / LIMITS	BEFORE CON	TROLS / LIMITS	(AFT)	ER CONTROLS /	LIMITS)
AIR POLLUTANT EMITTED		FACTOR		tons/yr	lb/hr	tons/yr	lb/hr	tor	s/yr
PARTICULATE MATTER (PM)		See DEQ	Quarry S	preadshe	et, Apper	idix A5			
PARTICULATE MATTER<10 MICRON									
PARTICULATE MATTER<2.5 MICRON	NS (PM <sub>2.5</sub> )								
SULFUR DIOXIDE (SO2)									
NITROGEN OXIDES (NOx)		ļ							
		[				<u> </u>		I	
VOLATILE ORGANIC COMPOUNDS		·							
OTHER									
HAZARDOUS			ENICOLO	NONNEA	DHATIO	LEODIT			Contract of the State
HAZANDOUS									Station of the second
		SOURCE O					NTIAL EM		
HAZARDOUS AIR POLLUTANT						TROLS / LIMITS		ER CONTROLS /	
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR		tons/yr	lb/hr	tons/yr	lb/hr	ton	s/yr
		See DEQ	Quarry S	breausne	et, Appen				
			[					Į	
								<u> </u>	
	.								
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			l						
TOXIC AI	RPOILI		SSIONS	INFORM	ATION F		SOURCE	1 7 - 12 (1994) - 7 40	N. (209.) (200
	1	SOURCE	[						
		OF	EXPE	CTED ACT	UAL EMISS	SIONS AFTI	ER CONTR	OLS / LIMIT/	ATIONS
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lb	/hr	lb/	day		lb/yr	
		See App				,			
				I					
	1								
	1								
Attachments: (1) emissions calculations and	d supporting de	cumentation:	(2) indicate al	I requested s	ate and fede	ral enforceabl	o pormit limit		operation

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source. IPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOU Attach Additional Sheets As Necessary

# FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality	- Application	for Air Permit to Construc	t/Operat	B9
EMISSION SOURCE DESCRIPTION: 1500 TPH Qua	rry Operation	EMISSION SOURCE ID NO	D: See Equipme	ent List and Flow Diagr
		CONTROL DEVICE ID NO		
OPERATING SCENARIO:OF		EMISSION POINT (STACK	() ID NO(S):	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLC	W DIAGRAM	):		
Quarry Operations: 1500 TPH Primary Crusher, Sec See Equipment List and Flow Diagram for details in	condary Crusi Appendix D.	ning, Aggregate Screening	Washing, and <i>i</i>	Aggregate Conveyance
MATERIALS ENTERING PROCESS CONTINUOU	S PROCESS	MAX. DESIGN	REQUE	STED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)		
		CAPACITY (UNIT/HR)	LIVITA	TION(UNIT/HR)
Stone/Rock/Aggregate/Fines	tons	1500	7.117	,500 tons/yr
			.,	jooo tonoiyi
MATERIALS ENTERING PROCESS - BATCH OF		MAX. DESIGN		STED CAPACITY
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH		N (UNIT/BATCH)
		· · · · · · · · · · · · · · · · · · ·		
			-	
MAXIMUM DESIGN (BATCHES / HOUR):				
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES	6/YR):	•	
FUEL USED:	TOTAL MA	XIMUM FIRING RATE (MILI	LION BTU/HR):	
MAX. CAPACITY HOURLY FUEL USE:	REQUEST	ED CAPACITY ANNUAL FU	EL USE:	
COMMENTS:				

## Attach Additional Sheets as Necessary

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SPECIFIC EMISSION S REVISED 09/22, NCDEQ/DI				for Air Pern						
EMISSION SOURCE DESCRIPTION						-				
Jaw Crusher	1. 2010 MICC	JUSKEY JJU	VZ HACK	K EMISSION SOURCE ID NO: GEN-1 (J50V2) CONTROL DEVICE ID NO(S): N/A						
OPERATING SCENARIO 1	OF		1			STACK) ID N				
DESCRIBE IN DETAILTHE EMISSIO				FLOW DIAC	RAM):		10(0).			
2016 McCoskey J50V2 Track Moun										
•			0							
TYPE OF EMISSION SOURCE (		COMPLET	E APPROF	PRIATE FOR						
Coal,wood,oil, gas, other burner (			vorking (Fo			nuf. of chem		gs/inks (Fo		
Int.combustion engine/generator	(Form B2)			printing (Forn						
Liquid storage tanks (Form B3)		Storage		(Form B6)		er (Form B9	)			
START CONSTRUCTION DATE:				NUFACTUR						
MANUFACTURER / MODEL NO.:			EXPECTE	D OP. SCH			<u>6</u> DAY/WK	<u>52</u> WK/Y		
	ISPS (SUBF			<u> </u>		BPARTS?):	× • • •			
PERCENTAGE ANNUAL THROUGH				IAR-MAY	25	JUN-AUC		S		
(SKINERIA AIRT2										
				D ACTUAL		POTENTIAL				
				TROLS / LIMITS						
IR POLLUTANT EMITTED ARTICULATE MATTER (PM)		FACTOR		tons/yr	lb/hr	tons/yr	lb/hr	tons/yr		
PARTICULATE MATTER (PM)		Jee Com	DUSTION (	Calculation	is Apper		<u> </u>			
PARTICULATE MATTER<10 MICRON							l			
SULFUR DIOXIDE (SO2)	(PNI <sub>2.5</sub> )			1		- <b> </b>				
VITROGEN OXIDES (NOx)						╉────				
CARBON MONOXIDE (CO)										
OLATILE ORGANIC COMPOUNDS	(VOC)						<u> </u>			
EAD	(100)									
DTHER							1			
HAZARDOUS AIR	POLLUTA	NT EMIS	SIONS II	VFORMA	TION FC	R THIS S	OURCE			
				D ACTUAL		POTENTIAL				
				ROLS / LIMITS						
AZARDOUS AIR POLLUTANT	CAS NO.		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr		
		See Com	bustion C	alculation	s Apper	ıdix A2				
			-							
	_						ļ			
							I			
TOYICALEDO			NOWFO	DIATION				Nebel and Protocol 90		
TOXIC AIR POL	<u>LUIANI</u>	T CLOSE TO COM	1							
		OF	<b>XPECTED</b>	ACTUAL EN	ISSIONS	AFTER CO	NTROLS /	LIMITATIC		
OXIC AIR POLLUTANT	CASNO	EMISSION		)/hr	lb	/day	I IN	har		
				// iii	u	ruay		/yr		
		See Com	l hustion (	alculation	s Annor	dix A2	<u> </u>			
	+	200 0011			- when					
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TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

1

<b>EMISSION SOURCI</b>	E (INTERNAL	. COMBUS	TION EN	IGINES/TU	<b>RBINES/GEN</b>	IERATORS)		
REVISED 09/22/16 NCDE	Q/Division of Air Q	uality - Applica	tion for Air P	ermit to Constr	uct/Operate	B2		
EMISSION SOURCE DESCR	IPTION: 2016 McC	loskey J50V2 T	rack Jaw	EMISSION SO	JRCE ID NO: GEN-	1 (J50V2)		
Crusher				CONTROL DEVICE ID NO(S): NA				
OPERATING SCENARIO:		DF		EMISSION PO	NT (STACK) ID NO(	S): GEN1		
ENGINE SERVICE	EMERGENCY	SPACE	HEAT	ELECTRI	CAL GENERATION			
(CHECK ALL THAT APP	PEAK SHAVER		(DESCRIBE	:Engine to ru	n Quarry Equipment			
GENERATOR OUTPUT (KW)		ANTICIPATED	ACTUAL HO	JRS OF OPERA	TION (HRS/YR): 37	44		
ENGINE TYPE RICH BU EMISSION REDUCTION MOI OR STATIONARY GAS FUEL NATURAL GAS OTHER (DESCRIBE CYCLE: COGENERATI REGENERATI CONTROLS: WATER UNCONTROLLED OTHER (SPECIFY):	CRIBE):         JRN       LEAN BU         DIFICA       INJECTIO         TURBINE       (complete         OIL       0IL         SIMPLE       COMBINED         VE       COMBINED         -STEAM INJECTIOI       LEAN-PREMIX	RN DN TIMING RET bel NATUR ENGINE TYP CONTROLS: CONTROLS: CLEAN BUI CLEAN BUI CLEAN BUI	AR[ PREI AL GAS PIPE ]2-CYCLE L ]4-CYCLE R ]COMBUSTI CTIVE CATAL RN AND PRE STARTUP	Complete GNITION CHAM LINE COMPRE EAN BURN ICH BURN ON MODIFICAT YTIC REDUQ COMBUSTION	below) IBER COMBUS () SSOR OR TURBINE 4-CYCLE LEAN () OTHER (DESCRIBE) IONS (DESCRIBE) SELECTIVE CATAI C UNCONTROLL JEL)	DTHER (complete below) IURBINE E): LYTIC REDUCTIO ED		
		МАХ	IMUM DESIG	6N	REQUESTED CAP	ACITY		
FUEL TYPE	UNITS	CAPA	CITY (UNIT/	HR)	LIMITATION (UNI	T/HR)		
Diesel/No. 2 Fuel Oil	Btu							
FUEL C	 	ICS (COMPI	ETE ALL	THAT ARE A		antes a su a como a su a Antes a su a como a su a s		
					SULFUR CON			
FUEL TYPE	BTU/UNIT		UNITS		(% BY WEIGH	T)		
Diesel/No. 2 Fuel Oil	0.138		MMBtu/gal		0.0015%			
· · · · · · · · · · · · · · · · · · ·								
						and we do not a start of the st		
					AVAILABLE)			
POLLUTANT	NOX	CO	PM	PM10	VOC	OTHER		
EMISSION FACTOR LB/UNIT								
UNIT								
DESCRIBE METHODS TO MI	NIMIZE VISIBLE EN	AISSIONS DUR	NG IDLING, I	OR LOW LOAD				

## Attach Additional Sheets As Necessary

1

PARTICULATE MATTER<10 MICRONS (PM10)	
EMISSION SOURCE DESCRIPTION: 2015 McCloskey J45 Track Jaw EMISSION SOURCE DESCRIPTION: 2015 McCloskey J45 Track Jaw Control Scenario 1 0 0F 1 DESCRIPTION: 2015 McCloskey J45 Track Jaw Control Scenario 1 0 0F 1 DESCRIPTION: 2015 McCloskey J45 Track Mounted Jaw Crusher 350HP engine TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PA Coalwood,oll, gas, other burner (Form B1) Uncombustion engine/generator (Form B1) Uncombustion engine/generator (Form B1) Uncombustion engine/generator (Form B1) Uncombustion engine/generator (Form B2) Storage slawback (Form B3) Storage slawback (Form B3) Uncombustion engine/generator (Form B2) Storage slawback (Form B3) Uncombustion engine/generator (Form B2) Storage slawback (Form B3) Uncombustion engine/generator (Form B3) Storage slawback (Form B3) Uncombustion engine/generator (Form B3) Storage slawback (Form B3) Storage Sl	B
Crusher. CONTROL DEVICE ID NO(S): MA OPERATING SCENARIO 1 OF 1 EMISSION POINT (STACK) ID NO(S): GENI: DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM): 2015 McCoskey J45 Track Mounted Jaw Crusher 350HP engine TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PA Coal,wood,oli, gas, other burner (Form B1) Coaling/finishing/printing (Form B4) Coaling/finishin	
OPERATING SCENARIO       1       EMISSION POINT (STACK) ID NO(S): GENI:         DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):       2015 McCoskey J45 Track Mounted Jaw Crusher 350HP engine         TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PA Coal,wood,oli, gas, other burner (Form B1)       Woodworking (Form B4)       Internation ongine/generator (Form B2)         Coal,wood,oli, gas, other burner (Form B1)       Storage silos/bins (Form B4)       Internation (Form B8)         Start CONSTRUCTION DATE:       DATE MANUFACTURED: 2015         MANUFACTURER / MODEL NO:       DATE MANUFACTURED: 2015         START CONSTRUCTION DATE:       DATE MANUFACTURED: 2015         MANUFACTURER / MODEL NO:       DATE MANUFACTURED: 2015         START CONSTRUCTION DATE:       DATE MANUFACTURED: 2015         MANUFACTURER / MODEL NO:       ISPNS (SUBPARTS?):         PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25       MAR.MAY 25         JULUTANT EMITTER       SOURCE OF EXPECTED ACTUAL         PARTICULATE MATTER (PM)       See Combustion Calculations Appendix A2         PARTICULATE MATTER (PM)       See Combustion Calculations Appendix A2         PARTICULATE MATTER       SIGNOS (WG;)       ID/hr         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         VOLUTIE MATTER (PM)       See Combustion Calculations Appendix A2	
DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM): 2015 MCCoskey J45 Track Mounted Jaw Crusher 350HP engine TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PA Coal,wood,oil, gas, other burner (Form B1) Coaling/finishing/printing (Form B4) Liquid storage tanks (Form B3) Storage situas (Form B3) Storage situations (Form B3) Storage si	a
TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PA Cal,wood,oil, gas, other burner (Form B1)       Woodworking (Form B4)       Manuf, of chemicals/coatings. Incineration (Form B2)         V       Int.combustion engine/generator (Form B2)       Coating/finishing/printing (Form B6)       Other (Form B9)         Storage silos/bins (Form B3)       Storage silos/bins (Form B6)       Other (Form B9)         START CONSTRUCTION DATE:       DATE MANUFACTURED: 2015         MANUFACTURER / MODEL NO;       EXPECTED OP, SCHEDULE: 12 HR/DAY & DAYWK 5         IS THIS SOURCE SUBJEC       NSPS (SUBPARTS7);       NESHAP (SUBPARTS7);         PERCENTAGE ANNUAL THROUGHPUT (%); DEC-FEB       25       MAR-MAY 25         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS       26         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS       POTENTIAL EMISSIONS         AIR POLLUTANT EMITTED       FACTOR       Ib/hr       tons/yr       Ib/hr         PARTICULATE MATTER-2.5 MICRONS (PM <sub>2.3</sub> )       See Combustion Calculations Appendix A2       EMISSION         PARTICULATE MATTER-2.5 MICRONS (PM <sub>2.3</sub> )       SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         VITROGEN OXIDES (NOX)       See Combustion Calculations Appendix A2       EMISSION         CARBON MONOXIDE (CO)       SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         VOLATILE ORGANIC	
□ Cal,wood,oil, gas, other burner (Form B1)       □ Woodworking (Form B4)       □ Manuf. of chemicals/coatings.         □ Int.combustion engine/generator (Form B2)       □ Coating/finishing/printing (Form B4)       □ Incineration (Form B3)         □ Liquid Storage tanks (Form B3)       □ Storage silos/bins (Form B5)       □ Other (Form B3)         □ Start CONSTRUCTION DATE:       □ DATE MANUFACTURED: 2015         MANUFACTURER / MODEL NO.:       □ EXPECTED OP. SCHEDULE: 12 HR/DAY § DAY/WK 5         IS THIS SOURCE SUBJEC       NSPS (SUBPARTS?):       □ NESHAP (SUBPARTS?):         □ PERCENTAGE ANIVAL THROUGHPUT (%): DEC-FEB 25       MAR.MAY 25       JUN-AUG 25         SOURCE O [EXPECTED ACTUAL]       POTENTIAL EMISSIONS       SOURCE O [EXPECTED ACTUAL]       POTENTIAL EMISSIONS         PARTICULATE MATTER       MIR POLLUTANT EMISTSION AFTER CONTROLS / LIMITS & FORE CONTROLS / LIMITS & AFTER CONTROLS	
Image: Contingent Contingent Content Co	AGES):
Cliquid storage tanks (Form B3)       Storage silos/bins (Form B6)       Other (Form B9)         START CONSTRUCTION DATE:       DATE MANUFACTURER / MODEL NO;:       IEXPECTED OP, SCHEDULE: 12 HR/DAY § DAY/WK 5         IS THIS SOURCE SUBJEC       NSPS (SUBPARTS?):       NESHAP (SUBPARTS?):       NESHAP (SUBPARTS?):         PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB       25       MARMAY 25       JUN-AUG       25         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS 'INFORMATION'FOR THIS SOURCE       SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         AIR POLLUTANT EMISSION SINFORMATION FOR THIS SOURCE       SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         PARTICULATE MATTER (PM)       FACTOR       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr         PARTICULATE MATTER 2.5 MICRONS (PM: <sub>10</sub> )       See Combustion Calculations Appendix A2       PARTICULATE MATTER 2.5 MICRONS (PM: <sub>20</sub> )       Image: Comparison of Calculations Appendix A2       PARTICULATE MATTER 2.5 MICRONS (PM: <sub>20</sub> )       Image: Comparison of Calculations Appendix A2       PARTICULATE MATTER 2.5 MICRONS (PM: <sub>20</sub> )       Image: Comparison of Calculations Appendix A2       Image: Comparison of Calculations Appendix A2       PARTICULATE MATTER 2.5 MICRONS (PM: <sub>20</sub> )       Image: Comparison of Calculations Appendix A2       Image: Compariso	/inks (For
START CONSTRUCTION DATE:       DATE MANUFACTURER / MODEL NO:       EXPECTED OP. SCHEDULE: 12 HR/DAY § DAY/WK §         MANUFACTURER / MODEL NO:       ISTHIS SOURCE SUBPARTS?):       NESHAP (SUBPARTS?):       NESHAP (SUBPARTS?):         PERCENTAGE ANNUAL THROUGHPUT (%):       DEC-FEB       25       MAR-MAY       25       JUN-AUG       25         CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE       SOURCE OL EXPECTED ACTUAL       POTENTIAL EMISSIONS         PARTICULATE MATTER (PM)       FACTOR       Ib/hr       tons/yr       Ib/hr       Ib/hr       tons/yr       Ib/hr       Ib/hr       tons/yr       Ib/hr       Ib/hr       PARTICULATE MATTER (PM)       See Combustion Calculations Appendix A2       D       <	
MANUFACTURER / MODEL NO.:       [EXPECTED OP. SCHEDULE: 12 HR/DAY § DAY/WK §         IS THIS SOURCE SUBJEC       NSPS (SUBPARTS?):	
IS THIS SOURCE SUBJEC NSPS (SUBPARTS?): PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25 MAR-MAY 25 JUN-AUG 25 SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS AIR POLLUTANT EMITTED FACTOR Ib/hr tons/yr Ib/hr tons/yr Ib/hr PARTICULATE MATTER (PM) PARTICULATE MATTER (PM) PARTICULATE MATTER (PM) PARTICULATE MATTER (25 MICRONS (PM:0) SULFUR DIXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER MAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS EMISSION AFTER CONTROLS / LIMIT\$AFTER	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25 MAR-MAY 25 JUN-AÚG 25 CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS AIR POLLUTANT EMITTED FACTOR PARTICULATE MATTER (PM) PARTICULATE MATTER (PM) PARTICULATE MATTER <10 MICRONS (PM <sub>2.5</sub> ) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NO2) CARBON MONOXIDE (SO2) NITROGEN OXIDES (NO2) CARBON MONOXIDE (SO2) NITROGEN OXIDES (NO2) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER MAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL MAZARDOUS AIR POLLUTANT CAS NO. FACTOR DIFT tons/yr Ib/hr tons/yr Ib/hr CAS NO. FACTOR OF EMISSION SINFORMATION FOR THIS SOURCE OF EMISSION FACTOR Ib/hr tons/yr Ib/hr TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EMISSION FACTOR Ib/hr tons/yr Ib/hr tons/yr Ib/hr TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EMISSION FACTOR Ib/hr tons/yr Ib/hr tons/yr Ib/hr TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EMISSION FACTOR IB/hr Ib/day Ib/yr	<u>2 WK/YR</u>
CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         AIR POLLUTANT EMITTED       FACTOR       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       Ib/hr	
SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS EMISSION AFTER CONTROLS / LIMITS/EFORE CONTROLS / LIMITS/AFTER CONTROL PARTICULATE MATTER (PM) PARTICULATE MATTER<25 MICRONS (PM25) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER MAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT CAS NO. FACTOR ID/hr tons/yr ID/hr See Combustion Calculations Appendix A2 PARTICULATE MATTER<25 MICRONS (PM25) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER MAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS AFTER CONTROLS / LIMITS/AFTER CONTROL MAZARDOUS AIR POLLUTANT CAS NO. FACTOR ID/hr tons/yr ID/hr DID/hr tons/yr ID/hr COT CONTON CONTROLS / LIMITS/AFTER CONTROLS / LIMITS/AFTER CONTROL MAZARDOUS AIR POLLUTANT CAS NO. FACTOR ID/hr tons/yr ID/hr DID/hr tons/yr ID/hr CAS NO. FACTOR ID/hr tons/yr ID/hr DID/hr tons/yr ID/hr CONTROLS / LIMITS/AFTER CONTROLS / LIMITS/AF	SE
AIR POLLUTANT EMITTED       FACTOR       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       İb/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr       Ib/hr       tons/yr       Ib/hr       Tons/yr       Ib/hr       tons/yr       Ib/hr <th< td=""><td></td></th<>	
PARTICULATE MATTER (PM) PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> ) See Combustion Calculations Appendix A2 PARTICULATE MATTER<25 MICRONS (PM <sub>25</sub> ) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOx) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS HAZARDOUS AIR POLLUTANT CAS NO. FACTOR U  CAS NO. FACTOR V  CAS NO.	OLS / LIMITS
PARTICULATE MATTER-10 MICRONS (PM <sub>10</sub> ) PARTICULATE MATTER-2.5 MICRONS (PM <sub>25</sub> ) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VCC) LEAD OTHER MAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL EMISSION AFTER CONTROLS / LIMITS FORE CONTROLS / LIMITS AFTER CONTROL HAZARDOUS AIR POLLUTANT CAS NO. FACTOR MAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL MITSOFRE CONTROLS / LIMITS AFTER CONTROLS / LIMITS AFTER CONTROL Ib/hr tons/yr lb/hr ton	tons/yr
PARTICULATE MATTER<2.5 MICRONS (PM2.5) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL MAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT CAS NO. FACTOR See Combustion Calculations Appendix A2 CAS NO. FACTOR MAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE CAS NO. FACTOR OF EMISSION FOR DIDATE CAS NO. FACTOR OF EMISSIONS INFORMATION FOR THIS SOURCE CAS NO. FACTOR C	
SULFUR DIOXIDE (SO2)       Image: Source of the source of th	
NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER I I I I I I I I I I I I I I I I I I I	
CARBON MONOXIDE (CO)         Image: Source of the sour	
VOLATILE ORGANIC COMPOUNDS (VOC)	
LEAD OTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL SOURCE OF EXPECTED ACTUAL FACTOR Ib/hr tons/yr Ib/hr tons/yr Ib/hr HAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT CAS NO. FACTOR See Combustion Calculations Appendix A2 See Combustion Calculations Appendix A2 CAS NO. FACTOR CAS NO. FACTOR CAS NO. FACTOR CAS NO. FACTOR CAS NO. FACTOR OF EMISSIONS INFORMATION FOR THIS SOURCE CAS NO. FACTOR CAS	
OTHER       HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE         HAZARDOUS AIR POLLUTANT       SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         HAZARDOUS AIR POLLUTANT       CAS NO.       FACTOR       Ib/hr       tons/yr       Ib/hr       Ib/hr       tons/yr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       Ib/hr       I	
HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE         SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         HAZARDOUS AIR POLLUTANT       CAS NO.       FACTOR       lb/hr       tons/yr <td></td>	
SOURCE OF EXPECTED ACTUAL       POTENTIAL EMISSIONS         HAZARDOUS AIR POLLUTANT       CAS NO.       EMISSION       AFTER CONTROLS / LIMITS & FFORE CONTROLS / LIMITS & AFTER CONTROLS /	Cathology of the loss
HAZARDOUS AIR POLLUTANT       EMISSION CAS NO.       AFTER CONTROLS / LIMITS EFORE CONTROLS / LIMITS AFTER CONTROLS / LIMITS	
HAZARDOUS AIR POLLUTANT       CAS NO.       FACTOR       Ib/hr       tons/yr       Ib/hr       tons/yr       Ib/hr         A	
See Combustion Calculations Appendix A2         See Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculation Calculations Appendix A2         Image: Combustion Calculations Appendix A2         Image: Combustion Calculations Appendix Appen	
Image: state of the state	tons/yr
TOXIC AIR POLLUTANT     OF EMISSION     XPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIN FACTOR       Ib/hr     Ib/day     Ib/yr	
TOXIC AIR POLLUTANT     OF EMISSION     XPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIN FACTOR       Ib/hr     Ib/day     Ib/yr	
TOXIC AIR POLLUTANT     OF EMISSION     XPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIN FACTOR       Ib/hr     Ib/day     Ib/yr	
TOXIC AIR POLLUTANT     OF     EMISSION       CAS NO.     FACTOR     Ib/hr     Ib/day     Ib/yr	
TOXIC AIR POLLUTANT     OF     EMISSION       CAS NO.     FACTOR     Ib/hr     Ib/day     Ib/yr	
TOXIC AIR POLLUTANT     OF EMISSION     XPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIN FACTOR       Ib/hr     Ib/day     Ib/yr	ana se si
TOXIC AIR POLLUTANT         CAS NO.         FACTOR         Ib/hr         Ib/day         Ib/yi	·····
	WITATIO
See Combustion Calculations Appendix A2	r
Autachinems. (1) emissions calculations and supporting documentation, (2) indicate an requested state and requerat enforceable permit imms ( of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauge	

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

EMISSION SOURCE	E (INTERNAL CO	MBUSTION E	NGINES	S/TURB	INES/GENE	
	Q/Division of Air Quality		Permit to C	Construct/	Operate	B2
EMISSION SOURCE DESCRI	PTION: 2015 McCloskey	J45 Track Jaw	EMISSIO	N SOURC	E ID NO: GEN-1a	ι <b>(J45)</b>
Crusher			CONTRO	L DEVICE	ID NO(S): NA	
OPERATING SCENARIO:	OF		EMISSIO	N POINT (	STACK) ID NO(S)	GEN1a
	EMERGENCY	SPACE HEAT	🗌 ELE	ECTRICAL	GENERATION	
(CHECK ALL THAT APPL)	PEAK SHAVER	OTHER (DESCRIE	BE):Engin	e to run Qu	arry Equipment	
GENERATOR OUTPUT (KW)		CIPATED ACTUAL H	OURS OF C	PERATIO	N (HRS/YR): 3744	
ENGINE OUTPUT (HP): 350	)					
TYPE ICE: GASOLINE EN						JAL FUEL ENG
EMISSION REDUCTION MOL			FIGNITION	CHAMBER	COMBUSED	HFR
	TURBINE (complete bel					
FUEL NATURAL GAS		NE TYPI 2-CYCLE				
	—				HER (DESCRIBE)	
		ONSELECTIVE CAT				
		EAN BURN AND PR				
	LEAN-PREMIX					
	·					
	FUEL USAGE (IN	CLUDE STARTU	P/BACKL	IP FUEL	) an star frank sje	
		MAXIMUM DES	SIGN	RE	QUESTED CAPA	CITY
FUEL TYPE	UNITS	CAPACITY (UNI	T/HR)	LI	MITATION (UNIT/	HR)
Diesel/No. 2 Fuel Oil	Btu					
FUEL C	HARACTERISTICS	COMPLETE AL	L THAT A	RE APP	LICABLE)	
					SULFUR CONTE	ENT
FUEL TYPE	BTU/UNIT	UNITS			(% BY WEIGHT)	)
Diesel/No. 2 Fuel Oil	0.138	MMBtu/ga			0.0015%	
••••••••••••••••••••••••••••••••••••••						
MANU	FACTURER'S SPEC	FIC EMISSION	FACTORS	6 (IF AVA	ILABLE)	
POLLUTANT	NOX	CO PN	1	PM10	VOC	OTHER
EMISSION FACTOR LB/UNIT						
UNIT						
DESCRIBE METHODS TO MI						<u></u>
DESCRIBE METHODS TO MI	INIMIZE VISIBLE EMISSIC	INS DURING IDLING		.OAD OFE	INATIONS.	
COMMENTS:						
CONNUCINI 5.						

#### Attach Additional Sheets As Necessary

SPECIFIC EMISSION S REVISED 09/22. NCDEQ/Di								
				•				
EMISSION SOURCE DESCRIPTION								_
20'X5' Track Screen				CONTROL			11-2 (0100	
OPERATING SCENARIO	0	F				TACK) ID N	IO(S):	
DESCRIBE IN DETAILTHE EMISSIO	ON SOURCE	PROCESS	(ATTACH	FLOW DIAC	GRAM):		- \- /	
2016 McCloskey S190DT 2-deck 20	)'X5' Track I	Mounted Sc	reen					
TYPE OF EMISSION SOURCE (	HECK AND	COMPLET		RIATE FOR	M B1-B9 (	ON THE FO		PAGES):
Coal,wood,oil, gas, other burner (			orking (Fo			uf. of chem		
Int.combustion engine/generator	(Form B2)	Coating	/finishina/g	rinting (Forr		neration (Fo	rm B8)	3 (· •
Liquid storage tanks (Form B3)	. ,	Storage	e silos/bins	(Form B6)	C Othe	er (Form B9	) ́	
START CONSTRUCTION DATE:			DATE MA	NUFACTUR	ED: 2016	•		
MANUFACTURER / MODEL NO.:			EXPECTE	D OP. SCH	EDULE: 12	2 HR/DAY	6 DAY/WK	52 WK/YF
IS THIS SOURCE SUBJEC N	ISPS (SUBP	ARTS?):				3PARTS?):		
PERCENTAGE ANNUAL THROUGH	<u>PUT (%): D</u>	EC-FEB	25 N	AR-MAY	25	JUN-AUC	<u> </u>	SE
CRITERIA AIR P								
	:	SOURCE O				POTENTIAL		
				ROLS / LIMITS				
	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM) PARTICULATE MATTER<10 MICRON	6	l	   -4!					
		See Com	Dustion C	alculation	is Appen	dix A2		ļ
PARTICULATE MATTER<2.5 MICRON SULFUR DIOXIDE (SO2)	S (PM <sub>2.5</sub> )							
NITROGEN OXIDES (NOx)							· · · ·	
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUNDS								<u> </u>
LEAD	(000)							
OTHER								<u> </u>
HAZARDOUS AIR				IFORMA		D THIC C		hawinzi aku
		SOURCE O				POTENTIAL		
				ROLS / LIMITS				
HAZARDOUS AIR POLLUTANT	CAS NO.		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
				(0.10 <i>.</i> ).	10711			
		See Com	bustion C	alculation	s Appen	dix A2		
	_							
						<u> </u>	N	1
							N	
TOXIC AIR POL	LUTANT							
TOXIC AIR POL	LUTANT	SOURCE						
		SOURCE OF	XPECTED	ACTUAL EN	AISSIONS	AFTER CO	NTROLS /	LIMITATIO
		SOURCE	XPECTED		AISSIONS		NTROLS /	
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
TOXIC AIR POL TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION	XPECTED	ACTUAL EN	/ISSIONS lb/	AFTER CO day	NTROLS /	LIMITATIO
	CAS NO.	SOURCE OF EMISSION See Comi	XPECTED Ib Dustion C	ACTUAL EN	/ISSIONS Ib/	AFTER CO day dix A2	NTROLS /	LIMITATIO /yr

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

<b>EMISSION SOURCE (INTERNAL</b>	COMBUSTION ENGINES/TURBINES/GENERATORS)

REVISED 09/22/16 NCDE	Q/Division of Air Qu	ality -	Application for Air P	ermit	to Construct/	Operate	B2
EMISSION SOURCE DESCRI	PTION: 2016 McClo	skey	S190DT 2-deck	EMIS	SSION SOURC	E ID NO: GEN-2 (	S190dt)
20'X5' Track Screen				CON	TROL DEVICE	ID NO(S): NA	
OPERATING SCENARIO:	OF	:		EMIS	SSION POINT (	STACK) ID NO(S):	GEN2
ENGINE SERVICE	EMERGENCY		SPACE HEAT		ELECTRICAL	GENERATION	
(CHECK ALL THAT APP	PEAK SHAVER	$\checkmark$	OTHER (DESCRIBE)	: <u> </u>	ingine to run Qu	uarry Equipment	
GENERATOR OUTPUT (KW):	A	NTIC	IPATED ACTUAL HOU	JRS (	OF OPERATIO	N (HRS/YR): 3744	
ENGINE OUTPUT (HP): 125							
TYPE ICE: GASOLINE EN	RIBE):	44 A.	UP TO 600 📋 DIES				
ENGINE TYPE 🔲 RICH BU			_				
EMISSION REDUCTION MOD							
OR STATIONARY GAS							
FUEL NATURAL GAS		NGIN	E TYPI 2-CYCLE LI				
						HER (DESCRIBE):	
			ROLS: COMBUSTI				
	VE COMBINED		EAN BURN AND PRE				
	LEAN-PREMIX		EAN BURN AND FRE	COM		UNCONTROLLED	,
		INC	LUDE STARTUP	BAC		) - Classific - Cl	an an an an an an an an an an an an an a
			MAXIMUM DESIG			QUESTED CAPAC	
FUEL TYPE	UNITS		CAPACITY (UNIT/			MITATION (UNIT/H	
Diesel/No. 2 Fuel Oil	Btu			,			
Dieseinito. 21 dei On							
	· · · · ·					· • • • • • • • • • • • • • • • • • • •	
FUELO	HARACTERIST	CS (	COMPLETE ALL	THA			
	CR.10.15.163.2018	5		84. <b>8</b> . <b>9</b> 91. 9		SULFUR CONTE	
FUEL TYPE	BTU/UNIT		UNITS			(% BY WEIGHT)	
Diesel/No. 2 Fuel Oil	0.138		MMBtu/gal			0.0015%	
Diesenito. 2 i dei on	0.100						
	······································						
MANU	FACTURER'S SF	ECI	FIC EMISSION FA	<b>ACT</b>	DRS (IF AV	AILABLE)	
POLLUTANT	NOX		CO PM		PM10	VOC	OTHER
EMISSION FACTOR LB/UNIT							
UNIT							
DESCRIBE METHODS TO MI		2010					
DESCRIBE METHODS TO MIN		33101	NO DURING IDLING,				
COMMENTS:	<b></b>		5.0000-00				
1							

## Attach Additional Sheets As Necessary

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# SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22 NCDEQ/Divi	sion of Air C	Quality - App	lication fo	or Air Permi	t to Consti	uct/Operat	e	В
EMISSION SOURCE DESCRIPTION: 2				EMISSION	SOURCE	ID NO: GEI	N-3 (PS130	0MaxTrak)
Cone Crusher				CONTROL				
OPERATING SCENARIO 1	OF	1		EMISSION	POINT (S	FACK) ID N	O(S):	
DESCRIBE IN DETAILTHE EMISSION		ROCESS (AT	TTACH FLO					
2006 Powerscreen 1300 Maxtrak trac	k mounted (	Cone Crush	er		,			
TYPE OF EMISSION SOURCE (CH	HECK AND C	OMPLETE	APPROPR	ATE FORM	1 B1-B9 ON	THE FOL	LOWING P	AGES):
Coal, wood, oil, gas, other burner (Fo			orking (For		Man	uf. of chemi	cals/coating	s/inks (Forr
✓ Int.combustion engine/generator (Fo	orm B2)	Coating	/finishina/p	rinting (Forn		eration (For		
Liquid storage tanks (Form B3)	,			(Form B6)		r (Form 89)		
START CONSTRUCTION DATE:	<u> </u>	- Oldruge	DATE MA	NUFACTUR				
MANUFACTURER / MODEL NO.:			FXPECTE	D OP. SCH	EDULE: 12	HR/DAY	6 DAY/WK	52 WK/YR
IS THIS SOURCE SUBJECT TO?	NSPS (SI	JBPARTS?):			SHAP (SUE			
PERCENTAGE ANNUAL THROUGHPU		-FFB 25	MAE			IUN-AUG	25	SEP-N
CRITERIA AIR PC			NSINE	DRIMATIO			IRCE	97 (A. 2005) -
		SOURCE OI			na na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na m Mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na mana na m	OTENTIAL	EMISSION	IS
	•	EMISSION		DOLE / UNITE				
		FACTOR			ib/hr	tons/yr	Ib/hr	tons/yr
		FACTOR	lb/hr	tons/yr		tonaryi	1	
PARTICULATE MATTER (PM)				alculation				
PARTICULATE MATTER<10 MICRONS (		See Com	oustion C	alculation	is Appen			
PARTICULATE MATTER<2.5 MICRONS	(PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)								
NITROGEN OXIDES (NOx)							·	
CARBON MONOXIDE (CO)							ļ	
VOLATILE ORGANIC COMPOUNDS (\	/OC)						ļ	
LEAD								
OTHER								AND SHOP I ADD IN THE OWNER
HAZARDOUS AIR P	POLLUTAI	NT EMISS	<u>IONS IN</u>	<u>FORMAT</u>	<u>ION FOR</u>	<u>THIS SC</u>	DURCE	X = X = 1
		SOURCE O	EXPECTE	D ACTUAL		POTENTIAL	EMISSIO	NS
		EMISSION	AFTER CONT	ROLS / LIMITS	EFORE CON	TROLS / LIMIT	AFTER CONT	ROLS / LIMITS
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
<u> </u>		See Com	bustion C	alculation	is Appen	dix A2	1	
······································						1		
				· · · · · · · · · · · · · · · · · · ·				1
							1	
TOXIC AIR POL	LITANT			MATION	FOR TH	IS SOUL	CE	RAN SALAN A
IUAICAIN FOL								
		OF	<b>KPECTED</b>	ACTUAL E	MISSIONS	AFTER CC	NTROLS /	LIMITATIO
TOYIC AID DOLLUTANT		EMISSION	Ił	p/hr	l lh	dav	1 11	o/yr
TOXIC AIR POLLUTANT	CAS NO.	ENISSION	1.	//11	lb/day			
						div A2		
		Can Cam	hundian C	• alaulatia				
		See Com	bustion C	alculation	15 Appen			
		See Com	bustion C	alculation	ns Appen			
		See Com	bustion C	alculation	15 Appen			
		See Com	bustion C	alculation	15 Appen			
		See Com	bustion C	alculation	ns Appen			
		See Com	bustion C	alculation	15 Appen			
		See Com	bustion C	alculation	ns Appen			
		See Com	bustion C	alculation	15 Appen			
		See Comi	bustion C	alculation	is Appen			

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH. Attach Additional Sheets As Necessary

xtrak     EM       CO     EM       EAT     DESCRIBE):       DESCRIBE):     DESCRIBE):       CTUAL HOURS       0     DIESEL'I       2     DESCRIBE):       2     COL       2     PREIGNI       2     CYCLE LEAN       CYCLE RICH     COMBUSTION       VE CATALYTIC	NTROL DEVICE ISSION POINT ( ELECTRICAL Engine to run Qu OF OPERATIO OF OPERATIO INGINE GREAT (complete below TION CHAMBEF E COMPRESSC BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	E ID NO: GEN-3 ID NO(S): NA STACK) ID NO(S GENERATION	S): GEN3 4 UAL FUEL ENG THER (complete below URBINE ): YTIC REDUCTIO	
CO EAT DESCRIBE): DUAL HOURS O	NTROL DEVICE ISSION POINT ( ELECTRICAL Engine to run Qu OF OPERATIO OF OPERATIO INGINE GREAT (complete below TION CHAMBEF E COMPRESSC BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	ID NO(S): NA STACK) ID NO(S GENERATION Jarry Equipment_ N (HRS/YR): 374 ER THAN 6 D W) R COMBUS O R OR TURBINE YCLE LEAN TURBINE YCLE LEAN TURBINE S (DESCRIBE): LECTIVE CATAL	S): GEN3 4 UAL FUEL ENG THER (complete below URBINE ): YTIC REDUCTIO	
EAT DESCRIBE): CTUAL HOURS 0 DIESEL I CAS PIPELIN CAS PIPELIN COCLE RICH COMBUSTION VE CATALYTIC	ISSION POINT ( ELECTRICAL Engine to run Qu OF OPERATIO INGINE GREAT (complete beling) TION CHAMBER E COMPRESSO BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	STACK) ID NO(S GENERATION Jarry Equipment _ N (HRS/YR): 374 ER THAN 6 D DW) COMBUS O R OR TURBINE YCLE LEAN TURBINE YCLE LEAN TURBINE S (DESCRIBE): LECTIVE CATAL	4 UAL FUEL ENG THER (complete below URBINE :): YTIC REDUCTIO	
EAT DESCRIBE): DTUAL HOURS 0 [] DIESEL I RC PREIGNI GAS PIPELIN CAS PIPELIN COCLE RICH COMBUSTION VE CATALYTIC	ELECTRICAL Engine to run Qu OF OPERATIO ENGINE GREAT (complete beling) TION CHAMBER E COMPRESSO BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	GENERATION Jarry Equipment_ N (HRS/YR): 374 ER THAN 6[]D W) COMBUS[]O R OR TURBINE YCLE LEAN] TU HER (DESCRIBE S (DESCRIBE): _ LECTIVE CATAL	4 UAL FUEL ENG THER (complete below URBINE :): YTIC REDUCTIO	
DESCRIBE): CTUAL HOURS 0 DESEL 1 0 PREIGNI CAS PIPELIN COCLE LEAN COCLE RICH COMBUSTION VE CATALYTIC	Engine to run Qu OF OPERATIO ENGINE GREAT (complete beling) TION CHAMBER E COMPRESSO I BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	A COMBUS ) O R COMBUS ) O R COMBUS ) O R OR TURBINE YCLE LEAN TU HER (DESCRIBE S (DESCRIBE): _ LECTIVE CATAL	UAL FUEL ENG THER	
CTUAL HOURS	OF OPERATIO	N (HRS/YR): 374 ER THAN 6 D DW R COMBUS O R OR TURBINE YCLE LEAN TH HER (DESCRIBE S (DESCRIBE): _ LECTIVE CATAL	UAL FUEL ENG THER	
0 DIESEL 1 2 PREIGNI 2 GAS PIPELIN 2-CYCLE LEAN 1-CYCLE RICH COMBUSTION VE CATALYTIC	ENGINE GREAT (complete belown TION CHAMBEF E COMPRESSC BURN 4-C BURN 01 MODIFICATION C REDUQ SEI	ER THAN 6 D W) R COMBUS D R OR TURBINE YCLE LEAN THER (DESCRIBE S (DESCRIBE): _ LECTIVE CATAL	UAL FUEL ENG THER	
CAS PIPELIN CAS PIPELIN COYCLE LEAN COMBUSTION VE CATALYTIC	(complete bell TION CHAMBEF E COMPRESSO BURN 4-C BURN 0TI MODIFICATION C REDUQ SEI	DW) R COMBUS ) O R OR TURBINE YCLE LEAN TH HER (DESCRIBE S (DESCRIBE): _ LECTIVE CATAL	THER (complete below URBINE :): YTIC REDUCTIO	
TARTUP/BA		) QUESTED CAPA		
	LI	MITATION (UNIT	/HR)	
	_			
TE ALL TH	AT ARE APP	LICABLE)		
		SULFUR CONT	ENT	
UNITS		(% BY WEIGHT)		
MBtu/gal		0.0015%		
SION FACT	ORS (IF AVA	AILABLE)		
PM	PM10	VOC	OTHER	
	UM DESIGN ITY (UNIT/HR) ITE ALL TH UNITS IBtu/gal SION FACT PM	UM DESIGN RE ITY (UNIT/HR) LI TE ALL THAT ARE APP UNITS MBtu/gal SION FACTORS (IF AV/ PM PM10	IUM DESIGN REQUESTED CAPA ITY (UNIT/HR) LIMITATION (UNIT ITE/ALL/THAT ARE APPLICABLE) UNITS (% BY WEIGHT MBtu/gal 0.0015% SSION FACTORS (IF AVAILABLE)	

#### Attach Additional Sheets As Necessary

SPECIFIC EMISSION S REVISED 09/22. NCDEQ/Div	vision of Air		<b>VIATIO</b>		nit to Cons	truct/Opera	ite	В
EMISSION SOURCE DESCRIPTION				EMISSION	SOURCE	ID NO: GEN	-4 (TF80)	
	. 2010 MICON	Uskey 1100	THUCK	CONTROL	DEVICE I	D NO(S):		···
stockpiling ConveyorScreen OPERATING SCENARIO 1	OF	1		EMISSION	POINT (S	TACK) ID N	O(S):	
DESCRIBE IN DETAILTHE EMISSIO						171011911211	<u> </u>	
DESCRIBE IN DETAIL THE EMISSIO		PROCESS		LOW DIAC				
2016 McCloskey TF80 Track Moun	ted stockpill	ing Convey	orscreen					
					M D4 D0 C		1 OWING	PAGES)
TYPE OF EMISSION SOURCE (C	HECK AND	COMPLETE	APPROP			uf. of chemic		ne/inke (Eorr
Coal,wood,oil, gas, other burner (	Form B1)		orking (For			eration (For		janina (i on
Int.combustion engine/generator (	Form B2)			rinting (Forn			m 88)	
Liquid storage tanks (Form B3)		Storage	silos/bins	Form B6)		r (Form B9)		<u> </u>
START CONSTRUCTION DATE:			DATE MAI	NUFACTUR	ED: 2016			50 M/// 0/D
MANUFACTURER / MODEL NO .:			EXPECTE	D OP. SCH	EDULE: <u>12</u>	HR/DAY	DAY/WK	52 WR/TR
	SPS (SUBP				SHAP (SUE			000
PERCENTAGE ANNUAL THROUGH	PUT (%): DI	EC-FEB	25 M	AR-MAY	25	JUN-AUG	25	SEP
CRITERIA AIR P	OLLUTAN	TEMISSI	ONS INF	ORMATI	on for	THIS SOL	JRCE	的现在分词的
		SOURCE O	EXPECTE	D ACTUAL	F	POTENTIAL	EMISSIO	NS
		EMISSION	AFTER CONT	ROLS / LIMITS	EFORE CON	TROLS / LIMITS	AFTER CONT	ROLS / LIMITS
AIR POLLUTANT EMITTED		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)								
PARTICULATE MATTER (1 M)	S (PM)	See Com	bustion C	alculatio	15 Appen	dix A2		1
PARTICULATE MATTER<2.5 MICRON		000 00	1	1	1			
	13 (FIVI2.5)							
SULFUR DIOXIDE (SO2)								<u> </u>
NITROGEN OXIDES (NOx)				ļ				
CARBON MONOXIDE (CO)								╉─────
VOLATILE ORGANIC COMPOUNDS								
LEAD					<u> </u>	1		
OTHER								tan Manataka e
HAZARDOUS AIR	<u>POLLUTA</u>	NT EMIS	SIONSII	<b>IFORMA</b>	<u>IION FU</u>	R IHISS	OURCE	COMPLEXING AN
		SOURCE O	EXPECTE	D ACTUAL		POTENTIAL		
		EMISSION	AFTER CONT	ROLS / LIMITS	BEFORE CON	TROLS / LIMITS		TROLS / LIMITS
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	ib/hr	tons/yr	lb/hr	tons/yr
		See Com	bustion C	alculatio	ns Appen	dix A2		
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	_							
	_			· · · · · · · · · · · · · · · · · · ·				
TOXIC AIR PO	MUTANIT		NSINEO	PMATIO			RCF	
TOXIC AIR POL	LEUTANT	LIVIISSIC		MIANY				Status Abgauta - Cons
		SUDRUL	<b>KPECTED</b>	ACTUAL E	MISSIONS	AFTER CO	NTROLS /	LIMITATIO
						/day		b/yr
TOXIC AIR POLLUTANT	CAS NU.	EMISSION	11.	/hr		uay		5/ yi
					L		<u> </u>	"
		See Com	pustion C	alculatio	ns Appen		<b> </b>	
· · · · · · · · · · · · · · · · · · ·								
		1						
		<u> </u>						
			+					
Autachments. (1) emissions calculations an	a Supporting a	ocumentation,		in requested a	nate and read	stat emorecas	e permit un	<del>në (e.g. nours</del>
of operation, emission rates) and describe	how these are	monitored and	I with what fre	equency; and	(3) describe	any monitoring	g devices, ga	uges, or test

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

EMISSION SOURCE	•				
REVISED 09/22/16 NCDE	Q/Division of Air Quality	- Application for Air F			B2
EMISSION SOURCE DESCRI		TF80 Track	EMISSION SO	URCE ID NO: GEN-4	(TF80)
stockpiling ConveyorScreen			CONTROL DE	VICE ID NO(S): NA	
OPERATING SCENARIO:	OF		EMISSION PO	INT (STACK) ID NO(S	): GEN4
	EMERGENCY	SPACE HEAT	ELECTR	ICAL GENERATION	
(CHECK ALL THAT APPL)	PEAK SHAVER	OTHER (DESCRIBE	):Engine to ru	un Quarry Equipment	
GENERATOR OUTPUT (KW):	ANTIC	IPATED ACTUAL HO	URS OF OPERA	ATION (HRS/YR): 3744	4
ENGINE OUTPUT (HP): 125					
TYPE ICE: GASOLINE EN	GINE [√] DIESEL ENGINI RIBE):				
ENGINE TYPE 🔲 RICH BU					
EMISSION REDUCTION MOD					
OR STATIONARY GAS	TURBINE (complete bel				
FUEL NATURAL GAS				] 4-CYCLE LEAN TI	
OTHER (DESCRIBE	· 1			OTHER (DESCRIBE)	
CYCLE: 🔲 COGENERATIO				TIONS (DESCRIBE): _	
				SELECTIVE CATALY	
	STEAM INJECTIO	EAN BURN AND PRE	COMBUSTION	CUNCONTROLLE	D
	LEAN-PREMIX				
DTHER (SPECIFY):					
	FUEL USAGE (INC	LUDE STARTUP	/BACKUP FL	JEL)	
		MAXIMUM DESIC		REQUESTED CAPA	
FUEL TYPE	UNITS	CAPACITY (UNIT/	HR)	LIMITATION (UNIT)	/HR)
Diesel/No. 2 Fuel Oil	Btu				
FUEL C	HARACTERISTICS (	COMPLETE ALL	THAT ARE /	APPLICABLE)	
				SULFUR CONTI	ENT
FUEL TYPE	BTU/UNIT	UNITS		(% BY WEIGHT	)
Diesel/No. 2 Fuel Oil	0.138	MMBtu/gal		0.0015%	
					)
MANU	FACTURER'S SPECI	FIC EMISSION F	ACTORS (IF	AVAILABLE)	a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l
POLLUTANT	NOX	CO PM	PM10	VOC	OTHER
EMISSION FACTOR LB/UNIT					
UNIT					
DESCRIBE METHODS TO MI	VIIVILE VISIDLE EIVIISSIO	NS DURING IDLING,		OPERATIONS.	
COMMENTS:					

## Attach Additional Sheets As Necessary

SPECIFIC EMISSION S	OURCE	E INFOR	MATIO	N (REQ	UIRED	FOR AL	L SOU	RCES)
REVISED 09/22. NCDEQ/Div	ision of Ai	r Quality - A	pplication	for Air Perr	nit to Con	struct/Operation	ate	B
EMISSION SOURCE DESCRIPTION	: 2017 Pow	erscreen 13	00 Maxtral	EMISSION	SOURCE	ID NO: GE	N-5 (PS130	)0MaxTrak)
Cone Crusher						D NO(S): N		
OPERATING SCENARIO 1	OF	: 1				TACK) ÍD N		N-5
DESCRIBE IN DETAILTHE EMISSIC			(ATTACH	FLOW DIAC	RAM):		/	
2017 Powerscreen 1300 Maxtrak tr								
	uon mount							
TYPE OF EMISSION SOURCE (C	HECK AND		E APPROP	RIATE FOR	M B1-B9 (	ON THE FO	LOWING	PAGES):
Coal,wood,oil, gas, other burner (			orking (For			uf. of chemi		
✓ Int.combustion engine/generator (						neration (For		gee (. e.
Liquid storage tanks (Form B3)	,		e silos/bins			er (Form B9)		
START CONSTRUCTION DATE:				NUFACTUR				
MANUFACTURER / MODEL NO.:						2 HR/DAY		52 WK/YR
	SPS (SUBF					BPARTS?):_		<u>52 WIUTIN</u>
PERCENTAGE ANNUAL THROUGH			25 M	AR-MAY	25	JUN-AUG	25	SEI
CRITERIA AIR PO				OPMATI	25 ANAEAR	THIS SO	n 25 NDAEssa	
		SOURCE O				POTENTIAL		NC
AID DOL LUTANT EMITTED						TROLS / LIMITS		
		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)			<u> </u>			<u> </u>		4
PARTICULATE MATTER<10 MICRONS		See Com	bustion C	alculation	ns Appen			
PARTICULATE MATTER<2.5 MICRON	S (PM <sub>2.5</sub> )	ļ						
SULFUR DIOXIDE (SO2)			ļ					L
NITROGEN OXIDES (NOx)		ļ						
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUNDS	(VOC)							
LEAD								
OTHER								
HAZARDOUS AIR I								
		SOURCE O	EXPECTE	D ACTUAL		POTENTIAL	EMISSIO	NS
		EMISSION	AFTER CONT	ROLS / LIMITS	SEFORE CON	TROLS / LIMITS	AFTER CON	ROLS / LIMITS
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
		See Com	bustion C	alculation	is Appen	dix A2		
			1					
		1						1
				í				
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TOXIC AIR POL	LUTANT	EMISSIO	NS INFO	RMATIO	FOR T	HIS SOUL	RCE	Geographic States of the States of the States of the States of the States of the States of the States of the St
·	T							
	1	OF	RPECIED	ACTUAL EP	ISSIONS	AFTER CO	NTROLST	LIMITATIO
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lb	/hr	lb/	day	lk	o/yr
						,		
		See Com	bustion C	alculation	s Appen	dix A2		
n.								
		ļ						
Апаснитента. (т) спизаюта саксиалона ана	Supporting the	Contentation		Inducesied st				
								- (

of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

	2/Division of Air C	Quality -	Application for A	ir Permit	to Construct	/Operate	B
EMISSION SOURCE DESCRI	PTION: 2017 Powe	erscreer	1300 Maxtrak Co				5 (PS1300 Ma
						E ID NO(S): NA	
PERATING SCENARIO:		<u> </u>				(STACK) ID NO(S	S): GEN5
	EMERGENCY		SPACE HEAT			L GENERATION	
	PEAK SHAVER		OTHER (DESCRI				
ENERATOR OUTPUT (KW):		ANTIC	PATED ACTUAL I	HOURS O	F OPERATIC	ON (HRS/YR): 374	4
INGINE OUTPUT (HP):         450           YPE ICE:         GASOLINE EN           OTHER (DESC           INGINE TYPE         RICH BU           INSSION REDUCTION MOD	RIBE): RN LEAN BU	JRN	<u></u>		(complete be	low)	
	):		E TYP 2-CYCLE 4-CYCLE ROLS: COMBUS NSELECTIVE CAT EAN BURN AND P	E RICH BU STION MO ALYTIC F		THER (DESCRIBE NS (DESCRIBE): _ ELECTIVE CATAL	
	FUEL USAG	E (INC	LUDE STARTI	JP/BAC	KUP FUEI	)	
	<u>- 1</u>		MAXIMUM DE			EQUESTED CAP	
FUEL TYPE	UNITS		CAPACITY (UN	IT/HR)		IMITATION (UNIT	
)iesel/No. 2 Fuel Oil	Btu						
FUEL C	HARACTERIST	rics ((	COMPLETE AL	L THAT	<b>CARE APP</b>	PLICABLE)	
						SULFUR CONT	ENT
FUEL TYPE	BTU/UNIT		UNITS			(% BY WEIGH	Г)
iesel/No. 2 Fuel Oil	0.138		MMBtu/ga	վ	<u>,</u>	0.0015%	
l MANUI	-ACTURER'S S	SPECI	IC EMISSION	FACTO	RS (IF AV		S. S. Sta
POLLUTANT	NOX			M	PM10		OTHER
MISSION FACTOR LB/UNIT					<b>_</b>		
UNIT							
DESCRIBE METHODS TO MIN							

## Attach Additional Sheets As Necessary

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SPECIFIC EMISSION SOURC	E INFOR	MATIO	N (REQI	<b>JIRED</b> I	FOR AL	L SOU	RCES)
REVISED 09/22. NCDEQ/Division of A	ir Quality - A	pplication f	ior Air Pern	nit to Cons	truct/Opera	ate	В
EMISSION SOURCE DESCRIPTION: 2017 Pow	verscreen 10	00 Maxtrak				N-7 (PS100	0 Maxtrak )
Cone Crusher				DEVICE ID			
OPERATING SCENARIO0	·			POINT (ST	FACK) ID N	O(S):	
DESCRIBE IN DETAILTHE EMISSION SOURC	E PROCESS	(ATTACH F	LOW DIAG	RAM):			
2017 Powerscreen 1000 Maxtrak Cone Crush	ər						
TYPE OF EMISSION SOURCE (CHECK AN				_			
Coal,wood,oil, gas, other burner (Form B1)		orking (Fori					s/inks (Forn
✓ Int.combustion engine/generator (Form B2)			rinting (Forn		eration (For		
Liquid storage tanks (Form B3)	Storage	silos/bins (			r (Form B9)		
START CONSTRUCTION DATE:			NUFACTUR				
MANUFACTURER / MODEL NO.:		EXPECTE				6 DAY/WK	<u>52</u> WK/YR
IS THIS SOURCE SUBJEC NSPS (SUB				SHAP (SUB			
PERCENTAGE ANNUAL THROUGHPUT (%): I	DEC-FEB		AR-MAY	25	JUN-AUG		SEP
CRITERIA AIR POLLUTA	NNEMISSI	onsine	<u>ORMAII(</u>	onfor	THIS SO	URCE	國際 律認知识
	SOURCE O	EXPECTE	D ACTUAL	P	OTENTIAL	. EMISSION	IS
	EMISSION	AFTER CONT	ROLS / LIMITS	SEFORE CONT	ROLS / LIMITS	AFTER CONT	ROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)							
PARTICULATE MATTER<10 MICRONS (PM10)	See Com	bustion C	alculation	is Append	lix A2		

PARTICULATE MATTER<2.5 MICRONS (PM2.5)

SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOx) CARBON MONOXIDE (CO)

VOLATILE ORGANIC COMPOUN	DS (VOC)								
LEAD									
DTHER									
HAZARDOUS AI	R POLLUTA	NT EMIS	<u>sions II</u>	<b>IFORMA</b>	<u>TION FO</u>	<u>R THIS S</u>	OURCE	的新教会	
		SOURCE O	EXPECTE	D ACTUAL		POTENTIAL	. EMISSION	IS	
		EMISSION	AFTER CONT	ER CONTROLS / LIMITSBEFORE CONTROLS / LIMI			ISAFTER CONTROLS / I		
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
		See Com	bustion C	alculatio	ns Appen				
								<u> </u>	
				\					
TOXIC AIR P	<u>OLLUTANT</u>		<u>NS INFO</u>	RMATIO	<u>N FOR T</u>	<u>HIS SOU</u>	RCE		
		SOURCE OF	XPECTED	ACTUAL E	MISSIONS	AFTER CO	NTROLS /	LIMITATIC	
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lt	/hr	lb	/day	lt	)/yr	
		See Com	pustion (	algulatio		div A2			
		See com		alculatio	T Appen				
- 100 mg m									
All actiments. (1) emissions calculations of operation, emission rates) and describ	and supporting of	cumentation,		in requested s	tate and lea	erar ensorceab	ie permiciinii	i <del>a (e.g. noura</del>	

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH **Attach Additional Sheets As Necessary** 

EMISSION SOURCE DESCRI	PTION: 2017 Powerscr	een 1000 M	axtrak Cone	SSION SOURC	E ID NO: GEN-7	7 (PS1000Max				
Crusher					EID NÓ(S): NA					
OPERATING SCENARIO:	OF		EMI	SSION POINT	(STACK) ID NO(S	S): <b>GEN7</b>				
	EMERGENCY	SPACE		ELECTRICAL GENERATION						
(CHECK ALL THAT APP	PEAK SHAVER		(DESCRIBE):E	Engine to run Q	uarry Equipment					
GENERATOR OUTPUT (KW):	AN		ACTUAL HOURS			14				
ENGINE OUTPUT (HP): 350										
TYPE ICE: GASOLINE EN	GINE 🔽 DIESEL ENG RIBE):	NE UP TO (	900 🛄 DIESEL E	NGINE GREAT	TER THAN 6∐ .C ow)	WAL FUEL EN				
ENGINE TYPE 🔲 RICH BU										
EMISSION REDUCTION MOD										
	TURBINE (complete bel									
FUEL NATURAL GAS			2-CYCLE LEAN							
			4-CYCLE RICH I		•					
CYCLE: COGENERATIO			COMBUSTION N							
			TIVE CATALYTIC							
		CLEAN BUR	N AND PRECOM	BUSTION C	UNCONTROLLE	ED				
	LEAN-PREMIX									
OTHER (SPECIFY):						A stability of stability of the stability statistics and				
	FUEL USAGE (II			<u>CKUP FUEL</u>						
			MUM DESIGN		QUESTED CAP					
FUEL TYPE	UNITS	САРА	CITY (UNIT/HR)		MITATION (UNIT	7HR)				
Diesel/No. 2 Fuel Oil	Btu									
	· · · · · · · · · · · · · · · · · · ·									
Nel Martin Martin State Royana International State of Articles and Articles and Articles and Articles and Artic										
FUEL C	HARACTERISTICS	<u>S (COMPL</u>	ETE ALLATHA	AT ARE APP						
					SULFUR CONT					
FUEL TYPE	BTU/UNIT		UNITS		(% BY WEIGHT	Г)				
Diesel/No. 2 Fuel Oil	0.138	N	MBtu/gal		0.0015%					
MANU	ACTURER'S SPE	CIFIC EM	SSION FACT	<u>ORS (IF AV</u>	AILABLE)					
POLLUTANT	NOX	CO	PM	PM10	VOC	OTHER				
EMISSION FACTOR LB/UNIT										
UNIT										
DESCRIBE METHODS TO MIN	IMIZE VISIBLE EMISS	IONS DURI	IG IDLING, OR LO	OW LOAD OPE	RATIONS:					
COMMENTS:										
COMMENTS:										
COMMENTS:										
COMMENTS:										
COMMENTS:										

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# Attach Additional Sheets As Necessary

SPECIFIC EMISSION REVISED 09/22. NCDEQ/D								ГВ
EMISSION SOURCE DESCRIPTION	ivision of Ai					ID NO: ES		В
Generator	N. 2005 np 1	vaturai Gas	Propane			ID NO(S): C		
	1 OF	- 1				STACK) ID N		
DESCRIBE IN DETAIL THE EMISSI		PROCESS			GRAM).		10(3). FO	-14 3
2065 hp Natural Gas/Propane Pow	/er Generato	r equipped	with catal	tic oxidatio	on or only.			
	ion opinionale	i oquipped	with cutar					
TYPE OF EMISSION SOURCE (	CHECK AND	COMPLET	E APPROF	<b>RIATE FOR</b>	RM B1-B9 (	ON THE FO	LLOWING	PAGES):
Coal,wood,oil, gas, other burner	(Form B1)	Woodv	vorking (Fo	rm B4)	🗌 Mar	uf. of chem	icals/coatin	gs/inks (Fo
Int.combustion engine/generator	(Form B2)	Coating	g/finishing/p	printing (For	n 🗌 Incii	neration (Fo	rm B8)	
Liquid storage tanks (Form B3)		Storag	e silos/bins	(Form B6)	Oth	er (Form B9	)	
START CONSTRUCTION DATE:				NUFACTUR				
MANUFACTURER / MODEL NO .:			<u> </u>	D OP. SCH				52 WK/Y
	NSPS (SUBF		_JJJJ			BPARTS?):		
PERCENTAGE ANNUAL THROUGH	-IPUT (%):   D	EC-FEB	25 N	IAR-MAY	25	JUN-AUC	<u> </u>	SE
CRITERIA AIR P					ليجيد بالبيدة بتجريب المكال البجم ببجارات			
		SOURCE O				POTENTIA		
				ROLS / LIMITS				1
		FACTOR	ib/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	0 (011 )							
PARTICULATE MATTER<10 MICRON	1 10/	See Com	bustion (	alculatio	ns Appen	dix A2		
PARTICULATE MATTER<2.5 MICRO SULFUR DIOXIDE (SO2)	NS (PM <sub>2.5</sub> )				ļ			<u> </u>
VITROGEN OXIDES (NOx)		l						
CARBON MONOXIDE (CO)								l
OLATILE ORGANIC COMPOUNDS		-						
EAD	5(000)	<u> </u>	<u></u>	<u> </u>				
DTHER								
HAZARDOUS AIR	POLLUTA	NTEMIS	SIONS II		TION FO	RTHISS	OURCE	niosxx/cab/
		SOURCE O				POTENTIAL		
				ROLS / LIMITS				
AZARDOUS AIR POLLUTANT	CAS NO.		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
			· · · · ·				1	1
	See Con	nbustion C	alculatio	ns Appen	dix A2			
				1				
·····								
			// _ / ////////					
TOXIC AIR PO	<u>LLUTANT</u>	EMISSIO	<u>NS INFO</u>	<u>RMATIOI</u>	<u>NFOR T</u>	<u>HIS SOUI</u>	<u>RCE</u>	
		SOURCE	<b>KPECTED</b>	ACTUAL EI	VISSIONS	AFTER CO	NTROLS /	LIMITATIC
	CAS NO.	EMISSION	di	/hr	/מו	day	lk lk	/yr
	See Con	ubustion C						
		L						
	_							

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

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# EMISSION SOURCE (INTERNAL COMBUSTION ENGINES/TURBINES/GENERATORS)

REVISED 09/22/16 NCDE	Q/Division of Air	Quality -	- Applica	tion for Air Pe	mit to Construc	:t/Operate		B2				
EMISSION SOURCE DESCR	IPTION: 2065 hp	Natural	Gas/Pro		EMISSION SOURCE ID NO: ES-PGEN1							
Generator with catalytic oxid	dation			G	ONTROL DEVIC	E ID NO(S): CD-F	GEN1					
OPERATING SCENARIO:		OF		E	EMISSION POINT (STACK) ID NO(S): PGEN1							
ENGINE SERVICE	EMERGENCY		SPACE	-		L GENERATION						
(CHECK ALL THAT APPI	PEAK SHAVER		OTHER	(DESCRIBE):								
GENERATOR OUTPUT (KW)	:	ANTIC	IPATED	ACTUAL HOUF	RS OF OPERATI	ON (HRS/YR): 876	0					
ENGINE OUTPUT (HP): 206	5											
TYPE ICE: GASOLINE EN	igine diesel Ribe):	ENGINE	e up to (	600 🗌 DIËSEI	ENGINE GREA	TER THAN 6⊡ DI elow)	JAL FU	ELENGINE				
ENGINE TYPE 🔲 RICH BU	JRN 🔽 LEAN BU	JRN										
EMISSION REDUCTION MOI												
OR STATIONARY GAS	TURBINE (comple	te bel	) NATUR	AL GAS PIPEL	INE COMPRESS	OR OR TURBINE (	(comple	te below)				
FUEL NATURAL GAS		ENGIN				CYCLE LEAN TU						
			-			THER (DESCRIBE)						
CYCLE: COGENERATI		1				NS (DESCRIBE): _						
								DUCTION				
	STEAM INJECTIO		EAN BUF	RN AND PRECO	OMBUSTION C	UNCONTROLLE	D					
	LEAN-PREMIX											
DTHER (SPECIFY):				DEOTADT				ADMANNA IN AND AMERICAN PROPERTY AND				
	FUEL US	SAGE	1			FUEL)						
MAXIMUM DESIGN REQUESTED CAPACITY												
FUEL TYPE	UNITS			CITY (UNIT/HF	0	LIMITATION (U	JNIT/HF	0				
Natural Gas/Propane	MMBtu		14.46									
		DIOTIZ					1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1					
FUI		RISTIC	<u>יסט) כי</u> י	MPLEIEAL	LINALARE							
	DTUUNUT											
FUEL TYPE	BTU/UNIT			UNITS		(% BY WEIGHT)						
Natural Gas	1020		Btu/scf									
Propane	97500		Btu/gai									
ling in the second second second second second second second second second second second second second second s							S. Maria Maria					
				-		AVAILABLE)						
	NOX		0	PM	PM10	VOC		OTHER				
EMISSION FACTOR LB/UNIT		0.7				0.7						
UNIT	g/hp-hr	g/hp-h	r			g/hp-hr						
DESCRIBE METHODS TO MI	NIMIZE VISIBLE E	MISSIO	NS DURI	NG IDLING, OF	R LOW LOAD OF	ERATIONS:						
COMMENTS:												

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## Attach Additional Sheets As Necessary

	FORM B	<b>j</b>			
SPECIFIC EMISSION SOUR	CE INFORMATION	I (REQUIR	ED FOR AL	L SOUI	RCES)
REVISED 09/22. NCDEQ/Division of	f Air Quality - Application f	or Air Permit to	Construct/Opera	te	В
EMISSION SOURCE DESCRIPTION: 2065 I	p Natural Gas/Propane	EMISSION SOL	JRCE ID NO: ES-F	GEN2	
Generator		CONTROL DEV	/ICE ID NO(S): CD	-PGEN2	
OPERATING SCENARIO1	_OF1		NT (STACK) ID NO	D(S): <b>PGE</b>	N2
DESCRIBE IN DETAILTHE EMISSION SOU	RCE PROCESS (ATTACH F	LOW DIAGRAM	1):		
2065 hp Natural Gas/Propane Power Gene	rator equipped with catalyt	ic oxidation			
		r			
TYPE OF EMISSION SOURCE (CHECK	AND COMPLETE APPROPR				
Coal,wood,oil, gas, other burner (Form B		n B4) 📘	Manuf. of chemic	als/coating	s/inks (Forr
Int.combustion engine/generator (Form B	2) 📃 Coating/finishing/pri	inting (Forn	Incineration (Form	n B8)	
Liquid storage tanks (Form B3)	Storage silos/bins (	Form B6)	Other (Form B9)		
START CONSTRUCTION DATE:	DATE MAN	UFACTURED: 2	2019 or later		
MANUFACTURER / MODEL NO .:	EXPECTED	OP. SCHEDU	LE: <u>24</u> HR/DAY <u>7</u>	DAY/WK	<u>52</u> WK/YR
IS THIS SOURCE SUBJEC 🗹 NSPS (S	UBPARTS?):JJJJ	V NESHAP	? (SUBPARTS?):2	7777	
PERCENTAGE ANNUAL THROUGHPUT (%	): DEC-FEB 25 MA	AR-MAY 25	JUN-AUG	25	SEP
CRITERIA AIR POLLU	ANT EMISSIONS INFO	ORMATION I	RORATHISRSOU	IRCE	
	SOURCE OF EXPECTED	D ACTUAL	POTENTIAL	EMISSION	S
	EMISSION AFTER CONTR	OLS / LIMITS EFOR	E CONTROLS / LIMITS	FTER CONTR	ROLS / LIMITS)
AIR POLITIANT EMITTED	FACTOR Ib/br	tons/vr lh	hr tons/ur	lh/hr	tons/vr

AIR POLLUTANT EMITTED		FACTOR	iø/nr	tons/yr	id/nr	tons/yr	ib/nr	tons/yr
PARTICULATE MATTER (PM)								
PARTICULATE MATTER<10 MICRON	S (PM <sub>10</sub> )	See Com	bustion C	alculatio	ns Appen	dix A2		
PARTICULATE MATTER<2.5 MICRON	IS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)						I		
NITROGEN OXIDES (NOx)								
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUNDS	(VOC)							
LEAD								
OTHER								
HAZARDOUS AIR	POLLUTA	NT EMIS	<u>sions in</u>	<b>IFORMA</b>	TION FO	<u>R THIS S</u>	OURCE	
		SOURCE O				POTENTIAL		
		EMISSION	AFTER CONT	ROLS / LIMITS	BEFORE CON	TROLS / LIMITS	AFTER CONT	ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
	See Con	ubustion C	alculatio	ns Appen	dix A2			
						<u> </u>		
TOXIC AIR POL	<u>LUTANT</u>	<u>EMISSIO</u>	<u>NS INFO</u>	<u>rmatioi</u>	<u>N FOR TI</u>	<u>HIS SOUI</u>	<u>RCE</u>	
		SOURCE OF	XPECTED	ACTUAL EI	MISSIONS	AFTER CO	NTROLS / I	LIMITATION
TOXIC AIR POLLUTANT	CAS NO.	EMISSION	lb	/hr	lb/	day	lb	/yr
	See Con	ubustion C						
Tatter of the second se			27 11 10 10 21 10 21	I REAL FLORE AND AND A DESCRIPTION OF A	to be made to be a set of a	E-186-1818-18-5-1-141	THE REPORT OF THE PARTY OF THE	STOUL TOUS

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of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

EMISSION SOURC	•						NERA	
	EQ/Division of Air (				ermit to Const	truct/Operate		B2
EMISSION SOURCE DESCRIPTION: 2065 hp Natural Gas/Propane EMISSION SOURCE ID NO: ES								
Generator with catalytic oxi	dation			I	CONTROL DE	VICE ID NO(S): CD	-PGEN2	
OPERATING SCENARIO:		OF		_	EMISSION PC	DINT (STACK) ID NO	(S): <b>PGE</b>	EN2
	EMERGENCY		SPACE HE	EAT	ELECTR	RICAL GENERATION		
(CHECK ALL THAT APP	PEAK SHAVER		OTHER (D	ESCRIBE):				
GENERATOR OUTPUT (KW	):	ANTIC	IPATED AC	TUAL HOU	RS OF OPER	ATION (HRS/YR): 87	60	
ENGINE OUTPUT (HP): 200	65							
TYPE ICE: GASOLINE E						REATER THAN 6		
ENGINE TYPE	URN 🛛 LEAN BI	URN						
EMISSION REDUCTION MO	DIFICA INJECTI	ON TIM	ING RETAR		<b>SNITION CHA</b>	MBER COMBUS	OTHER_	
OR STATIONARY GAS	TURBINE (comple	te bel	NATURAL	GAS PIPEI	INE COMPRE	ESSOR OR TURBINE	E (comple	ete belov
FUEL NATURAL GAS		ENGIN		-CYCLE LE	AN BURN	4-CYCLE LEAN	TURBINE	Ξ
OTHER (DESCRIB	E):	1.	4	-CYCLE RIG	CH BURN	OTHER (DESCRIB	E):	
CYCLE: 🔲 COGENERAT						TIONS (DESCRIBE):		
REGENERAT						SELECTIVE CATA		EDUCTI
CONTROLS:	R-STEAM INJECTIO		EAN BURN	AND PREC	OMBUSTION		ED.	
	LEAN-PREMIX							
OTHER (SPECIFY):								
	FUEL USAG	E (INC	CLUDE ST	<u> </u>	BACKUP F	UEL)		规划的构成
			MAXIM	UM DESIGI	<b>N</b>	REQUESTED CAP	ACITY	
FUEL TYPE	UNITS		CAPACITY (UNIT/		R)	LIMITATION (UNIT/HR)		
Natural Gas/Propane	Propane MMBtu		14.46					
FUEL (	CHARACTERIS	TICS (	COMPLE	TE ALL T	HAT ARE	APPLICABLE)		$\mathbb{N} \times \mathbb{N}$
						SULFUR CON	TENT	
FUEL TYPE	BTU/UNIT		UNITS			(% BY WEIGHT)		
Natural Gas	1020		Btu/scf					,
Propane	97500							
			Btu/gal			· · · · · · · · · · · · · · · · · · ·		
MANU	FACTURER'S	SPECI	FIC EMIS	SION FA	CTORS (IF	AVAILABLE)		
POLLUTANT	NOX		co	PM	PM1		· · · · · · · · · · · · · · · · · · ·	THER
EMISSION FACTOR LB/UNIT	1.0	0.7				0.7		
UNIT	g/hp-hr	g/hp-h	r			g/hp-hr	+	
		17						
DESCRIBE METHODS TO M		17		BIDLING, O	R LOW LOAD		<b>I</b>	
COMMENTS:								
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# Attach Additional Sheets As Necessary

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SPECIFIC EMISSION S			plication f	or Air Perm		truct/Opera	.L 300	B
EMISSION SOURCE DESCRIPTION:			for Air Permit to Construct/Operate B EMISSION SOURCE ID NO: ES-PGEN3					
Generator		Topuno	CONTROL DEVICE ID NO(S): CD-PGEN3					
OPERATING SCENARIO	1		EMISSION POINT (STACK) ID NO(S): PGEN3					
DESCRIBE IN DETAILTHE EMISSION	OF SOURCE	PROCESS	(ATTACH F	LOW DIAG	RAM):			
1721 hp Natural Gas/Propane Power	Generator	equipped v	, with cataly	tic oxidatio	n			
TYPE OF EMISSION SOURCE (CI	IECK AND	COMPLETE	APPROP	RIATE FOR	M B1-B9 C	N THE FO		PAGES):
Coal,wood,oil, gas, other burner (F	orm B1)	Woodw	orking (For	m B4)	Man	uf. of chemi	cals/coating	gs/inks (Forr
Int.combustion engine/generator (F	orm B2)	Coating	/finishing/p	rinting (Forn 🗌 Incineration (Form B8)				
Liquid storage tanks (Form B3)	Storage	silos/bins	(Form B6)		Other (Form B9)			
START CONSTRUCTION DATE:		DATE MA	NUFACTUR	ED: 2019 (	or later	7 DAY/WK 52 WK/YR		
MANUFACTURER / MODEL NO .:				D OP. SCH	EDULE: <u>2</u> 4	HR/DAY	<u>7 DAY/WK</u>	<u>52</u> WK/YR
	SPS (SUBP		_ <u></u>			BPARTS?):		SEF
PERCENTAGE ANNUAL THROUGHP	<u>'UT (%): D</u>	EC-FEB	25 M	AR-MAY	25	JUN-AUC		
CRITERIA AIR PO	LLUIAN	I EMISSI		ORMAIN		POTENTIAL	ENICE	IĈ
		SOURCE O	EXPECTE	DACTUAL				
		FACTOR	AFTER CONT b/hr	tons/yr	lb/hr	tons/vr	Ib/hr	tons/yr
AIR POLLUTANT EMITTED PARTICULATE MATTER (PM)		FACTOR		LUTIS/ yr	10/11	toriory		
PARTICULATE MATTER (FM) PARTICULATE MATTER<10 MICRONS	(PM <sub>in</sub> )	See Com	bustion C	alculation	s Appen	dix A2		
PARTICULATE MATTER<2.5 MICRONS						1		
SULFUR DIOXIDE (SO2)						<u> </u>		
NITROGEN OXIDES (NOx)								
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUNDS	(VOC)							
LEAD	<u> </u>							
OTHER								
HAZARDOUS AIR H	POLLUTA	NT EM/S	<u>sions II</u>	NFORMA	<u>TION FO</u>	<u>R THIS S</u>	OURCE	「「「「「」」」
	T	SOURCE O	EXPECTE	D ACTUAL		POTENTIAL	_ EMISSIO	NS
		1				FORE CONTROLS / LIMITS		
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
	0.0	nbustion C						
	See Con	noustion C		ua whhen			+	
		ł						
						1		
		<u> </u>						
								L
		L						<i>ด้า ซิสิตสระจากการสถาน</i> ร
TOXIC AIR POL	<u>LUTANT</u>	EMISSIO	NS INFC	RMATIO	<u>N FOR I</u>	<u>HIS SOU</u>	RCE	1947 C. 1947 (1947)
		SOURCE	RPECTED	ACTUAL E	MISSIONS	AFTER CO	ONTROLS /	LIMITATIO
		OF		, lla a	l lb	/day	1	b/yr
TOXIC AIR POLLUTANT	CAS NO.	EMISSION		p/hr		luay	'	0/y1
	0	mbustion C						
· · · · · · · · · · · · · · · · · · ·	Jee Cor		1	<u></u>			+	
					<u> </u>			
					<u> </u>		1	
	<u> </u>							
		<u> </u>	<u> </u>		<b>├</b> ──			
	<u> </u>				<u> </u>	7		
r					<u> </u>			
Attachments: (1) emissions calculations and	Supporting g	ocamentation.	(Z) marcate	an requésieu a	nate and rea	erar eniorcea	de pennin na	nə (e.g. nours
of operation, emission rates) and describe h		monitorod on	with what fr	- 	(3) describe	any monitorin	a devices a	uges, or test

TE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH Attach Additional Sheets As Necessary

# FORM B2

Generator with catalytic of	CRIPTION 1721 hr	Natural	- Application for Air I Gas/Propane	1		0.7.1/2	B2
[Generator with catalytic c	exidation		Cash ropane		RCE ID NO: ES-P		
OPERATING SCENARIO:		OF	· · · · · · · · · · · · · · · · · · ·		CE ID NO(S): CD T (STACK) ID NO		N12
	EMERGENCY		SPACE HEAT		AL GENERATION		NJ
		П	OTHER (DESCRIBE		AL GENERATION		
GENERATOR OUTPUT (K	· · · · · · · · · · · · · · · · · · ·		IPATED ACTUAL HO		ION (HRS/YR): 87	60	
ENGINE OUTPUT (HP): 2							
TYPE ICE: GASOLINE OTHER (DE ENGINE TYPE RICH	SCRIBE):	A. 2012 - 1		SEL ENGINE GRE (complete b			
EMISSION REDUCTION M		TION TIM		IGNITION CHAMB		OTHER _	
OR STATIONARY G	AS TURBINE (comp	lete bel	NATURAL GAS PIPI	ELINE COMPRES	SOR OR TURBINE	(comple	te belo
FUEL NATURAL GAS		ENGIN	IE TYPI 2-CYCLE L	EAN BURN 🔲 4		<b>FURBINE</b>	
				RICH BURN	•		a
	TIVE COMBINE		NSELECTIVE CATAL				DUCT
			EAN BURN AND PRE	COMBUSTION CL		ED	
	FUEL USA	GE (INC	LUDE STARTUP	BACKUP FUE	L) waaraa ka		12 AN 14
			MAXIMUM DESIG	1	REQUESTED CAP		
FUEL TYPE	UNITS		CAPACITY (UNIT/	HR)	LIMITATION (UNI	T/HR)	
Natural Gas/Propane	MMBtu		12.05				
FUEL	CHARACTERI	STICS (	COMPLETE ALL.	THAT ARE AP			
		-			SULFUR CON		
	DTUMIN		UNITS		(% BY WEIGH	T)	
FUEL TYPE	BTU/UN						
FUEL TYPE Natural Gas	1020		Btu/scf				
FUEL TYPE							
FUEL TYPE Natural Gas Propane	1020 97500		Btu/scf Btu/gał				
FUEL TYPE Natural Gas Propane MAN	1020 97500 UFACTURER'S	SPECI	Btu/scf Btu/gal IC EMISSION FA				
FUEL TYPE Natural Gas Propane MAN POLLUTANT	1020 97500 UFACTURER'S NOX	SPECI	Btu/scf Btu/gał	ACTORS (IF A) PM10	VOC		HER
FUEL TYPE Natural Gas Propane MAN	1020 97500 UFACTURER'S NOX	SPECI	Btu/scf Btu/gal FIC EMISSION FA CO PM				

# Attach Additional Sheets As Necessary

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**APPENDIX A1 - FACILITY WIDE EMISSION SUMMARIES** 

# Environmental Quality Received

# NOV 18 2019

EMISSION CALCULATIONS Emissions Summary

# Winston-Salem

Carolina Sunrock Prospect Hill Quarry & Distribution Center

		·		50000 C				P	rospect Hill (	Quarry & Di	tribution C
			Region	ar OSS	10.9 						
			Ur	controlled Po	otential Emiss	ions		Controlled Po	tential Emission	ns	Potentia Emissions Synthetic M Limits**
ource Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)			akaw	1	1	1	
Iot Mix Asphalt Plant*	PM		1.61E+01	(Ibs/day) 3.87E+02	(lbs/yr) 1.41E+05	(tons/yr) 7.06E+01	(lb/hr) 1.14E+01	(lbs/day) 1.92E+02	(lbs/yr) 7.00E+04	(tons/yr)	(tons/y
•	PM10		8.11E+00	1.95E+02	7.11E+04	3.55E+01	6.93E+00	1.92E+02 1.18E+02	4.32E+04	34.99 21.61	14.00 8.64
	PM2.5		8.11E+00	1.95E+02	7.11E+04	3.55E+01	6.93E+00	1.18E+02	4.32E+04	21.61	8.64
	SO2		2.21E+01	5.30E+02	1.94E+05	9.68E+01	2.15E+01	3.69E+02	1.35E+05	67.43	26.97
	NOx CO	_	1.41E+01	3.38E+02	1.23E+05	6.17E+01	1.39E+01	2.32E+02	8.48E+04	42,38	16.95
	VOC		3.32E+01 1.20E+01	7.97E+02 2.89E+02	2.91E+05	1.45E+02	3.32E+01	5.42E+02	1.98E+05	99.00	39.60
	Acetaldehyde	H/T	3.25E-01	7.80E+02	1.05E+05 2.85E+03	5.27E+01 1.42E+00	1.20E+01 3.25E-01	1.96E+02 7.80E+00	7.16E+04 1.94E+03	35,82	14.33
	Acrolein	H/T	6.50E-03	1.56E(01	5.69E+01	2.85E-02	6.50E-03	1.56E-01	3.87E+01	9.68E-01 1.94E-02	3.87E- 9,68E-
	Antimony unlisted compounds	Н	4.50E-05	1.08E-03	3.94E-01	1.97E-04	4.50E-05	1.08E-03	2.68E-01	1.34E-02	6.70E-
	Arsenic unlisted empds (comp. of ASC)	H/T	1.40E-04	3.36E-03	1.23E+00	6.13E-04	1.40E-04	3.36E-03	8.34E-01	4.17E-04	2.08E-
	Benzene Benzo(a)pyrene	H/T T	9.90E-02	2.38E+00	8.67E+02	4.34E-01	9.90E-02	2.38E+00	5.90E+02	2.95E-01	1.47E-
	Beryllium metal (unreacted)		4.41E-06 0.00E+00	1.06E-04 0.00E+00	3.86E-02 0.00E+00	1.93E-05 0.00E+00	4.41E-06 0.00E+00	1.06E-04	2.63E-02	1.31E-05	6.57E-
	Cadmium metal (elemental unreacted)	H/T	1.03E-04	2.46E-03	8.98E-01	4,49E-04	1.03E-04	0.00E+00 2.46E-03	0.00E+00 6.10E-01	0.00E+00	0.00E+
	Carbon disulfide	H/T	6.23E-04	1.49E-02	5.45E+00	2.73E-03	6.23E-04	1.49E-02	3.71E+00	3.05E-04 1.85E-03	1.53E-0 9.27E-0
	Chromium unlisted empds (add w/chrom acid to get CR		1.26E-03	3.03E-02	1.11E+01	5.53E-03	1.26E-03	3.03E-02	7.52E+00	3.76E-03	1.88E-0
	Chromic acid (VI) (component of solCR6 and CRC)	H/T	1.13E-04	2.70E-03	9.86E-01	4.93E-04	1.13E-04	2.70E-03	6.70E-01	3.35E-04	1.67E-0
	Cobalt unlisted compounds Cumene	H	6.50E-06	1.56E-04	5.69E-02	2.85E-05	6.50E-06	1.56E-04	3.87E-02	1.94E-05	9.68E-0
	Ethyl benzene	H H	1.14E-03 6.41E-02	2.74E-02 1.54E+00	1.00E+01	5.01E-03	1.14E-03 6.41E-02	2.74E-02	6.81E+00	3.41E-03	1.70E-0
	Ethyl chloride (chloroethane)	- H	2.18E-06	1.54E+00 5.24E-05	5.61E+02 1.91E-02	2.81E-01 9.56E-06	6.41E-02 2.18E-06	1.54E+00 5.24E-05	3.81E+02 1.30E-02	1.91E-01	9.54E-0
	Formaldehyde	H/T	7.97E-01	1.91E+01	6.98E+03	9.56E-06 3.49E+00	7.97E-01	5.24E-05 1.91E+01	1.30E-02 4.75E+03	6.50E-06 2.37E+00	3.25E-0 1.19E+0
	Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	T	3.25E-10	7.80E-09	2.85E-06	1.42E-09	3.25E-10	7.80E-09	1.94E-06	9.68E-10	4.84E-1
	Hexane, n-	H/T	2.39E-01	5.74E+00	2.10E+03	1.05E+00	2.39E-01	5.74E+00	1.42E+03	7.12E-01	3.56E-0
	Hydrogen Chloride (hydrochloric acid)	H/T	5.25E-02	1.26E+00	4.60E+02	2.30E-01	5.25E-02	1.26E+00	3.13E+02	1.56E-01	7.82E-0
	Hydrogen Sulfide Lead unlisted compounds	H H	1.37E-02	3.28E-01	1.20E+02	5.99E-02	1.37E-02	3.28E-01	8.15E+01	4.07E-02	2.04E-0
	Manganese unlisted compounds	Т	3.75E-03 1.93E-03	9.00E-02 4.62E-02	3.29E+01 1.69E+01	1.64E-02	3.75E-03	9.00E-02	2.23E+01	1.12E-02	5.58E-0
	Mercury, vapor	H/T	6.50E-04	1.56E-02	5.69E+00	8.43E-03 2.85E-03	1.93E-03 6.50E-04	4.62E-02 1.56E-02	1.15E+01 3.87E+00	5.73E-03 1.94E-03	2.87E-0 9.68E-0
	Methyl bromide	Н	2.49E-04	5.98E-03	2.18E+00	1.09E-03	2.49E-04	5.98E-03	1,48E+00	7.42E-03	3.71E-(
	Methyl chloride	Н	1.56E-04	3.74E-03	1.37E+00	6.83E-04	1.56E-04	3.74E-03	9.29E-01	4.64E-04	2.32E-0
	Methyl chloroform	H/T	1.20E-02	2.88E-01	1.05E+02	5.26E-02	1.20E-02	2.88E-01	7.15E+01	3.57E-02	1.79E-0
	Methyl ethyl ketone Methylene chloride	H/T	6.70E-03	1.61E-01	5.87E+01	2.93E-02	6.70E-03	1.61E-01	3.99E+01	1.99E-02	9.97E-0
	Napthalene	H/T H	8.23E-06 1.65E-01	1.97E-04 3.95E+00	7.21E-02 1.44E+03	3.60E-05 7.21E-01	8.23E-06	1.97E-04	4.90E-02	2.45E-05	1.22E-0
	Nickel metal	H/T	1.58E-02	3.78E-01	1.44E+03	6.90E-02	1.65E-01 1.58E-02	3.95E+00 3.78E-01	9.81E+02	4.90E-01	2.45E-0
	Perchloroethylene (tetrachloroethylenc)	H/T	8.01E-05	1.92E-03	7.01E-01	3.51E-04	8.01E-02	1.92E-01	9.38E+01 4.77E-01	4.69E-02 2.38E-04	2.34E-0 1.19E-0
	Phenol	H/T	1.01E-03	2.41E-02	8.81E+00	4.41E-03	1.01E-03	2.41E-02	5.99E+00	2.99E-03	1.19E-0
	Phosphorus Metal, Yellow or White	н	7.00E-03	1.68E-01	6.13E+01	3.07E-02	7.00E-03	1.68E-01	4.17E+01	2.08E-02	1.04E-0
	Polycyclic Organic Matter Propionaldehyde	H	2.20E-01	5.28E+00	1.93E+03	9.64E-01	2.20E-01	5.28E+00	1.31E+03	6.55E-01	3.27E-0
	Quinone	H H	3.25E-02 4.00E-02	7.80E-01 9.60E-01	2.85E+02	1.42E-01	3.25E-02	7.80E-01	1.94E+02	9.68E-02	4.84E-0
	Sclenium compounds	H	8.75E-05	2.10E-03	3.50E+02 7.67E-01	1.75E-01 3.83E-04	4.00E-02 8.75E-05	9.60E-01 2.10E-03	2.38E+02	1.19E-01	5.95E-0
	Styrene	H/T	2.40E-04	5.77E-03	2.11E+00	1.05E-04	2.40E-04	5.77E-03	5.21E-01 1.43E+00	2.61E-04 7.16E-04	1.30E-0 3.58E-0
	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	H/T	5.25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	3.13E-07	1.56E-10	7.82E-1
	Toluene	H/T	7.29E-01	1.75E+01	6.39E+03	3.19E+00	7.29E-01	1.75E+01	4.34E+03	2.17E+00	1.09E+0
	Trichloroethylene	H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
	Trichlorofluoromethane (CFC 111) Trimethylpentane, 2,2,4-	H H	1.35E-05	3.24E-04	1.18E-01	5.92E-05	1.35E-05	3.24E-04	8.05E-02	4.02E-05	2.01E-0
	Xylene	H/T	1.00E-02 6.04E-02	2.41E-01	8.78E+01	4.39E-02	1.00E-02	2.41E-01	5.97E+01	2.99E-02	1.49E-0
crete Batch Plant	PM	TV 1	5.10E+00	1.45E+00 1.22E+02	5.29E+02 9.08E+05	2.64E-01 4.54E+02	6.04E-02	1.45E+00	3.59E+02	1.80E-01	8.98E-0
	PM10			5.85E+01	3.44E+05	4.34E+02 1.72E+02	5.10E+00 2.44E+00	1.22E+02 5.85E+01	4.46E+04 2.13E+04	22.32	22.32
	PM2.5	-			3.44E+05	1.72E+02	2.44E+00	5.85E+01	2.13E+04 2.13E+04	10.67	10.67
	Arsenic unlisted empds (comp. of ASC)	H/T	6.59E-05		2.18E+01	1.09E-02	6.59E-05	1.58E-03	5.77E-01	2.88E-04	2.88E-04
	Beryllium metal (unreacted)	H/T	4.53E-06	1.09E-04	8.77E-02	4.38E-05	4.53E-06	1.09E-04	3.97E-02	1.99E-05	1.99E-0
1	Cadmium metal (clemental unreacted) Chromic acid (VI) (component of solCR6 and CRC)	H/T		1.20E-05	6.74E-02	3.37E-05	5.00E-07	1.20E-05	4.38E-03	2.19E-06	2.19E-0
	Lead unlisted compounds	H	1.58E-04 5.96E-05	3.80E-03 1.43E-03	3.73E+00 1.16E+01	1.86E-03	1.58E-04	3.80E-03	1.39E+00	6.93E-04	6.93E-04
	Manganese unlisted compounds	H/T	7.49E-04	1.43E-03 1.80E-02	6.72E+01	5.78E-03 3.36E-02	5.96E-05 7.49E-04	1.43E-03 1.80E-02	5.22E-01	2.61E-04	2.61E-04
* -	Nickel metal	H/T	1.92E-04		8.05E+00	4.02E-02	1.92E-04	4.62E-02	6.56E+00 1.68E+00	3.28E-03 8.42E-04	3.28E-0. 8.42E-04
	Phosphorus Metal, Yellow or White	Н	4.71E-04	1.13E-02	1.51E+01	7.54E-03	4.71E-04	1.13E-02	4.13E+00	2.06E-03	2.06E-03
all Coment II	Selenium compounds	H	4.68E-06	1.12E-04	8.26E-01	4.13E-04	4.68E-06	1.12E-04	4.10E-02	2.05E-05	2.05E-0
halt Cement Heater**	2-Methylnaphthalene		2.81E-08	6.74E-07	2.46E-04	1.23E-07	2.81E-08	6.74E-07	2.46E-04	1,23E-07	1.23E-0
	3-Methylchloranthrene 7,12-Dimethylbenz(a)anathracene	+		5.05E-08	1.84E-05	9.22E-09	2.11E-09	5.05E-08	1.84E-05	9.22E-09	9.22E-09
	Acenaphthene	Н		4.49E-07 4.34E-06	1.64E-04 1.58E-03	8.20E-08 7.92E-07	1.87E-08	4.49E-07	1.64E-04	8.20E-08	8.20E-08
	Accnaphtylene	Н		5.20E-08	1.90E-05	9.50E-09	1.81E-07 2.17E-09	4.34E-06 5.20E-08	1.58E-03 1.90E-05	7.92E-07 9.50E-09	7.92E-07
Í	Acetaldehyde	H/T		4.27E-07	1.56E-04	7.79E-08	1.78E-08	4.27E-07	1.90E-05 1.56E-04	9.50E-09 7.79E-08	9.50E-09 7.79E-08
	Acrolein	H/T	2.11E-08	5.05E-07	1.84E-04	9.22E-08	2.11E-08	5.05E-07	1.84E-04	9.22E-08	9.22E-08
	Ammonia	T			3.28E+01	1.64E-02	3.74E-03	8.98E-02	3.28E+01	1.64E-02	1.64E-02
	Anthracene Benz(a)anthracene	H				4.58E-08	1.05E-08	2.51E-07	9.16E-05	4.58E-08	4.58E-08
	Benzene Benzene	H H/T				1.51E-07	3.44E-08	8.25E-07	3.01E-04	1.51E-07	1.51E-07
	Benzo(a)pyrene	H/T		5.89E-05 3.37E-08		1.08E-05	2.46E-06	5.89E-05	2.15E-02	1.08E-05	1.08E-05
	Benzo(b)fluoranthene	H				6.15E-09 5.56E-08	1.40E-09	3.37E-08	1.23E-05	6.15E-09	6.15E-09
ĺ	Benzo(g,h,i)perylene	н				8.48E-08	1.27E-08 1.94E-08	3.04E-07 4.65E-07	1.11E-04 1.70E-04	5.56E-08 8.48E-08	5.56E-08 8.48E-08
	Benzo(k)fluoranthene	Н				9.22E-09	2.11E-09	4.65E-07 5.05E-08	1.84E-05	9.22E-09	8.48E-08 9.22E-09
	Butane		2.46E-03	5.89E-02	2.15E+01	1.08E-02	2.46E-03	5.89E-02	2.15E+01	1.08E-02	9.22E-09 1.08E-02
	Chrysene	Н	2.04E-08	4.90E-07	1.79E-04	8.94E-08	2.04E-08	4.90E-07	1.79E-04	8.94E-08	8.94E-08
	Dibenzo(a,h)anthracene Dichlorobenzene	H				6.27E-08	1.43E-08	3.44E-07	1.25E-04	6.27E-08	6.27E-08
	Ethane	H/T				6.15E-06	1.40E-06	3.37E-05	1.23E-02	6.15E-06	6.15E-06
	Ethylbenzene	н				1.59E-02 2.39E-06	3.63E-03 5.45E-07	8.70E-02	3.18E+01	1.59E-02	1.59E-02
	Fluoranthene	H				1.82E-07	4.15E-08	1.31E-05 9.96E-07	4.78E-03 3.63E-04	2.39E-06	2.39E-06
	Fluorene	Н				1.68E-07	3.83E-08	9.96E-07 9.20E-07	3.63E-04 3.36E-04	1.82E-07 1.68E-07	1.82E-07 1.68E-07

Carolina Sunrock

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File:Facility Wide & TAP summary 2019-11-05.xlsx Sheet:Emissions Summary

### EMISSION CALCULATIONS Emissions Summary

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1.

# Carolina Sunrock Prospect Hill Quarry & Distribution Center

			Ur	controlled Pa	otential Emiss	ions		Controlled Pot	ential Emission	15	Potential Emissions w/ Synthetic Mino Limits****
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(ibs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
	Formaldehyde	H/T	2,83E-04	6.79E-03	2.48E+00	1.24E-03	2.83E-04	6.79E-03	2.48E+00	1.24E-03	1.24E-03
	Hexane Indeno(1,2,3-cd)pyrene	H/T H	2:11E-03 1.83E-08	5.05E-02 4.40E-07	1.84E+01 1.61E-04	9.22E-03 8.03E-08	2.11E-03 1,83E-08	5.05E-02 4.40E-07	1.84E+01 1.61E-04	9.22E-03 8.03E-08	9.22E-03 8.03E-08
	Naphthalene	Н	9.69E-06	2.32E-04	8.48E-02	4.24E-05	9.69E-06	2.32E-04	8.48E-02	4.24E-05	4.24E-05
	OCDD		2.66E-11	6.38E-10	2.33E-07	1.16E-10	2.66E-11	6.38E-10	2.33E-07	1.16E-10	1.16E-10
	Pentane Phenanathrene	Ĥ	3.04E-03 9.00E-08	7.30E-02 2.16E-06	2.66E+01 7.88E-04	1.33E-02 3.94E-07	3.04E-03 9.00E-08	7,30E-02 2.16E-06	2.66E+01 7.88E-04	1.33E-02 3.94E-07	1.33E-02 3.94E-07
	Propane		1.87E-03	4.49E-02	1.64E+01	8.20E-03	1.87E-03	4.49E-02	1.64E+01	8.20E-03	8.20E-03
	Pyrene	H H/T	3.64E-08	8.74E-07	3.19E-04	1.60E-07	3.64E-08	8.74E-07	3.19E-04	1.60E-07	1.60E-07
	Toluene	H/ I	5.31E-05 2.02E-06	1.28E-03 4.85E-05	4.66E-01 1.77E-02	2.33E-04 8.86E-06	5.31E-05 2.02E-06	1.28E-03 4.85E-05	4.66E-01 1.77E-02	2.33E-04 8.86E-06	2.33E-04 8.86E-06
	Xylenc	H/T	9.34E-07	2.24E-05	8.18E-03	4.09E-06	9.34E-07	2.24E-05	8.18E-03	4.09E-06	4.09E-06
	Arsenic	H/T	4.80E-06 5.15E-06	1.15E-04	4.20E-02	2.10E-05	4.80E-06	1.15E-04	4.20E-02	2.10E-05	2.10E-05
	Barium Beryllium	H/T	3.60E-06	1.24E-04 8.64E-05	4.51E-02 3.15E-02	2.25E-05 1.58E-05	5.15E-06 3.60E-06	1.24E-04 8.64E-05	4.51E-02 3.15E-02	2.25E-05 1.58E-05	2.25E-05 1.58E-05
	Cadmium	H/T	3.60E-06	8,64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Chromium (as chromic acid)	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8,64E-05	3.15E-02	1.58E-05	1.58E-05
	Cobalt Copper	+	9.82E-08 7.20E-06	2.36E-06 1.73E-04	8.61E-04 6.31E-02	4.30E-07 3.15E-05	9.82E-08 7.20E-06	2.36E-06 1.73E-04	8.61E-04 6.31E-02	4.30E-07 3.15E-05	4.30E-07 3.15E-05
	Lcad	н	1.08E-05	2.59E-04	9.46E-02	4,73E-05	1.08E-05	2.59E-04	9,46E-02	4.73E-05	4.73E-05
	Manganese	H/T	7.20E-06	1.73E-04	6.31E-02	3.15E-05	7.20E-06	1.73E-04	6.31E-02	3.15E-05	3.15E-05
	Mercury Molybdenum	H/T	3.60E-06 1.29E-06	8.64E-05 3.09E-05	3.15E-02 1.13E-02	1.58E-05 5.64E-06	3.60E-06 1.29E-06	8.64E-05 3.09E-05	3.15E-02 1.13E-02	1.58E-05 5.64E-06	1.58E-05 5.64E-06
	Nickel	H/T	3.60E-06	8.64E-05	3,15E-02	1.58E-05	1.29E-06 3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Selenium	Н	1.80E-05	4.32E-04	1.58E-01	7.88E-05	1.80E-05	4.32E-04	1,58E-01	7.88E-05	7.88E-05
	Vanadium Zinc		2.69E-06 3.39E-05	6.46E-05 8.14E-04	2.36E-02 2.97E-01	1.18E-05 1.49E-04	2,69E-06 3.39E-05	6.46E-05 8.14E-04	2.36E-02 2.97E-01	1.18E-05 1.49E-04	1.18E-05 1.49E-04
iquid Asphalt Tank			3.392-03	0.146-04	2.976-01	1.496+04	3.39E-03	6.14 <u>C</u> -04	2.97E-01	1.496-04	1.496-04
eater***	РМ		1.57E-02	3.77E-01	1.38E+02	6.88E-02	1.57E-02	3.77E-01	1.38E+02	6.88E-02	6.88E-02
	PM10	_	9.75E-03	2.34E-01	8.54E+01	4.27E-02	9.75E-03	2.34E-01	8.54E+01	4.27E-02	4.27E-02
	PM2.5 SO2		9.75E-03 5.58E-01	2.34E-01 1.34E+01	8.54E+01 4.89E+03	4.27E-02 2.44E+00	9.75E-03 5.58E-01	2.34E-01 1.34E+01	8.54E+01 4.89E+03	4.27E-02 2.44E+00	4.27E-02 2.44E+00
	NOx		1.57E-01	3.77E+00	1.38E+03	6.88E-01	1.57E-01	3,77E+00	1.38E+03	6,88E-01	6.88E-01
	VOCs		5.90E-03	1.42E-01	5.17E+01	2.58E-02	5.90E-03	1.42E-01	5,17E+01	2.58E-02	2.58E-02
	CO 2-Methylnaphthalene		9.01E-02 2.57E-08	2.16E+00 6.18E-07	7.89E+02 2.25E-04	3.94E-01 1.13E-07	9.01E-02 2.57E-08	2.16E+00 6.18E-07	7.89E+02 2.25E-04	3.94E-01 1,13E-07	3.94E-01 1,13E-07
	3-Methylchloranthrene	-	1.93E-09	4.63E-08	1.69E-05	8.45E-09	1.93E-09	4.63E-07	1.69E-04	8.45E-09	8.45E-09
	7,12-Dimethylbenz(a)anathracene		1.72E-08	4.12E-07	1.50E-04	7.51E-08	1.72E-08	4.12E-07	1.50E-04	7.51E-08	7.51E-08
	Acenaphthene	H	1.66E-07	3.98E-06	1.45E-03	7.26E-07	1.66E-07	3.98E-06	1.45E-03	7.26E-07	7,26E-07
	Acenaphtylene Acetaldehyde	H H/T	1.99E-09 1.63E-08	4.77E-08 3.91E-07	1.74E-05 1.43E-04	8.71E-09 7.14E-08	1.99E-09 1.63E-08	4.77E-08 3.91E-07	1.74E-05 1.43E-04	8.71E-09 7.14E-08	8.71E-09 7.14E-08
	Acrolein	H/T	1.93E-08	4.63E-07	1.69E-04	8.45E-08	1.93E-08	4,63E-07	1.69E-04	8.45E-08	8.45E-08
	Ammonia	Т	3.43E-03	8.23E-02	3.01E+01	1.50E-02	3.43E-03	8.23E-02	3.01E+01	1.50E-02	1,50E-02
	Anthracene Benz(a)anthracene	H H	9.59E-09 3.15E-08	2.30E-07 7.56E-07	8.40E-05 2.76E-04	4,20E-08 1,38E-07	9.59E-09 3.15E-08	2.30E-07 7,56E-07	8.40E-05 2.76E-04	4.20E-08 1.38E-07	4.20E-08 1.38E-07
	Benzene	H/T	2.25E-06	5.40E-05	1.97E-02	9.86E-06	2.25E-06	5.40E-07	1.97E-04	9.86E-06	9.86E-06
	Benzo(a)pyrene	H/T	1.29E-09	3,09E-08	1.13E-05	5.64E-09	1.29E-09	3.09E-08	1.13E-05	5.64E-09	5.64E-09
	Benzo(b)fluoranthene	H H	1.16E-08 1.78E-08	2,79E-07 4.26E-07	1.02E-04 1.56E-04	5.09E-08	1.16E-08	2.79E-07	1.02E-04	5.09E-08	5.09E-08
	Benzo(g,h,i)perylene Benzo(k)fluoranthene	Н	1.78E-08 1.93E-09	4.26E-07 4.63E-08	1.56E-04 1.69E-05	7.78E-08 8.45E-09	1.78E-08 1.93E-09	4.26E-07 4.63E-08	1.56E-04 1.69E-05	7.78E-08 8.45E-09	7.78E-08 8.45E-09
	Butane		2.25E-03	5.40E-02	1.97E+01	9.86E-03	2.25E-03	5.40E-02	1.97E+01	9.86E-03	9.86E-03
	Chrysene	Н	1.87E-08	4.49E-07	1.64E-04	8.19E-08	1,87E-08	4,49E-07	1.64E-04	8.19E-08	8.19E-08
	Dibenzo(a,h)anthracene Dichlorobenzene	H H/T	1.31E-08 1.29E-06	3.15E-07 3.09E-05	1.15E-04 1.13E-02	5.75E-08 5.64E-06	1.31E-08 1.29E-06	3.15E-07 3.09E-05	1,15E-04 1.13E-02	5.75E-08 5.64E-06	5.75E-08 5.64E-06
	Ethane	121	3.32E-03	7.98E-02	2.91E+01	1,46E-02	3.32E-03	7.98E-02	2.91E+01	1.46E-02	1.46E-02
	Ethylbenzene	H	5.00E-07	1.20E-05	4.38E-03	2.19E-06	5.00E-07	1.20E-05	4.38E-03	2,19E-06	2.19E-06
	Fluoranthene Fluorene	<u>H</u> H	3.80E-08 3.51E-08	9.13E-07 8.43E-07	3.33E-04 3.08E-04	1.67E-07 1.54E-07	3.80E-08 3.51E-08	9,13E-07 8.43E-07	3.33E-04 3.08E-04	1.67E-07 1.54E-07	1.67E-07 1.54E-07
	Formaldchydc	H/T	2.59E-04	6.22E-03	3.08E-04 2.27E+00	1.54E-07 1.14E-03	3.51E-08 2,59E-04	8.43E-07 6,22E-03	3.08E-04 2,27E+00	1.54E-07 1,14E-03	1.54E-07 1.14E-03
	Hexane	H/T	1.93E-03	4.63E-02	1.69E+01	8,45E-03	1,93E-03	4.63E-02	1,69E+01	8.45E-03	8.45E-03
	Indeno(1,2,3-cd)pyrenc	H	1.68E-08	4.04E-07	1.47E-04	7.36E-08	1.68E-08	4.04E-07	1.47E-04	7,36E-08	7.36E-08
	Naphthalene OCDD	н	8.88E-06 2.44E-11	2.13E-04 5.85E-10	7.78E-02 2.13E-07	3.89E-05 1.07E-10	8.88E-06 2.44E-11	2.13E-04 5.85E-10	7.78E-02 2.13E-07	3.89E-05 1.07E-10	3.89E-05 1.07E-10
	Pentane		2.79E-03	6.69E-02	2.44E+01	1.22E-02	2,44E-11 2,79E-03	6.69E-02	2.44E+01	1,22E-02	1.22E-02
	Phonanathronc	H	8.25E-08	1.98E-06	7.23E-04	3.61E-07	8.25E-08	1.98E-06	7.23E-04	3.61E-07	3.61E-07
	Propane Pyrene	н	1.72E-03	4.12E-02	1.50E+01	7.51E-03	1.72E-03	4.12E-02	1.50E+01	7.51E-03	7.51E-03
	Tolucne	H/T	3.34E-08 4.87E-05	8.01E-07 1.17E-03	2.93E-04 4.27E-01	1.46E-07 2.13E-04	3.34E-08 4.87E-05	8.01E-07 1.17E-03	2.93E-04 4,27E-01	1.46E-07 2.13E-04	1.46E-07 2.13E-04
	1,1,1-Trichloroethane		1.85E-06	4.45E-05	1.62E-02	8.12E-06	1.85E-06	4.45E-05	1.62E-02	8.12E-06	8.12E-06
	Xylene	H/T	8.56E-07	2.06E-05	7.50E-03	3.75E-06	8.56E-07	2.06E-05	7.50E-03	3.75E-06	3.75E-06
	Arsenic Barium	H/T	4.40E-06 4.72E-06	1.06E-04 1.13E-04	3.85E-02 4.13E-02	1.93E-05 2.07E-05	4.40E-06 4.72E-06	1.06E-04 1.13E-04	3.85E-02 4.13E-02	1.93E-05 2.07E-05	1.93E-05 2.07E-05
	Beryllium	Ĥ/T	3.30E-06	7.92E-05	2.89E-02	1.45E-05	3.30E-06	7.92E-05	2.89E-02	1.45E-05	1.45E-05
	Cadmium	H/T	3.30E-06	7.92E-05	2.89E-02	1.45E-05	3.30E-06	7.92E-05	2.89E-02	1.45E-05	1.45E-05
	Chromium (as chromic acid) Cobalt	H/T	3.30E-06 9.01E-08	7.92E-05 2.16E-06	2.89E-02 7.89E-04	1.45E-05 3.94E-07	3.30E-06 9.01E-08	7.92E-05 2.16E-06	2.89E-02 7.89E-04	1.45E-05 3.94E-07	1.45E-05 3.94E-07
	Copper	1	9.01E-08 6.60E-06	2.16E-06 1,58E-04	7.89E-04 5.78E-02	3.94E-07 2.89E-05	9.01E-08 6.60E-06	1.58E-04	7.89E-04 5.78E-02	3.94E-07 2.89E-05	3.94E-07 2.89E-05
	Lead	Н	9.90E-06	2.38E-04	8.67E-02	4.34E-05	9.90E-06	2.38E-04	8.67E-02	4.34E-05	4.34E-05
	Manganese	H/T	6.60E-06	1.58E-04	5.78E-02	2.89E-05	6.60E-06	1.58E-04	5.78E-02	2.89E-05	2.89E-05
	Mercury Molybdenum	Н/Т	3.30E-06 1.18E-06	7.92E-05 2.83E-05	2.89E-02 1.03E-02	1.45E-05 5.17E-06	3.30E-06 1.18E-06	7.92E-05 2.83E-05	2.89E-02 1.03E-02	1.45E-05 5.17E-06	1.45E-05 5.17E-06
	Nickel	H/T	3.30E-06	7.92E-05	2.89E-02	1.45E-05	3.30E-06	7.92E-05	2.89E-02	1.45E-05	1.45E-05
		н	1.65E-05	3.96E-04	1.45E-01	7.23E-05	1.65E-05	3.96E-04	1.45E-01	7.23E-05	7,23E-05
	Selenium Vanadium	n	2.47E-06	5.92E-04	2.16E-02	1.08E-05	2.47E-06	5.92E-05	2.16E-02	1.08E-05	1.08E-05

#### File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Emissions Summary

### EMISSION CALCULATIONS Emissions Summary

## Carolina Sunrock Prospect Hill Quarry & Distribution Center

			Fin	controlled P	Ditential Emiss	ions		Controlled Pot	ential Emission	15	Potential Emissions w/ Synthetic Minor Limits****
Source Name	Pollutant	НАР/ Тар	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Quarry	PM		2.40E-02	5.77E-01	1.91E+05	95,31	2,40E-02	5.77E-01	1.91E+05	95.31	51,63
	PM10		9.36E-03	2.25E-01	7.58E+04	37.89	9.36E-03	2.25E-01	7.58E+04	37.89	20.53
	PM2.5		4.17E-03	1.00E-01	3.07E+04	15,35	4.17E-03	1.00E-01	3.07E+04	15.35	8.32
Quarry Equipment Generators	РМ		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1,73E+00	6.30E+02	3,15E-01	1710.01
	PM10		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3.15E-01	1.71E-01 1.71E-01
	PM2.5		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3,15E-01	1.71E-01
	SO <sub>2</sub>		2.66E-02	6.38E-01	2.33E+02	1.16E-01	2.66E-02	6.38E-01	2.33E+02	0.12	6.31E-02
	NOx CO		1,44E+00 1.32E+01	3.45E+01	1.26E+04 1.16E+05	6.30E+00	1.44E+00 1.32E+01	3.45E+01	1.26E+04	6.30	3.41E+00
	VOC		6.83E-01	3.17E+02 1.64E+01	5.99E+03	5.78E+01 2.99E+00	6.83E-01	3.17E+02 1.64E+01	1.16E+05 5.99E+03	57.84 2.99	3.13E+01 1.62E+00
	Acetaldehyde		1.18E-02	2.82E-01	1.03E+02	5.15E-02	1.18E-02	2.82E-01	1.03E+02	5,15E-02	2.79E-02
	Acrolein		1.42E-03	3.40E-02	1.24E+01	6.21E-03	1.42E-03	3.40E-02	1.24E+01	6.21E-03	3.36E-03
	Arsenic Benzene	<u> </u>	6.13E-05 1.43E-02	1.47E-03 3.43E-01	5.37E-01 1.25E+02	2.69E-04 6.26E-02	6.13E-05 1.43E-02	1.47E-03 3.43E-01	5.37E-01 1.25E+02	2.69E-04 6.26E-02	1,45E-04 3.39E-02
	Benzo(a)pyrene		2.88E-06	6.92E-05	2.52E-02	1.26E-02	2,88E-06	6.92E-01	2.52E-02	1.26E-02	6.84E-06
	Beryllium		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1,10E-03	4.03E-01	2.01E-04	1.09E-04
	1,3-Butadiene		5.99E-04	1.44E-02	5,25E+00	2.63E-03	5.99E-04	1.44E-02	5.25E+00	2.63E-03	1.42E-03
	Cadmium Chromium (as chromic acid)		4.60E-05 4.60E-05	1.10E-03 1.10E-03	4.03E-01 4.03E-01	2.01E-04 2.01E-04	4.60E-05 4.60E-05	1.10E-03 1.10E-03	4.03E-01 4.03E-01	2.01E-04 2.01E-04	1.09E-04
	Formaldehyde		1.81E-02	4.34E-01	1.58E+02	7.92E-02	4.60E-03	4.34E-01	1.58E+02	7.92E-02	1.09E-04 4.29E-02
	Lead		1.38E-04	3.31E-03	1.21E+00	6.04E-04	1.38E-04	3.31E-03	1.21E+00	6.04E-04	3.27E-04
	Manganese unlisted compounds	_	9.20E-05	2.21E-03 1.10E-03	8.06E-01	4.03E-04	9.20E-05	2.21E-03	8.06E-01	4.03E-04	2.18E-04
	Mercury vapor Napthalene		4.60E-05 1.30E-03	1.10E-03 3.12E-02	4.03E-01 1.14E+01	2.01E-04 5.69E-03	4.60E-05 1.30E-03	1.10E-03 3.12E-02	4.03E-01 1.14E+01	2.01E-04 5.69E-03	1.09E-04 3.08E-03
	Nickel metal		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Selenium compounds		2.30E-04	5.52E-03	2.01E+00	1.01E-03	2.30E-04	5.52E-03	2.01E+00	1.01E-03	5.46E-04
	Toluene Xylene		6.27E-03 4.37E-03	1.50E-01 1.05E-01	5,49E+01	2.75E-02	6.27E-03	1.50E-01	5.49E+01	2.75E-02 1.91E-02	1.49E-02
Quarry NG/Propane Large		<u> </u>	4.37E-03	1.038-01	3.83E+01	1.91E-02	4.37E-03	1.05E-01	3.83E+01	1.91E-02	1.04E-02
Generators	PM		1.98E+00	4.75E+01	1.73E+04	8.67E+00	1.98E+00	4,75E+01	1.73E+04	8.67	6.12
	PM10		1.98E+00	4.75E+01	1.73E+04	8.67E+00	1.98E+00	4.75E+01	1,73E+04	8.67	6.12
	PM2.5 SO2		1.98E+00 2.41E-02	4.75E+01 5.78E-01	1.73E+04	8.67E+00	1.98E+00	4.75E+01	1.73E+04	8.67	6.12
	NOx		8.11E+00	1.95E+02	2.11E+02 7.11E+04	1.05E-01 3.55E+01	2.41E-02 8.11E+00	5.78E-01 1.95E+02	2.11E+02 7.11E+04	0.11 35.53	0.07 23.91
	VOC		9.02E+00	2.17E+02	7.90E+04	3.95E+01	9.02E+00	2.17E+02	7.90E+04	39.55	27,89
	CO		9.02E+00	2.17E+02	7.90E+04	3.95E+01	9.02E+00	2.17E+02	7.90E+04	39.51	27.89
	CH4 N2O		2.71E-01 5.42E-02	6.50E+00 1.30E+00	2.37E+03 4.75E+02	1.19E+00 2.37E-01	2.71E-01 5.42E-02	6.50E+00 1.30E+00	2.37E+03 4.75E+02	1.19E+00 2.37E-01	8.37E-01 1.67E-01
	C02		5.55E+03	1.33E+05	4.75E+02 4.86E+07	2.43E+04	5.55E+03	1.30E+00	4.75E+02 4.86E+07	2.37E-01 2.43E+04	1.72E+04
	CO2e		5.57E+03	1.34E+05	4.88E+07	2.44E+04	5.57E+03	1.34E+05	4.88E+07	2.44E+04	1.72E+04
	Acenaphthene	HAP	5.45E-05	1.31E-03	4,77E-01	2.39E-04	5.45E-05	1.31E-03	4.77E-01	2.39E-04	1.68E-04
	Acenaphtylene Acetaldehyde	HAP HAP/TAP	1.30E-04 3.18E-01	3.12E-03 7.63E+00	1.14E+00 2.78E+03	5.69E-04 1.39E+00	1.30E-04 3.18E-01	3.12E-03 7.63E+00	1.14E+00 2.78E+03	5.69E-04 1.39E+00	4.01E-04 9.83E-01
	Acrolein	HAP/TAP		7.65E+00	2.79E+03	1.40E+00	3.19E-01	7.65E+00	2.78E+03 2.79E+03	1.39E+00 1.40E+00	9.85E-01
	Anthracene	HAP	2.94E-05	7.06E-04	2.58E-01	1.29E-04	2.94E-05	7.06E-04	2.58E-01	1.29E-04	9.09E-05
	Benzo(a)anthracene	HAP	1.38E-05	3.30E-04	1.21E-01	6.03E-05	1.38E-05	3.30E-04	1.21E-01	6.03E-05	4.25E-05
	Benzo(a)pyrene	HAP/TAP HAP/TAP	7.13E-02 2.33E-07	1.71E+00 5.58E-06	6.24E+02 2.04E-03	3.12E-01 1.02E-06	7.13E-02 2.33E-07	1.71E+00 5.58E-06	6.24E+02 2.04E-03	3.12E-01 1.02E-06	2.20E-01 7.19E-07
	Benzo(b)fluoranthene	HAP	1.02E-06	2.44E-05	8.90E-03	4.45E-06	1.02E-06	2.44E-05	8.90E-03	4,45E-06	3.14E-06
	Benzo(k)fluoranthene	HAP	3.49E-07	8.37E-06	3.05E-03	1.53E-06	3.49E-07	8.37E-06	3,05E-03	1.53E-06	1.08E-06
	Benzo(g,h,i)perylene Biphenyl	HAP HAP	1.74E-07 1.62E-04	4.19E-06	1.53E-03	7.64E-07	1.74E-07	4.19E-06	1.53E-03	7.64E-07	5.39E-07
	Carbon Tetrachloride	HAP/TAP	2.49E-03	3.88E-03 5.97E-02	1.42E+00 2.18E+01	7.09E-04 1.09E-02	1.62E-04 2.49E-03	3.88E-03 5.97E-02	1.42E+00 2.18E+01	7.09E-04 1.09E-02	5.00E-04 7.69E-03
	Chlorobenzene	HAP/TAP	1.82E-03	4.36E-02	1.59E+01	7.96E-03	1.82E-03	4.36E-02	1.59E+01	7.96E-02	5.62E-03
	Chioroform	HAP/TAP	1.93E-03	4.63E-02	1.69E+01	8.45E-03	1.93E-03	4.63E-02	1,69E+01	8.45E-03	5.96E-03
	Chrysene Ethylbenzene	HAP HAP	2.75E-05 4.42E-03	6.61E-04 1.06E-01	2.41E-01 3.87E+01	1.21E-04 1.94E-02	2.75E-05 4.42E-03	6.61E-04 1.06E-01	2.41E-01 3.87E+01	1.21E-04	8.51E-05 1.37E-02
	Ethylene Dibromide	HAP/TAP	3.01E-03	7.21E-02	2.63E+01	1.94E-02 1.32E-02	4.42E-03 3.01E-03	7.21E-02	2,63E+01	1.94E-02 1.32E-02	9,29E-03
(	Fluoranthene	HAP	1.48E-05	3.55E-04	1,30E-01	6.48E-05	1.48E-05	3.55E-04	1.30E-01	6,48E-05	4.57E-05
	Fluorene Formaldehyde	HAP	6.92E-05	1.66E-03	6.06E-01	3.03E-04	6.92E-05	1.66E-03	6.06E-01	3.03E-04	2.14E-04
	Indeno(1,2,3-c,d)pyrene	HAP/TAP HAP	2.26E+00 4.07E-07	5.43E+01 9.76E-06	1.98E+04 3.56E-03	9.90E+00 1.78E-06	2.26E+00 4.07E-07	5.43E+01 9.76E-06	1.98E+04 3.56E-03	9.90E+00 1.78E-06	6.99E+00 1.26E-06
	Methanol	HAP	1.02E-01	2.44E+00	8.90E+02	4.45E-01	1.02E-01	2.44E+00	8.90E+02	4.45E-00	3.14E-01
	Methylene Chloride	HAP/TAP	6.02E-03	1.44E-01	5.27E+01	2.64E-02	6.02E-03	1.44E-01	5.27E+01	2.64E-02	1,86E-02
	n-Hexane Naphthalene	HAP/TAP	1.82E-02	4.37E-01	1.60E+02	7.98E-02	1.82E-02	4.37E-01	1.60E+02	7.98E-02	5.63E-02
	Phenanthrene	HAP HAP	3.94E-03 1.45E-04	9.47E-02 3.47E-03	3.46E+01 1.27E+00	1.73E-02 6.33E-04	3.94E-03 1.45E-04	9.47E-02 3.47E-03	3,46E+01 1.27E+00	1.73E-02 6.33E-04	1.22E-02 4.47E-04
	Phenol	НАР/ТАР	1.72E-03	4.14E-02	1.51E+01	7.55E-03	1,72E-03	4.14E-02	1.51E+01	7.55E-03	5.33E-03
	Pyrene	HAP	2.39E-05	5.74E-04	2.10E-01	1.05E-04	2.39E-05	5.74E-04	2.10E-01	1.05E-04	7.39E-05
	Styrene Toluene	HAP/TAP HAP/TAP	2.24E-03 3.94E-03	5.39E-02 9.47E-02	1.97E+01 3.46E+01	9.83E-03	2.24E-03	5.39E-02	1.97E+01	9.83E-03	6.94E-03
	Vinyl Chloride	HAP/TAP	1.01E-03	9.47E-02 2.43E-02	3.46E+01 8.86E+00	1.73E-02 4.43E-03	3.94E-03 1.01E-03	9.47E-02 2.43E-02	3.46E+01 8.86E+00	1.73E-02 4.43E-03	1.22E-02 3.13E-03
	Xylene	НАР/ТАР	1.10E-03	2.63E-02	9.62E+00	4.81E-03	1.10E-03	2.63E-02	9.62E+00	4.81E-03	3.39E-03
otal	PM		2.33E+01	5.59E+02	1.26E+06	629.21	1.86E+01	3.64E+02	3.23E+05	161.67	94,30
	PM10 PM2,5		1.26E+01 1.26E+01	3.03E+02 3.03E+02	5.09E+05 4.64E+05	254.68	1.14E+01	2.27E+02	1.58E+05	79.19	46.17
	SO2		2.27E+01	5.45E+02	4.64E+05 1.99E+05	232.14 99.46	1.14E+01 2.22E+01	2.26E+02 3.84E+02	1.13E+05 1.40E+05	56.65 70.10	<u>33.96</u> 29.55
	NOx		2.38E+01	5.71E+02	2.08E+05	104.18	2.36E+01	4.65E+02	1.40E+05	84.89	44.96
			5.55E+01	1.33E+03	4.86E+05	243.23	5.55E+01	1.08E+03	3.93E+05	196.75	99.22
	VOC Acctaldehyde	Н/Т	2.17E+01	5,22E+02	1.90E+05	95,20	2.17E+01	4,29E+02	1.57E+05	78.33	43.84
	Acrolein	H/T	6.43E-01 6.50E-03	1.54E+01 1.56E-01	5.63E+03 5.69E+01	2.82E+00 2.85E-02	6.43E-01 6.50E-03	1.54E+01 1.56E-01	4.72E+03 3.87E+01	2.36E+00 1.94E-02	1.37E+00 9.68E-03
	Antimony unlisted compounds	Н	4.50E-05	1.08E-03	3.94E-01	1.97E-04	4.50E-05	1.08E-03	2.68E-01	1.34E-02	6.70E-05
	Arsenic unlisted empds (comp. of ASC)	H/T	2.06E-04	4.94E-03	2.30E+01	1.15E-02	2.06E-04	4.94E-03	1.41E+00	7.05E-04	4.97E-04
	Benzene	H/T	1.85E-01	4.43E+00	1.62E+03	8.08E-01	1.85E-01	4,43E+00	1.34E+03	6.70E-01	4.02E-01

Carolina Sunrock

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File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Emissions Summary

## EMISSION CALCULATIONS Emissions Summary

#### Carolina Sunrock Prospect Hill Quarry & Distribution Center

			Un	controlled Po	tential Emiss	ions		Controlled Pot	ential Emission	15	Potential Emissions w/ Synthetic Minor Limits****
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/dav)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
	Benzo(a)pyrene	Т	4.41E-06	1.06E-04	3.86E-02	1.93E-05	4.41E-06	1.06E-04	2.63E-02	1.31E-05	6.57E-06
		H/T	4.53E-06	1.09E-04	8.77E-02	4.38E-05	4.53E-06	1.09E-04	3,97E-02	1.99E-05	1.99E-05
		H/T	1.03E-04	2,47E-03	9.65E-01	4.83E-04	1.03E-04	2.47E-03	6.15E-01	3.07E-04	1.55E-04
	Carbon disulfide	H/T	6.23E-04	1.49E-02	5,45E+00	2,73E-03	6.23E-04	1.49E-02	3.71E+00	1.85E-03	9.27E-04
	Chromium unlisted empds (add w/chrom acid to get CRC)	н	1.26E-03	3.03E-02	1.11E+01	5.53E-03	1.26E-03	3.03E-02	7.52E+00	3.76E-03	1.88E-03
		H/T	2.71E-04	6,50E-03	4,71E+00	2,36E-03	2.71E-04	6.50E-03	2.06E+00	1.03E-03	8.61E-04
		Н	6.50E-06	1.56E-04	5.69E-02	2.85E-05	6.50E-06	1,56E-04	3.87E-02	1.94E-05	9.68E-06
	Cumene	Н	1.14E-03	2.74E-02	1.00E+01	5.01E-03	1.14E-03	2.74E-02	6.81E+00	3.41E-03	1.70E-03
	Ethyl benzene	Н	6.41E-02	1.54E+00	5.61E+02	2,81E-01	6.41E-02	1.54E+00	3.81E+02	1.91E-01	9.54E-02
		Н	2.18E-06	5.24E-05	1.91E-02	9.56E-06	2.18E-06	5.24E-05	1,30E-02	6.50E-06	3.25E-06
}	Formaldehyde	H/T	3.08E+00	7.38E+01	2.69E+04	1.35E+01	3.08E+00	7,38E+01	2.47E+04	1.24E+01	8.22E+00
	Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	Т	3.25E-10	7.80E-09	2.85E-06	1,42E-09	3.25E-10	7.80E-09	1.94E-06	9.68E-10	4.84E-10
	Hexane, n-	H/T	2.39E-01	5.74E+00	2.10E+03	1.05E+00	2.39E-01	5.74E+00	1.42E+03	7.12E-01	3.56E-01
	Hydrogen Chloride (hydrochloric acid)	H/T	5.25E-02	1,26E+00	4,60E+02	2,30E-01	5.25E-02	1.26E+00	3.13E+02	1.56E-01	7.82E-02
	Hydrogen Sulfide	Т	1.37E-02	3,28E-01	1.20E+02	5,99E-02	1.37E-02	3.28E-01	8.15E+01	4.07E-02	2.04E-02
	Lead unlisted compounds	Н	3.81E-03	9.14E-02	4.44E+01	2.22E-02	3.81E-03	9.14E-02	2.29E+01	1.14E-02	5.84E-03
	Manganese unlisted compounds	Т	2.77E-03	6.64E-02	8.49E+01	4,24E-02	2.77E-03	6.64E-02	1.88E+01	9.42E-03	6.37E-03
		H/T	6.50E-04	1.56E-02	5.69E+00	2.85E-03	6.50E-04	1.56E-02	3.87E+00	1.94E-03	9.68E-04
		Н	2.49E-04	5.98E-03	2.18E+00	1.09E-03	2.49E-04	5.98E-03	1.48E+00	7.42E-04	3.71E-04
		H	1.56E-04	3.74E-03	1.37E+00	6.83E-04	1.56E-04	3.74E-03	9.29E-01	4.64E-04	2.32E-04
		H/T	1.20E-02	2.88E-01	1.05E+02	5.26E-02	1.20E-02	2.88E-01	7.15E+01	3.57E-02	1.79E-02
		H/T	6.70E-03	1.61E-01	5.87E+01	2.93E-02	6.70E-03	1.61E-01	3.99E+01	1.99E-02	9.97E-03
	Methylene chloride	H/T	6.03E-03	1.45E-01	5.28E+01	2.64E-02	6.03E-03	1.45E-01	5.28E+01	2.64E-02	1.86E-02
		Н	1.65E-01	3.95E+00	1.44E+03	7.21E-01	1.65E-01	3.95E+00	9.81E+02	4.90E-01	2.45E-01
		H/T	1.59E-02	3.83E-01	1.46E+02	7.30E-02	1.59E-02	3.83E-01	9.55E+01	4.77E-02	2.43E-02
		H/T	8.01E-05	1.92E-03	7.01E-01	3.51E-04	8.01E-05	1.92E-03	4.77E-01	2.38E-04	1.19E-04
		H/T	2.73E-03	6.55E-02	2.39E+01	1.20E-02	2.73E-03	6.55E-02	2.11E+01	1.05E-02	6.83E-03
		Н	7.47E-03	1.79E-01	7.64E+01	3.82E-02	7.47E-03	1.79E-01	4.58E+01	2.29E-02	1.25E-02
		н	2.20E-01	5.28E+00	1.93E+03	9.64E-01	2.20E-01	5.28E+00	1.31E+03	6.55E-01	3.27E-01
		Н	3.25E-02	7.80E-01	2.85E+02	1.42E-01	3.25E-02	7.80E-01	1.94E+02	9.68E-02	4.84E-02
		н	4.00E-02	9.60E-01	3.50E+02	1.75E-01	4.00E-02	9.60E-01	2.38E+02	1.19E-01	5.95E-02
		H	3.22E-04	7.73E-03	3.61E+00	1.80E-03	3.22E-04	7.73E-03	2.58E+00	1.29E-03	6.96E-04
		H/T	2.48E-03	5.96E-02	2.18E+01	1.09E-02	2.48E-03	5.96E-02	2.11E+01	1.05E-02	7.30E-03
		H/T	5,25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	3.13E-07	1.56E-10	7.82E-11
		H/T	7.39E-01	1.77E+01	6.48E+03	3.24E+00	7.39E-01	1.77E+01	4.43E+03	2.22E+00	1.11E+00
		H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Trichlorofluoromethane (CFC 111)	T	1.35E-05	3.24E-04	1.18E-01	5.92E-05	1.35E-05	3.24E-04	8.05E-02	4.02E-05	2.01E-05
		Ĥ	1.00E-02	2.41E-01	8.78E+01	4.39E-02	1.00E-02	2.41E-01	5.97E+01	2.99E-02	1.49E-02
		H/T	6.04E-02	1.45E+00	5.29E+02	2.64E-01	6.04E-02	1.45E+00	3.59E+02	1.80E-01	8.98E-02
	Highest Single HAP (formaldehyde)		3.08E+00	7.38E+01	2,69E+04	1.35E+01	3.08E+00	7.38E+01	2.47E+04	12.36	8.22
	Total HAP		5.60E+00	1.34E+02	4.91E+04	2.45E+01	5.60E+00	1.34E+02	4.09E+04	20,45	12.54

\* Potential Controlled emissions from the hot mix asphalt plant, quarry, quarry generators, and large NG/Propane generators are based on the synthetic minor limit and not based on 8760 hr/yr of operation.
 \* Criteria pollutant emissions from the asphalt cement heater are included in the Hot Mix Asphalt Plant Emissions since the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants was used (which incorporates criteria pollutant emissions for an asphalt cement heater).
 \*\*\* Criteria and HAP/TAP pollutant emissions for the liquid asphalt tank heater are not included in the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants, therefore, these emissions are calculated separately.
 \*\*\* Potential Emissions with Synthetic Minor Limits are explained and discussed in Section 2.3 of the application.

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# EMISSION CALCULATIONS Facility Potential Emissions Summary - Toxic Air Pollutants (TAPs)

Carolina Sunrock Prospect Hill Quarry & Distribution Center

Hist Mits Angheil         Accelatedrych:         3.28E-01         7.80Er/s0         1.94Er/s0         1.94Er/s0           BeroxCapyree         4.00E-04         3.56E-01         3.57E-01         1.92E         <		An bid	
Itel Mit Arpheit         Acceleding         3.23E-01         2.000:00         0.948-01         0.028 <th0.028< th=""> <t< th=""><th></th><th></th><th></th></t<></th0.028<>			
Accelein         500:03         1.360:01         3.378:00         0.578         5.078           Brazene         9.908:02         2.388:00         5.008:02         7.258			
Beacen         9.00E-02         2.388:00         5.00E-02         6.00E-03         <			
Bergovipyren         441E-06         1.08E-04         2.86E-02         1000-04         2.86E-02         1000-04         2.86E-02         1000-04         2.86E-02         1000-04         2.86E-02         1000-04         1000-04         2.86E-02         1000-04 <td></td> <td></td> <td></td>			
Beryllium metal (amexated)         0.006:400         0.006:40		1         1           1         1	
Carbon disalfade         6.312-04         1.4912-02         3.7114-00         3.5212-04         3.5212-04         3.5212-03         5.7012-01         3.5212-03         5.5112-03		Status         Status           Status         Status	14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0           14.0         14.0         14.0
Soluble Chromate compounds as Chrome (V)         1.118:041         2.708:03         6.708:01         6.718:01         6.718:01         6.718:01         6.718:01         6.718:01         6.718:01         6.718:02         6.718:01         7.718:03			
Househloredhemo-p-disori 12,3,67,8         3,25E:10         7,300:09         1,942:06         1,042:00         1,042:00           Hydrogen Sulfide         1,37E:02         1,268:00         1,022:00         1,022:00         1,022:00           Hydrogen Sulfide         1,37E:02         3,878:00         8,158:00         1,022:00			
Hexane, n-         2.398:01         5.748:00         1.122:03			
Hydrogen Chloride (hydrochoria acid)         5.257-02         1.2681-00         8.1584-01         8.3134-02         8.3134-02           Marganese unlisted compounds         1.937-02         3.288-01         8.1584-01         8.358-01         8.1584-01         8.358-01         8.1584-01         8.358-01         8.1584-01         8.358-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02         3.878-02         8.858-02 <t< td=""><td></td><td></td><td></td></t<>			
Manganese unisted compounda         1.931-03         4.628-02         1.937-00			
Marcury, vapor         6.500:04         1.566:02         3.872:00         1.802:02         1.802:00         1.802:02         1.802:01         1.518:01         1.508:02         1.6118:01         1.998:01         1.518:02         1.6118:01         1.998:01         1.518:02         1.6118:01         1.998:01         1.518:02         1.998:01         4.902:02         1.528:02         1.998:01         4.912:01         1.528:02         1.998:01         4.912:01         1.528:02         1.998:01         4.912:01         1.528:02         1.998:01         1.928:01         4.778:01         1.528:02         1.998:00         1.528:02         1.998:00         1.528:02         1.998:00         1.528:02 <td></td> <td></td> <td></td>			
Mathyl eibyl keitone         6.7016.03         1.6116.01         3.991-01         3.411.02         3.411.0			
Methylene chloride         8,23:E-06         197E-04         4,90E-02         70E         50:E           Nickof metal         1,58E-02         3,78E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         2,30E-01         3,31B-07         3,30E-02         2,37E-01         3,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         2,32E-01         <			
Nicki metal         1.588-02         3.786-01         9.386-01         9.286-01			
Phenol         101E-03         2.40E-04         5.97EE-03         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-00         1.45EE-01         1.45EE-03         1.45			
Styrend         2.40E-04         5.77E-03         1.44E+00         1.33E-07           Tetrachlorodibrezo-p-dioxin, 2,3,7,8-         5.25E-11         1.26E-03         3.13E-07         1.33E-07           Tethorodibrezo-p-dioxin, 2,3,7,8-         7.29E-01         1.75E+01         4.34E+03         1.25E-03           Tichhorodibromethane (CPC 111)         1.35E-05         3.24E-04         4.05E-02         1.45E+03           Xylene         6.04E-02         1.45E+00         3.59E+02         1.25E           Concrete Batch Plant         Arsenic unlisted compo of ASC)         6.59E+00         1.59E+04         3.57E+01         2.25E           Cadmium metal (elemontal urecacted)         4.53E+04         3.80E+03         1.39E+00         2.25E         2.25E           Soluble Chronate compounds         5.96E+05         1.43E+03         3.22E+01         2.25E         2.25E           Manganese unlisted compounds         7.96E+04         1.80E+02         3.66E+01         2.25E         2.25E         2.25E         2.25E         2.25E         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01         2.25E+01			
Tolucne         7.29E-01         1.728E-03         3.48E+03         5.444           Trichlorodhylene         0.00E+00         0.00E+00         0.00E+00         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         8.05E+02         5.444         5.77E+01         5.444         5.77E+01         5.444         5.77E+01         5.444         5.77E+01         5.444         5.77E+01         5.444         5.77E+01			1.12 दि अल्प्स सन्दर्भ गण्ड
Trichloroditylene         0.002+00 <th0.002+00< th="">         0.002+00         0.002+00</th0.002+00<>			
Trichtorofinoromethane (CFC 111)         1.35E-05         3.24E-04         8.0.5D-02         2.44E-04         8.0.5D-02         2.44E-04         8.0.5D-02         2.44E-04         8.0.5D-02         2.44E-04         5.05E-02         1.55E-02         2.44E-04         3.55E-02         2.44E-04         3.55E-02         2.44E-04         3.55E-02         2.44E-04         3.55E-02         2.44E-04         3.55E-02         2.45E-04         3.55E-02         2.45E-04         3.55E-02         2.45E-04         3.55E-02         2.45E-04         3.55E-02         2.45E-04         3.55E-02         4.35E-03         1.35E-02         4.35E-03         1.35E-02         4.35E-03         1.35E-02         4.35E-03         1.35E-04         4.35E-03         1.35E-04         4.35E-04         4.35E-03         1.35E-04         4.35E-03         1.35E-04         4.35E-03         1.35E-04         4.35E-03         1.35E-04         4.35E-04         4.35E-03         1.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         4.35E-04         3.35E-02         3.35E-02         3.35E-02         3.35E-02         3.35E-02         3.35E-02	998 Sec.	1999 (1990) 1779 (1996) 1799 (1996) 1799 (1996) 1799 (1996)	
Concrete Batch Plant         Arsenic unlisted cmpds (comp. of ASC)         6.59E-05         1.58E-03         5.77E-01         1.00000         1.00000         1.00000         1.00000         1.00000         1.00000         1.00000         1.00000         1.00000         1.000000         1.000000000         1.000000000000000000000000000000000000			838 GODAN
Beryllium metal (unreacted)         4.51E-06         1.90E-04         3.97E-02         2000           Cadmium metal (clemental unreacted)         5.00E-07         1.20E-05         3.48E-03         2.48E-03         2.48E-03         2.48E-03         2.48E-03         2.28E-01         2.24E-03         2.24E-03 <td></td> <td></td> <td></td>			
Cadmium motal (clemental urreacted)         5.00E-07         1.20E-05         4.38E-03         5.00E-07           Solubic Chromate compounds as Chrome (VI)         1.58E+04         3.80E-03         1.39E+00         5.90E-05           Lead unlisted compounds         7.49E-04         1.80E+03         5.22E-01         2.22E-01         2.22E-01           Manganese unlisted compounds         7.49E-04         1.80E-02         6.50E+00         2.22E-01 <td< td=""><td></td><td></td><td>2001 07 2010 1</td></td<>			2001 07 2010 1
Lead unlitted compounds         5 96E-05         1.43E-03         5.22E-01         2.45E-03           Manganese unlisted compounds         7.49E-04         1.80E-02         6.56E+00         2.45E-03           Arphalt Cement Heater         Accelain         1.22E-04         4.62E-03         1.66E+00         2.45E-04           ES-4         Accelain         2.11E-06         5.27E-07         1.56E-04         2.45E-04           Beruzene         2.46E-06         5.89E-05         3.28E+01         2.45E-05           Beruzene         2.46E-06         5.89E-05         3.28E+01         2.45E-05           Beruzene         2.46E-06         5.89E-05         3.28E+01         2.45E-05           Beruzene         2.46E-06         5.89E-05         1.28E-02         2.45E           Dichlorobenzene         1.40E-09         3.37E-08         1.28E-03         2.45E           Formaldelyde         2.83E-04         6.79E-03         2.48E+01         2.45E           Tolucene         5.31E-02         1.28E-03         4.66E+01         2.45E         2.45E           Kylene         5.31E-02         3.48E+01         2.45E         2.45E         2.45E           Soluble Chromate compounds as Chrome (VT)         3.60E-06         8.48E-05		1.46	10 x 13 x 14 x
Marganese unlisted compounds         7.49E-04         1.80E-02         6.56E+00         5.45E+00           Arphalt Cement Heater         Acetalcibyde         1.78E-06         4.27E-07         1.56E+00         2.45E+00           Rest         Acetalcibyde         1.78E+06         4.27E-07         1.56E+04         2.45E+00           Amnonia         3.74E+08         4.27E+07         1.56E+04         2.45E+00         2.45E+		발생 [사망] 강경이 보기	
Arphalt Cement Heater         Acetaldolyde         1.72E-04         4.27E-07         1.56E-04           IES-4         Acetaldolyde         1.78E-08         4.27E-07         1.56E-04         2.27           Amnonia         3.74E-08         5.28E-07         1.84E-04         2.27         2.27           Berzene         2.46E-06         5.89E-02         2.28E-01         2.28E-01         2.27           Berzono/pyrena         1.40E-06         3.37E-05         1.23E-02         2.27         2.27           Dicklorobenzene         1.40E-06         3.37E-05         1.23E-02         2.27         2.27           Formaldehyde         2.81E-04         5.05E-02         1.84E+01         2.27		1910) 1910) 1910)	
IES-4         Acrolin         2.11E-08         5.05E-07         1.84E-04         Action of the second	1949 (S. 197		<u> 1998 - 1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u>
Armonia         3.74E-03         8.28E-01         3.28E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+01         2.45E+05         2.85E+02		가 가 가 있다. 1993년 - 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 1993년 199	
Benzo(p)yren         1.40E-09         3.37E-05         1.28E-05         1.28E-05           Dichlorobenzene         1.40E-06         3.37E-05         1.23E-05         1.23E-05           Formaldelyde         2.83E-04         6.79E-03         2.48E+00         1.23E-02           Formaldelyde         2.83E-04         6.79E-03         2.48E+00         1.23E-02           Hexane, n-         2.11E-03         5.38E-02         1.84E+01         1.23E-02           Arsenic unlistod compls (comp. of ASC)         4.80E-03         4.66E+01         1.23E-02           Cadmium metal (unreacted)         3.60E-06         8.18E-03         1.23E-02           Cadmium metal (unreacted)         3.60E-06         8.44E-05         3.15E-02           Stubbe Chromate compounds as Chrome (VI)         3.60E-06         8.44E-05         3.15E-02           Manganese unlisted compounds         7.20E-06         1.31E-02         1.42E+04           Mercury, vapor         3.60E-06         8.44E-05         3.15E-02         1.42E+04           Marganese unlisted compounds         7.20E+06         1.31E+02         1.42E+04         1.42E+04           Ketaletyde         1.63E+03         3.15E+02         1.42E+04         1.42E+04         1.42E+04         1.42E+04         1.42E+04	6.0.8 . 8 . 1	1 (9 ) (9 )	
Dicklorobenzene         1.40E-06         3.27E-05         1.23E-02         2.48E+00           Formaldehyde         2.83E-04         6.79E-03         2.48E+00         2.48E+00           Hexane, n-         2.11E-03         5.05E-02         1.84E+01         2.48E+00           Toluene         5.31E-05         1.28E+03         4.66E+01         2.42E+05           Xylene         9.34E-07         2.24E+05         8.18E-03         4.66E+01           Arsenic unlisted cmps of ASC)         4.80E-06         1.15E-04         4.20E+02           Beryllium metal (unreacled)         3.60E+06         8.54E+05         3.15E+02         2.44E+05           Soluble Chromate compounds as Chrome (VI)         3.60E+06         8.64E+05         3.15E+02         2.44E+05           Manganese unlisted compounds as Chrome (VI)         3.60E+06         8.64E+05         3.15E+02         2.44E+05           Mickel metal         3.60E+06         8.64E+05         3.15E+02         2.44E+05         2.44E+05           Liquid Asphelt Tank Heater         Acetaldehyde         1.63E+08         3.91E+07         1.43E+04         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05         2.44E+05 <td< td=""><td>1.184 (1957) 1963 - 1963</td><td>1986 (Mali) 2007 (Mali)</td><td>2월 전 전 전원 요청 2017년 전 전 전원 전</td></td<>	1.184 (1957) 1963 - 1963	1986 (Mali) 2007 (Mali)	2월 전 전 전원 요청 2017년 전 전 전원 전
Formaldehyde         2.83E-04         6.79E-03         2.48E+00         5.48E+00           Hexan, n-         2.11E-03         5.05E-02         1.84E+01         5.05E-02         1.84E+01           Toluene         5.31E-05         1.28E-03         4.66E+01         2.46E         8.18E-03           Xylene         9.34E-07         2.24E+05         8.18E-03         2.55E         2.55E           Harmic united cmpds (comp. of ASC)         4.80E+06         1.15E-04         2.55E         2.55E           Bayllium motal (uncasted)         3.60E+06         8.51E-02         2.55E         2.55E         2.55E           Gadmium metal (clemental uncasted)         3.60E+06         8.64E+05         3.15E-02         2.55E			134 (1949-1947) 1945 (1949-1947)
Tolume         5 31E-05         1 28E-03         4 66E-01           Xylene         9,34E-07         2.24E-03         4 66E-01           Arsenic unlisted cmpds (comp. of ASC)         4.80E-06         1.15E-04         4.20E-02           Baryllium metal (uncreated)         3.60E-06         8.48E-03         3.15E-02           Cadmium metal (uncreated)         3.60E-06         8.44E-05         3.15E-02           Soluble Chromate compounds as Chrome (VI)         3.60E-06         1.73E-04         4.20E-02           Manganese unlisted compounds as Chrome (VI)         3.60E-06         1.31E-02         4.42E-02           Manganese unlisted compounds as Chrome (VI)         3.60E-06         1.73E-04         6.31E-02           Metury, vapor         3.60E-06         8.64E-05         3.15E-02         4.42E-42E-42E-42E-42E-42E-42E-42E-42E-42E-	4.99 St. 6	1.11	
Xylene         9.34E-07         2.24E-05         8.18E-03           Arsonic unlisted cmps (comp. of ASC)         4.80E-06         1.15E-04         4.20E-02           Beryllium metal (unreacted)         3.60E-06         8.64E-05         3.15E-02           Soluble Chromate compounds as Chrome (VI)         3.60E-06         8.64E-05         3.15E-02           Soluble Chromate compounds as Chrome (VI)         3.60E-06         8.64E-05         3.15E-02           Manganese unlisted compounds         7.20E-06         8.64E-05         3.15E-02           Manganese unlisted compounds         7.20E-06         8.64E-05         3.15E-02           Mercury, vapor         3.60E-06         8.64E-05         3.15E-02           Nickel metal         3.60E-06         8.64E-05         3.15E-02           Acrolarin         1.93E-08         4.63E-05         3.15E-02           Acrolarin         1.93E-08         4.63E-05         3.15E-02           Armonia         3.43E-01         8.23E-02         3.01E-04           Benzoca/pyrene         2.25E-06         5.06E-05         1.97E-02           Benzoca/pyrene         1.29E-04         6.22E-03         3.01E-05           Dichlorobenzene         1.29E-04         6.22E-03         3.112E-02		-164-14-22 694-1-2364	
Beryllium metal (unreacted)         3.60E-06         8.64E-05         3.15E-02         5.55           Cadmium metal (unreacted)         3.60E-06         8.64E-05         3.15E-02         5.55           Stubble Chromate compounds as Chrome (VI)         3.60E-06         8.64E-05         3.15E-02         5.55           Manganese unitsed compounds         7.20E-06         1.73E-04         5.15E-02         5.55           Marcury, vapor         3.60E-06         8.64E-05         3.15E-02         5.55           Marcury, vapor         3.60E-06         8.64E-05         3.15E-02         5.55           Acetaldehydo         1.63E-06         8.64E-05         3.15E-02         5.55           Arononia         3.40E-06         8.64E-05         3.15E-02         5.55           Arononia         1.63E-06         8.64E-05         3.15E-02         5.55           Arononia         3.40E-06         8.23E-02         5.55 <td></td> <td>× 8. 7. 5</td> <td></td>		× 8. 7. 5	
Gadmium metal (demental unreacted)         3.60E-06         8.64E-05         3.15E-02         3.66E-06           Soluble Chromate compounds as Chrome (VI)         3.60E-06         8.64E-05         3.15E-02         3.66E-06           Manganese unlisted compounds         7.20E-06         1.73E-04         6.31E-02         3.66E-06           Mercury, vapor         3.60E-06         8.64E-05         3.15E-02         3.66E-06         3.66E-06           Mickel metal         3.60E-06         8.64E-05         3.15E-02         3.66E-06         3.66E-06           Liquid Asphalt Tank Heater         Acerolein         1.93E-08         4.61B-07         1.69E-04         3.66E-06           Berzoca/phyrene         2.25E-06         5.46E-05         1.97E-02         3.66E-06         3.67E-04         3.66E-06           Berzoca/phyrene         1.29E-06         3.09E-06         1.13E-02         3.66E-06			
Stubile Chromate compounds as Chrome (VI)         3.60E-06         8.64E-05         3.15E-02         5.05E-06         1.67E-05           Margamese united compounds         7.20E-06         1.73E-04         5.31E-02         5.05E-06         1.73E-04         5.31E-02         5.05E-06         1.73E-04         5.31E-02         5.05E-06         1.73E-04         5.31E-02         5.05E-06         1.73E-04         5.31E-02         5.05E-06         1.05E-06         8.64E-05         3.15E-02         5.05E-06         5.01E-02         5.05E-06         5.01E-02         5.05E-06         5.01E-01         5.05E-06         5.01E-01         5.05E-06         5.01E-01         5.05E-06         5.03E-07         1.69E-04         5.05E-04         5.0		588 (253) 2638 (271)	
Mrcury, vspor         3.60E-06         8.64IE-05         3.15E-02         3.25E-02           Nickel metal         3.60E-06         8.64IE-05         3.15E-02         3.25E-02           Liquid Arphait Tank Heater         1.63IE-06         8.64IE-05         3.15E-02         3.25E-02           EES-5         Acetaldehyde         1.63IE-08         3.91E-07         1.43IE-04         3.25E-04           Berzockopyrene         2.25E-06         5.40IE-05         1.97E-02         3.25E-04         3.25E-02           Berzockopyrene         1.29E-06         3.09E-06         1.13E-02         3.25E-02         3.25E-02           Dichlorobenzene         1.29E-06         3.09E-06         1.13E-02         3.25E-02         3.25E-02           Hexane, n-         1.91E-03         4.27E+01         3.25E-02         3.25E-02         3.25E-02           Hexane, n-         1.91E-03         4.03E-03         2.27E+00         3.25E-02         3.25E-02           Toluene         4.87E-03         1.17E-03         4.27E+01         3.25E-02         3.27E+01	997 - C.S	ુક્લર ૧૮ ૪૫	226 (23.2) - 1
Nickel metal         3.60E-05         8.64E-05         3.15E-02           Liquid Arphsit Tank Heater         Aceclein         1.63E-08         3.11E-07         1.43E-04           KES-5         Acrolein         1.39E-08         4.63E-04         1.69E-04         4.63E-04           Benzene         2.25E-06         5.40E-05         3.01E+01         3.43E-03         8.23E-02         3.01E+01           Benzene         2.25E-06         5.40E-05         1.13E-02         4.63E-07         4.63E-07           Dichlorobenzene         1.29E-09         3.09E-08         1.13E-02         4.63E-07         4.63E-02           FormaldeHyde         2.59E-04         6.22E-03         2.27E+00         4.63E-02         4.63E-02           Valuene         4.87E-05         1.13E-02         4.63E-02         4.63E-02         4.63E-02           Valuene         4.87E-05         1.67E-03         4.27E-01         4.62E-03         4.62E-03		28% (3.%) (*** (	sing sheard as the best said
IES-5         Actolein         1.93E-08         4.63E-07         1.69E-04           Ammonia         3.43E-03         8.23E-02         3.01E+01         3.01E+01           Benzene         2.25E-06         5.40E-05         1.97E-02         3.01E+01           Benzene         1.29E-06         5.40E-05         1.13E-05         3.01E+01           Dichlorobenzene         1.29E-06         3.09E-05         1.13E-05         3.04E-05           Formaldehyde         2.59E-04         6.22E-03         2.27E+00         3.04E-05           Hexane, n-         1.93E-03         4.63E-03         1.69E+01         3.04E-05           Toluene         4.87E-05         1.17E-03         4.27E-01         3.04E-05           Xytena         8.56E-07         2.06E-05         7.50E-03         3.05E-05		1912 1900 1944 1959	
Ammonia         3 43E-03         8 23E-02         3.01E+01         7 × × × × × × × × × × × × × × × × × × ×	1997 (P. 1997) 1997 - 1997 (P. 1997)	(SE) - 201	
Brozone         2.25E-06         5.40E-05         1.97E-02         5.40E-05           Brazzo(a)yrene         1.29E-09         3.09E-08         1.13E-05         5.40E-05           Dichlorobenzene         1.29E-06         3.09E-08         1.13E-05         5.40E-05           Formaldelyde         2.59E-04         6.22E-03         2.27E+00         5.40E-05           Hoxane, n-         1.9UE-03         4.63E-02         1.69E+01         5.40E-05           Toluene         4.87E-05         1.17E-03         4.27E+01         5.40E-05           Xytena         8.56E-07         2.06E-05         7.50E-03         5.40E-05	62.42 <u>- 344</u> - 416 - 446	1460 (1466) 1464 (1466)	00년 14년19년 2010 - 16년 14년 14년 2010 - 16년 14년 14년
Dichlorobenzene         1.29E-06         3.09E-05         1.13E-02         3.00E-05           Formaldelyde         2.59E-04         6.22E-03         2.27BE+00         3.00E-05         1.13E-02         3.00E-05         1.03E-02		26.0 O.83	
Formaldehyde         2.59E-04         6.22E-03         2.27E+00           Hexane, n-         1.93E-03         4.63E+02         1.69E+01           Toluene         4.87E+05         1.17E-03         4.27E+01           Xylena         8.56E+07         2.06E+05         7.50E+03			<u>가면 물었습니다</u> 다리 관계하는
Hexane, n-         1.93E-03         4.63E-03         1.69E+01         1.67E+03         1.67E+01         1.67E+03		ren a propo Georgia de Consta	<u>- 19</u> 2007 - 1999 - 1997
Xytene 8.56E-07 2.06E-05 7.50E-03	К-р С	<u>a de través</u>	
	2821 (282) 2832 (2832)	10 - 10460 1849 - 1045	(81년 일상 방송) - 1917년 - 1918년 1월 1919년 1917년 - 1918년 1월 1919년 1월 1919년 1월 1919년 1월 1919년 1월 1919년 1월 1919년 1월 1919년 1월 1919년 19
Arsenic unlisted empds (comp. of ASC) 4.40E-06 1.06E-04 3.85E-02		6.30 -391-	16 N. (1993)
Beryllium metal (unreacted) 3.30E-06 7.92E-05 2.89E-02 2.69E-020E-02 2.69E-02 2.69E-02 2.69E-02 2.69E-	and the second second		PR Street
Cadmium metal (elemental unreacted)         3.30E-06         7.92E-05         2.89E-02           Soluble Chromate compounds as Chrome (VI)         3.30E-06         7.92E-05         2.89E-02		5.187 - 286 - 9 784 - 1974 - 9	
Manganese unlisted compounds 6.60E-06 1.58E-04 5.78E-02 实际不可能的 化合物	1.25 11.2	332 202	200 - CAMP
Mercury, vapor         3.30E-06         7.92E-05         2.89E-02           Nickel metal         3.30E-06         7.92E-05         2.89E-02		Sher Malif Masi Marti	
Facility-wide Acetaldehyde 3.25E-01 7.80E+00 1.94E+03 28.43	N		
Acrolein 6.50E-03 1.56E-01 3.87E+01 0.08	N	lo	
Ammonia         7.17E-03         1.72E-01         6.28E+01         2.84           Berzo(a)pyrene         2.69E-09         6.46E-08         2.36E-05	3.044	10	No
Dichlorobenzene 2.69E-06 6.46E-05 2.36E-02 69.5	N		
Formaldehyde 7.97E-01 1.91E+01 4.75E+03 0.16 Hexane, n- 2.43E-01 5.84E+00 1.46E+03 46.3	Ye	es No	
Hexane, n-         2.43E-01         5.84E+00         1.46E+03         46.3           Phenol         1.01E-03         2.41E-02         5.99E+00         1.00	N		<u>,                                     </u>
Styrene 2.40E-04 5.77E-03 1.43E+00 11.16	N		
Trichlorofluoromethane (CFC 111)         1.35E-05         3.24E-04         8.05E-02         \$89.66           Methyl chloroform         1.20E-02         2.88E-01         7.15E+01         257.98         505.4	N N		
Methyl ethyl ketone 6.70E-03 1.61E-01 3.99E+01 155.8		No	0
Toluene         7.29E-01         1.75E+01         4.34E+03         58.97         197.96           Xylene         5.04E-02         1.45E+00         3.59E+02         68.44         113.7	N		
	N		o No
** Soluble Chromate compounds as Chrome (VI) 2.78E-04 6.66E-03 2.12E+00 2.6E-02	13.752 N	N	0
Hexane, n-         2.43E-01         5.84E+00         1.46E+03         46.3           Manganese unlisted compounds         2.69E-03         6.45E-02         1.81E+01         1.3	13.752 N	No No	
Manganese unlisted compounds         2.69E-03         6.45E-02         1.81E+01         1.3           Mercury, vapor         6.57E-04         1.58E-02         3.93E+00         2.5E-02	13.752 N	N	
Nickel metal 1.59E-02 3.83E-01 9.55E+01 0.3	13.752 N	Ye	:5
Carbon disulfide 6.23E-04 1.49E-02 3.71E+00 7.8	13.752 N	N	
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-         5.25E-11         1.26E-09         3.13E-07         2.7           Arsenic unlisted compds (comp. of ASC)         2.15E-04         5.16E-03         1.49E+00		1	No Yes
Benzene 9.90E-02 2.38E+00 5.90E+02			Yes
Benzo(a)pyrene 4.41E-06 1.06E-04 2.63E-02	7E-04 0.194 11.069		No
Hydrogen Sulfide         1.37E-02         3.28E-01         8.15E+01         5.1           Beryllium metal (unreacted)         1.14E-05         2.74E-04         1.00E-01			
Beryllium metal (unreacted)         1.14E-05         2.74E-04         1.00E-01           Cadmium metal (elemental unreacted)         1.10E-04         2.64E-03         6.75E-01	7E-04 0.194 11.069 3.044	No	
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 3.25E-10 7.80E-09 1.94E-06	7E-04 0.194 11.069	No	0 No Yes
Hydrogen Chloride (hydrochlorie acid) 5.25E-02 1.26E+00 3.13E+02 0.74	7E-04 0.194 11.069 3.044 0.378 0.507 0.007		No
Perchloroethylene (tetrachloroethylene)         8.01E-05         1.92E-03         4.77E-01         172           Trichloroethylene         0.00E+00         0.00E+00         0.00E+00         54	7E-04 0.194 11.069 3.044 0.378 0.507		No Yes

Per 15A NCAC 2Q.0711(a) (vertically oriented emission release points)
 Chromic acid (VI) (component of solCR6 and CRC) from Concrete Batch and HMA emissions are counted towards the 'Soluble chromate compounds as Chrome (VI) total

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# **APPENDIX A2 - COMBUSTION CALCULATIONS**

**EMISSION CALCULATIONS** 

1.2 MMBtu/hr heater for asphalt cement Heater HCS-70 Heater Asphalt Cement Heater IES-4 Sources:

Carolina Sunrock Prospect Hill Quarry & Distribution Center

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Factors	

Maximum Hours per Day = Maximum Days of Production per Year = Heating Value for NG = Heating Value for No. 2 Fuel Oil = Sulfur Content in No. 2 Fuel Oil =

Based on EPA's GHG MRR Rule (40 CFR Part 98) 24 hrs/day 365 days/yr 1026 Btu/scf 140 MMBtu/10<sup>3</sup> gal 0.5 %

			Maximum Gas	Maximum Fuel Oil
	Maximum Heat		Usage for Natural	Jsage for Natural Usage for Natural
Source Description	Input Rating	Units	Gas (MMscf/hr)	Gas (10 <sup>3</sup> gal/hr)
Direct Heater	1.2	MMBtu/hr	1.17E-03	8.57E-03

(

NG Emissions (Ibyyr) = Emission Factor (IbMMscf) \* Potential Fuel Usage (MMscfyr) NG Emissions (tpy) = Emissions (Ibyy) / (2000 lb/ton)

No. 2 Fuel Emissions (Ib/yr) = Emission Factor (Ib/MMBtu) \* Potential Fuel Usage (10<sup>°</sup> gal/yr) \* Heating Value for No. 2 Fuel Oil (140 MMBtu/10<sup>°</sup> gal) No. 2 Fuel Oil Emissions (tpy) = Emissions (Ib/yr) / (2000 lb/ton)

Follutant         from NG           Pollutant         Combustion           3-Methylaphthalene         2-405-05           3-Methylaphthalene         2-405-05           3-Methyloranthracene         1.80E-06           7.12-Dintelenci(a)         1.80E-06           Accusphene         1.80E-06           Accusphene         1.80E-06           Accusphyrene         1.80E-06           Accusphyrene         1.80E-06           Accusphyrene         1.80E-06           Accusphyrene         1.80E-06           Berroc(a) Intracene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Berroc(b)fluoranthene         1.80E-06           Ditehtoroche         1.20E-06           Dithorocoherzene	(lb/ltr) 2.81E-08				Uncontrolled Emission Factor					Max Total	Max Total
	<b>(lb/hr)</b> 2.81E-08	Emissions from NG	from NG		from No. 2 Fuel Oil		Emissions from No. 2 fuel oil	io. 2 fuel oil		Emissions from	Emissions
	(1D/ILT) 2.81E-08				Combustion (lb/10 <sup>3</sup>					fuel oil firing	Irom NG &
	2.01E-US	(ID/day)	(Ib/yr)	(tpy)	gal) <sup>2</sup>	(lb/hr)	(lb/day)	(lb/yr)	(tpy)	(llb/yr)	firing (tov)
	00 111 0	0./4E-U/	2.46E-04	1.23E-07		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.46E-04	1.23E-07
	2.11E-09	5.05E-08	1.84E-05	9.22E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-05	9.22E-09
	0-1/2/1 0 112 00	4.49E-07	1.64E-04	8.20E-08		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-04	8.20E-08
	2.11E-09	5.05E-08	1.84E-05	9.22E-09	2.11E-05	1.81E-07	4.34E-06	1.58E-03	7.92E-07	1.58E-03	7.92E-07
	2.11E-09	2.025-08	1.84E-05	9.22E-09	2.53E-07	2.17E-09	5.20E-08	1.90E-05	9.50E-09	1.90E-05	9.50E-09
	1.78E-08	4.27E-07	1.56E-04	7.79E-08		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-04	7.79E-08
	20-311-2 2 - 11 - 02	5.05E-07	1.84E-04	9.22E-08		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-04	9.22E-08
	5./4E-U5	8.98E-02	3.28E+01	1.64E-02		0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E+01	1.64E-02
	2.81E-09	6.74E-08	2.46E-05	1.23E-08	1.22E-06	1.05E-08	2.51E-07	9.16E-05	4.58E-08	9.16E-05	4 58F-08
	2.11E-09	5.05E-08	1.84E-05	9.22E-09	4.01E-06	3.44E-08	8.25E-07	3.01E-04	1.51E-07	3.01E-04	1.51E-07
	00-204-7	CU-345.C	2.15E-02	1.08E-05	2.14E-04	1.83E-06	4.40E-05	1.61E-02	8.03E-06	2.15E-02	1.08E-05
	1.40E-09	3.37E-08	1.23E-05	6.15E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-05	6.15E-09
	2111E-09	5.05E-08	1.84E-05	9.22E-09	1.48E-06	1.27E-08	3.04E-07	1.11E-04	5.56E-08	1.11E-04	5.56E-08
	1.40E-09	3.37E-08	1.23E-05	6.15E-09	2.26E-06	1.94E-08	4.65E-07	1.70E-04	8.48E-08	1.70E-04	8.48E-08
	2,115-09	2.02E-08	1.84E-05	9.22E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-05	9.22E-09
	2:40E-U3	2.89E-U2	2.15E+01	1.08E-02		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E+01	1.08E-02
	2.11E-09	2.02E-08	1.84E-05	9.22E-09	2.38E-06	2.04E-08	4.90E-07	1.79E-04	8.94E-08	1.79E-04	8.94E-08
	1 405-09	0.3/E-08	1.235-05	6.15E-09	1.67E-06	1.43E-08	3.44E-07	1.25E-04	6.27E-08	1.25E-04	6.27E-08
	1.40E-00 3.63E.03	03/E-0	1.23E-02	6.15E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-02	6.15E-06
	0.005400	0.00E-02	0.00E-00	0.000-000	101707	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E+01	1.59E-02
	3 51 E-00	8 47E-08	2 075 05	1 24T 00	0.305-00	5.45E-07	1.31E-05	4.78E-03	2.39E-06	4.78E-03	2.39E-06
	3.27F-09	7 865-08	2.0/E-02	1 435 00	4.84E-00	4.15E-08	9.96E-07	3.63E-04	1.82E-07	3.63E-04	1.82E-07
	8 77E-05	2 11E-03	7695 01	1 04E 04	00-3/4/4	3.835-08	9.20E-07	3.36E-04	1.68E-07	3.36E-04	1.68E-07
	2.11E-03	5.05E-02	1 846-01	0.77E_04	2.20E-02	2.83E-04	6.79E-03	2.48E+00	1.24E-03	2.48E+00	1.24E-03
	2.11E-09	5.05E-08	1 84E-05	0 77E-00	2 1 AE AK	1 075 00	0.00500	0.0000	0.00±+00	1.84E+01	9.22E-03
Naphthalene 6.10E-04	7.13E-07	1.71E-05	6.25E-03	3.12E-06	2.14E-00	0 40E-06	9.30E.04	0.400.00	8.03E-08	1.61E-04	8.03E-08
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-09	2.66F-11	6 38F-10	0.40E-U2	11/2 10	5.48E-02	4.246-05
	3.04E-03	7.30E-02	2.66E+01	1.33E-02		0.00E+00	0.00E+00	0.0018-00	0.004400	10-30C-7	1 325 00
cne 1.7	1.99E-08	4.77E-07	1.74E-04	8.71E-08	1.05E-05	9.00E-08	2.16E-06	7.88E-04	3 946-07	7 885-04	1.33E-02
Propane 1.6	1.87E-03	4.49E-02	1.64E+01	8.20E-03		0.00E+00	0.00E+00	0.00F+00	0.005400	1 646401	0.04D-01

# File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Asphalt Cement Heater

Appendix A2 Emission Calculations Page 1 of 8

*         3.40E.02           sethane         3.40E.02           cethane         2.00E.04           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.120E.05           m         1.10E.03           m         1.10E.03           m         1.10E.03           m         2.00E.04           m         2.10E.03           m         2.10E.03           m         2.10E.03           m         2.30E.04           m         2.10E.03	Pyrene	5.00E-06	5.85E-09	1.40E-07	5.12E-05	2.56E-08	4.25E-06	3.64E-08	8.74E-07	3.19E-04	1.60E-07	3.19E-04	1.60E-07
(1)         (1) <td>Toluene</td> <td>3.40E-02</td> <td>3.98E-05</td> <td>9.54E-04</td> <td>3.48E-01</td> <td>1.74E-04</td> <td>6.20E-03</td> <td>5.31E-05</td> <td>1.28E-03</td> <td>4.66E-01</td> <td>2.33E-04</td> <td>4.66E-01</td> <td>2.33E-04</td>	Toluene	3.40E-02	3.98E-05	9.54E-04	3.48E-01	1.74E-04	6.20E-03	5.31E-05	1.28E-03	4.66E-01	2.33E-04	4.66E-01	2.33E-04
(1)         (0) <td>1.1.1-Trichloroethane</td> <td></td> <td>0.00E+00</td> <td>0.00E+00</td> <td>0.00E+00</td> <td>0.00E+00</td> <td>2.36E-04</td> <td>2.02E-06</td> <td>4.85E-05</td> <td>1.77E-02</td> <td>8.86E-06</td> <td>1.77E-02</td> <td>8.86E-06</td>	1.1.1-Trichloroethane		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-04	2.02E-06	4.85E-05	1.77E-02	8.86E-06	1.77E-02	8.86E-06
2.00E-04         2.34E-07         5.61E-06         2.05E-03         1.02E-06         5.60E-04         4.80E-06         1.15E-06         4.20E-02         2.10E-03         4.20E-02         3.15E-02         1.15E-02         1.15E-02         1.15E-02         3.15E-02	Xvlene		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-04	9.34E-07	2.24E-05	8.18E-03	4.09E-06	8.18E-03	4.09E-06
4.40E-03         5.15E-06         1.24E-04         4.51E-02         2.25E-05         0.00E+00         0.00E+00         0.51E-02         4.51E-02         4.51E-02         4.51E-02         4.51E-02         4.51E-02         4.51E-02         4.51E-02         1.58E-05         5.15E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02         1.58E-05         5.15E-02	Arsenic	2.00E-04	2.34E-07	5.61E-06	2.05E-03	1.02E-06	5.60E-04	4.80E-06	1.15E-04	4.20E-02	2.10E-05	4.20E-02	2.10E-05
1_20E-05         1_40E-08         3.37E-07         1_23E-04         6.15E-06         3.420E-06         3.15E-02         1.58E-05         3.15E-02	Barium	4.40E-03	5.15E-06	1.24E-04	4.51E-02	2.25E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-02	2.25E-05
1         1.10E-03         1.29E-06         3.09E-05         1.13E-02         1.35E-02         3.15E-02         5.15E-02         5.	Bervllium	1.20E-05	I.40E-08	3.37E-07	1.23E-04	6.15E-08	4.20E-04	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.15E-02	1.58E-05
0         1.40E-03         1.64E-06         3.93E-05         1.43E-02         1.43E-02         3.15E-02         8.61E-04         3.00E+00         8.61E-04         3.15E-02         8.61E-04         8.61E-04         3.15E-02         3.15E-02         8.16E-02         8.16E-04         3.15E-02         8.16E-02         8.16E-04         8.16E-04         9.46E-02         8.16E-02         8.	Cadmium	1.10E-03	1.29E-06	3.09E-05	1.13E-02	5.64E-06	4.20E-04	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.15E-02	1.58E-05
8 40E-05         9 \$25E-06         8 61E-04         4 30E-07         4 30E-07         0.00E+00         0.00E+00         0.00E+00         0.61E-04         8 61E-04           8 \$30E-04         9 94E-07         2 39E-07         2 39E-07         2 315E-05         8 71E-03         4 35E-06         8 61E-04         8 61E-04         8 61E-04         8 61E-04         8 61E-04         8 61E-04         8 61E-04         8 61E-07         8 61E-02         8 31E-02         8 31E-02         9 31E-05         9 51E-02         3 15E-05         9 51E-02         3 15E-02         9 46E-02         4 73E-05         9 46E-02         7 73E-05         9 46E-02         7 73E-05         9 46E-02         7 73E-05         9 46E-02         7 73E-05         9 46E-02         7 73E-05         9 46E-02         7 15E-02         3 15E-02 <td< td=""><td>Chromium (as chromic acid)</td><td>1.40E-03</td><td>1.64E-06</td><td>3.93E-05</td><td>1.43E-02</td><td>7.17E-06</td><td>4.20E-04</td><td>3.60E-06</td><td>8.64E-05</td><td>3.15E-02</td><td>1.58E-05</td><td>3.15E-02</td><td>1.58E-05</td></td<>	Chromium (as chromic acid)	1.40E-03	1.64E-06	3.93E-05	1.43E-02	7.17E-06	4.20E-04	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.15E-02	1.58E-05
8.50E-04         9.94E-07         2.39E-05         8.71E-03         4.35E-06         8.40E-04         7.20E-06         1.71E-04         6.31E-02         3.15E-05         6.31E-02         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         9.46E-02         7.73E-05         6.31E-02         1.35E-02         6.31E-02	Cobalt	8.40E-05	9.82E-08	2.36E-06	8.61E-04	4.30E-07		0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.61E-04	4.30E-07
500E-04         5.85E-07         1.40E-05         5.12E-03         2.56E-06         1.26E-03         1.08E-05         2.73E-04         9.46E-02         4.73E-05         9.46E-02         4.73E-05         9.46E-02         4.73E-05         9.46E-02         4.73E-05         9.46E-02         4.73E-05         9.46E-02         6.31E-02         6.31E-02         6.31E-02         6.31E-02         6.31E-02         6.31E-02         6.31E-02         6.31E-02         3.15E-05         6.31E-02         3.15E-05         6.31E-02         3.15E-05         6.31E-02         3.15E-05         3.15E-05         3.15E-02         1.31E-02         3.15E-02         1.31E-02         3.15E-02         1.31E-02         3.15E-02	Conner	8.50E-04	9.94E-07	2.39E-05	8.71E-03	4.35E-06	8.40E-04	7.20E-06	1.73E-04	6.31E-02	3.15E-05	6.31E-02	3.15E-05
3.80E.04         4.44E.07         1.07E.05         3.89E.04         7.20E.06         1.73E.04         6.31E.02         3.15E.05         6.31E.02         5.15E.02         6.31E.02         5.15E.02         6.31E.02         5.15E.02         6.31E.02	Lead	5.00E-04	5.85E-07	1.40E-05	5.12E-03	2.56E-06	1.26E-03	1.08E-05	2.59E-04	9.46E-02	4.73E-05	9.46E-02	4.73E-05
2.66E-04         3.04E-07         7.30E-06         2.66E-03         1.33E-06         4.20E-04         3.60E-06         8.64E-05         3.15E-02         1.35E-05         3.15E-02	Manganese	3.80E-04	4.44E-07	1.07E-05	3.89E-03	1.95E-06	8.40E-04	7.20E-06	1.73E-04	6.31E-02	3.15E-05	6.31E-02	3.15E-05
1.10E-03         1.29E-06         3.09E-05         1.13E-02         5.64E-06         5.64E-06         0.00E+00         0.00E+00         0.00E+00         0.00E+00         0.13E-02         1.13E-02           2.10E-03         2.46E-06         5.89E-05         2.15E-02         1.08E-05         4.20E-04         3.64E-05         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         3.15E-02         1.38E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         7.88E-01         2.95E-02         2.95E-05         5.46E-04         2.30E-06         0.00E+00         0.00E+00         0.00E+00         2.36E-02         1.58E-01         1.58E-01         2.88E-02         1.58E-01         2.35E-02         1.58E-01         2.35E-02         1.58E-01         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-02         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.35E-03         2.	Mercury	2.60E-04	3.04E-07	7.30E-06	2.66E-03	1.33E-06	4.20E-04	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.15E-02	1.58E-05
2.10E-03         2.46E-06         5.89E-05         2.15E-02         1.08E-06         3.60E-06         8.64E-05         3.15E-02         1.58E-05         3.15E-02         1.58E-05         3.15E-02         1.58E-05         3.15E-02         1.58E-05         3.15E-02         1.58E-05         3.15E-02         1.58E-01         7.88E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-05         1.58E-01         7.88E-05         1.58E-01         7.88E-05         1.58E-01         7.88E-05         2.56E-02	Molvbdenum	1.10E-03	1.29E-06	3.09E-05	1.13E-02	5.64E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-02	5.64E-06
2.40E-05         2.81E-08         6.74E-07         2.46E-04         1.23E-07         2.10E-03         1.30E-05         4.32E-04         1.58E-01         7.88E-05         1.58E-01         2.36E-02         1.58E-01         2.36E-02         1.36E-02         1.30E+00         0.00E+00         0.00E+00         0.00E+00         0.00E+00         0.00E+00         2.36E-02         1.35E-01         2.36E-02         2.36E-02         1.35E-04         4.20E-02         2.37E-01         2.97E-01         2.97E-01         1.49E-04         5.60E-04         4.80E-66         1.15E-04         4.20E-02         2.97E-01	Nickel	2.10E-03	2.46E-06	5.89E-05	2.15E-02	1.08E-05	4.20E-04	3.60E-06	8.64E-05	- 3.15E-02	1.58E-05	3.15E-02	1.58E-05
2.30E-03         2.69E-06         6.46E-05         2.36E-02         1.18E-05         0.00E+00         0.00E+00         0.00E+00         0.00E+00         0.00E+00         2.36E-02         1           2.90E-02         3.39E-05         8.14E-04         2.97E-01         1.49E-04         5.60E-04         4.80E-66         1.15E-04         4.20E-02         2.97E-01         1	Selenium	2.40E-05	2.81E-08	6.74E-07	2.46E-04	1.23E-07	2.10E-03	1.80E-05	4.32E-04	1.58E-01	7.88E-05	1.58E-01	7.88E-05
2.90E-02 3.39E-05 8.14E-04 2.97E-01 1.49E-04 5.60E-04 4.80E-06 1.15E-04 4.20E-02 2.10E-05 2.97E-01	Vanadium	2.30E-03	2.69E-06	6.46E-05	2.36E-02	1.18E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-02	1.18E-05
	Zinc	2.90E-02	3.39E-05	8.14E-04	2.97E-01	1.49E-04	5.60E-04	4.80E-06	1.15E-04	4.20E-02	2.10E-05	2.97E-01	1.49E-04

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<sup>1</sup> - AP 42; Compilation of Air Pollutant Emission Frators Voi. 1 - Stationary Sources USEPA, 5th ed. Section 1, 4, 7/98 - with following exceptions: Accentederyed, annound, acroletin are from WebFIRE database. <sup>2</sup> - AP-42; Compilation of Air Pollutant Emission Frators Vol. 1 - Stationary Sources USEPA, 5th ed. Section 1.3, 9/98

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File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Asphalt Cement Heater

Appendix A2 Emission Calculations Page 2 of 8

EMISSION CALCULATIONS

Heater for Liquid Asphalt Tank IES-S Sources:

1.1 MMBtu/hr heater for liquid asphalt tank Heater Direct Heater

Carolina Sunrock Prospect Hill Quarry & Distribution Center

Laurence - march

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Description Factors

Maximum Hours per Day = Maximum Days of Production per Year = Heating Value for NG = Heating Value for No. 2 Fuel Oil = Sulfar Content in No. 2 Fuel Oil =

Based on EPA's GHG MRR Rule (40 CFR Part 98) 24 hrs/day 365 days/yr 1026 Btu/scf 140 MMBtu/10<sup>3</sup> gal 0.5 %

Maximum Gas Maximum Fuel Oil Usage for Natural Gas (MMscPhr) Gas (10<sup>3</sup> gal/hr) 7.86E-03 1.07E-03 MMBtu/hr Units Maximum Heat Input Rating 1.1 Source Description Direct Heater

 $NG \ Emissions \ (lp/yr) = Emission Factor (lb/MMscf) * Potential Fuel Usage (MMscf/yr) NG \ Emissions (upy) = Emissions (lb/yr) / (2000 lb/ton)$ 

No. 2 Fuel Emissions (Ib/yr) = Emission Factor (Ib/MMBtu) \* Potential Fuel Usage (10<sup>d</sup> gal/yr) \* Heating Value for No. 2 Fuel Oil (140 MMBtu/10<sup>d</sup> gal) No. 2 Fuel Oil Emissions (tpyr) = Emissions (Ib/yr) / (2000 lb/ton)

<u></u>	Uncontrolled Emission Factor					Uncontrolled Emission Factor				_	Mar Total	Max Total
	from NG		Emissions from NG	from NG		from No. 2 Fuel Oil		Emissions from No. 2 fuel oil	le. 2 fuel oil	-	Emissions from	Emissions from NC &
Pollatsart	Compusition (III)	(HAI)		<b>(11.</b> ()		Combustion (lb/10 <sup>3</sup>					fuel oil firing	No. 2 fuel oil
DAF	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	0 151 00			(fdt)	[IE3	(lb/hr)	(Ib/day)	(lb/yr)	(tpy)	(Ib/yr)	firing (tpv)
WI J	0.7	6.1.JE-U3	10-305-1	7.14E+01	3.57E-02	5	1.57E-02	3.77E-01	1.38E+02	6.88E-02	1.38E+02	6.88E-02
	0./	8.15E-U3	1.96E-01	7.14E+01	3.57E-02	1.241	9.75E-03	2.34E-01	8.54E+01	4.27E-02	8.54E+01	4 77F-07
PM2.5	7.6	8.15E-03	1.96E-01	7.14E+01	3.57E-02	1.241	9.75E-03	2.34E-01	8.54E+01	4.27E-02	8 54F+01	4 27E-02
302	0.6000	6.43E-04	1.54E-02	5.64E+00	2.82E-03	11	5.58E-01	1.34E+01	4.89E+03	2.44E+00	4.89E+03	2 44F+00
NOX	100	1.07E-01	2.57E+00	9.39E+02	4.70E-01	20	1.57E-01	3.77E+00	1.38E+03	6 88F-01	1 386403	6 825-01
VOCs	5.500	5.90E-03	1.42E-01	5.17E+01	2.58E-02	0.556	4.37E-03	1.05E-01	3.83E+01	1 91 F-07	\$ 17B+01	0.00E-01
8	84	9.01E-02	2.16E+00	7.89E+02	3.94E-01	5	3.93E-02	9.43E-01	3.44E+02	1.72F-01	7 896402	3 04E-01
2-Methylnaphthalene	2.40E-05	2.57E-08	6.18E-07	2.25E-04	1.13E-07		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-04	1.13E-07
3-Methylchloranthrene	1.80E-06	1.93E-09	4.63E-08	1.69E-05	8.45E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1 69E-05	8 45E-00
,12-Dimethylbenz(a)anathracene	1.60E-05	1.72E-08	4.12E-07	1.50E-04	7.51E-08		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1 50F-04	7 51 F-08
Accnaphthene	1.80E-06	1.93E-09	4.63E-08	1.69E-05	8.45E-09	2.11E-05	1.66E-07	3.98E-06	1.45E-03	7.26E-07	1.45E-03	7.26E-07
Acenaphtylene	1.80E-06	1.93E-09	4.63E-08	1.69E-05	8.45E-09	2.53E-07	1.99E-09	4.77E-08	1.74E-05	8.71E-09	1.74E-05	8.71E-09
Acetaidenyde	1.52E-05	1.63E-08	3.91E-07	1.43E-04	7.14E-08	-	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-04	7.14E-08
Acrolein	1.80E-05	1.93E-08	4.63E-07	1.69E-04	8.45E-08		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-04	8.45E-08
Amnonia	3.20E+00	3.43E-03	8.23E-02	3.01E+01	1.50E-02		0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E+01	1.50E-02
Anuracene	2.405-06	2.57E-09	6.18E-08	2.25E-05	1.13E-08	1.22E-06	9.59E-09	2.30E-07	8.40E-05	4.20E-08	8.40E-05	4.20E-08
Detiz(a)antimacene	1.805-00	1.93E-09	4.63E-08	1.69E-05	8.45E-09	4.01E-06	3.15E-08	7.56E-07	2.76E-04	1.38E-07	2.76E-04	1.38E-07
Denzene	2.105-05	2.25E-06	5.40E-05	1.97E-02	9.86E-06	2.14E-04	1.68E-06	4.04E-05	1.47E-02	7.36E-06	1.97E-02	9.86E-06
Denizo(a)pyrene	1.205-06	1.295-09	3.09E-08	1.13E-05	5.64E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-05	5.64E-09
Barro(ch i)an ian	1.005-00	1.935-09	4.63E-08	1.69E-05	8.45E-09	1.48E-06	1.16E-08	2.79E-07	1.02E-04	5.09E-08	1.02E-04	5.09E-08
Delizo(g,li,t)perylene	1.205-06	1.295-09	3.09E-08	1.13E-05	5.64E-09	2.26E-06	1.78E-08	4.26E-07	1.56E-04	7.78E-08	1.56E-04	7.78E-08
Perizo(A)HUULARINICIIC	1.0UE-U0	1.93E-09	4.035-08	1.69E-05	8.45E-09		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-05	8.45E-09
Ch	1.000	CD-2C7.7	5.4UE-UZ	1.9/E+01	9.86E-03		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E+01	9.86E-03
Diharro/a hhatharoon	1.005-00	1.935-09	4.63E-08	1.69E-05	8.45E-09	2.38E-06	1.87E-08	4.49E-07	1.64E-04	8.19E-08	1.64E-04	8.19E-08
Dichlorohomono	1 705 03	1.295-07	3.07E-U8	1.135-00	5.64E-09	1.67E-06	1.31E-08	3.15E-07	1.15E-04	5.75E-08	1.15E-04	5.75E-08
Fibra	2 1 2	3 375 03	3.09E-05	1.135-02	5.64E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-02	5.64E-06
Ethulhenzene	1.0	0010000	0.000-00	2.916+01	1.46E-02		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E+01	1.46E-02
Elicenthana	3 AND 04	2 20T 00	0.000	0.0012+00	0.00E+00	6.36E-05	5.00E-07	1.20E-05	4.38E-03	2.19E-06	4.38E-03	2.19E-06
Fluorene	2.80F-00	3 005-09	7 2015-08	2.82E-05	1.41E-08 1.21E-08	4.84E-06	3.80E-08	9.13E-07	3.33E-04	1.67E-07	3.33E-04	1.67E-07
Formaldehuda	7 505 00	0.00E 05	1 025 02	2.012-00	1.515-05	4.4/E-00	3.51E-U8	8.43E-07	3.08E-04	1.54E-07	3.08E-04	1.54E-07
	70-700-1	0.04E-00	1.735-00	1.045-01	5.32E-04	3.30E-02	2.59E-04	6.22E-03	2.27E+00	1.14E-03	2.27E+00	1.14E-03

File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Liquid Asphalt Tank Heater

Appendix A2 Emission Calculations Page 3 of 8

Hexane	1.8	1.93E-03	4.63E-02	1.69E+01	8 45F-03		0.005200	0.000-100	0001.00	000000		
Indeno(1 2 3-cd)nvrene	1 R0F-06	1 935-00	4 63E-09	1 405 05	0 151 00	21212	00.100.0	0.005700	U.UUE+UU	0.00±+00	1.69E+01	8.45E-03
Nantat 1	10-101	C0-7727	1.025-00	CU-340.1	8.43E-U9	2.14E-06	1.68E-08	4.04E-07	1.47E-04	7.36E-08	1.47E-04	7.36E-08
Laplinatione	0.101-04	6.54E-U/	1.57E-05	5.73E-03	2.86E-06	1.13E-03	8.88E-06	2.13E-04	7.78E-02	3.89E-05	7.78E-02	3.89E-05
OCDD		0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-09	2.44E-11	5.85E-10	2.13E-07	1 07E-10	2 13E_07	1 075-10
Pentane	2.6	2.79E-03	6.69E-02	2.44E+01	1.22E-02		0.00E+00	0.00E+00	0.00E+00	0.00F+00	2 44E+01	1 276-07
Phenanathrene	1.70E-05	1.82E-08	4.37E-07	1.60E-04	7.98E-08	1.05E-05	8.25E-08	1.98E-06	7.23E-04	3.61E-07	7.735-04	2.61E-07
Propane	1.6	1.72E-03	4.12E-02	1.50E+01	7.51E-03		0.00E+00	0.00E+00	0.00E+00	0.00FH00	1 SOFTAT	7615.02
Pyrene	5.00E-06	5.36E-09	1.29E-07	4.70E-05	2.35E-08	4.25E-06	3.34E-08	8.01E-07	2.93E-04	1 46F-07	2 03E-04	1 465 07
Toluene	3.40E-02	3.65E-05	8.75E-04	3.19E-01	1.60E-04	6.20E-03	4.87E-05	1.17F-03	4 77E-01	2 13E-04	10 340 1	1.7UE-0/
1,1,1-Trichloroethane		0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-04	1.85E-06	4.45E-05	1.62E-02	8 17F_06	1 67E-07	8 17E 06
Xylene		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-04	8.56E-07	2.06E-05	7.50E-03	3 75E-06	7 SOF-02	3 756-06
Arsenic	2.00E-04	2.14E-07	5.15E-06	1.88E-03	9.39E-07	5.60E-04	4.40E-06	1.06E-04	3.85E-02	1 93E-05	3 85E-07	1 93E-05
Barium	4.40E-03	4.72E-06	1.13E-04	4.13E-02	2.07E-05		0.00E+00	0.00E+00	0.00E+00	0.00E+00	4135-02	2 07E-05
Beryllium	1.20E-05	1.29E-08	3.09E-07	1.13E-04	5.64E-08	4.20E-04	3.30E-06	7.92E-05	2.89E-02	1.45E-05	2 89E-02	1 456-05
Cadmium	1.10E-03	1.18E-06	2.83E-05	1.03E-02	5.17E-06	4.20E-04	3.30E-06	7.92E-05	2.89E-02	1.45F-05	2 89F_07	1 455-05
Chromium (as chromic acid)	1.40E-03	1.50E-06	3.60E-05	1.31E-02	6.57E-06	4.20E-04	3.30E-06	7.92E-05	2.89E-02	1.45E-05	2.89E-02	1455-05
Cobalt	8.40E-05	9.01E-08	2.16E-06	7.89E-04	3.94E-07		0.00E+00	0.00E+00	0.00E+00	0.00E+00	7 895-04	3 946-07
Copper	8.50E-04	9.11E-07	2.19E-05	7.98E-03	3.99E-06	8.40E-04	6.60E-06	1.58E-04	5.78E-02	2.89E-05	5 78E-02	7 89E-05
Lead	5.00E-04	5.36E-07	1.29E-05	4.70E-03	2.35E-06	1.26E-03	9.90E-06	2.38E-04	8.67E-02	4.34E-05	8.67E-02	4 346-05
Manganese	3.80E-04	4.07E-07	9.78E-06	3.S7E-03	1.78E-06	8.40E-04	6.60E-06	1.58E-04	5.78E-02	2.89E-05	5.78E-02	2 89F-05
Mercury	2.60E-04	2.79E-07	6.69E-06	2.44E-03	1.22E-06	4.20E-04	3.30E-06	7.92E-05	2.89E-02	1.45E-05	2.89E-02	1 45F-05
Molybdenum	1.10E-03	1.18E-06	2.83E-05	1.03E-02	5.17E-06		0.00E+00	0.00E+00	0.00E+00	0.00E+00	1 03E-02	\$ 17E-06
Nickel	2.10E-03	2.25E-06	5.40E-05	1.97E-02	9.86E-06	4.20E-04	3.30E-06	7.92E-05	2.89E-02	1 45E-05	2 89E-07	1.45E-05
Selenium	2.40E-05	2.57E-08	6.18E-07	2.25E-04	1.13E-07	2.10E-03	1.65E-05	3.96E-04	1.45E-01	7.23E-05	1 45E-01	7.73E-05
Vanadium	2.30E-03	2.47E-06	5.92E-05	2.16E-02	1.08E-05		0.00E+00	0.00E+00	0.00E+00	0.00F+00	2 16E-07	1 085-05
Zinc	2.90E-02	3.11E-05	7.46E-04	2.72E-01	1.36E-04	5.60E-04	4.40E-06	1.06E-04	3.85E-02	1.93E-05	2.72F-01	1 365-04
- AP-42: Compilation of Air Pollutant Emission Factors Vol. 1 - Stationary Sources USEPA, 5th ed.	nission Factors Vol. 1 - Sta	tionary Sources USEPA, 5	th ed. Section 1.4, 7/98 - w	Section 1.4, 7/98 - with following exceptions:								10 20211

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Actional Action of Air Follmann Emission Factors Vol. 1 - Stationary Sources USEPA, 5th ed. Section 1.3, 998. <sup>3</sup>-AP-42; Compilation of Air Follmann Emission Factors Vol. 1 - Stationary Sources USEPA, 5th ed. Section 1.3, 998

File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Liquid Asphalt Tank Heater

Appendix A2 Emission Calculations Page 4 of 8

Carolina Sunrock Prospect Hill Quarry & Distribution Center

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EMISSION CALCULATIONS Sources: Large Natural Gas/Propane Fired Generator

The Generator can burn propane or natural gas. Emissions were calculated below using vendor supplied guarantees, and NSPS IIII emission factors, and AP-42: Compliation of Air Pollutant Emission Factors Vol. 1 - Stationary Sources USEPA, StH ed. Section 3.2, 20/95 The quarry will permit 3 propane/or natural gas fried generators, operating only 2 simultaneously. Therefore, the Total with Synthecic Minor Limits column below totals the two largest generators, assuming only they will operate at one time. The thind is redundant for backup power

7,000 Btu/hp-hr Source: AP-42, Table 3.3-1, Note (a) 0.74558 kw; Per AP-42 Appendix A to convert from kw to hp 8,760 hrs/yr Average Brake Specific Fuel Consumption= 1 hp = Annual Hours of Operation =

		Equipped with catalytic oxidation	Equipped with catalytic oxidation	Equipmed with catalytic oxidation
Maximum Fuet	Usage (MMBtu/hr)	14.46	14.46	12.05
	Units	dy	dy	цų
	Power Output	2065	2065	1221
	Source Description Power Output	Jenbacher J420-GS-B86	Jenbacher J420-GS-B86	lenharther 1420-65-0685
	Source ID	ES-PGEN1	ES-PGEN2	EX-PGEN3

ES-PGEN3	Jenbacher J420-GS-C685	1721	đ	12.05	Equipped with catalytic oxidation	alytic oxidation														
Generator Emissions:					-			ľ			ŀ			ŀ			ĺ			[
					T		ES-PGEN1			ES-PGEN2			ES-PGEN3			TOTAL		Total w/ Sy	Total w/ Synthetic Minor Limits	imita
		l Incontrollad	1 Incontrolled																	
	Tother and Taxa	Emission Factor	Emission Factor		Uncontrolled	Propane/	Propane/NG Potential Emissions	ssions	Propane/W	Propane/NG Potential Emissions	sions	Propane/N	Propane/NG Potential Emissions	sions	Propane/N	Propane/NG Potential Emissions	issions	Propane/NG	Propane/NG Potential Emissions	sions
	Lounday type	for Propane	for Engines	for Engines	Emission Factor															
		Engines NSPS	Vendor for 1420-	Vendor for 1420- Vendor for 1420-	for Propane Engines							ŗ								
Pollutant	f "	hr)	(s/hp-hr)	(g/hp-hr)	(lb/MMBtu) 12	lb/hr	lb/yr	à	lb/hr	lb/yr	à	lb/hr	tb/yr	à	tb/hr	lb/yr	ĝ	lb/hr	lb/vr	À
Md	Criteria				0.05	6.98E-01	6.12E+03	3.06E+00	6.98E-01	Η	H	5.82E-01	5.10E+03	2.55E+00	1.98E+00	1.736+04	8.67	ļ	R	6.12
PM10	Criteria				0.05	6.98E-01	6.12E+03	3.06E+00	6.98E-01	6.12E+03	Η	5.82E-01	5.10E+03	2.55E+00	1.986+00	1.73E+04	8.67	Н		6.12
PM2.5	Criteria				0.05	6.98E-01	6.12E+03	3.06E+00	10-385-9	6.12E+03	_	5.82E-01	5.10E+03	2.55E+00	1.98E+00	1.73E+04	8.67	1.40E+00	1.22E+04	6.12
so <sub>2</sub>	Criteria				0.00059	~	7.45E+01	3.72E-02	8.50E-03	7.45E+01	3.72E-02	7.08E-03	6.21E+01	3.10E-02	2.41E-02	2.11E+02	11.0	1.70E-02	1.49E+02	0.07
NOX	Criteria	1.0	0.7	0.6	ないないたちのなわりと		23907	11.9533		23907	11.9533	2.65	23245	11.6224	8.11E+00	7.11E+04	35.53	H		23.91
VOC	Criteria	0.7			New Sold State	3.18	27891	13.9456	-	27891	13.9456	2.65	23245	11.6224	9.02E+00	7.90E+04	39.51	-		27.89
8	Criteria	0.70			A STATE OF COMPANY	1	2.79E+04	1.39€+01	+	2.79E+04	1.39E+01	2.65	2.32E+04	1.16E+01	9.02E+00	7.906+04	39.51	-	-	27.89
CH4	9H9				6.61E-03	9.565-02	8.37E+02	4.195-01	9.56E-02	8.37E+02	4.195-01	7.976-02	6.98E+02	3.495-01	2.71E-01	2.37E+03	1.196+00	-+		8.37E-01
103	910				1 375-US	20-376-1	1.0/2+02	0'3/E-UZ	1 065-02	1.775+02	8.3/E-UZ	1.595-02	1.40E+02	6.98E-02	5.42E-02	4.75E+02	2.376-01	3.82E-02	3.356+02 1	1.67E-01
507 C01e	299				1 365407	1 076403	1 776407	B 616-00	1 076402	+	0.00000	1 6A5103	1 445-07	7 105-03	0,000	4.005707	2.436+04	╈	╈	1./2E+U4
Acenaphthene	HAP				1.33E-06	1 925-05	1.68F-01	8.475-05	1 97F-05	╀	╀	1 60F-05	1405-01	7 075-05	5.455-05	4 776-01	2 305-04	╈	3 375.01	1 505.04
Acenaphylene	HAP				3.17F-06	4 5RE-05	4 01E-01	2 D1F-04	4 58F-05	4.016-01	╉	3 87F.05	3 355-01	1 675-04	1 305.04	1 146400	2 COL ON		╋	
Acetaldehvde	HAP/TAP				7.76E-03	1.12E-01	9.83E+02	4.915-01	112E-01	9.83E+02	┢	9 35F-07	8 19F+07	4.09F-01	3.18F-01	7 78F403	1 396400	+	╋	0.825-01
Acrolein	HAP/TAP				7.78E-03	1.12E-01	9.85E+02	4.93E-01	1.12E-01	9.85E+02	4.936-01	9.376-02	8.21E+02	4,116-01	3.19E-01	2.79E+03	1.40E+00	+-	╉┉	9.856-01
Anthracene	HAP				7.186-07	1.046-05	9.09E-02	4.55E-05	1.04E-05	┝	4.55E-05	8.656-06	7.58E-02	3.79E-05	2.94E-05	2.58E-01	1.29E-04	+	┢	9.095-05
Benzo(a)anthracene	HAP				3.36E-07	4.86E-06	4.25E-02	2.13E-05	4.866-06	4.25E-02	2.13E-05	4.05E-06	3.55E-02	1.77E-05	1.38E-05	1.21E-01	6.03E-05		┢	4.25E-05
Benzene	HAP/TAP				1.74E-03	2.52E-02	2.20E+02	1.106-01	2.52E-02	2.20E+02	1.10E-01	2.10E-02	1.84E+02	9.18E-02	7.13E-02	6.24E+02	3.126-01	+	⊢	2.20E-01
Benzo(a)pyrene	HAP/TAP				5.68E-09	8.21E-08	7.196-04	3.60E-07	8.21E-08	7.19E-04	3.60E-07	6.84E-08	5.996-04	3.00E-07	2.33E-07	2.04E-03	1.02E-06	1.64E-07	1.446-03 7	7.19E-07
Benzo(b)fluoranthene	HAP				2.48E-08	3.58E-07	3.14E-03	1.57E-06	3.58E-07	3.14E-03		2.995-07	2.62E-03	1.31E-06	1.02E-06	8.90E-03	4.45E-06			3.14E-06
Benzo(k)Buoranthene	HAP		-		8.51E-09	1.23E-07	1.08E-03	5.39E-07	1.23E-07	1.08E-03	+	1.03E-07	8.98E-04	4.49E-07	3.49E-07	3.05E-03	1.53E-06	-		1.08E-06
Benzo(g,h.i)perylene	HAP				4.266-09	6.16E-08	5.39E-04	2.70E-07	+	5.39E-04	-	5.13E-08	4.50E-04	2.25E-07	1.74E-07	1.536-03	7.64E-07	-		5.39E-07
Biphenyl	HAP				3.956-06	5.71E-05	5.006-01	2.50E-04	5.71E-05	5.00E-01	╉	4.76E-05	4.17E-01	2.08E-04	1.62E-04	1.42E+00	7.09E-04			5.00E-04
Carbon Tetrachloride	HAP/TAP				6.07E-05	8.77E-04	7.69E+00	3.845-03	╉	╉	╉	7.31E-04	6.41E+00	3.206-03	2.496-03	2.18E+01	1.09E-02	~+	-	7.695-03
Chicobenzene	HAP/IAP				4.446-05	6.42E-U4	5.62E+U0	2.81E-US	6.42E-U4	5.62E+00	2.81E-03	5.355-04	4.696+00	2.34E-03	1.825-03	1.596+01	7.96E-03	-	╈	5.62E-03
Chrysene	HAP				6 725-07	9 71 F-D6	8 516-02	4 25F-05	50-3TE-06	8 STE-02	+	8 10F.0F	7 005-00	2.49C-UD	2 755-05	TOTOCOT	0.456-03	1 945-05	1 70E-01 0	5.36E-U3
Ethylbenzene	HAP				1.08E+04	1.56E-03	1.37E+01	6.84E-03	1.565-03	1.376+01	╎	1 30F-03	1.14F+01	5, 70F-03	4.47F-03	3 876401	1945-02	╈	ł	1 375.00
Ethylene Dibromide	HAP/TAP				7.34E-05	1.06E-03	9.29E+00	4.65E-03	1.06E-03	9.29E+00	┝	8.84E-04	7.75E+00	3.87E-03	3.01E-03	2.63E+01	1.32E-02	+	⊢	9.29E-03
Fluoranthene	HAP				3.616-07	5.22E-06	4.57E-02	2.296-05	5.22E-06	4.57E-02	2.29E-05	4.35E+06	3.81E-02	1.90E-05	1.48E-05	1.305-01	6.486-05	⊢	⊢	4.57E-05
Fluorene	HAP				1.69E-06	2.446-05	2.14E-01	1.07E-04	2.44E-05	2.14E-01	1.07E-04	2.04E-05	1.785-01	8.92E-05	6.92E-05	6.06E-01	3.03E-04	⊢	+-	2.14E-04
Formaldehyde	HAP/TAP				S.52E-02	7.985-01	6.99E+03	3.49E+00	7.986-01	6.99E+03	3.496+00	6.65E-01	5.83E+03	2.91E+00	2.26E+00	1.986+04	9.906+00	1.60E+00	1.40E+04 6	6.99E+00
Indeno(1,2,3-c,d)pyrene	HAP				9.93E-09	1.44E-07	1.26E-03	6.29E-07	$\vdash$	1.26E-03	-	1.20E-07	1.05E-03	5.24E-07	4.07E-07	3.56E-03	1.78E-06		⊢	1.26E-06
Methanol	НАР				2.48E-03	3.586-02	3.14E+02	1.57E-01	3.58E-02	3.14E+02	1.57E-01	2.996-02	2.62E+02	1.31E-01	1.02E-01	8.90E+02	4.45E-01	$\vdash$	6.286+02 3	3.14E-01
Methylene Chloride	HAP/TAP				1.47E-04	2.12E-03	1.86E+01	9.31E-03	2.12E-03	1.86E+01	9.31E-03	1.77E-03	1.55E+01	7.76E-03	6.02E-03	5.27E+01	2.64E-02	-		1.86E-02
n-Hexane	HAP/TAP				4.45E-04	6.43E-03	5.63E+01	2.82E-02	6.43E-03	5.63£+01	2.82E-D2	5.366-03	4.70E+01	2.35E-02	1.82E-02	1.60E+02	7.98E-02	_	1.13E+02 S	S.63E-02
Naphthaiene	HAP				9.63E-05	1.39E-03	1.22E+01	6.10E-03	1.396-03	1.22E+01	6.10E-03	1.16E-03	1.02E+01	5.08E-03	3.946-03	3.46E+01	1.73E-02	2.78E-03	2.44E+01 1	1.22E-02
Phenanthrene	HAP	-			3.53E-06	5.10E-05	4.47E-01	2.23E-04	5.106-05	4.47E-01	-	4.25E-05	3.73E-01	1.86E-04	1.45E-04	1.27E+00	6.33E-04			4.47E-04
Phenol	HAP/TAP				4.21E-05	6.09E-04	5.33E+00	2.67E-03	6.09E-04	5.33E+0D	2.67E-03	5.07E-04	4.44E+00	2.226-03	1.72E-03	1.51E+01	7.556-03		-	5.336-03
Pyrene	HAP				5.84E-07	8.44E-06	7.39E-02	3.70E-05	8.44E-06	7.39E-02	3.70E-05	7.04E-06	6.16E-02	3.08E-05	2.39E-05	2.10E-01	1.0SE-04	-+	-+	7.396-05
Styrene	HAP/TAP				5.48E-05	7.925-04	6.94E+00	3.476-03	7.92E-04	6.94E+00	3.476-03	6.60E-04	5.78E+00	2.89E-03	2.24E-03	1.976+01	9.83E-03		-+	6.94E-03
Itoluene	HAP/IAP				9,63E-U5	1.395-03	1.22E+01	6.10E-03	1.39E-03	1.22E+01	6.10E-03	1.16E-03	1.0ZE+01	5.08E-03	3.94E-03	3.465+01	1.73E-02		2.446+01 1	1.22E-02
Vinyi Chloride	HAP/LAP				2.4/E-U3	3.2/5-04	3.135700	1 205-03	3.375-04	3.13E+00	1 705-03	2.385-04	2 84F+00	1.5UE-US	1 10E-03	8.86E400	4.435-03	7.755_04	-	3.135-03 3.305_03
					21000 44								2100C			2.146.00		1-1-1-1-1	-1	

Potential Emissions (Ib/yr) = Emission Factor (Ib/MMBtu) \* Fuel Input (MMBtu/hr) \* Hours of Operation (8760 hrs/year)

<sup>1</sup>. Ar 42; Compilation of Air Pollutant Emission Factors Vol. 1. - Natural gas-freed Reciprocating Engines Stationary Sources USEPA, Sth ed. Section 32, 10796; for 4 SLB engines <sup>2</sup>. No AP-42 emission factors for propane so natural gas emission factors are used for all except GHG calculations. Propane is worst case for GHG emissions

Appendix A2 Emission Calculations Page 5 of 8

EMISSION CALCULATIONS Sources: Qua	ONS Quarry Equipment Generators	ment Gene	rators								Prospect	Prospect Hill Quarry & Distribution Center	k Distributio	Carolina Sunrock stribution Center
Emission Source ID	Description	Rating	Units		Assumed that	all engines ass	ociated with thi	Assumed that all engines associated with this equipment will be model year 2019 or later.	ll be model year	2019 or later.				
Gen-1 (J50V2)	Primary crusher generator - Mobile	350	율		Maxi	Maximum Hours of Operation =	of Operation =	8760	8760 hr/yr					
GEN-1a (145)	Primary crusher generator - Mobile	350	£		٩	Actual Hours of Operation	if Operation =	4160 hr/vr	hr/vr					
GEN-2 (S190dt)	Screen generator	125	. dy			Sul	Sulfur Content =	0.0015%	0.0015% or 15 ppm					
GEN-3 (PS1300 Maxtrack)	Cone crusher generator	440	đ				Heating Value =	0.138	0.138 MMBtu/gal					
GEN-4 (TF80)	Person Automax	125	dų											
GEN-5 (PS1300 Maxtrack)	1300 Cone Crusher Generator	450	đų											
GEN-7 (PS100 Maxtrack)	Pegson Auromax 1100 Cone Crusher Generator	350	Å.											
						low				Potential Emissions	niccione			
										GEN-3		GEN-5		
		_	:	Emission	Emission	-	GEN-1		GEN-2	(PS1300		(PS1300	GEN-7 (PS100	
Pollutant	Pollutant Type	Factor	Onits	Factor	Factor	Units	(JSOV2) lb/hr	GEN-1a (J45) lb/hr	(S190dt) (b/hr	Maxtrack) lb/hr	GEN-4 (TF80) Ib/hr	Maxtrack) lb/hr	Maxtrack) lb/hr	Total lb/hr
PM	Criteria		lb/hp-hr	3.29E-05		lb/hp-hr	0.011	0.011	0.004	0.014	0.004	0.015	0.011	7.19E-02
PM10	Criteria		lb/hp-hr lh/hp-hr	3.29E-05 3.20E-05		lb/hp-hr lb/hp-hr	0.011	0.011	0.004	0.014	0.004	0.015	0.011	7.19E-02
SO <sub>2</sub>	Criteria	1.21E-05	ll-hp-hr			11-11-12-1	0.004	0.004	0.002	0.005	0.002	0.005	0.004	7.15E-02 2.66E-02
NOx	Criteria		lb/hp-hr	6.S7E-04		lb/hp-hr	0.23	0.23	0.08	0.29	0.08	0.30	0.23	1.44E+00
8	Criteria		lb/hp-hr	5.75E-03	8.21E-03	lb/hp-hr	2.01	2.01	1.03	2.53	1.03	2.59	2.01	1.32E+01
VOC Acetaldehvde	Criteria H/T	5.37E-06	ib/ho-hr	3.12E-04		u-du/a	0.11 1.88E-03	0.11 1.88E-03	0.04 6.71E-04	0.14 2.36E-03	0.04 6.71E-04	0.14 2.42E-03	0.11 1.88F-03	6.83E-01 1 18E-02
Acrolein	Н/Т	6.48E-07	lb/hp-hr				2.27E-04	2.27E-04	8.09E-05	2.85E-04	8.09E-05	2.91E-04	2.27E-04	1.42E-03
Arsenic Renzene	HT	2.80E-08 6 53E-06	lb/hp-hr lh/hn-hr				9.80E-06 7 79E-03	9.80E-06 7 29E-03	3.50E-06 8.16E-04	1.23E-05 2 87E-03	3.50E-06 8.16E-04	1.26E-05 2 94E-03	9.80E-06	6.13E-05
Benzo(a)pyrene	Η/T	1.326-09	lb/hp-hr				4.61E-07	4.61E-07	1.65E-07	5.79E-07	1.65E-07	5.92E-07	4.61E-07	2.88E-06
Beryllium	НЛ	2.10E-08	lb/hp-hr				7.35E-06	7.35E-06	2.63E-06	9.24E-06	2.63E-06	9.45E-06	7.35E-06	4.60E-05
1,3-Butadiene	Ϋ́	2.74E-07 2 10E-08	lb/hp-hr ih/hp-hr				9.58E-05 7 35E-06	9.58E-05 7 35E-05	3.42E-05 7 53E-05	1.20E-04	3.42E-05	1.23E-04 0 45E-06	9.58E-05 7 255-06	5.99E-04
Chromium (as chromic acid)	H/T	2.10E-08	lb/hp-hr				7.35E-06	7.35E-06	2.63E-06	9.24E-00	2.63E-06	9.45E-06	7.35E-06	4.60E-05
Formaldehyde		8.26E-06	lb/hp-hr				2.89E-03	2.89E-03	1.03E-03	3.63E-03	1.03E-03	3.72E-03	2.89E-03	1.81E-02
Lead Magnaco untistod compo	тŞ	6.30E-08	lb/hp-hr lb/hp-hr				2.21E-05	2.21E-05	7.88E-06	2.77E-05	7.88E-06	2.84E-05	2.21E-05	1.38E-04
Mercury vapor		2.10E-08	lb/hp-hr				7.35E-06	7.35E-06	2.63E-06	9.24E-05	2.63E-06	9.45E-06	7.35E-06	3.20E-03
Napthalene	H/T	5.94E-07	lb/hp-hr				2.08E-04	2.08E-04	7.42E-05	2.61E-04	7.42E-05	2.67E-04	2.08E-04	1.30E-03
Nickel metal Selenium compounds	HT H	2.10E-08 1.05E-07	lb/hp-hr lb/hp-hr				7.35E-06 3.68E-05	7.35E-06 3.68E-05	2.63E-06 1.31E-05	9.24E-06 4.62E-05	2.63E-06 1.31E-05	9.45E-06 4.73E-05	7.35E-06 3.68E-05	4.60E-05 2.30E-04
Toluene	Η	2.86E-06	lb/hp-hr				1.00E-03	1.00E-03	3.58E-04	1.26E-03	3.58E-04	1.29E-03	1.00E-03	6.27E-03
Xylene		2.00E-06	lb/hp-hr				6.98E-04	6.98E-04	2.49E-04	8.78E-04	2.49E-04	8.98E-04	6.98E-04	4.37E-03
Highest HAP (Formaldehyde)	<u>)(</u>	8.265-06	la/np-nr				2.89E~U3	2.89E-U3	1.03E-03	3.635-03	1 1.03E-03	3./2E-03	2.89E-U3	1.81E-02

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Appendix A2 Emission Calculations Page 6 of 8

File:Facility Wide & TAP summary 2019-11-06.xlsx Sheet:Quarry Equipment Generators

1.21E-02 9.41E-03 5.89E-02 3.36E-03 9.41E-03 9.41E-03 3.36E-03 1.18E-02 Total HAPs

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					Potent	Potential Emissions			
					GEN-3				
_	Deficient True	CEN-1		GEN-2	(PS1300		GEN-5 (PS1300	GEN-7 (PS100	
	Loundart Ape	(J50V2)	GEN-1a (J45)	(S190dt)	Maxtrack)	GEN-4 (TF80)	Maxtrack)	Maxtrack)	Total
Pollutant		lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
PM	Criteria	101	101	36	127	36	129	101	630
PM10	Criteria	101	101	36	127	36	129	101	630
PM2.5	Criteria	101	101	36	127	36	129	101	630
so <sub>2</sub>	Criteria	37.21	37.21	13.29	46.77	13.29	47.84	37.21	232.80
NOX	Criteria	2014	2014	719	2532	719	2590	2014	12604
co	Criteria	17626	17626	8993	22158	8993	22662	17626	115683
VOC	Criteria	957	957	342	1203	342	1230	957	5987
Acetaldehyde	H/T	16.46	16.46	5.88	20.69	5.88	21.16	16.46	103.00
Acrolein	H/T	1.99	1.99	0.71	2.50	0.71	2.55	1.99	12.42
Arsenic	НT	60.0	60.0	0.03	0.11	0.03	0.11	60.0	0.54
Benzene	ΗT	20.02	20.02	7.15	25.17	7.15	25.75	20.02	125.29
Benzo(a)pyrene	ΗT	0.00	0.00	0.00	0.01	0.00	0.01	0:00	0.03
Beryllium	ΗĦ	0.06	0.06	0.02	0.08	0.02	0.08	0.06	0.40
1,3-Butadiene	НŢ	0.84	0.84	0.30	1.05	0.30	1.08	0.84	5.25
Cadmium	ΗЛ	0.06	0.06	0.02	0.08	0.02	0.08	0.06	0.40
Chromium (as chromic acid)	нЛ	0.06	0.06	0.02	0.08	0.02	0.08	0.06	0.40
Formaldehyde	нЛ	25.33	25.33	9.04	31.84	9.04	32.56	25.33	158.46
Lead	H	0.19	0.19	0.07	0.24	0.07	0.25	0.19	1.21
Manganese unlisted compou		0.13	0.13	0.05	0.16	0.05	0.17	0.13	0.81
Mercury vapor	H/T	0.06	0.06	0.02	0.08	0.02	0.08	0.06	0.40
Napthalene	H/T	1.82	1.82	0.65	2.29	0.65	2.34	1.82	11.39
Nickel metal	H/T	0.06	0.06	0.02	0.08	0.02	0.08	0.06	0.40
Selenium compounds	н/т	0.32	0.32	0.11	0.40	0.11	0.41	0.32	2.01
Toluene	НЛ	8.78	8.78	3.13	11.04	3.13	11.29	8.78	54.92
Xylene		6.12	6.12	2.18	7.69	2.18	7.86	6.12	38.27
Highest HAP (Formaldehyde)		25.33	25.33	9.04	31.84	9.04	32.56	25,33	158.46
Total HAPs		82.41	82.41	29.43	103.60	29.43	105.95	82.41	515.62

					Potent	<b>Potential Emissions</b>			
					GEN-3				
	Dollistant Tune	GEN-1		GEN-2	(PS1300		GEN-5 (PS1300	GEN-7 (PS100	
		(J50V2)	GEN-1a (J45)	(S190dt)	Maxtrack)	GEN-4 (TF80)	Maxtrack)	Maxtrack)	Total
Pollutant		tpy	tpy	tpy	tpy	tpy	tpy	tpy	ţþ
PM	Criteria	0.050	0.050	0.018	0.063	0.018	0.065	0:050	0.315
PM10	Criteria	0.050	0.050	0.018	0.063	0.018	0.065	0.050	0.315
PM2.5	Criteria	0.050	0.050	0.018	0.063	0.018	0.065	0.050	0.315
so,	Criteria	0.019	0.019	0.007	0.023	0.007	0.024	0.019	0.116
NOX	Criteria	1.01	1.01	0.36	1.27	0.36	1.29	1.01	6.30
CO	Criteria	8.81	8.81	4.50	11.08	4.50	11.33	8.81	57.84
VOC	Criteria	0.48	0.48	21.0	0.60	0.17	0.62	0.48	2.99
Acetaldehyde	н/Т	8.23E-03	8.23E-03	2.94E-03	1.03E-02	2.94E-03	1.06E-02	8.23E-03	5.15E-02
Acrolein	H/T	9.93E-04	9.93E-04	3.55E-04	1.25E-03	3.55E-04	1.28E-03	9.93E-04	6.21E-03
Arsenic	H/T	4.29E-05	4.29E-05	1.53E-05	5.40E-05	1.53E-05	5.52E-05	4.29E-05	2.69E-04
Benzene	H/T	1.00E-02	1.00E-02	3.58E-03	1.26E-02	3.58E-03	1.29E-02	1.00E-02	6.26E-02
Benzo(a)pyrene	НЛ	2.02E-06	2.02E-06	7.21E-07	2.54E-06	7.21E-07	2.59E-06	2.02E-06	1.26E-05
Beryflium	H/T	3.22E-05	3.22E-05	1.15E-05	4.05E-05	1.15E-05	4.14E-05	3.22E-05	2.01E-04
1,3-Butadiene	H/T	4.20E-04	4.20E-04	1.50E-04	5.27E-04	1.50E-04	5.39E-04	4.20E-04	2.63E-03
Cadmium	Η/T	3.22E-05	3.22E-05	1.15E-05	4.05E-05	1.15E-05	4.14E-05	3.22E-05	2.01E-04
Chromium (as chromic acid)	н/Т	3.22E-05	3.22E-05	1.15E-05	4.05E-05	1.15E-05	4.14E-05	3.22E-05	2.01E-04
Formaidehyde	Η	1.27E-02	1.27E-02	4.52E-03	1.59E-02	4.52E-03	1.63E-02	1.27E-02	7.92E-02

Appendix A2 Emission Calculations Page 7 of 8

Manganese unlisted compou         H/T         6.44E-05           Mercury vapor         H/T         3.22E-05           Napthalene         H/T         9.10E-04           Nickel metal         H/T         9.10E-05		0.400-00-00	1.21E-04	3.45E-05	1.24E-04	9.66E-05	6.04E-04
TH H H	5 6.44E-05	2.30E-05	8.09E-05	2.30E-05	8.28E-05	6.44E-05	4.03E-04
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 3.22E-05	1.15E-05	4.05E-05	1.15E-05	4.14E-05	3.22E-05	2.01E-04
Η/T Η/T	4 9.10E-04	3.25E-04	1.14E-03	3.25E-04	1.17E-03	9.10E-04	5.69E-03
TH TH	5 3.22E-05	1.15E-05	4.05E-05	1.15E-05	4.14E-05	3.22E-05	2.01E-04
	4 1.61E-04	5.75E-05	2.02E-04	5.75E-05	2.07E-04	1.61E-04	1.01E-03
Toluene H/T 4.39E-03	3 4.39E-03	1.57E-03	5.52E-03	1.57E-03	5.64E-03	4.39E-03	2.75E-02
Xvlene H/T 3.06E-03	3 3.06E-03	1.09E-03	3.84E-03	1.09E-03	3.93E-03	3.06E-03	1.91E-02
Highest HAP (Formaldehyde) 1.27E-02	2 1.27E-02	4.52E-03	1.59E-02	4.52E-03	<b>1.63E-02</b>	1.27E-02	7.92E-02
Total HAPs 0.041	0.041	0.015	0.052	0.015	0.053	0.041	0.258

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<sup>1</sup> Emission factors from NCDEQ Emission Calculation Spreadsheet for GAS & DIESEL INTERNAL COMBUSTION ENGINES with power rating of <= 600 HP for diesel engines and <= 250 HP for gasoline engines EMISSIONS CALCULATOR REVISION S 6/22/2015

Ha/TAP emission factors are from AP-42, Chapter 3.3 (revised 10/96) and Chapter 1.3 (revised 5/10) for metal HAP S0x factors for Diesel fuel are from AP-42 - Chapter 3.4 (revised 10/96). <sup>2</sup> Emission factors are for US Tier 4 engines based on NSPS Subpart IIII (assuming model year 2019 and later will be installed) for engines > 174 hp and < 751 hp. <sup>3</sup> Emission factors are for US Tier 4 engines based on NSPS Subpart IIII (assuming model year 2019 and later will be installed) for engines > 100 hp and < 751 hp.

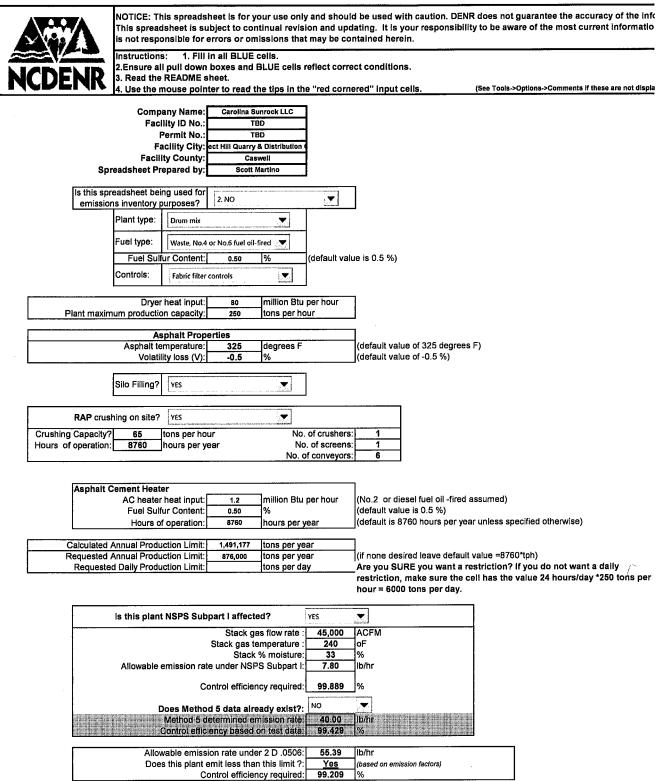
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Appendix A2 Emission Calculations Page 8 of 8

APPENDIX A3 - HMA PLANT DEQ SPREADSHEET CALCULATIONS

## ASPHALT EMISSIONS CALCULATOR REVISION F 07/18/2012 INPUT SCREEN



Criteria Pollutants							
	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 I (with
Pollutant			40.05	4.05			
Condensible PM (or PM <sub>10</sub> )		0.0194	16.35	4.85			
Filterable PM		0.014	7000	3.5			
Filterable PM10	1	0.0039	1600	0.975	55 A	36.1	Γ
Total PM		0.033	7000	8.25	55.4	25.2	
Total PM10		0.023	1625	5.75	29.0		
SO2		0.0837	20.93	20.93	91.69	91.69	
CC		0.130	32.5	32.5	142.4	142.4	
NO		0.055	13.75	13.75	60.2	60.2 35.0	
VOC	100000000000000000000000000000000000000	0.032	8	8 2.5	35.0	11.0	
HAPs, TOTAL	- 2127	0.010		2.5	11.0	11.0	l.,
Silo Filling plus Loa	d Out Emiss	ions, Crite	ria Pollutants			<u> </u>	
	Emission Factor, 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 (with
Pollutant		-			10	1.0	
Total PN				2.77E-01	1.2	1.2	
cc				6.32E-01	2.8	2,8	
VOC				4.02E+00	17.6	17.6	
HAPs, TOTAL	2.74E-04			6.85E-02	0.3	0.3	
Rap Crusher Emiss	lons		w				
	Emission Factor, all sources combined		,	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 (with
Pollutant	(lb/ton)						
Total PN	0.0484			3.15E+00	13.8	13.8	
Total PM10	0.0177			1.15E+00	5.0	5.0	
	Uncontrolled Emission	]			Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	
Pollutant	Uncontrolled			emission rate (Ib/hr)	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)		
Pollutant	Uncontrolled Emission Factor (lb/MMBtu)				controls, 8760 hours per year operation)	(tpy) (8760 hours per year	
Total PM	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714			2.83E-02	controls, 8760 hours per year operation) 0.1	(tpy) (8760 hours per year operation)	
Total PM Total PM10	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.0235714			2.83E-02 2.83E-02	controls, 8760 hours per year operation)	(tpy) (8760 hours per year operation) 0.1	
Total PM Total PM10 SO2	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.0235714 0.5071429			2.83E-02 2.83E-02 6.09E-01	controls, 8760 hours per year operation) 0.1 0.1 2.7	(tpy) (8760 hours per year operation) 0.1 0.1 2.7	
Total PM Total PM10 SO2 CC	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143			2.83E-02 2.83E-02 6.09E-01 4.29E-02	controls, 8760 hours per year operation)	(tpy) (8760 hours per year operation) 0.1 0.1	
Total PM Total PM10 SO2	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 <0.1428571			2.83E-02 2.83E-02 6.09E-01	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2	
Total PM Total PM10 SO2 CC NO3 VOC	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 0.0357143 0.0357143 0.042854 0.0024286			2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8	
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 0.0357143 0.0357143 0.042854 0.0024286			2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0	Synthetic
Total PM Total PM10 SO2 CC NO3 VOC	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.023571429 0.0357143 0.0357143 0.0357143 0.032428571 0.0024286			2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Pollutant	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 0.0357143 0.0357143 0.0357143 0.0024286 a Pollutant E		Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6	Synthetic
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Pollutant Total PM	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.03571429 0.0357143 0.1428571 0.0024286 a Pollutant E		Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/nr	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4	Synthetic
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Pollutant Total PM10 Total PM10	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 0.024286 a Pollutant E		Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00	controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3	Synthetic
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Pollutant Total PM10 SO2	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.0235714 0.0357143 0.0357143 0.0357143 0.0357143 0.032428671 0.0024286 a Pollutant E		Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01	controls, 8760 hours per year           operation)           0.1           0.1           0.2           0.8           0.0             Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)           70.5           35.4           94.4	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0	Synthetic
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Pollutant Total PM10 SO2 CC	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.02357142 0.0357143 0.0357143 0.0357143 0.032428571 0.0024286 a Pollutant E	Emissions S	Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01	Controls, 8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0 52.7	Synthetic
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Pollutant Total PM10 SO2 CC NO3	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.0357143 0.0357143 0.0357143 0.0357143 0.0024286 a Pollutant E	Emissions S	Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01	controls, 8760 hours per year           operation)           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.2           0.8           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0.0           0.00           0.00           0.01           0.02           0.03           0.04           0.05.4           0.05.4           0.04.4           145.3           61.0	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0	Synthetic
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Pollutant Total PM11 SO2 CC NO3 VOC	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.0235714 0.0357143 0.0357143 0.0324286 a Pollutant E	Emissions S	Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0 52.7	Synthetic
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Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Pollutant Total PM10 SO2 CC NO3 VOC HAPs, TOTAI Facility-wide Toxic	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.023571429 0.03571429 0.03571429 0.0357143 0.0428571 0.0024286 a Pollutant E	Emissions S Emissions S Es Summary CAS No. ) 75070	Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, lb/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0 52.7 11.3 Action NOTE 2 NOTE 1.1	Synthetic (with
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Pollutant Total PM10 SO2 CC NO3 HAPS, TOTAL Facility-wide Toxic TAP	Uncontrolled Emission Factor (Ib/MMBtu) 0.02357142 0.03571429 0.0357143 0.0357143 0.0024286 a Pollutant E	Emissions S Emissions S Example 1 Example 2 Example	Summary	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, lb/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00	controls, 8760 hours per year           operation)           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.2           0.8           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           70.5           35.4           94.4           145.3           61.0           52.7           11.3           0           CAS No.           Mercury, vapor (TH)           78933	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0 52.7 11.3 Action NOTE 2 NOTE 1 NOTE 1: II	Synthetic (with
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Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Total PM10 Total PM10 SO2 CCC NO3 VOC HAPS, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con	Uncontrolled Emission Factor (Ib/MMBtu) 0.0235714 0.0235714 0.0357143 0.0357143 0.0357143 0.0357143 0.0357143 0.0357143 0.03242867 0.0024286 0.0026 0.0026 0.0000000000000000000000	Emissions S Emissions S ts Summary CAS No. ) 107028 ) ASC-other ) 71432	Summary           Action         Action           NOTE 1         NOTE 1           NOTE 3         NOTE 3	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, lb/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl eton (TH) 7439976 Methyl eton (CH) 75092 Nickel metal (TH) 7440020	(tpy) (8760 hours per year operation) 0.1 0.1 2.7 0.2 0.8 0.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 51.3 31.6 94.4 145.3 61.0 52.7 11.3 NOTE 2 NOTE 1 NOTE 1 NOTE 2: I	Synthetic Synthetic (with
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Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Total PM10 Total PM10 SO2 CCC NO3 VOC HAPs, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.023571429 0.03571429 0.0357143 0.03242867 0.0024286 a Pollutant E	Emissions S Emissions S Example 2 Ex	Action NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 2	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, lb/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP	controls, 8760 hours per year           operation)           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.1           0.2           0.8           0.0   Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)           70.5           35.4           94.4           145.3           61.0           52.7           11.3   Provide thyl ketone (TH)           740020           Nickel metal (TH)           740020           tetrachloroethylene) (TH)           127184           Phenol (TH)           108952           pounds as Chrome VI (TH)	(Ipy) (8760 hours per year operation)           0.1           0.1           0.1           2.7           0.2           0.8           0.0           PSD, Potential Emissions, (Ipy) (8760 hours per year operation)           51.3           31.6           94.4           145.3           61.0           52.7           11.3           Action           NOTE 2           NOTE 1           NOTE 2           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1	Synthetic (with Synthetic (with Clude TA Include TA Include TA
Total PM Total PM10 SO2 CC NO3 VOC Facility-wide Criteri Total PM11 Total PM11 SO3 CC CO NO3 VOC HAPS, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con Beryilium metal Cadmium metal (elementa	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.023571429 0.03571429 0.0357143 0.03242867 0.0024286 a Pollutant E	Emissions S Emissions S Example 2 Ex	Action NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 2 NOTE 1 NOTE 2 NOTE 3 NOTE 3 NOTE 2 NOTE 3 NO	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP Perchloroethylene (	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 75092 Nickel metal (TH) 744020 (tetrachoreethylene) (TH) 1738945 Styrene (TH) 100425	(Ipy) (8760 hours per year operation)           0.1           0.2           0.8           0.0           90.8           0.0           51.3           31.6           94.4           145.3           61.0           52.7           11.3           OTE 1           NOTE 2           NOTE 1           NOTE 1           NOTE 2           NOTE 1           NOTE 1           NOTE 1	Synthetic Synthetic (with
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Total PM10 Total PM10 SO2 CCC NO3 VOC HAPS, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con Beryfilium metal Cadmium metal (elementa Cat	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.023571429 0.03571429 0.0357143 0.0357143 0.0357143 0.0024286 a Pollutant E Pollutant E Control (Chi) Cont	Emissions S Emissions S Example 1 Ex	Action NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 2	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP Perchloroethylene (	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976 Methyle thyl ketone (TH) 75092 Nickel metal (TH) 75092 Nickel metal (TH) 75092 Nickel metal (TH) 7738945 Styrene (TH) 100425 zo-p-dioxin, 2,3,7,8- (TH) 1746016	(Ipy) (8760 hours per year operation)           0.1           0.2           0.8           0.0           0.8           0.0           9.0           51.3           31.6           94.4           145.3           61.0           52.7           11.3           NOTE 1           NOTE 2           NOTE 1           NOTE 2           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1	Synthetic Synthetic (with
Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Total PM10 Total PM10 SO2 CCC NO3 VOC HAPS, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con Beryfilium metal Cadmium metal (elementa Cat	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.0235714 0.0357143 0.0057143 0.0057145000000000000000000000000000000000	Emissions S Emissions S Example ts Summary CAS No. ) 75070 ) 107028 ) ASC-other ) 71432 ) 50328 ) 7440417 ) 7440417 ) 7440439 ) 75150 ) 50000	Action NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 1 NOTE 2 NOTE 2 NOTE 1 NOTE 2 NOTE 3 NOTE 3 NOTE 2 NOTE 3 NO	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, Ib/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP Perchloroethylene (	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 75992 Nickel metal (TH) 7440020 Kickel metal (TH) 7738945 Styrene (TH) 100425 co-p-dioxin, 2,3,7,8 (TH) 108883	(Ipy) (8760 hours per year operation)           0.1           0.2           0.8           0.0           94.4           145.3           61.0           52.7           11.3           Action           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1	Synthetic Synthetic (with
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Total PM Total PM10 SO2 CCC NO3 VOC Facility-wide Criteri Total PM10 Total PM10 SO3 CCC NO3 VOC HAPs, TOTAI Facility-wide Toxic TAP Arsenic unlisted cmpds (con Beryfilium metal Cadmium metal (elementa Cart Fo Hexachlorodibenzo-p-diox	Uncontrolled Emission Factor (b/MMBtu) 0.0235714 0.0235714 0.0357143 0.0357143 0.0357143 0.0357143 0.03242867 0.0024286 a Pollutant E Acrolein (TH) Benzene (TH) Benzene (TH) unreacted) (TH) I unreacted) (TH) I unreacted) (TH) maldehyde (TH) maldehyde (TH)	Emissions S Emissions S Emissions S Emissions S CAS No. 7405 107028 ASC-other 71432 50328 7440417 7440439 7440417 7440439 75150 50328 7440417 7440439 75150 505000	Action NOTE 1 NOTE 1 NOTE 3 NOTE 3 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NOTE 3 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 1 NOTE 3 NOTE 1 NO	2.83E-02 2.83E-02 6.09E-01 4.29E-02 1.71E-01 2.91E-03 Controlled Emission Rate, lb/hr 1.14E+01 6.93E+00 2.15E+01 3.32E+01 1.39E+01 1.20E+01 2.57E+00 TAP Perchloroethylene ( Soluble Chromate Compo Tetrachlorodibenz	Controls, 8760 hours per year operation) 0.1 0.1 0.2 0.2 0.8 0.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 70.5 35.4 94.4 145.3 61.0 52.7 11.3 CAS No. Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 75992 Nickel metal (TH) 7440020 Kickel metal (TH) 7738945 Styrene (TH) 100425 co-p-dioxin, 2,3,7,8 (TH) 108883	(Ipy) (8760 hours per year operation)           0.1           0.2           0.8           0.0           94.4           145.3           61.0           52.7           11.3           Action           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1           NOTE 1	Synthetic I Synthetic I (with

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Potential Emissions (tp)           14.5           10.1           36.68           56.9           24.1           14.0           4.4           .           Potential Emissions (tp)           peration restrictions)           0.5           1.1           7.1           0.1           .           9           9.5           1.1           7.1           0.1           .		
peration restrictions)           14.5           10.1           36.68           56.9           24.1           14.0           4.4           -           . Potential Emissions (tp) peration restrictions)           0.5           1.1           7.1           0.1		
peration restrictions)           14.5           10.1           36.68           56.9           24.1           14.0           4.4           -           . Potential Emissions (tp) peration restrictions)           0.5           1.1           7.1           0.1		
14.5           10.1           36.68           56.9           24.1           14.0           4.4           -           0.5           1.1           7.1           0.5           1.1           7.1           0.1           7.1           0.1           7.1           0.1           7.1           0.1           7.1           0.1           0.1           0.1           2.7           0.2           0.8           0.0           2.7           0.2           0.8           0.0           2.7           0.2           0.8           0.0           2.1.1           4.5           TPER stipulation.           TPER stipulation is.	, Potential Emissions ( peration restrictions)	py
14.5         10.1         36.68         56.9         24.1         14.0         4.4         .         Potential Emissions (tp) peration restrictions)         0.5         1.1         7.1         0.1         .         .         Potential Emissions (tp) peration restrictions)         5.5         2.0         .		
14.5         10,1         36.68         56.9         24.1         14.0         4.4         -         . <td></td> <td></td>		
10.1         36.68         56.9         24.1         14.0         4.4         .         Potential Emissions (tpp peration restrictions)         0.5         1.1         7.1         0.1         . <td< td=""><td></td><td>ili.</td></td<>		ili.
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1. :

# ASPHALT EMISSIONS CALCULATOR REVISION F 07/18/2012 - 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.

							CONTRACTOR SOLLAR CONTRACT	and the second states and the second states
SOUP	RCE / FACI	LITY / USER INI	PUT SUMMA	RY (FROM I	NPUT SCREE	FACILITY ID		TBD
COMPANY:	Carolina	a Sunrock	LLC			PERMIT NU		TBD
INSPS affe	ted 250 to	h Waste, No.4 o	r No.6 fuel o	il-fired. Drum	mix asphalt	FACILITY CI		Hill Quarry & Distributi
EMISSION SOURCE DESCRIPTION: plant (80 m	imBtu/hr he	at input, w/silofi	ll, with RAP,	sulfur=0.5%)		FACILITY C	OUNTY:	Caswell
Annual Production Limit: 876,000	ton/year	Daily Produ	ction Limit:	(	0	ton/day		
SPREADSHEET PREPARED BY: Scott Marti								
	CRITERI	A AIR POLLUT	ANT EMISSI	ONS INFORI	ATION			New Street Contract New
		ACTUAL EM			POTENTIAL E	EMISSIONS		
AIR POLLUTANT EMITTED		(AFTER CONTRO		(BEFORE CON		(AFTER CONTR		
		lb/hr	tons/yr	<u>lb/hr</u>	tons/yr 70.51	lb/hr	tons/yr 20.57	
PARTICULATE MATTER (PM) PARTICULATE MATTER<10 MICRONS (PM10)		<u>11.42</u> 6.93	20.57 12.70		35.43		12.70	
		0.95	12.70	ringen dingen bir an an an an an an an an an an an an an	00.10			
PARTICULATE MATTER<2.5 MICRONS (PM2.5)		21.54	39.34		94.35		39.34	
SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOx)		13.92	24.84		60.98		24.84	anterina de la constante de la constante de la constante de la constante de la constante de la constante de la Constante de la constante de la constante de la constante de la constante de la constante de la constante de la
CARBON MONOXIDE (CO)		33.18	58.24		145.31		58.24	
VOLATILE ORGANIC COMPOUNDS (VOC)		12.03	21.08		52.68		21.08	
TOTAL HAP		2.57	4.50		11.25		4.50 1.40	
LARGEST HAP (formaldehyde)		0.80	1.40	4	3.49		1.40	
		Attach IN	PUT worl	ksheet		THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF	NEAS-THAN NO. A. C. P. P. P. P. P. P. P. P. P. P. P. P. P.	
TO)	(IC / HAZA	RDOUS AIR PC	ULUTANT E	MISSIONS II	FORMATION		Martin (Martin)	EMISSION FACTOR
		ACTUAL EM			POTENTIAL I	MISSIONS		(lb/ton asphalt produced,
TOXIC / HAZARDOUS AIR POLLUTANT	CAS	(AFTER CONTRO		(BEFORE CON	TROLS / LIMITS)	(AFTER CONTR	OLS / LIMITS)	
TOXIC / HAZARDOUS AIR FOLLO FAIT	Number	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	with Fabric filter controls)
Acetaldehyde (TH)	75070	3.25E-01	1.14E+03	3.25E-01	2847.00	3.25E-01	1.14E+03	1.3E-03
Acrolein (TH)	107028	6.50E-03	2.28E+01	6.50E-03	56.94	6.50E-03		2.6E-05
Antimony unlisted compounds (H)	SBC-other	4.50E-05	1.58E-01	4.50E-05	0.39	4.50E-05		1.8E-07
Arsenic unlisted cmpds (comp. of ASC) (TH)		1.40E-04	4.91E-01	1.40E-04	1.23	1.40E-04		5.6E-07 4.0E-04
Benzene (TH)	71432	9.90E-02	3.47E+02	9.90E-02 4.41E-06	<u>867.38</u> 0.04	9.90E-02 4.41E-06		1.8E-08
Benzo(a)pyrene (T) Beryllium metal (unreacted) (TH)	50328 7440417	4.41E-06 0.00E+00	1.55E-02 0.00E+00	4.41E-08 0.00E+00	0.04	0.00E+00		
Cadmium metal (elemental unreacted) (TH)		1.03E-04	3,59E-01	1.03E-04	0.90	1.03E-04		4.1E-07
Carbon disulfide (TH)	75150	6.23E-04	2.18E+00	6.23E-04	5.45	6.23E-04	2.18E+00	2.5E-06
Chromium unlisted cmpds (add w/chrom acid to get CRC) (H)	CRC-other	1.26E-03	4.42E+00	1.26E-03	11.06	1.26E-03	4.42E+00	the second second second second second second second second second second second second second second second se
Chromic acid (VI) (component of solCR6 and CRC) (TH)	7738945	1.13E-04	3.94E-01	1.13E-04	0.99	1.13E-04		4.5E-07
Cobalt unlisted compounds (H)		6.50E-06	2.28E-02		0.06	6.50E-06		
Cumene (H)	98828	1.14E-03	4.01E+00		10.02	1.14E-03 6.41E-02		2.6E-04
Ethyl benzene (H)	100414	6.41E-02	2.24E+02 7.65E-03		<u>561.24</u> 0.02	2.18E-06		
Ethyl chloride (chloroethane) (H Formaldehyde (TH	75003 50000	2.18E-06 7.97E-01	2.79E+03		6981.17	7.97E-01		
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)		3.25E-10	1.14E-06		0.00	3.25E-10		
Hexael November 20 p dioxin 1,2,4101 (C	110543	2.39E-01	8.38E+02		2095.50	2.39E-01	8.38E+02	9.6E-04
Hydrogen Chloride (hydrochloric acid) (TH		5.25E-02	1.84E+02		459.90	5.25E-02		100
Hydrogen Sulfide (T		1.37E-02	4.79E+01	1.37E-02	119.84	1.37E-02		
Lead unlisted compounds (H		3.75E-03	1.31E+01	3.75E-03	32.85	3.75E-03		1.5E-05 7.7E-06
Manganese unlisted compounds (T	MNC-other	1.93E-03	6.75E+00		16.86	1.93E-03 6.50E-04		
Mercury, vapor (TH	7439976	6.50E-04	2.28E+00		5.69 2.18	6.50E-04 2.49E-04		1.0E-06
Methyl bromide (H Methyl chloride (H		2.49E-04 1.56E-04	8.73E-01 5.46E-01	2.49E-04 1.56E-04	1.37	2.492-04 1.56E-04		6.2E-07
Methyl chloroform (TH		1.36E-04	4.20E+01	1.30E-04	105.12	1,20E-02		4.8E-05
Methyl ethyl ketone (TH		6.70E-03	2.35E+01		58.67	6.70E-03		
Methylene chloride (TH		8.23E-06	2.88E-02		0.07	8.23E-06		
Napthalene (H		1.65E-01	5.77E+02		1442.95	1.65E-01		
Nickel metal (TH		1.58E-02	5.52E+01		137.97	1.58E-02		
Perchloroethylene (tetrachloroethylene) (TH		8.01E-05	2.81E-01		0.70	8.01E-05		
Phenol (TH		1.01E-03	3.52E+00			1.01E-03		
Phosphorus Metal, Yellow or White (H		7.00E-03	2.45E+01 7.71E+02		61.32 1927.20	7.00E-03 2.20E-01		
Polycyclic Organic Matter (H Propionaldenyde (H		2.20E-01 3.25E-02	1.14E+02			3.25E-02		
Quinone (H		4.00E-02	1.40E+02			4.00E-02		
Selenium compounds (H		8.75E-05	3.07E-01			8.75E-05		3.5E-07
							1	0.05.07
Styrene (TH	) 100425	2.40E-04	8,425-01 opendix A3 5 of 16	2.40E-04	2.11	2.40E-04	8.42E-01	

Toluene (TH)	108883	7.29E-01	2.55E+03	7.29E-01	6386.67	7.29E-01	2.55E+03	2.9E-03
Trichloroethylene (TH)		0.00E+00		0.00E+00				
Trichlorofluoromethane (CFC 111) (T)	75694		0.00E+00		0.00	0.00E+00	0.00E+00	0.0E+00
Trimethylpentane, 2,2,4- (H)		1.35E-05 1.00E-02	4.74E-02	1.35E-05	0.12	1.35E-05	4.74E-02	5.4E-08
Xylene (TH)		6.04E-02	3.51E+01	1.00E-02	87.85	1.00E-02	3.51E+01	4.0E-05
Xylene, o- (H)		2.57E-03	2.11E+02	6.04E-02	528.72	6.04E-02	2.11E+02	2.4E-04
			9.00E+00	2.57E-03	22.50	2.57E-03	9.00E+00	1.0E-05
TOXIC AIR F								
Expected actual emissions after controls a	nd limitatio	ons consisting	of an annua	I production	limit of 87600	0 tons and a	daily	EMISSION FACTOR
		luction limit of						(lb/ton asphalt produced,
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	lb/day	lb/yr	Mode	ling Required	?	with Fabric filter controls)
Acetaldehyde (TH)	75070	3.25E-01	0.00E+00	1.14E+03	NO. Based	on facility-wide po	tential.	1.30E-03
Acrolein (TH)	107028	6.50E-03	0.00E+00	2.28E+01	NO. Based	on facility-wide po	tential.	2.60E-05
Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	1.40E-04	0.00E+00	4.91E-01	YES.	Modeling required		5.60E-07
Benzene (TH)	71432	9.90E-02	0.00E+00	3.47E+02	YES.	Modeling required	:	3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	0.00E+00	1.55E-02	NO. Based	on facility-wide po	tential.	1.76E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide po	tential.	0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	0.00E+00	3.59E-01	NO. Becaus	e of operating res	triction	4.10E-07
Carbon disulfide (TH)	75150	6.23E-04	0.00E+00	2.18E+00	NO. Based	on facility-wide por	tential.	2.49E-06
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	1.13E-04	0.00E+00	3.94E-01	NO. Based	on facility-wide pol	tential.	4.50E-07
Formaldehyde (TH)	50000	7.97E-01	0.00E+00	2.79E+03	YES.	Modeling required		3.19E-03
Hexane, n- (TH)	110543	2.39E-01	0.00E+00	8.38E+02	NO. Based	on facility-wide poi	tential.	9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)	57653857	3.25E-10	0.00E+00	1.14E-06	NO. Based	on facility-wide pol	ential.	1.30E-12
Hydrogen Sulfide (T)	7783064	1.37E-02	0.00E+00	4.79E+01	NO. Based	on facility-wide pol	ential.	5.47E-05
Manganese unlisted compounds (T)	MNC-other	1.93E-03	0.00E+00	6.75E+00	NO. Based	on facility-wide pol	ential.	7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	0.00E+00	2.28E+00	NO. Becaus	e of operating rest	riction	2.60E-06
Methylene chloride (TH)	75092	8.23E-06	0.00E+00	2.88E-02	NO. Based of	on facility-wide pot	ential.	3.29E-08
Methyl chloroform (TH)	71556	1.20E-02	0.00E+00	4.20E+01	NO. Based	on facility-wide pot	ential.	4.80E-05
Methyl ethyl ketone (TH)	78933	6.70E-03	0.00E+00	2.35E+01	NO. Based of	on facility-wide pot	ential.	2.68E-05
Nickel metal (TH)	7440020	1.58E-02	0.00E+00	5.52E+01	NO. Becaus	e of operating rest	riction	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	0.00E+00	2.81E-01	NO. Based o	on facility-wide pot	ential.	3.20E-07
Phenol (TH)	108952	1.01E-03	0.00E+00	3.52E+00	NO. Based o	on facility-wide pot	ential.	4.02E-06
Styrene (TH)	100425	2.40E-04	0.00E+00	8.42E-01	NO. Based o	on facility-wide pot	ential.	9.62E-07
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	0.00E+00	1.84E-07	NO. Based o	on facility-wide pot	ential.	2.10E-13
Toluene (TH)	108883	7.29E-01	0.00E+00	2.55E+03	NO. Based o	n facility-wide pot	ential.	2.92E-03
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00		on facility-wide pot		0.00E+00
Trichlorofluoromethane (CFC 111) (T)	75694	1.35E-05	0.00E+00	4.74E-02	NO. Based o	on facility-wide pot	ential.	5.41E-08
Xylene (TH)	1330207	6.04E-02	0.00E+00	2.11E+02		n facility-wide pot		2.41E-04

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

						ŀ	drwar	8	Sito Fitina		Loadout	tota	total handline	total								
																		Contract of	Controlled		Contract	
		emissions emissions	missions			Controlled		-			Emission Rate	o Emission Fac.	Emission Factor Emission Rate	Controlled		Controlled		w/Limitations			willimitations	
							Dun (Duffeetung)		on) (Ib/hr)	32		(lp/ton)	(Ib/hour)	~	(Ib/hour)	Emission Kate Emission Kate (Ib/dav) (Ib/war)	•	_	Emission Kate (Ib/war) H	ER greater	ER greater	Comments
Pollutant	CAS No.	dryer h	handling T	TPER Un	Units TPER Units	-											(	(lb/day)			han TPER ?	
Acetaldehyde (TH)	75070	88.	2	6.8	J.	1.306-03	3.25E-01							1.30E-03	3.26E-01	7.80E+00	2.85E+03	0.00E+00	1.14E+03	ON .		NOTE 1
Ecomolication (11)			2 3			3 106-00		8 415-05	5 2105-02	3 GKE-DB	0 16E-DA	8 774E 04	05 210E-02	2 10E-03	7 075-04	1.005-01	0.09E-01	0.005400	2 70C-01	2 3		NOTE 1
Phanol (TH)	108952	1 8			P.V.	0.101		0.00F+00				4	3	4 025-06	1015-03	2 41E-02	8.81E+00	0.005+00	3 525+00	8 9		NOTE 1
Stymene (TH)	100425	8	804		bħr			6.58E-07			7.59E-05	9.62E-07		9.62E-07	2.40E-04	6.77E-03	2.11E+00	0,00E+00	8.42E-01	2		NOTE 1
Trichloroftuoromethane (CFC 111) (T)	75694	8	Xes	140	b/hr			0.00E+00	Č	_				5.41E-08	1.35E-05	3.24E-04	1.18E-01	0.00E+00	4.74E-02	PN N		NOTE 1
Methyl chloroform (TH)	71556	yos	968			Ib/day 4.80E-05	ľ	┝		-		0.00E+00	F.	4.80E-05	1.20E-02	2.88E-01	1.05E+02	0:00E+00	4.20E+01	Po N	P0	NOTE 1
Methyl ethyl ketone (TH)	78933	yes	yes		82			_				6.79E-06		2.68E-05	6.70E-03	1.61E-01	5.87E+01	0.00E+00	2.36E+01	Ŷ	Ŷ	NOTE 1
Totuene (TH)	106883	yes	yes		8	"		-				1.63E-05		2.92E-03	7.296-01	1.75E+01	6.39E+03	0.00E+00	2.666+03	ž	Ŷ	NOTE 1
Xytene (TH)	1330207	yes	90X		21	Ibiday 2.00E-04	t 5.00E-02	_		+		4.14E-05	- 1	2.41E-04	6.04E-02	1.45E+00	5.29E+02	0.00E+00	2.11E+02	No No	Ŷ	NOTE 1
	75092	2	yes		lb/hr 1600 lb/year			3.29E-08	8 8.23E-06	0.00E+00	0.00E+00	3.29E-08	8.23E-06	3,29E-08	8.23E-06	1.97E-04	7.21E-02	0.00E+00	2.88E-02	No	Ŋ	NOTE 1
Soluble Chromate compounds as Chrome (VI) (TH)	SOLCR6	y08	8		Ibiday summer	4.50E-07	Ì							4.50E-07	1.13E-04	2.70E-03	9.86E-01	0.00E+00	3.94E-01	Ŷ	PN N	NOTE 1
Hexane, n- (TH)	110543	yes	<b>78</b> 8		Ib/day	9.385-04	~	1.22E-05	5 3.05E-03	6.24E-06	1.56E-03	1.84E-05	05 4.61E-03	9.57E-04	2.39E-01	5.74E+00	2.10€+03	0.00E+00	8.38E+02	۶	Ŷ	NOTE 1
-	WNC-other	<b>yes</b>	8		Ib/day	7.706-06								7.70E-06	1.93E-03	4.62E-02	1.69E+01	0.00E+00	6.75E+00	No No	Ŷ	NOTE 1
	7439976	yes	0Ľ		ib/day	2.60E-06	Ĩ							2.60E-06	6.50E-04	1.56E-02	5.69E+00	0.00E+00	2.28E+00	Yes	No	NOTE 2
	7440020	yes	ę		lb/day	6.30E-05	5 1.58E-02	iii.			Language and the second			6.30E-05	1.58E-02	3.78E-01	1.38E+02	0,000+00	5.52E+01	Yes	Ŷ	NOTE 2
Carbon disulfide (TH)	75150	2	y08		lb/day			1.96E-06	6 4.87E-04	5.41E-07	1.35E-04	2.49E-06	6.23E-04	2.49E-06	6.23E-04	1.49E-02	5.45E+00	0.00E+00	2.18E+00	No	Ŷ	NOTE 1
Tetrachlorodibenzo-p-dioxin, 2.3.7.8- (TH)	1746016	yes	ę		lb/yr	2.10E-13	6				Contraction of the second second second second second second second second second second second second second s	The second state of the second state		2.10E-13	5.25E-11	1.26E-09	4.60E-07	0.00€+00	1.84E-07	Ŷ	Ŷ	NOTE 1
Arsenic unlisted cmpds (comp. of ASG) (TH) ASC-other	ASC-other	yes	2	0.016	lb/yr	5.60E-07	-			8111 9111				5.60E-07	1.40E-04	3.36E-03	1.23E+00	0.00E+00	4.91E-01	Yes	Yes	NOTE 3
Benzene (TH)	71432	yes	yes		lb/yr	3.90E-04	.,			_		6.06E-06		3.966-04	9.90E-02	2.38E+00	8.67E+02	0.00E+00	3,47E+02	Yes	Yes	NOTE 3
Benzo(a)pyrene (T)	50328	<b>y</b> 88	906	2.2	lb/yr	9.80E-09						7.846-09	09 1.96E-06	1.76E-08	4.41E-06	1.06E-04	3.86E-02	0.00E+00	1.55E-02	Ŷ	No No	NOTE 1
	7783064	yes	y08	1.7 1	lb/day	5.18E-05		1.46E-06	6 3.65E-04	1.46E-06	3.65E-04	2.92E-06	06 7.30E-04	5.47E-05	1.37E-02	3.28E-01	1.20E+02	0.00E+00	4.79E+01	No No	Ŷ	NOTE 1
	7440417	y08	2		lb/yr	0.00E+00	0							0.00E+00	0.00E+00	00+300'0	0.00E+00	0.00E+00	0.00E+00	Ŷ	٩ ۷	NOTE 1
Cadmium metal (elemental unreacted) (TH)	7440439	yes	2		ib/yr	4.10E-07								4.10E-07	1.03E-04	2.46E-03	8.98E-01	0.00E+00	3.69E-01	Yes	No.	NOTE 2
Hexachlorodibenzo-p-dioxin 1,2,3,8,7,8 (T) 57653957	57653857	88K	2		lb/уг	1.30E-12								1.30E-12	3.25E-10	7.80E-09	2.85E-06	0.00E+00	1.14E-06	Ŷ	Ŷ	NOTE 1
Hydrogen Chloride (hydrochloric acid) (TH)7647010	547010	y68	2		lb/hr	2.10E-04	t 6.25E-02			щ				2.10E-04	5.25E-02	1.266+00	4.60E+02	0.00E+00	1.84E+02	No		NOTE 1
Perchloroethylene (letrachloroethylene) (TH) 127184	127184	2	886		lb/yr			0.00E+00	00+300:00	_	8.01E-05		8.01E-05	3.20E-07	8.01E-05	1.92E-03	7.01E-01	0.00E+00	2.81E-01	No	9N	NOTE 1
Trichloroethylene (TH)	79016	8	<b>yes</b>	4000	lb/yr			111				0.0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	No	9 <mark>2</mark>	NOTE 1
Napthalene (H)	91203	y08	9 <u>9</u>			6.50E-04		4.62E-06		4.26E-06	1.07E-03	8.88E-06	06 2.22E-03	6.59E-04	1.65E-01	3.95E+00	1.44E+03	0.00E+00	5.77E+02			
Phosphorus Metal, Yellow or White (H)	7723140	Bak.	2			2.80E-05							CONTRACTOR OF STREET	2.80E-05	7.00E-03	1.685-01	6.13E+01	0.00E+00	2.45E+01			
Forycycae Organic Mariae (T) Developed a hut	1771BR	89 Å	2 2			0.005-04	• •							8.80E-04	2.205-07	2.28E+00	1.8367-03	0.00E+00	///re+02			
Outrona (H)	106514		2 2			1.60E-04	4.006-02							1.60F-04	4 00F-02	9.605-01	3 505-02	0.005+00	1 405402			
Selenium compounds (H)	SEC	sex,	2			3.50E-07	-						_	3.50E-07	8.75E-05	2.10E-03	7.67E-01	0.00E+00	3.07E-01			
Trimethylpentane, 2,2,4- (H)	540841	Nea Y	R.			4.00E-05	•	3.78E-08	8 9.44E-06	7.496-08	1.87E-05	1.13E-01	07 2.82E-05	4.01E-05	1.00E-02	2.41E-01	8.78E+01	0.00E+00	3.51E+01			
Antimony unlisted compounds (H)	SBC-other	yee	ê			1.80E-07	4							1.80E-07	4.50E-05	1.08E-03	3.94E-01	0.00E+00	1.58E-01			
Chromium unlisted cmpds (add w/chrom acid to get CRC) (H) CRC-other	CRC-other		2 1			5.05E-06	5 1.26E-03							5.05E-06	1.266-03	3.03E-02	1.11E+01 5 205 25	0.00E+00	4.42E+00			
	100414	£ 3	2 3	Sector Sector		2.005-00						1 675	8	2.001=445	0.30E-08	1.505-04	0.035-02	0.00E+00	2.28E-U2			
			<u>8</u>			10-304-7		-D0-D00.#	0 1.105-03	1.105-02	Cate-00	1-200-1	40 4.U/E-U3	2.300-104	0.41E-UZ	1.045400	9.01E+UZ	0.005+00	2.24E+02			
	74920	Į	2					C 07E 07		2000	O OOF OF	2000		0.001.00	3.795.05	20-200-20	0.285-01	0.000	1.316+01			
	ORR28	2 2	8000 8					0.005400		3.885-01		8.80E-01	2.486-04	1 575 00	2,486-04	5,245 M	2.18E+00	0.001-000	8.75-01			
Ethy chloride (chloroethane) (H)	75003	2 2						0.005+00				8 775-00		8 775 00	2 185 26	2040402	1010.00		4.01E+00			
Methyl chloride (H)	74873	2 8	1919 2 8					0.00E+00			• •	6.24E-07		6.24E-07	1.565-04	3.745-03	1.37E+00	0.006+00	5.46E-01			
Xylane, o- (H)	95476	ę	, E					6.95E-08				1.03E-05	2.57E-03	1.03E-05	2.57E-03	6.16E-02	2.25E+01	0.00E+D0	9.00E+00			
HAPs, TOTAL			1			1.00E-02	2.50E+00	1.87E-04		┝	L	2.74E-0	ş	1.03E-02	2.57E+00	6.16E+01	2.25E+04	0.00E+00	9.00E+03			A DESCRIPTION OF A DESC
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Appendix A3 7 of 16 Asphalt cement heater heat input sulfur content Assumptions:

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1.2 MMBtu/hr 0.50 %S

Fired with distillate oil (No.2 or diesel)Emission factors taken from AP-42 section 1.3 Fuel Oil CombustionHeating value140MMBtu/ 1000 gallons

Pollutant	factors		factors
	(lb/1000 gallon)		lb/MMBtu
SO2	142 \$	6 where S = % sulfur	0.5071
NOx	20		0.1429
CO	5		0.0357
VOC (NMTOC)	0.34		0.0024
filterable PM	2		0.0143
condensible PM	1.3		0.0093
total PM	3.3		0.0236
total PM10	3.3		0.0236

RAP crusher							
maximum capacity	65	tph					
hours of operation	8760	hours					
	emission fa	actors (dry)	emissions		emissions		
	(lb/ton)	(lb/ton)	(lb/hr)	(lb/hr)	ton/yr	ton/yr	
	TSP 1	PM-10	TSP	PM-10	TSP	PM-10	
primary crusher	0.0054	0.0024	0.351	0.156	1.54	0.68	
screening		0.0087	1.625	0.5655	7.12	2.48	
conveyor transfer point			1.17	0.429	5.12	1.88	
		total	3.15	1.15	13.78	5.04	

combined EF 0.0484 0.0177

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# Emissions summary from Silo Filling and Loadout operations

		Emission	n Factors	Potential		Emission factors
		(lb/ton)	(lb/ton)	(lb/hr)	(lb/hr)	(lb/ton)
	CAS	Silo Filling SCC-3-05-	Load out SCC-3-05-	Silo Filling SCC-3-05-	Load out SCC-3-05-	Silo Filling plus Load Out
Pollutant	Nos.	002-13	002-14	002-13	002-14	Out
Total PM		5.86E-04	5.22E-04	1.46E-01	1.30E-01	1.11E-03
co		1.18E-03	1.35E-03	2.95E-01	3.37E-01	2.53E-03
voc		1.22E-02	3.91E-03	3.05E+00	9.77E-01	1.61E-02
PAH HAPs TOTAL		2.89E-05	2.02E-05	7.24E-03	5.05E-03	4.92E-05
Volatile organic HAPs, TOTAL		1.58E-04	6.24E-05	3.96E-02	1.56E-02	2.21E-04
HAPs, TOTAL		1.87E-04	8.66E-05	4.68E-02	2.17E-02	2.74E-04
Benzo(a)pyrene (T)	50328	0.00E+00	7.84E-09	0.00E+00	1.96E-06	7.84E-09
Napthalene (H)	91203	4.62E-06	4.26E-06	1.16E-03	1.07E-03	8.88E-06
Phenol (TH)	108952	0.00E+00	4.02E-06	0.00E+00	1.01E-03	4.02E-06
Benzene (TH)	71432	3.90E-06	2.16E-06	9.75E-04	5.41E-04	6.06E-06
Methyl bromide (H)	74839	5.97E-07	3.99E-07	1.49E-04	9.98E-05	9.96E-07
Methyl ethyl ketone (TH)	78933	4.75E-06	2.04E-06	1.19E-03	5.09E-04	6.79E-06
Carbon disulfide (TH)	75150	1.95E-06	5.41E-07	4.87E-04	1.35E-04	2.49E-06
Cumene (H)	98828	0.00E+00	4.57E-06	0.00E+00	1.14E-03	4.57E-06
Ethyl benzene (H)	100414	4.63E-06	1.16E-05	1.16E-03	2.91E-03	1.63E-05
Ethyl chloride (chloroethane) (H)	75003	0.00E+00	8.73E-09	0.00E+00	2.18E-06	8.73E-09
Formaldehyde (TH)	50000	8.41E-05	3.66E-06	2.10E-02	9.15E-04	8.77E-05
Hexane, n- (TH)	110543	1.22E-05	6.24E-06	3.05E-03	1.56E-03	1.84E-05
Methyl chloride (H)	74873	0.00E+00	6.24E-07	0.00E+00	1.56E-04	6.24E-07
Methyl chloroform (TH)	71556	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylene chloride (TH)	75092	3.29E-08	0.00E+00	8.23E-06	0.00E+00	3.29E-08
Perchloroethylene (tetrachloroethylene) (TH)	127184	0.00E+00	3.20E-07	0.00E+00	8.01E-05	3.20E-07
Styrene (TH)	100425	6.58E-07	3.04E-07	1.65E-04	7.59E-05	9.62E-07
Toluene (TH)	108883	7.56E-06	8.73E-06	1.89E-03	2.18E-03	1.63E-05
Trichloroethylene (TH)	79016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichlorofluoromethane (CFC 111) (T)	75694	0.00E+00	5.41E-08	0.00E+00	1.35E-05	5.41E-08
Trimethylpentane, 2,2,4- (H)	540841	3.78E-08	7.49E-08	9.44E-06	1.87E-05	1.13E-07
Xylene (TH)	1330207	2.44E-05	1.71E-05	6.09E-03	4.26E-03	4.14E-05
Xylene, o- (H)	95476	6.95E-06	3.33E-06	1.74E-03	8.32E-04	1.03E-05
Hydrgen Sulfide (T)	7783064	1.46E-06	1.46E-06	3.65E-04	3.65E-04	2.92E-06

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Appendix A3 11 of 16

Plant maximum production capacity:	250	tons per hour	
Requested Annual Production Limit:	876,000	tons per year	
Requested Daily Production Limit:	0	tons per day	

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Table 11.1-14						
Dradiative Enviroine East	as Cauatiana	مائم المعط مريا معط مثلم		김정감 신문		
Predictive Emission Fact	or Equations	for Load-out and silo				
Filling Operations						
					4	
source	pollutant	EF (lb/ton)				
304100	Total PN		7			
Load out SCC-3-05-	Organic PM					
002-14	TO					
002 11	CC					
	0.	0.0010102				
	Total PN	0.000585889	9			
Silo Filling SCC-3-05-	Organic PM				÷.	
002-13	TO					
002-10						
			•			
					■ 	
				10.000		·····
Table 11.1-15						
Speciation Profiles for Lo	ad-out Silo	Filling and Asphalt				
Storage Emissions - Orga					1	
Storage Emissions - Orgi		sa oompounda	Spec. profile for Silo filling			
		Spec. profile for Load-out	and asphalt storage tank			
		and yard emissions	emissions			
		% Compound / Organic		승규는 것을 가지		
		PM	PM		loadout emission factors	Silo filling omission
		PIVI	PIVI			factors (lb/ton)
	50328	0.0023	0		(lb/ton) 7.84155E-09	
Benzo(a)pyrene (T)						
Napthalene (H)	91203	1.25	1.82		4.26171E-06	4.62078E-06
	HAPs TOTAL		11.4		2.02176E-05	2.89434E-05
Phenol (TH)	108952	1.18	0		4.02306E-06	0
		· · · · ·		1		
Table 11.1-16						
Table II. PIO						
	ad-out Silo I	Filling and Asphalt				
Speciation Profiles for Lo						
		based Compounds	Spec profile for Silo			
Speciation Profiles for Lo		based Compounds Spec. profile for Load-	Spec. profile for Silo			
Speciation Profiles for Lo		based Compounds	Spec. profile for Silo filling and asphalt			
Speciation Profiles for Lo		based Compounds Spec. profile for Load-	· ·			Cillo filling omission
Speciation Profiles for Lo		based Compounds Spec. profile for Load- out and yard emissions	filling and asphalt		loadout emission factors	
Speciation Profiles for Lo Storage Emissions - Orga		based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC	filling and asphalt % Compound / TOC		(lb/ton)	factors (lb/ton)
Speciation Profiles for Lo Storage Emissions - Orga VOC	anic Volatile	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94	filling and asphalt % Compound / TOC 100		(lb/ton) 0.003909411	factors (lb/ton) 0.012186685
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH)	anic Volatile 71432	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052	filling and asphalt % Compound / TOC 100 0.032		(lb/ton) 0.003909411 2.16265E-06	factors (lb/ton) 0.012186685 3.89974E-06
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H)	anic Volatile 71432 74839	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096	filling and asphalt % Compound / TOC 100 0.032 0.0049		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH)	anic Volatile 71432 74839 78933	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl etonide (H) Methyl etonyl ketone (TH) Carbon disulfide (TH)	71432 74839 78933 75150	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Cumene (H)	71432 74839 78933 75150 98828	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11	filling and asphalt % Compound / TOC 0.032 0.0049 0.039 0.016 0		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Currene (H)	71432 74839 78933 75150 98828 100414	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06
Speciation Profiles for Lo Storage Emissions - Orge VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Curnene (H) Ethyl benzene (H)	71432 74839 78933 75150 98828 100414 75003	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Currene (H)	71432 74839 78833 75150 98828 100414 75003 50000	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 8.40881E-05
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl etnyl ketone (TH) Carbon disulfide (TH) Curnene (H) Ethyl benzene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH)	71432 74839 78833 75150 98828 100414 75003 50000 110543	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-06	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl bromide (TH) Carbon disulfide (TH) Cumene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloride (H)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-06 6.23842E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl etnyl ketone (TH) Carbon disulfide (TH) Curnene (H) Ethyl benzene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH)	71432 74839 78833 75150 98828 100414 75003 50000 110543	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-06 6.23842E-07 0	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl bromide (TH) Carbon disulfide (TH) Cumene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloride (H)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 0	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08
Speciation Profiles for Lo Storage Emissions - Orge VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloride (H) Methyl chloride (TH)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0 0.00077	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0
Speciation Profiles for Lo Storage Emissions - Orge VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloride (H) Methyl chloride (TH)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556 75092	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 0	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08
Speciation Profiles for Lo Storage Emissions - Orge UOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfde (TH) Carbon disulfde (TH) Ethyl chloride (H) Ethyl chloride (chloroethane) (H) Ethyl chloride (H) Methyl chlorofor (TH) Methyl en chloride (TH) Methylene chloride (TH)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71856 75092 127184	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0 0.00077	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0
Speciation Profiles for Lo Storage Emissions - Orga VOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl benzene (H) Ethyl chloride (Chloroethane) (H) Hexane, n- (TH) Methyl chloride (TH) Methyl enkoroform (TH) Methyl enkoroform (TH)	71432 74839 78833 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0.015 0 0 0.0077 0.0073	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.00027 0 0.0054		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07
Speciation Profiles for Lo Storage Emissions - Orga UOC Benzene (TH) Methyl bromide (H) Methyl athyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloroform (TH) Methyl chloroform (TH) Methyl endoride (TH) hloroethylene (tetrachloroethylene) (TH) Toluene (TH)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425 108883 79016	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0.015 0 0 0.0077 0.0073 0.21	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.00027 0 0.0054 0.062		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07 8.73379E-06	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07 7.55574E-06
Speciation Profiles for Lo Storage Emissions - Orga UOC Benzene (TH) Methyl bromide (H) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Formaldehyde (TH) Hexane, n- (TH) Methyl chloride (H) Methyl chloride (TH) Methyl enkorde (TH) Methylene chloride (TH) Methylene (tetrachloroethylene) (TH) Styrene (TH) Trichloroethylene (TH) Trichloroethylene (TH)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425 108883 79016 75694	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0 0.0077 0.0073 0.21 0 0 0.013	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.00027 0 0.0054 0.062 0		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07 8.73379E-06 0	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07 7.55574E-06 0
Speciation Profiles for Lo Storage Emissions - Orge Benzene (TH) Methyl bromide (H) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfde (TH) Carbon disulfde (TH) Ethyl chloride (chloroethane) (H) Ethyl chloride (chloroethane) (H) Ethyl chloride (chloroethane) (H) Methyl en chloride (TH) Methyl en chloride (TH) Methyl en chloride (TH) Methylene (tetrachloroethylene) (TH) Styrene (TH) Toluene (TH) Trichlorofluoromethane (CFC 111) (T) Trimethylpentane, 2,2,4- (H)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425 108883 79016 75694 540841	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0.0077 0.0073 0.21 0 0 0.0013 0.0013 0.0018	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.00027 0 0.0054 0.062 0 0 0.0054 0.062 0 0 0.00031		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07 8.73379E-06 0 5.40663E-08 7.48611E-08	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07 7.55574E-06 0 0 0 0 0 0 0 0 0 0 0 0 0
Speciation Profiles for Lo Storage Emissions - Orga UOC Benzene (TH) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Bethyl chloride (chloroethane) (H) Methyl chloride (TH) Methyl chlorofor (TH) Methyl chlorof (TH) Methyl chlorof (TH) Methyl en chloride (TH) Methylene chloride (TH) Trichloroethylene (TH) Trichloroethylene (TH) Trichlorofluoromethane (CFC 111) (T) Trimethylpentane, 2,2,4- (H) Xylane (TH)	71432 74839 78833 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425 108883 79016 75694 540841 1330207	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0.0077 0.0073 0.21 0 0.0013 0.0013 0.0018 0.41	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.0054 0.0054 0.062 0 0 0.0054 0.062 0 0 0.00031 0.2		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07 8.73379E-06 0 5.40663E-08 7.48611E-08 1.70517E-05	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07 7.55574E-06 0 0 3.77787E-08 2.43734E-05
Speciation Profiles for Lo Storage Emissions - Orge Benzene (TH) Methyl bromide (H) Methyl bromide (H) Methyl ethyl ketone (TH) Carbon disulfide (TH) Carbon disulfide (TH) Ethyl benzene (H) Ethyl benzene (H) Ethyl chloride (chloroethane) (H) Ethyl chloride (chloroethane) (H) Methyl en chloride (TH) Methyl en chloride (TH) Methyl en chloride (TH) Methylene (tetrachloroethylene) (TH) Styrene (TH) Toluene (TH) Trichloroethylene (TH) Trichlorofluoromethane (CFC 111) (T)	71432 74839 78933 75150 98828 100414 75003 50000 110543 74873 71556 75092 127184 100425 108883 79016 75694 540841	based Compounds Spec. profile for Load- out and yard emissions % Compound / TOC 94 0.052 0.0096 0.049 0.013 0.11 0.28 0.00021 0.088 0.15 0.015 0 0 0.0077 0.0073 0.21 0 0 0.0013 0.0013 0.0018	filling and asphalt % Compound / TOC 100 0.032 0.0049 0.039 0.016 0 0.038 0.69 0.1 0 0.00027 0 0.00027 0 0.0054 0.062 0 0 0.0054 0.062 0 0 0.00031		(lb/ton) 0.003909411 2.16265E-06 3.99259E-07 2.03788E-06 5.40663E-07 4.57484E-06 1.16451E-05 8.73379E-09 3.65987E-06 6.23842E-07 0 0 3.20239E-07 3.03603E-07 8.73379E-06 0 5.40663E-08 7.48611E-08	factors (lb/ton) 0.012186685 3.89974E-06 5.97148E-07 4.75281E-06 1.94987E-06 0 4.63094E-06 0 4.63094E-06 0 8.40881E-05 1.21867E-05 0 0 3.29041E-08 0 6.58081E-07 7.55574E-06 0 0 3.77787E-08

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Hydrogen Sulfide

7783064

\*\*\* These emissions factors were taken from the October 12, 2005 letter from Keith Overcash stating the emissions factors resulting from testing at Mangum Asphalt Services, Knightdale, Wake County, and at S.T. Wooten Asphalt Services, Sanford, Lee County.

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F-startes A	clore current es of		BATCH	BATCH	BATCH	DRUM	DRUM	DRUM	COLM	DRUM	DRUM	L DRUM	DRUM B
KEY:	Ictors current as of Metals in Red		BASCH		BATCH Weste oil-drain oil- or No 6	UNUM	UTCUM	UNUM	URUM	U-RUM	URUM	LADM	1
	Diouns in Green		Drver, hot screens and mixer	Natural gas or No 2 fuel oil-	had all fred down hat	Natural cas-fired driver with	No 2 fuel oil-fired driver with	Weste oil-fired diver with	Fuci of or easis of-fred	Fud-billor vasie pi-fired	Fuel dilfred dryer	Natural gas or propane-fired	No 2 fuel oil, waste oil, dram
	All blue cells on this sheet are linked to other cells. Correct original cell		(with fabric filter)	fired dryer, hot screens and mixer with fabric filter	screens and mixer with fabric	fabric filter	fabric filler	fabric filter	anyor with fabric faber	diver uncontrolled	uncontrolled	dryer with fabric filter	of No 6 fuel oil -fred dryer with fabric filter
	All black cells are original cells			mixer with fabric filter	Niter								1 69
	-		SCC 3-05-002-45, -45, -47	SCC 3-05-002-45, -46	SCC 3-05-002-47	SCC 3-05-002-55 -56 -57	SCC 3-05-002-58 -59 -60	SCC 3-05-002-61, -62, -63	SCC 3-05-002-58 -58, -69 -		SCC 3-05-002-58 -59 -60	SCC 3-05-002-56, -56, -57	SCC 3-05-002-58, -59, -60, -
									61.42.43	61 -62 -53			61, -62, -63
			Table 11 1-11	Table 11.1-9	Table 11.1-9	Table 11.1-10	Table 11.1-10	Table 11.1-10	Table 11.1-10	Table 11.1-10 Cso×ins	Table 11 1-12 METALS	Table 11.1-12 WETALS	Table 11.1-12 NETALS
	the second second second second second second second second second second second second second second second se		METALS				and the second second	en antalante per	CROWINS		METALS	MEIALO	
	H Acetaldetwie (TH)	75070	16.1 (T 15 P)	0.00032	0 00032	$\{ (1,1), (1,1), (1,1), (1,1) \}$	and the second	0.0013	1990 B. A. A.	a na Astantia	1 X 24 1 X 24 1 X 24 1 X	Constant States	
÷	H Accelerity (17)			0.0002	0.00032	1		0 000026			1		
•	H Antimony unlisted compounds (H)					0 00000018	0 00000018	0 00000018				0 00000018	0.00000018
	H Arsenic unisted compounds (component of ASC) (TH)		0.00000045	0.00000045	0.00000046	0 00000056	0.0000056	0 00000056			0 0000013	0.00000056	0.00000056
Ť	H Benzene (1))			0.00028	0.00028	0 00039	0.00039	0 00039					
10303	HAR SHARE S	State an	THE REAL PROPERTY OF	<b>新加速的保持新</b> 购出	学会学会社会学生 生力	THE PARTY OF THE P	State State State	A DEPARTMENT OF A DEPARTMENT	<b>建筑的运输和经济率</b> 在建	口服装饰 医水杨酸盐	CONTRACTOR OF A	THE REPORT OF	· 法规律的投资的支援的保留的
T	should als Benzo(a)pyrene (1)			3.10E-10	3.10E-10	9.806-03	9.80E-09	9.505-09					l l
r	H Berylium metal (unreacted) (TH)		0 00000015	0.00000015	0.00000015	0	0	0			0	0	0 15
г	H Cadmium metal (elemental unreacted) (TH)	7440439	0 00000061	0.00000061	0.00000061	0.00000041	0.00000041	0.00000041			0.0000042	0 00000041	0 00000041 0 00000005 0 000000045 0 000000025
	H Chromum unksted cripds (edd withrom add to get CRC) (H)		0 000000522	0.000000522	0.000000522	0.00000505	0.00000505	0 00000505			0.000024	0.00000505	0 00000505
т	H Chromic Add (V) (component of SolCR6 and CRC) (TH)		0 000000048	0.000000048	0.000000048	0 00000045	8 00000045	0.00000045		1		0 00000045	0.00000045
	H Cobalt untisled compounds (H)		1			0 00000026	0 00000026	0.00000028			0 000015	0 00000026	0 00000026
	H Elhyt benzene (H)		1	0.0022	0.0022	0.00024	0.00024	0.00024					8
÷	H Formaldehyde (TH) Hexachlorodbanzo-p-diodn 1.2.3.6.7.6 (T)		1	0.00074	0.00074 .	0.0031	1 3E-12	1.3E-12	1 SE-12				1 15
4	H Hexane, n- (TH)					0.00082	0,00092	0.00092	1 32472				
a verenna	H - CALLER STATE AND THE HOUSE CHARGE CHARGE AND THE		CARGE AND AND AND AND AND AND AND AND AND AND	REAL PROPERTY AND INC.	3030926228333303402053	STATES AND A STATES		STRUCTURE A NOTIFIC DURING	STREET, STREET	CANON NEWSFILM	Service and the service of the servi	NORMAL STREET,	CHARLES NOT CONTRACTOR
T	Hydrogen Bufful (1) shifting response of the second state of the s		and a second second second second	0.0000518	0.0000516	0.0000515	0.0000518	0.0000518	Contraction and an and a second second		Stepport print of the Bessier of State		8
	H Lead unlisted compounds (H)		0.00000089	0.00000089	0 00000089	0.0000062	0.000015	0.000015			0.00054	0 00000062	0 000015
т	H Mangangse unisted compounds (1)		0.0000069	0.0000069	0 0000069	0 0000077	0.0000077	0.0000077		1	0 00065	0 0000077	0.0000077
т	H Mercury, vapor (TH)		0 00000041	0.00000041	0 00000041	0.0000024	0.0000026	0 0000026				0 0000024	0 0000026
т	H Metryl chloroform (TH)					4.80E-05	4.80E-05	4.80E-05					
т	H Methyl elhyl kelone (TH)					1		0.00002					
	H Napitalene (H)			3.60E-05	3 60E-05	9 00E-05	6 50E-04	6.50E-04			0.0013	0 000063	0.000063
r i	H Nicket metal (TH) H Phosphorus Metal, Yellow or White (H)	7440020 7723140	0.000003	0.000003	0.000003	0 000063	0.000063	0.000063			0.0012	0 000028	0.000028
	H Polycyclic Organic Matter (H)	2014		0.00011	0 00023 1	0,00019	0.00028	0 00058	12008-19	3006-03	0 0012	0 00010	
	H Proyona Crigania Matter (H) H Propional delivide (H)			000011	000023 1	0.00.19	000008	0.00013	1 200Ex112	200000			
	H Quinone (H)	106514		0.00027	0 00027	1		0.00015					
	H Sejenium compounds (H)	SEC	0 00000049	0.00000049	0.00000049	0.00000035	0.00000035	0.0000035				0 00000035	0 00000035
т	H Tetrachlorodibanzo p-doxin, 2,3,7,8- (TH)	1746016					2.1E-13	2.18-13	2.18-13				! #
т	H Toluena (TH)	105883	1	0.001	0.001	0 00015	0.0029	0 0029					
	H Trimethylpantane, 2,2,4- (H)					4.00E-05	4.00E-05	4.00E-05					
Ţ.,	H Xylana (TH)	1330207	1	0.0027	0 0027	0.0002	0.0002	0 0002	A. 2010 Sec. 34.	1.1.1.1.1.1.1.1.1	Same and the second	en parte de la	e de la chapada 🖁
	an an an an the state of the st	1.14	E PERENDA DA	0.00772128	0.00784128	Area and a second	11. A. A. A. A. A. A. A. A. A. A. A. A. A.	10 - 1997 De 10	a diga kara da da ka	1. S. S. S. S. S. S. S. S. S. S. S. S. S.	1997 - B. C. Maria and A.	and the second second	
	s.ms			0.0075	0.0075	0.0051	0.0076	0.0095					
	Non- PAH HAPs, TOTAL PAH HAPs, TOTAL		1	0.00011	0.00023	0.00019	0.0078	0.0055					
	HAPS. TOTAL			0.0076	0.0077	0.0053	0.0067	0.01					
	NOTAL		I	0.0070						1	1	1	
	Total PCDD						7.90E-11	7.90E-11	7 905-11	2.80E-4/9			
	Total PCOF						4.00E-11	4.00E-11	4 00E-11	1.50E-10			
	toal PCOD/PCOF					4	1.20E-10	1.205-10	1 25E-10	3.005-09	1		2

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dryer, hot screens, mixer SCC 3-05-002-45, -46, -47	filterable PM	filterable PM10	inorganic condensible PM	organic condensible PM	TOTAL condensible PM	total PM	total PM10
uncontrolled	32	4.5	0.013	0.0041	0.0171	32	4.5
fabric filter	0.025	0.0098	0.013	0.0041	0.0171	0.042	0.027
venturi or wet scrubber	0.12	0.12	0.013	0.0041	0.0171	0.14	0.14
Table 11.1-3 PM Emission Factors for Drum M	lix HMAPs						
			inorganic	organic	TOTAL		4-4-1
dryer, hot screens, mixer	filterable	filterable	condensible	condensible	condensible	total	total
PM Emission Factors for Drum w dryer, hot screens, mixer SCC 3-05-002-05, -55 to -63		filterable PM10	•	-		total PM	total PM10
dryer, hot screens, mixer SCC 3-05-002-05, -55 to -63	filterable		condensible	condensible PM	condensible PM		
dryer, hot screens, mixer	filterable PM	PM10	condensible PM	condensible PM 0.058	condensible PM 0.0654	PM	PM10

Table 11.1-5 and 6					-
Emission Factors for CO, CO	02, Nox a	nd SO2 from	n Batch Mix	HMAPs	
	со	CO2	NOx	SO2	voc
Natural gas fired dryer, hot screens and mixer SCC 3-05-002-45	0.4	37	0.025		0.0082
No.2 fuel oil-fired dryer, hot screens and mixer SCC 3-05-002-46	0.4	37	0.12		0.0082
Waste oil-fired dryer, hot screens and mixer SCC 3-05-002-47	0.4	37	0.12		0.036
Coal-fired dryer, hot screens and mixer SCC 3-05-002-98	ND	37	ND		
No.6 fuel oil-fired dryer, hot screens and mixer SCC 3-05-002-47					0.036

## Table 11.1-7 and 8

SCC 3-05-002-98

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Emission Factors for CO, CO	D2, Nox a	nd SO2 fror	m Drum Mix	HMAPs		
	со	CO2	NOx	SO2	VOC	HCL
	0.13	33	0.026		0.032	ND
No.2 fuel oil-fired dryer SCC 3-05-002-58, -59, -60	0.13	33	0.055		0.032	ND
Waste oil-fired dryer SCC 3-05-002-61, -62, -63	0.13	33	0.055		0.032	0.00021
Coal-fired dryer,	ND	33	ND			

33

ND

ND

plant types 1. Batch mix 2. Drum mix 3 1

2 1

2 3 2

1

fuel type 1.Natural gas-fired 2. No.2 fuel oil-fired 3. Waste or No.6 fuel oil-fired

controls

- 1. uncontrolled
   2. Fabric filter controls
   3. Venturi or wet scrubber controls 2 3

Plant maximum production capacity: 250 tons per hour	from Chapter 1.3 , AP-42, Fuel Oil Combustion, revised 09/96, Table 1.3.1 over 100 mmBtu/hr under 100 mmBtu/hr No.6, No.5 157 157 no.2 157 142			
Dryer heat input: 80 million Btu per hour	г			EF (lb/ton)
Fuel Sulfur Content: 0.5 %		3	fuel type	EF (lokony
		1	1.Natural gas-fired	0.0001
natural gas HV 1020 mmBtu/million scf	No. 2 HV 140 mmBtv/1000 gallons		2. No.2 fuel oil-fired	0.0697
emissionNG combustion EF 0.6 (b SO2/ million scf	No. 6 HV 150 mmBtv/1000 gallons	2		
0.000586 lb SO2/ mmBtu	No. on the number too galena		3. Waste or No.6 fuel oil-fired	0.0837
0.000368 18 302/ mmBiu				

Note : 50% of the fuel bound sulfur up to a maximum (as SO2) of 0.1 lb/ton of product is expected to be retained in product. 0.1 lb SO2 retained / ton of product

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plant types	SCCs	SO emission factor (Ib/1000 gallons)/ %S	SO emission factor (/b/mmBlu)	SO emission rate (lb/hr)	SO emission rate (lb/ton asphalt produced)	50% of fuel bound sulfur (as SO2, fb/ton)	less than 0.1 ib/ton?	Corrected SO emission rate (ib/ton asphall produced)
1. Batch mix, natural gas-fired, no controls			0.000588235	0.047	0.0002	0.0001	9.41176E-05	0.0001
<ol><li>Batch mix, natual gas-fired, fabric filter controls</li></ol>	3-05-002-45		0.000588235	0.047	0.0002	0.0001	9.41176E-05	
<ol><li>Batch mix, natrual gas-fired, venturi or wet scrubber controls</li></ol>			0.000588235	0.047	0.0002	0.0001	9.41176E-05	
4. Batch mix, No.2 fuel oil-fired, no controls		157	0.560714286	44.857	0.1794	0.0897	0.089714286	
<ol><li>Batch mix, No.2 fuel oil-fired, fabric filter controls</li></ol>	3-05-002-46	157	0.560714286	44.857	0,1794	0.0897	0.089714288	0.0897
<ol><li>Batch mix, No.2 fuel oil-fired, venturi or wet scrubber controls</li></ol>		157	0.560714286	44.857	0.1794	0.0897	0.089714286	0.0897
7. Batch mix, waste or No.6 fuel oil-fired, no controls		157	0.523333333	41.867	0.1875	0.0837	0.083733333	0.0837
<ol><li>Batch mix, waste or No.6 fuel oil-fired, fabric filter controls</li></ol>	3-05-002-47	157	0.523333333	41.867	0.1675	0.0837	0.083733333	0.0837
9. Batch mix, waste or No.6 fuel oil-fired, venturi or wet scrubber controls		157	0.523333333	41.867	0.1675	0.0837	0.083733333	
10. Drum mix, natural gas-fired, no controls			0.000588235	0.047	0.0002	0.0001	9.41176E-05	0.0001
<ol> <li>Drum mix, natrual gas-fired, fabric filter controls</li> </ol>	3-05-002-55, -56, -57		0.000588235	0.047	0.0002	0.0001	9.41176E-05	0.0001
<ol><li>Drum mix, natrual gas-fired, venturi or wet scrubber controls</li></ol>			0.000588235	0.047	0.0002	0.0001	9.41176E-05	0.0001
13. Drum mix, No.2 fuel oil-fired, no controls		157	0.560714286	44.857	0.1794	0.0897	0.089714286	0.0897
14. Drum mix, No.2 fuel oil-fired, fabric filter controls	3-05-002-58, -59, -60	157	0.560714286	44.857	0.1794	0.0897	0.089714286	0.0897
15. Drum mix, No.2 fuel oil-fired, venturi or wet scrubber controls		157	0.560714286	44.857	0.1794	0.0897	0.089714286	0.0897
16. Drum mix, waste or No.6 fuel oil-fired, no controls		157	0.523333333	41.867	0.1675	0.0837	0.083733333	0.0837
17. Drum mix, waste or No.6 fuel oil-fired, fabric filter controls	3-05-002-61, -62, -63	157	0.523333333	41.867	0.1675	0.0837	0.083733333	0.0837
18. Drum mix, waste or No.6 fuel oil-fired, venturi or wet scrubber controls		157	0.523333333	41.867	0.1675	0.0837	0.0837333333	0.0837
		107 .	0.02000000	-1.007	0.10/5	0.0037	0.0031333333	0.0037

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# APPENDIX A4 - CONCRETE BATCH PLANT DEQ SPREADSHEET CALCULATIONS

#### **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 the bottom of this screen

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> TBD TBD Prospect Hill

Caswell

Scott Martino

Carolina Sunrock LLC

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

<b>General Facility Information</b>
COMPANY NAME:
FACILITY ID NUMBER:
PERMIT NUMBER
FACILITY CITY:

FACILITY COUNTY:

SPREADSHEET PREPARED BY:

#### **General Facility Information**

MAXIMUM HOURLY THROUGHPUT AT TRUCK LOAD OUT

PERCENT OF ANNUAL LOADOUT THROUGH TRUCK MIX

## ACTUAL ANNUAL PRODUCTION MAXIMUM ANNUAL PRODUCTION\*

120	(yd <sup>3</sup> /hour)	
1,051,200	(yd <sup>3</sup> /year)	
1,051,200	(yd <sup>3</sup> /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

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

(1=No, 2=Yes)

(1=No, 2=Yes)

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	r		Typical NC Comp.*
Cement	448	lbs	410 lbs
Supplement	148	lbs	120 lbs
Coarse Aggregate	1980	lbs	1884 lbs
Sand	1440	lbs	1443 lbs
Water	140	lbs	167 lbs
Total	4156	lbs	4024 lbs

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

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

	Cement Silo	<u>Flyash silo</u>	Sand&Agg Weigh hopper	Truck mix <sup>1</sup>	<u>Central</u> mix <sup>1</sup>	]
Enter the process rate if different from default, otherwise leave blank						
Process Rate <sup>2</sup>	25	25	205.200	240.96	0.000	tons/hr
Maximum Allowable Emission Rate <sup>3</sup>	35.4	35.4	58.8	60.5	0.0	lbs/hr
PM Emission Rate Before controls	18.250	78,500	0.985	52.210	0.000	lbs/hr
PM Emission Rate After Controls	0.025	0.223	0.001	1.001	0.000	lbs/hr
Assumed control device efficiency for	veigh hoppei	.4	99.9%			
Complies with 2D .0515?	yes	yes	yes	yes	yes	]
Control device required to comply?	no	yes	no	no	no	

<sup>1</sup> Emission factors for truck/central mix include emissions from cement & supplement weigh hoppers,

<sup>2</sup> 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.

<sup>3</sup>Allowable emission rate should be calculated to 3 significant digits.

<sup>4</sup> 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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Carolina Sunrock LLC

TBD

TBD

Caswell

Prospect Hill

Scott Martino

# 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

120	(yd <sup>3</sup> /hour)	
1051200	(yd <sup>3</sup> /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	ibs	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 (AFTER CONTROLS / LIMITS)			POTENTIAL EMISSIONS			
				(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)		
	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	4.38	
	PM10	0.375	1.645	14.912	65.314	0.375	1.64	
central mix*	PM	0.000	0.000	0.000	0.000	0.000	0.00	
	PM10	0.000	0.000	0.000	0.000	0.000	0.00	
cement silo	PM	0.027	0.117	19.622	85.946	0.027	0.11	
	PM10	0.009	0.040	12.634	55.335	0.009	0.04	
suppl. Silo	PM	0.079	0.346	27.883	122.128	0.079	0.34	
	PM10	0.044	0.191	9.768	42.784	0.044	0.19	
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	2.51	
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	22.31	
TOTAL PM10	PM10	2.435	10.667	39,321	172.225	2.435	10.66	
Title V Potential	PM10			or the field			0.231	

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



Beryllium metal (TH) Cadmium Metal (TH) Chromic Acid (TH)

Manganese Unlisted compounds (TH) Nickel metal (TH)

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0.0038

0.018

0.005

<u>T</u>	DXIC/HAZARDO	DUS AIR POL	LUTANT EMIS	SIONS INFO	DRMATION	12月14年1月1日第一日	
POLLUTANT	CAS NUMBER	ACTUAL	EMISSIONS		POTE	NTIAL EMSSIONS	
TOLEUTAN	ONDINUER	(AFTER COM	ITROLS / LIMITS)	(BEFORE CO	NTROLS / LIMITS)	(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
ead 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
fotal 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
TOXIC AIR	POLLUTANT E	MISSIONS IN	FORMATION (	FOR PERMI	TTING PURP	DSES)	Strange and starting
(Daily calculations are based on maximum hou emisions based on actual op	rly plant capacity op	perating at 24 ho		er the TPER, th	e facilitiy should		
OLLUTANT	CAS NUMBER	<u> </u>	b/hr	lb	/day	lb/y	
Arsenic Unlisted Compounds (TH)	ASC-OTHER		$(0, 0, 1, \dots, n) \in \mathbb{N}$	1324533	经公司管理社	0.57	
Beryllium metal (TH)	7440-41-7		관계는 시작되는			0.04	40

7440-43-9

7738-94-5 MNC-OTHER

7440-02-0

0.004



TPER
0.053 lb/yr
0.28 lb/yr
0.37 lb/yr
0.013 lb/day
0.63 lb/day
0.13 lb/day

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#### CONCRETE BATCH PLANT EMISSIONS CALCULATOR - TAP CALCULATIONS REVISION D; October 15, 2015



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ARSENIC EMISSION	IS	ACTUAL EI	VISSIONS	POTENTIAL EMISSIONS						
		(AFTER CONTRO	DLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)				
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	b/yr			
truck mix	Arsenic	5.69E-05	4.98E-01	2.43E-03	2.13E+01	5.69E-05	4.98E-0			
central mix	Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0			
cement silo	Arsenic	1.14E-07	9.98E-04	4.52E-05	3.96E-01	1.14E-07	9.98E-0			
supplement silo*	Arsenic	8.88E-06	7.78E-02	8.88E-06	7.78E-02	8.88E-06	7.78E-02			
TOTAL	Arsenic	6.59E-05	5.77E-01	2.49E-03	2.18E+01	6.59E-05	5.77E-0			
		(Arsenic TPER: 0.	053 lb/yr)							

BERYLLIUM EMISSI	ONS	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS					
		(AFTER CONTRO	DLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)			
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr		
truck mix	Beryllium	3.72E-06	3.26E-02	8.73E-06	7.64E-02	3.72E-06	3.26E-02		
central mix	Beryllium		-	-	-	- 1.31E-08	-		
cement silo	Beryllium	1.31E-08	1.14E-04 7.03E-03	4.81E-07	4.21E-03		1.14E-04		
supplement silo*	Beryllium	8.03E-07		8.03E-07	7.03E-03	8.03E-07	7.03E-03		
TOTAL	Beryllium	4.53E-06	3.97E-02	1.00E-05	8.77E-02	4.53E-06	3.97E-02		

CADMIUM EMISSIO	NS	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS						
		(AFTER CONTR	OLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)				
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	b/yr			
truck mix	Cadmium	3.24E-07	2.84E-03	1.22E-06	1.07E-02	3.24E-07	2.84E-03			
central mix	Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
cement silo	Cadmium	-	-	6.29E-06	5.51E-02	-	-			
supplement silo*	Cadmium	1.76E-07	1.54E-03	1.76E-07	1.54E-03	1.76E-07	1.54E-03			
TOTAL	Cadmium	5.00E-07	4.38E-03	7.69E-06	6.74E-02	5.00E-07	4.38E-03			

CHROMIUM EMISSI	ONS	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS						
		(AFTER CONTR	ROLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)				
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr			
truck mix	Chromium	1.47E-04	1.28E+00	4.08E-04	3.57E+00	1.47E-04	1.28E+0			
central mix	Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0			
cement silo	Chromium	7.80E-07	6.83E-03	6.77E-06	5.93E-02	7.80E-07	6.83E-0			
supplement silo*	Chromium	1.08E-05	9.49E-02	1.08E-05	9.49E-02	1.08E-05	9.49E-0			
TOTAL Chromium		1.58E-04 1.39E+00		4.25E-04 3.73E+00		1.58E-04	1.39E+00			

(Chromium TPER: 0.013 lb/day)

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#### CONCRETE BATCH PLANT EMISSIONS CALCULATOR - TAP CALCULATIONS REVISION D; October 15, 2015



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.

ing yang ay senger ing		LEAD (HAP)	LEAD (HAP) EMISSIONS INFORMATION									
LEAD EMISSIONS		ACTUAL E	MISSIONS	POTENTIAL EMISSIONS								
		(AFTER CONTR	OLS / LIMITS)	(BEFORE CON	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)						
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr					
truck mix	nix Lead		4.79E-01	1.29E-03	1.13E+01	5.47E-05	4.79E-01					
central mix	Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00					
cement silo	Lead	2.93E-07	2.57E-03	1.98E-05	1.73E-01	2.93E-07	2.57E-03					
supplement silo* Lead TOTAL Lead		4.62E-06	4.62E-06 4.05E-02		4.05E-02	4.62E-06	4.05E-02					
		5.96E-05	5.22E-01	1.32E-03	1.16E+01	5.96E-05	5.22E-01					

MANGANESE EMISS	SIONS	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS					
		(AFTER CONTR	OLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)			
Source	Pollutant	lb/hr lb/yr		lb/hr	lb/yr	lb/hr	lb/yr		
truck mix	Manganese	7.44E-04	6.52E+00	2.19E-03	1.92E+01	7.44E-04	6.52E+00		
central mix	Manganese	0.00E+00 0.00E+00 0.00E+00 0.1		0.00E+00	0.00E+00	0.00E+00			
ement silo	Manganese	3.14E-06	2.75E-02	5.48E-03	4.80E+01	3.14E-06	2.75E-02		
supplement silo*	Manganese	2.27E-06	1.99E-02	2.27E-06	1.99E-02	2.27E-06	1.99E-02		
TOTAL	Manganese		7.49E-04 6.56E+00		6.72E+01	7.49E-04	6.56E+00		

NICKEL EMISSIONS		ACTUAL E	MISSIONS	POTENTIAL EMISSIONS						
		(AFTER CONTR	OLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)				
Source	Pollutant	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr			
truck mix	Nickel	1.71E-04	1.50E+00	4.26E-04	3.73E+00	1.71E-04	1.50E+00			
central mix	Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
cement silo	Nickel	1.12E-06	9.84E-03	4.73E-04	4.14E+00	1.12E-06	9.84E-03			
supplement silo*	Nickel	2.02E-05	1.77E-01	2.02E-05	1.77E-01	2.02E-05	1.77E-01			
TOTAL	Nickel	1.92E-04	1.68E+00	9.19E-04	8.05E+00	1.92E-04	1.68E+00			
		(Nickel TPER: 0	.13 lb/day)							

	的情况。这个时间,因此	USPHORUS	(NAP) EMISSI	SIONS INFORMATION						
PHOSPHORUS EMIS	SSIONS	ACTUAL E	EMISSIONS	POTENTIAL EMISSIONS						
		(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTROLS / LIMITS)				
Source	Pollutant	lb/hr	lb/yr		ib/yr	lb/hr	lb/yr			
truck mix	Phosphorus	4.40E-04	3.85E+00		1.20E+01	4.40E-04	3.85E+00			
central mix	Phosphorus	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
cement silo	Phosphorus	-	-	3.17E-04	2.78E+00	-	-			
supplement silo*	Phosphorus	3.14E-05	3.14E-05 2.75E-01	3.14E-05	2.75E-01	3.14E-05	2.75E-01			
TOTAL Phosphorus		4.71E-04	4.13E+00	1.72E-03	1.51E+01	4.71E-04	4.13E+00			

SELENIUM EMISSIO	NS	ACTUAL E	MISSIONS	POTENTIAL EMISSIONS					
		(AFTER CONTR	OLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)			
Source	Pollutant	lb/hr	lb/yr	lb/hr 9.37E-05	lb/yr	lb/hr	lb/yr		
truck mix	Selenium	4.04E-06	3.54E-02		8.21E-01	4.04E-06	3.54E-02		
central mix	Selenium	-	-	-			-		
cement silo	Selenium	-	-	-	-	-	-		
supplement silo*	lement silo* Selenium		5.63E-03	6.43E-07	5.63E-03	6.43E-07	5.63E-03		
TOTAL	Selenium	4.68E-06	4.10E-02	9.43E-05	8.26E-01	4.68E-06	4.10E-02		

	Α	В	C .	D	Ε	F	G	Н				¥	<u> </u>
1	EMISSION FACTOR SUMMA	RY FOR R	EADY-MIXED CONC	RETE BAT	CH FACILITIES		•	· · · · ·		· · · · · · · · · · · · · · · · · · ·			<u> </u>
3	Emission Source Description	PM Emiss	on Factors	PM <sub>10</sub> Emis	sion Factors	Arsenic E	mission Factors	Reference					
4	Cement Silo without controls	0.73	lb/ton cement	0.47	lb/ton cement		lb/ton cement	U.S. EPA, O		and Standards. AP-42; Chapter 11.1; 5 Table 11.12-8 (As)	2 (June 2006		
5	Cement Silo with controls	0.00099	lb/ton cement	0.00034	lb/ton cement	4.24E-09	lb/ton cement	U.S. EPA, O w/ Feb2011)	ffice of Air Quality Planning of Table 11.12-2 (PM/PM10)	and Standards. AP-42; Chapter 11.1; & Table 11.12-8 (As)			
6	Suppl Silo without controls	3.14	lb/ton suppl	1.1	ib/ton suppl	No Data	-	U.S. EPA, O w/ Feb2011)	flice of Air Quality Planning ; Table 11.12-2 (PM/PM10)	and Standards. AP-42; Chapter 11.12	· ·		
7	Suppl Silo with controls	0.0089	lb/ton suppl	0.0049	lb/ton suppl	0.000001	lb/ton suppl	U.S. EPA, O w/ Feb2011)	flice of Air Quality Planning a Table 11.12-2 (PM/PM10)	Ind Standards. AP-42; Chapter 11.12 Table 11.12-8 (As)	2 (June 2006		i
8	Weigh Hopper without controls	0.0048	lb/ton aggr+sand	0.0028	lb/ton aggr+sand	No Data	-	U.S. EPA, O	ffice of Air Quality Planning a , Table 11.12-2 (PM/PM10)	ind Standards. AP-42; Chapter 11.12	2 (June 2006		l
9	Weigh Hopper with controls	No Data	-	No Data		No Data	-	1.					1
10	Truck Mix without controls	1.46	lb/ton cement+suppl	0.417	lb/ton cement+suppl	6.80E-05	lb/ton cement+supp!	Memorandur Overcash (N	n, Emission Factors for Read C DAQ, Director) to Section	y Mixed Concrete Facilities. From N Chiefs/Regional Supervisors. June 8	r. Keith 2005.		
11	Truck Mix with controls	0.028	lb/ton cement+suppl	0.0105	lb/ton cement+supp!	1.59E-06	lb/ton cement+suppl	Memorandur	n, Emission Factors for Read	ly-Mixed Concrete Facilities. From M Chiefs/Regional Supervisors. June 6	r. Keth		
12	Central Mix without controls	0.683	lb/ton cement+suppl	0.181	lb/ton cement+suppl	2.80E-05	lb/ton cement+suppl	Memorandur	n, Emission Factors for Read	ly-Mixed Concrete Facilities. From M Chiefs/Regional Supervisors. June 8	r. Keith		
13	Central Mix with controls	0.0212	lb/ton cement+suppl	0.00577	lb/ton cement+suppl	8.85E-07	lb/ton cement+suppl	U.S. EPA, O w/ Feb2011),	flice of Air Quality Planning a Table 11.12-2 (PM/PM10) 8	nd Slandards. AP-42; Chapter 11.12 Table 11.12-8 (As)	2 (June 2006		
14	Sand Plant-Wide*	0.0063	ib/ton sand	0.00297	lb/ton sand	No Data	-	U.S. EPA, O w/ Feb2011),	fice of Air Quality Planning a Table 11.12-2 (PM/PM10)	nd Standards. AP-42; Chapler 11.12			
15	Aggr Plant-Wide*	0.0207	lb/ton aggr	0.0099	lb/ton aggr	No Data	-	U.S. EPA, Of w/ Feb2011).	fice of Air Quality Planning a Table 11.12-2 (PM/PM10)	nd Slandards. AP-42; Chapter 11.12	-		
16	*There are 3 emission points for sa	and transfer	and 3 emission points f	or aggr trans	fer plant-wide, so those	emission fa	ctors are multiplied by 3	to get a nis	ant-wide emission facto	r (consistent with Table 11.12)	.5		
17	Emission source Description	Beryllium	Emission Factors	Cadmium E	mission Factors	Chromlum	Emission Factors	Lead Emir	sion Factors	References	~		
18	Cement Silo without controls		lb/ton cement	2.34E-07	lb/ton cement		lb/ton cement		lb/ton cement	U.S. EPA, Office of Air Quality Plan (June 2006 of Feb2011), Table 11,	nning and Standard	s. AP-42; Cha;	aler 11.12
19	Cement Silo with controls		lb/ton cement	No Data	-	2.9E-08	lb/ton cement	1.09E-08	lb/ton cement	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	ning and Standard	s. AP-42; Chap	xler 11.12
20	Suppl Sile without controls	No Data	-	No Data	-	No Data	-	No Data	•	U.S. EPA, Office of Air Quality Plan (June 2006 of Feb2011), Table 11.	12-8		
21	Suppl Silo with controls		lb/ton suppl	1.98E-08	lb/ton suppl	1.22E-06	lb/ton suppl	5.2E-07	ib/ton suppl	U.S. EPA, Office of Air Quality Plan (June 2008 w/ Feb2011), Table 11,	ning and Standard	AP-42; Chap	der 11.12
	Weigh Hopper without controls	No Data	•	No Data	-	No Data	-	No Data	-				•
23	Weigh Hopper with controls	No Data	•	No Data	•	No Data	-	No Data	•				
24	Truck Mix without controls		lb/ton cement+suppl		lb/ton cement+suppl	1.14E-05	lb/ton cement+suppl		ib/ton cement+suppl	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	12-8		
25	Truck Mix with controls		ib/ton cement+suppl		lb/ton cament+suppl	4.10E-06	lb/ton cement+suppl	1.53E-06	lb/ton cement+suppl	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	ining and Standards 12-8	AP-42; Chap	der 11.12
26	Central Mix without controls	No Data	-		lb/ton cement+suppl	1.42E-06	lb/ton cement+suppl	3.82E-07	lb/ton cement+suppl	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	12-8		
27	Central Mix with controls	No Data	-		lb/ton cement+suppl	1.27E-07	lb/ton cement+suppl	3.66E-08	lb/ton cement+suppl	U.S. EPA, Office of Air Quality Plan (June 2008 w/ Feb2011), Table 11.	ning and Standard: 12-8	AP-42; Chap	ter 11.12
20	Sand & Aggr Plant-Wide	No Data	-	No Data	•	No Data	•	No Data	•	·	· · · · ·		
29 30				1									
31					ision Factors	Phosphoro	us Emission Factors	Selenium I	Emission Factors	References			
32	Cement Silo without controls		lb/ton cement		lb/ton cement	0.0000118	ib/ton cement	No Data	-	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	12-8		
33	Cement Silo with controls		lb/ton cement		lb/ton cement	No Data	-	No Data	-	U.S. EPA, Office of Air Quality Plan (June 2006 w/ Feb2011), Table 11.	ning and Standards	AP-42; Chap	ler 11.12
	Suppl Sile without controls	No Data	-	No Data		No Data		No Data	•	•			
35	Suppl Silo with controls		lb/ton suppl	2.28E-06	lb/ton suppt	3.54E-06	lb/ton suppl		lb/ton suppl	U.S. EPA, Office of Air Quality Plan (June 2006 of Feb2011), Table 11.1	ning and Standards 12-8	. AP-42; Chap	ter 11.12
	Weigh Hopper without controls	No Data	•	No Data	-	No Data	-	No Data	-	-			
	Veigh Hopper with controls	No Data	•	No Data	-	No Data	-	No Data					
38	ruck Mix without controls	6.12E-05	lb/ton cement+suppl		lb/ton cement+suppl		lb/ton cement+suppl		lb/ton cement+suppl	U.S. EPA, Office of Air Quality Plans (June 2006 w/ Feb2011), Table 11.1	ning and Standards 12-8	AP-42; Chap	ler 11.12
39	ruck Mix with controls		ib/ton cement+suppl	4.78E-06	lb/ton cement+suppl	1.23E-05	lb/ton cement+suppl	1.13E-07	lb/ton cement+suppl	U.S. EPA, Office of Air Quality Plans (June 2006 w/ Feb2011), Table 11.1	ning and Slandards	AP-42; Chap	ier 11.12
40	Central Mix without controls		lb/ton cement+suppl		b/ton cement+suppl	2.02E-05	lb/ton cement+suppl	No Data	•	U.S. EPA, Office of Alr Quality Plan (June 2006 w/ Feb2011), Table 11.1	ning and Standards	AP-42; Chap	er 11.12
41	Central Mix with controls		lb/ton cement+suppl		lb/ton cement+suppl	1.20E-06	lb/ton cement+suppl	No Data	-	U.S. EPA, Office of Air Quality Plans (June 2006 of Feb2011), Table 11.1	ning and Standards	. AP-42; Chapl	ær 11.12
42	and & Aggr Plant-Wide	No Data	•	No Data	-	No Data	-	No Data	-	-			
								1000					

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Appendix A4 Page 8 of 8

# APPENDIX A5 - QUARRY DEQ SPREADSHEET CALCULATIONS

#### STONE CRUSHING EMISSIONS CALCULATOR REVISION C 05/23/2011 PERMITTING AND MODELING INPUT SCREEN



#### NOTICE:

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#### Instructions:

1. Enter emission source / facility data on this sheet for permitting and/or modeling. The air emission results and summary for each type of equipment will be on its own sheet (e.g., crushers output, screens output). The facility-wide totals are summarized on the "OUTPUT" sheet. The different tabs are on the bottom of this screen. 2. For each type of equipment fill in all BLUE fields.

Company Name:	1	Carolina Sunrock LLC
Facility ID No.:		N/A
Permit No.:		N/A
Facility City:		Prospect Hill
Facility County:		Caswell
Spreadsheet Prepared by:	Aimee	Andrews, Trinity Consultants
Actual hours of operation:	3744	hours
Total Plant Maximum Rated Capacity:	1500	tons per hour
Total Plant Maximum Rated Capacity: Actual Annual Total Plant Production:	1500 5616000	tons per hour tons

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Crusher Input

How many crushers total ?

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\*Note: If wet supression is not applied on an automatic and continuous basis during the operation of the crusher, answer "no" for "wet supression (Y/N)?".

		Maximum		actual
		Rated	*wet	yearly
Crusher		Capacity	supression	throughput
ID No.	Type of crusher	(tons/hr)	(Y/N) ?	(tons)
J50	Primary	400	wet 💌	1,497,600
J45	Primary 💌	400	wet	1,497,600
CR-BTI	Primary	400	wet 💌	1,497,600
4860	Primary 💌	1200	wet 💌	4,492,800
CR2-57SBS	Secondary or Tertiary	400	wet 💌	1,497,600
GEN3	Secondary or Tertiary	400	wet 🔻	1,497,600
CR2-HP500	Secondary or Tertiary	500	wet	1,872,000
GEN5	Secondary or Tertiary	500	wet 💌	1,872,000
CR3	Fines 💌	155	wet 💌	580,320
GEN7	Fines	155	wet 📉	580,320
	Primary	0	wet 💌	0
	Primary	0	wet 💌	0
	Primary	0	wet 💌	0
	Primary	0	dry 💌	0
	Primary	0	dry 💌	0

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		Maximum		actual
		Rated	wet	yearly
Screen		Capacity	supression	throughput
ID No.	Type of screen	(tons/hr)	(Y/N) ?	(tons)
SC-1	Normal	1000	wet	3744000
SS1KF-1	Normal	400	wet	1497600
SC-2	Normal	600	wet	2246400
SC-GEN-2	Normal	125	wet	468000
SC-3	Normal	600	wet	2246400
SC-3	Normal	600	wet 💌	2246400
FM	Fines	290	wet	1085760
SC4	Fines	310	wet	1160640
	Normal	0	wet 💌	0
	Normal	0	wet	0
	Normal	0	wet	0
	Normal	0	wet 💌	0
	Normal	0	wet 🔨	0
	Normal	0	wet	0
	Normal	0	wet	0

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### Conveyor Input (1/3)

How many conveyors total ?

62

\*NOTE: Each conveyor will have one transfer point, the point where it drops product, not receives product. Answer "no" if the conveyor drops to a screen or a crusher. The transfer points to the crushers and screens are already accounted for in the emission factors for these units.

		Maximum		actual
		Rated	wet	yearly
Conveyor	*Conveyor transfer	Capacity	supression	throughput
ID No.	point ?	(tons/hr)	(Y/N) ?	(tons)
C-1	yes 💌	1200	wet 💽	7,200,000
C-2	yes 💌	1200	wet 💽	7,200,000
C-3	no	1200	wet 💌	7,200,000
C-4	yes 💌	1200	wet	7,200,000
C-5	yes 💽	1200	wet 💌	7,200,000
C-6	yes	1200	wet 💌	7,200,000
SP1KF-1	no	375	wet 💌	2,250,000
SP1KF-2	no	375	wet 🔨	2,250,000
SP1KF-3	yes 💌	375	wet 🛒	2,250,000
C-7	yes 💌	1000	wet 🔨	6,000,000
C-8	yes 💌	400	wet 🔨	2,400,000
C-9	yes 💌	400	wet 🔨	2,400,000
C-10	yes 💽	400	wet 💌	2,400,000
C-11	yes 💌	200	wet 💽	1,200,000
C-12	no	200	wet 💌	1,200,000
C-13	yes 💌	200	wet 💌	1,200,000
TC-1ABC	yes 💌	200	wet 💌	1,200,000
C-14	yes 💌	400	wet 💽	2,400,000
C-15	yes	400	wet 💌	2,400,000
TC-2RRB	yes	400	wet 💌	2,400,000
C-16	yes 💌	800	wet	4,800,000
C-17	no	800	wet 📉	4,800,000
SP2KF-1	yes 💌	300	dry 📉	1,800,000
SP2KF-2	yes	300	dry 🔨	1,800,000
C-18	yes 💌	600	dry 💌	3,600,000

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### Conveyor Input (2/3)

		Maximum		actual
		Rated	wet	yearly
Conveyor	*Conveyor transfer	Capacity	supression	throughput
ID No.	point ?	(tons/hr)	(Y/N) ?	(tons)
SC2-C1	yes 💌	500	wet 💌	3,000,000
C-19	yes	500	wet 💌	3,000,000
CR3KF-1	no	500	wet 💌	3,000,000
C-20	yes 💌	500	wet 🔨	3,000,000
C-21	yes 💌	500	wet 💌	3,000,000
SC2-C2	yes 💌	600	wet	3,600,000
C-22	no	500	wet 💌	3,000,000
C-23	no	290	wet 🔨	1,740,000
C-24	yes 💌	290	wet 💌	1,740,000
C-25	yes 💌	290	wet 💌	1,740,000
TC-3DS	yes 💌	290	wet 🔨	1,740,000
C-26	yes 💌	155	wet 💌	930,000
C-27	yes 🔨	155	wet	930,000
C-28	yes 💽	155	wet 💽	930,000
CR4KF-1	no	155	wet 💌	930,000
C-29	yes 💌	155	wet 💽	930,000
C-30	yes 🔻	290	wet	1,740,000
C-31	yes 💌	290	wet 💌	1,740,000
TP-4S	yes 💌	290	wet 💌	1,740,000
C-32	yes 💌	155	wet 💌	930,000
C-33	yes 💌	155	wet 🔨	930,000
C-34	no	310	wet	1,860,000
C-35	yes 💌	46	dry 💌	276,000
C-36	yes 💌	162	dry 💌	972,000
C-37	yes 💌	100	dry 💌	600,000

# Conveyor Input (3/3)

		Maximum		actual
		Rated	wet	yearly
Conveyor	*Conveyor transfer	Capacity	supression	throughput
ID No.	point ?	(tons/hr)	(Y/N) ?	(tons)
FB1	yes 💌	45	wet 💌	270,000
FB2	yes 📉	162	wet 💌	972,000
FB3	no	100	wet 💌	600,000
C-38	yes 💌	45	wet 💌	270,000
C-39	yes 💽	162	wet 🔨	972,000
C-40	yes 🔭	100	wet 💌	600,000
C-41	no	45	wet	270,000
C-42	no	162	wet	972,000
C-43	yes 💌	100	wet 🔭	600,000
TC-5-67s	yes 💌	100	wet 💌	600,000
TC-6-57s	yes 💌	290	wet 🔨	1,740,000
TC-7-78s	yes 💌	290	wet 💌	1,740,000
	yes 💌	0	wet 📉	0
	yes 🔨	0	wet 💽	0
	no 💌	0	wet	0
	yes 🔭	0	wet 💽	0
	yes 🗶	0	wet	0
	yes 💽	0	wet 📉	0
	yes 💽	0	wet 💌	0
	yes 💌	0	wet	0
	yes 💌	0	wet 💌	0
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### STONE QUARRY EMISSIONS CALCULATOR REVISION C 05/23/2011 - OUTPUT SCREEN



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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.

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COMPANY:	Carolina S	unrock L	LC.			FACILITY			
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						FACILITY		Caswell	
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Company Name: Facility ID No.:	Carolina Sunrock LLC N/A	5.97	2,64	77.0	26.15	11.56	1.93	11.18	4,94	0.83	10	
Permit No.:	NIA	hourly potential	hourly potential			veariv potentiat	vearly notential	and a second sec	landaa sitaaas		me	
Facility City:	Prospect Hill	TSP emissions	PM <sub>10</sub> emissions	PM2.5 emissions	Tsp	PM <sub>10</sub> emissions	PM2.5 emissions	TSP emissions	PM <sub>10</sub> emissions	PM2.5 emissions	TSP emission	PM <sub>10</sub> emission
Facility County:	Caswell	(lb/hr)	(lh/hr)	(tb/hr)	(tay)	(tay)	(tay)	(фу)	(tey)	(tpy)	factor (Ib/Ion)	factor (lb/ton)
Primary Crusher ID Maximum Rated Capacity Actual annual throughput	Primary Crusher ID No. J50 with wet supression rum Rated Capacity 400 tons/hour annual throughput 1,497,600 tons	0.48	0.216	0.04		0.94608		0.89356	0.404352		0.0012	0.00054
Primary Crusher II Maximum Rated Crusher II Actual annual throughout	Primary Crusher ID No. 45 with wet supression tum Rated Crusher ID No. 456 with wet supression tum Rated Capacity 400 tons/hour annual throughput 1,497,600 tons	0.48	0.216	0.04	2.1024	0.94608	0.1752	0.89856	0.404352	0.07488	0.0012	0.00054
Primary Gruster ID No Maximum Rated Capacity Actual annual throughput	Maximum Research No. CR-BTI with wet supression Maximum Rated Capacity 400 tons/hour Actual annual throughput 1,467,600 tons	0.48	0.216	0.04	2.1024	0.94608	0.1752	0.89856	0.404352	0.07488	0.0012	0.00054
Primary Crusher ID   Maximum Rated Capacity Actual amnual throughput	Primary Crusher ID No. 4860 with wet supression num Rated Capacity 1200 tons/hour I annual throughput 4,492,800 tons	1.44	0.648	0.12	6.3072	2.83824	0.5256	2.69568	1.213056	0.22464	0.0012	0.00054
Secondary or Tertlary Crusher ID No. GR Maximum Rated Capacity Actual annual throughput	Secondary of Tertlary Crusher ID No. CR2-5/SBS with wet supression Maximum Rated Capacity 400 tonshour Actual ammuel throughout 1,487,800 tons	0.48	0.216	0.04	2.1024	0.94608	0.1752	0.59856	0.404352	0.07488	0.0012	0.00054
Sacondary or Tartiary Crusher ID N Maximum Rated Capacity Actual annual throughput	Secondary or Tertiary Crusher ID No. GEN3 with wet supression Maximum Rated Capacity 400 tons/hour Actual annual throughput 1,487,690 tons	0.48	0.216	0.04	2.1024	0.94608	0.1752	0.89856	0.404352	0.07488	0.0012	0.00054
Secondary or Tertlary Grusher ID No. GR Maximum Rated Capacity Actual annual throughput	0 No. CR2-HP500 with wet supression Lepacity 500 tons/hour sughput 1,872,000 tons	9.0	0.27	0.05	2.628	1.1828	0.219	1.1232	0.50544	9:00.0	0.0012	0.00054
Secondary or Tertlary Crusher ID N Maximum Rated Capacity Actual annual throughput	Secondary or Tertiary Crusher ID No. GEN5 with wet supression Meximum Rated Capacity 500 tons/hour Actual annual throughput 1,872,000 tons	0.6	0.27	0.05	2.628	1.1826	0.219	1.1232	0.50544	0.0936	0.0012	0.00054
Fines Crusher ID Maximum Rated Cepacity Actual annual throughput	Fines Crusher ID No. CR3 with wet supression m Rated Capacity 155 tons/hour mutal throughput 580,320 tons	0.465	0.186	0.01085	2.0367	0.81468	0.047523	0.87048	0.348192	0.0203112	0.003	0.0012
Fires Crusher (D N Maximum Rated Capacity Actual annual throughput	Fires Crusher ID No. GEN7 with wet supression um Retod Capacity 155 toms/hour um Ratual throughput 580,320 toms	0.465	0.186	0.01085	2.0367	0.81468	0.047523	0.87048	0.348192	0.0203112	0.003	0.0012
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			FMZ.5 emission factor (lb/ton)	0.000013	0.000013	0	0.000013	0.000013	0.000013	0	0	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0	0.000013	0.00013	0.000013	0.000013
			factor (lb/ton)	0.000045	0.00046	0	0.00045	0.00045	0.00046	0 0		0.00046	0.00046	0.00046	0.00048	0,00048	0.00048	0	0.00045	010000.0	0.000045	0.000046
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	4.74	yearly actuel	(tpy)	0.0488	0.0488	0	0.0468	0.0468	0.0468	0	0	0.014625	0.038	0.0156	0.0158	0.0156	0.0078	0	8200.0	0.0078	0.0158	0.0156
	6.71	yearly actual	(tpy)	0,1856	0.1656		0.1656	0.1056	0.1656	0	0	0.05175	0.138	0.0552	0.0552	0.0552	0.0276	0	9/20 <sup>-0</sup>	0.0276	0.0552	0.0552
	19.17	yearly actual	(fa)	0.504	0.504	0	0.504	0.504	0.504	O	o	0.1575	0.42	0.168	0.168	0.168	0.084	o	0.084	0.084	0.168	0.168
	6.91 R	yearly potential	(tpy)	90.0833.2A	0.068328		0.08328	0.068328	0.068328	0	•	0.0213525	0.05884	0.022776	0.022776	0.022776	0.011388	0	0.011338	0.011388	0.022776	0.022776
				90.0	0.0		90.0	0.0	90.0			0.02	0.0	20-0	0.0	20-0	0.0		0.0	0.0	0.0	0.0
	9.77	yearly potential	(tey)	0.241776	0.241776	0	0.241776	0.241776	0.241776	o	•	0.075555	0.20148	0.080502	0.060582	0.080582	0.040296	o	0.040286	0.040296	0.080592	0.080592
	27.86	yearly potential	(tpy)	0.73584	0.73584	0	0.73584	0.73584	0.73584	0	0	0.22885	0.5132	0.24528	0.24528	0.24528	0.12264	0	0.12264	0.12284	0.24528	0.24528
						Rest						i Santa Santa				erenaen Kanaan	\$29					
	1.57	hourly potential	(Ibfhr)	0.0156	0.0158	0	0.0156	0.0156	0.0156	•	0	0.004875	0.013	0.0052	0.0052	0.0052	0.0026	0	0.0026	0.0020	0.0052	0.0052
	2.22	hourly potential	(ih/hr)	0.0552	0.0552	0	0.0552	0.0552	0.0552	0	0	0.01725	0.045	0.0184	0.0184	0.0184	0.0092	o	0.0082	0.0082	0.0184	0.0184
	6.27	hourly potential	(Ib/hr)	0.168	0.168	Ð	0.168	0.168	0.168	o	o	0.0525	0.14	0.056	950.0	0.056	0.028	Ð	0.028	97079	0.056	0.050
Conveyors Calculations and Output	Carolina Sunrock LLC		Caswell	Conveyor ID No. C-1 with wet supression of Capacity 1200 tons/hour throughpui 7,200,000 tons	Conveyor ID No. C-2 with wet supression ad Capacity 1200 tons/hour I throughpul 7,200,000 tons	Conveyor ID No. C.3 with wet supression ed Capacity 1200 tons/hour throughpur 7,200,000 tons	Conveyor ID No. C-4 with wet supression ated Capacity 1200 tons/hour at throughput 7,200,000 tons	Conveyor ID No. C-5 with wet supression Maximum Rated Capacity 1200 tons/hour Actual annual throughpur 7,200,000 tons	Conveyor ID No. C-6 with wet supression ed Capacity 1200 tons/hour t throughpul 7,200,000 tons	Conveyor ID No. SP1KF-1 with wet supression In Rated Capacity 375 tons/hour Innual throughput 2,250,000 tons	Conveyor ID No. SP1KF-2 with wet supression In Rated Capacity 375 tons/hour Innual throughpui 2,250,000 tons	Conveyor ID No. SP1KF-3 with wet supression incimum Rated Capacity 375 tons/hour cctual annual throughpul 2,250,000 tons	Conveyor ID No. C-7 with wet supression bed Capacity 1000 tons/hour I throughpui 6,000,000 tons	Conveyor ID No. C-3 with wet supression ad Capacity 400 tons/hour I throughpui 2,400,000 tons	Conveyor ID No. C-9 with wet supression ed Capacity 400 tons/hour I throughpui 2,400,000 tons	Conveyor ID No. C-10 with wet supression Maximum Rated Capacity 400 tons/hour Actual annual throughput 2,400,000 tons	Conveyor ID No. C-11 with wet supression um Rated Capacity 200 tons/hour ammual throughpui 1,200,000 tons	Conveyor ID No. C-12 with wet supression the Capacity 200 tons/hour at throughput 1,200,000 tons	Conveyor ID No. C-13 with wet supression ted Capacity 200 tons/hour at throughpur 1,200,000 tons	Conveyor ID No. TC-1ABC with wet supression im Rated Capacity 200 tons/hour annuat throughpu 1,200,000 tons	Conveyor ID No. C-14 with wet supression thed Capacity 400 tons/hour al throughput 2,400,000 tons	Conveyor ID No. C-15 with wet supression bed Cepecity 400 tons/hour al throughpur 2,400,000 tons
Conveyors Calc	Company Name:	Permit No.:	Facility County:	Conveyor ID I Maximum Rated Capacity Actual annual throughpul	Conveyor ID Maximum Rated Capacity Actual annual throughpui	Conveyor ID Maximum Rated Capacity Actual annual throughpur	Conveyor II Maximum Rated Capacity Actual annual throughpu	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID No. Maximum Rated Capacity Actual annual throughpui	Conveyor ID No. 3 Maximum Rated Capacity Actual annual throughpui	Conveyor ID No. Maximum Rated Capacity Actual amnual throughpui	Conveyor ID Maximum Rated Capacity Actual annual throughput	1 2 2 3	Conveyor II Maximum Rated Capacity Actual annual throughpul	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID P Maximum Rated Capacity Actual annual throughput	Conveyor ID Maximum Ratad Capacity Actual annual throughpur	Conveyor ID Maximum Rated Capacity Actual annual throughput	nnu Re	Conveyor ID 1 Maximum Rated Capacity Actual annual throughpul	Conveyor ID P Maximum Rated Capacity Actual annual throughpul

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<b>Conveyors Calculations and Output</b>	and Output													
Company Name: Carol	Carolina Sunrock LLC	6.27	2.22	1.57	2	27.66 8.77	-	6.9	19.17	6.71	474			
	NIA	hourly potential	hourly potential	hourty potential	yearly	yearly potential yearly potential		yearly potential	yearly actual	yearly actual	yearly actual		national and	
Facility County:	caswelt	(ib/hr)		(ib/hr)				(tpy)	(tpy)	_	(tpy)	factor (lb/ton)	factor (lb/ton)	factor (lb/ton)
Conveyor ID No. 70 Maximum Rated Capacity Actual annual throuchout	Conveyor ID No. TC-2RRB with wet supression in Rated Capacity 400 tonsflour runual throuchout 2,400,000 tons	and a subscription of the second states and the subscription of the second states and the second states and the	0.0184	0.0052		0 0.080502		0.022776	201'0 N	0.0552	0.0156	0.00014	0.00046	0.000013
Activity of Conveyor ID A Maximum Rated Capacity Actual annual throuchout	Conveyor ID No. C-18 with wet supression ted Capacity 800 tonsfrour al throuchout 4,800,000 tons	0.112	0.0368	0.0104	6	0.48056 0.161134	Consecutive Point	0.045552	0.336	0.1104	0.0312	0.00014	0.000045	0.000013
Actual annual throughout	Conveyor ID No. C-17 with wet supression ted Capacity 200 tons/hour al throughput 4,800,000 tons	0	0	0				0	0	0	0	•	0	0
Conveyor ID No.S Maximum Rated Capacity. Actual annual throughput	Conveyor ID No. SP24F-1 with dry supression n Rated Capacity 300 tonshour mnual throughput 1,800,000 tons	0.0	0.33	0.33		3.842 1.4454	54	1.4454	2.7	0.99	68.0	0.003	0.0011	0.0011
Aztual annual throughput	Conveyor ID No. SP2KF-2 with dry supression In Rated Capacity 300 tons/hour innual throughpui 1,300,000 tons	0.0	0.33	613		3.942 1.4454	54	1.4454	2.7	66.0	96.0	0.003	0.0011	0.0011
Conveyor ID I Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-18 with dry supression ted Capacity 600 tons/hour I throughput 3,600,000 tons	1.8	89.0	990		7,834 2,8908	89	2.8908	5.4	1.88	1.98	0.003	0.0011	0.0011
Conveyor ID No. Maximum Rated Capacity Actual annual throughput	Conveyor ID No. SC2-C1 with wet supression Rated Capacity 500 tons/hour must throughput 3,000,000 tons	. 2010	0.023	9000°0		0.3068 0.10074		0.02847	0.21	0.069	0.0195	0.00014	0.000045	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-19 with wet supression ted Capacity 500 tons/hour at throughput 3,000,000	20:0	0.023	0.0065	• 20	0,3068 0.10074		0.02847	0.21	0.069	0.0195	0.00014	0.000045	0.000013
Conveyor ID No. C Maximum Rated Capacity Actual annual throughput	Conveyor ID No. CR3KC-1 with wet supression n Rated Capacity 500 tons/hour unual throughput 3,000,000 tons	20.0	0.023	1.000.00 1900 0	6	0.3060 0.10074		0.02847	0.21	0.069	0.0195	0.00014	0.000046	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-20 with wet supression ted Capacity 500 tons/hour al throughput 3,000,000 tons	20.0	0.023	0.0065	•	0.3068 0.10074		0.02847	624	0,069	0.0185	0.00014	0.000046	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	No. C-21 with v 500 3,000,000	2010	0.023	0.0065	°	0.3056 0.10074		0.02847	0.21	0,068	0.0195	0.00014	0.000046	0.000013
Conveyor ID No. Maximum Rated Capacity Actual annual throughput	Conveyor ID No. 5C2-C2 with wet supression Rated Capacity 000 tons/hour mual throughput 3,600,000 tons	0.084	0.0276	8700.0	• •	0.36792 0.120838		0.034164	0.252	0.0828	0.0234	0.00014	0.000048	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-22 with wet supression thed Capacity 500 tons/hour at throughput 3,000,000 tons	2010	0.023	0.0065	3 3 3	0.45781194 0.150358209		0.042492537	0.313432838	0.102985075	0.028104478	0.00014	0.000046	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-23 with wet supression ted Capacity 200 tons/hour al throughput 1,740,000 tons	o	o	<b>.</b>		0		•	•	o	-	0.00014	0.000046	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-24 with wet supression thed Capacity 290 tons/hour al throughput 1,740,000 tons	0.0406	0.01334	0.00377	i	0.177828 0.0584282		0.0165126	0.1218	0.04002	0.01131	0.00014	0.000045	0.000013
Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-25 with wet supression ted Capacity 290 tons/hour al throughput 1,740,000 tons	0.0408	0.01334	0.00377		0.177828 0.0584282		0.0165126	0.1218	0.04002	0.01131	0.00014	0.000048	0.000013
Conveyor ID No. Maximum Rated Capacity Actual annual throughput	Conveyor ID No. TC-3DS with wet supression Rated Capacity 290 tons/hour nivel throughput 1,740,000 tons	0.0406	0.01334	0.00377	6	0.177828 0.0584282		0.0165128	0.1218	0.04002	0.01131	0.00014	0.000046	0.000013
Conveyor ID N Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-28 with wet supression thed Capacity 155 tons/hour al throughput 930,000 tons	0.0217	0.00713	0.002015		0.085046 0.0312294		0.0088257	0.0051	0.02130	0.006045	0.00014	0.000046	0.000013
Conveyor (D ) Maximum Rated Capacity Actual annual throughput	Conveyor ID No. C-27 with wet supression feed Cepacity 155 tons/hour at throughput 930,000 tons	0.0217	0.00713	0.002015	õ	0.095040 0.0312284		0.0088257	0.0651	0.02138	0,006045	0.00014	0.000046	0.000013

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			PM2 5 amission	factor (lb/ton)	0.000013	0.000013	0.000013	0.000013	0.00013	0.00013	0,000013	0.000013	0.000013	0.000013	0.000013	0,000013	0.000013	0.000013	0.000013	0.000013	0.00013	0.000013	0.000013	And the second state of th
			PM., emission	factor (Ib/ton)	0.000048	0.000046	0.00046	0.000046	0.00046	0.000046	0.000046	0.00046	0.00046	0.006046	0.000045	0.00046	0.000045	0.00046	0.00046	0.00046	0.00046	0.000048	0.00045	
		N DÍO	TSP emission	factor (Ib/ton)	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	and the second se
	474		PM2.5 emissions	(tey)	0.006045	0.006045	0.008045	0.01131	0.01131	0.01131	0.006045	0.006045	0.01200	0.001784	0.006318	0.0030	0.001755	0.006318	0.0039	0.001755	0.006318	0.0030	0.002619403	
	6.71	-	PM <sub>10</sub> emissions		0.02138	0.02139	0.02130	0.04002	0.04002	0.04002	0.02139	0.02139	0.04278	0.006348	0.022356	0.0138	0.00621	0.022356	0.0138	0.00621	0.022356	0.0138	0.000268657	and the second se
	19.17	vestiv softiel	TSP emissions	(tpy)	0.0651	0.0651	0.0651	0.1218	0.1218	0.1218	0.0651	0.0851	0.1302	0.01832	0.06304	0.042	0.0139	0.08804	0.042	0.0139	0.00304	0.042	0.028208955	and the second second second second second second second second second second second second second second second
	6.91	octential Street	PM2.5 emissions	(tey)	0.0088257	0.0088257	0.0088257	•	0.0185126	0.0165128	0.0088257	0.0088257	0.0178514	<b>51924</b>	1	10	2623	anan en en en en en en en en en en en en en	2 2	500 A	870	<b>4</b> 6	72087 (251)	Contraction of the second second second
	e			=		100.0	0.00		0.016	0.016	0.003	0.05	0.017	0.00261924	0.00922428	0.005694	0.0025623	0.00922428	0.005694	0.0025623	0.00922428	0.005694	0.013172687	and a state of the state of the second second
	6.77	veariv poten	PM <sub>10</sub> emissions	(fdt)	0.0312204	0.0312204	0.0312294	0	0.0584292	0.0584292	0.0312284	0.0312204	0.0824586	0.00926808	0.03263976	0.020148	0.0090666	0.03263976	0.020148	0.0000066	0.03263976	0.020148	0.040911045	A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF
	27.66	vearly potential	TSP emissions	(fął)	0.095046	0.095046	0.095048	0	0.177828	0.177825	0.095048	0.085046	0.190082	0.0282072	0.0893384	0.06132	0.027594	0.0993384	0.06132	0.027594	0.0993384	0.06132	0.141859701	ACCOUNT OF ACCOUNTS OF ACCOUNTS
50 T 10							ļass.		8003														recent Kanto	100 A
	1.57	hourly potentia	PM2.5 emissions	(lb/hr)	0.002015	0.002015	0.002015	0	0.00377	17500.0	0.002015	0.002015	0.00403	0.000588	0.002106	0.0013	0.000585	0.002106	0.0013	0.000585	0.002106	0.0013	0.002015	AUXVERSION OF CANADIMA TO C
	2.22	hourly potential	PM <sub>10</sub> emissions	(lh/hr)	0.00713	0.00713	0.00713		0.01334	0.01334	0.00713	0.00713	0.01426	0.002116	0.007452	0.0048	0.00207	0.007452	0.0045	0.00207	0.007452	0.0046	0.00713	NUMBER OF STREET, STRE
	6.27	hourty potential	TSP emissions	(IP/Jr/	0.0217	0.0217	0.0217	0	0.0408	0.0406	0.0217	0.0217	0.0434	0.00644	0.02288	0.014	0.0063	0.02268	0.014	0.0063	0.02268	0.014	0.0217	
Carolina Sunrock LLC	NA	NIA	Prospect Hill	Caswell	Conveyor ID No. C-28 with wet supression ted Capacity 155 tons/hour al throughout 930.000 tons	CR4KF-1 with w 155 830.000	No. C-29 with w 155 830,000	Conveyor ID No. C-30 with wet supression ted Capacity to C-30 with wet supression al throughput 1,740,000 tons	No. C-31 with w 280 1,740,000	Conveyor ID No. TP-45 with wet supression tated Capacity 200 tons/hour usit throughput 1,740,000 tons	Conveyor ID No. C-32 with wet supression the Capacity 155 tonsthour at throughput 930,000 tons	Conveyor ID No. C-33 with wet supression thed Capacity 155 tonsthour at throughput 930,000 tons	Conveyor ID No. C-34 with wet supression ted Capacity 310 tons/hour al throughput 1,860,000 tons	Conveyor ID No. C-35 with wet supression thed Capacity 46 tonsfhour at throughput 276,000 tons	Conveyor ID No. C-36 with wet supression thed Capacity 182 tomsfhour at throughput 972,000 toms	Conveyor ID No. C-37 with wet supression ted Capacity 100 tons/hour al throughput 600,000 tons	Conveyor ID No. FB1 with wet supression ted Cepacity 45 tons/hour it throughput 270,000 tons	Conveyor ID No. FB2 with wet supression bed Capacity 162 tons/hour Il throughput 972,000	Conveyor ID No. FB3 with dry supression ad Capacity 100 tons/hour i throughput 000,000 tons	Conveyor ID No. C-38 with wet supmassion thed Capacity 45 tons/hour al throughput 270,000 tons	No. C-39 with 162 872,000	Conveyor ID No. C-40 with wet supression the Capacity 100 tons/hour al throughput 800,000 tons	Conveyor ID No. C-41 with wet supression ted Capacity 45 tons/hour al throughput 270,000 tons	STATISTICS IN A STATISTICS
Company Name:			Facility City:	Facility County	Conveyor (D) Maximum Rated Capacity Actual annuzi throughput	Conveyor ID No. C Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rated Capacity Actual annual throughput	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID R Maximum Rated Capacity Actual annual throughput	Conveyor ID No Maximum Rated Capacity Actual annual throughput	Conveyor ID A Maximum Rated Capacity Actual annual throughput	Conveyor ID F Maximum Rated Capacity Actual annual throughput	Conveyor ID A Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rated Capacity Actual annual throughput	Conveyor ID P Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rated Capacity Actual annual throughput	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rabod Capacity Actual annual throughput	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rated Capacity Actual annual throughput	Conveyor ID   Maximum Rated Capacity Actual annual throughput	Conveyor ID I Maximum Rated Capacity Actual annual throughput	STATE A DESCRIPTION OF TAXABLE PARTY.

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Conveyors Calculations and Output	ŧ														
Company Name: Carolina Sunrock LLC	C	-		ļ	19. 19. 19.				1997				201		
	Π		1 1 1	)er			1/78	and the			6.71	474	が		
Facility City: Prospect Hill	<u>ء</u> ۲	TSP emissions	PM10 emissions	PM2.5 emissions		Yearry potential TSP emissions	yearly potential PM.o emissions	PM2.5 emissions	x ST	yearly actual TSP emissions	yearly actual PM emissions	yearly actual PM2.5 emissions	TSP emission	inn PM amiecion	on DM2 6 amission
			(Ib/hr)	(lb/hr)		-	(tch)	100152.3			(tey)	(tpy)			
Actual annual throughput 972,000	tons												1		
No. C-43 with w	et supression							ua:€							
Maximum Rated Capacity 100 Actual annual throughout 600.000	tons/hour tons	0.014	0,0048	0.0013	2103 1933	0.06132	0.020148	0.005694		0.042	0.0138	0.0039	0.00014	0.00046	0.000013
C-5-67s with w	of summarian							And and the second second second second		Control of the second second second second second second second second second second second second second second		A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF		A CONTRACTOR OF A CONTRACT OF A	
Maximum Rated Capacity 100	tons/hour	0.014	0.0046	0.0013		0.06132	0.020148	0.005694		0.042	0.0138	0.0039	-5. 0.00014	0.000046	0.000013
Actual annual broughput 800,000	cons	متريدين المرابع ومعالية ومحارية والمحارية	A CONTRACTOR OF A CONTRACT OF A	ACCURATE AND THE CONTRACTOR				Statute Contract Contract Contractor	100	Construction of the second second		ALL DEPOSITION OF THE OWNER	A Construction	Contraction of the state of the	oo ta ta ta ta ta ta ta ta ta ta ta ta ta
Conveyor ID No. TC-6-57s with wet supression Maximum Dated Connects.	et supression tonefhour	90700	12210	27200.0		erer e	0.050	1993) 1995 1995							
1,740,000	tons		100 A.A	10000		0701110	787400010	07100100	認識	0.1210	20040.0	15110.0	*LONOTO	0.00000	0.000013
Conveyor ID No. TC-7-78s with wet supression	et supression	A COMPANY OF A COMPANY OF A COMPANY	autor to an its contract of the second	STATE AND A DESCRIPTION OF A DESCRIPTION			Charlester in a single share and safety from the	Contraction of the second second second second second second second second second second second second second s		A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A	State of the second second second second second second second second second second second second second second	فلار المكافية بالمقاصفة والمستعادية إن التداملية والمع	AND A DESCRIPTION OF A	A REAL PROPERTY OF STREET, SALES	Contract of the Contract of the Contract of the Contract of Contra
8	tons/hour	0.0406	0.01334	0.00377		0.177828	0.0584282	0.0165126		0.1218	0.04002	0.01131	0.00014	0.00045	0.000013
Actual annual throughput 1,740,600	tons	And the second se		1992 State of Control		تعارفها المتعاريف فالكرز المناهم الموادية	CONTRACTOR CONTRACTOR	and the set of the set			an and the second second second second				and the second second second second second second second second second second second second second second second
r ID No. with w 0	et supression tons/hour	۰	0	•		ø	0	0		•	•	٥	0.00014	0.00046	0.000013
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Conveyor ID No. with wet supression Maximum Dated Connection	et supression	c	c	G		d	G				•				
• •	tons	•	•	•		•	•	90968 9		5	5	D	0.00014	0.00045	0.000013
Conveyor ID No. with wet supression	et supression	and and successive advances of the second	T WHEN THE WAY AND ADD SAME THE			a that also a first frequency a survey and		Contraction of the state of the		A CONTRACT OF CONTRACT.	A CONTRACTOR AND AND AND A CONTRACTOR	and the second second second second second second second second second second second second second second second		a de la serie de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la c	
•	tons/hour	0	0	0		0	o	0		٥	0	0	0.00014	0.00046	0.000013
Actual annual throughput 0	tons	Contraction and the second second	a seite all seute servicement en ender			A 12 MARY CALLER CONTRACTOR CONTRACTOR	And the contrast of the state of the second s	Z Constant Constant Section Constant Sec		والمرادع والمراجع محاجمة والمراجع والمراجع		A DESCRIPTION OF THE PROPERTY OF T	Sec. 1		Contraction of the second second second
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	tons	•	•	•	13	•	•			5	•	Ð	410000	0,000046	0.00013
or ID No. with w	et supression	THE R. LEWIS CO., LANSING MICH.		THE PARTY OF THE P			and the second second second second second second second second second second second second second second second	Allower and the second s		and the second second second second second second second second second second second second second second second	Contract and a second second second second second second second second second second second second second second	ومعالي مثالك معاصلهم المنامع مال		Construction of the second second second second second second second second second second second second second	ويتراسع الأطريب ومرابعة المحاصر معاملات المعال
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			we will also and the second second second second second second second second second second second second second	A REAL PROPERTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF T			Comparison of the second second second second second second second second second second second second second s	And the second se		ويريسه والإليان المستحد مستعمل والمناف					TO UNIVERSITY OF THE OWNER OF THE OWNER OF
r ID No. with wr 0	et supression tons/hour	0	•	0		•	0	•		•	Ģ	a	0.0014	0.00048	0.00013
0	tons	1.47 - militari andre internet andre internet and		an and a second second second second								,			
or ID No. with w	et supression							1.612						والمعد بالمركامة الريميكي مستوار محمدا المؤلف المتل	and the second se
• •	tonshour	0	o	•	249 244	•	0	0		•	•	•	0.00014	0.00046	0.000013
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Maximum Rated Capacity 0	tonshour	0	0	•	版 【注	۰	0	0		•	0	•	0.00014	0.000048	0.000013
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$\begin{array}{l lllllllllllllllllllllllllllllllllll$	screening (controlled)	3-05-020-02,03	0.0022	ш	0.00074	ပ	0.000050	ш
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3-05-020       0.0012       ND <sup>9</sup> 0.0054       ND <sup>9</sup> 3-05-020-03       0.0054       E       0.0024       C         3-05-020-03       0.0012       E       0.0024       C         3-05-020-05       0.0030       E       0.00150       E       C         3-05-020-05       0.0030       E       0.0012       E       C       C         3-05-020-05       0.0030       E       0.0012       E       C       C         3-05-020-11       0.0030       E       0.0012       E       D       C       C         3-05-020-16       0.0030       E       0.0012       E       D       D       C         3-05-020-16       0.0030       E       0.0012       E       D       D       D         3-05-020-16       0.00030       E       0.00110       D       D       D       D         3-05-020-31       0.000336       d, ND1       1.0022       E       A       A       D         3-05-020-31       0.000336       d, ND1       1.0023       D       D       D	secondary crushing	3-05-020-02	0.0054	ND <sup>®</sup>	0.0024	ND <sup>9</sup>	0.0024	۵D
3-05-020-03       0.0054       E       0.0024       C         3-05-020-03       0.0012       E       0.00154       C         3-05-020-05       0.0012       E       0.00150       C         3-05-020-05       0.00300       E       0.0150       E       C         3-05-020-05       0.00300       E       0.0120       E       C         3-05-020-11       0.0030       E       0.0012       E       C         3-05-020-06       0.00306       E       0.0012       E       C         3-05-020-06       0.00306       E       0.0022       E       C         3-05-020-06       0.00030       E       0.00110       D       D         3-05-020-06       0.00030       E       0.00110       D       D         3-05-020-06       0.00030       E       0.00110       D       D         3-05-020-10       0.000336       d, ND1       1.60E-05       D       D         3-05-020-31       0.000336       d, ND1       1.60E-05       D       D	secondary crushing (controlled)	3-05-020-02	0.0012	ND⁰	0.00054	<sup>D</sup> O	0.00010	ND <sup>®</sup>
3-05-020-03       0.0012       E       0.00054       C         3-05-020-05       0.0390       E       0.0150       E       C         3-05-020-05       0.0030       E       0.0120       E       C         3-05-020-05       0.0030       E       0.012       E       C         3-05-020-21       0.0036       E       0.0012       E       C         3-05-020-06       0.0036       E       0.0010       D       C         3-05-020-06       0.0036       E       0.00110       D       D         3-05-020-06       0.00036       E       0.00110       D       D         3-05-020-06       0.00036       E       0.00110       D       D         3-05-020-06       0.00036       E       0.00110       D       D         3-05-020-10       0.000336       d, ND1       1.60E-05       D       D         3-05-020-31       0.0000336       d, ND1       1.60E-05       E       E	tertiary crushing	3-05-020-03	0.0054	ш	0.0024	ပ	0.0024	QN
3-05-020-05       0.0390       E       0.0150       E         3-05-020-05       0.0030       E       0.0012       E         3-05-020-21       0.30       E       0.0012       E         3-05-020-21       0.30       E       0.0012       E         3-05-020-21       0.0036       E       0.0072       E         3-05-020-06       0.0030       E       0.00110       D         3-05-020-06       0.00014       E       0.00110       D         3-05-020-10       0.000136       d, ND1       8.00E-05       D         3-05-020-31       0.000336       d, ND1       1.60E-05       E	tertiary crushing (controlled)	3-05-020-03	0.0012	ш	0.00054	ပ	0.00010	ш
3-05-020-05       0.0030       E       0.0012       E         3-05-020-21       0.30       E       0.072       E         3-05-020-21       0.0036       E       0.0022       E         3-05-020-06       0.0030       E       0.00110       D         3-05-020-06       0.00014       E       0.00110       D         3-05-020-10       0.0000168       d, ND1       8.00E-05       D         3-05-020-31       0.0000336       d, ND1       1.60E-05       E	fines crushing	3-05-020-05	0.0390	ш	0.0150	ш	0.0150	QN
3-05-020-21     0.30     E     0.072     E       3-05-020-21     0.0036     E     0.0022     E       3-05-020-06     0.0030     E     0.00110     D       3-05-020-06     0.00014     E     4.60E-05     D       3-05-020-10     0.000168     d, ND1     1.60E-05     E       3-05-020-31     0.0000336     d, ND1     1.60E-05     E	fines crushing (controlled)	3-05-020-05	0.0030	Ц	0.0012	ш	0.000070	ш
3-05-020-21         0.0036         E         0.0022         E           3-05-020-06         0.0030         E         0.00110         D           3-05-020-06         0.00014         E         4.60E-05         D           3-05-020-10         0.000168         d, ND1         8.00E-05         D           3-05-020-31         0.0000336         d, ND1         1.60E-05         E	fines screening	3-05-020-21	0.30	Ш	0.072	ш	0.072	QN
3-05-020-06     0.0030     E     0.0010     D       3-05-020-06     0.00014     E     4.60E-05     D       3-05-020-10     0.000168     d, ND1     8.00E-05     E       3-05-020-31     0.0000336     d, ND1     1.60E-05     E	fines screening (controlled)	3-05-020-21	0.0036	ш	0.0022	ш	0.0022	QN
3-05-020-06         0.00014         E         4.60E-05         D           3-05-020-10         0.000168         d, ND1         8.00E-05         E           3-05-020-31         0.0000336         d, ND1         1.60E-05         E	conveyor transfer point	3-05-020-06	0.0030	ш	0.00110	Ω	0.00110	QN
3-05-020-10 0.000168 d, ND1 8.00E-05 E 3-05-020-31 0.0000336 d, ND1 1.60E-05 E	conveyor transport (controlled)	3-05-020-06	0.00014	ш	4.60E-05	۵	1.30E-05	۵
3-05-020-31 0.0000336 d, ND1 1.60E-05 E	wet drilling: unfragmented stone	3-05-020-10	0.000168	d, ND1	8.00E-05	ш	8.00E-05	QN
	truck unloading: fragmented stone	3-05-020-31	0.0000336	d, ND1	1.60E-05	ш	1.60E-05	Q
3-05-020-32 0.00021 d, ND1 0.00010 E	truck loading-conveyor:crushed stone	3-05-020-32	0.00021	d, ND1	0.00010	ш	0.00010	Q

C,D,E - emission factor rating

d - Emission factors for total particulate are not presented pending a reevaluation of the EPA method 201A test data and/or results of emission testing. This re-evaluation is expected to be completed by July 1995. Without this re-evaluation this emission factor is simply 2.1 \* emission factor for PM-10 (consistent with previous spreadsheet revision 5b-1.0a, updated 06/05/97).

ND1 - No data available

ND<sup>a</sup>- No data available, but emissions factors for PM-10 from tertiary crushing can be used as an upper limit for primary and secondary crushing.

e - PM-10 emission factor is TSP emission factor divided by 2.1

FACTORS Appendix A5 Page 15 of 15

15 of 15 pages

Revised Quarry 2019-11-04.xlsx

# **APPENDIX B - MODELING PROTOCOL AND FILES**

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# A.1 North Carolina Modeling Protocol Checklist

The North Carolina Modeling Protocol Checklist may be used in lieu of developing the traditional written modeling plan for North Carolina toxics and criteria pollutant modeling. The protocol checklist is designed to provide the same level of information as requested in a modeling protocol as discussed in Chapter 2 of the *Guideline for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina*. The modeling protocol checklist is submitted with the modeling analysis.

Although most of the information requested in the modeling protocol checklist is self explanatory, additional comments are provided, where applicable, and are discussed in greater detail in the toxics modeling guidelines referenced above. References to sections, tables, figures, appendices, etc., in the protocol checklist are found in the toxics modeling guidelines.

**INSTRUCTIONS:** The modeling report supporting the compliance demonstration should include most of the information listed below. As appropriate, answer the following questions or indicate by check mark the information provided or action taken is reflected in your report.

FACILITY INFORMATION						
Name: Carolina Sunrock	Consultant (if applicable): Trinity Consultants					
Facility ID: TBD	1 Copley Parkway Suite 205 Morrisville, NC 27560					
Address: 1238 Wrenn Rd. Prospect Hill, NC 27314						
Contact Name: Scott Martino	Contact Name: Jonathan Hill					
Phone Number: 984-202-4761 Email: smartino@thesunrockgroup.com	Phone Number: 919-462-9693 Email: jhill@trinityconsultants.com					

#### GENERAL

<b>Description of New Source or Source / Process Modification:</b> provide a short description of the new or modified source(s) and a brief discussion of how this change affects facility production or process operation.	X
<b>Source / Pollutant Identification:</b> provide a table of the affected pollutants, by source, which identifies the source type (point, area, or volume), maximum pollutant emission rates over the applicable averaging period(s), and, for	X
point sources, indicate if the stack is capped or non-vertical (C/N).	
Pollutant Emission Rate Calculations: indicate how the pollutant emission rates were derived (e.g., AP-42, mass	X
balance, etc.) and where applicable, provide the calculations.	
Site / Facility Diagram: provide a diagram or drawing showing the location of all existing and proposed emission sources, buildings or structures, public right-of-ways, and the facility property (toxics) / fence line (criteria pollutants) boundaries. The diagram should also include a scale, true north indicator, and the UTM or	X
latitude/longitude of at least one point.	
Certified Plat or Signed Survey: a certified plat (map) from the County Register of Deeds or a signed survey must be submitted to validate property boundaries modeled.	SS
Topographic Map: A topographic map covering approximately 5km around the facility must be submitted. The	X
facility boundaries should be annotated on the map as accurately as possible. Cavity Impact Analysis: No cavity analysis is required if using AERMOD. See Section 4.2	NA

<b>Background Concentrations</b> (criteria pollutant analyses only): Background concentrations must be determined for each pollutant for each averaging period evaluated. The averaged background value used (e.g., high, high-second-high, high-third-high, etc.) is based on the pollutant and averaging period evaluated. The background concentrations are added to the modeled concentrations, which are then compared to the applicable air quality standard to determine compliance.	NA
<b>Offsite Source Inventories</b> (criteria pollutant analyses only): Offsite source inventories must be developed and modeled for all pollutants for which onsite sources emissions are modeled in excess of the specific pollutant significant impact levels (SILs) as defined in the PSD New Source Review Workshop Manual. The DAQ AQAB must approve the inventories. An initial working inventory can be requested from the AQAB.	NA

## SCREEN LEVEL MODELING

<b>Model</b> : The latest version of the AERSCREEN model must be used. The use of other screening models should be approved by NCDAQ prior to submitting the modeling report.	NA
<b>Source / Source emission parameters:</b> Provide a table listing the sources modeled and the applicable source emission parameters. See NC Form 3 – Appendix A.	NA
Merged Sources: Identify merged sources and show all appropriate calculations. See Section 3.3	NA
GEP Analysis: See Section 3.2 and NC Form 1 – Appendix A	NA
<b>Terrain</b> : Indicate the terrain modeled: simple (Section 4.4), and complex (Section 4.5 and NC Form 4 – Appendix A). If complex terrain is within 5 kilometers of the facility, complex terrain must be evaluated. Simple terrain must include terrain elevations if any terrain is greater than the stack base of any source modeled.	NA
Simple: Complex:	
Meteorology: Refer to Section 4.1 for AERSCREEN inputs.	NA
<b>Receptors:</b> AERSCREEN – use shortest distance to property boundary for each source modeled and use sufficient range to find maximum (See Section 4.1 (i) and (j)). Terrain above stack base must be evaluated.	NA
<b>Modeling Results</b> : For each affected pollutant, modeling results should be summarized, converted to the applicable averaging period (See Table 3), and presented in tabular format indicating compliance status with the applicable AAL, SIL, or NAAQS. See NC Form S5 – Appendix A.	NA
Modeling Files: Either electronic or hard copies of AERSCREEN output must be submitted.	NA

## **REFINED LEVEL MODELING**

Model: The latest version of AERMOD should be used, and may be found at http://www.epa.gov/scram001/dispersion_prefrec.htm. The use of other refined models must be approved by	AERMOD v19191
NCDAQ prior to submitting the modeling report.	
Source / Source emission parameters: Provide a table listing the sources modeled and the applicable source	X
emission parameters. See NC Form 3 - Appendix A.	
GEP Analysis: Use BPIP-Prime with AERMOD.	X
Cavity Impact Analysis: No separate cavity analysis is required when using AERMOD as long as receptors are	NA
placed in cavity susceptible areas. See Section 4.2 and 5.2.	
Terrain: Use digital elevation data from the USGS NED database (http://seamless.usgs.gov/index.php). Use of	X
other sources of terrain elevations or the non-regulatory Flat Terrain option will require prior approval from DAQ	
AQAB.	
Coordinate System: Specify the coordinate system used (e.g., NAD27, NAD83, etc.) to identify the source,	NAD83
building, and receptor locations. Note: Be sure to specify in the AERMAP input file the correct base datum	
(NADA) to be used for identifying source input data locations. Clearly note in both the protocol checklist and the	
modeling report which datum was used.	
Receptors: The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact.	X
See Section 5.3.	

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Meteorology: Indicate the AQAB, pre-processed, 5-year data set used in the modeling demonstration:	
(See Section 5.5 and Appendix B)	X
2014 2019 DANKCSO	
_2014-2018 DAN/GSO	
If processing your own raw meteorology, then pre-approval from AQAB is required. Additional documentation	
files (e.g. AERMET stage processing files) will also be necessary. For NC toxics, the modeling demonstration	
requires only the last year of the standard 5 year data set (e.g., 2005) provided the maximum impacts are less than	
50% of the applicable AAL(s).	
Modeling Results: For each affected pollutant and averaging period, modeling results should be summarized and	X
presented in tabular format indicating compliance status with the applicable AAL, SIL or NAAQS. See NC Form	
R5 - Appendix A.	
Modeling Files: Submit input and output files for AERMOD. Also include BPIP-Prime files, AERMAP files,	X
DEM files, and any AERMET input and output files, including raw meteorological data.	

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APPENDIX C - LOCAL ZONING CONSISTENCY DETERMINATION

#### Aimee Andrews

From:	Matthew Hoagland <mhoagland@caswellcountync.gov></mhoagland@caswellcountync.gov>
Sent:	Thursday, November 07, 2019 9:27 AM
То:	Aimee Andrews
Cc:	'Scott Martino'
Subject:	RE: Zoning Consistency Determination Request for Carolina Sunrock
Attachments:	MP0133-005 Zoning Consistency Form.pdf

Good morning, Aimee.

I have received the request and completed the necessary form for zoning confirmation. Please see that form attached.

One additional note: though this proposal complies with our existing zoning and subdivision regulations, there are additional watershed regulations that will apply before final permitting can be approved.

Thank you,

Matthew Hoagland Caswell County Planner

144 Main Street / P.O. Box 1406 Yanceyville, NC 27379 (336)-694-9731 ext. 6205 Department Website Connect Caswell 2020

"In keeping with the NC Public Records Law, online posts or emails sent by a county representative, or online posts or emails sent by the public to a county representative, including attachments, may be released to others upon request for inspection and copying."

From: Aimee Andrews [mailto:AAndrews@trinityconsultants.com]
Sent: Wednesday, November 6, 2019 7:00 PM
To: mhoagland@caswellcountync.gov
Cc: Scott Martino <smartino@thesunrockgroup.com>
Subject: Zoning Consistency Determination Request for Carolina Sunrock

Mr. Hoagland,

I am working with Carolina Sunrock on permitting a new facility. They are proposing to construct a new hot mix asphalt, ready mix concrete batch plant, and quarry in Prospect Hill, Caswell County. Scott Martino supplied me your contact information. In order to complete the submittal of our air permit application to NCDEQ, we must provide proof that we have requested a zoning consistency determination from the local zoning authority.

Please review the attached letter request (Appendix C of the attached air permit application) and complete the form required by NCDEQ. For purposes of our submittal, please reply to this email with "Received" or otherwise indicate you have received our request.

Thank you for your attention to this request, Aimee

# Aimee Andrews, PE

Managing Consultant

Trinity Consultants One Copley Parkway, Suite 205 | Morrisville, North Carolina 27560

NOTE: SUITE NUMBER HAS CHANGED!

Office: **919-462-9693 x 1705** Fax: **919-578-3690** Email: <u>aandrews@trinityconsultants.com</u>

<u>Subscribe</u> today to receive Trinity's free <u>Environmental Quarterly</u>. Learn about Trinity's <u>courses</u> for environmental professionals.





Scott Martino Environmental Compliance Manager 200 Horizon Drive, Suite 100 Raleigh, NC 27615, NC 27615

November 6, 2019

Mr. Matthew Hoagland Planning Director Caswell County Planning Department 144 Main Street Yanceyville, NC 27379 VIA email: mhoagland@caswellcountync.gov

#### Re: Air Permit Application Zoning Consistency Determination Request Carolina Sunrock LLC

Dear Mr. Hoagland:

Carolina Sunrock LLC (Carolina Sunrock) is planning to construct a drum mix hot asphalt plant, truck mix concrete plant, and quarry operations at: **1238 Wrenn Road, Prospect Hill, NC 27314.** The purpose of this letter is to request a zoning consistency determination for the air permit construction application as required by General Statute §143-215.108(f).

A copy of the permit application is included with this zoning consistency determination request (see Appendix C). Once a determination has been made we respectfully request that you fax a copy of the determination directly to North Carolina Department of Environmental Quality, Winston-Salem Regional Office (NCDEQ, fax # 336.776.9797, Attention: Lisa Edwards, Regional Supervisor) as well as a copy to Carolina Sunrock (fax # 919.747.6305 to my attention).

Thank you for your assistance in this important matter. Should you have any questions please contact Ms. Aimee Andrews, Trinity Consultants, at 919.462.9693 or aandrews@trinityconsultants.com, or me at 919.747.6336.

Sincerely, Carolina Sunrock LLC

Scott Martino, Manager Environmental Compliance

**Enclosures** Air Permit Construction Application

smartino@thesunrockgroup.com

Phone: 919.747.6336

Fax: 919.747.6305

# **Zoning Consistency Determination**

Facility Name	Carolina Sunrock LLC – Prospect Hill Quarry & Distribution Center
Facility Street Address	1238 Wrenn Road
Facility City	Prospect Hill
Description of Process	Drum mix hot asphalt plant & truck mix ready concrete plant & quarry operations
SIC Code/NAICS	2951, 3273, 1423, 1429
Facility Contact	Scott Martino
Phone Number	984-202-4761
Mailing Address	200 Horizon Drive Suite 100
Mailing City, State Zip	Raleigh, NC 27615
Based on the information given at	ove:
☐ I have received a copy of the a	r permit application (draft or final) AND
There are no applicable zoning	and subdivision ordinances for this facility at this time
The proposed operation IS cor	sistent with applicable zoning and subdivision ordinances
(please include a copy of the	T consistent with applicable zoning and subdivision ordinances ne rules in the package sent to the air quality office) rther information and can not be made at this time
T Other:	
Agency Name of Designated Official	
Title of Designated Official	
Signature	
Date	
	e mailing address listed above and the air quality office riate address as checked on the back of this form.
	y of the Small Business Assistance Program 77-623-6748 or on the web at <u>www.envhelp.org/sb</u>

#### All PSD and Title V Applications

Attn: Major Source Review Branch Supervisor DAQ – Permitting Section 1641 Mail Service Center Raleigh, NC 27699-1641

#### **Local Programs**

- Attn: David Brigman
   Western NC Regional Air Quality Agency
   49 Mount Carmel Road
   Asheville, NC 28806
   (828) 250-6777
- Attn: Leslie Rhodes Mecklenburg County Department of Environmental Protection 700 N. Tryon Street, Suite 205 Charlotte, NC 28202 (704) 336-55430

#### **Division of Air Quality Regional Offices**

- Attn: Paul Muller
   Asheville Regional Office
   2090 US Highway 70
   Asheville, NC 28801
   (828) 296-4500
- Attn: Steven Vozzo
   Fayetteville Regional Office
   225 Green Street, Suite 714
   Fayetteville, NC 28301
   (910) 486-1541

Attn: Bruce Ingles Mooresville Regional Office 610 East Center Avenue Suite 301 Mooresville, NC 28115 (704) 663-1699

Attn: Patrick Butler Raleigh Regional Office 3800 Barrett Drive Raleigh, NC 27609 (919) 571-4700  Attn: William Minor Barnette Forsyth County Environmental Affairs Department 201 North Chestnut Street Winston-Salem, NC 27101 (336) 703-2440

- Attn: Robert Fisher
   Washington Regional Office
   943 Washington Square Mall
   Washington, NC 27889
   (252) 946-6481
- Attn: Brad Newland
   Wilmington Regional Office
   127 Cardinal Drive
   Wilmington, NC 28405
   (910) 395-3900
- X Attn: Lisa Edwards
   Winston-Salem Regional Office
   450 West Hanes Mill Road, Suite 300
   Winston-Salem, NC 27105
   (336) 776-9800

Courtesy of the Small Business Assistance Program toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb APPENDIX D - QUARRY EQUIPMENT LIST AND PROCESS FLOW DIAGRAM

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# **A**SUNROCK<sup>®</sup>

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1.

CAROLINA SUNROCK LLC			-				
Equipment (D Norma	Equipment ID	Horse	Topolilaur	Leasting/Direction of Flow	Equipment Type		Wet
Equipment ID Name	Equipment ID	Power	Tons/Hour	Location/Direction of Flow	Equipment Type	Crushers	suppression
Primary Dump Hopper	Primary Dump Hopper	-	1,200	Truck to Grizzly/Primary Crusher	Hopper		Yes
				USED AS PRIMARY CRUSHER HAULED TO			
McClosky J50 Mobil Crusher	J50	350	400	SP-1_	Crusher	Primary	Yes
				USED AS PRIMARY CRUSHER HAULED TO			
McClosky J45 Mobil Crusher	J45	350	400	SP-1	Crusher	Primary	Yes
BTI Rock Breaker MRH31 - BX30	CR-BTI	60	-	Primary Dump Hopper to Primary Crusher	Crusher	Primary	Yes
					Vibrotion Constu		
Telsmith Vibrating Grizzly Feeder VGF6030 (60"X30")	VGF1	30	1,200	Dump Hopper to Primary Crusher/Conveyor 1	Vibrating Grizzly Feeder		Yes
					-		
4860 Hewitt Robbins Jaw Crusher	4860	350	1,200	Grizzly to C-1	Crusher	Primary	Yes
Conveyor - 1	C-1	75	1,200	Primary Crusher to TB1	Conveyor		Yes
Transfer Box 1	TB-1	-	1,200	C-1 to C-2			Yes
Conveyor - 2	C-2	75	1,200	TB1 to TB2	Conveyor		Yes
Transfer Box 2	TB2	-	1,200	C-2 to C-3			Yes
Conveyor - 3	C-3	75	1,200	TB2 to TB3	Conveyor		Yes
Transfer Box 3	TB3	-	1,200	C-3 to C4			Yes
Conveyor - 4	C-4	75	1,200	TB3 to TB4	Conveyor		Yes
Transfer Box 4	TB4	-	1,200	C-4 to C5			Yes
Conveyor - 5	C-5	75	1,200	TB4 to TB5	Conveyor		Yes
Transfer Box 5	TB5	-	1,200	C-5 to C6			Yes
Conveyor - 6	C-6	60	1,200	TB5 to Surge Pile 1	Conveyor		Yes
Surge Pile 1	SP-1	-	-	C-6 to SP1KF-1,2,3			Yes
Surge Pile 1 Kinergy Feeder 1	SP1KF-1	7	375	Surge Pile 1 to C-7	Conveyor		Yes
Surge Pile 1 Kinergy Feeder 2	SP1KF-2	7	375	Surge Pile 1 to C-7	Conveyor		Yes
Surge Pile 1 Kinergy Feeder 3	SP1KF-3	7	375	Surge Pile 1 to C-7	Conveyor		Yes
Conveyor - 7 Scalping Station Screen 1 (8'X20' triple Deck	C-7	50	1,000	Feeders to SC-1	Conveyor		Yes
Screen)	SC-1	75 7	1,000	C-7 to SSKF-1, C-8, C-11, C-14, C-16	Screen		Yes
Scalping Screen 1 Kinergy Feeder 1	SS1KF-1 C-8	20	400	Scalping Screen Top Deck to C-8	Screen		Yes
Conveyor 8	TB6	-	400	SS1KF to TB6	Conveyor		Yes
Transfer Box 6 Conveyor 9	C-9	50	400	C-8 to C-9 TB3 to TB4	Conveyor		Yes
Telsmith 57SBS	CR2 57SBS	500	400	C-12 to C-13	Crusher	Secondary or Tertiary	Yes
Pegson Automax 1300 Cone Crusher	GEN-3	440	400	Used as Replacement for CR2 57SBS	Crusher	Secondary or Tertiary	Yes Yes
Conveyor -10	C-10	50	400	CR2 57SBS/Gen-3 to C-7	Conveyor	renary	Yes
Conveyor - 11	C-10	20	200	Scalping Screen Bottom Deck to C-12	Conveyor		Yes
Conveyor - 12	C-12	20	200	C-11 to C-12	Conveyor		Yes
Conveyor -12	C-12	50	200	C-12 to TC-1ABC	Conveyor		Yes
Tripper Car	TC-1ABC	7	200	Belt 13 to ABC Stock Pile	Conveyor		Yes
Conveyor -14	C-14	20	400	Scalping Screen Middle Deck to C-15	Conveyor		Yes
Conveyor - 15	C-15	50	400	C-14 to TC-2RRB	Conveyor		Yes
Tripper Car	TC-2RRB	7	400	Belt 15 to RRB Stock Pile	Conveyor		Yes
Conveyor - 16	C-16	60	800	Scalping Screen Middle Deck to C-17	Conveyor		Yes
Conveyor - 17	C-17	60	800	C-16 to Surge Pile 2	Conveyor		Yes
Surge Pile 2	SP-2			C-17 to SP2KF-1,2			Yes
Surge Pile 2 Kinergy Feeder 1	SP2KF-1	7	300	Surge Pile 2 to C-18	Conveyor		Yes
Surge Pile 2 Kinergy Feeder 1	SP2KF-2	7	300	Surge Pile 2 to C-18	Conveyor		Yes
Conveyor - 18	C-18	75	600	TB7 to TB5	Conveyor		Yes
8' X20' 3-Deck JCl Screen 2 (Model 8203-38LP)	SC-2	50	600	C-18 to SC2C1/SC2C2	Screen		Yes
McClosky S190 Screen Plant	GEN-2	125	125	C-18 to SC2C1/SC2C2	Screen		Yes
Conveyor SC2-C1	SC2-C1	10	500	SC2/GEN-2 to C-19 (Top Deck)	Conveyor		Yes

Compare 10	C-19	60	500	SC2C1 to TB7	Conveyor		Yes
Conveyor - 19				· · · · · · · · · · · · · · · · · · ·	Conveyor		Yes
Transfer Box 7	TB7	-	500	C-19 to CR3KF-1			
CR3 Kinergy Feeder 1	CR3KF-1	7	500	TB7 to CR-3	Conveyor	Secondary or	Yes
Metso HP 500 Crusher	CR2 - HP500	500	500	CR3KF-1 to C-20	Crusher	Tertiary Secondary or	Yes
Pegson Automax 1300 Cone Crusher	GEN-5	440	500	Used as Replacement for CR3 HP500	Crusher	Tertiary	Yes
Conveyor - 20	C-20	60	500	CR3-HP500/GEN-5 to C-20	Conveyor		Yes
Transfer Box 8	TB8	<u> </u>	500	C-20 to C-21			Yes
Conveyor - 21	C-21	60	500	TB8 to C-10	Conveyor		Yes
Conveyor SC2-C2	SC2-C2	10	600	SC2/GEN-2 to C- 22 (Bottom Deck)	Conveyor		Yes
Conveyor - 22	C-22	50	500	SC2-C2 to SC3	Conveyor		Yes
Azteck Pep Screen(DV1612B)	SC-3	20	600	C-22 to JCI 8203-30LP	Screen		Yes
8'X20' 3-Deck JCI 8203-30LP	SC-3	50	600	DV1612B to C-23	Screen		Yes
Conveyor - 23	C-23	30	290 .	SC3 to TB9	Conveyor		Yes
Transfer Box 9	тв9	-	290	C-23 to C-24			Yes
Conveyor - 24	C-24	30	290	TB-9 to C-25	Conveyor		Yes
Conveyor - 25	C-25	30	290	C-24 to TC-3DS	Conveyor		Yes
Tripper Car	TC-3DS	7	290	C-25 to Dry Screen Stockpile	Conveyor	ļ	Yes
Conveyor - 26	C-26	7.5	155	SC-3 to C-28	Conveyor		Yes
Conveyor - 27	C-27	7.5	155	SC-3 to C-28	Conveyor		Yes
Conveyor - 28	C-28	20	155	C-26/C-27 to TB10	Conveyor		Yes
Transfer Box 8	тве	-	155	C-28 to CR4KF-1			Yes
CR-4 Kinergy Feeder 1	CR4KF-1	7	155	CR4KF-1 to CR4	Conveyor		Yes
Metso Barmac Crusher	CR3	300	155	C-23 to C-20	Crusher	Fines	Yes
Pegson Automax 1100 Cone Crusher	GEN-7	325	155	Used as Replacement for CR4 Barmac	Crusher	Fines	Yes
Conveyor - 29	C-29	50	155	C-26A to FM/Dry Fines Stock Pile	Conveyor		Yes
· · · · · · · · · · · · · · · · · · ·	FM	25	290	TB9 to C-30	Screen		Yes
Power screen Fines master 200	C-30	30	290	FM to C-31	Conveyor		Yes
Conveyor - 30			290	C-30 to TC-4S	Conveyor		Yes
Conveyor - 31	C-31	30			Conveyor		Yes
Tripper Car	TP-4S	7	290	C-31 to Sand Stock Pile	Conveyor		
Hagler Pump 6X8 LCC20	Recycle Pump	100	-	FM to Recycle Wash Water Ponds			Yes
Conveyor - 32	C-32	7.5	155	SC-3 to C-24	Conveyor		Yes
Conveyor - 32	C-33	7.5	155	SC-3 to C-24	Conveyor		Yes
Conveyor - 34	C-34	50	310	C-32/C-33 to SC4	Conveyor		Yes
Telsmith Wash Screen (8'X20') 3- Deck	SC4	60	310	C-34 to C-35, C-36, C-37	Screen		Yes
Gorman Rupp Pump	Fresh Water Input	200		Fresh Water Pond to SC4			
Conveyor - 35	C-35	10	46	SC4 to FB-1	Conveyor		No
Conveyor -36	C-36	10	162	SCR to FB-2	Conveyor		No
Conveyor - 37	C-37	10	100	SC1 to FB-3	Conveyor		No
50 Ton Feed Bin - Truck loadout	FB1	·	45	C-35A to C-38	Conveyor		
50 Ton Feed Bin - Truck loadout	FB2	-	162	C-36 to C-39	Conveyor		
50 Ton Feed Bin - Truck loadout	FB3	-	100	C-37 to C-40	Conveyor	<u>                                     </u>	
Conveyor - 38	C-38	20	45	FB-1 to C-41	Conveyor		Yes
Conveyor - 39	C-39	20	_162	FB-2 to C-42	Conveyor		Yes
Conveyor - 40	C-40	20	100	FB-3 to C-43	Conveyor		Yes
Conveyor - 41	C-41	20	45	C-38 to TC-5-67s	Conveyor		Yes
Conveyor - 42	C-42	20	162	C-39 to TC-6-57s	Conveyor		Yes
Conveyor - 43	C-43	20	100	C-40 to TC-7-78s	Conveyor		Yes
Tripper Car	TC-5-67s	15	100	C-41 to 67s Stock Pile	Conveyor		Yes
Tripper Car	TC-6-57s	15	290	C-42 to 57s Stock Pile	Conveyor		Yes
		1	<u> </u>		1	1	

Number of crushers for DEQ spreadsheet =

62

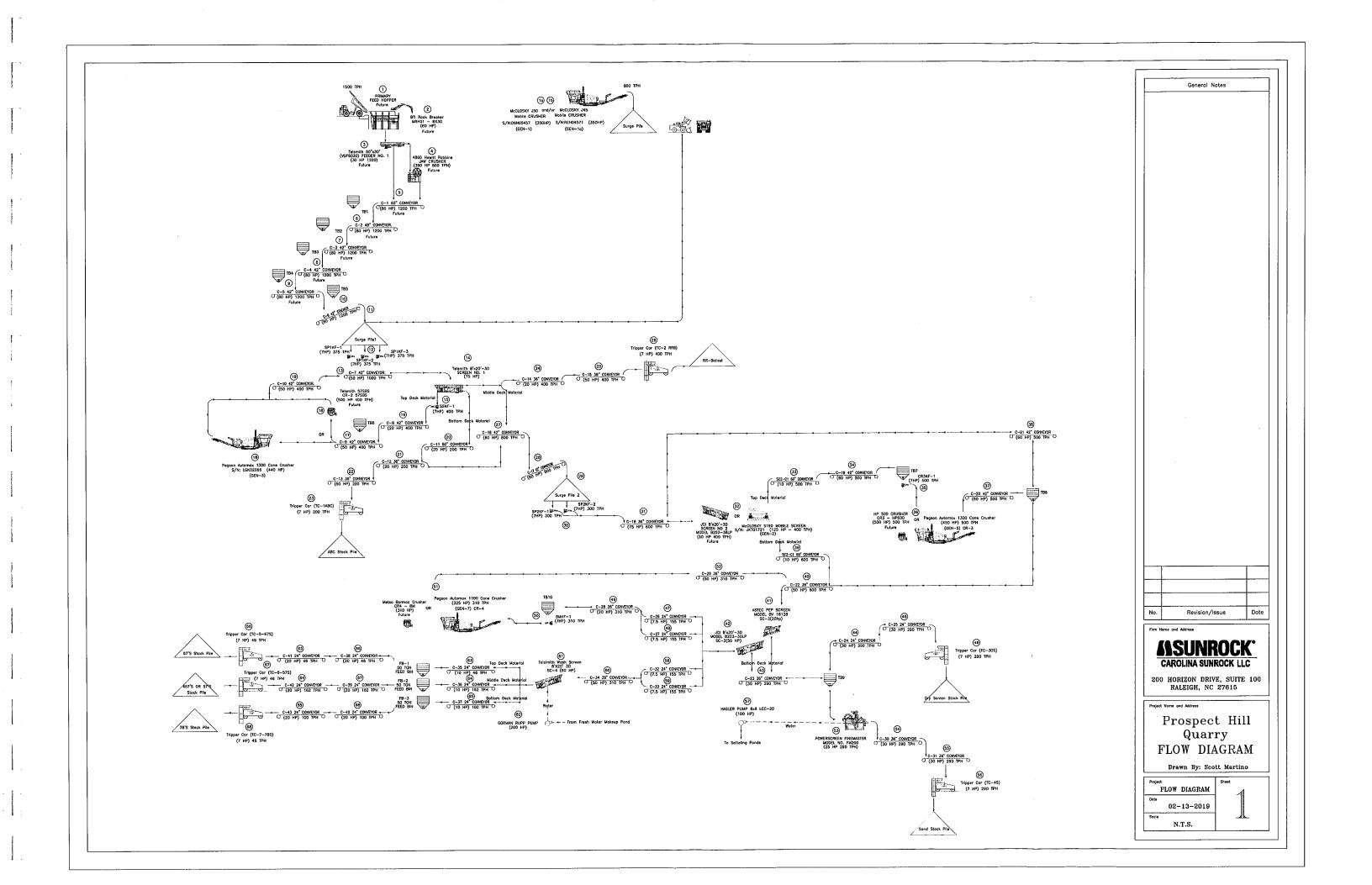
Number of screens for DEQ spreadsheet =

Number of conveyors for DEQ spreadsheet =

Actual Operating Schedule =

8 3744

10



## Wright, Dylan A

From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Friday, January 3, 2020 9:49 PM
То:	Wright, Dylan A
Cc:	Edwards, Lisa; Hartsfield, Taylor; Alexander Culpepper
Subject:	[External] Carolina Sunrock LLC - Prospect Hill Distribution Center
Attachments:	MERCURY1418D.INP; MERCURY1418D.OUT; Appendix A1 Facility Wide & TAP summary
	2020-01-03-revised 4SLB factors.pdf; Carolina Sunrock Prospect Hill 2 Construction Application 2020-01-03-Revpdf

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to <u>report.spam@nc.gov</u>

Hi Dylan

Attached is the modeling, and updated facility wide documentation you requested. Keep me posted as to what else you need and I'll be happy to help get you what you need.

Thanks

Scott

**Scott Martino** 

Environmental Compliance Manager/Mine Engineer Carolina Sunrock 200 Horizon Drive Suite 100 Raleigh, NC 27615 Office Phone:(919) 7476336 Cell (984) 202-4761



This section presents the input data and modeling methodology utilized in the TAP modeling compliance demonstration. The modeling methodology conforms to the Guidelines for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina (May 2018) and more recent changes posted on NCDAQ's Air Quality Analysis Branch (AQAB) website. In lieu of a modeling protocol, a protocol checklist is provided in Appendix B.

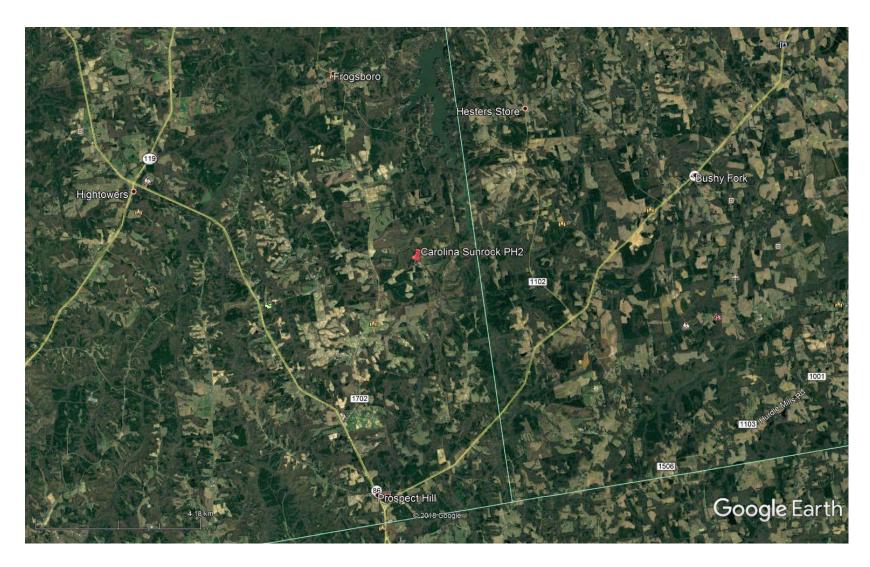
As previously discussed, potential emissions of six (6) compounds regulated under 15A NCAC 2Q .0700 (NC Air Toxics) exceed their TPER and this air dispersion modeling evaluation has been conducted to demonstrate compliance with all applicable AAL.

# 4.1. FACILITY LOCATION

Figure 4-1 provides a topographical map of the area surrounding the Carolina Sunrock Prospect Hill property. The approximate central Universal Transverse Mercator (UTM) coordinates of the facility are 664.4 kilometers (km) east and 4,018.7 km north in Zone 17 (NAD 83).

For modeling purposes, the appropriate urban/rural land use classification for the area was determined using the Auer technique, which is recommended in the *Guideline on Air Quality Models*. In accordance with this technique, the area within a 3-km radius of the facility was identified on US Geological Survey (USGS) topographic maps (and was delineated by land use type). More than 50 percent of the surrounding land use can be classified as undeveloped rural (i.e., Auer's A4 classification), therefore the area is classified as rural.

## Figure 4-1. Map of Area Surrounding Carolina Sunrock



# 4.2. MODEL SELECTION

The AERMOD dispersion model (version 19091) was used to calculate off-property concentrations in the modeling analysis. AERMOD was promulgated as the preferred model in 40 CFR 51, Appendix W on November 9, 2005 and is recommended by the NCDAQ for evaluating criteria and toxic air pollutant concentrations from industrial facilities such as Carolina Sunrock's Prospect Hill #2 facility.<sup>2</sup> AERMOD was run using the regulatory default option, which automatically implements NCDAQ and U.S. EPA recommended model options.

# **4.3. SOURCE DESCRIPTION**

Tables 4-1 and 4-2 presents a table of the modeled point and volume sources, respectively, including their locations at the facility. All locations are expressed in UTM Zone 18 (NAD83) coordinates.

Model ID	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
PGEN1	Power Engine 1	664,047.9	4,018,679.7	205.0
PGEN2	Power Engine 2	664,050.7	4,018,673.3	205.2
PGEN3	Power Engine 3	664,053.4	4,018,667.0	205.4
CD1	Asphalt Plant Baghouse	664,069.6	4,018,718.7	204.6
IES4	Asphalt Heater	664,066.8	4,018,732.0	204.7
IES5	Liquid Asphalt Heater	664,071.1	4,018,735.0	204.8
HMASIL01	Asphalt Silo 1 Vent	664,109.1	4,018,719.0	205.1
HMASILO2	Asphalt Silo 2 Vent	664,112.0	4,018,721.4	205.1
HMASILO3	Asphalt Silo 3 Vent	664,115.0	4,018,723.7	205.0
HMASILO4	Asphalt Silo 4 Vent	664,117.9	4,018,726.2	204.9
HMASIL05	Asphalt Silo 5 Vent	664,106.1	4,018,716.5	205.2
CD2	Concrete Plant Baghouse	664,155.2	4,018,786.6	202.2
GEN1	Quarry Generator	664,799.0	4,018,997.2	191.0
GEN1A	Quarry Generator	665,048.1	4,018,924.3	186.6
GEN2	Quarry Generator	664,815.4	4,019,139.4	190.8
GEN3	Quarry Generator	664,617.9	4,018,936.2	199.0
GEN5	Quarry Generator	664,627.5	4,018,930.4	198.4
GEN7	Quarry Generator	664,636.8	4,018,891.0	197.4
GEN4	Quarry Generator	665,031.3	4,019,118.9	188.2

## Table 4-1. Modeled Point Source Locations

<sup>&</sup>lt;sup>2</sup> 40 CFR 51, Appendix W–*Guideline on Air Quality Models*, Appendix A.1– AMS/EPA Regulatory Model (AERMOD).

Model ID	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
HMALO1	Asphalt Loadout 1	664,109.1	4,018,719.0	205.1
HMALO2	Asphalt Loadout 2	664,112.0	4,018,721.4	205.1
HMALO3	Asphalt Loadout 3	664,115.0	4,018,723.7	205.0
HMALO4	Asphalt Loadout 4	664,117.9	4,018,726.2	204.9
HMAL05	Asphalt Loadout 5	664,106.1	4,018,716.5	205.2

 Table 4-2. Modeled Volume Source Locations

Tables 4-3 and 4-4 present the stack parameters input to the model for each of the point and volume sources, respectively. The stacks for sources IES4 and IES5 are vertical stacks but will have raincaps and thus, per NCDAQ guidance, were modeled with an exit velocity of 0.01 m/s. The HMASILO vents are characterized as point sources with ambient release characteristics, so per NCDAQ guidance, were modeled with an exit velocity of 0.01 m/s and exit temperature of 25 deg. C. The volume source parameters were calculated based on NCDAQ *Guidance* for surface-based volume sources.

Model ID	Stack Height (m)	Exit Temp. (K)	Exit Velocity (m/s)	Stack Diameter (m)
PGEN1	5.18	788.71	22.02	0.15
PGEN2	5.18	788.71	22.02	0.15
PGEN3	5.18	788.71	22.02	0.15
CD1	9.22	388.71	29.41	0.96
IES4	2.74	435.93	0.01	0.30
IES5	4.57	435.93	0.01	0.05
HMASIL01	19.81	298.15	0.01	0.30
HMASILO2	19.81	298.15	0.01	0.30
HMASILO3	18.29	298.15	0.01	0.30
HMASILO4	18.29	298.15	0.01	0.30
HMASIL05	18.29	298.15	0.01	0.30
CD2	10.67	298.15	24.38	0.46
GEN1	3.66	797.04	29.11	0.15
GEN1A	3.66	797.04	29.11	0.15
GEN2	3.66	797.04	29.11	0.15
GEN3	3.66	797.04	29.11	0.15
GEN5	3.66	797.04	29.11	0.15
GEN7	3.66	797.04	29.11	0.15
GEN4	1.83	778.71	15.07	0.15

Table 4-3. Modeled Point Source Parameters

### Table 4-4. Modeled Volume Source Parameters

Model ID	Release Height (m)	Init. Lat. Dimension (K)	Init. Vert. Dimension (m/s)
HMAL01	3.66	0.15	1.70
HMALO2	3.66	0.15	1.70
HMALO3	3.66	0.15	1.70
HMALO4	3.66	0.15	1.70
HMAL05	3.66	0.15	1.70

### Carolina Sunrock US, Inc. Air Quality Permit Application

Table 4-5 presents the emission rates modeled for each of the triggered TAPs. These rates represent values that are in excess of the calculated potential rates in order to provide the facility with operational flexibility.

		Мо	deled Emiss	ion Rates (g	/s)	
Model ID	FORM	MERCURY	NICKEL	ARSENIC	BENZENE	CADMIUM
PGEN1	1.005E-01	0.000E+00	0.000E+00	0.000E+00	3.169E-03	0.000E+00
PGEN2	1.005E-01	0.000E+00	0.000E+00	0.000E+00	3.169E-03	0.000E+00
PGEN3	8.379E-02	0.000E+00	0.000E+00	0.000E+00	2.641E-03	0.000E+00
CD1	9.765E-02	8.190E-05	1.991E-03	1.764E-05	1.229E-02	1.298E-05
IES4	3.564E-05	4.536E-07	4.536E-07	6.048E-07	3.095E-07	4.536E-07
IES5	3.267E-05	4.158E-07	4.158E-07	5.544E-07	2.837E-07	4.158E-07
HMASIL01	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO2	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO3	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO4	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASIL05	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
CD2	0.000E+00	0.000E+00	2.423E-05	8.297E-06	0.000E+00	6.298E-08
GEN1	3.643E-04	0.000E+00	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN1A	3.643E-04	0.000E+00	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN2	1.301E-04	0.000E+00	3.308E-07	4.410E-07	1.029E-04	3.308E-07
GEN3	4.579E-04	0.000E+00	1.164E-06	1.552E-06	3.621E-04	1.164E-06
GEN5	4.683E-04	0.000E+00	1.191E-06	1.588E-06	3.703E-04	1.191E-06
GEN7	3.643E-04	0.000E+00	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN4	1.301E-04	0.000E+00	3.308E-07	4.410E-07	1.029E-04	3.308E-07
HMAL01	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMALO2	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMALO3	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMALO4	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMAL05	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00

## **Table 4-5. Modeled Emission Rates**

As previously described, the following sources are subject to a NESHAP standard:

- PGEN1
- PGEN2
- PGEN3
- GEN1 (J50V2)
- GEN1A (J45)
- GEN2 (S190dt)
- GEN3 (PS1300 Maxtrack)
- GEN5 (PS1300 Maxtrack)
- GEN7 (PS100 Maxtrack)
- GEN4 (TF80)

Since the above sources were included in the TAP modeling analysis, which demonstrates no unacceptable risk to the public, TAP permit limitations are not required for those sources. As such, Carolina Sunrock is requesting the TAP limits in Table 4-6 be included in the permit, based on the modeled emission rates in Table 4-5 (in g/s) and scaled to the appropriate averaging period.

	Requested Permit Limits							
Model ID	FORM (lb/hr)	MERCURY (lb/day)	NICKEL (lb/day)	ARSENIC (lb/yr)	BENZENE (lb/yr)	CADMIUM (lb/yr)		
PGEN1	7.98E-01	-	-	-	2.20E+02	-		
PGEN2	7.98E-01	-	-	-	2.20E+02	-		
PGEN3	6.65E-01	-	-	-	1.84E+02	-		
CD1	7.75E-01	1.56E-02	3.79E-01	1.23E+00	8.54E+02	9.02E-01		
IES4	2.83E-04	8.64E-05	8.64E-05	4.20E-02	2.15E-02	3.15E-02		
IES5	2.59E-04	7.92E-05	7.92E-05	3.85E-02	1.97E-02	2.89E-02		
HMASIL01	4.20E-03	-	-	-	1.71E+00	-		
HMASILO2	4.20E-03	-	-	-	1.71E+00	-		
HMASILO3	4.20E-03	-	-	-	1.71E+00	-		
HMASILO4	4.20E-03	-	-	-	1.71E+00	-		
HMASIL05	4.20E-03	-	-	-	1.71E+00	-		
CD2	0.00E+00	-	4.62E-03	5.77E-01	0.00E+00	4.38E-03		
GEN1	2.89E-03	-	1.76E-04	8.59E-02	2.00E+01	6.44E-02		
GEN1A	2.89E-03	-	1.76E-04	8.59E-02	2.00E+01	6.44E-02		
GEN2	1.03E-03	-	6.30E-05	3.07E-02	7.15E+00	2.30E-02		
GEN3	3.63E-03	-	2.22E-04	1.08E-01	2.52E+01	8.09E-02		
GEN5	3.72E-03	-	2.27E-04	1.10E-01	2.57E+01	8.28E-02		
GEN7	2.89E-03	-	1.76E-04	8.59E-02	2.00E+01	6.44E-02		
GEN4	1.03E-03	-	6.30E-05	3.07E-02	7.15E+00	2.30E-02		
HMAL01	1.83E-04	-	-	-	9.48E-01	-		
HMALO2	1.83E-04	-	-	-	9.48E-01	-		
HMALO3	1.83E-04	-	-	-	9.48E-01	-		
HMALO4	1.83E-04	-	-	-	9.48E-01	-		
HMAL05	1.83E-04	-	-	-	9.48E-01	-		

**Table 4-6. Requested Permit Limits** 

# 4.4. METEOROLOGICAL DATA

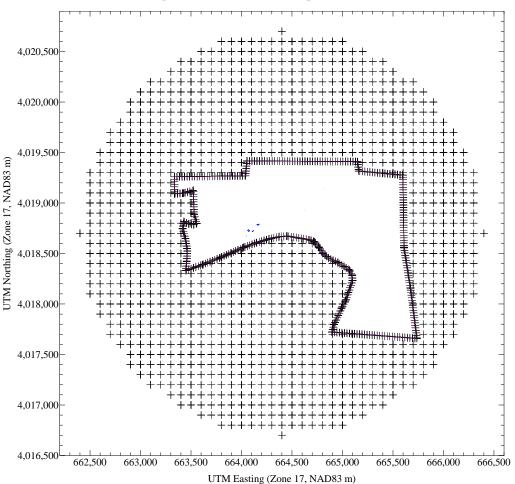
The AERMOD modeling results were based on sequential hourly surface observations from Danville, NC (DAN) and upper air data also from Greensboro, NC (GSO). These stations are recommended by NCDAQ for modeling facilities located in Caswell County.<sup>3</sup> The base elevation for the surface station is 174 m.<sup>4</sup>

Since the modeled impacts for at least one modeled TAP exceeded 50% of the AAL, five (5) years of data were modeled. The 5, most recent years of meteorological data (2014-2018) were downloaded from NCDAQ's website and input to AERMOD.

 <sup>3</sup> https://deq.nc.gov/about/divisions/air-quality/air-quality-permits/modelingmeteorology/meteorological-data
 <sup>4</sup> https://files.nc.gov/ncdeq/Air%20Quality/permits/mets/ProfileBaseElevations 2018.pdf

## **4.5. MODELED RECEPTORS**

The receptors included in the modeling analysis consisted of property line receptors, spaced 25 meters (m) apart, and Cartesian receptor points spaced every 100 m, extending out 3 km from the center of the facility. There are no public right-of-ways (e.g. roads) traversing the property line, so only a single property line was included in the modeling. The impacts were reviewed to ensure that the maximum impacts were captured within the 100 m spaced grid. Figure 4-2 shows the receptors included in the modeling analysis.





The AERMOD model is capable of handling both simple and complex terrain. Through the use of the AERMOD terrain preprocessor (AERMAP), AERMOD incorporates not only the receptor heights, but also an effective height (hill height scale) that represents the significant terrain features surrounding a given receptor that could lead to plume recirculation and other terrain interaction.<sup>5</sup>

Receptor terrain elevations input to the model were interpolated from National Elevation Database (NED) data obtained from the USGS. NED data consist of arrays of regularly spaced elevations. The array elevations are at a resolution of 1 arcsecond (approximately 30 m intervals) and were

<sup>&</sup>lt;sup>5</sup> <sup>US EPA,</sup> Users Guide for the AERMOD Terrain Preprocessor (AERMAP), EPA-454/B-03-003, Research Triangle Park, NC.

interpolated using the latest version of AERMAP (version 18081) to determine elevations at the defined receptor intervals. The data obtained from the NED files were checked for completeness and spot-checked for accuracy against elevations on corresponding USGS 1:24,000 scale topographical quadrangle maps. AERMAP was also used to establish the base elevation of all Carolina Sunrock structures and emission sources.

# 4.6. BUILDING DOWNWASH

AERMOD incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithms. Direction specific building parameters required by AERMOD are calculated using the BPIP-PRIME preprocessor (version 04274).

EPA has promulgated stack height regulations that restrict the use of stack heights in excess of "Good Engineering Practice" (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This essentially prevents the use of excessively tall stacks to reduce ground-level pollutant concentrations. The minimum stack height not subject to the effects of downwash, called the GEP stack height, is defined by the following formula:

 $H_{GEP} = H + 1.5L$ , where:

- H<sub>GEP</sub> = minimum GEP stack height,
- H = structure height, and
- L = lesser dimension of the structure (height or projected width).

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure. The wind direction-specific downwash dimensions and the dominant downwash structures used in this analysis are determined using BPIP. In general, the lowest GEP stack height for any source is 65 meters by default.<sup>6</sup> None of the proposed emission units at the Prospect Hill facility will exceed GEP height.

Figures 4-3 presents a site layout for the facility that shows the source and building arrangement as modeled. The electronic BPIP input and output files are included on the CD-ROM in Appendix B.

### 640 CFR §51.100(ii)

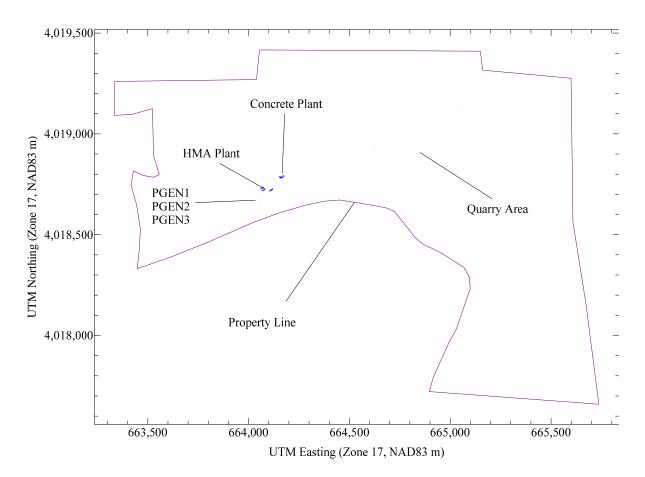


Figure 4-3. Carolina Sunrock Prospect Hill #2 Site Layout

## **4.7. TAP MODELING RESULTS**

Table 4-7 presents the model results for each of the triggered TAP. As shown, all impacts are below their respective AAL. The electronic modeling files used in the TAP analysis are contained on the CD-ROM in Appendix B.

			Max. Modeled				
Pollutant	Avg. Period	UTM-E (m)	UTM-N (m)	Date/Time or Year	Impact (µg/m³)	AAL (µg/m <sup>3</sup> )	% of AAL (%)
Formaldehyde	1-Hour	664,020.1	4,018,559.7	14012802	94.50	150	63.00%
Mercury	24-Hour	664,247.2	4,018,636.3	14111424	2.45E-03	0.6	0.41%
Nickel	24-Hour	663,919.1	4,018,515.6	15100424	3.89E-02	6	0.65%
Arsenic	Annual	664,127.9	4,018,599.1	2018	1.20E-04	2.10E-03	5.71%
Benzene	Annual	663,964.9	4,018,535.6	2015	1.14E-01	0.12	94.81%
Cadmium	Annual	664,127.9	4,018,599.1	2018	6.00E-05	5.50E-03	1.09%

Table 4-7.TAP Modeling Results

### FORMS A2, A3 EMISSION SOURCE LISTING FOR THIS APPLICATION - A2 112r APPLICABILITY INFORMATION - A3

	112r APPLICABILITY INFOR	RMATION - A3		
REVISED 09/22/16	NCDEQ/Division of Air Quality - Application for Air	Permit to Construct/O	perate	A2
	EMISSION SOURCE LISTING: New, Modified, Previou	usly Unpermitted	, Replaced, Deleted	
EMISSION SOURCE	EMISSION SOURCE	CONTROL DEVICE	CONTROL DEVICE	
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION	
	Equipment To Be ADDED By This Application (New, Pr			
D	rum Mix Asphalt Plant (250 tons per hour cap	oacity) Consi	isting of the Following	
	Propane/Natural Gas/No. 2 Fuel Oil/Recycled No. 2 Fuel			
HMA-1	Oil/Recycled No.4 Fuel Oil-fired drum type hot asphalt plant (80	HMA-CD1	Bagfilter (7,778 square feet of	filter area)
	MMBtu/hr maximum heat input capacity)			
HMA Silo1	Hot mix asphalt storage silo (150 tons maximum capacity)	NA	NA	
HMA Silo2	Hot mix asphalt storage silo (150 tons maximum capacity)	NA	NA	
HMA Silo3	Hot mix asphalt storage silo (200 tons maximum capacity)	NA	NA	
HMA Silo4	Hot mix asphalt storage silo (200 tons maximum capacity)	NA	NA	
HMA Silo5	Hot mix asphalt storage silo (200 tons maximum capacity)	NA	NA	
HMA-LO1	Asphalt Loadout Operation Silo 1	NA	NA	
HMA-LO2	Asphalt Loadout Operation Silo 2	NA	NA	
HMA-LO3	Asphalt Loadout Operation Silo 3	NA	NA	
HMA-LO4	Asphalt Loadout Operation Silo 4	NA	NA	
HMA-LO5	Asphalt Loadout Operation Silo 5	NA	NA	
	RAP Crushing System Consisti	ng of the Fol	lowing	
RAP-BF1	RAP bin and feeder	NA	NA	
RAP-CR1	RAP impact Crusher (65 tons per hour maximum rated capacity)	NA	NA	
RAP-SC1	8' X 20' Double Deck Screen	NA	NA	
RAP-C1	RAP 36" Conveyor (C-1) Feeder to Crusher (RAP-CR1)	NA	NA	
RAP-C2	RAP 36" Conveyor (C-2) Cursher to Screen	NA	NA	
RAP-C3	RAP 36" Conveyor (C-3) Screen to Plant	NA	NA	
RAP-C4	RAP 36" Conveyor (C-4) Screen to Conveyor (C-5)	NA	NA	
RAP-C5	RAP 36" Conveyor (C-5) Conveyor (C-5) to Conveyor (C-6)	NA	NA	
RAP-C5	RAP 36" Conveyor (C-6) Conveyor (C-6) to Crusher (RAP-CR1)	NA	NA	
	Existing Permitted Equipment To Be MOD	IFIED By This A	oplication	
	Equipment To Be DELETED By	This Application		
		<u> </u>		

112(r) APPLICABILITY INFORMATION A 3						
Is your facility subject to 40 CFR Part 68 "Prevention of Accident	al Releases" - Section 112(r) of the Federal Cl	ean Air Act?	Yes No			
If No, please specify in detail how your facility avoided applicabili	ty:					
If your facility is Subject to 112(r), please complete the following:						
A. Have you already submitted a Risk Management Plan (RM	IP) to EPA Pursuant to 40 CFR Part 68.10 or P	'art 68.150?				
Yes No Specify required RMP s	ubmittal date:	If submitted, RMP submittal date:				
B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard?						
Yes No If yes, please specify:						
C. List the processes subject to 112(r) at your facility:						
PROCESS DESCRIPTION	PROCESS LEVEL (1, 2, or 3)	HAZARDOUS CHEMICAL	INVENTORY (LBS)			

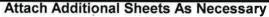
### FORMS A2, A3 EMISSION SOURCE LISTING FOR THIS APPLICATION - A2 112r APPLICABILITY INFORMATION - A3

	112r APPLICABIL	LITY INFORM	ATION - A3
EVISED 09/22/16	NCDEQ/Division of Air Quality - Application	on for Air Permit to C	Construct/Operate A2
	EMISSION SOURCE LISTING: New, Mod	lified, Previously	Unpermitted, Replaced, Deleted
EMISSION SOURCE	EMISSION SOURCE	CONTROL DEVICE	CONTROL DEVICE
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION
	Equipment To Be ADDED By This Application	tion (New, Previo	ously Unpermitted, or Replacement)
<b>Truck Mix</b>	Concrete Batch Plant (120 cubic y	ards per ho	ur capacity) Consisting of the Followi
RMC-Silo1	Cement Storage Silo (200-ton capacity)	RMC-CD2	Bagfilter (1,433 square feet of filter area)
RMC-Silo2	Flyash Storage Silo (150-ton Capacity)	RMC-CD2	Bagfilter (1,433 square feet of filter area)
RMC-LO1	Truck Loadout point	RMC-CD2	Bagfilter (1,433 square feet of filter area)
RMC-WB1	Cement/Flyash Weigh Batcher (5-ton max Capacity)	RMC-CD2	Bagfilter (1,433 square feet of filter area)
RMC-WB2	Aggregate Weigh Batcher (20-ton max Capacity)	NA	NA
	Existing Permitted Equipment	To Be MODIFIE	ED By This Application
	Equipment To Be DE	LETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application
	Equipment To Be DE	ELETED By Thi	s Application

112(r) APPLICABILITY INFORMATION						
Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Re	leases" - Section 112	2(r) of the Federal Clean Air Act?	Yes	No		
If No, please specify in detail how your facility avoided applicability:	No, please specify in detail how your facility avoided applicability:					
If your facility is Subject to 112(r), please complete the following:						
A. Have you already submitted a Risk Management Plan (RMP) to	o EPA Pursuant to 40	) CFR Part 68.10 or Part 68.150?				
Yes No Specify required RMP submittal date: If submittal date:						
B. Are you using administrative controls to subject your facility to a	a lesser 112(r) progra	am standard?				
Yes No If yes, please specify:						
C. List the processes subject to 112(r) at your facility:						
	PROCESS LEVEL					
PROCESS DESCRIPTION	(1, 2, or 3)	HAZARDOUS CHEMICAL	MAXIMUM INT	ENDED INVENTORY (LBS)		

## FORM D5 TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

	TECHNICAL ANALYSIS TO SUPP	ORT PERIMIT AFFLICATION	
R	EVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air	Permit to Construct/Operate	D5
Γ	PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPP		
	DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE		
	NECESSARY TO SUPPORT AND CLARIFY CALCULA FOLLOWING SPECIFIC ISSUES		
-			
A	SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B and	d B1 through B9) - SHOW CALCULATIONS USED,	INCLUDING
	EMISSION FACTORS, MATERIAL BALANCES, AND/OR OTHER METHODS	S FROM WHICH THE POLLUTANT EMISSION RATE	ES IN THIS
	APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFER	L BEFORE AND, WHERE APPLICABLE, AFTER CO	NTROLS.
В	SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2	- TITLE V ONLY) - PROVIDE AN ANALYSIS OF AN	IY
	REGULATIONS APPLICABLE TO INDIVIDUAL SOURCES AND THE FACILI		
	(e.g. FOR TESTING AND/OR MONITORING REQUIREMENTS) FOR COMPI REGULATIONS LIMITING EMISSIONS BASED ON PROCESS RATES OR C		
	FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PREVENTION OF S		
	PERFORMANCE STANDARDS (NSPS), NATIONAL EMISSION STANDARD	S FOR HAZARDOUS AIR POLLUTANTS (NESHAPS	S), TITLE V),
	INCLUDING EXEMPTIONS FROM THE FEDERAL REGULATIONS WHICH V	WOULD OTHERWISE BE APPLICABLE TO THIS FA	CILITY, SUBMIT
c			
	CONTROL DEVICE ANALYSIS (FORM C and C1 through C9) - PROVIDE A FOR ANY CONTROL EFFICIENCIES LISTED ON SECTION C FORMS, OR I	A TECHNICAL EVALUATION WITH SUPPORTING R	REFERENCES
	ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS (e.g.	OPERATING CONDITIONS MANUFACTURING	ATIONS UNDER
	RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APP	PLICATION) CRITICAL TO ENSURING PROPER PE	
	OF THE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNG	CTION POTENTIAL FOR THE PARTICULAR CONTR	ROL DEVICES AS
	ENDLOYED AT THIS EACH ITY DETAIL DROCEDURES FOR ASSURING I	PROPER OPERATION OF THE CONTROL DEVICE	
D	PROCESS AND OPERATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TI	TLE V ONLY) - SHOWING HOW COMPLIANCE WIL	LL BE ACHIEVED
	WHEN USING PROCESS, OPERATIONAL, OR OTHER DATA TO DEMONS	TRATE COMPLIANCE, REFER TO COMPLIANCE F	REQUIREMENTS
	IN THE REGULATORY ANALYSIS IN ITEM "B" WHERE APPROPRIATE. LI	ST ANY CONDITIONS OR PARAMETERS THAT CA	AN BE
E	PROFESSIONAL ENGINEERING SEAL - PURSUANT TO 15A NCAC 2Q ,0		
	A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHAL NEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE IN	L BE REQUIRED TO SEAL TECHNICAL PORTION	S OF THIS APPLI
		dented honor off off her art eleablerry.	
		tion for Carolina Sunrock	
		ccurate, complete and consistent with the information	
	in the engineering plans, calculations, and all other supporting documentation knowledge the proposed design has been prepared in accordance with the ap	to the best of my knowledge. I further attest that to the	ne best of my
	package may have been developed by other professionals, inclusion of these	materials under my seal signifies that I have reviewed	d this material
	and have judged it to be consistent with the proposed design. Note: In accord	dance with NC General Statutes 143-215.6A and 143	-215.6B, any
	person who knowingly makes any false statement, representation, or certificat		demeanor which
	may include a fine not to exceed \$10,000 as well as civil penalties up to \$25,0	00 per violation.	
	(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)	PLACE NORTH CAROLINA SEAL	- HERE
	NAME: Aimee L. Andrews, P.E.		
	DATE: 1/14/2020	same little	
	COMPANY: Trinity Consultants of NC, PC	TH CAROUN	
	ADDRESS: One Copley Parkway, Suite 205, Morrisville, NC 27560	SO CESSI	
	TELEPHONE: (919) 462-9693	1. 00 N. T.	
	N	SEAL 229987	
	PAGES CERTIFIE AII	≣ : 029987 : ≣	
		GINEE	
	· · · · · · · · · · · · · · · · · · ·	THE L ANDRENNY	
	(IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT	AFII HELEPONNE	
	THAT IS BEING CERTIFIED BY THIS SEAL)	COUNTRACTOR - C	



## FORM C1 CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 NCDEQ/Division o	f Air Quality - Ap	•			,	perate	C1
CONTROL DEVICE ID NO: HMA-CD1	CONTROLS EN	ISSIONS	FROM	1 WHICH	EMISSION SC	URCE ID NO(S	6): See Form A2
EMISSION POINT (STACK) ID NC EP-1	POSITION IN S	ERIES OI	F CON	TROLS	NO.	1 OF 1	UNITS
OPERATING SCENARIO:							
		P.E. SEA	AL REC	UIRED (	PER 2q .011	YES	✓ NO
DESCRIBE CONTROL SYSTEM: Astec Model	RBH-45 - 45,0	000 CFM	to co	ntrol er	nissions fror	n drying and	mixing drums
POLLUTANTS COLLECTED:		РМ	_	PM10			_
BEFORE CONTROL EMISSION RATE (LB/HR):		See A	ppen	dix A3			_
CAPTURE EFFICIENCY:		99.99	%	99.99	%	%	_%
CONTROL DEVICE EFFICIENCY:		90	%	90	%	%	_%
CORRESPONDING OVERALL EFFICIENCY:		93	%	90	%	%	_%
EFFICIENCY DETERMINATION CODE:		1 	nnen	dix A3			_
TOTAL AFTER CONTROL EMISSION RATE (LB/	ŀ		ppen				_
PRESSURE DROP (IN H <sub>2</sub> 0): MIN: MAX	: GAUGE?	V YES		NO			
BULK PARTICLE DENSITY (LB/FT <sup>3</sup> ):					MIN Ambient		
POLLUTANT LOADING RATE: LB/HR	GR/FT <sup>3</sup>				MIN 180	MAX 350	
INLET AIR FLOW RATE (ACFM): 45,000 cfm		FILTER		ATING TE	. ,		_
	PER COMPART			-2		BAG (IN.): 120	
NO. OF CARTRIDGES: 640 FILTER SURFA TOTAL FILTER SURFACE AREA (FT <sup>2</sup> ): 7,778	ACE AREA PER (			,	DIAMETER U	F BAG (IN.): 4	5/8
	FORCED/POSI				MATERIAL:	WOVEN 🗸	FELTED
DESCRIBE CLEANING PROCED							1
AIR PULSE	SONIC SIMPLE BAG C		=		SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
	RING BAG COL		-		0-1	40	40.2
OTHER:					-	60	100
DESCRIBE INCOMING AIR STREAM: Hot Air f		d Missing	Deres	no in	1-10 10-25	00	
HMA Plant	Tom Drying an		g Diai	15 11	25-50		
					50-100		
					>100		
						тот	AL = 100
ON A SEPARATE PAGE, ATTACH A DIAGRAM S	SHOWING THE F	RELATION	ISHIP	OF THE (	CONTROL DE	/ICE TO ITS EI	MISSION SOURC
COMMENTS:							

## **FORM C1** CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 NCDEQ/Division								C1
EMISSION POINT (STACK) ID NC EP-2	POSITION IN S				NO.			UNITS
	POSITION IN S		F CO	NTROLS	NU.	1	OF 1	UNITS
OPERATING SCENARIO:		DE SE			(PER 2q .011	YES		√ NO
DESCRIBE CONTROL SYSTEM: C&W Mar	ufacturing - R							
silos and aggregate and truck loading	-							,
POLLUTANTS COLLECTED:		PM	_	PM10		_		_
BEFORE CONTROL EMISSION RATE (LB/HI	<b>ج</b> )	See /	Appe	ndix A4		-		_
CAPTURE EFFICIENCY:			%		%	%		%
CONTROL DEVICE EFFICIENCY:		99.9	%	99.9	_%	%		_%
CORRESPONDING OVERALL EFFICIENCY:			_%		_%	%		_%
EFFICIENCY DETERMINATION CODE:		See	- Anne	ndix A4		-		-
TOTAL AFTER CONTROL EMISSION RATE	(L		-phc			-		-
	// GAUGE?	VES		NO				
BULK PARTICLE DENSITY (LB/FT <sup>3</sup> ):				ERATURE		MAX		
POLLUTANT LOADING RATE: LB/HR	GR/FT <sup>3</sup>			IPERATUR		MAX		
INLET AIR FLOW RATE (ACFM): 6,500 cfm				RATING H	EMP ( <sup>o</sup> f): Ambi			
	GS PER COMPA			2	LENGTH OF E		,	
	RFACE AREA PE			· · ·	DIAMETER O		, ,	
TOTAL FILTER SURFACE AREA (FT <sup>2</sup> ): 1,43			4.54		Filter material:			-
	FORCED/POSI	IIVE		FILTER				FELTED RIBUTION
	1							-
AIR PULSE	SONIC		_		SIZE		EIGHT %	CUMULATIVE
REVERSE FLOW	SIMPLE BAG C	OLLAPS	E		(MICRONS)	O	F TOTAL	%
MECHANICAL/SHAKER	RING BAG COL	LAPSE			0-1		40	40.2
OTHER:					1-10		60	100
DESCRIBE INCOMING AIR STREAM: Hot A	Air from Drying	and Mi	xing	Drums	10-25			
in HMA Plant∖					25-50			
					50-100			
					>100			
							ΤΟΤΑ	L = 100
					1			
					1			
					1			
ON A SEPARATE PAGE, ATTACH A DIAGRA	AM SHOWING TH	IE RELAT	FIONS	SHIP OF TH	HE CONTROL	DEVIO	CE TO ITS	EMISSION SOU
COMMENTS:								

6-5

## FORM C3 CONTROL DEVICE (THERMAL OR CATALYTIC)

CONTROL		- ( ' ' ' ' ' ' ' ' '		IN CATA		
REVISED 09/22/16 NCDEQ/Division of A						C3
QUIRED BY 15A NCAC 2Q .0112, THIS FORM MUST	T BE SEAL	ED BY A F	PROFESSIC	ONAL ENGINI	EER (P.E.) LICENSE	D IN NORTH CAR
CONTROL DEVICE ID NO: CD-PGEN1	CONTRO	LS EMISSI	IONS FROM	1 WHICH EMI	SSION SOURCE ID	NO(S): ES-PGEN1
EMISSION POINT (STACK) ID NO(S): PGEN1	POSITION	N IN SERIE	ES OF CON	TROLS	NO OF	UNITS
MANUFACTURER: Miratech	N	10DEL NO	: IQ2-28-14	-HSG-0 (hou	sing); MECB-OX-RE	32894-2675-0000-29
OPERATING SCENARIO:						
OF						
TYP AFTERBURNER REGENERATIVE T					ERMAL OXIDA 🗸 CA	
	-	-			T NEEDS REPLACM	
	ALOGEN	· · -				
						NONE
TYPE OF CATALYST: Platinum/Rhodiu SCFM THROUGH CATALYST:	VOL (FT <sup>a</sup> )	IBD	VELOCITY	THROUGH C	ATALYST (FPS):	
DESCRIBE CONTROL SYSTEM, INCLUDING RELAT				ICES AND S		ACH DIAGRAM
OF SYSTEM:					CONCEO, AND ATT	
POLLUTANT(S) COLLECTED:	СО					
BEFORE CONTROL EMISSION RATE (LB/HR):	9.55					
CAPTURE EFFICIENCY:	3.55			%	%	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
CONTROL DEVICE EFFICIENCY:		%		%	%	%
CORRESPONDING OVERALL EFFICIENCY:	66.7	%		%	%	%
EFFICIENCY DETERMINATION CODE:						
TOTAL AFTER CONTROL EMISSION RATE (LB/HR)	3.18					
PRESSURE DROP (IN. I MIN MAX 5				ATURE (°F):		350 MAX
INLET TEMPERATURE 550 MIN 1250	MAX	RESID	ENCE TIME	E (SECONDS)	):	
INLET AIR FLOW RATE (ACFM): (SCFM): 41	62	COMB	USTION TE	MPERATUR	E (°F):	
COMBUSTION CHAMBER VOLUME (FT <sup>3</sup> ):				CONTENT (	/	
% EXCESS AIR:			ENTRATIO		INLET	OUTLET
AUXILIARY FUEL USED: NA		TOTAL		FIRING RAT	E (MILLION BTU/HR	:):
DESCRIBE MAINTENANCE PROCEDURES:						
DESCRIBE ANY AUXILIARY MATERIALS INTRODU	CED INTO	THE CON	TROL SYST	EM:		
COMMENTS:						

## FORM C3 CONTROL DEVICE (THERMAL OR CATALYTIC)

CONTROL DI				IALI IIC)	C3						
		ality - Application for Air Permit to Construct/Operate									
UIRED BY 15A NCAC 2Q .0112, THIS FORM MUST E	BE SEA	LED BY A	PROFESSIONAL EN	GINEER (P.E.) LICE	NSED IN NORTH CAF						
	ONTRO	S EMISSI	ONS FROM WHICH E	MISSION SOURCE	ID NO(S): ES-PGEN2						
EMISSION POINT (STACK) ID NO(S): PGEN2 PC	DSITION	I IN SERIE	S OF CONTROLS	NO	OF UNITS						
MANUFACTURER: Miratech	M	ODEL NO:	IQ2-28-14-HSG-0 (h	ousing); MECB-OX-	RB2894-2675-0000-29						
OPERATING SCENARIO:											
OF											
TYP AFTERBURNER REGENERATIVE TH					CATALYTIC OXIDATI						
	-		TING WHEN CATAL								
				PHOROUS COMPOU							
			OTHER (SPECIFY)		NONE						
TYPE OF CATALYST: Platinum/Rho SCFM THROUGH CATALYST:	)L (F I °):	IBD	ELOCITY THROUG	HCATALYST (FPS):							
DESCRIBE CONTROL SYSTEM, INCLUDING RELATI		OTHER CO									
OF SYSTEM:				ND OCONOLO, AND							
POLLUTANT(S) COLLECTED:	СО										
BEFORE CONTROL EMISSION RATE (LB/HR):	9.55										
CAPTURE EFFICIENCY:	3.55		%		0/						
				%	%						
CONTROL DEVICE EFFICIENCY:		%	%	%	%						
CORRESPONDING OVERALL EFFICIENCY:	66.7	%	%	%	%						
EFFICIENCY DETERMINATION CODE:											
TOTAL AFTER CONTROL EMISSION RATE (LB/H	3.18										
PRESSURE DROP (IN. I MIN MAX 5.	0	OUTLE	T TEMPERATURE (°	F): MIN	1350 MAX						
INLET TEMPERATURE 550 MIN 1250	MAX	RESID	ENCE TIME (SECON	DS):							
INLET AIR FLOW RATE (ACFM): (SCFM): 4162		COMBL	JSTION TEMPERATI	JRE (°F):							
COMBUSTION CHAMBER VOLUME (FT <sup>3</sup> ):		INLET I	MOISTURE CONTEN	T (%): <b>11</b>							
% EXCESS AIR:			NTRATION (ppmv)		OUTLET						
AUXILIARY FUEL USED: NA		TOTAL	MAXIMUM FIRING R	ATE (MILLION BTU/	HR):						
DESCRIBE MAINTENANCE PROCEDURES:											
DESCRIBE ANY AUXILIARY MATERIALS INTRODUC	ED INT	O THE COI	NTROL SYSTEM:								
COMMENTS:											

## FORM C3 CONTROL DEVICE (THERMAL OR CATALYTIC)

CONTROL DEVICE (THERWIAL OR CATALITIC)											
REVISED 09/22/16 NCDEQ/Division of A	Air Qualit	y - Applic	ation for Air Permit to Con	struct/Operate	C3						
EQUIRED BY 15A NCAC 2Q .0112, THIS FORM MU	JST BE S	EALED B	Y A PROFESSIONAL ENGI	NEER (P.E.) LICENS	SED IN NORTH CARO						
CONTROL DEVICE ID NO: CD-PGEN2	CONTRO	DLS EMIS	SIONS FROM WHICH EMIS	SION SOURCE ID N	O(S): <b>ES-PGEN2</b>						
EMISSION POINT (STACK) ID NO(S): PGEN2	POSITIO	N IN SER	IES OF CONTROLS	NO OF _	UNITS						
MANUFACTURER: Miratech	1	MODEL N	O: IQ2-28-14-HSG-0 (hous	ng); MECB-OX-RB2	894-2675-0000-291 (e						
OPERATING SCENARIO:											
OF											
TYP AFTERBURNER REGENERATIVE											
			ECTING WHEN CATALYST								
		SILI POUND			HEAVY METAL						
TYPE OF CATALYST: Platinum/Rho CATALYST		•	VELOCITY THROUGH CA		NONL						
SCFM THROUGH CATALYST:		עטו .		$\mathbf{TAETOT}(\mathbf{FO}).$							
DESCRIBE CONTROL SYSTEM, INCLUDING REL	ATION TO	O OTHER	CONTROL DEVICES AND S	SOURCES, AND AT	TACH DIAGRAM OF						
SYSTEM:											
POLLUTANT(S) COLLECTED:	СО										
BEFORE CONTROL EMISSION RATE (LB/HR):	9.55										
CAPTURE EFFICIENCY:		%	%	%	%						
CONTROL DEVICE EFFICIENCY:		%	%	%	%						
CORRESPONDING OVERALL EFFICIENCY:	66.7	%	%	%	%						
EFFICIENCY DETERMINATION CODE:											
TOTAL AFTER CONTROL EMISSION RATE (LB/H	3.18										
``````````````````````````````````````											
PRESSURE DROP (IN. I MIN MAX	5.0	OUTI	LET TEMPERATURE (°F):	MIN 13	50 MAX						
INLET TEMPERATURE 550 MIN 1250	MAX	RESI	DENCE TIME (SECONDS):								
INLET AIR FLOW RATE (ACFM): (SCFM): 41	62	СОМ	BUSTION TEMPERATURE	(°F):							
COMBUSTION CHAMBER VOLUME (FT <sup>3</sup> ):		INLE	T MOISTURE CONTENT (%	): <b>11</b>							
% EXCESS AIR:			CENTRATION (ppmv)	INLET	OUTLET						
AUXILIARY FUEL USED: NA		TOTA	AL MAXIMUM FIRING RATE	(MILLION BTU/HR):							
DESCRIBE MAINTENANCE PROCEDURES:											
DESCRIBE ANY AUXILIARY MATERIALS INTROD	UCED IN	TO THE C	ONTROL SYSTEM:								
COMMENTS:											

			Un	controlled Po	tential Emissi	ions		Controlled Pot	ential Emission	s	Potential Emissions w/ Synthetic Mino Limits****
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/dav)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Hot Mix Asphalt Plant*	PM		16.10	386.36	141,022	70.51	11.42	77.43	28,263	14.13	14.13
	PM10		8.09	194.11	70,850	35.43	6.93	47.87	17,474	8.74	8.74
	PM2.5		8.09	194.11	70,850	35.43	6.93	47.87	17,474	8.74	8.74
	SO2		21.54	517.01	188,707	94.35	21.54	152.25	55,571	27.79	27.79
	NOx		13.92	334.11	121,952	60.98	13.92	94.53	34,502	17.25	17.25
	CO		33.18	796.20	290,614	145.31	33.18	218.88	79,893	39.95	39.95
	VOC		12.03	288.65	105,356	52.68	12.03	79.13	28,883	14.44	14.44
	Acetaldehyde	H/T	3.25E-01	7.80E+00	2.85E+03	1.42E+00	3.25E-01	7.80E+00	7.80E+02	3.90E-01	1.56E-01
	Acrolein	H/T	6.50E-03	1.56E-01	5.69E+01	2.85E-02	6.50E-03	1.56E-01	1.56E+01	7.80E-03	3.90E-03
	Antimony unlisted compounds	Н	4.50E-05	1.08E-03	3.94E-01	1.97E-04	4.50E-05	1.08E-03	1.08E-01	5.40E-05	2.70E-05
	Arsenic unlisted composition of ASC)	H/T	1.40E-04	3.36E-03	1.23E+00	6.13E-04	1.40E-04	3.36E-03	3.36E-01	1.68E-04	8.40E-05
	Benzene	H/T	9.90E-02	2.38E+00	8.67E+02	4.34E-01	9.90E-02	2.38E+00	2.38E+02	1.19E-01	5.94E-02
	Benzo(a)pyrene	T	4.41E-06	1.06E-04	3.86E-02	4.34E-01 1.93E-05	4.41E-06	1.06E-04	1.06E-02	5.29E-06	2.65E-06
	Beryllium metal (unreacted)	H/T	4.41E-06 0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.41E-06 0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Cadmium metal (elemental unreacted)	H/T	1.03E-04	2.46E-03	8.98E-01	4.49E-04	1.03E-04	2.46E-03	2.46E-01	1.23E-04	6.15E-05
	Carbon disulfide	H/T	6.23E-04	2.46E-03 1.49E-02	8.98E-01 5.45E+00	4.49E-04 2.73E-03	6.23E-04	2.46E-03 1.49E-02	2.46E-01 1.49E+00	7.47E-04	6.15E-05 3.74E-04
	Chromium unlisted cmpds (add w/chrom acid to get CRC)		1.26E-03	3.03E-02	1.11E+01	5.53E-03	1.26E-03	3.03E-02	3.03E+00	1.52E-03	7.58E-04
	Chromic acid (VI) (component of solCR6 and CRC)	H/T	1.13E-04	2.70E-03	9.86E-01	4.93E-04	1.13E-04	2.70E-03	2.70E-01	1.35E-04	6.75E-05
	Cobalt unlisted compounds	Н	6.50E-06	1.56E-04	5.69E-02	2.85E-05	6.50E-06	1.56E-04	1.56E-02	7.80E-06	3.90E-06
	Cumene	Н	1.14E-03	2.74E-02	1.00E+01	5.01E-03	1.14E-03	2.74E-02	2.74E+00	1.37E-03	6.86E-04
	Ethyl benzene	H	6.41E-02	1.54E+00	5.61E+02	2.81E-01	6.41E-02	1.54E+00	1.54E+02	7.69E-02	3.84E-02
	Ethyl chloride (chloroethane)	Н	2.18E-06	5.24E-05	1.91E-02	9.56E-06	2.18E-06	5.24E-05	5.24E-03	2.62E-06	1.31E-06
	Formaldehyde	H/T	7.97E-01	1.91E+01	6.98E+03	3.49E+00	7.97E-01	1.91E+01	1.91E+03	9.56E-01	4.78E-01
	Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	Т	3.25E-10	7.80E-09	2.85E-06	1.42E-09	3.25E-10	7.80E-09	7.80E-07	3.90E-10	1.95E-10
	Hexane, n-	H/T	2.39E-01	5.74E+00	2.10E+03	1.05E+00	2.39E-01	5.74E+00	5.74E+02	2.87E-01	1.44E-01
	Hydrogen Chloride (hydrochloric acid)	H/T	5.25E-02	1.26E+00	4.60E+02	2.30E-01	5.25E-02	1.26E+00	1.26E+02	6.30E-02	3.15E-02
	Hydrogen Sulfide	Т	1.37E-02	3.28E-01	1.20E+02	5.99E-02	1.37E-02	3.28E-01	3.28E+01	1.64E-02	8.21E-03
	Lead unlisted compounds	Н	3.75E-03	9.00E-02	3.29E+01	1.64E-02	3.75E-03	9.00E-02	9.00E+00	4.50E-03	2.25E-03
	Manganese unlisted compounds	Т	1.93E-03	4.62E-02	1.69E+01	8.43E-03	1.93E-03	4.62E-02	4.62E+00	2.31E-03	1.16E-03
	Mercury, vapor	H/T	6.50E-04	1.56E-02	5.69E+00	2.85E-03	6.50E-04	1.56E-02	1.56E+00	7.80E-04	3.90E-04
	Methyl bromide	Н	2.49E-04	5.98E-03	2.18E+00	1.09E-03	2.49E-04	5.98E-03	5.98E-01	2.99E-04	1.49E-04
	Methyl chloride	Н	1.56E-04	3.74E-03	1.37E+00	6.83E-04	1.56E-04	3.74E-03	3.74E-01	1.87E-04	9.36E-05
	Methyl chloroform	H/T	1.20E-04	2.88E-01	1.05E+02	5.26E-02	1.20E-04	2.88E-01	2.88E+01	1.44E-02	7.20E-03
	Methyl ethyl ketone	H/T	6.70E-02	1.61E-01	5.87E+01	2.93E-02	6.70E-03	1.61E-01	1.61E+01	8.04E-03	4.02E-03
	Methylene chloride	H/T	8.23E-06	1.97E-04	7.21E-02	3.60E-02	8.23E-06	1.97E-04	1.97E-02	9.87E-06	4.02E-03 4.94E-06
		H									9.88E-02
	Napthalene		1.65E-01	3.95E+00	1.44E+03	7.21E-01	1.65E-01	3.95E+00	3.95E+02	1.98E-01	
	Nickel metal	H/T	1.58E-02	3.78E-01	1.38E+02	6.90E-02	1.58E-02	3.78E-01	3.78E+01	1.89E-02	9.45E-03
	Perchloroethylene (tetrachloroethylene)	H/T	8.01E-05	1.92E-03	7.01E-01	3.51E-04	8.01E-05	1.92E-03	1.92E-01	9.61E-05	4.80E-05
	Phenol	H/T	1.01E-03	2.41E-02	8.81E+00	4.41E-03	1.01E-03	2.41E-02	2.41E+00	1.21E-03	6.03E-04
	Phosphorus Metal, Yellow or White	Н	7.00E-03	1.68E-01	6.13E+01	3.07E-02	7.00E-03	1.68E-01	1.68E+01	8.40E-03	4.20E-03
	Polycyclic Organic Matter	Н	2.20E-01	5.28E+00	1.93E+03	9.64E-01	2.20E-01	5.28E+00	5.28E+02	2.64E-01	1.32E-01
	Propionaldehyde	Н	3.25E-02	7.80E-01	2.85E+02	1.42E-01	3.25E-02	7.80E-01	7.80E+01	3.90E-02	1.95E-02
	Quinone	Н	4.00E-02	9.60E-01	3.50E+02	1.75E-01	4.00E-02	9.60E-01	9.60E+01	4.80E-02	2.40E-02
	Selenium compounds	Н	8.75E-05	2.10E-03	7.67E-01	3.83E-04	8.75E-05	2.10E-03	2.10E-01	1.05E-04	5.25E-05
	Styrene	H/T	2.40E-04	5.77E-03	2.11E+00	1.05E-03	2.40E-04	5.77E-03	5.77E-01	2.89E-04	1.44E-04
	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	H/T	5.25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	1.26E-07	6.30E-11	3.15E-11
	Toluene	H/T	7.29E-01	1.75E+01	6.39E+03	3.19E+00	7.29E-01	1.75E+01	1.75E+03	8.75E-01	4.37E-01
	Trichloroethylene	H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Trichlorofluoromethane (CFC 111)	T	1.35E-05	3.24E-04	1.18E-01	5.92E-05	1.35E-05	3.24E-04	3.24E-02	1.62E-05	8.11E-06
	Trimethylpentane, 2,2,4-	Н	1.00E-02	2.41E-01	8.78E+01	4.39E-02	1.00E-02	2.41E-01	2.41E+01	1.20E-02	6.02E-03
	Xylene	H/T	6.04E-02	1.45E+00	5.29E+02	2.64E-01	6.04E-02	1.45E+00	1.45E+02	7.24E-02	3.62E-03
oncrete Batch Plant	PM		5.10E+00	1.22E+02	9.08E+05	4.54E+02	5.10E+00	1.22E+02	4.46E+02	22.32	22.32
mercie Datell Flait	PM1 PM10		2.44E+00	5.85E+01	9.08E+05 3.44E+05	4.34E+02 1.72E+02	3.10E+00 2.44E+00	5.85E+01	2.13E+04	10.67	10.67
	PM10 PM2.5		2.44E+00 2.44E+00	5.85E+01	3.44E+05	1.72E+02 1.72E+02	2.44E+00 2.44E+00	5.85E+01 5.85E+01	2.13E+04 2.13E+04	10.67	10.67
		H/T	2.44E+00 6.59E-05	5.85E+01 1.58E-03	3.44E+05 2.18E+01	1.72E+02 1.09E-02	2.44E+00 6.59E-05	5.85E+01 1.58E-03	2.13E+04 5.77E-01	10.67 2.88E-04	2.88E-04
	Arsenic unlisted cmpds (comp. of ASC)										
	Beryllium metal (unreacted)	H/T	4.53E-06	1.09E-04	8.77E-02	4.38E-05	4.53E-06	1.09E-04	3.97E-02	1.99E-05	1.99E-05
	Cadmium metal (elemental unreacted)	H/T	5.00E-07	1.20E-05	6.74E-02	3.37E-05	5.00E-07	1.20E-05	4.38E-03	2.19E-06	2.19E-06
	Chromic acid (VI) (component of solCR6 and CRC)	Н	1.58E-04	3.80E-03	3.73E+00	1.86E-03	1.58E-04	3.80E-03	1.39E+00	6.93E-04	6.93E-04
	Lead unlisted compounds	Н	5.96E-05	1.43E-03	1.16E+01	5.78E-03	5.96E-05	1.43E-03	5.22E-01	2.61E-04	2.61E-04
	Manganese unlisted compounds	H/T	7.49E-04	1.80E-02	6.72E+01	3.36E-02	7.49E-04	1.80E-02	6.56E+00	3.28E-03	3.28E-03
	Nickel metal	H/T	1.92E-04	4.62E-03	8.05E+00	4.02E-03	1.92E-04	4.62E-03	1.68E+00	8.42E-04	8.42E-04
	Phosphorus Metal, Yellow or White	Н	4.71E-04	1.13E-02	1.51E+01	7.54E-03	4.71E-04	1.13E-02	4.13E+00	2.06E-03	2.06E-03

			Un	controlled Po	tential Emissi	ions		Controlled Pot	ential Emission	s	Potential Emissions w/ Synthetic Minor Limits****
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Asphalt Cement Heater**	2-Methylnaphthalene		2.81E-08	6.74E-07	2.46E-04	1.23E-07	2.81E-08	6.74E-07	2.46E-04	1.23E-07	1.23E-07
-	3-Methylchloranthrene		2.11E-09	5.05E-08	1.84E-05	9.22E-09	2.11E-09	5.05E-08	1.84E-05	9.22E-09	9.22E-09
	7,12-Dimethylbenz(a)anathracene		1.87E-08	4.49E-07	1.64E-04	8.20E-08	1.87E-08	4.49E-07	1.64E-04	8.20E-08	8.20E-08
	Acenaphthene	Н	1.81E-07	4.34E-06	1.58E-03	7.92E-07	1.81E-07	4.34E-06	1.58E-03	7.92E-07	7.92E-07
	Acenaphtylene	Н	2.17E-09	5.20E-08	1.90E-05	9.50E-09	2.17E-09	5.20E-08	1.90E-05	9.50E-09	9.50E-09
	Acetaldehyde	H/T	1.78E-08	4.27E-07	1.56E-04	7.79E-08	1.78E-08	4.27E-07	1.56E-04	7.79E-08	7.79E-08
	Acrolein	H/T	2.11E-08	5.05E-07	1.84E-04	9.22E-08	2.11E-08	5.05E-07	1.84E-04	9.22E-08	9.22E-08
	Ammonia	Т	3.74E-03	8.98E-02	3.28E+01	1.64E-02	3.74E-03	8.98E-02	3.28E+01	1.64E-02	1.64E-02
	Anthracene	Н	1.05E-08	2.51E-07	9.16E-05	4.58E-08	1.05E-08	2.51E-07	9.16E-05	4.58E-08	4.58E-08
	Benz(a)anthracene	Н	3.44E-08	8.25E-07	3.01E-04	1.51E-07	3.44E-08	8.25E-07	3.01E-04	1.51E-07	1.51E-07
	Benzene	H/T	2.46E-06	5.89E-05	2.15E-02	1.08E-05	2.46E-06	5.89E-05	2.15E-02	1.08E-05	1.08E-05
	Benzo(a)pyrene	H/T	1.40E-09	3.37E-08	1.23E-05	6.15E-09	1.40E-09	3.37E-08	1.23E-05	6.15E-09	6.15E-09
	Benzo(b)fluoranthene	Н	1.27E-08	3.04E-07	1.11E-04	5.56E-08	1.27E-08	3.04E-07	1.11E-04	5.56E-08	5.56E-08
	Benzo(g,h,i)perylene	Н	1.94E-08	4.65E-07	1.70E-04	8.48E-08	1.94E-08	4.65E-07	1.70E-04	8.48E-08	8.48E-08
	Benzo(k)fluoranthene	Н	2.11E-09	5.05E-08	1.84E-05	9.22E-09	2.11E-09	5.05E-08	1.84E-05	9.22E-09	9.22E-09
	Butane		2.46E-03	5.89E-02	2.15E+01	1.08E-02	2.46E-03	5.89E-02	2.15E+01	1.08E-02	1.08E-02
	Chrysene	Н	2.04E-08	4.90E-07	1.79E-04	8.94E-08	2.04E-08	4.90E-07	1.79E-04	8.94E-08	8.94E-08
	Dibenzo(a,h)anthracene	Н	1.43E-08	3.44E-07	1.25E-04	6.27E-08	1.43E-08	3.44E-07	1.25E-04	6.27E-08	6.27E-08
	Dichlorobenzene	H/T	1.40E-06	3.37E-05	1.23E-02	6.15E-06	1.40E-06	3.37E-05	1.23E-02	6.15E-06	6.15E-06
	Ethane		3.63E-03	8.70E-02	3.18E+01	1.59E-02	3.63E-03	8.70E-02	3.18E+01	1.59E-02	1.59E-02
	Ethylbenzene	Н	5.45E-07	1.31E-05	4.78E-03	2.39E-06	5.45E-07	1.31E-05	4.78E-03	2.39E-06	2.39E-06
	Fluoranthene	Н	4.15E-08	9.96E-07	3.63E-04	1.82E-07	4.15E-08	9.96E-07	3.63E-04	1.82E-07	1.82E-07
	Fluorene	Н	3.83E-08	9.20E-07	3.36E-04	1.68E-07	3.83E-08	9.20E-07	3.36E-04	1.68E-07	1.68E-07
	Formaldehyde	H/T	2.83E-04	6.79E-03	2.48E+00	1.24E-03	2.83E-04	6.79E-03	2.48E+00	1.24E-03	1.24E-03
	Hexane	H/T	2.11E-03	5.05E-02	1.84E+01	9.22E-03	2.11E-03	5.05E-02	1.84E+01	9.22E-03	9.22E-03
	Indeno(1,2,3-cd)pyrene	Н	1.83E-08	4.40E-07	1.61E-04	8.03E-08	1.83E-08	4.40E-07	1.61E-04	8.03E-08	8.03E-08
	Naphthalene	Н	9.69E-06	2.32E-04	8.48E-02	4.24E-05	9.69E-06	2.32E-04	8.48E-02	4.24E-05	4.24E-05
	OCDD		2.66E-11	6.38E-10	2.33E-07	1.16E-10	2.66E-11	6.38E-10	2.33E-07	1.16E-10	1.16E-10
	Pentane		3.04E-03	7.30E-02	2.66E+01	1.33E-02	3.04E-03	7.30E-02	2.66E+01	1.33E-02	1.33E-02
	Phenanathrene	Н	9.00E-08	2.16E-06	7.88E-04	3.94E-07	9.00E-08	2.16E-06	7.88E-04	3.94E-07	3.94E-07
	Propane		1.87E-03	4.49E-02	1.64E+01	8.20E-03	1.87E-03	4.49E-02	1.64E+01	8.20E-03	8.20E-03
	Pyrene	Н	3.64E-08	8.74E-07	3.19E-04	1.60E-07	3.64E-08	8.74E-07	3.19E-04	1.60E-07	1.60E-07
	Toluene	H/T	5.31E-05	1.28E-03	4.66E-01	2.33E-04	5.31E-05	1.28E-03	4.66E-01	2.33E-04	2.33E-04
	1,1,1-Trichloroethane		2.02E-06	4.85E-05	1.77E-02	8.86E-06	2.02E-06	4.85E-05	1.77E-02	8.86E-06	8.86E-06
	Xylene	H/T	9.34E-07	2.24E-05	8.18E-03	4.09E-06	9.34E-07	2.24E-05	8.18E-03	4.09E-06	4.09E-06
	Arsenic	H/T	4.80E-06	1.15E-04	4.20E-02	2.10E-05	4.80E-06	1.15E-04	4.20E-02	2.10E-05	2.10E-05
	Barium		5.15E-06	1.24E-04	4.51E-02	2.25E-05	5.15E-06	1.24E-04	4.51E-02	2.25E-05	2.25E-05
	Beryllium	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Cadmium	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Chromium (as chromic acid)	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Cobalt		9.82E-08	2.36E-06	8.61E-04	4.30E-07	9.82E-08	2.36E-06	8.61E-04	4.30E-07	4.30E-07
	Copper		7.20E-06	1.73E-04	6.31E-02	3.15E-05	7.20E-06	1.73E-04	6.31E-02	3.15E-05	3.15E-05
	Lead	H	1.08E-05	2.59E-04	9.46E-02	4.73E-05	1.08E-05	2.59E-04	9.46E-02	4.73E-05	4.73E-05
	Manganese	H/T	7.20E-06	1.73E-04	6.31E-02	3.15E-05	7.20E-06	1.73E-04	6.31E-02	3.15E-05	3.15E-05
	Mercury	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Molybdenum		1.29E-06	3.09E-05	1.13E-02	5.64E-06	1.29E-06	3.09E-05	1.13E-02	5.64E-06	5.64E-06
	Nickel	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Selenium	Н	1.80E-05	4.32E-04	1.58E-01	7.88E-05	1.80E-05	4.32E-04	1.58E-01	7.88E-05	7.88E-05
	Vanadium		2.69E-06	6.46E-05	2.36E-02	1.18E-05	2.69E-06	6.46E-05	2.36E-02	1.18E-05	1.18E-05
	Zinc		3.39E-05	8.14E-04	2.97E-01	1.49E-04	3.39E-05	8.14E-04	2.97E-01	1.49E-04	1.49E-04

Source NomeInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit of partInduit o			HAP/	Un	controlled Po	tential Emiss	ions		Controlled Pot	ential Emission	s	Potential Emissions w/ Synthetic Minor Limits****
HaneMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Source Name	Pollutant		(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
PA10         9.75E-00         2.34E-00         8.54E-00         4.27E-02         9.75E-00         2.34E-00         8.54E-00         2.37E-00         4.27E-02           PA1.5         9.75E-00         2.34E-00         8.54E-00         2.34E-00         8.54E-00         2.34E-00         8.54E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00         2.34E-00<		D) (		1.675.00	2.775.01	1.207.00	6.005.02	1.675.00	2 775 61	1.207.02	( 007 00	6.007.02
Pho 2         Section         9.756-00         2.346-00         8.546-00         4.276-02         4.276-02           SO2         5.856.00         1.347-00         5.886-00         1.447-00         5.886-00         1.347-00         4.847-00         5.846-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00         5.487-00 <td>Heater***</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Heater***											
S02       5582-01       1347+01       4.897+00       5.882-01       1347+00       5.882-01       5.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       6.882-01       5.901-01       1.412-01       5.177-01       2.582-0       2.582-01       5.901-00       1.421-01       5.177-01       2.582-01       5.901-00       1.812-00       5.901-00       1.822-00       1.620-01       2.525-04       1.512-00       1.620-01       2.525-04       1.512-00       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01       1.620-01												
Nox         State-of         3.88-of         3.88-of         3.78-of         3.78-of         3.88-of         3.78-of         3.88-of         3.78-of         3.88-of         3.78-of         3.88-of         3.78-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3.88-of         3												
CO         901E-02         21.6E-00         739E-02         23.6E-01         738E-02         23.6E-01         738E-02         23.6E-01         738E-02         23.6E-01         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02         738E-02 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
D-Mednylaphtalaene         2 2716.08         6.1887.07         2 2316.08         6.1887.07         2 2316.04         1.118.07         1.118.07           D-Mednylaphtalonambrace         1.7216.08         4.0216.07         1.9516.04         4.1216.07         1.9516.04         4.1216.07         1.9516.04         1.7216.08         4.1216.07         1.9516.04         1.7216.08         4.1216.07         1.9516.04         1.7216.08         4.1216.07         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04         1.9516.04 <td></td> <td>VOCs</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		VOCs										
B-Mcthylebroxignauffneren     1924:69     4.04E-08     6.845-09     8.845-09     8.845-09     8.845-09     8.845-09     8.845-09     8.845-09     8.845-09     8.845-09     8.845-09     7.816-08       A-complificenc     H     1.06E-07     3.98E-06     1.726-08     4.126-03     3.716-08     7.816-08     7.816-08       A-complificenc     HT     1.06E-04     7.716-04     1.476-04     7.716-04     7.466-07     7.816-08     7.816-08       A-complificenc     HT     1.06E-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08     7.816-08 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>												
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $												
Accomplusme         H         Lote-07         398-60         Label-07         Lote-07         Lote-07         Lote-07         Lote-07         Lote-07         Lote-08         Lote-07         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08         Lote-08 <thlot-08< th=""> <thlot-08< th=""> <thlot-0< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thlot-0<></thlot-08<></thlot-08<>												
Accamplaylene         H         1.996-209         4.77E-38         1.74E-30         1.74E-30         1.74E-30         8.71E-07           Accelain-Accaladolyde         HT         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         1.651-68         3.01E-07         3.01E-07         8.40E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08         4.30E-08			ч									
Actedide/nde         UIT         1.681-08         3.911-07         1.482-08         3.011-07         1.482-04         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08         7.142-08												
Acrobin         H7         193E-08         40.516-71         193E-08         40.516-71         10.50E-04         34.516-30         50E-02         34.516-30         50E-02         34.516-30         50E-02         34.516-30         50E-02         34.516-30         50E-02         34.516-30         50E-02         34.516-30         50E-02         34.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.516-30         35.51												
Ammonia         T         3.43E-03         8.23E-03         3.23E-04         3.23E-02         3.01E-01         1.50E-02         1.50E-02           Ammone         H         3.15E-08         7.05E-04         2.05E-04         3.00E-05         3.05E-05         3.00E-01         3.05E-06         3.00E-01         3.05E-06         3.05E-07         2.76E-04         1.38E-07         1.38E-07           Bences         HT         1.22E-06         3.06E-05         3.05E-08         3.05E-08         3.05E-08         5.05E-07         2.76E-04         1.38E-07         0.32E-04           Bencord/phorentheme         H         1.16E-08         3.06E-08         1.25E-04         3.06E-08         1.25E-04         3.05E-04         7.78E-08         4.26E-07         1.05E-04         7.78E-08         4.26E-07         1.05E-04         7.78E-08         4.26E-07         1.05E-04         4.26E-07         1.05E-04         4.26E-07         1.05E-04         4.05E-04         7.78E-08         4.35E-08         4.05E-03         5.06E-03         2.05E-03         5.06E-03         2.05E-03         5.06E-03         2.05E-04         5.06E-03         2.05E-04         5.06E-03         2.05E-04         5.06E-03         2.05E-04         5.06E-03         2.05E-04         2.05E-04         2.05E-04         2.05E-04 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>												
Benzighambracone         H         3.154-08         7.566-07         2.766-04         1.786-07         2.766-04         1.386-07         1.388-07           Benzoclopyrene         H/T         1.2256-06         5.066-05         1.076-02         9.866-06         5.066-05         5.066-07         5.766-07         1.576-04         1.976-02         9.866-06         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09         5.666-09 <td< td=""><td></td><td>Ammonia</td><td>Т</td><td>3.43E-03</td><td>8.23E-02</td><td>3.01E+01</td><td>1.50E-02</td><td>3.43E-03</td><td>8.23E-02</td><td>3.01E+01</td><td>1.50E-02</td><td>1.50E-02</td></td<>		Ammonia	Т	3.43E-03	8.23E-02	3.01E+01	1.50E-02	3.43E-03	8.23E-02	3.01E+01	1.50E-02	1.50E-02
Benzenie         HT         2251-00         5.40E-05         2.252-00         5.40E-05         2.252-00         5.40E-05         1.97E-02         9.80E-06         9.80E-06           Benzolphlueamthane         H         1.16E-08         2.79E-07         1.02E-04         5.09E-08         1.16E-08         2.79E-07         1.02E-04         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-08         5.09E-		Anthracene	Н						2.30E-07			
Bearod apyrane         INT         129E-09         3.09E-08         1.13E-05         5.54E-09         5.64E-09           Bearod phomenheme         H         1.16E-08         2.79E-07         1.02E-04         5.09E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-04         5.79E-07         1.02E-05         8.45E-09         8.45E-07         1.64E-08         1.07E-00         9.86E-03         2.29E-03         5.40E-02         1.97E-01         9.86E-03         2.29E-03         5.40E-02         1.97E-01         9.86E-03         2.29E-03         5.40E-02         1.97E-04         8.75E-08         8.75F-08         8.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08												
Benzo(b)fluoranthene         H         1.16E-08         2.29E-07         1.02E-04         5.09E-08         1.02E-04         5.50E-08         7.58E-08         7.58E-08           Benzo(b)fluoranthene         H         1.93E-09         4.64E-08         1.04E-08         4.25E-07         1.55E-04         7.78E-08         7.58E-08           Batane         2.25E-03         5.40E-02         1.97E-09         4.64E-08         1.09E-05         8.45E-09         8.45E-09           Dibenzo(a),hundrancen         H         1.87E-08         4.97E-04         5.47E-08         1.87E-08         3.15E-07         1.15E-04         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.												
BezzogLa, Liperylene         H         1.78E-08         4.26E-07         1.56E-04         7.78E-08         1.78E-08         4.26E-07         1.56E-04         7.78E-08         7.78E-08         4.56E-07         1.56E-04         7.78E-08         7.78E-08         4.56E-07         1.56E-04         7.78E-08         7.78E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08         7.58E-08												
BenzeQi()Incombine         H         193E-09         4.63E-08         1.09E-03         8.43E-09         1.63E-08         1.69E-03         2.52E-03         5.40E-02         1.97E-01         8.66E-03         2.52E-03         5.40E-02         1.97E-01         8.66E-03         5.40E-02         1.97E-01         8.66E-03         2.52E-03         5.40E-02         1.97E-04         8.49E-07         1.64E-04         8.19E-08         1.31E-04         5.72E-08         3.13E-07         1.13E-04         5.72E-08         3.13E-07         1.13E-04         5.72E-08         3.09E-05         1.13E-02         5.62E-06         2.09E-03         1.03E-04         6.29E-03         7.98E-02         2.91E-01         1.46E-02         3.12E-04         6.20E-03         3.33E-04         1.67E-07         3.08E-04         1.93E-04         6.21E-07         3.08E-04         1.93E-03         6.20E-07         3.08E-04         1.54E-07         3.54E-04         1.67E-07         3.08E-04         1.54E-07         1.54E-07         1.54E-04         2.21E-06         3.01E-07         3.01E-04         6.32E-03         3.01E-04         6.32E-03         3.01E-04         6.32E-03         3.01E-04         6.32E-03         5.32E-04         1.54E-07         3.15E-04         6.32E-03         3.01E-04         3.01E-04         2.21E-04         1.14E-03												
Butane         C         225:03         5.40E-02         1.97E-01         9.86E-03         2.25E-03         5.40E-02         1.97E-01         9.86E-03         0.98E-03           Chrysne         H         1.87E-08         4.49E-07         1.64E-04         8.19E-08         1.87E-08         4.49E-07         1.64E-04         8.19E-08         1.87E-04         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08												
Chrysne         H         137E-08         4.98E-07         1.64E-04         8.19E-08         1.87E-08         4.98E-07         1.64E-04         8.19E-08         8.19E-08           Dichorobenzone         HT         1.19E-04         5.75E-08         1.11E-08         3.15E-07         1.15E-04         5.75E-08         1.13E-08         5.75E-08         1.21E-04         5.64E-06         5.64E-06         5.64E-06         5.05E-07         1.20E-05         5.64E-06         5.05E-07         1.20E-05         5.05E-07         1.20E-05         4.38E-03         2.19E-01         1.64E-02         3.25E-03         7.88E-03         2.19E-06         5.05E-07         2.33E-04         1.67E-07         3.80E-08         9.13E-07         3.33E-04         1.67E-07         3.80E-08         9.13E-07         3.38E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04         1.67E-07         3.80E-04 <td></td> <td></td> <td>11</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			11									
Distarada, Jauthacene         HT         131E-04         5.75E-08         1.31E-04         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08         5.75E-08			Н									
Dichlorobezzone         H/T         1.292-60         3.09E-05         1.13E-02         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-06         5.64E-07         5.08E-07         7.08E-02         2.19E-01         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-02         1.46E-07         3.38E-04         1.54E-07         3.38E-04         1.54E-07         3.38E-04         1.54E-07         3.38E-04         1.54E-07         1.34E-03         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.59E-04         6.22E-03         2.27E+00         1.44E-03         1.34E-03         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05         5.64E-05												
Ethylhenzene         H         500:07         120:04         630:07         120:04         500:07         120:04         538:03         219:06         219:06           Fluorente         H         330:04         91:18:07         331:04         167:07         330:04         167:07         330:04         167:07         330:04         167:07         330:04         1.54:07         330:04         1.54:07         330:04         1.54:07         330:04         1.54:07         330:04         1.54:07         330:04         1.54:07         330:04         1.54:07         1.54:07         330:04         1.54:07         300:04         1.54:07         300:04         1.54:07         300:04         1.54:07         1.54:07         1.54:07         300:04         1.54:07         1.56:04         7.86:03         1.99:04         1.63:04         1.46:03         1.99:04         1.63:04         7.86:00         1.50:07         1.65:04         1.66:04         1.40:02         1.99:04         1.56:04         7.36:08         1.68:04         4.06:07         1.47:04         7.36:04         8.85:06         2.38:04         1.56:04         7.36:04         8.85:04         2.38:04         3.66:07         2.44:01         1.22:04         7.56:04         8.85:04         2.38:04         3.66:07			H/T	1.29E-06	3.09E-05			1.29E-06	3.09E-05	1.13E-02		5.64E-06
Fluorambrene         H         3.80E-08         9.13E-07         3.33E-04         1.67E-07         3.38E-04         1.56E-07         3.33E-04         1.67E-07           Fluorence         H         3.51E-08         8.43E-07         3.08E-04         1.54E-07         3.50E-08         8.43E-07         3.08E-04         1.54E-07         1.54E-07           Formaldehyde         HT         2.59E-04         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.59E-04         6.22E-03         2.27E+00         1.46E-07         1.47E-04         7.36E-04         6.22E-03         2.27E+00         1.46E-07         1.47E-04         7.36E-04         8.45E-03         1.59E-03         6.66E-02         2.44E-01         5.35E-10         2.13E-04         7.73E-02         3.89E-05         7.32E-04         3.61E-07         7.36E-04         7.35E-04         3.61E-07         7.36E-04         7.32E-04         3.61E-07         3.34E-04         1.50E-04         7.35E-04         3.61E-07         3.34E-04         1.50E-04         7.35E-04         3.61E-07         3.34E-04         3.61E-07		Ethane					1.46E-02				1.46E-02	
Fluorene         H         3.51E-08         8.43E-07         3.08E-04         1.54E-07         3.08E-04         1.54E-07         1.54E-07           Formaldehyde         H/T         2.59E-04         6.22E+03         2.27E+00         1.14E-03         2.59E-04         6.22E+03         2.27E+00         1.14E-03         2.59E-04         6.22E+03         2.27E+00         1.14E-03         8.43E+02         1.69E+01         8.43E+02         1.69E+01         8.43E+03         4.63E+02         1.69E+01         8.43E+03         4.63E+02         1.69E+01         8.43E+03         1.43E+03         8.43E+03         8.43E+04           Indeno(1,2,3-cd)pyrene         H         1.68E-08         4.04E+07         1.47E+04         7.36E-08         1.68E+08         4.04E+07         1.47E-04         7.36E+08         3.68E+04         1.47E+04         7.36E+08         1.07E+01         8.43E+07         3.68E+04         1.47E+04         7.36E+08         4.04E+07         3.46E+01         2.12E+02         1.27E+03         4.02E+01         1.22E+02         1.27E+03         4.02E+01         1.22E+02         1.28E+01         1.23E+04         3.61E+07         3.61E+07         3.61E+07         3.61E+07         3.61E+07         3.61E+07         3.61E+07         3.61E+01         2.3E+04         1.61E+01         3.25E+04 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>												
Formaldehyde         H/T         2.59E-04         6.22E-03         2.27E+00         1.14E-03         2.27E+00         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         1.14E-03         8.45E-00         1.14E-03         1.14E-03         8.45E-03         8.45E-06         1.03E-03         4.63E-02         1.69E+04         4.63E-02         1.69E+04         4.63E-04         7.03E-08         8.736E-08         7.36E-08         7.36E-08         7.36E-08         7.36E-08         7.36E-08         7.36E-02         2.44E-11         5.85E+10         2.13E-07         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.22E+02         2.79E-03         6.69E-02         2.44E+11         5.85E+10         2.13E-07         1.07E+10         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02         1.22E+02												
Hexan         H/T         1.93E-03         4.63E-02         1.69E+01         8.45E-03         8.43E-03         8.43E-03         8.43E-03         8.43E-03           Indeno(1,2,3-cd)pyrene         H         1.68E+08         4.04E-07         1.47E+04         7.36E+08         1.08E+08         4.04E+07         1.47E+04         7.36E+08         7.38E+07         1.37E+04         7.36E+08         7.38E+07         1.37E+04         7.36E+08         7.38E+07         1.37E+04         7.36E+08         7.38E+07         1.37E+07         1.47E+04         7.36E+08         7.38E+07         1.37E+07         1.47E+04         7.36E+08         7.38E+07         2.13E+04         7.38E+03         3.89E+05         2.13E+04         7.38E+03         3.89E+05         7.32E+07         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.07E+10         1.0												
Indeno(1,2,3-cd)pyrene         H         1.68E-08         4.04E-07         1.47E-04         7.36E-08         1.68E-08         4.04E-07         1.47E-04         7.36E-08         7.36E-08           Naphthalene         H         8.88E-06         2.13E-04         7.78E-02         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-07         2.79E-03         6.69E-02         2.44E+01         1.22E-02         1.22E-02         1.22E-02         1.22E-02         1.50E+01         7.51E-03         1.72E-03         4.12E-02         1.50E+01         7.51E-03         1.72E-03         4.12E-02         1.50E+01         7.51E-03         1.72E-03         4.12E-02         1.36E+04         4.87E+05         1.17E-03         4.27E+04         1.36E+07         1.46E+07         1.46E+07         1.46E+07         1.46E+07 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>												
Naphthalene         H         8.88E-06         2.13E-04         7.78E-02         3.89E-05         8.88E-06         2.13E-04         7.78E-02         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.89E-05         3.61E-07         3.89E-02         1.42E-02         1.72E-03         4.12E-02         1.50E-01         3.75E-06         3.50E-01         1.71E-03         4.12E-02         1.17E-03         4.12E-02         3.12E-04         4.13E-05 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>												
OCDD         2.44E-11         5.85E-10         2.13E-07         1.07E-10         2.44E-11         5.85E-10         2.13E-07         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         1.07E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-07         5.85E-10         2.13E-04         4.12E-02         1.50E+01         7.51E-03         5.35E-01         2.35E-04         5.35E-01         2.35E-04         5.35E-01         2.35E-04         5.35E-01         2.35E-04         5.35E-01 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>												
Pentane         2.79E-03         6.69E-02         2.44E+01         1.22E-02         2.79E-03         6.69E-02         2.44E+01         1.22E-02         1.22E-02           Phenanathrene         H         8.25E-08         1.98E-06         7.23E-04         3.61E-07         8.25E-08         1.98E-06         7.23E-04         3.61E-07         8.25E-08         1.98E-06         7.23E-04         3.61E-07         3.61E-07           Propane         H         3.34E-08         8.01E-07         2.33E-04         1.46E-07         3.34E-08         8.01E-07         2.93E-04         1.46E-07         1.34E-04         1.38E-06         1.23E-04         2.13E-04         1.28E-04         2.13E-04         1.28E-06         1.38E-04         4.87E-05         1.17E-03         4.27E-01         2.13E-04         4.87E-05         1.17E-03         4.27E-01         2.13E-04         4.87E-05         1.28E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04         1.38E-04												
Phenanathrene         H         8.25E-08         1.98E-06         7.23E-04         3.61E-07         8.25E-08         1.98E-06         7.23E-04         3.61E-07         3.61E-07           Propane         1.72E-03         4.12E-02         1.50E+01         7.51E-03         1.72E+03         4.12E-02         1.50E+01         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-04         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E-03         7.51E												
Pyrene         H         3.34E-08         8.01E-07         2.93E-04         1.46E-07         3.34E-08         8.01E-07         2.93E-04         1.46E-07           Toluene         H/T         4.87E-05         1.17E-03         4.27E-01         2.13E-04         4.87E-05         1.17E-03         4.27E-01         2.13E-04         4.87E-05         1.17E-03         4.27E-01         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         1.46E-07         2.04E-05         1.62E-02         8.12E-06         4.45E-05         1.62E-02         8.12E-06         8.12E-06         8.12E-06         8.12E-06         8.12E-06         8.12E-06         8.12E-06         8.12E-06         8.12E-06         1.35E-06         4.35E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05			Н	8.25E-08			3.61E-07	8.25E-08	1.98E-06	7.23E-04	3.61E-07	3.61E-07
Toluene         H/T         4.87E-05         1.17E-03         4.27E-01         2.13E-04         4.87E-05         1.17E-03         4.27E-01         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2.13E-04         2		Propane		1.72E-03	4.12E-02	1.50E+01	7.51E-03	1.72E-03	4.12E-02	1.50E+01	7.51E-03	7.51E-03
1,1,1-Trichloroethane         1.85E-06         4.45E-05         1.62E-02         8.12E-06         1.85E-06         4.45E-05         1.62E-02         8.12E-06         8.12E-06           Xylene         H/T         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         1.52E-04         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05												
Xylene         H/T         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         8.56E-07         2.06E-05         7.50E-03         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         3.75E-06         7.50E-03         3.75E-06         7.50E-03         3.75E-06         7.50E-03         3.75E-06         7.50E-03         3.75E-06         7.50E-05         2.08F-02         1.45E-05         3.30E-06         7.92E-05         2.88F-02         1.45E-05         3.30E-06         7.92E-05         2.88F-02         1.45E-05         3.30E-06         7.92E-05         2.88F-02         1.45E-05         3.30E-06         7.92E-05         2.88F-02         1.45E-05         3.30E-06         7.92E-05         2.			H/T									
Arsenic         H/T         4.40E-06         1.06E-04         3.85E-02         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         1.93E-05         4.40E-06         1.06E-04         3.85E-02         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.93E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1												
Barium         4.72E-06         1.13E-04         4.13E-02         2.07E-05         4.72E-06         1.13E-04         4.13E-02         2.07E-05         2.07E-05           Beryllium         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05												
Beryllium         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         1.45E-05         1.45E-05         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02 <th< td=""><td></td><td></td><td>II/ I</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>			II/ I									
Cadmium         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2.89E-02         2			H/T									
Chromium (as chromic acid)         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05           Cobalt         9.01E-08         2.16E-06         7.89E-04         3.94E-07         9.01E-08         2.16E-06         7.89E-04         3.94E-07         9.01E-08         2.16E-06         7.89E-04         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         1.45E-05         3.30E-06         7.92E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05												
Cobalt         9.01E-08         2.16E-06         7.89E-04         3.94E-07         9.01E-08         2.16E-06         7.89E-04         3.94E-07         9.01E-08         2.16E-06         7.89E-04         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         3.94E-07         2.16E-06         7.89E-04         3.94E-07         3.94E-07         3.94E-07         3.94E-07         2.99E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         4.34E-05         9.90E-06         2.38E-04         8.67E-02         2.38E-04         8.67E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         4.34E-05         9.90E-06         2.38E-04         8.67E-02         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.18E-05         3.30E-06         7.92E-05         2.89E-05         2.18E-05         3.30E-06         <												
Lead         H         9.90E-06         2.38E-04         8.67E-02         4.34E-05         9.90E-06         2.38E-04         8.67E-02         4.34E-05         4.34E-05         9.90E-06         2.38E-04         8.67E-02         4.34E-05         4.34E-05         9.90E-06         2.38E-04         8.67E-02         4.34E-05         9.90E-06         2.38E-04         8.67E-02         4.34E-05         4.34E-05         4.34E-05         4.34E-05         4.34E-05         4.34E-05         1.38E-04         5.78E-02         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.45E-05         3.30E-06         7.92E-05         2.89E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.38E-04         1.45E-05         1.38E-04         1.45E-05         1.38E-04         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-05         1.45E-												
Manganese         H/T         6.60E-06         1.58E-04         5.78E-02         2.89E-05         6.60E-06         1.58E-04         5.78E-02         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-04         1.45E-05         3.30E-04         1.45E-05         3.30E-04         1.45E-01         7.23E-05         1.45E-01         7.23E-05         1.45E-01         7.23E-05         1.45E-01         7.23E-05         1.45E-01         7.23E-05         7.23E-05         7.23E-05 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>												
Mercury         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05           Molybdenum         1.18E-06         2.83E-05         1.03E-02         5.17E-06         1.18E-06         2.83E-05         1.03E-02         5.17E-06         1.18E-06         2.89E-02         1.45E-05         3.00E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-06         1.03E-02         5.17E-06         1.18E-06         2.83E-05         1.03E-02         5.17E-06         1.18E-06         2.89E-02         1.45E-05         3.01E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-06         7.92E-05         2.89E-02         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-05         3.01E-04         1.45E-												
Molybdenum         1.18E-06         2.83E-05         1.03E-02         5.17E-06         1.18E-06         2.83E-05         1.03E-02         5.17E-06           Nickel         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.96E-04         1.45E-05         3.96E-04         1.45E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         1.04E-04         1.45E-05         3.96E-04         1.45E-05         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         1.04E-05         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-04         7.23E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-05         1.04E-0												
Nickel         H/T         3.30E-06         7.92E-05         2.89E-02         1.45E-05         3.30E-06         7.92E-05         2.89E-02         1.45E-05           Selenium         H         1.65E-05         3.96E-04         1.45E-01         7.23E-05         1.65E-05         3.96E-04         1.45E-01         7.23E-05         7.23E-05         1.65E-05         3.96E-04         1.45E-01         7.23E-05         7.23E-05         1.65E-05         3.96E-04         1.45E-01         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05         7.23E-05			H/T									
Selenium         H         1.65E-05         3.96E-04         1.45E-01         7.23E-05         1.65E-05         3.96E-04         1.45E-01         7.23E-05         7.23E-05           Vanadium         2.47E-06         5.92E-05         2.16E-02         1.08E-05         2.47E-06         5.92E-05         2.16E-02         1.08E-05         2.16E-02         1.08E-05         1.08E-05         2.16E-02         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05         1.08E-05<			U/T									
Vanadium 2.47E-06 5.92E-05 2.16E-02 1.08E-05 2.47E-06 5.92E-05 2.16E-02 1.08E-05 1.08E-05												
			н									
		Zinc		3.11E-05	7.46E-04	2.16E-02 2.72E-01	1.36E-03	2.4/E-06 3.11E-05	3.92E-03 7.46E-04	2.16E-02 2.72E-01	1.36E-03	1.08E-03 1.36E-04

			Un	controlled Po	tential Emissi	ons		Potential Emissions w/ Synthetic Minor Limits****			
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/dav)	(lbs/yr)	(tons/yr)	(tons/yr)
Quarry	PM		2.40E-02	5.77E-01	1.91E+05	95.31	2.40E-02	5.77E-01	1.91E+05	95.31	51.63
	PM10		9.36E-03	2.25E-01	7.58E+04	37.89	9.36E-03	2.25E-01	7.58E+04	37.89	20.53
	PM2.5		4.17E-03	1.00E-01	3.07E+04	15.35	4.17E-03	1.00E-01	3.07E+04	15.35	8.32
Quarry Equipment							-				
Generators	PM		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3.15E-01	1.71E-01
	PM10		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3.15E-01	1.71E-01
	PM2.5		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3.15E-01	1.71E-01
	SO <sub>2</sub>		2.66E-02	6.38E-01	2.33E+02	1.16E-01	2.66E-02	6.38E-01	2.33E+02	0.12	6.31E-02
	NOx		1.44E+00	3.45E+01	1.26E+04	6.30E+00	1.44E+00	3.45E+01	1.26E+04	6.30	3.41E+00
	CO		1.32E+01	3.17E+02	1.16E+05	5.78E+01	1.32E+01	3.17E+02	1.16E+05	57.84	3.13E+01
	VOC		6.83E-01	1.64E+01	5.99E+03	2.99E+00	6.83E-01	1.64E+01	5.99E+03	2.99	1.62E+00
	Acetaldehyde		1.18E-02	2.82E-01	1.03E+02	5.15E-02	1.18E-02	2.82E-01	1.03E+02	5.15E-02	2.79E-02
	Acrolein		1.42E-03	3.40E-02	1.24E+01	6.21E-03	1.42E-03	3.40E-02	1.24E+01	6.21E-03	3.36E-03
	Arsenic		6.13E-05	1.47E-03	5.37E-01	2.69E-04	6.13E-05	1.47E-03	5.37E-01	2.69E-04	1.45E-04
	Benzene		1.43E-02	3.43E-01	1.25E+02	6.26E-02	1.43E-02	3.43E-01	1.25E+02	6.26E-02	3.39E-02
	Benzo(a)pyrene		2.88E-06	6.92E-05	2.52E-02	1.26E-05	2.88E-06	6.92E-05	2.52E-02	1.26E-05	6.84E-06
	Beryllium		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	1,3-Butadiene		5.99E-04	1.44E-02	5.25E+00	2.63E-03	5.99E-04	1.44E-02	5.25E+00	2.63E-03	1.42E-03
	Cadmium		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Chromium (as chromic acid)		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Formaldehyde		1.81E-02	4.34E-01	1.58E+02	7.92E-02	1.81E-02	4.34E-01	1.58E+02	7.92E-02	4.29E-02
	Lead		1.38E-04	3.31E-03	1.21E+00	6.04E-04	1.38E-04	3.31E-03	1.21E+00	6.04E-04	3.27E-04
	Manganese unlisted compounds		9.20E-05	2.21E-03	8.06E-01	4.03E-04	9.20E-05	2.21E-03	8.06E-01	4.03E-04	2.18E-04
	Mercury vapor		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Napthalene		1.30E-03	3.12E-02	1.14E+01	5.69E-03	1.30E-03	3.12E-02	1.14E+01	5.69E-03	3.08E-03
	Nickel metal		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Selenium compounds		2.30E-04	5.52E-03	2.01E+00	1.01E-03	2.30E-04	5.52E-03	2.01E+00	1.01E-03	5.46E-04
	Toluene		6.27E-03	1.50E-01	5.49E+01	2.75E-02	6.27E-03	1.50E-01	5.49E+01	2.75E-02	1.49E-02
1	Xylene		4.37E-03	1.05E-01	3.83E+01	1.91E-02	4.37E-03	1.05E-01	3.83E+01	1.91E-02	1.04E-02

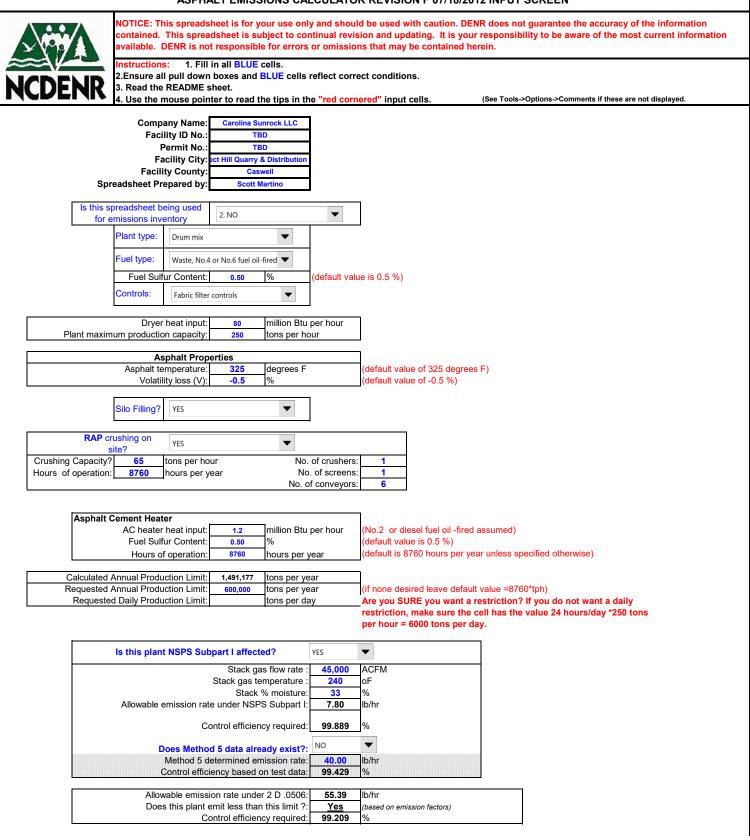
											Potential Emissions w/ Synthetic Mino
S <b>N</b> I	Dell-de-d	HAP/ TAP	Un (lb/hr)	controlled Po		ions (tons/yr)	(lb/hr)		ential Emission	s (tons/yr)	Limits****
ource Name Quarry NG/Propane Large	Pollutant	IAI	(10/111)	(lbs/day)	(lbs/yr)	(tons/yr)	(10/111)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Senerators	PM PM10		1.98E+00 1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67E+00 8.67E+00	1.98E+00 1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67 8.67	6.12 6.12
	PM2.5		1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67E+00	1.98E+00 1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67	6.12
	SO2		2.41E-02	5.78E-01	2.11E+02	1.05E-01	2.41E-02	5.78E-01	2.11E+02	0.11	0.07
	NOx VOC		8.11E+00	1.95E+02	7.11E+04 7.90E+04	3.55E+01	8.11E+00 9.02E+00	1.95E+02	7.11E+04 7.90E+04	35.53 39.51	23.91
	CO		9.02E+00 9.02E+00	2.17E+02 2.17E+02	7.90E+04 7.90E+04	3.95E+01 3.95E+01	9.02E+00 9.02E+00	2.17E+02 2.17E+02	7.90E+04 7.90E+04	39.51	27.89 27.89
	CH4		2.71E-01	6.50E+00	2.37E+03	1.19E+00	2.71E-01	6.50E+00	2.37E+03	1.19E+00	8.37E-01
	N2O		5.42E-02	1.30E+00	4.75E+02	2.37E-01	5.42E-02	1.30E+00	4.75E+02	2.37E-01	1.67E-01
	CO2 CO2e		5.55E+03 5.57E+03	1.33E+05 1.34E+05	4.86E+07 4.88E+07	2.43E+04 2.44E+04	5.55E+03 5.57E+03	1.33E+05 1.34E+05	4.86E+07 4.88E+07	2.43E+04 2.44E+04	1.72E+04 1.72E+04
	Acenaphthene	HAP	5.12E-05	1.23E-03	4.48E-01	2.24E-04	5.12E-05	1.23E-03	4.48E-01	2.24E-04	1.58E-04
	Acenaphtylene	HAP	2.26E-04	5.44E-03	1.98E+00	9.92E-04	2.26E-04	5.44E-03	1.98E+00	9.92E-04	7.00E-04
	Acetaldehyde	HAP/TAP	3.83E-01	9.20E+00	3.36E+03	1.68E+00	3.83E-01	9.20E+00	3.36E+03	1.68E+00	1.19E+00
	Acrolein Anthracene	HAP/TAP HAP	2.11E-01 0.00E+00	5.05E+00 0.00E+00	1.84E+03 0.00E+00	9.22E-01 0.00E+00	2.11E-01 0.00E+00	5.05E+00 0.00E+00	1.84E+03 0.00E+00	9.22E-01 0.00E+00	6.51E-01 0.00E+00
	Benzo(a)anthracene	HAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	HAP/TAP	1.80E-02	4.33E-01	1.58E+02	7.89E-02	1.80E-02	4.33E-01	1.58E+02	7.89E-02	5.57E-02
	Benzo(a)pyrene	HAP/TAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene Benzo(k)fluoranthene	HAP HAP	6.80E-06 0.00E+00	1.63E-04 0.00E+00	5.96E-02 0.00E+00	2.98E-05 0.00E+00	6.80E-06 0.00E+00	1.63E-04 0.00E+00	5.96E-02 0.00E+00	2.98E-05 0.00E+00	2.10E-05 0.00E+00
	Benzo(g,h,i)perylene	HAP	1.70E-05	4.07E-04	1.49E-01	7.43E-05	1.70E-05	4.07E-04	1.49E-01	7.43E-05	5.24E-05
	Biphenyl	HAP	8.68E-03	2.08E-01	7.61E+01	3.80E-02	8.68E-03	2.08E-01	7.61E+01	3.80E-02	2.68E-02
	Carbon Tetrachloride	HAP/TAP HAP/TAP	1.50E-03	3.61E-02	1.32E+01 1.09E+01	6.58E-03	1.50E-03	3.61E-02	1.32E+01	6.58E-03	4.65E-03
	Chlorobenzene Chloroform	HAP/TAP HAP/TAP	1.25E-03 1.17E-03	2.99E-02 2.80E-02	1.09E+01 1.02E+01	5.45E-03 5.11E-03	1.25E-03 1.17E-03	2.99E-02 2.80E-02	1.09E+01 1.02E+01	5.45E-03 5.11E-03	3.85E-03 3.61E-03
	Chrysene	HAP	2.84E-05	6.81E-04	2.49E-01	1.24E-04	2.84E-05	6.81E-04	2.49E-01	1.24E-04	8.78E-05
	Ethylbenzene	HAP	1.63E-03	3.90E-02	1.42E+01	7.12E-03	1.63E-03	3.90E-02	1.42E+01	7.12E-03	5.03E-03
	Ethylene Dibromide	HAP/TAP	1.81E-03	4.35E-02	1.59E+01	7.95E-03	1.81E-03	4.35E-02	1.59E+01	7.95E-03	5.61E-03
	Fluoranthene Fluorene	HAP HAP	4.55E-05 2.32E-04	1.09E-03 5.57E-03	3.98E-01 2.03E+00	1.99E-04 1.02E-03	4.55E-05 2.32E-04	1.09E-03 5.57E-03	3.98E-01 2.03E+00	1.99E-04 1.02E-03	1.41E-04 7.18E-04
	Formaldehyde	HAP/TAP	2.16E+00	5.19E+01	1.89E+04	9.47E+00	2.32E+04 2.16E+00	5.19E+01	1.89E+04	9.47E+00	6.69E+00
	Indeno(1,2,3-c,d)pyrene	HAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Methanol	HAP	1.02E-01	2.46E+00	8.97E+02	4.48E-01	1.02E-01	2.46E+00	8.97E+02	4.48E-01	3.17E-01
	Methylene Chloride n-Hexane	HAP/TAP HAP/TAP	8.19E-04 4.55E-02	1.97E-02 1.09E+00	7.18E+00 3.98E+02	3.59E-03 1.99E-01	8.19E-04 4.55E-02	1.97E-02 1.09E+00	7.18E+00 3.98E+02	3.59E-03 1.99E-01	2.53E-03 1.41E-01
	Naphthalene	HAP	3.05E-02	7.31E-02	2.67E+01	1.33E-02	3.05E-02	7.31E-02	2.67E+01	1.33E-02	9.42E-03
	Phenanthrene	HAP	4.26E-04	1.02E-02	3.73E+00	1.87E-03	4.26E-04	1.02E-02	3.73E+00	1.87E-03	1.32E-03
	Phenol	HAP/TAP	9.83E-04	2.36E-02	8.61E+00	4.31E-03	9.83E-04	2.36E-02	8.61E+00	4.31E-03	3.04E-03
	Pyrene Styrene	HAP HAP/TAP	5.57E-05 9.67E-04	1.34E-03 2.32E-02	4.88E-01 8.47E+00	2.44E-04 4.23E-03	5.57E-05 9.67E-04	1.34E-03 2.32E-02	4.88E-01 8.47E+00	2.44E-04 4.23E-03	1.72E-04 2.99E-03
	Toluene	HAP/TAP	1.67E-02	4.01E-01	1.46E+02	7.32E-02	1.67E-04	4.01E-01	1.46E+02	7.32E-02	5.17E-02
	Vinyl Chloride	HAP/TAP	6.10E-04	1.46E-02	5.35E+00	2.67E-03	6.10E-04	1.46E-02	5.35E+00	2.67E-03	1.89E-03
	Xylene	HAP/TAP	7.54E-03	1.81E-01	6.60E+01	3.30E-02	7.54E-03	1.81E-01	6.60E+01	3.30E-02	2.33E-02
otal	PM PM10		23.28 12.59	558.82 302.23	1,258,192 509,134	629.10 254.57	18.61 11.43	249.89 156.00	281,625 132,642	140.81 66.32	94.43 46.26
	PM2.5		12.59	302.11	464,056	232.03	11.43	155.87	87,563	43.78	34.05
	SO2		22.15	531.61	194,038	97.02	22.15	166.85	60,902	30.45	30.37
	NOx		23.63	567.10	206,991	103.50	23.63	327.51	119,541	59.77	45.26
	CO VOC		55.49 21.73	1,331.82 521.56	486,113 190,370	243.06 95.19	55.49 21.73	754.50 312.05	275,392 113,897	137.70 56.95	99.56 43.95
	Acetaldehyde	H/T	7.08E-01	1.70E+01	6.21E+03	3.10E+00	7.08E-01	1.70E+01	4.14E+03	2.07E+00	1.34E+00
	Acrolein	H/T	6.50E-03	1.56E-01	5.69E+01	2.85E-02	6.50E-03	1.56E-01	1.56E+01	7.80E-03	3.90E-03
	Antimony unlisted compounds	H U/T	4.50E-05	1.08E-03	3.94E-01	1.97E-04	4.50E-05	1.08E-03	1.08E-01	5.40E-05	2.70E-05
	Arsenic unlisted cmpds (comp. of ASC) Benzene	H/T H/T	2.06E-04 1.31E-01	4.94E-03 3.15E+00	2.30E+01 1.15E+03	1.15E-02 5.75E-01	2.06E-04 1.31E-01	4.94E-03 3.15E+00	9.13E-01 5.21E+02	4.56E-04 2.60E-01	3.72E-04 1.49E-01
	Benzo(a)pyrene	T	4.41E-06	1.06E-04	3.86E-02	1.93E-05	4.41E-06	1.06E-04	1.06E-02	5.29E-06	2.65E-06
	Beryllium metal (unreacted)	H/T	4.53E-06	1.09E-04	8.77E-02	4.38E-05	4.53E-06	1.09E-04	3.97E-02	1.99E-05	1.99E-05
	Cadmium metal (elemental unreacted) Carbon disulfide	H/T	1.03E-04 6.23E-04	2.47E-03	9.65E-01 5.45E+00	4.83E-04	1.03E-04	2.47E-03	2.50E-01	1.25E-04	6.37E-05
	Carbon disulfide Chromium unlisted cmpds (add w/chrom acid to get CRC)	H/T H	6.23E-04 1.26E-03	1.49E-02 3.03E-02	5.45E+00 1.11E+01	2.73E-03 5.53E-03	6.23E-04 1.26E-03	1.49E-02 3.03E-02	1.49E+00 3.03E+00	7.47E-04 1.52E-03	3.74E-04 7.58E-04
	Chromic acid (VI) (component of solCR6 and CRC)	H/T	2.71E-04	6.50E-03	4.71E+00	2.36E-03	2.71E-04	6.50E-02	1.66E+00	8.28E-04	7.61E-04
	Cobalt unlisted compounds	Н	6.50E-06	1.56E-04	5.69E-02	2.85E-05	6.50E-06	1.56E-04	1.56E-02	7.80E-06	3.90E-06
	Cumene Ethyl benzene	H H	1.14E-03 6.41E-02	2.74E-02 1.54E+00	1.00E+01 5.61E+02	5.01E-03 2.81E-01	1.14E-03 6.41E-02	2.74E-02 1.54E+00	2.74E+00 1.54E+02	1.37E-03 7.69E-02	6.86E-04 3.84E-02
	Ethyl chloride (chloroethane)	H	6.41E-02 2.18E-06	5.24E-05	1.91E-02	2.81E-01 9.56E-06	6.41E-02 2.18E-06	5.24E-05	5.24E-03	2.62E-06	3.84E-02 1.31E-06
	Formaldehyde	H/T	2.98E+00	7.15E+01	2.61E+04	1.30E+01	2.98E+00	7.15E+01	2.10E+04	1.05E+01	7.21E+00
	Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	Т	3.25E-10	7.80E-09	2.85E-06	1.42E-09	3.25E-10	7.80E-09	7.80E-07	3.90E-10	1.95E-10
	Hexane, n- Hydrogen Chloride (hydrochloric acid)	H/T H/T	2.39E-01 5.25E-02	5.74E+00 1.26E+00	2.10E+03 4.60E+02	1.05E+00 2.30E-01	2.39E-01 5.25E-02	5.74E+00 1.26E+00	5.74E+02 1.26E+02	2.87E-01 6.30E-02	1.44E-01 3.15E-02
	Hydrogen Chloride (hydrochloric acid) Hydrogen Sulfide	Т	5.25E-02 1.37E-02	1.26E+00 3.28E-01	4.60E+02 1.20E+02	2.30E-01 5.99E-02	5.25E-02 1.37E-02	1.26E+00 3.28E-01	1.26E+02 3.28E+01	6.30E-02 1.64E-02	3.15E-02 8.21E-03
	Lead unlisted compounds	Ĥ	3.81E-03	9.14E-02	4.44E+01	2.22E-02	3.81E-03	9.14E-02	9.52E+00	4.76E-03	2.51E-03
	Manganese unlisted compounds	Т	2.77E-03	6.64E-02	8.49E+01	4.24E-02	2.77E-03	6.64E-02	1.20E+01	5.99E-03	4.65E-03
	Mercury, vapor Methyl bromide	H/T H	6.50E-04	1.56E-02	5.69E+00	2.85E-03	6.50E-04	1.56E-02	1.56E+00	7.80E-04	3.90E-04
	Methyl bromide Methyl chloride	H	2.49E-04 1.56E-04	5.98E-03 3.74E-03	2.18E+00 1.37E+00	1.09E-03 6.83E-04	2.49E-04 1.56E-04	5.98E-03 3.74E-03	5.98E-01 3.74E-01	2.99E-04 1.87E-04	1.49E-04 9.36E-05
	Methyl chloroform	H/T	1.20E-02	2.88E-01	1.05E+02	5.26E-02	1.20E-04	2.88E-01	2.88E+01	1.44E-02	7.20E-03
	Methyl ethyl ketone	H/T	6.70E-03	1.61E-01	5.87E+01	2.93E-02	6.70E-03	1.61E-01	1.61E+01	8.04E-03	4.02E-03
		H/T	8.27E-04	1.99E-02	7.25E+00	3.62E-03	8.27E-04	1.99E-02	7.20E+00	3.60E-03	2.54E-03
	Methylene chloride			2.055.00	1 445.00						
	Napthalene	Н	1.65E-01	3.95E+00 3.83E-01	1.44E+03 1.46E+02	7.21E-01 7.30E-02	1.65E-01	3.95E+00 3.83E-01	3.95E+02 3.95E+01	1.98E-01 1.97E-02	9.88E-02 1.03E-02
				3.95E+00 3.83E-01 1.92E-03	1.44E+03 1.46E+02 7.01E-01	7.21E-01 7.30E-02 3.51E-04	1.65E-01 1.59E-02 8.01E-05	3.95E+00 3.83E-01 1.92E-03	3.95E+02 3.95E+01 1.92E-01	1.98E-01 1.97E-02 9.61E-05	9.88E-02 1.03E-02 4.80E-05
	Napthalene Nickel metal	H H/T	1.65E-01 1.59E-02	3.83E-01	1.46E+02	7.30E-02	1.59E-02	3.83E-01	3.95E+01	1.97E-02	1.03E-02

			Un	Uncontrolled Potential Emissions				Potential Emissions w/ Synthetic Minor Limits****			
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
	Propionaldehyde	Н	3.25E-02	7.80E-01	2.85E+02	1.42E-01	3.25E-02	7.80E-01	7.80E+01	3.90E-02	1.95E-02
	Quinone	Н	4.00E-02	9.60E-01	3.50E+02	1.75E-01	4.00E-02	9.60E-01	9.60E+01	4.80E-02	2.40E-02
	Selenium compounds	Н	3.22E-04	7.73E-03	3.61E+00	1.80E-03	3.22E-04	7.73E-03	2.27E+00	1.13E-03	6.19E-04
	Styrene	H/T	1.21E-03	2.90E-02	1.06E+01	5.29E-03	1.21E-03	2.90E-02	9.04E+00	4.52E-03	3.13E-03
	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	H/T	5.25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	1.26E-07	6.30E-11	3.15E-11
	Toluene	H/T	7.52E-01	1.81E+01	6.59E+03	3.29E+00	7.52E-01	1.81E+01	1.95E+03	9.76E-01	5.04E-01
	Trichloroethylene	H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Trichlorofluoromethane (CFC 111)	Т	1.35E-05	3.24E-04	1.18E-01	5.92E-05	1.35E-05	3.24E-04	3.24E-02	1.62E-05	8.11E-06
	Trimethylpentane, 2,2,4-	Н	1.00E-02	2.41E-01	8.78E+01	4.39E-02	1.00E-02	2.41E-01	2.41E+01	1.20E-02	6.02E-03
	Xylene	H/T	6.04E-02	1.45E+00	5.29E+02	2.64E-01	6.04E-02	1.45E+00	1.45E+02	7.24E-02	3.62E-02
	Highest Single HAP (formaldehyde)		2.98E+00	7.15E+01	2.61E+04	1.30E+01	2.98E+00	7.15E+01	2.10E+04	10.51	7.21
	Total HAP		5.51E+00	1.32E+02	4.84E+04	2.42E+01	5.51E+00	1.32E+02	2.99E+04	14.96	9.78

\* Potential Controlled emissions from the hot mix asphalt plant, quarry, quarry generators, and large NG/Propane generators are based on the synthetic minor limit and not based on 8760 hr/yr of operation.
 \*\* Criteria pollutant emissions from the asphalt cement heater are included in the Hot Mix Asphalt Plant Emissions since the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants was used (which incorporates criteria pollutant emissions for an asphalt cement heater).
 \*\*\* Criteria and HAP/TAP pollutant emissions for the liquid asphalt tank heater are not included in the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants, therefore, these emissions are calculated separately.
 \*\*\*\* Potential Emissions with Synthetic Minor Limits are explained and discussed in Section 2.3 of the application. HMA plant emissions are based on a maximum production limit of 600,000 tpy.

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#### ASPHALT EMISSIONS CALCULATOR REVISION F 07/18/2012 INPUT SCREEN



	olled ion         E           b/ton)         (           54         0           54         0           6         (           37         0           000         (           50         (           50         (           50         (           20         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           colled         (           corr         (           colled         (           colled         (           corr         (           colled         (           corr         (           corr         (      colled         ( </th <th></th> <th>uncontrolled e (lb/r 16 700 162 20.9 32. 13 8 sria Pollutant</th> <th>hr) 35 00 00 25 93 55 75</th> <th>controlled emission rate ((b/hr) 4.85 3.5 0.975 8.25 5.75 20.93 32.5 13.75 8 2.5 emission rate (lb/hr) 2.77E-01 6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00</th> <th>Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 55.4 29.0 91.69 142.4 60.2 35.0 11.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 1.2 2.8 17.6 0.3 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 13.8 5.0</th> <th>PSD, Potential Emissions, (tpy) (with controls, 8760 hours per year operation) 36.1 25.2 91.69 142.4 60.2 35.0 111.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 1.2 2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0</th> <th>Synthetic Minor, Potential Emission (with all operation restrictions 9.9 6.9 25.12 39.0 16.5 9.6 3.0 Synthetic Minor, Potential Emission (with all operation restrictions 0.3 0.8 4.8 0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4</th>		uncontrolled e (lb/r 16 700 162 20.9 32. 13 8 sria Pollutant	hr) 35 00 00 25 93 55 75	controlled emission rate ((b/hr) 4.85 3.5 0.975 8.25 5.75 20.93 32.5 13.75 8 2.5 emission rate (lb/hr) 2.77E-01 6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00	Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 55.4 29.0 91.69 142.4 60.2 35.0 11.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 1.2 2.8 17.6 0.3 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 13.8 5.0	PSD, Potential Emissions, (tpy) (with controls, 8760 hours per year operation) 36.1 25.2 91.69 142.4 60.2 35.0 111.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 1.2 2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0	Synthetic Minor, Potential Emission (with all operation restrictions 9.9 6.9 25.12 39.0 16.5 9.6 3.0 Synthetic Minor, Potential Emission (with all operation restrictions 0.3 0.8 4.8 0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4			
Condensible PM (or PM <sub>10</sub> )         0.06           Filterable PM 10         6.4           Total PM 10         6.5           SO2         0.08           Condensible PM 10         6.5           SO2         0.08           Condensible PM 10         6.5           SO2         0.08           Condensible PM 10         6.5           SO2         0.08           Condensible PM 10         6.5           SO2         0.03           Nox         0.05           VOC         0.03           HAPs, TOTAL         Emiss           Factor         combin           VOC         1.61E           HAPs, TOTAL         2.74E           Rap Crusher Emissions         Emiss           Factor         sourcombin           (lb/to         0.01           Total PM         0.01           Total PM1         0.023           Total PM10         0.0233           Total PM10         0.0233           Total PM10         0.0233           Total PM10         0.0233           Total PM10         0.0233           Nox         0.1422           Voc	Image: Constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constraint of the constrated of the constraint of the constraint of the constraint of the	0.014 0.0039 0.033 0.023 0.0837 0.130 0.055 0.032 0.010 ms, Criter	700 160 700 162 20.9 32. 332 13.	00 00 225 93 .5 75	3.5 0.975 8.25 5.75 20.93 32.5 13.75 8 2.5 emission rate (lb/hr) 2.77E-01 6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00	29.0         91.69         142.4         60.2         35.0         11.0    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          1.2         2.8         17.6         0.3    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          13.8         5.0	25.2 91.69 142.4 60.2 35.0 11.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 1.2 2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0	6.9 25.12 39.0 16.5 9.6 3.0 Synthetic Minor, Potential Emission (with all operation restrictions 0.3 0.8 4.8 0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
Filterable PM10         6.4           Total PM10         6.5           S02         0.08           CO         0.13           NOX         0.05           VOC         0.03           NOX         0.05           VOC         0.03           HAPS, TOTAL         Emiss           Silo Filling plus Load Out E         Emiss           Pollutant         1.11E           CO         2.53E           VOC         1.61E           HAPS, TOTAL         2.74E           Rap Crusher Emissions           Emiss         Factor           Souc         1.61E           HAPS, TOTAL         2.74E           Rap Crusher Emissions           Emiss         Factor           Souc         1.61E           HAPS, TOTAL         0.01           Total PM         0.1           Total PM         0.1           Total PM10         0.02           Total PM10         0.0238           Total PM10         0.0238           Total PM10         0.0238           NOX         0.1422           VOC         0.0357           NOX<	4 0 6 0 37 0 00 0 50 0 20 0 50 0 20 0 50 0 20 0 50 0 20 0 50 0 20 0 50 0 20 0 50 0 20 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 20 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0 50 0	0.0039 0.033 0.023 0.0837 0.0837 0.055 0.055 0.032 0.010 ns, Criter	160 700 162 20.9 32 13. 8	00 25 93 5 75	0.975 8.25 5.75 20.93 32.5 13.75 8 2.5 emission rate (lb/hr) 2.77E-01 6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00	29.0         91.69         142.4         60.2         35.0         11.0    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          1.2         2.8         17.6         0.3    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          13.8         5.0	25.2 91.69 142.4 60.2 35.0 11.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 1.2 2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0	6.9 25.12 39.0 16.5 9.6 3.0 Synthetic Minor, Potential Emission (with all operation restrictions 0.3 0.8 4.8 0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
Total PM         28           Total PM10         6.5           SO2         0.08           CO         0.13           NOX         0.05           VOC         0.03           HAPs, TOTAL         Integration           Silo Filling plus Load Out E         Emiss           Fact         Combin           Pollutant         (lb/to           Total PM         1.11E           CO         2.53E           VOC         1.61E           HAPs, TOTAL         2.74E           Rap Crusher Emissions           Emiss         Factor           Source         combin           (lb/to         0.1           Total PM         0.1           Total PM         0.1           Total PM         0.1           Total PM         0.1           Total PM         0.0           Total PM         0.0           Total PM10         0.0238           Soci         0.507           Soci         0.507           Soci         0.507           Nox         0.1428           VOC         0.00248           Total PM <t< td=""><td>Image: constraint of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second 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sec</td><td>0.033 0.023 0.0837 0.130 0.055 0.032 0.010 ms, Criter</td><td>700 162 20.3 32. 13.7 8</td><td>00 25 93 .5 75</td><td>8.25 5.75 20.93 32.5 13.75 8 2.5 emission rate (lb/hr) 2.77E-01 6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00</td><td>29.0         91.69         142.4         60.2         35.0         11.0    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          1.2         2.8         17.6         0.3    Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation)          13.8         5.0</td><td>25.2 91.69 142.4 60.2 35.0 11.0 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 1.2 2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0</td><td>6.9 25.12 39.0 16.5 9.6 3.0 Synthetic Minor, Potential Emissior (with all operation restrictions 0.3 0.3 0.8 4.8 0.1 Synthetic Minor, Potential Emissior (with all operation restrictions 3.8 1.4 Synthetic Minor, 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Pollutant       1.11E         CO       2.53E         VOC       1.61E         HAPS, TOTAL       2.74E         Rap Crusher Emissions         Emiss       Factor         Source       combined         Pollutant       0.0         Total PM       0.0         Total PM10       0.0         Asphalt Cement Heater Em       Uncontr         Pollutant       Ulcontr         Pollutant       0.0233         Total PM10       0.0233         Total PM10       0.0233         So2       0.5077         CO       0.0355         NOX       0.1422         VOC       0.0024         Facility-wide Criteria Pollut         Pollutant       Total PM10         SO2       0.5077         CO       0.0355         NOX       0.1424         VOC       0.0024	-03 -03 -02 -04 -04 -04 -04 -04 -04 -04 -04	3			6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) <u>3.15E+00</u> 1.15E+00	2.8 17.6 0.3 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 13.8 5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	0.8 4.8 0.1 Synthetic Minor, Potential Emissior (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emissior			
CC 2.53E VOC 1.61E HAPS, TOTAL 2.74E Rap Crusher Emissions Factor Pollutant (lb/to Total PM10 0.0 Asphalt Cement Heater Em Pollutant Uncontr Emiss Factor (lb/to O.023 Total PM10 0.023 SO2 0.507 CO 0.0355 NOX 0.1422 VOC 0.0024 Facility-wide Criteria Pollut Total PM10 0.023 SO2 0.507 CO 0.0355 NOX 0.1422 VOC 0.0024	-03 -02 -04 -04 -04 -04 -04 -04 -04 -04	3			6.32E-01 4.02E+00 6.85E-02 emission rate (lb/hr) <u>3.15E+00</u> 1.15E+00	2.8 17.6 0.3 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 13.8 5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	2.8 17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	0.8 4.8 0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
VOC HAPs, TOTAL 2.74E Rap Crusher Emissions Factor sourc combin (lb/to Pollutant Total PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal PM10 Cotal	-02 -04 -04 ion , all ees ned 0177 issions olled ion or Btu) 5714 5714 1429				4.02E+00 6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00	17.6         0.3         Title V, Potential Emissions (tpy)         (no controls, 8760 hours per year         operation)         13.8         5.0         Title V, Potential Emissions (tpy)         (no controls, 8760 hours per year	17.6 0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	4.8 0.1 Synthetic Minor, Potential Emissior (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emissior			
HAPs, TOTAL 2.74E  Rap Crusher Emissions  Emiss Factor sourc combin (lb/to Total PM 0.0.7 Total PM 0.0.7  Asphalt Cement Heater Em  Combined  Pollutant Uncontr Emiss Fact (lb/to Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0238 Total PM 0.0	-04 ion , all ues ned 01777 issions olled ion or Btu) 5714 5714 1429				6.85E-02 emission rate (lb/hr) 3.15E+00 1.15E+00	0.3 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year operation) 13.8 5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	0.3 PSD, Potential Emissions, (tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	0.1 Synthetic Minor, Potential Emission (with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Total PM 0.0233 Total PM 0.0233 Total PM 0.0233 So2 0.5077 C 0.0335 Nox 0.1422 VOC 0.0024 Facility-wide Criteria Pollut Pollutant Pollutant Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM To	, all es ned 0484 0177 issions olled ion or Btu) 5714 5714 1429	3			3.15E+00 1.15E+00	(no controls, 8760 hours per year operation) 13.8 5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	(tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	(with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Pollutant Total PM 0.0233 Total PM 0.0233 Total PM 0.0233 So2 0.5077 C 0.0335 Nox 0.1422 VOC 0.0024 Facility-wide Criteria Pollut Pollutant Pollutant Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM Total PM To	, all es ned 0484 0177 issions olled ion or Btu) 5714 5714 1429	;			3.15E+00 1.15E+00	(no controls, 8760 hours per year operation) 13.8 5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	(tpy) (8760 hours per year operation) 13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	(with all operation restrictions 3.8 1.4 Synthetic Minor, Potential Emission			
Pollutant         (lb/to Total PM10           Total PM10         0.0           Asphalt Cement Heater Em         Uncontr Emiss Fact (lb/MM           Pollutant         Uncontr Uncontr Emiss Fact (lb/MM           Total PM         0.0233 0.5077 CC           Soz2         0.5077 CC           Nox         0.1424 VOC           Voc         0.0024           Facility-wide Criteria Pollutant         Total PM10 Soz2           Pollutant         Total PM10 Soz2           Nox         Nox	n) 0484 01777 issions olled ion or Btu) 5714 5714 1429	5			3.15E+00 1.15E+00	operation)	13.8 5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	3.8 1.4 Synthetic Minor, Potential Emission			
Total PM10     0.0       Asphalt Cement Heater Em     Uncontr       Pollutant     Uncontr       Total PM     0.023       Total PM10     0.023       S02     0.507       CO     0.035       NOX     0.1422       VOC     0.0024   Facility-wide Criteria Pollutant       Total PM10     S02       CO     0.035       NOX     0.1422       VOC     0.0024	0177 issions olled or Btu) 5714 5714 1429	;			1.15E+00	5.0 Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	5.0 PSD, Potential Emissions, (tpy) (8760 hours per year	1.4 Synthetic Minor, Potential Emission			
Asphalt Cement Heater Em Uncontr Emiss Fact Pollutant Uncontr (b/MM Total PM 0.0233 Total PM10 0.0233 SO2 0.507 CO 0.0355 NOX 0.1422 VOC 0.0024 Facility-wide Criteria Pollutant Pollutant Total PM10 SO2 CO NOX	issions rolled ion or Btu) 5714 5714 1429	3				Title V, Potential Emissions (tpy) (no controls, 8760 hours per year	PSD, Potential Emissions, (tpy) (8760 hours per year	Synthetic Minor, Potential Emissior			
Total PM10         0.0233           SO2         0.507           CO         0.0357           NOX         0.1420           VOC         0.0024   Facility-wide Criteria Pollut Total PM10 SO2 CO NOX	5714 1429						operation)	(with all operation restrictions			
S02         0.507'           CO         0.035'           NOX         0.1421           VOC         0.0024   Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteria Pollut Facility-wide Criteria Pollut  Facility-wide Criteria Pollut  Facility-wide Criteri Facility-wide Criteri Facility-wide Criteri Facility-wi	1429				2.83E-02	0.1	0.1	0.1			
CO 0.035 NOX 0.1424 VOC 0.0024 Facility-wide Criteria Pollut Pollutant Total PM Total PM10 SO2 CO NOX					2.83E-02 6.09E-01	0.1	0.1	0.1 2.7			
Nox 0.1428 VOC 0.0024 Facility-wide Criteria Pollut Pollutant Total PM Total PM10 SO2 CO NOx					4.29E-02	0.2	0.2	0.2			
Facility-wide Criteria Pollut Pollutant Total PM Total PM10 SO2 CO NOx	8571				1.71E-01	0.8	0.8	0.8			
Pollutant Total PM Total PM10 S02 CO NOx	4286				2.91E-03	0.0	0.0	0.0			
Total PM Total PM10 SO2 CO NOx	ant Emi	issions S	Summary					1			
Total PM10 SO2 CO NOx					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 Emissior (with all operation restrictions			
SO2 CO NOX					1.14E+01	70.5	51.3	14.1			
					6.93E+00 2.15E+01	35.4 94.4	31.6 94.4	8.7 27.8			
NOx					3.32E+01	94.4	145.3	39.9			
					1.39E+01	61.0	61.0	17.3			
					1.20E+01	52.7	52.7	14.4			
HAPs, TOTAL					2.57E+00	11.3	11.3	3.1			
Facility-wide Toxic Air Poll	utants S	Summary	у								
ТАР		CAS No.	Action	]	TAP	a	Action				
Acetaldehyde Acroleir	. ,	75070 107028	NOTE 1 NOTE 1		n	Mercury, vapor (TH) 7439976 Methyl ethyl ketone (TH) 78933	NOTE 2 NOTE 1 NOTE 1: Ir	nclude TAP in TPER stipulation			
Acrolein (TH) 107028 NOTE 1 Arsenic unlisted cmpds (comp. of ASC) (TH) ASC-other NOTE 3				Methylene chloride (TH) 75092	NOTE 1						
Benzene (TH) 71432 NOTE 3					Nickel metal (TH) 7440020	NOTE 2 with operation	nclude TAP in TPER stipulation restrictions.				
Benzo(a)pyrene (T) 50328 NOTE 1				Perchloroethylene (te	etrachloroethylene) (TH) 127184	NOTET					
Beryllium metal (unreacted		7440417	NOTE 1			Phenol (TH) 108952		Aodeling Required. See "Toxi			
Cadmium metal (elemental unreacted		7440439	NOTE 2		Soluble Chromate Compou			s" worksheet.			
Carbon disulfide Formaldehyde	, ,	75150 50000	NOTE 1 NOTE 3		Tetrachlorodihonaa	Styrene (TH) 100425 -p-dioxin, 2,3,7,8- (TH) 1746016	NOTE 1 NOTE 1				
•	»(III)				i eu achiorodideñzo	Toluene (TH) 1746016	NOTE 1				
	Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T) 57653857 NOTE 1					Trichloroethylene (TH) 79016	NOTE 1				
Hydrogen Sulfi		Hexane, n- (TH) 110543 NOTE 1					Trichloroethylene (TH) 79016 NOTE 1 Trichlorofluoromethane (CFC 111) (T) 75694 NOTE 1				
Manganese unlisted compoun Methyl chloroform	- (TH) 1	110543 7783064	NOTE 1 NOTE 1		Trichlorofluoro	omethane (CFC 111) (T) 75694	NOTE 1 NOTE 1				

### ASPHALT EMISSIONS CALCULATOR REVISION F 07/18/2012 - 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.

3006	RCE / FACI	LITY / USER IN	PUT SUMMA	RY (FROM I	NPUT SCRE	,			
COMPANY:		a Sunrock				FACILITY ID		TBD	
					PERMIT NUMBER:		TBD		
		h Waste, No.4 c				FACILITY CI		Hill Quarry & Distribut	
plant (80 m		eat input, w/silof		sulfur=0.5%)	FACILITY CO	JUNTY:	Caswell		
Annual Production Limit: 600,000	ton/year	Daily Produ	ction Limit:		ton/day				
PREADSHEET PREPARED BY: Scott Marti	no								
	CRITERI	A AIR POLLUT	ANT EMISSI	ONS INFORI	NATION				
		ACTUAL EM	ISSIONS		POTENTIAL	EMISSIONS			
AIR POLLUTANT EMITTED		(AFTER CONTRO	LS / LIMITS)	(BEFORE CONT	TROLS / LIMITS)	(AFTER CONTR	OLS / LIMITS)		
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr		
PARTICULATE MATTER (PM)		11.42	14.13		70.51		14.13		
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )		6.93	8.74		35.43		8.74		
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )									
SULFUR DIOXIDE (SO2)		21.54	27.79		94.35		27.79		
		13.92	17.25		60.98		17.25		
		33.18	39.95		145.31		39.95		
OLATILE ORGANIC COMPOUNDS (VOC)		12.03 2.57	14.44 3.08		52.68 11.25		14.44 3.08		
ARGEST HAP (formaldehyde)		0.80	0.96		3.49		0.96		
			NPUT work	sheet	0.70		0.00		
το	(IC / HAZA)	RDOUS AIR PC			FORMATIO	N			
								EMISSION FACTOR	
	CAS	ACTUAL EM	ISSIONS		POTENTIAL	EMISSIONS		(lb/ton asphalt produced	
TOXIC / HAZARDOUS AIR POLLUTANT	Number	(AFTER CONTRO			TROLS / LIMITS)	(AFTER CONTR		with Fabric filter controls	
		lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr		
Acetaldehyde (TH)	75070	3.25E-01	7.80E+02	3.25E-01	2847.00	3.25E-01	7.80E+02	1.3E-03	
Acrolein (TH) Antimony unlisted compounds (H)	107028 SBC-other	6.50E-03	1.56E+01	6.50E-03	56.94	6.50E-03	1.56E+01	2.6E-05 1.8E-07	
Arsenic unlisted compounds (H) Arsenic unlisted cmpds (comp. of ASC) (TH)	ASC-other	4.50E-05 1.40E-04	1.08E-01 3.36E-01	4.50E-05 1.40E-04	0.39	4.50E-05 1.40E-04	1.08E-01 3.36E-01	5.6E-07	
Benzene (TH)	71432	9.90E-02	2.38E+02	9.90E-02	867.38	9.90E-02	2.38E+02	4.0E-04	
Benzo(a)pyrene (T)	50328	4.41E-06	1.06E-02	4.41E-06	0.04	4.41E-06	1.06E-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	2.46E-01	1.03E-04	0.90	1.03E-04	2.46E-01	4.1E-07	
Carbon disulfide (TH)	75150	6.23E-04	1.49E+00	6.23E-04	5.45	6.23E-04	1.49E+00	2.5E-06	
Chromium unlisted cmpds (add w/chrom acid to get CRC) (H)	CRC-other	1.26E-03	3.03E+00	1.26E-03	11.06	1.26E-03	3.03E+00	5.1E-06	
Chromic acid (VI) (component of solCR6 and CRC) (TH) Cobalt unlisted compounds (H)	7738945 COC-other	1.13E-04	2.70E-01	1.13E-04	0.99	1.13E-04 6.50E-06	2.70E-01	4.5E-07 2.6E-08	
Cumene (H)	98828	6.50E-06 1.14E-03	1.56E-02 2.74E+00	6.50E-06 1.14E-03	0.06	6.50E-06 1.14E-03	1.56E-02 2.74E+00	4.6E-06	
Ethyl benzene (H)	100414	6.41E-02	1.54E+02	6.41E-02	561.24	6.41E-02	1.54E+02	2.6E-04	
Ethyl chloride (chloroethane) (H)	75003	2.18E-06	5.24E-03	2.18E-06	0.02	2.18E-06	5.24E-03	8.7E-09	
Formaldehyde (TH)	50000	7.97E-01	1.91E+03	7.97E-01	6981.17	7.97E-01	1.91E+03	3.2E-03	
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)	57653857	3.25E-10	7.80E-07	3.25E-10	0.00	3.25E-10	7.80E-07	1.3E-12	
Hexane, n- (TH)	110543	2.39E-01	5.74E+02	2.39E-01	2095.50	2.39E-01	5.74E+02	9.6E-04	
Hydrogen Chloride (hydrochloric acid) (TH)	7647010	5.25E-02	1.26E+02	5.25E-02	459.90	5.25E-02	1.26E+02	2.1E-04	
Hydrogen Sulfide (T) Lead unlisted compounds (H)	7783064 PBC-other	1.37E-02 3.75E-03	3.28E+01 9.00E+00	1.37E-02 3.75E-03	119.84 32.85	1.37E-02 3.75E-03	3.28E+01 9.00E+00	5.5E-05 1.5E-05	
Manganese unlisted compounds (T)	MNC-other	3.75E-03 1.93E-03	9.00E+00 4.62E+00	3.75E-03 1.93E-03	32.85 16.86	3.75E-03 1.93E-03	9.00E+00 4.62E+00	7.7E-06	
Manganese dimisted compounds (1) Mercury, vapor (TH)	7439976	6.50E-04	4.02E+00 1.56E+00	6.50E-04	5.69	6.50E-04	4.02E+00 1.56E+00	2.6E-06	
Methyl bromide (H)	74839	2.49E-04	5.98E-01	2.49E-04	2.18	2.49E-04	5.98E-01	1.0E-06	
Methyl chloride (H)	74873	1.56E-04	3.74E-01	1.56E-04	1.37	1.56E-04	3.74E-01	6.2E-07	
Methyl chloroform (TH)	71556	1.20E-02	2.88E+01	1.20E-02	105.12	1.20E-02	2.88E+01	4.8E-05	
Methyl ethyl ketone (TH)	78933	6.70E-03	1.61E+01	6.70E-03	58.67	6.70E-03	1.61E+01	2.7E-05	
Methylene chloride (TH)	75092	8.23E-06	1.97E-02	8.23E-06	0.07	8.23E-06	1.97E-02	3.3E-08	
Napthalene (H) Nickel metal (TH)	91203 7440020	1.65E-01	3.95E+02	1.65E-01 1.58E-02	1442.95	1.65E-01	3.95E+02	6.6E-04 6.3E-05	
Nickel metal (TH) Perchloroethylene (tetrachloroethylene) (TH)	7440020 127184	1.58E-02 8.01E-05	3.78E+01 1.92E-01	1.58E-02 8.01E-05	137.97 0.70	1.58E-02 8.01E-05	3.78E+01 1.92E-01	6.3E-05 3.2E-07	
Perchloroeuryiene (tetrachloroeuryiene) (TH) Phenol (TH)	108952	1.01E-03	2.41E+00	1.01E-03	8.81	8.01E-05 1.01E-03	2.41E+00	4.0E-06	
Phosphorus Metal, Yellow or White (H)	7723140	7.00E-03	1.68E+01	7.00E-03	61.32	7.00E-03	1.68E+01	2.8E-05	
Polycyclic Organic Matter (H)	POM	2.20E-01	5.28E+02	2.20E-01	1927.20	2.20E-01	5.28E+02	8.8E-04	
Propionaldehyde (H)	123386	3.25E-02	7.80E+01	3.25E-02	284.70	3.25E-02	7.80E+01	1.3E-04	
Quinone (H)	106514	4.00E-02	9.60E+01	4.00E-02	350.40	4.00E-02	9.60E+01	1.6E-04	
Selenium compounds (H)	SEC	8.75E-05	2.10E-01	8.75E-05	0.77	8.75E-05	2.10E-01	3.5E-07	
Styrene (TH)	100425	2.40E-04	5.77E-01	2.40E-04	2.11	2.40E-04	5.77E-01	9.6E-07	
Tetrachlorodibenzo-p-dioxin, 2,3,7,8- (TH)	1746016	5.25E-11	1.26E-07	5.25E-11	0.00	5.25E-11	1.26E-07	2.1E-13	

Toluene (TH)	108883	7.29E-01	1.75E+03	7.29E-01	6386.67	7.29E-01	1.75E+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
Trichlorofluoromethane (CFC 111) (T)	75694	1.35E-05	3.24E-02	1.35E-05	0.12	1.35E-05	3.24E-02	5.4E-08
Trimethylpentane, 2,2,4- (H)	540841	1.00E-02	2.41E+01	1.00E-02	87.85	1.00E-02	2.41E+01	4.0E-05
Xylene (TH)	1330207	6.04E-02	1.45E+02	6.04E-02	528.72	6.04E-02	1.45E+02	2.4E-04
Xylene, o- (H)	95476	2.57E-03	6.16E+00	2.57E-03	22.50	2.57E-03	6.16E+00	1.0E-05
TOXIC AIR F	OLLUTAN	T EMISSIONS I	NFORMATIC	ON (FOR PER	RMITTING PU	RPOSES)		
Expected actual emissions after controls a	ad limitatio		of on onnuo	nroduction	limit of 6000	00 tono ond o	dailu	EMISSION FACTOR
Expected actual emissions after controls a		uction limit of		production		o tons and a	ualiy	(lb/ton asphalt produced,
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	lb/day	lb/yr	Mod	eling Required	1?	with Fabric filter controls)
Acetaldehyde (TH)	75070	3.25E-01	0.00E+00	7.80E+02	NO. Based	on facility-wide p	otential.	1.30E-03
Acrolein (TH)	107028	6.50E-03	0.00E+00	1.56E+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	3.36E-01	YES	Modeling require	ed	5.60E-07
Benzene (TH)	71432	9.90E-02	0.00E+00	2.38E+02	YES	Modeling require	ed	3.96E-04
Benzo(a)pyrene (T)	50328	4.41E-06	0.00E+00	1.06E-02	NO. Based	on facility-wide p	otential.	1.76E-08
Beryllium metal (unreacted) (TH)	7440417	0.00E+00	0.00E+00	0.00E+00	NO. Based	on facility-wide p	otential.	0.00E+00
Cadmium metal (elemental unreacted) (TH)	7440439	1.03E-04	0.00E+00	2.46E-01	NO. Becau	se of operating re	striction	4.10E-07
Carbon disulfide (TH)	75150	6.23E-04	0.00E+00	1.49E+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	2.70E-01	NO. Based	on facility-wide p	otential.	4.50E-07
Formaldehyde (TH)	50000	7.97E-01	0.00E+00	1.91E+03	YES	Modeling require	ed	3.19E-03
Hexane, n- (TH)	110543	2.39E-01	0.00E+00	5.74E+02	NO. Based	on facility-wide p	otential.	9.57E-04
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8 (T)	57653857	3.25E-10	0.00E+00	7.80E-07	NO. Based	on facility-wide p	otential.	1.30E-12
Hydrogen Sulfide (T)	7783064	1.37E-02	0.00E+00	3.28E+01	NO. Based	on facility-wide p	otential.	5.47E-05
Manganese unlisted compounds (T)	MNC-other	1.93E-03	0.00E+00	4.62E+00	NO. Based	on facility-wide p	otential.	7.70E-06
Mercury, vapor (TH)	7439976	6.50E-04	0.00E+00	1.56E+00	NO. Becau	se of operating re	striction	2.60E-06
Methylene chloride (TH)	75092	8.23E-06	0.00E+00	1.97E-02	NO. Based	on facility-wide p	otential.	3.29E-08
Methyl chloroform (TH)	71556	1.20E-02	0.00E+00	2.88E+01	NO. Based	on facility-wide p	otential.	4.80E-05
Methyl ethyl ketone (TH)	78933	6.70E-03	0.00E+00	1.61E+01	NO. Based	on facility-wide p	otential.	2.68E-05
Nickel metal (TH)	7440020	1.58E-02	0.00E+00	3.78E+01	NO. Becau	se of operating re	striction	6.30E-05
Perchloroethylene (tetrachloroethylene) (TH)	127184	8.01E-05	0.00E+00	1.92E-01	NO. Based	on facility-wide p	otential.	3.20E-07
Phenol (TH)	108952	1.01E-03	0.00E+00	2.41E+00	NO. Based	on facility-wide p	otential.	4.02E-06
Styrene (TH)	100425	2.40E-04	0.00E+00	5.77E-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	1.26E-07	NO. Based	on facility-wide p	otential.	2.10E-13
Toluene (TH)	108883	7.29E-01	0.00E+00	1.75E+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 p	otential.	0.00E+00
Trichlorofluoromethane (CFC 111) (T)	75694	1.35E-05	0.00E+00	3.24E-02	NO. Based	on facility-wide p	otential.	5.41E-08
Xylene (TH)	1330207	6.04E-02	0.00E+00	1.45E+02	NO. Based	on facility-wide p	otential.	2.41E-04



То:	Ryan Spivey Nixon Energy Solutions 3101 Yorkmont Road Suite 100 Charlotte, NC 28208	Mobile: 704.787.6596 Email: rspivey@nixonpower.com
CC:	Michael Nix/MIRATECH	
From:	Rick Hodgkins MIRATECH 420 S 145th E Ave Mail Drop A Tulsa, OK 74108	Phone: (918) 933-6213 Mobile: (918) 629-4754 Email: rhodgkins@miratechcorp.com
Project R	Reference:	Carolina Sunrock

Proposal Number: Date:

Firm Quote For:

Carolina Sunrock RH-19-006029 11/8/2019 30 days from Proposal Date

Dear Ryan:

MIRATECH welcomes the opportunity to provide you with a proposal for an NSCR system. We are confident that your organization will benefit from selecting us for this project for the following reasons:

#### Experience.

 MIRATECH is the leader in providing NSCR, Oxidation, SCR & DPF systems; having more than 24,000 successfully operating units installed in North America, South America, Europe and Asia.

#### World-Class Technology.

- · Consistently set the standards for Best Available Control Technology (BACT)
- · Simple, user-friendly control and communication technology; connects to any building's communication systems

#### U.S. & European Field Services & Support.

- Fast-response field service & technical support
- Replacement components in stock in Tulsa, OK & Sinntal, Germany
- In-house engineering & product support

The system offered for this project is in accordance with the engine and technical data received or estimated from your company and is designed to provide emission reduction for carbon monoxide (CO) as listed on the Application & Performance Warranty Data page. MIRATECH warrants the quoted performance based on the engine emission and operating data you have provided us and that is contained in this proposal. Please note that some engine assumptions might be used and converter size may change based on actual engine data.

Again, thank you for the opportunity to provide this proposal. We are confident that our products will meet your technical needs and provide the best solution for your investment. If you have any questions, please do not hesitate to contact me. I will call you next week to confirm your receipt and satisfaction with this proposal.

Best Regards, Rick Hodgkins Southeast Regional Sales Manager MIRATECH



### Application & Performance Warranty Data

Project Information	
Site Location:	North Carolina
Project Name:	Carolina Sunrock
Application:	Prime Power
Number Of Engines:	1
Operating Hours per Year:	4000
Engine Specifications	
Engine Manufacturer:	Jenbacher
Model Number:	JGC 420 GS-B86
Rated Speed:	1800 RPM
Generator Power:	1500 ekW
Type of Fuel:	Natural Gas
Type of Lube Oil:	0.6 wt% sulfated ash or less
Lube Oil Consumption:	0.1 % Fuel Consumption
Number of Exhaust Manifolds:	1

### **Engine Cycle Data**

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	со	O2	H <sub>2</sub> O
%	bh	p	lb/hr	F		g/bhp-hr	%	%
100	Rated 2,0	165	18,729	783		2.1	8.4	11

### Emission Data (100% Load)

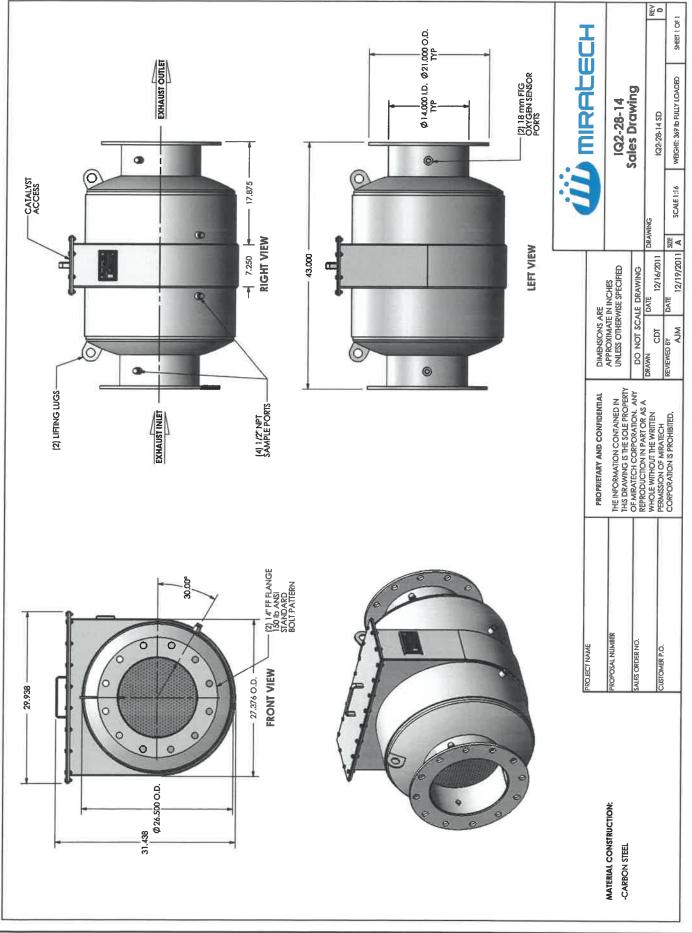
	Raw Engine Emissions												
Emission	g/bhp- hr	g/kW-hr	tons/yr	ppmvd @ 15% O <sub>2</sub>	ppmvd	lb/MW- hr	g/bhp- hr	g/kW-hr	tons/yr	ppmvd @ 15% O <sub>2</sub>	ppmvd	lb/MW- hr	Calculated Reduction
со	2.1	2.816	19.12	280	594	6.21	0.7	0.939	6.37	93	198	2.07	66.7%

### **System Specifications**

### Oxidation System Specifications (IQ2-28-14)

Design Exhaust Flow Rate:	18,729 lb/hr
Design Exhaust Temperature <sup>1</sup> :	783°F
Housing Model Number:	IQ2-28-14-HSG-0
Element Model Number:	MECB-OX-RB2894-2675-0000-291
Number of Catalyst Layers:	1
Number of Spare Catalyst Layers:	1
System Pressure Loss:	5.0 inches of WC (Clean) (12.5 mBar)
Exhaust Temperature Limits*:	550 – 1250°F (catalyst inlet); 1350°F (catalyst outlet) 288 – 677°C (catalyst inlet); 732°C (catalyst outlet)

\* General catalyst temperature operating range. Performance is based on the Design Exhaust Temperature.





## 5/2019 **Technical Description Genset-Container** JGC 420 GS-N.L Grid Parallel with Island Operation *Full rated power at 59 FT ASL and 95F T1, above 95F T1, a 0.833%/F derate automatically occurs.*

## Standard J420 – Carolina Sunrock \*Preliminary



**Electrical output** 

INNIQ

1500 kW el.

Emission values NOx < 0.6 g/bhp.hr (NO2)



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Thermal energy balance	
Exhaust gas data Combustion air data	
Sound pressure level	
Sound power level	
0.03 Technical data of generator	
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connection variant 1K	
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Oil - heat (Engine jacket water cooling circuit)	1
Engine jacket water - heat (Engine jacket water cooling circuit)	1
Mixture Intercooler (1st stage) (Engine jacket water cooling circuit) Mixture Intercooler (2nd stage) (Low Temperature circuit)	1
	1
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Touch Display Screen:	2
Central engine and module control:	2



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### 0.01 Technical Data (on container)

INNIQ

			100%	75%	50%
Power input	[2]	MBTU/hr	12,613	9,765	6,917
Gas volume	*)	scfhr	13,755	10,649	7,543
Mechanical output	[1]	bhp	2,065	1,549	1,032
Electrical output	[4]	kW el.	1,500	1,124	745
Heat to be dissipated (calculated with Glykol 37%)	[5]				
~ Intercooler 1st stage (Engine jacket water cooling circuit)	[9]	MBTU/hr	1,130	557	146
~ Intercooler 2nd stage (Low Temperature circuit)		MBTU/hr	366	287	195
~ Lube oil (Engine jacket water cooling circuit)		MBTU/hr	879	804	697
~ Jacket water		MBTU/hr	1,336	1,151	907
~ Surface heat	ca. [7]	MBTU/hr	397	~	~
Spec. fuel consumption of engine electric	[2]	BTU/kWel.h	8,401	8,686	9,284
		r			
Spec. fuel consumption of engine	[2]	BTU/bhp.hr	6,108	6,304	6,703
Lube oil consumption	ca. [3]	gal/hr	0.09	~	~
Electrical efficiency			40.6%	39.3%	36.8%
Fuel gas LHV		BTU/scft	917		

\*) approximate value for pipework dimensioning

Explanations: see 0.10 - Technical parameters

All heat data is based on standard conditions according to attachment 0.10. Deviations from the standard conditions can result in a change of values within the heat balance, and must be taken into consideration in the layout of the cooling circuit/equipment (intercooler; emergency cooling; ...). In the specifications in addition to the general tolerance of  $\pm 8$  % on the thermal output a further reserve of  $\pm 5$  % is recommended for the dimensioning of the cooling requirements.

Length	in	~ 490
Width	in	~ 120
Height	in	~ 110
Weight empty	lbs	~ 80,100
Weight filled	lbs	~ 84,290
Jacket water inlet and outlet	in/lbs	3"/145
Exhaust gas outlet [C]	in/lbs	12"/145
Fuel gas connection (on container) [D]	in	4"/232
Fresh oil connection	G	28x2"
Waste oil connection	G	28x2"
		31.5x15.7
Cable outlet	in	31.5815.7

### Output / fuel consumption

INNIQ

· · ·		
ISO standard fuel stop power ICFN	bhp	2,065
Mean effe. press. at stand. power and nom. speed	psi	244
Fuel gas type		Natural gas
Based on methane number   Min. methane number	MN	94   75 d)
Compression ratio	Epsilon	12.5
Min./Max. fuel gas pressure at inlet to gas train	psi	1.74 - 2.9 c)
Max. rate of gas pressure fluctuation	psi/sec	0.145
Maximum Intercooler 2nd stage inlet water temperature	°F	122
Spec. fuel consumption of engine	BTU/bhp.hr	6,108
Specific lube oil consumption	g/bhp.hr	0.15
Max. Oil temperature	°F	189
Jacket-water temperature max.	°F	203
Filling capacity lube oil (refill)	gal	~ 115

c) Lower gas pressures upon inquiryd) based on methane number calculation software AVL 3.2 (calculated without N2 and CO2)

# INNIQ Jenbacher

### 0.02 Technical data of engine

Manufacturer			JENBACHER
Engine type			J 420 GS-B86
Working principle			4-Stroke
Configuration			V 70°
No. of cylinders			20
Bore		in	5.71
Stroke		in	7.28
Piston displacement		cu.in	3,728
Nominal speed		rpm	1,800
Mean piston speed		in/s	437
Length		in	148
Width		in	62
Height		in	80
Weight dry		lbs	15,873
Weight filled		lbs	17,417
Moment of inertia		lbs-ft <sup>2</sup>	276.26
Direction of rotation (from flywheel view)			left
Radio interference level to VDE 0875			Ν
Starter motor output		kW	13
Starter motor voltage		V	24
Thermal energy balance			
Power input		MBTU/hr	12,613
Intercooler		MBTU/hr	1,496
Lube oil		MBTU/hr	879
Jacket water		MBTU/hr	1,336
Exhaust gas cooled to 356 °F		MBTU/hr	2,138
Exhaust gas cooled to 212 °F		MBTU/hr	2,833
Surface heat		MBTU/hr	225
Exhaust gas data			
Exhaust gas temperature at full load	[8]	°F	783
Exhaust gas temperature at bmep= 182.8 [psi]		°F	~ 826
Exhaust gas temperature at bmep= 121.8 [psi]		°F	~ 880
Exhaust gas mass flow rate, wet		lbs/hr	18,729
Exhaust gas mass flow rate, dry		lbs/hr	17,460
Exhaust gas volume, wet		scfhr	237,780
Exhaust gas volume, dry		scfhr	212,520
Max.admissible exhaust back pressure after engine		psi	0.870
Combustion air data			
Combustion air mass flow rate		lbs/hr	18,164
Combustion air volume		SCFM	3,752
Max. admissible pressure drop at air-intake filter		psi	0.145

Soun	d pressure level		
Aggreg	gate a)	dB(A) re 20µPa	100
31,5	Hz	dB	82
63	Hz	dB	90
125	Hz	dB	101
250	Hz	dB	98
500	Hz	dB	94
1000	Hz	dB	89
2000	Hz	dB	91
4000	Hz	dB	95
8000	Hz	dB	92
Exhaus	st gas b)	dB(A) re 20µPa	115
31,5	Hz	dB	95
63	Hz	dB	117
125	Hz	dB	115
250	Hz	dB	113
500	Hz	dB	108
1000	Hz	dB	105
2000	Hz	dB	108
4000	Hz	dB	109
8000	Hz	dB	107

### Sound power level

INNIQ

Aggregate	dB(A) re 1pW	120
Measurement surface	ft²	1,184
Exhaust gas	dB(A) re 1pW	123
Measurement surface	ft²	67.60

a) average sound pressure level on measurement surface in a distance of 3.28ft (converted to free field) according to DIN 45635, precision class 3.

b) average sound pressure level on measurement surface in a distance of 3.28ft according to DIN 45635, precision class 2.
 The spectra are valid for aggregates up to bmep=232.060384 psi. (for higher bmep add safety margin of 1dB to all values per increase of 15 PSI pressure).

Engine tolerance ± 3 dB

### 0.03 Technical data of generator

INNIQ

Manufacturer		STAMFORD e)
Туре		PE 734 F e)
Type rating	kVA	2,183
Driving power	bhp	2,065
Ratings at p.f.= 1.0	kW	1,500
Ratings at p.f. = 0.8	kW	1,489
Rated output at p.f. = 0.8	kVA	1,862
Rated reactive power at p.f. = 0.8	kVAr	1,117
Rated current at p.f. = 0.8	A	2,239
Frequency	Hz	60
Voltage	V	480
Speed	rpm	1,800
Permissible overspeed	rpm	2,250
Power factor (lagging - leading)		0,8 - 1,0
Efficiency at p.f.= 1.0		97.5%
Efficiency at p.f. = 0.8		96.7%
Moment of inertia	lbs-ft <sup>2</sup>	1149.20
Mass	lbs	8,545
Radio interference level to EN 55011 Class A (EN 61000-6-4)		Ν
Cable outlet		~
Ik" Initial symmetrical short-circuit current	kA	23.43
Is Peak current	kA	59.63
Insulation class		Н
Temperature rise (at driving power)		F
Maximum ambient temperature	°F	104

### Reactance and time constants (saturated) at rated output

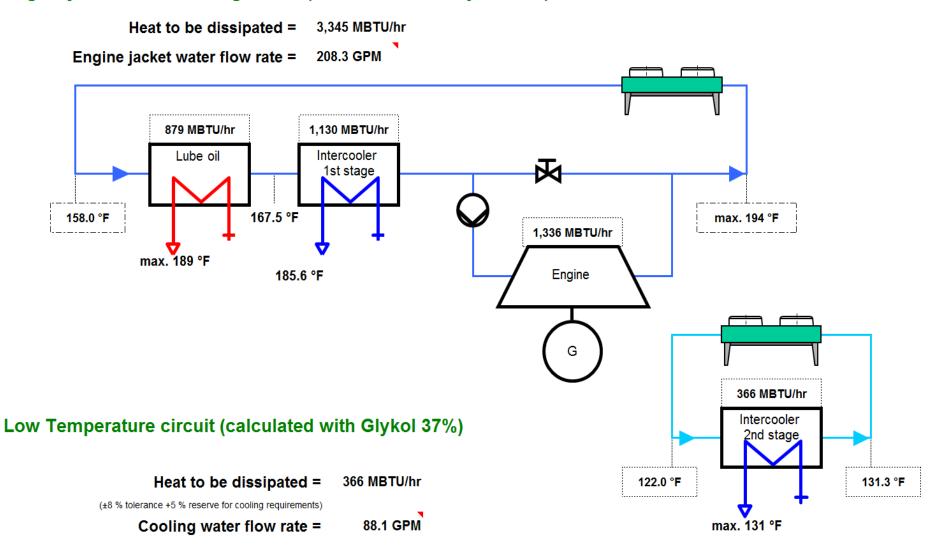
xd direct axis synchronous reactance	p.u.	2.12
xd' direct axis transient reactance	p.u.	0.13
xd" direct axis sub transient reactance	p.u.	0.09
x2 negative sequence reactance	p.u.	0.14
Td" sub transient reactance time constant	ms	20
Ta Time constant direct-current	ms	20
Tdo' open circuit field time constant	S	2.54

e) JENBACHER reserves the right to change the generator supplier and the generator type. The contractual data of the generator may thereby change slightly. The contractual produced electrical power will not change.

### connection variant 1K

Greenville Utilities Commision  $\Leftrightarrow$  J 420 GS-B86

### Engine jacket water cooling circuit (calculated with Glykol 37%)



### 0.05 Cooling water circuit

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### Oil - heat (Engine jacket water cooling circuit)

Nominal output	MBTU/hr	879
Max. Oil temperature	°F	189
Loss of nominal pressure of engine jacket water	psi	7.25
Safety valve - max press. set point	psi	36.26

### Engine jacket water - heat (Engine jacket water cooling circuit)

	0 /	
Nominal output	MBTU/hr	1,336
Max. engine jacket water temperature (outlet engine)	°F	194
Engine jacket water flow rate	GPM	208.3
Safety valve - max press. set point	psi	36.26

### Mixture Intercooler (1st stage) (Engine jacket water cooling circuit)

Nominal output	MBTU/hr	1,130
Max. inlet cooling water temp. (intercooler)	°F	167.5
Design pressure of cooling water / (max. operating pressure)	lbs	145
Loss of nominal pressure of engine jacket water	psi	4.35
Safety valve - max press. set point	psi	36.26

### Mixture Intercooler (2nd stage) (Low Temperature circuit)

	-	
Nominal output	MBTU/hr	366
Max. inlet cooling water temp. (intercooler)	°F	122
Aftercooler water flow rate	GPM	88.1
Design pressure of cooling water / (max. operating pressure)	lbs	145
Intercooler water pressure drop	psi	11.60
Safety valve - max press. set point	psi	36.26

The final pressure drop will be given after final order clarification and must be taken from the P&ID order documentation.

### 0.10 Technical parameters

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All data in the technical specification are based on engine full load (unless stated otherwise) at specified temperatures as well as the methane number and subject to technical development and modifications. For isolated operation an output reduction may apply according to the block load diagram. Before being able to provide exact output numbers, a detailed site load profile needs to be provided (motor starting curves, etc.).

All pressure indications are to be measured and read with pressure gauges (psi.g.).

- (1) At nominal speed and standard reference conditions ICFN according to DIN-ISO 3046 and DIN 6271, respectively
- (2) According to DIN-ISO 3046 and DIN 6271, respectively, with a tolerance of +5 %. Efficiency performance is based on a new unit (immediately upon commissioning).Effects of degradation during normal operation can be mitigated through regular service and maintenance work.
- (3) Average value between oil change intervals according to maintenance schedule, without oil change amount
- (4) At p. f. = 1.0 according to VDE 0530 REM / IEC 34.1 with relative tolerances, all direct driven pumps are included
- (5) Total output with a tolerance of  $\pm 8$  %
- (6) According to above parameters (1) through (5)
- (7) Only valid for engine and generator; module and peripheral equipment not considered (at p. f. = 0,8) ,(guiding value)
- (8) Exhaust temperature with a tolerance of ±8 %
- (9) Intercooler heat on:

\* **standard conditions** - If the turbocharger design is done for air intake temperature >  $86^{\circ}F$  w/o derating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from 77°F. Deviations between 77 –  $86^{\circ}F$  will be covered with the standard tolerance.

\* Hot Country application (V1xx) - If the turbocharger design is done for air intake temperature >  $104^{\circ}F$  w/o de-rating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from  $95^{\circ}F$ . Deviations between  $95 - 104^{\circ}F$  will be covered with the standard tolerance.

### Radio interference level

The ignition system of the gas engines complies the radio interference levels of CISPR 12 and EN 55011 class B, (30-75 MHz, 75-400 MHz, 400-1000 MHz) and (30-230 MHz, 230-1000 MHz), respectively.

### **Definition of output**

• ISO-ICFN continuous rated power:

Net break power that the engine manufacturer declares an engine is capable of delivering continuously, at stated speed, between the normal maintenance intervals and overhauls as required by the manufacturer. Power determined under the operating conditions of the manufacturer's test bench and adjusted to the standard reference conditions.

• Standard reference conditions: Barometric pressure: 14.5 psi (1000 mbar) or 328 ft (100 m) above sea level



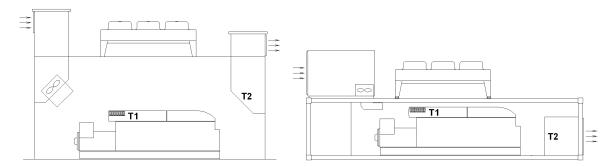
Air temperature:	77°F (25°C) or 298 K
Relative humidity:	30 %

 Volume values at standard conditions (fuel gas, combustion air, exhaust gas) Pressure: 1 atmosphere (1013.25 mbar) Temperature: 32°F (0°C)

### Output adjustment for turbo charged engines

INNIC

Full rated power at **59** FT ASL and **95F** T1, above **95F** T1, a 0.**833**%/F derate automatically occurs. Engine room outlet temperature: **122°F** (T2) -> engine stop



If the actual methane number is lower than the specified, the knock control responds. First the ignition timing is changed at full rated power. Secondly the rated power is reduced. These functions are done by the engine management.

Exceedance of the voltage and frequency limits for generators according to IEC 60034-1 Zone A will lead to a derate in output.

#### Parameters for the operation of JENBACHER gas engines

The genset fulfills the limits for mechanical vibrations according to ISO 8528-9. The following "Technical Instruction of JENBACHER" forms an integral part of a contract and must be strictly observed: **TA 1000-0004, TA 1100 0110, TA 1100-0111**, and **TA 1100-0112**. Transport by rail should be avoided. See **TA 1000-0046** for further details

Failure to adhere to the requirements of the above mentioned TA documents can lead to engine damage and may result in loss of warranty coverage.

#### Parameters for the operation of control unit and the electrical equipment

Relative humidity 50% by maximum temperature of 104°F. Altitude up to 2000m above the sea level.

### 0.20 Mode of Operation

### Grid Parallel and Island Operation - Multi Units (Auto Re-sync)

While Grid connected, the unit/units load can be adjusted via its power control set point or designated option. In the event of a loss of utility, the unit/units will be able to continue operating locally without utility power. When the mains monitor relay (protective relay ANSI No. 27, 59, 81, 78- provided either by GE or the customer) is activated due to a mains failure, the engine is isolated from the mains by opening the mains circuit breaker.

The load adding and shedding capabilities of the genset documented in

- TA 2108-0031 general island operation
- TA 2108-0025 for type 3 engines

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- TA 2108-0029 for type 4 engines
- TA 2108-0026 for type 6 engines
- TA 2108-0032 for type 9 engines

needs to be considered by the customer in order to ensure proper operation of the equipment.

When grid is restored, the unit is provided with an automatic re-synchronization feature which will synchronize the units back to the utility through a GE Jenbacher Master Synchronizing Control (optional, see appropriate Spec Section) or a higher-level control system provided by the customer. The unit(s) can perform "Black-out" start without external auxiliary power supply to the "dead busbar".

### 1.00 Scope of supply - Genset

### **Design:**

The genset is built as a compact package.

Engine and generator are mounted to the base frame. To provide the best possible isolation from the transmission of vibrations the engine is mounted to the frame by means of anti-vibrational mounts. The remaining vibrations are eliminated by mounting the module on isolating pads (e.g. Sylomer). This, in principle, allows for placing of the genset to be directly on any floor capable of carrying the static load. No special foundation is required. Prevention of sound conducted through solids has to be provided locally.

### 1.01 Spark ignited gas engine

Four-stroke, air/gas mixture turbocharged, aftercooled, with high performance ignition system and electronically controlled air/gas mixture system. The engine is equipped with the most advanced

LEANOX® LEAN-BURN COMBUSTION SYSTEM

developed by GE JENBACHER.

### 1.01.01 Engine design



### Engine block

Single-piece crankcase and cylinder block made of special casting; crank case covers for engine inspection, welded steel oil pan.

### Crankshaft and main bearings

Drop-forged, precision ground, surface hardened, statically and dynamically balanced; main bearings (upper bearing shell: 3-material bearing / lower bearing shell: sputter bearing) arranged between crank pins, drilled oil passages for forced-feed lubrication of connecting rods.

### Vibration damper

Maintenance free viscous damper

### Flywheel

With ring gear for starter motor

### Pistons

Single-piece, made of light metal alloy, with piston ring carrier and oil passages for cooling; piston rings made of high quality material, main combustion chamber specially designed for lean burn operation.

### **Connecting rods**

Drop-forged, heat-treated, big end diagonally split and toothed. Big end bearings (upper bearing shell: sputter bearing / lower bearing shell: sputter bearing) and connecting rod bushing for piston pin.

### **Cylinder liner**

Chromium alloy gray cast iron, wet, individually replaceable.

### Cylinder head

Specially designed and developed for GE JENBACHER-lean burn engines with optimised fuel consumption and emissions; water cooled, made of special casting, individually replaceable; Valve seats and valve guides and spark plug sleeves individually replaceable; exhaust and inlet valve made of high quality material.

### **Crankcase breather**

Connected to combustion air intake system.

### Valve train

Camshaft, with replaceable bushings, driven by crankshaft through intermediate gears, valve lubrication by splash oil through rocker arms.

### Combustion air/fuel gas system

Motorized carburetor for automatic adjustment according fuel gas characteristic. Exhaust driven turbocharger, mixture manifold with bellows, water-cooled intercooler, throttle valve and distribution manifolds to cylinders.

### Ignition system

Most advanced, fully electronic high performance ignition system, external ignition control. **MORIS:** Automatically, cylinder selective registration and control of the current needed ignition voltage.



#### Lubricating system

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Gear-type lube oil pump to supply all moving parts with filtered lube oil, pressure control valve, pressure relief valve and full-flow filter cartridges. Cooling of the lube oil is arranged by a heat exchanger.

#### Engine cooling system

Jacket water pump complete with distribution pipework and manifolds.

### **Exhaust system** Turbocharger and exhaust manifold

Exhaust gas temperature measuring Thermocouple for each cylinder

**Electric actuator** For electronic speed and output control

### Electronic speed monitoring for speed and output control

By magnetic inductive pick up over ring gear on flywheel

#### Starter motor

Engine mounted electric starter motor

### 1.01.02 Additional equipment for the engine (spares for commissioning)

The initial set of equipment with the essential spare parts for operation after commissioning is included in the scope of supply.

### 1.01.03 Engine accessories

#### Insulation of exhaust manifold:

Insulation of exhaust manifold is easily installed and removed

#### Sensors at the engine:

- Jacket water temperature sensor
- Jacket water pressure sensor
- Lube oil temperature sensor
- Lube oil pressure sensor
- Mixture temperature sensor
- Charge pressure sensor
- Minimum and maximum lube oil level switch
- · Exhaust gas thermocouple for each cylinder
- Knock sensors
- Gas mixer / gas dosing valve position reporting.

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### Actuator at the engine:

- Actuator throttle valve
- Bypass-valve for turbocharger
- Control of the gas mixer / gas dosing valve

### 1.01.04 Standard tools (per installation)

The tools required for carrying out the most important maintenance work are included in the scope of supply and delivered in a toolbox.

### 1.02 Generator-low voltage

The 2 bearing generator consists of the main generator (built as rotating field machine), the exciter machine (built as rotating armature machine) and the digital excitation system.

The digital regulator is powered by an auxiliary winding at the main stator or a PMG system

### Main components

- Enclosure of welded steel construction
- Stator core consist of thin insulated electrical sheet metal with integrated cooling channels.
- Stator winding with 2/3 Pitch
- Rotor consists of shaft with shrunken laminated poles, Exciter rotor, PMG (depending on Type) and fan.
- Damper cage
- Excitation unit with rotating rectifier diodes and overvoltage protection
- Dynamically balanced as per ISO 1940, Balance quality G2,5
- Drive end bracket with re greaseable antifriction bearing
- Non-drive end bracket with re grease antifriction bearing
- Cooling IC01 open ventilated, air entry at non-drive end, air outlet at the drive end side
- Main terminal box includes main terminals for power cables
- Regulator terminal box with auxiliary terminals for thermistor connection and regulator.
- Anti-condensation heater
- 3 PT100 for winding temperature monitoring+3 PT100 Spare
- 2 PT100 for bearing temperature monitoring

### Option:

Current transformer for protection and measuring in the star point xx/1A, 10P10 15VA , xx/1A, 1FS5, 15VA

### Electrical data and features

- Standards: IEC 60034, EN 60034, VDE 0530, ISO 8528-3, ISO 8528-9
- Voltage adjustment range: +/- 1
  - +/- 10 % of rated voltage (continuous) -6/+4% of rated frequency

• Frequency:



Overload capacity:

• Asymmetric load :

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- 10% for one hour within 6 hours, 50% for 30 seconds
- max. 8% I2 <u>continuous</u>, in case of fault I2 x t=20
- Altitude:

- < 1000m
- Max permitted generator <u>intake</u> air <u>temperature</u>: 5°C 40°C
- Max. <u>relative air humidity</u>: 90%
- Voltage curve THD Ph-Ph: <3,5% at idle operation and <5% at full load operation with linear symmetrical load
- Generator suitable for parallel operating with the grid and other generators
- Sustained short circuit current at 3-pole terminal short circuit: minimum 3 times rated current for 5 seconds.
- Over speed test with 1.2 times of rated speed for 2 minutes according to IEC 60034

## Digital Excitation system ABB Unitrol 1010 mounted within the AVR Terminal box with following features:

- Compact and robust Digital Excitation system for Continuous output current up to 10 A (20A Overload current 10s)
- Fast AVR response combined with high excitation voltage improves the transient stability during LVRT events.
- The system has free configurable measurement and analog or digital I/Os. The configuration is done via the local human machine interface or CMT1000
- Power Terminals
   3 phase excitation power input from PMG or auxiliary windings Auxiliary power input 24VDC
- Excitation output
- Measurement terminals: 3 phase machine voltage, 1 phase network voltage, 1 phase machine current
- Analog I/Os: 2 outputs / 3 inputs (configurable), +10 V / -10 V
- Digital I/O: 4 inputs only (configurable), 8 inputs / outputs (configurable)
- Serial fieldbus: RS485 for Modbus RTU or VDC (Reactive power load sharing for up to 31 GEJ engines in island operation), CAN-Bus for dual channel communication
- Regulator Control modes: Bump less transfer between all modes Automatic Voltage Regulator (AVR) accuracy 0,1% at 25°C ambient temperature Field Current Regulator (FCR) Power Factor Regulator (PF) Reactive Power Regulator (VAR)
- Limiters: Keeping synchronous machines in a safe and stable operation area Excitation current limiter (UEL min / OEL max) PQ minimum limiter Machine current limiter
   V / Hz limiter Machine voltage limiter
- Voltage matching during synchronization
- Rotating diode monitoring
- Dual channel / monitoring: Enables the dual channel operation based on self diagnostics and setpoint follow up over CAN communication.. As Option available



- Power System Stabilizer (PSS) is available as option. Compliant with the standard IEEE 421.5-2005 2A / 2B, the PSS improves the stability of the generator over the highest possible operation range.
- Computer representation for power system stability studies: ABB 3BHS354059 E01
- Certifications: CE, cUL certification according UL 508c (compliant with CSA), DNV Class B,
- Commissioning and maintenance Tool CMT1000 (for trained commissioning/ maintenance personal)
- With this tool the technician can setup all parameters and tune the PID to guarantee stable operation. The CMT1000 software allows an extensive supervision of the system, which helps the user to identify and locate problems during commissioning on site. The CMT1000 is connected to the target over USB or Ethernet port, where Ethernet connection allows remote access over 100 m.
- Main window

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- Indication of access mode and device information.
- Change of parameter is only possible in CONTROL access mode.
- LED symbol indicates that all parameter are stored on none volatile memory.
- Setpoint adjust window
  - Overview of all control modes, generator status, active limiters status and alarms.
  - Adjust set point and apply steps for tuning of the PID.
- Oscilloscope
- 4 signals can be selected out of 20 recorded channels. The time resolution is 50ms.Save files to your PC for further investigation.
- Measurement
  - All measurements on one screen.

### **Routine Test**

Following routine tests will be carried out by the generator manufacturer

- Measuring of the DC-resistance of stator and rotor windings
- Check of the function of the fitted components (e.g. RTDs, space heater etc.)
- Insulation resistance of the following components

Stator winding, rotor winding Stator winding RTDs Bearing RTDs Space heater

- No Load saturation characteristic (remanent voltage)
- Stator voltage unbalance
- Direction of rotation, phase sequence
- High voltage test of the stator windings (2 x Unom. + 1000 V) and the rotor windings (min. 1500 V)

### **1.03 Module Accessories**

#### Base frame

Common Base Frame fabricated with welded structural steel. Frame to mount the engine, jacket water heat exchangers, pumps and engine auxiliaries, as well as generator.

### Coupling



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Engine to Generator coupling is provided. The coupling isolates the major sub-harmonics of engine alternating torque from generator.

### **Coupling housing**

Provided for Coupling

### Anti-vibration mounts

2 sets of isolation, one is arranged between engine block assembly and base frame. The second is via insulating pads (SYLOMER) for placement between base frame and foundation, delivered loose.

#### Exhaust gas connection

A flanged connection is provided that collects the exhaust gas turbocharger output flows, includes flexible pipe connections (compensators) to compensate for heat expansions and vibrations.

#### **Combustion air filter**

A Dry type air filter with replaceable filter cartridges is fitted. The assembly includes flexible connections to the fuel mixer/carburetor and service indicator.

#### Interface panel (M1 cabinet)

Totally enclosed sheet steel cubicle with hinged doors, pre-wired to terminals, ready to operate. All Cable entry will be via bottom mounted cable gland plates.

Painting: RAL 7035

Protection: External NEMA 3 (IP 54), Internal IP 20 (protection against direct contact with live parts)

Cabinet design is according to IEC 439-1 (EN 60 439-1/1990) and DIN VDE 0660 part 500, respectively. Ambient temperature 41 - 104 °F (5 - 40 °C), Relative humidity 70%

Dimensions:

Height:	51 in (1300 mm)
---------	-----------------

- Width: 47 in (1200 mm)
- Depth: 16 in (400 mm)

Control Power Source: The starter batteries and the cabinet mounted battery chargers will provide the power source for this enclosure.

### Interface Panel contents and control functions:

- The cabinet houses the unit Battery Charger and primary 24VDC Control Power Distribution (breakers, fuses, and terminals) from the unit Batteries
- Distributed PLC Input and Output cards, located in the cabinet, gather all Engine and Generator Control I/O. These cards transmit data via data bus interface to the central engine control of the module control panel located in the A1 cabinet. Data bus is via CAN and B&R Proprietary Data Highway (Data Cables provided by GE)
- Speed monitoring relays for protection are provided.



- Gas Train I/O Collection, including interface relays and terminals for gas train shutoff valves.
- Transducer for generator functions, such as excitation voltage.
- Door Mounted Emergency Stop Switch with associated Emergency Stop Loop interface relays.
- Miscellaneous control relays, contacts, fuses, etc. for additional control valves, and auxiliaries.
- Interface Terminal Strips

INNIQ

Skid Mounted 3 Phase Devices are Powered by 3 x 480/277 V, 60 Hz, 50 A

AC Power for engine mounted auxiliaries (heater, pumps, etc.) are routed through a separate J-box mounted on the side M1 cabinet (Box E1). This is done to maintain signal segregation (AC from control)

NOTE: Generator Current Transformer wiring is connected directly to the Generator and does NOT pass through the M1 cabinet.

### 1.03.01 Engine jacket water system

### Engine jacket water system

Closed cooling circuit, consisting of:

- Expansion tank
- Filling device (check and pressure reducing valves, pressure gauge)
- Safety valve(s)
- Thermostatic valve
- Required pipework on module
- Vents and drains
- · Electrical jacket water pump, including check valve
- Jacket water preheat device

### 1.03.02 Automatic lube oil replenishing system

### Automatic lube oil replenishing system:

Includes float valve in lube oil feed line, including inspection glass. Electric monitoring system will be provided for engine shut-down at lube oil levels "MINIMUM" and "MAXIMUM". Solenoid valve in oil feed line is only activated during engine operation. Manual override of the solenoid valve, for filling procedure during oil changes is included.

### Oil drain

By set mounted cock

### Pre-lubrication- and aftercooling oil pump:

Mounted on the module base frame; it is used for pre-lubrication and aftercooling of the turbochargers. Period of operation: Pre-lubrication: 1 minute

Aftercooling: 15 minutes from engine stop

Consisting of:



- 1 piece oil pump 1500 W, 24 V
- All necessary vents
- Necessary pipework

### 1.05.01 Gas train <500mbar (7.3 psi)

Pre-assembled, delivered loose, for installation into gas pipework to the module.

### Consisting of:

- Manual shut off valve
- Gas filter, filter fineness <3 µm
- Pressure gauge with push button valve
- Gas admission pressure regulator
- Solenoid valves
- Leakage detector
- Gas pressure switch (min.)
- TEC JET (has to be implemented horizontal)
- Gas flow meter (option)
- p/t compensation (option)

The gas train complies with DIN - DVGW regulations.

Maximum distance from TEC JET outlet to gas entry on engine, including flexible connections, is 39,37in (1m)

### 1.07 Painting

- Quality: Oil resistant prime layer
   Synthetic resin varnish finishing coat
- Color: Engine: RAL 6018 (green) Base frame: RAL 6018 (green) Generator: RAL 6018 (green) Module interface panel: RAL 7035 (light grey) Control panel: RAL 7035 (light grey)

# 1.11 Engine generator control panel per module- Dia.ne XT4 incl. Single synchronization of the generator breaker

### **Dimensions:**

• Height:

87 in (including 8 in pedestal \*)

- Width: 32 -48 in\*)
- Depth: 24 in \*)

Protection class:

external IP42

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• Internal IP 20 (protection again direct contact with live parts)

\*) Control panels will be dimensioned on a project specific basis. Actual dimensions will be provided in the preliminary documentation for the project.

Control supply voltage from starter and control panel batteries: 24V DC

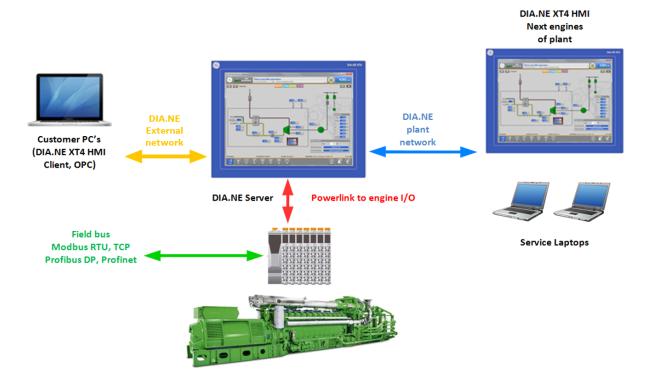
Auxiliaries power supply: (from provider of the auxiliary supply) 3 x 480/277 V, 60 Hz

### Consisting of:

Motor - Management - System DIA.NE

### Setup:

- a) Touch display visualization
- b) Central engine and unit control



### **Touch Display Screen:**

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15" Industrial color graphic display with resistive touch.

### Interfaces:

- 24V voltage supply
- DVI display connection
- USB interface for resistive touch

Protection class of DIA.NE XT panel front: IP 65

The screen shows a clear and functional summary of the measurement values and simultaneously shows a graphical summary.

Operation is via the screen buttons on the touch screen

Numeric entries (set point values, parameters...) are entered on the touch numeric pad or via a scroll bar. Determination of the operation mode and the method of synchronization via a permanently displayed button panel on the touch screen.

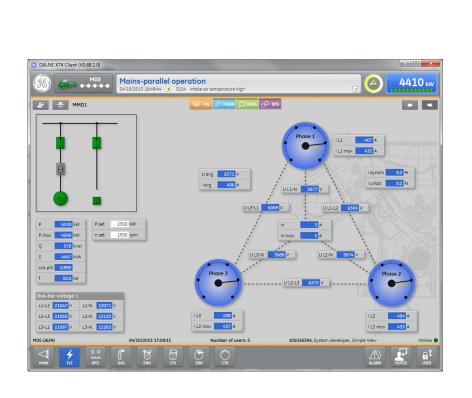
### Main screens (examples):

Main: Display of the overview, auxiliaries' status, engine start and operating data.

OIA.NE XT4 Client (V0.88.2.0)		
605 ALT + + + + + +	24/10/2013 16:48:44 🔺 3224 Intoke oir temperature high	C (4381 kw
🛃 📇 Overview	💥 VIS 🄑 PARA 💭 DIAG 🖓 SYS	
Cortype 1		Ectrical US9 Fpm C1 External base Power control Past 2000 kW Power set volue External base
		Power reduction Intake air temperature
M05 (J624)	24/10/2013 17:07:58 Number of users: 5 1050	126384, System developer, Simple View Online ●
		ALARM NOTES USER

ELE: Display of the generator connection with electrical measurement values and synchronization status





### Trending Trend with 100ms resolution

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Measurement values:

- 500 data points are stored
- Measurement interval = 100ms

- Raw data availability with 100ms resolution: 3 hours + max. 50.000.000 changes in value at shut down (60 mins per shut down)
- Compression level 1: min, max, and average values with 1000ms resolution: 1 day
- Compression level 2: min, max, and average values with 30s resolution: 1 month
- Compression level 3: min, max, and average values with 10min resolution: 10 years

## Messages: 1.000.000 message events

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Actions (operator control actions): 100.000 Actions

System messages: 100.000 system messages

### Central engine and module control:

An industrial PC- based modular industrial control system for module and engine sequencing control (start preparation, start, stop, aftercooling and control of auxiliaries) as well as all control functions.

### Interfaces:

- Ethernet (twisted pair) for remote monitoring access
- Ethernet (twisted pair) for connection between engines
- Ethernet (twisted pair) for the Powerlink connection to the control input and output modules.
- USB interface for software updates

## Connection to the local building management system according to the GE Jenbacher option list (OPTION)

- MODBUS-RTU Slave
- MODBUS-TCP Slave,
- PROFIBUS-DP Slave (120 words),
- PROFIBUS-DP Slave (190 words),
- ProfiNet Slave
- OPC DA Server

#### **Control functions:**

- Speed control in idle and in island mode
- Power output control in grid parallel operation, or according to an internal or external set point value on a case by case basis

• LEANOX control system which controls boost pressure according to the power at the generator terminals, and controls the mixture temperature according to the engine driven air-gas mixer

- Knocking control: in the event of knocking detection, ignition timing adjustment, power reduction and mixture temperature reduction (if this feature is installed)
- Load sharing between engines in island mode operation (option)
- · Linear power reduction in the event of excessive mixture temperature and misfiring
- Linear power reduction according to CH4 signal (if available)
- Linear power reduction according to gas pressure (option)
- Linear power reduction according to air intake temperature (option)

Multi-transducer to record the following alternator electrical values:

- Phase current (with slave pointer))
- Neutral conductor current
- Voltages Ph/Ph and Ph/N
- Active power (with slave pointer)
- Reactive power

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- Apparent power
- Power factor
- Frequency
- Active and reactive energy counter

Additional 0 (4) - 20 mA interface for active power as well as a pulse signal for active energy

The following alternator monitoring functions are integrated in the multi-measuring device:

- Overload/short-circuit [51], [50]
- Over voltage [59]
- Under voltage [27]
- Asymmetric voltage [64], [59N]
- Unbalance current [46]
- Excitation failure [40]
- Over frequency [81>]
- Under frequency [81<]

• "OFF"

### Lockable operation modes selectable via touch screen:

- operation is not possible, running units will shut down immediately;
- "MANUAL" manual operation (start, stop) possible, unit is not available for fully automatic operation.
- "AUTOMATIC" fully automatic operation according to external demand signal:

### Demand modes selectable via touch screen:

- external demand off ("OFF")
- external demand on ("REMOTE")
- overide external demand ("ON")

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## Malfunction Notice list:

### Shut down functions e.g.:

- Low lube oil pressure
- Low lube oil level
- High lube oil level
- High lube oil temperature
- Low jacket water pressure
- High jacket water pressure
- High jacket water temperature
- Overspeed
- Emergency stop/safety loop
- Gas train failure
- Start failure
- Stop failure
- Engine start blocked
- Engine operation blocked
- Misfiring
- High mixture temperature
- Measuring signal failure
- Overload/output signal failure
- Generator overload/short circuit
- Generator over/undervoltage
- Generator over/underfrequency
- Generator asymmetric voltage
- Generator unbalanced load
- Generator reverse power
- High generator winding temperature
- Synchronizing failure
- Cylinder selective Knocking failure

### Warning functions e.g.:

- Cooling water temperature min.
- Cooling water pressure min.
- Generator winding temperature max.

### Remote signals:

(volt free contacts)

1NO = 1 normally open 1NC = 1 normally closed

1COC = 1 change over contact

- Ready for automatic start (to Master control)
- Operation (engine running)

1NO 1NO



<ul> <li>Demand auxiliaries</li> <li>Collective signal "shut down"</li> <li>Collective signal "warning"</li> </ul>	1NO 1NC 1NC
<ul> <li>External (by others) provided command/status signals:</li> <li>Engine demand (from Master control)</li> <li>Auxiliaries demanded and released</li> </ul>	1S 1S

Auxiliaries demanded and released

### Single synchronizing Automatic

For automatic synchronizing of the module with the generator circuit breaker to the grid by PLC- technology, integrated within the module control panel.

### **Consisting of:**

- Hardware extension of the programmable control for fully automatic synchronization selection and synchronization of the module and for monitoring of the generator circuit breaker closed signal.
- Lockable synchronization selection via touch screen with the following selection modes:
  - "MANUAL" Manual initiation of synchronization via touch screen button followed by fully ٠ automatic synchronization of the module
  - "AUTOMATIC" Automatic module synchronization, after synchronizing release from the module • control
  - "OFF" Selection and synchronization disabled • Control of the generator circuit breaker according to the synchronization mode selected via touch screen.
  - "Generator circuit breaker CLOSED/ Select" Touch-button on DIA.NE XT •
  - "Generator circuit breaker OPEN" Touch-button on DIA.NE XT

### Status signals:

Generator circuit breaker closed Generator circuit breaker open

### **Remote signals:**

(volt free contacts) Generator circuit breaker closed

1 NO

### The following reference and status signals must be provided by the switchgear supplier:

<ul> <li>Generator circuit breaker CLOSED</li> </ul>	1 NO
<ul> <li>Generator circuit breaker OPEN</li> </ul>	1 NO
<ul> <li>Generator circuit breaker READY TO CLOSE</li> </ul>	1 NO
<ul> <li>Mains circuit breaker CLOSED</li> </ul>	1 NO
Mains circuit breaker OPEN	1 NO



Mains voltage 3 x **480/277** V or 3x 110V/v3 other measurement voltages available on request Bus bar voltage 3 x **480/277** V or 3x 110V/v3 – other measurement voltages available on request Generator voltage 3 x **480 V** or 3x 110V/v3 – other measurement voltages available on request

Voltage transformer in the star point with minimum 50VA and Class 0,5

## The following volt free interface-signals will be provided by GE Jenbacher to be incorporated in switchgear:

<ul> <li>CLOSING/OPENING command for generator circuit breaker</li> </ul>	
(permanent contact)	1 NO + 1 NC
<ul> <li>Signal for circuit breaker undervoltage trip</li> </ul>	1 NO

Maximum distance between module control panel and engine/interface panel:	99ft
Maximum distance between module control panel and power panel:	164ft
Maximum distance between module control panel and master control panel:	164ft
Maximum distance between alternator and generator circuit breaker:	99ft

### **1.11 Motor control panel – Container design**

Sheet metal IEC enclosure, components and assembly UL listed. For distribution and protection of the module and container auxiliaries. With cubicle lighting.

Dimensions:

•	Height:	71 inch (1800 mm)
•	Width:	39 inch (990 mm)
•	Depth:	16 inch (405 mm)

Equipment:

Equipped with IEC type starters for each motor With safety disconnect switches for every load With step down transformer 480/120V, 10kVA for container consumers

2 motorstarter	7.2kW	10hp
4 motorstarter	4.7kW	6.5hp
2 motorstarter	0.9kW	1.2hp
2 motorstarter	0.34kW	0.5hp
1 circuit breaker	8.67kW	12hp
1 motorstarter	3kW	4hp

1.11.01 Remote messaging over MODBUS-TCP

Data transfer from the Jenbacher module control system to the customer's on-site central control system via MODBUS TCP using the ETHERNET 10 BASE-T/100BASE-TX protocol TCP/IP.

The Jenbacher module control system operates as a SLAVE unit. The data transfer via the customer's MASTER must be carried out in cycles.

### Data transmitted:

INNIQ

Individual error messages, operational messages, measured values for generator power, oil pressure, oil temperature, cooling water pressure, cooling water temperature

### GE Jenbacher limit of supply:

RJ45 socket at the interface module in the module control cabinet

### 1.11.06 Remote Data-Transfer with DIA.NE XT4

#### General

DIA.NE XT4 offers remote connection with Ethernet.

Applications:

### 1.) DIA.NE XT4 HMI

DIA.NE XT4 HMI is the human-machine-interface of DIA.NE XT4 engine control and visualization system for GE Jenbacher gas engines.

The system offers extensive facilities for commissioning, monitoring, servicing and analysis of the site. By installation of the DIA.NE XT4 HMI client program it can be used to establish connection to site, if connected to a network and access rights are provided.

The system runs on Microsoft Windows Operating systems (Windows XP, Windows 7, Windows 8, Windows 10)

### Function

Functions of the visualization system at the engine control panel can be used remotely. These are among others control and monitoring, trend indications, alarm management, parameter management, and access to long term data recording. By providing access to multiple systems, also with multiple clients in parallel, additional useful functions are available like multi-user system, remote control, print and export functions and data backup.DIA.NE XT4 is available in several languages.

### **Option - Remote demand/blocking**

If the service selectors switch at the module control panel is in pos."Automatic" and the demand-selector switch in pos."Remote", it is possible to enable (demanded) or disable (demand off) the module with a control button at the DIA.NE XT4 HMI



Note:

With this option, it makes no sense to have an additional clients demand (via hardware or data bus) or a self-guided operation (via GE Jenbacher master control, grid import /export etc.).

### Option - Remote - reset (see TA-No. 1100-0111 chapter 1.7 an d1.9)

### Scope of supply

INNIC

- Software package DIA.NE XT4 HMI Client Setup (Download)
- Number of DIA.NE XT4 HMI Client user license (Simultaneous right to access of one user to the engine control)

Nr. of license	Access
1	1 Users can be logged in at the same time with a PC
	(Workplace, control room or at home).
2 - "n" (Optional)	2- "n" Users can be logged in at the same time with a PC (Workplace, control room or at home).
	If 2- "n" users are locally connected at Computers from office or control room, then it is not possible to log in from home.

**Caution!** This option includes the DIA.NE XT4 HMI client application and its license only – NO secured, encrypted connection will be provided by GE Jenbacher! A secured, encrypted connection – which is mandatory – has to be provided by the customer (via LAN connection or customer-side VPN), or can be realized by using option myPlant<sup>™</sup>.

### **Customer requirements**

- Broad band network connection via Ethernet(100/1000BASE-TX) at RJ45 Connector (ETH3) at DIA.NE XT4 server inside module control panel
- Standard PC with keyboard, mouse or touch and monitor (min. resolution 1024\*768)
- Operating system Windows XP, Windows 7, Windows 8, Windows 10
- DirectX 9.0 c compatible or newer 3D display adapter with 64 MB or higher memory

### 2.) myPlant™

Description see Annex 12 of Attachment 1

### 3.) Mobile Internet (OPTION)

Connection Plant - Customer via secured Internet - connection See also technical instruction **TA 2300 - 0006** 

#### Scope of delivery

• Mobile Internet router with antenna to connect to the DIA.NE Server XT4

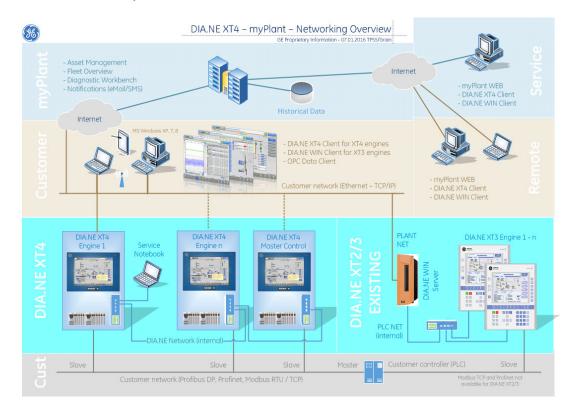
### **Customer requirements**

• SIM card for 3G / 4G

### 4.) Network overview

INNIO

### For information only!



### 1.20.03 Starting system

### Starter battery:

4 piece 12 V AGM battery, 125 Ah (according to DIN 72311).

### Battery voltage monitoring:

Monitoring by PLC.

### Battery charging equipment:

Capable for charging the starter battery with I/U characteristic and for the supply of all connected D.C. consumers.

Charging device is mounted inside of the module interface panel or module control panel.



<ul> <li>General data:</li> <li>Power supply</li> <li>max. power consumption</li> <li>Nominal D.C. voltage</li> <li>Voltage setting range</li> <li>Nominal current (max.)</li> <li>Degree of protection</li> <li>Operating temperature</li> <li>Protection class</li> <li>Humidity class</li> <li>Natural air convection</li> <li>Standards</li> </ul>	n	<b>3 x 320 - 575 V, 47 - 63 Hz</b> 1040 W / 1550 W (5 sec) 24 V(+/-1%) 24V to 28V ( adjustable) 40 A IP20 to IEC 60529 32 °F – 158 °F (0 °C - 70 °C) 1 3K3, no condensation. EN60950,EN50178 UL/cUL (UL508 / UL 60950-1)
Signalling: Green Led:	Output voltage > 21.6	V
Control accumulator:		

• Pb battery 24 VDC/18 Ah

### 1.20.05 Electric jacket water preheating

Installed in the jacket water cooling circuit, consisting of:

- Heating elements
- Water circulating pump

The jacket water temperature of a stopped engine is maintained between 133 °F (56°C) and 140°F (60°C), to allow for immediate loading after engine start.

### 1.20.08 Flexible connections

Following flexible connections per module are included in the GE Jenbacher -scope of supply:

No.Connection	Unit	Dimension Material
2 Warm water in-/outlet	in/lbs	4"/145 Stainless steel
1 Exhaust gas outlet	in/lbs	12"/145 Stainless steel
1 Fuel gas inlet	in/lbs	5"/145 Stainless steel
2 Intercooler in-/outlet	in/lbs	4"/145 Stainless steel
2 Lube oil connection	in	1.1" Hose

Seals and flanges for all flexible connections are included.



### 2.00 Electrical equipment

INNIO

Totally enclosed floor mounted sheet steel cubicle with front door wired to terminals. Ready to operate, with cable entry at bottom. Naturally ventilated.

Protection:	IP 42 external, NEMA 12
	IP 20 internal (protection against direct contact with live parts)

Design according to EN 61439-2 / IEC 61439-2 and ISO 8528-4. Ambient temperature 41 - 104 °F (5 - 40 °C), 70 % Relative humidity

Standard painting:	Panel:	RAL 7035
	Pedestal:	RAL 7020

### 2.02 Grid monitoring device

Standard without static Grid - 60Hz alternator

### **Function:**

For immediate disconnection of the generator from the grid in case of grid failures.

### Consisting of:

- · High/low voltage monitoring
- High/low frequency monitoring
- Specially adjustable independent time for voltage and frequency monitoring
- Vector jump monitoring or df/dt monitoring for immediate disconnection of the generator from the grid for example at short interruptions
- Indication of all reference dimensions for normal operation and at the case of disturbance over LCD and LED
- Adjusting authority through password protection against adjusting of strangers

### Scope of supply:

Digital grid protection relay with storage of defect data, indication of reference dimensions as well as monitoring by itself.

### Grid protection values:

Parameter	Parameter limit	Max time delay[s]	Comments
59-61Hz			Do work normal
f<[ANSI 81U]	59Hz	0,5	Load reduction with 10%/HZ below 59Hz!



f<<[ANSI 81U]	58.5Hz	0,1	
f>[ANSI 810]	61,5Hz	0,1	Load reduction with 30%/HZ above 61Hz!
U<[ANSI 27]	90%	1	Load reduction with 1%P /%U below 95%
U<<[ANSI 27]	80%	0,2	Load reduction with 1%P /%U below 95%
U>[ANSI 59]	110%	30	Load reduction with 1%P /%U above 105%
U>>[ANSI 59]	115%	0,2	Load reduction with 1% P/%U above 105%
Df/dt [ANSI 81R]	2Hz/s, 5 Periods		Cos phi range:
Or	Or		0,8ind (overexcited)
Vector shift	8° -3pol		- 1
[ANSI 78]			

### 2.04 Generator Low Voltage switchgear (for container design)

Sheet metal enclosure, UL listed, front-access

Dimensions:

- Height: 80 inch (2032 mm)
- Width: 28 inch (700 mm)
- Depth: 32 inch (800 mm)

Generator circuit breaker details

- In = **2000** A, drawn out type
- Short circuit breaking capacity: 65kA
- Spring drive 24VDC
- Close coil 24VDC
- Shunt trip coil 24VDC
- Under-voltage trip coil 24VDC
- Auxiliary contacts (a/b)
- Programmable Short Circuit Protection (Instantaneous and Duration)



Cabinet Fitted with

INNIO

- 2 PT fused sets (Bus side/Gen side, 3 PTs in a Wye to Wye configuration)
- Surge Suppression

Per Phase Bus Bar Terminations and Ground Bar predrilled for customer terminations (maximum 4 cables per phase (Hardware not provided).

## 2.10.01 Master synchronization integrated into the master control

### Purpose:

The "Master synchronization" is assigned for control of ONE mains circuit breaker (CB), as well as the selection and the release of the individual modules for isolated operation.

### Scope of supply:

The following essential components are included:

- DIA.NE server
- Visualization
- Synchronizing device
- Necessary coupling relays
- Terminal strip for incoming and outgoing cables (scope of supply)

### **Assumptions:**

- In every case of mains failure and transition from mains-parallel operation to island operation the customers load shedding equipment (preferably using relay control with direct contacts on the standby loads) has to limit the standby load within 50 mSec after the mains CB is opened to the standby rating of the module(s). There is no load shedding equipment supplied by GE Jenbacher. Load shedding have to be realized on-site.
- GEJ synchronises and controls the generator CB's of the individual modules by module control panels and the mains CB by the master control panel. All other CB's of the plant have to be controlled/interlocked by the customer in this way, that there is ensured a safe operation in every operating mode of the plant.

### Function:

- Release of the gas engines for isolated operation Release of the gas engines for isolated operation is performed in accordance with the availability of the units and the settings at the visualisation.
- Lockable selection by touch of 'Manual demand gas engines for isolated operation':
  - "0" No isolated operation. There will be no module released for isolated operation.
    - In case of mains breakdown the generator CB's of the running units will be opened.
  - "1" Manual selection "1" module released for isolated operation.

In case of mains breakdown the mains CB of the plant will be opened. Surplus running units will be stopped.



"2"."n" Manual selection "2".."n" modules released for isolated operation. In case of mains breakdown the mains CB of the plant will be opened. Surplus running units will be stopped.

- Lockable selection by touch 'Priority engine': The unit sequencing is based upon availability and according to lockable selection.
- Mains stabilization time After restoration of the mains a waiting time elapses until the automatic "Mains breaker synchronisation" command is given to synchronise the plant to the mains.
- Select synchronization type

Lockable synchronization type selection by touch:

MANUAL	manually initiated automatic synchronization of mains CB
OFF	Synchronization of mains CB is locked
AUTOMATIC	automatically initiated automatic synchronization of mains CB

Manually initiated automatic synchronization

Pressing the "MAINS CB x ON / SELECTION" button on the touch control panel initiates automatic synchronization.

### Automatic synchronization

Fully automatic synchronisation system with frequency controller and synchroniser with autonomous synchronisation selection.

- Synchronization device with frequency balance and following displays:
  - Double voltmeter for monitoring of bus bar and generator voltage
  - Double frequency meter for monitoring of bus bar and generator frequency
  - Synchronouscope for monitoring of the synchronizing function during synchronization

## DIA.NE XT

Components:

• DIA.NE plant management system

Design:

a) Touch Display visual display unit

b) Central plant control

### a) Touch Display visual display unit

15" industrial colour graphics display with resistive touch screen. Protection class for DIA.NE XT Front: IP 65,

INNIQ

The VDU contains a clear and functional summary of the measured values. All values are presented graphically.

The system is operated by touching on-screen buttons.

Numeric inputs (set points, parameters, ...) are made on a touch numerical keypad or slider. The operating mode and synchronisation type are selected on a touch button panel that can be pinned permanently on each screen.

Main screens:

- MAIN: Operating selection
- ELE: Circuit breakers
- ELE: Electrical plant overview, synchronization (Option)
- HYD: Hydraulic plant overview (Option)
- GAS: Gas plant overview (Option)
- CTR: Plant controllers (Option)
- CUST: Shows order-specific screens added at the customer's request.
- PANEL: The operating mode and synchronisation type are selected on a touch button panel that can be pinned permanently on each screen.
- ALARM: Alarm management. Efficient diagnostic instrumentation listing all active fault messages of the master control both tabular and chronologically, with the recorded time.
- Help: Information for causes and corrective measures for malfunctions

Each screen allows the use to switch between the screen view, the associated parameters in table form, powerful measured value trend displays, and, if available, system information.

## b) Central plant control:

A real-time, modular industrial control system based on an industrial PC which handles all activities for the

- station control,
- mains breaker control,
- and isolated operation settings for the modules.

### Interfaces:

- Ethernet (twisted pair) for remote maintenance access
- Ethernet (twisted pair) for interconnecting a number of engines
- Ethernet (twisted pair) for the Powerlink connection to the control inputs and outputs.
- USB interface for software updates

Connection to on-site control system as described in GE Jenbacher options list (MODBUS-RTU slave, PROFIBUS-DP slave, MODBUS-TCP slave, ProfiNet and OPC)

## Monitoring / fault messages, displays / operational messages:

- Monitoring / fault messages:
  - Bus bar voltage sensor failure
- Monitoring / fault messages mains CB:



- Mains CB status signal failure
- Mains CB 0-signal failure
- Mains CB 1-signal failure
- Mains CB opening failure
- Mains CB closing failure
- Mains CB overload/short circuit
- Monitoring / fault messages mains:
  - Mains monitoring device failure
- Displays mains CB:
  - Mains CB OPENED/CLOSED
  - Mains CB synchronization selected
- Displays mains:
  - Mains OK / Mains fault
- Displays for each module:
  - Generator CB OPENED/CLOSED

## Required reference and status signals for GE Jenbacher synchronizing system:

- Status signals
  - Mains circuit breaker CLOSED 1 NO
  - Mains circuit breaker OPENED 1 NC
  - Mains circuit breaker READY TO CLOSE 1 NO
- Mains voltage 3 x / V
   Voltage converter at star-star connection with min. 50 VA and KI.0.5.
- Bus bar voltage 3 x / V
   Voltage converter at star-star connection with min. 50 VA and KI.0.5.

## GE Jenbacher interface-signals to be incorporated in switchgear:

- Mains circuit breaker CLOSING command
   1 NO
- Mains circuit breaker OPENING command
   1 NO

The closing/opening command of the GE Jenbacher synchronization will be active till the opened/closed status signal from the switchgear is received.

Maximum distance between master synchronisation and module control cabinet:	50m/164ft
Maximum distance between master synchronisation and power switch:	100m/328ft

## 2.10.04 Master control for 4 modules

## Base procedure: Priority current - Mains power import/export-control

## Dimensions:

 • Height
 2200 mm (87 in) (including 200 mm [8 in] foundation)

 • Width
 1000 mm (40 in)

 • Depth
 600 mm (24 in)



Control power supply (by supplier of the control power supply unit) from the battery 24 V DC, 16 A (tolerance: min. 22 V, max. 30 V, including waviness  $U_{pp}$  3.6 V minus-grounded). Auxiliary power supply (by the supplier of the auxiliary power supply unit): 480/277 V, 60 Hz, 16 A.

### Purpose:

The "Master control" is assigned for automatic starting/stopping of the individual modules, and for the unit control power default, with respect to the plant's mains power consumption.

### Scope of supply:

- The following essential components are included:
- DIA.NE server
- Visualisation
- Necessary coupling relays
- Terminal strip for incoming and outgoing cables (scope of supply)

#### **Assumptions:**

- The hydraulic integration of the units, the bypass of the surplus heat as well as the complete heater control must be finalized on-site, per GE JENBACHER-hydraulic diagram E 9684.
- Return temperature: the set value may not be exceeded. Permissible deviation -20°C (-4°F). Permissible change in maximum velocity 10°C (50°F)/minute.

#### Function:

· Addition and shutdown of the units

Addition and shutdown of the units is performed in accordance with the current demand of the plant with the

#### Total consumers' power

and the

### Mains import/export power

of the plant as switching criteria.

The measured value acquisition of the mains import/export power is performed by an on-site measuring transducer (0/4 - 20 mA, potential free measured signal). The total consumers power of the plant is formed at the PLC by summation of the actual mains power consumption and the output of the engines. The set points for switching on and off each unit are adjustable; depending on the calculated generators total power set value.

For each switching point a delay time for on and off is adjustable.

• Power adjustment:

The power adjustment of the units is performed such that the mains power import/export is used on a constantly adjustable set value. The running units perform within the load range of 50 - 100 % nominal load, with equal load distribution between the units.

• Time intervals:

Between two additions and shutdowns of the units, minimum (adjustable) dead time is observed.

• Unit sequencing:

The unit sequencing is based upon availability and according to lockable selection by touch: "AUT" sequence according to operating hours (the unit with the lowest operating





hours will be requested first)

- "MAN", "1", "2", "3"..."n" Manual pre-selection of the leading unit with fixed sequence of the units. (Sequence: 1-2-3-n, 2-3-n-1, 3-n-1-2)
- Lockable service selection by touch:

"0", "1", "2"..."n" Manual selection of number of module demand. Module power default 50-100% according the mains power import/export regulation.
 "AUT" Automatic Operation of the plant with module demand according the base procedure. Module power default 50-100% according the mains power import/export regulation.

## DIA.NE XT

Components: • • DIA.NE plant management system Design: a) Touch Display visual display unit b) Central plant control

## a) Touch Display visual display unit

15" industrial colour graphics display with resistive touch screen. Protection class for DIA.NE XT Front: IP 65,

The VDU contains a clear and functional summary of the measured values. All values are presented graphically.

The system is operated by touching on-screen buttons.

Numeric inputs (set points, parameters, ...) are made on a touch numerical keypad or slider. The operating mode and synchronisation type are selected on a touch button panel that can be pinned permanently on each screen.

Main screens:

- MAIN: Operating selection, counters (operating hours)
- ELE: Electrical plant overview, synchronization
- HYD: Hydraulic plant overview (Option)
- GAS: Gas plant overview (Option)
- CTR: Plant controllers (Option)
- CUST: Shows order-specific screens added at the customer's request.
- PANEL: The operating and synchronisation mode are selected on a touch button panel that can be pinned permanently on each screen.
- ALARM: Alarm management. Efficient diagnostic instrumentation listing all active fault messages of the master control both tabular and chronologically, with the recorded time.
- Help: Information for causes and corrective measures for malfunctions

Each screen allows the use to switch between the screen view, the associated parameters in table form, powerful measured value trend displays, and, if available, system information.

## b) Central plant control:

INNIQ

A real-time, modular industrial control system based on an industrial PC which handles all activities for the

- station control,
- mains breaker control,
- and isolated operation settings for the modules.

### Interfaces:

- Ethernet (twisted pair) for remote maintenance access
- Ethernet (twisted pair) for interconnecting a number of engines
- Ethernet (twisted pair) for the Powerlink connection to the control inputs and outputs.
- USB interface for software updates

Connection to on-site control system as described in GE Jenbacher options list (MODBUS-RTU slave, PROFIBUS-DP slave, MODBUS-TCP slave, ProfiNet and OPC)

### Monitoring / fault messages, displays / operational messages:

- Monitoring / fault messages
  - Measuring signal fault
- CHP return temperature high (on-site sensor with potential free contact)
- Status messages of the plant
- Display of the actual operating mode of the plant in the status line e.g.:
  - Plant blocked
  - Priority current
  - Emergency supply
  - Priority current peak load
- Operational messages for each module:
  - Not ready / ready / demand by master control
  - Operation OFF/ON
  - Generator C.B. OFF/ON
- Displays for each module:
  - Operating hours (with possibility of adjust)
  - Electrical output set value and actual value
- Operational conditions of the plant:
- Mains C.B. OFF/ON
- Mains o.k./mains fault
- Mains power import/export set value and actual value
- Total power consumers
- Generators total power set value

### Remote control messages (potential free contacts):

- CPU fault master control
- Collect fault master control

2.11.02 Coupling with external control system

Data transfer from GE Jenbacher-master control to customer's plant management system by MODBUS-RTUnetwork (RS485).

The GE Jenbacher-master control works as SLAVE.

The data transmission by the customer's MASTER must be cyclically.

## Transmitted data:

INNIQ

The transmitted data are stated in the chapter "master control- displays/operational messages"

### GE Jenbacher limit of delivery:

Interface connector at the PLC in the master control panel.

## 2.12 Gas warning device

### Function:

The gas warning device continuously monitors the radiated air in the engine room and warns against gases which are injurious to persons' health and against explosive gas concentrations.

The measuring head (catalytic sensor) is attached on the covering or nearby the ground, dependent upon the gas source.

## Scope of supply:

- Alarm unit voltage: 24VDC
- 2 Gas sensor(s)

## 2.13 Smoke warning device

### Function:

The smoke warning device in combination with the optical smoke detector (installed in the control room) and the thermal smoke detector (installed in the engine room) provide extensive early warning signal.

### Design:

The device has an optical display for alarm and operation. The smoke warning device is installed in a plastic housing.

## Scope of supply:

<ul> <li>Alarm unit</li> </ul>	voltage:	24 V
2 Smoke detector(s)		

## 3.01 Lube oil system

# INNIQ

## Consisting of:

- 211.3 gal fresh oil tank
- •
- · Combined electric driven fresh oil and waste oil pump
- Level switches
- Shut-off devices
- Complete pipe work between oil tanks and module

## Through simple switch over of the pumps following functions are given:

- Filling of the fresh oil tank from a cask
- Filling of the lube oil tank from a cask
- Filling of the oil pan from a cask
- Emptying of the oil pan into a cask
- Emptying of the waste oil tank into a cask

## 3.03.01 Exhaust gas silencer

## Material:

Stainless steel

## Consisting of:

- Exhaust gas silencer
- Flanges, seals, fixings

## Insulation:

The insulation for reducing surface irradiations (heat and sound) of the exhaust gas silencer is not included in our scope of supply and must be provided locally. The insulation (4 inch (100 mm) rock wool covered with 0,03 inch (0,75 mm) galvanized steel sheet) is required to keep the sound pressure level of the container (65 dB(A) in 32 ft (10 m)).

## 3.10.03 Cooling system – dual-circuit radiator

The heat produced by the engine (jacket water, lube oil, intercooler) is dissipated through a radiator, installed outside.

## Consisting of:

- Radiator
- Pump
- Electrical control
- Expansion tank

The radiator is designed for an ambient temperature of 95°F (35°C). Special versions for higher ambient temperatures are available upon request.



## 3.20 Container

INNIQ

STEEL-CONTAINER for module

### Dimensions:

<ul> <li>Lenght:</li> </ul>	40 ft (12192 mm)
-----------------------------	------------------

- Width: 9.84 ft (3000 mm)
- Height: 8.76 ft (2670 mm)

## Sound pressure level

65 dB(A) at 32 ft (10 m) (surface sound pressure level according to DIN 45635) See comments under MC 3.03.01

### Ambient temperature:

The container is designed for an ambient temperature from -4°F (-20°C) to 90°F (32°C). Other temperatures are available upon request.

### Base frame:

Self-supporting, i.e. the base frame is designed to withstand static loads from the installation of parts such as the engine, control panels, exhaust gas silencer and radiator.

To lift (to load) the container 4 screw able carrier are mounted at the top of the container.

### **Construction:**

Trapezoidal corrugated steel sheeting welded between the base frame and the top frame. The sound absorbent surfaces are comprised of rock wool covered with perforated plating. The container is of a weatherproof design and the roof is suitable for construction work.

A dismountable section to bring in the engine is situated at the front of the container beside the air outlet. There is a door into the control room at the front wall on the side of air inlet. A door into the engine room is situated at the long side of the container.

The doors (engine room and control room) are fitted with identical cylinder locks. The doors are designed as emergency doors which can be opened in direction of the escape route. They are identified as such and can be opened from the inside without other assistance (panic lock).

Dimension of door: appr. 3.28 ft (1000 mm) x 6.56 ft (2000 mm) (W x H)

### Engine room:

The floor is made of steel sheet (checker – or nipple plate) and designed as a tightly shut pan. This pan is used to collect an oil-leak of the lube oil circuit (engine and extension tank). Connections from/to the engine room consist of:

• Top: Gas inlet; welded flange Cooling water in/outlet; welded flange Exhaust gas outlet; tightly closed



• Roof:

Suspensions for cable trough, gas train, gas pipes, ....

• Wall:

The wall between engine room and control room is design with recesses for the cables.

## Control room:

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The control room is ventilated by a lockable air intake opening. The air is aspirated by the fans of the engine room. For the cables a recess at the floor of the control room is planned. The control room is equipped with a plastic covering.

### Module and container installation are essentially performed as follows:

- Installation and setup of the module
- Installation of the control equipment in a separate control equipment room
- Installation of the gas train
- Installation of the lube oil equipment
- Installation of the air intake and outlet ventilation system
- Installation of the exhaust silencer on the roof
- Installation of the radiator on the roof
- Installation of lighting in the container
- Installation of the auxiliary electrical installations
- Completion of exhaust, fuel, oil and water piping, according to the defined scope of supply, including all necessary fittings, flexible connections and reinforcements.
- Footboard above the tubes
- Gutters
- Total signage

## Fire protection classification:

The container is not classified for fire protection.

## Coating:

- Installation:
  - · Oil resistant base
  - Synthetic resin as coating varnish
- Colour Container: RAL6018 (green)

## 3.70 Control Strategy and Options

Per Unit Balance of Plant Controls - Intercooler Loop Panel Controls and Software to include:

<u>IC Temperature Control (Panel Parts and SW Only)</u> - This feature will provide all necessary controls to operate a 3 Way temperature control valve in the IC Loop if Not Required by Site Conditions. The Diane will provide a 4-20mA Analog Output to a customer provided valve and will utilize mixture temperature as a feedback input. Control and Display Software are also provided.



<u>Intercooler Pump Control (Panel Control Parts and SW Only)</u> - The option will add specific contact output and feedback input to/from an MCC for the Intercooler Water Pump. This will include relays and software.

Intercooler Loop Pressure (Panel Parts and SW Only) - This feature will provide an discrete input and associated software for the Intercooler Loop system pressure.

Per Unit Balance of Plant Controls - Radiator Panel Controls and Software to include:

<u>Dual Circuit GMM Radiator Control (Panel Parts and SW Only)</u> - This feature will provide controls for a customer provided 6 fan Güntner Motor Management (GMM) 2 circuit radiator. The MCC control signals (DO/DI), and GMM control signals (4-20mA, DI and DO signals) will be provided.

### Control Strategy -

<u>Grid Parallel with KW Control</u> – Real Power Load Control of the Generator set will be either via a 4-20mA input from the customer representing a unit KW load setpoint or a KW load setpoint entered on the Diane XT4 screen. Upon breaker closure, the unit will ramp to the setpoint at a maximum rate of (Rated Unit KW) / 180 seconds.

<u>Grid Parallel with PF Control</u> – Reactive Power Load Control of the Generator set will be either via a 4-20mA input from the customer representing a unit Power Factory setpoint or a Power Factor setpoint entered on the Diane XT4 screen. Upon breaker closure, the unit will maintain the setpoint.

<u>Grid Parallel with Import/Export Control</u> - Load Control via an Import/Export KW level entered on the Diane XT4 screen. Required will be a customer 4-20mA signal representing the Site KW (Imported and/or Exported Power) that is to be controlled. Upon breaker closure, the unit will ramp to a load that will drive the KW value represented by the 4-20mA input signal to the level entered on Customer Import/Export Setpoint entered in the Diane XT4 screen. Once at the setpoint, the unit will raise and lower load to maintain this value. If the generator load required to maintain this setpoint drops below the minimum load level of the generator set, the unit 52G circuit breaker will be opened.

<u>Grid Parallel with Multi Unit Island Operation (Auto Re-sync)</u> - While Grid connected, the unit/units load can be adjusted via its KW control setpoint or designated option. In the event of a loss of utility, the unit/units will be able to continue operating locally without utility power however a separate system must shed load so that the engine is not overloaded, as per GE Jenbacher TI 2108-0031. When utility power is restored, the unit is provided with an automatic re-synchronization feature which will sync the unit back to the utility. This system will work in conjunction with a GE Jenbacher Master Synchronizing Control (see appropriate Spec Section) if so equipped.

<u>Island Mode Operations with Blackout Starting</u> – Island Operations with Black start capability will allow the engine to start and run without utility being present. The engine will be able to start the engine on battery power, close the generator breaker against a dead bus, and operate independently of a utility power source. The customer must ensure that there is sufficient fuel gas and pre-chamber gas at pressure in the event of a Type 6 engine so configured. The engine will start without the normal confirmation of engine block



temperature or operation of a circulating AC water pump. It will be required of the operators that once the engine is connected to the generator bus, power to the engine auxiliaries be restored. Load Management is expected to be limited by the operators to the limits of the engine, as per GE Jenbacher TI 2108-0031. This system will work in conjunction with a GE Jenbacher Master Synchronizing Control (see appropriate Spec Section) if so equipped. If this is a single unit and synchronization with the utility after assuming operations is required, a *Grid Parallel with Single Unit Island Operations* option will be required.

## Woodward Power Management & Remote Synchronization

Unit will configured to accept 2 customer generated control signals, both 4-20mA. These two signals impact on unit control will vary based on generator and utility circuit breaker position. The signals are defined as follows

**Voltage Adjust:** A 4-20mA signal representing a voltage adjustment. Prior to generator circuit breaker closure, this signal will adjust generator voltage for synchronizing purposes. If the generator set is to run in Island mode (no utility connected) after breaker closure, this 4-20mA signal will be used for reactive power control. The limits and requirements of GE Jenbacher TI 2108-0031 (Island Mode Operations General) and GE Jenbacher TI 2108-0029 (Isolated Operation Type 4 Engines) are to be observed. If the generator set is to run in Mains Parallel mode (against the utility), this 4-20mA signal will be used for power factor control.

**Speed Adjust**: A 4-20mA signal representing a speed adjustment. Prior to generator circuit breaker closure, this signal will adjust package frequency for synchronizing purposes. If the generator set is to run in Island mode (no utility connected) after breaker closure, this 4-20mA signal will be used for real power (KW) control. The limits and requirements of GE Jenbacher TI 2108-0031 (Island Mode Operations General) and GE Jenbacher TI 2108-0029 (Isolated Operation Type 4 Engines) are to be observed. If the generator set is to run in Mains Parallel mode (against the utility), this 4-20mA signal will be used for a KW setpoint signal.

The Diane Control System will not be provided with automatic synchronization features, it will however provide a synchronization check function (25 device), and provide a breaker close permissive signal once the sync check permissive is met. The Diane system will still require breaker status indications as detailed in section 1.11 – Engine Generator Control Panel – Diane XT.

Standard MMU features for protection will remain.

## 4.00 Delivery, installation and commissioning

## 4.01 Carriage

According to contract.

## 4.02 Unloading

Unloading, moving of equipment to point of installation, mounting and adjustment of delivered equipment on intended foundations is not included in GE Jenbacher scope of supply.



## 4.03 Assembly and installation

Assembly and installation of all GE Jenbacher -components is not included in GE Jenbacher scope of supply.

## 4.04 Storage

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The customer is responsible for secure and appropriate storage of all delivered equipment.

## 4.05 Start-up and commissioning

Start-up and commissioning with the GE Jenbacher start-up and commissioning checklist is not included. Plants with island operation require internet connection.

## 4.06 Trial run

After start-up and commissioning, the plant will be tested in an 8-hour trial run. The operating personnel will be introduced simultaneously to basic operating procedures. Is not included in GE Jenbacher scope of supply.

## 4.07 Emission measurement with exhaust gas analyzer

Emission measurement by GE Jenbacher personnel, to verify that the guaranteed toxic agent emissions have been achieved (costs for measurement by an independent agency will be an extra charge).

## 5.01 Limits of delivery - Container

## Electrical

Module:

At terminals of generator circuit breaker

### Warm water

At inlet and outlet flanges on container

### Exhaust gas

At exhaust gas outlet flange on top of the container; special stack provided locally

### **Combustion air**

The air filters are set mounted, no external ductwork is necessary

### Fuel gas

At inlet flange of the container

### Lube oil At lube oil connections on container

## Condensate

At the condensate drains on container.



### Insulation

Insulation of heat exchangers, pipework and exhaust gas silencer is not included in our scope of supply and must be provided locally.

#### First filling

The first filling of module, (lube oil, engine jacket water, anti freeze-, anti corrosive agent, battery acid) is not included in our scope of supply.

The composition and quality of the used consumables are to be strictly monitored in accordance with the "Technical Instructions" of GE JENBACHER.

Suitable bellows and flexible connections **must be provided locally** for all connections. Cables from the module must be flexible.

## 5.02 Factory tests and inspections

The individual module components shall undergo the following tests and inspections:

## 5.02.01 Engine tests

Carried out as combined Engine- and Module test according to DIN ISO 3046 at GE Jenbacher test bench. The following tests are made at 100%, 75% and 50% load, and the results are reported in a test certificate:

- Engine output
- Fuel consumption
- Jacket water temperatures
- Lube oil pressure
- Lube oil temperatures
- Boost pressure
- Exhaust gas temperatures, for each cylinder

## 5.02.02 Generator tests

Carried out on test bench of the generator supplier.

## 5.02.03 Module tests

The engine will be tested with natural gas (methane number 94). The performance data achieved at the test bench may therefore vary from the data as defined in the technical specification due to differences in fuel gas quality.

Carried out as combined Engine- and Module test commonly with module control panel at GE Jenbacher test bench, according to ISO 8528, DIN 6280. The following tests are made and the results are reported in a test certificate:

Visual inspection of scope of supply per specifications.

- Functional tests per technical specification of control system.
  - Starting in manual and automatic mode of operation
  - Power control in manual and automatic mode of operation
  - Function of all safety systems on module



- Measurements at 100%, 75% and 50% load:
  - Frequency
  - Voltage
  - Current
  - Generator output
  - Power factor
  - Fuel consumption
  - Lube oil pressure
  - Jacket water temperature
  - Boost pressure
  - Mixture temperature
  - Exhaust emission (NOx)

The module test will be carried out with the original generator, except it is not possible because of the delivery date. Then a test generator will be used for the module test.

To prove characteristics of the above components, which are not tested on the test bench by GE JENBACHER, the manufacturers' certificate will be provided.

In the case of a container unit the above mentioned test procedure for the module is performed in Jenbach. GE Jenbacher reserves the right to perform the functional test of the container in a GE facility elsewhere.

## 5.03 Documentation

### 60 days advance documentation, as per the technically clarified order placement

- Module drawing 1)
- Technical diagram 1)
- Drawings of the cabinet views 3
- Electrical interface list 2)
- Technical specification of the control system 2)
- Technical drawings of accessories (if included in scope of supply of INNIO Jenbacher GmbH&CO OG) 1

Before delivery(depending on progress in ordering the components, on request)

 Technical drawings for BoP components supplied separately (if included in scope of supply of INNIO Jenbacher GmbH&CO OG) 1)

## Upon delivery

- Circuit diagrams 3)
- Cable list 3)

## Delivered with the engine

• Brief instructions (transport, erection, moving) 1)

### For commissioning

- Operation and maintenance instructions 4)
- Spare parts catalogue 4)



• Original supplier operation and maintenance instructions for any BoP components (installed in the INNIO Jenbacher GmbH&Co OG scope of supply) as Appendix **1**)

All the components found in the INNIO Jenbacher GmbH&Co OG scope of supply are described in the operation and maintenance instructions, and in the spare parts catalogue. In addition, the manufacturer's original operation and maintenance instructions will be provided for every BoP component, in German and English as standard, as an Appendix for the operation and maintenance manual provided.

Additional costs of producing or providing the required documents using the KKS (power station coding system) and/or integration in subcontractors' documentation, or additional approval, design and proof of testing documentation must be negotiated or ordered separately.

### This standard offer does not include:

- Approval documentation
- Design documentation

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- Proof of testing documentation
- Printed copies and digital off-line versions (e.g. printed versions, CD, pdf, etc.) must be negotiated separately and ordered accordingly.

## 23/2019

# Technical Description Cogeneration Unit

# JMS 420 GS-S.L C685 480V 14Bar BE

**Grid Parallel with Island Operation** For Propane with the following chemistry: C3H8 (Propane): 90%; C2H6: 5%; C5H12: 2.5%; C6H14: 2.5%

## **Generic Propane**



Electrical output Thermal output

1250 kW el. 5171 MBTU/hr

Emission values NOx < 0.7 g/bhp.hr (NO2)



0.01 Technical Data (at module) Main dimensions and weights (at module) Connections Output / fuel consumption	3 4 4 4
0.02 Technical data of engine Thermal energy balance Exhaust gas data Combustion air data Sound pressure level Sound power level	5 5 5 5 6 6
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## 0.01 Technical Data (at module)

			100%	75%	50%
Power input	[2]	MBTU/hr	10,483	8,161	5,839
Gas volume	*)	scfhr	4,065	3,164	2,264
Mechanical output	[1]	bhp	1,721	1,290	860
Electrical output	[4]	kW el.	1,250	935	618
Recoverable thermal output					
~ Intercooler 1st stage	[9]	MBTU/hr	691	354	110
~ Lube oil		MBTU/hr	684	624	543
~ Jacket water		MBTU/hr	1,219	1,038	830
~ Exhaust gas cooled to 248 °F		MBTU/hr	2,577	2,066	1,526
Total recoverable thermal output	[5]	MBTU/hr	5,171	4,082	3,009
Heat to be dissipated (calculated with Glykol 37%)					
~ Intercooler 2nd stage		MBTU/hr	209	160	85
~ Lube oil		MBTU/hr	~	~	~
~ Surface heat	ca. [7]	MBTU/hr	363	~	~
Spec. fuel consumption of engine electric	[2]	BTU/kWel.h	8,389	8,729	9,451
Spec. fuel consumption of engine	[2]	BTU/bhp.hr	6,091	6,326	6,790
Lube oil consumption	ca. [3]	gal/hr	0.09	~	~
Electrical efficiency			40.7%	39.1%	36.1%
Thermal efficiency			49.3%	50.0%	51.5%
Total efficiency	[6]		90.0%	89.1%	87.6%
Hot water circuit:		<b>.</b>	101.0	400.4	476.5
Forward temperature		°F	194.0	186.4	179.0
Return temperature		°F	158.0	158.0	158.0
Hot water flow rate		GPM	287.3	287.3	287.3
Fuel gas LHV		BTU/scft	2579		

\*) approximate value for pipework dimensioning

Explanations: see 0.10 - Technical parameters

All heat data is based on standard conditions according to attachment 0.10. Deviations from the standard conditions can result in a change of values within the heat balance, and must be taken into consideration in the layout of the cooling circuit/equipment (intercooler; emergency cooling; ...). In the specifications in addition to the general tolerance of  $\pm 8$  % on the thermal output a further reserve of  $\pm 5$  % is recommended for the dimensioning of the cooling requirements.

## Main dimensions and weights (at module)

Length	in	~ 280
Width	in	~ 80
Height	in	~ 90
Weight empty	lbs	~ 36,110
Weight filled	lbs	~ 37,650

## Connections

Hot water inlet and outlet [A/B]	in/lbs	4"/145
Exhaust gas outlet [C]	in/lbs	12"/145
Fuel Gas (at module) [D]	in/lbs	5"/232
Water drain ISO 228	G	1/2"
Condensate drain	in/lbs	2"/145
Safety valve - jacket water ISO 228 [G]	in/lbs	2x1½"/2.5
Safety valve - hot water	in/lbs	21/2"/232
Lube oil replenishing (pipe) [I]	in	1.1
Lube oil drain (pipe) [J]	in	1.1
Jacket water - filling (flex pipe) [L]	in	0.5
Intercooler water-Inlet/Outlet 1st stage	in/lbs	4"/145
Intercooler water-Inlet/Outlet 2nd stage [M/N]	in/lbs	21⁄2"/145

## Output / fuel consumption

· ·		
ISO standard fuel stop power ICFN	bhp	1,721
Mean effe. press. at stand. power and nom. speed	psi	203
Fuel gas type		Flare gas
Based on methane number   Min. methane number	MN	30   40 d)
Compression ratio	Epsilon	11.8
Min./Max. fuel gas pressure at inlet to gas train	psi	1.74 - 2.9 c)
Max. rate of gas pressure fluctuation	psi/sec	0.145
Maximum Intercooler 2nd stage inlet water temperature	°F	104
Spec. fuel consumption of engine	BTU/bhp.hr	6,091
Specific lube oil consumption	g/bhp.hr	0.15
Max. Oil temperature	°F	189
Jacket-water temperature max.	°F	203
Filling capacity lube oil (refill)	gal	~ 115

c) Lower gas pressures upon inquiryd) based on methane number calculation software AVL 3.2 (calculated without N2 and CO2)

## 0.02 Technical data of engine

Manufacturer		JENBACHER
Engine type		J 420 GS-C685
Working principle		4-Stroke
Configuration		V 70°
No. of cylinders		20
Bore	in	5.71
Stroke	in	7.28
Piston displacement	cu.in	3,728
Nominal speed	rpm	1,800
Mean piston speed	in/s	437
Length	in	148
Width	in	62
Height	in	80
Weight dry	lbs	15,873
Weight filled	lbs	17,417
Moment of inertia	lbs-ft <sup>2</sup>	276.26
Direction of rotation (from flywheel view)		left
Radio interference level to VDE 0875		Ν
Starter motor output	kW	13
Starter motor voltage	V	24
Thermal energy balance		
Power input	MBTU/hr	10,483
Intercooler	MBTU/hr	900
Lube oil	MBTU/hr	684
Jacket water	MBTU/hr	1,219
Exhaust gas cooled to 356 °F	MBTU/hr	2,166
Exhaust gas cooled to 212 °F	MBTU/hr	2,714
Surface heat	MBTU/hr	213
Exhaust gas data		
Exhaust gas temperature at full load	[8] °F	901
Exhaust gas temperature at bmep= 152.3 [psi]	°F	~ 928
Exhaust gas temperature at bmep= 101.5 [psi]	°F	~ 963
Exhaust gas mass flow rate, wet	lbs/hr	14,919
Exhaust gas mass flow rate, dry	lbs/hr	14,084
Exhaust gas volume, wet	scfhr	186,900
Exhaust gas volume, dry	scfhr	170,280
Max.admissible exhaust back pressure after engine	psi	0.870
Combustion air data		
Combustion air mass flow rate	lbs/hr	14,408
Combustion air volume	SCFM	2,977
Max. admissible pressure drop at air-intake filter	psi	0.145

Soun	d pressure level		
Aggreg	ate a)	dB(A) re 20µPa	100
31,5	Hz	dB	82
63	Hz	dB	90
125	Hz	dB	101
250	Hz	dB	98
500	Hz	dB	94
1000	Hz	dB	89
2000	Hz	dB	91
4000	Hz	dB	95
8000	Hz	dB	92
Exhaus	t gas b)	dB(A) re 20µPa	115
31,5	Hz	dB	95
63	Hz	dB	117
125	Hz	dB	115
250	Hz	dB	113
500	Hz	dB	108
1000	Hz	dB	105
2000	Hz	dB	108
4000	Hz	dB	109
8000	Hz	dB	107

## Sound power level

Aggregate	dB(A) re 1pW	120
Measurement surface	ft²	1,184
Exhaust gas	dB(A) re 1pW	123
Measurement surface	ft²	67.60

a) average sound pressure level on measurement surface in a distance of 3.28ft (converted to free field) according to DIN 45635, precision class 3.

b) average sound pressure level on measurement surface in a distance of 3.28ft according to DIN 45635, precision class 2.
 The spectra are valid for aggregates up to bmep=232.060384 psi. (for higher bmep add safety margin of 1dB to all values per increase of 15 PSI pressure).

Engine tolerance ± 3 dB

## 0.03 Technical data of generator

Manufacturer		STAMFORD e)
Туре		PE 734 F e)
Type rating	kVA	2,183
Driving power	bhp	1,721
Ratings at p.f.= 1.0	kW	1,250
Ratings at p.f. = 0.8	kW	1,239
Rated output at p.f. = 0.8	kVA	1,549
Rated reactive power at p.f. = 0.8	kVAr	929
Rated current at p.f. = 0.8	Α	1,863
Frequency	Hz	60
Voltage	V	480
Speed	rpm	1,800
Permissible overspeed	rpm	2,250
Power factor (lagging - leading)		0,8 - 1,0
Efficiency at p.f.= 1.0		97.4%
Efficiency at p.f. = 0.8		96.6%
Moment of inertia	lbs-ft <sup>2</sup>	1149.20
Mass	lbs	8,545
Radio interference level to EN 55011 Class A (EN 61000-6-4)		Ν
Cable outlet		left
Ik" Initial symmetrical short-circuit current	kA	23.39
Is Peak current	kA	59.54
Insulation class		Н
Temperature rise (at driving power)		F
Maximum ambient temperature	°F	104

## Reactance and time constants (saturated) at rated output

xd direct axis synchronous reactance	p.u.	1.77
xd' direct axis transient reactance	p.u.	0.11
xd" direct axis sub transient reactance	p.u.	0.08
x2 negative sequence reactance	p.u.	0.11
Td" sub transient reactance time constant	ms	20
Ta Time constant direct-current	ms	20
Tdo' open circuit field time constant	S	2.54

e) JENBACHER reserves the right to change the generator supplier and the generator type. The contractual data of the generator may thereby change slightly. The contractual produced electrical power will not change.

## 0.04 Technical data of heat recovery

## General data - Hot water circuit

Total recoverable thermal output	MBTU/hr	5,171
Return temperature	°F	158.0
Forward temperature	°F	194.0
Hot water flow rate	GPM	287.3
Design pressure of hot water	lbs	145
min. operating pressure	psi	51.0
max. operating pressure	psi	131.0
Pressure drop hot water circuit	psi	17.40
Maximum Variation in return temperature	°F	+0/-21
Max. rate of return temperature fluctuation	°F/min	18

## General data - Cooling water circuit

Heat to be dissipated (calculated with Glykol 37%)	MBTU/hr	209
Return temperature	°F	104
Cooling water flow rate	GPM	88
Design pressure of cooling water	lbs	145
min. operating pressure	psi	7.0
max. operating pressure	psi	73.0
Loss of nominal pressure of cooling water	psi	~
Maximum Variation in return temperature	°F	+0/-21
Max. rate of return temperature fluctuation	°F/min	18

## Exhaust gas heat exchanger

Туре	shell-and-tube

Exhaust gas pressure drop approx	psi	0.22
Exhaust gas connection	in/lbs	12"/145

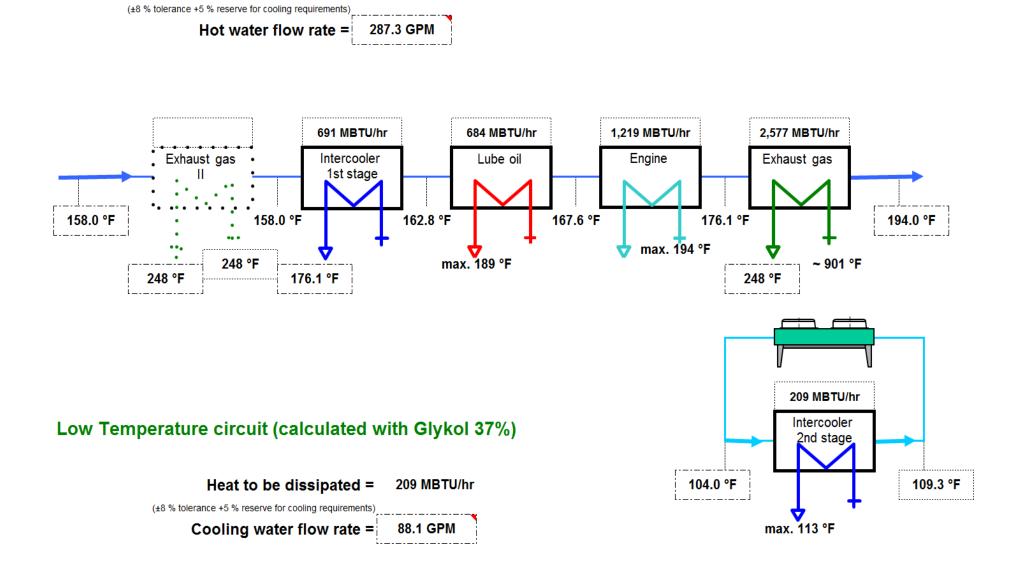
#### SECONDARY:

Pressure drop hot water circuit	psi	2.90
Hot water connection	in/lbs	4"/145

The final pressure drop will be given after final order clarification and must be taken from the P&ID order documentation.

## connection variant F

Generic Propane  $\Rightarrow$  J 420 GS-C685



5,171 MBTU/hr

Hot water circuit

Recoverable thermal output =

## 0.10 Technical parameters

All data in the technical specification are based on engine full load (unless stated otherwise) at specified temperatures as well as the methane number and subject to technical development and modifications. For isolated operation an output reduction may apply according to the block load diagram. Before being able to provide exact output numbers, a detailed site load profile needs to be provided (motor starting curves, etc.).

All pressure indications are to be measured and read with pressure gauges (psi.g.).

- (1) At nominal speed and standard reference conditions ICFN according to DIN-ISO 3046 and DIN 6271, respectively
- (2) According to DIN-ISO 3046 and DIN 6271, respectively, with a tolerance of +5 %. Efficiency performance is based on a new unit (immediately upon commissioning).Effects of degradation during normal operation can be mitigated through regular service and maintenance work.
- (3) Average value between oil change intervals according to maintenance schedule, without oil change amount
- (4) At p. f. = 1.0 according to VDE 0530 REM / IEC 34.1 with relative tolerances, all direct driven pumps are included
- (5) Total output with a tolerance of ±8 %
- (6) According to above parameters (1) through (5)
- (7) Only valid for engine and generator; module and peripheral equipment not considered (at p. f. = 0,8) ,(guiding value)
- (8) Exhaust temperature with a tolerance of ±8 %
- (9) Intercooler heat on:

\* **standard conditions** - If the turbocharger design is done for air intake temperature >  $86^{\circ}F$  w/o derating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from 77°F. Deviations between 77 –  $86^{\circ}F$  will be covered with the standard tolerance.

\* Hot Country application (V1xx) - If the turbocharger design is done for air intake temperature >  $104^{\circ}F$  w/o de-rating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from 95°F. Deviations between  $95 - 104^{\circ}F$  will be covered with the standard tolerance.

### Radio interference level

The ignition system of the gas engines complies the radio interference levels of CISPR 12 and EN 55011 class B, (30-75 MHz, 75-400 MHz, 400-1000 MHz) and (30-230 MHz, 230-1000 MHz), respectively.

## **Definition of output**

• ISO-ICFN continuous rated power:

Net break power that the engine manufacturer declares an engine is capable of delivering continuously, at stated speed, between the normal maintenance intervals and overhauls as required by the manufacturer. Power determined under the operating conditions of the manufacturer's test bench and adjusted to the standard reference conditions.

• Standard reference conditions:

Barometric pressure:	14.5 psi (1000 mbar) or 328 ft (100 m) above sea level
Air temperature:	77°F (25°C) or 298 K
Relative humidity:	30 %

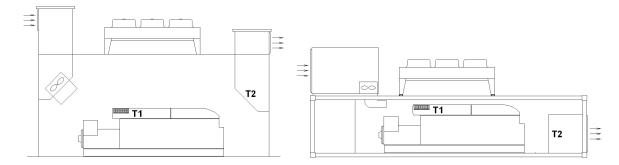


 Volume values at standard conditions (fuel gas, combustion air, exhaust gas) Pressure: 1 atmosphere (1013.25 mbar) Temperature: 32°F (0°C)

## Output adjustment for turbo charged engines

Standard rating of the engines is for an installation at an altitude  $\leq$  **1640 ft** and combustion air temperature  $\leq$  **86 °F** (T1)

Engine room outlet temperature: 122°F (T2) -> engine stop



If the actual methane number is lower than the specified, the knock control responds. First the ignition timing is changed at full rated power. Secondly the rated power is reduced. These functions are done by the engine management.

Exceedance of the voltage and frequency limits for generators according to IEC 60034-1 Zone A will lead to a derate in output.

### Parameters for the operation of JENBACHER gas engines

The genset fulfills the limits for mechanical vibrations according to ISO 8528-9. The following "Technical Instruction of JENBACHER" forms an integral part of a contract and must be strictly observed: **TA 1000-0004, TA 1100 0110, TA 1100-0111**, and **TA 1100-0112**. Transport by rail should be avoided. See **TA 1000-0046** for further details

Failure to adhere to the requirements of the above mentioned TA documents can lead to engine damage and may result in loss of warranty coverage.

### Parameters for the operation of control unit and the electrical equipment

Relative humidity 50% by maximum temperature of 104°F. Altitude up to 2000m above the sea level.

## 0.20 Mode of Operation

### Grid Parallel and Island Operation - Single Unit (Auto Re-sync)

While Grid connected, the unit load can be adjusted via its power control set point or designated option. In the event of a loss of utility, the unit will be able to continue operating locally without utility power. When the



mains monitor relay (protective relay ANSI No. 27, 59, 81, 78- provided either by GE or the customer) is activated due to a mains failure, the engine is isolated from the mains by opening the mains circuit breaker.

The load adding and shedding capabilities of the genset documented in

- TA 2108-0031 general island operation
- TA 2108-0025 for type 3 engines
- TA 2108-0029 for type 4 engines
- TA 2108-0026 for type 6 engines
- TA 2108-0032 for type 9 engines

needs to be considered by the customer in order to ensure proper operation of the equipment.

When grid is restored, the unit is provided with an automatic re-synchronization feature which will synchronize the unit back to the utility (limited to one Mains Circuit Breaker, no additional Section Circuit Breaker or the like). The unit(s) can perform "Black-out" start without external auxiliary power supply to the "dead busbar".



## Wright, Dylan A

From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Thursday, January 2, 2020 7:23 PM
То:	Wright, Dylan A
Cc:	Edwards, Lisa; Hartsfield, Taylor; Murphy, Davis
Subject:	[External] RE:

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## HI Dylan,

Hope you are doing well. Thanks for reaching out, I'll be in touch, tomorrow or Monday to get you the information you requested.

Take care

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]

Sent: Thursday, January 2, 2020 1:18 PM

To: Scott Martino <smartino@thesunrockgroup.com>

**Cc:** Gregg Bowler <gbowler@thesunrockgroup.com>; Edwards, Lisa <lisa.edwards@ncdenr.gov>; Hartsfield, Taylor <taylor.hartsfield@ncdenr.gov>; Murphy, Davis <davis.murphy@ncdenr.gov> **Subject:** 

Good Afternoon Scott,

During an initial review of the application, it was determined that the following information is required to continue processing the referenced Air Quality Permit application: 2900029.19A

I have reviewed most of the Prospect Hill Quarry and Distribution Center (1700017) application and emissions calculations and have several questions/requests/comments.

- Appendix A1 Page 3 of 5 shows that the facility-wide uncontrolled potential NOx emissions are 104.18 tons/per. This will make the facility synthetic minor for NOx. The limit taken to get CO emissions below 100 tons/year will also bring NOx emissions well below 100 tons/year. Nothing is needed for this change but NOx will be listed in the synthetic minor (2Q .0315) condition since its potential emissions will be over 100 tons per year.
- There is a temporary RAP crusher mentioned under <u>3.4.2.2</u>. on page 3-3. The application states that this system will be moved between multiple Sunrock facilities. Is this crusher mainly going to stay at one of the three asphalt plants located in Caswell county or will if move around to other facilities as well? Is the crusher owned and operated by Carolina Sunrock or an outside vender?
- The two asphalt tank heaters are called Asphalt Cement Heater (IES-4) and IES-5 Liquid Asphalt Tank Heater. Is it ok if I call them both "Natural Gas/No.2 fuel oil-fired Asphalt Cement Heater"? Other than the small size difference in Heat input, is there a difference between them?
- The Liquid asphalt tank heaters required toxics modeling therefore they must be listed on the permitted sources list under 15A NCAC 02Q .0102(b)(2). I plan to add them as ES-ACH1 and ES-ACH2.

- We plan to permit the quarry with grouped sources that will be divided up between Conveying Operations, Crushing Operations, and Screening Operations. The permit will have a condition that the facility shall maintain on-site an equipment list and a plant (or flow) diagram of all quarry equipment covered under this permit. When sources are relocated or added, the diagram must be updated and a written notification must be provided to NCDAQ. Is this an acceptable approach to permitting the quarry part of your permit? I plan to provide a permit draft to you before I issue the permit.
- Your emission calculations for the natural gas engines use vender supplied emissions factors for NOX, VOC, and CO. Can you supply us with this documentation so that we can verify that they are acceptable?
- For the Natural Gas engine emissions factors that you didn't us the vender numbers, you used AP-42 Vol. 1 5<sup>th</sup> ed. Section 3.2, 10/96; for 4SLB engines. This document was updated in July 2000. Can you update the emissions factors to the 7/00 revision. Also update facility wide totals and anything else this may effect.
- The SO2 emissions factor (EF) that you used for the diesel engines is from the NC DENR Internal Engine (Small engine spreadsheet) which is fine place to pull EF from, but it seems there is a typographical error. The EF in the spreadsheet is 1.21E-3 and the EF that your used in your calculations is 1.21E-5. Can you make this correction to the spreadsheet and the facility totals sheet. I believe that making this change will cause facility wide potential emissions to exceed 100 tons/year, causing the facility to need to be Synthetic Minor for SO2 as well. This would fall under the same situation as NOx since the production limits as well and the gas engine limitations will keep SO2 emissions below 100 tons/year.
- One of the limitations that you proposed under the synthetic minor condition is that only two of the three natural gas/propane engines can run at the same time. It appears that you have two compliance options. Since this limit is placed in the permit to keep criteria pollutants below annual limits, you have the option of demonstrating compliance by limiting total hours of operation of the three engines to 17,520 hours per year. This method of compliance would likely cause you to have to maintain monthly records of operation hours. If you chose to keep the originally proposed compliance method of only operating two engines simultaneously, how can you ensure that this will be complied with? Is there an electronic system that will be set up to prevent a third generator from turning on if two of the others are on? Do you want to keep daily records of engine start and stop times to ensure that no more than two engines were running simultaneously? Which compliance method would you prefer?
- The application mentions that the AC heater stacks will be obstructed. Since this is the case, the TPERs under 02Q .0711(a) apply. It appears that the total controlled emissions of mercury vapor (assumed to be expected actual emissions) will exceed this TPER. Please resubmit your toxics modeling with mercury included.
- In your application you referred to the engines in the quarry as "generators". Just to be clear, are the engines attached to generators that power electrical motors to run the equipment, or do the engines directly power the equipment? If the latter is true then can I name these sources "XXX hp Diesel Engine Powering XXXXXXXXXXX?"
- What is the expected operating schedule for this facility? (cement plant, asphalt plant, and quarry)
- In the application you say that GEN-4 is used to power TF80.Is TF-80 a tracked feeder?
- Does this asphalt plant plan to process any RAS (shingles) If so, then the Subpart M avoidance requirements might apply.
- What type of bagfilter material are you planning on using for HMA-CD1 and RMC-CD2?
- On Form C1 for HMA-CD1 I am confused at where you got your control efficiency numbers from. Can you elaborate on where they came from?
- On Form C1 for RMC-CD2 I am confused on how you calculated your total filter area. Can you please review your calculations and explain how you did them?

Until the above information is received, your application will be considered incomplete and inactive. Your responses to this additional information request will become part of your initial permit application received November 18, 2019. If the above information is not received by **January 23, 2020**, then the air permit application may be returned to the Company. Please respond by copying and pasting the questions/requests/comments and responding in colored text. If you have any questions feel free to give me a call at (336) 776-9646.

Thank you,

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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## Wright, Dylan A

From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Friday, January 3, 2020 3:10 PM
То:	Wright, Dylan A
Cc:	Hartsfield, Taylor; Edwards, Lisa; Alexander Culpepper
Subject:	[External] Carolina Sunrock LLC - Prospect Hill Quarry and Distribution Center
Attachments:	C1 Sent.xlsx

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Hi Dylan,

Below are the answers to some of your questions, I am currently working with our consultants and vendor for the modeling and the engine specs you inquired about. Once I get that back from them I'll get it over to you.

- Appendix A1 Page 3 of 5 shows that the facility-wide uncontrolled potential NOx emissions are 104.18 tons/per. This will make the facility synthetic minor for NOx. The limit taken to get CO emissions below 100 tons/year will also bring NOx emissions well below 100 tons/year. Nothing is needed for this change but NOx will be listed in the synthetic minor (2Q .0315) condition since its potential emissions will be over 100 tons per year.
  - We are fine with adding NOx conditions, as it is already stipulated in other air permits Carolina Sunrock currently maintains.
- 2. There is a temporary RAP crusher mentioned under <u>3.4.2.2</u>. on page 3-3. The application states that this system will be moved between multiple Sunrock facilities. Is this crusher mainly going to stay at one of the three asphalt plants located in Caswell county or will if move around to other facilities as well? Is the crusher owned and operated by Carolina Sunrock or an outside vender?
  - Carolina Sunrock currently owns and operates its own RAP and Concrete Recycling Equipment. This equipment and crew moves in and out of all of Carolina Sunrock's facilities over the course of a year on an as needed basis depending on each facility's needs. The equipment is never located at one particular facility for more than a few months or sometimes only a few weeks. This equipment will not only service the three facilities in Caswell county but also Carolina Sunrock's six other facilities, which are located in Durham, Granville, Person, Wake, and Vance.
- 3. The two asphalt tank heaters are called asphalt cement heater (IES-4 and IES-5 Liquid Asphalt Tank Heater. It is ok if I call them both "Natural gas/No.2 fuel oil-fired Asphalt Cement Heater"? Other than the small size difference in heat input, is there a difference between them?
  - If you would like to rename the heaters that is fine; however, there is no real difference in the units other than what you stated regarding heat input; both units are Heatec units and are identical except for the BTUs.
- 4. The Liquid asphalt tank heaters required toxics modeling therefore they must be listed on the permitted sources list under 15A NCAC 02Q .0102(b)(2). I plan to add them as ES-ACH1 and ES-ACH2.
  - This is fine to add them on the permitted sources.

- 5. We plan to permit the quarry with grouped sources that will be divided up between Conveying Operations, Crushing Operations, and Screening Operations. The permit will have a condition that the facility shall maintain on-site an equipment list and a plant (or flow) diagram of all quarry equipment covered under this permit. When sources are relocated or added, the diagram must be updated and a written notification must be provided to NCDAQ. Is this an acceptable approach to permitting the quarry part of your permit? I plan to provide a permit draft to you before I issue the permit.
  - The grouping approach is also acceptable to us, as this is how our other existing quarry air permits are written.
- 6. In your application you referred to the engines in the quarry as "generators". Just to be clear, are the engines attached to generators that power electrical motors to run the equipment, or do the engines directly power the equipment? If the latter is true then can I name these sources "XXX hp Diesel Engine Powering XXXXXXXXXX"?
  - The Engines directly power the equipment, essentially they are all mobile pieces of equipment. The only reason behind this nomenclature is that this how the engines were permitted through Raleigh Regional Air Quality for Carolina Sunrock's Woodsdale facility. We have no issue with to the rename, as long as what each unit is named as follows: Gen1(J50 V2) to 350hp Diesel Engine Powering J50 V2.
- 7. One of the limitations that you proposed under the synthetic minor condition is that only two of the three natural gas/propane engines can run at the same time. It appears that you have two compliance options. Since this limit is placed in the permit to keep criteria pollutants below annual limits, you have the option of demonstrating compliance by limiting total hours of operation of the three engines to 17,520 hours per year. This method of compliance would likely cause you to have to maintain monthly records of operation hours. If you chose to keep the originally proposed compliance method of only operating two engines simultaneously, how can you ensure that this will be complied with? Is there an electronic system that will be set up to prevent a third generator from turning on if two of the others are on? Do you want to keep daily records of engine start and stop times to ensure that no more than two engines were running simultaneously? Which compliance method would you prefer?
  - We would like to stick to the 17,520 operating hours as our cap for the generators. We have no issues tracking operating hours per unit per month or even daily, as this is needed from a maintenance stand point for each individual unit. The reason for 3 generators is when one is undergoing maintenance there is a backup to supply power for the facility. The generators are computerized and are only activated via electric demand of the facility; therefore, the third generator can be prevented from ever turning on while the other two are running. They are all on interlock with each other.
- 8. What is the expected operating schedule for this facility? (cement plant, asphalt plant, and quarry).
  - Our expected operating schedule for the facility is 6 days a week 14 hours a day
- 9. In the application you say that GEN-4 is used to power TF80.Is TF-80 a tracked feeder
  - The TF80 is a small portable stacker conveyor . See the image below , is what it looks like this is just newer than the model we have.



- 10. Does this asphalt plant plan to process any RAS (shingles) If so, then the Subpart M avoidance requirements might apply?
  - Currently, Carolina Sunrock has no plans for utilizing RAS, however, we do maintain Subpart M in all of our existing permits at other facilities. In order to keep all our permits consistent please insert the Subpart M criteria for utilizing RAS within the process.
- 11. What type of bagfilter material are you planning on using for HMA-CD1 and RMC-CD2?
  - I have attached an updated and revised C1 for you which should address your questions. The asphalt and concrete plant facilities are identical to the one Leo Governale is reviewing for our Burlington North Facility (it is the same plant).

Feel free to call or email if you need anything else and III be happy to help you out.

Thanks

Scott

## **Scott Martino**

Environmental Compliance Manager/Mine Engineer Carolina Sunrock 200 Horizon Drive Suite 100 Raleigh, NC 27615 Office Phone:(919) 7476336 Cell (984) 202-4761



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Wednesday, January 8, 2020 12:23 PM
То:	Wright, Dylan A
Cc:	Edwards, Lisa; Hartsfield, Taylor; Alexander Culpepper; Murphy, Davis
Subject:	RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center
Attachments:	Generator air specs.pdf

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to report.spam@nc.gov

### HI Dylan

Attached is the specs on the CO reduction system for the power generators. Page 3 on the attached document has the reduce CO factor in 0.7 g/bhp that we used in the PH2 application.

Let me know if you need anything else and I'll be happy to round it up.

Thanks

Scott

**From:** Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]

Sent: Monday, January 6, 2020 11:32 AM

To: Scott Martino <smartino@thesunrockgroup.com>

**Cc:** Edwards, Lisa <lisa.edwards@ncdenr.gov>; Hartsfield, Taylor <taylor.hartsfield@ncdenr.gov>; Alexander Culpepper <aculpepper@thesunrockgroup.com>; Murphy, Davis <davis.murphy@ncdenr.gov> **Subject:** RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Hey Scott,

There are still a few things that I need. I need information supporting the vender emissions factors for the natural gas engines. Also, the eighth bullet point in my original email is about an apparent typo when inputting the SO2 emissions factor into the diesel generator spreadsheet. Please update this typo if that is the case and also update facility-wide totals. It will probably push SO2 potentials over 100 tons/year but the limit will keep actuals below 100 tons/year. Last but not least, the Form C1s for both baghouses that were submitted for my facility (Prospect Hill Quarry) and Leo's facility (North Burlington) contain several errors/omissions. Davis is planning to call you later today to try to get those corrected and consistent.

If you have any other questions feel free to call me.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office 336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Friday, January 3, 2020 9:49 PM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper
<<u>aculpepper@thesunrockgroup.com</u>>
Subject: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Hi Dylan

Attached is the modeling, and updated facility wide documentation you requested. Keep me posted as to what else you need and I'll be happy to help get you what you need.

Thanks

Scott

Scott Martino



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Monday, January 13, 2020 3:37 PM
То:	Wright, Dylan A
Subject:	[External] FW: Carolina Sunrock - Burlington North Air Permit
Attachments:	A2-A3 Burlington North Revised.xlsx

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### Updated A2

From: Scott Martino
Sent: Wednesday, December 18, 2019 12:28 PM
To: Governale, Leo <Leo.Governale@ncdenr.gov>
Subject: Carolina Sunrock - Burlington North Air Permit

Hi Leo,

Attached is an updated AA2 for you with all the proper labeling for the facility. let me know if you have any further questions and I'll be happy to help out.

Happy Holidays

Thanks

Scott

**Scott Martino** 



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Monday, January 13, 2020 3:44 PM
То:	Wright, Dylan A
Subject:	[External] Engine Specs
Attachments:	TS JMS 420 C685 480V Generic Propane 23MAY19 14Bar BE.DOCX; TS JGC420 B86 480V
	Standard TS NX 18FEB19a.docx

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Attached are where we got the emission factors for both the two larger units and the one smaller unit.

The NOx is on the front page. Also the smaller engine was also applied from Miratech number as all three units are going to be equipment with the same equipment.

I'll get you the other forms here this week when I get them.

Let me know if you need anything else.

Thanks

Scott Scott Martino



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Tuesday, January 14, 2020 4:46 PM
То:	Wright, Dylan A
Subject:	FW: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center
Attachments:	TS JGC420 B86 480V Standard TS NX 18FEB19a.docx; TS JMS 420 C685 480V Generic
	Propane 23MAY19 14Bar BE.docx; D5 & Control Device Forms 2020-01-13 DEQ
	revisions.pdf

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Hi Dylan,

Attached and below are the last of the information you requested. Let me know if something else comes up and III be happy to help out.

Thanks

Scott

From: Aimee Andrews [mailto:AAndrews@trinityconsultants.com]
Sent: Tuesday, January 14, 2020 3:26 PM
To: Scott Martino <smartino@thesunrockgroup.com>
Cc: Jon Hill <JHill@trinityconsultants.com>; Alexander Culpepper <aculpepper@thesunrockgroup.com>
Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Scott,

Please see the attachments and responses below in red.

.....

Aimee Andrews, PE Managing Consultant

Trinity Consultants One Copley Parkway, Suite 205 | Morrisville, North Carolina 27560

Office: **919-462-9693 x 1705** Fax: **919-578-3690** Email: <u>aandrews@trinityconsultants.com</u>

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Monday, January 13, 2020 8:10 AM
To: Scott Martino <<u>smartino@thesun rockgroup.com</u>>
Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper
<<u>aculpepper@thesunrockgroup.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>; Alexander Culpepper
Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Hey Scott,

There are a few of the things that I listed in my previous email that I still need and a couple new things as well in order for your application to be considered complete. Please supply this information by January 24, 2020

 The NOx, VOC, and CO emission factors (EF) that were used for the three NG/Propane engines were not from AP-42, which is fine as long as you can provide documentation to show where they come from. From the table below you can see that I still do not have any documentation to show where the NOx emissions factors came from for any of the Genset engines. I also still need documentation to show where the CO emission factor for P-GEN3 came from. Please supply documentation/explanation of where these emission factors came from. NOx factor came from the original vendor spec sheets (attached). The CO factor for P-GEN3 will be the same as for P-GEN1&2 from Miratech.

Engine Name	P-GEN1	P-GEN2	P-GEN3
Engine Type	Jenbacher J420 GS-B86	Jenbacher J420 GS-B86	Jenbacher J420 GS-C685
Unit of EF	g/HP-hr	g/HP-hr	g/HP-hr
NOx EF	0.6	0.6	0.7
VOC EF	0.7 (from JJJJ)	0.7(from JJJJ)	0.7(from JJJJ)
CO EF	0.7 (from Miratech)	0.7 (from Miratech)	0.7

- 2. Form C1 for the bagfilter for the asphalt plant and the concrete plant both appear to have some errors or missing information in it. For HMA-CD1 please provide the temperatures that this unit will operate. Please also provide the filter material that will be used in the bagfilter along with the filter operating temperature. For RMC-CD2, I believe that the diameter of the bag is suppose to be 8 inches. Is that correct? If not, then your filter area calculation does not add up correctly. I would also like to know the filter material that will be used. Please make these corrections are resubmit this form. Revised control forms are attached to this email.
- 3. What are some approximate actual throughputs for this facility? Actual hours of operation are still to be determined, but may be approximately 6 days/wk, 12 hrs/day or 3744 hrs/yr.
- 4. We need a Form C3 filled out for each of the three catalytic oxidation units that are used as control devices for the three NG/propane-fired engines. Control device forms attached to this email.
- Since you must submit the C forms for the catalytic oxidation units, you must resubmit From D5 with a new PE Seal, certifying the additional forms. Scanned D5 included with revised form, but also hard copy being mailed to Dylan's attention.

Please provide this information via email or paper copies (whichever is appropriate) by Friday January 17, 2020. If you have any questions about this request feel free to call me.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>> Sent: Wednesday, January 8, 2020 12:23 PM To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>> Cc: Edwards\_Lisa\_clisa\_edwards@ncdenr.gov>

Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper <<u>aculpepper@thesunrockgroup.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>> Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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HI Dylan

Attached is the specs on the CO reduction system for the power generators. Page 3 on the attached document has the reduce CO factor in 0.7 g/bhp that we used in the PH2 application.

Let me know if you need anything else and I'll be happy to round it up.

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Monday, January 6, 2020 11:32 AM
To: Scott Martino <smartino@thesunrockgroup.com>
Cc: Edwards, Lisa <lisa.edwards@ncdenr.gov>; Hartsfield, Taylor <taylor.hartsfield@ncdenr.gov>; Alexander Culpepper
<aculpepper@thesunrockgroup.com>; Murphy, Davis <davis.murphy@ncdenr.gov>
Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Hey Scott,

There are still a few things that I need. I need information supporting the vender emissions factors for the natural gas engines. Also, the eighth bullet point in my original email is about an apparent typo when inputting the SO2 emissions factor into the diesel generator spreadsheet. Please update this typo if that is the case and also update facility-wide totals. It will probably push SO2 potentials over 100 tons/year but the limit will keep actuals below 100 tons/year. Last but not least, the Form C1s for both baghouses that were submitted for my facility (Prospect Hill Quarry) and Leo's facility (North Burlington) contain several errors/omissions. Davis is planning to call you later today to try to get those corrected and consistent.

If you have any other questions feel free to call me.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105

 336.776.9797 (Fax)
 dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Friday, January 3, 2020 9:49 PM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper
<<u>aculpepper@thesunrockgroup.com</u>>
Subject: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Hi Dylan

Attached is the modeling, and updated facility wide documentation you requested. Keep me posted as to what else you need and I'll be happy to help get you what you need.

Thanks

Scott

**Scott Martino** 



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Monday, January 13, 2020 9:03 AM
То:	Wright, Dylan A
Cc:	Edwards, Lisa; Hartsfield, Taylor; Alexander Culpepper; Murphy, Davis
Subject:	RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Ok

I have it somewhere I'll get it over to you.

Thanks

Scott

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message ------

From: "Wright, Dylan A" <dylan.wright@ncdenr.gov>

Date: 1/13/20 8:51 AM (GMT-05:00)

To: Scott Martino <smartino@thesunrockgroup.com>

Cc: "Edwards, Lisa" <lisa.edwards@ncdenr.gov>, "Hartsfield, Taylor" <taylor.hartsfield@ncdenr.gov>, Alexander Culpepper <aculpepper@thesunrockgroup.com>, "Murphy, Davis" <davis.murphy@ncdenr.gov> Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Scott,

The document from Miratech appears to only cover the CO emissions from the "Jenbacher J420 GS-B86" (PGEN-1 and PGEN-2). It didn't mention anything about NOx emission rates. I need NOx emission factor confirmation for the "Jenbacher J420 GS-B86" and NOx and CO emission factor confirmation for the "Jenbacher J420 GS-C685".

Thanks,

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main)	450 West Hanes Mill Road, Suite 300
336.776.9646 (Direct)	Winston-Salem, NC 27105
336.776.9797 (Fax)	dylan.wright@ncdenr.gov



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From: Scott Martino <smartino@thesunrockgroup.com>

Sent: Monday, January 13, 2020 8:39 AM

**To:** Wright, Dylan A <dylan.wright@ncdenr.gov>

**Cc:** Edwards, Lisa <lisa.edwards@ncdenr.gov>; Hartsfield, Taylor <taylor.hartsfield@ncdenr.gov>; Alexander Culpepper <aculpepper@thesunrockgroup.com>; Murphy, Davis <davis.murphy@ncdenr.gov> **Subject:** RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Hi Dylan,

I'll get you the rest but attached is the specs on all the emission factors for the ng generators used in the calculations.

I be in touch once we get the rest rounded up for you.

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]

Sent: Monday, January 13, 2020 8:10 AM

To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>

Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper <<u>aculpepper@thesunrockgroup.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>> Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Hey Scott,

There are a few of the things that I listed in my previous email that I still need and a couple new things as well in order for your application to be considered complete. Please supply this information by January 24, 2020

 The NOx, VOC, and CO emission factors (EF) that were used for the three NG/Propane engines were not from AP-42, which is fine as long as you can provide documentation to show where they come from. From the table below you can see that I still do not have any documentation to show where the NOx emissions factors came from for any of the Genset engines. I also still need documentation to show where the CO emission factor for P-GEN3 came from. Please supply documentation/explanation of where these emission factors came from.

Engine Name	P-GEN1	P-GEN2	P-GEN3
Engine Type	Jenbacher J420 GS-B86	Jenbacher J420 GS-B86	Jenbacher J420 GS-C685
Unit of EF	g/HP-hr	g/HP-hr	g/HP-hr
NOx EF	0.6	0.6	0.7
VOC EF	0.7 (from JJJJ)	0.7(from JJJJ)	0.7(from JJJJ)

- 2. Form C1 for the bagfilter for the asphalt plant and the concrete plant both appear to have some errors or missing information in it. For HMA-CD1 please provide the temperatures that this unit will operate. Please also provide the filter material that will be used in the bagfilter along with the filter operating temperature. For RMC-CD2, I believe that the diameter of the bag is suppose to be 8 inches. Is that correct? If not, then your filter area calculation does not add up correctly. I would also like to know the filter material that will be used. Please make these corrections are resubmit this form.
- 3. What are some approximate actual throughputs for this facility?
- 4. We need a Form C3 filled out for each of the three catalytic oxidation units that are used as control devices for the three NG/propane-fired engines.
- 5. Since you must submit the C forms for the catalytic oxidation units, you must resubmit From D5 with a new PE Seal, certifying the additional forms.

Please provide this information via email or paper copies (whichever is appropriate) by Friday January 17, 2020. If you have any questions about this request feel free to call me.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main)	450 West Hanes Mill Road, Suite 300
336.776.9646 (Direct)	Winston-Salem, NC 27105
336.776.9797 (Fax)	dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>

Sent: Wednesday, January 8, 2020 12:23 PM

**To:** Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>

Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper <<u>aculpepper@thesunrockgroup.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>> Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Attached is the specs on the CO reduction system for the power generators. Page 3 on the attached document has the reduce CO factor in 0.7 g/bhp that we used in the PH2 application.

Let me know if you need anything else and I'll be happy to round it up.

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Monday, January 6, 2020 11:32 AM
To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper
<<u>aculpepper@thesunrockgroup.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>; Alexander Culpepper
Subject: RE: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

Hey Scott,

There are still a few things that I need. I need information supporting the vender emissions factors for the natural gas engines. Also, the eighth bullet point in my original email is about an apparent typo when inputting the SO2 emissions factor into the diesel generator spreadsheet. Please update this typo if that is the case and also update facility-wide totals. It will probably push SO2 potentials over 100 tons/year but the limit will keep actuals below 100 tons/year. Last but not least, the Form C1s for both baghouses that were submitted for my facility (Prospect Hill Quarry) and Leo's facility (North Burlington) contain several errors/omissions. Davis is planning to call you later today to try to get those corrected and consistent.

If you have any other questions feel free to call me.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From: Scott Martino <smartino@thesunrockgroup.com>
Sent: Friday, January 3, 2020 9:49 PM
To: Wright, Dylan A <dylan.wright@ncdenr.gov>

**Cc:** Edwards, Lisa <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>; Alexander Culpepper <<u>aculpepper@thesunrockgroup.com</u>>

Subject: [External] Carolina Sunrock LLC - Prospect Hill Distribution Center

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Hi Dylan

Attached is the modeling, and updated facility wide documentation you requested. Keep me posted as to what else you need and I'll be happy to help get you what you need.

Thanks

Scott

**Scott Martino** 



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Tuesday, January 21, 2020 4:12 PM
То:	Wright, Dylan A
Cc:	Aimee Andrews; Murphy, Davis
Subject:	[External] RE: Facility Wide Emissions Total Corrections

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### Thanks Dylan,

I'll be in touch once everything gets fixed up and see what impacts and adjustments that will be needed.

Thanks again

Scott

Sent from my Verizon, Samsung Galaxy smartphone

------ Original message ------From: "Wright, Dylan A" <dylan.wright@ncdenr.gov> Date: 1/21/20 3:54 PM (GMT-05:00) To: Scott Martino <smartino@thesunrockgroup.com> Cc: Aimee Andrews <AAndrews@trinityconsultants.com>, "Murphy, Davis" <davis.murphy@ncdenr.gov> Subject: Facility Wide Emissions Total Corrections

Hey Scott,

I am emailing you to summarize our conversation from earlier. I spoke with Aimee and you both this afternoon about the HMA potential emission errors that I discovered on page 1 of Appendix A1. It seems that the excel sheet incorrectly copied over the emissions from the DAQ spreadsheet. Also it seems like there is a drop in emissions from the uncontrolled to the controlled emissions of CO, NOx, VOC, and SO2 for the HMA plant. This might be a similar issue. Once these errors are corrected, I believe that the CO emissions with the Synthetic Minor Limits will now be >100 tons/year. One of your limits will need to be lowered to account for this. I requested that these corrections be made and that a new limit should be proposed so that CO emissions will remain <100 tons/year.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105

 336.776.9797 (Fax)
 dylan.wright@ncdenr.gov



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From: Sent: To: Cc: Subject: Wright, Dylan A Wednesday, January 22, 2020 3:42 PM Aimee Andrews; Scott Martino Murphy, Davis RE: [External] RE: Facility Wide Emissions Total Corrections

Thanks Aimee. I wondered how you managed that. From what I can tell at this point, the spreadsheet appears to be totaled correctly.

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105

 336.776.9797 (Fax)
 dylan.wright@ncdenr.gov



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From: Aimee Andrews <AAndrews@trinityconsultants.com>
Sent: Wednesday, January 22, 2020 2:05 PM
To: Wright, Dylan A <dylan.wright@ncdenr.gov>; Scott Martino <smartino@thesunrockgroup.com>
Cc: Murphy, Davis <davis.murphy@ncdenr.gov>
Subject: RE: [External] RE: Facility Wide Emissions Total Corrections

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Dylan – please see attached. FYI Dena Pittman revised this template for me so I could add all the conveyors since there were over 25.

Thanks, Aimee

.....

Aimee Andrews, PE Managing Consultant

Trinity Consultants One Copley Parkway, Suite 205 | Morrisville, North Carolina 27560 From: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Sent: Wednesday, January 22, 2020 2:03 PM
To: Aimee Andrews <<u>AAndrews@trinityconsultants.com</u>>; Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: RE: [External] RE: Facility Wide Emissions Total Corrections

Hey Aimee,

Can you send me the DAQ excel spreadsheet that you used to calculate the quarry emissions from crushing, screening, and conveying?

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From: Aimee Andrews <<u>AAndrews@trinityconsultants.com</u>>
Sent: Wednesday, January 22, 2020 11:59 AM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>; Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: [External] RE: Facility Wide Emissions Total Corrections

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### Hi Dylan,

Please see the attached revised HMA DEQ spreadsheet as well as the Emissions Summary spreadsheet per our discussion yesterday. What I did was reduce the HMA maximum production from 876,000 tpy (which we originally requested in the application) to 600,000 tpy. I set the controlled potential column equal to the Potential Emissions (after control) in the HMA DEQ spreadsheet. Then in the synthetic minor limits column I did not take a further reduction but set it equal to the Potential Controlled Emissions column. Please see if you agree.

Thanks so much and let me know of any comments or questions, Aimee

.....

Aimee Andrews, PE Managing Consultant

Trinity Consultants One Copley Parkway, Suite 205 | Morrisville, North Carolina 27560

Office: **919-462-9693 x 1705** Fax: **919-578-3690** Email: <u>aandrews@trinityconsultants.com</u>

From: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Sent: Tuesday, January 21, 2020 3:54 PM
To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Aimee Andrews <<u>AAndrews@trinityconsultants.com</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: Facility Wide Emissions Total Corrections

Hey Scott,

I am emailing you to summarize our conversation from earlier. I spoke with Aimee and you both this afternoon about the HMA potential emission errors that I discovered on page 1 of Appendix A1. It seems that the excel sheet incorrectly copied over the emissions from the DAQ spreadsheet. Also it seems like there is a drop in emissions from the uncontrolled to the controlled emissions of CO, NOx, VOC, and SO2 for the HMA plant. This might be a similar issue. Once these errors are corrected, I believe that the CO emissions with the Synthetic Minor Limits will now be >100 tons/year. One of your limits will need to be lowered to account for this. I requested that these corrections be made and that a new limit should be proposed so that CO emissions will remain <100 tons/year.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Wednesday, January 29, 2020 4:17 PM
То:	Wright, Dylan A
Cc:	Governale, Leo; Murphy, Davis; Edwards, Lisa; Hartsfield, Taylor
Subject:	RE: [External] RE: Form C1 Errors

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Its there under the HMA tab, Just double checked and it has the bags per compartment

Keep me posted I just opened the file I sent you and it's all there.

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Wednesday, January 29, 2020 3:37 PM
To: Scott Martino <smartino@thesunrockgroup.com>
Cc: Governale, Leo <Leo.Governale@ncdenr.gov>; Murphy, Davis <davis.murphy@ncdenr.gov>; Edwards, Lisa
a.edwards@ncdenr.gov>; Hartsfield, Taylor <taylor.hartsfield@ncdenr.gov>
Subject: RE: [External] RE: Form C1 Errors

Hey Scott,

I need the revised Form C1 for the HMA plant. It needs to show that it is a pulse Jet baghouse and correctly state that there are three compartments. Make sure to update the box that says bags per compartment as well.

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



*Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties*  From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Wednesday, January 29, 2020 2:28 PM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>; Edwards, Lisa
<<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>
Subject: RE: [External] RE: Form C1 Errors

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Here ya go.

Yes the concrete plant is reverse flow.

Let me know if you need anything else

Thanks Scott

Can you email me and Leo a revised Form C1 to show these changes? Also, just to verify, the bagfilter for the concrete plant is a reverse flow, right?

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

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 Winston-Salem, NC 27105

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 dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Wednesday, January 29, 2020 2:07 PM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>; Edwards, Lisa

### <<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>> Subject: [External] RE: Form C1 Errors

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Hi Dylan yes the baghouse is a pulse jet just like every other aztech baghouse.

Let me know if you need anything else

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Wednesday, January 29, 2020 1:55 PM
To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>; Edwards, Lisa
<<u>lisa.edwards@ncdenr.gov</u>>; Hartsfield, Taylor <<u>taylor.hartsfield@ncdenr.gov</u>>
Subject: Form C1 Errors

Hey Scott,

I was doing the control device evaluation for the bagfilter on the HMA Plant and discovered what appears to be an error. Form C1 shows that the bagfilter is a reverse flow bagfilter with 1 compartment. That doesn't make sense as the bagfilter would have to shut down to clean. Most bagfilters for HMA plants are pulse jet. Leo contacted the baghouse manufacture and they told him that the baghouse was a pulse jet and that it had 3 compartments. Can you verify that this is correct and resubmit a revised Form C1 for me and Leo?

Thanks,

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From:
Sent:
To:
Subject:

Scott Martino <smartino@thesunrockgroup.com> Thursday, January 30, 2020 3:44 PM Wright, Dylan A RE: [External] C1

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Hi Dylan

To verify we are good on the C3 tab 3 should read CDPGN3 and not CDPGN2. That was a type on my part.

Thanks

Scott

From: Scott Martino
Sent: Thursday, January 30, 2020 3:24 PM
To: Wright, Dylan A <dylan.wright@ncdenr.gov>
Subject: RE: [External] C1

Which site ?

The quarry I assume?

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Thursday, January 30, 2020 2:58 PM
To: Scott Martino <smartino@thesunrockgroup.com>
Cc: Governale, Leo <Leo.Governale@ncdenr.gov>; Murphy, Davis <davis.murphy@ncdenr.gov>
Subject: RE: [External] C1

Scott,

It appears that this version of this excel document is accurate for the HMA plant bagfilter but it appears that the bagfilter of the concrete plant incorrectly lists the diameter of the bags as 4 inches again. Can you confirm that the Form C1 for the concrete bagfilter that you submitted on January 14, 2020 with the revised PE Seal is correct (the one that says the diameter is 8 inches)?

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Thursday, January 30, 2020 11:42 AM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: RE: [External] C1

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There is only one RAP crushing system on the quarry property attached to the asphalt plant.

Let me know if you need something else.

Thanks

Scott

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Thursday, January 30, 2020 10:43 AM
To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: RE: [External] C1

Also, you mention on From A2 that you plan to install a RAP Crushing System. Is this the same system that you are referring to as a "mobile RAP crushing system" in section 3.5.12 in the application? If so it does not appear that this crusher will be able to be exempt under 2Q .0902 due to the fact that it will operate at a quarry with an air permit (See the third bullet point of this section). Can you confirm that there is only one RAP crushing system on site, and not two RAP crushing systems (one permanent and one portable)?

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office

 336.776.9800 (Main)
 450 West Hanes Mill Road, Suite 300

 336.776.9646 (Direct)
 Winston-Salem, NC 27105

 336.776.9797 (Fax)
 dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Thursday, January 30, 2020 9:41 AM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: RE: [External] C1

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Yes this is the exact spec of the bag house. It's also the same bag house Davis has for the quarry site air permit as well

 BURLINGTON NORTH
 SER NO
 03-201-3001

 RBH 51-12
 IS A 51000 CFM BAGHOUSE WITH 738
 4-5/8" X 120.5"BAGS

 8968 SF OF CLOTH
 5.68 AIR TO CLOTH

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Thursday, January 30, 2020 9:35 AM
To: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Cc: Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>; Murphy, Davis <<u>davis.murphy@ncdenr.gov</u>>
Subject: RE: [External] C1

Scott,

I want to confirm that this form is correct now. In the first application Form C1 for the HMA Plant it said: Flow Rate: 45,000 cfm # of Bags: 640

This Form C1 that you just sent us says: Flow Rate: 45,000 cfm # of Bags: 738

Is the new form correct?

Thanks,

Dylan

Dylan Wright Environmental Engineer I Division of Air Quality, Winston-Salem Regional Office 336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 dylan.wright@ncdenr.gov



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From: Scott Martino <<u>smartino@thesunrockgroup.com</u>>
Sent: Thursday, January 30, 2020 9:11 AM
To: Wright, Dylan A <<u>dylan.wright@ncdenr.gov</u>>; Governale, Leo <<u>Leo.Governale@ncdenr.gov</u>>;
Subject: [External] C1

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Hi Guys,

Sorry I am in meeting and tied up most of today. the only things I notice from what I sent Leo earlier in the month is I hit a 6 instead of a 3 on number of cartages, thus messing up the calculations. I fixed up the form and attached is the vender drawling for the baghouse with specs and below is what they provided me on the ratios.

 BURLINGTON NORTH
 SER NO
 03-201-3001

 RBH 51-12
 IS A 51000 CFM BAGHOUSE WITH 738
 4-5/8" X 120.5"BAGS

 8968 SF OF CLOTH
 5.68 AIR TO CLOTH

Let me know if you need anything else

Thanks Scott

**Scott Martino** 

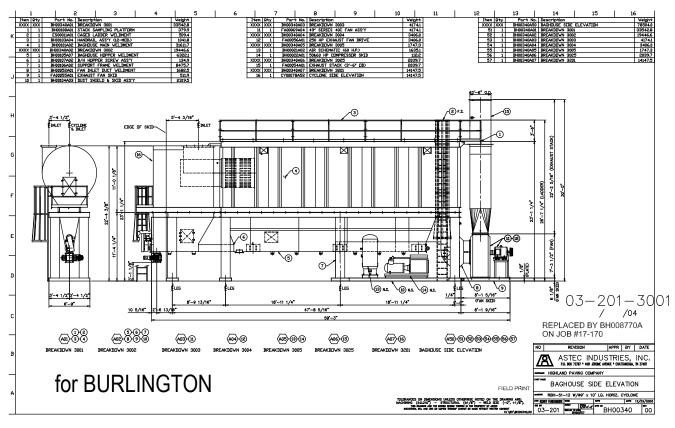


#### 

REVISED 09/22/16	NCDEQ/	Division of Air Quality			•	Operate	. '		C1
CONTROL DEVICE ID NO: HMA-CD1		CONTROLS EMIS	SIONS FROM	WHICH EMIS	SION SOURCE	ID NO(S):	See Form A28	LA3	-
EMISSION POINT (STACK) ID NO(S):	EP-1	POSITION IN SER	IES OF CONT	ROLS		NO.	1 OF 1	UNITS	
					1 A				
	· · · · · · · · · · · · · · · · · · ·				ER 2q .0112)?	<u> </u>	'ES	NO NO	
DESCRIBE CONTROL SYSTEM: Hot N	lix Asphalt Pl	ant Bag House Mo	del RBH 51-	12 Ser No 0	3-201-3001,				
o 51,111 ACFM o (768) 4-5/8ª Ø x 10' long 14oz ar	minist hours							•	
o 8,968 ft2 cloth area; 5.68 fpm fil	-	(Air/Cloth Patio)							
o 41-5/8" ID stack; 31'-0" discharg									
o Integral 9' Ø x 10' long horizonts		-							
							<u> </u>		
POLLUTANTS COLLECTED:			PM	PM	10	-			
BEFORE CONTROL EMISSION RATE (L	.B/HR):		See	Appendix A				_	
	l.	-	99.99	99.	99				
CAPTURE EFFICIENCY:	·		90	%	%	<u> </u> <u> </u>	6 	%	
CONTROL DEVICE EFFICIENCY:				%	, %	9	6	%	
CORRESPONDING OVERALL EFFICIEN	ICY:	· · · · ·	93	% 9	°%	9	6	%	
EFFICIENCY DETERMINATION CODE:			1	1					
TOTAL AFTER CONTROL EMISSION RA	ATE (LB/HR):		8.25		5.75			 . •	
PRESSURE DROP (IN H20): MIN:	MAX:	GAUGE?	☑ YES						<u></u>
BULK PARTICLE DENSITY (LB/FT3):-54	-		INLET TEM	PERATURE (		blent N	MAX 325		
POLLUTANT LOADING RATE:	🖸 LB/HR	GR/FT <sup>8</sup>	OUTLET TE	MPERATURE	(°f) MIN Amt	bient N	MAX 325		
NLET AIR FLOW RATE (ACFM): 51,11	1		FILTER OP	ERATING TEN	IP (°f): 325				
NO. OF COMPARTMENTS: 3	NO. OF BAGS	PER COMPARTMEN	T: 246		LENGTH	OF BAG (II	N.): 120.5		
NO. OF CARTRIDGES: 738	FILTER SURF	ACE AREA PER CAR	RTRIDGE (FT <sup>2</sup>	): 12.11	DIAMETE	ROF BAG	(IN.): 4 5/8		
TOTAL FILTER SURFACE AREA (FT <sup>2</sup> );	8,968	AIR TO CLOTH RA	TIO: 5.68						
DRAFT TYPE: INDUCED/NE	GATIVE [	FORCED/POSITIV	E	FILTE	R MATERIAL:	VΣ		FELTED	
	·			· .					
					SL	ZE	WEIGHT %	CUMUL/	ATIVE
	🗆		LAPSE		(MICR	(ONS)	OF TOTAL	%	
		RING BAG COLLA	PSE		. 0-	1	. 40	40.	2
OTHER:					1-	10	60	10	0
DESCRIBE INCOMING AIR STREAM: H	lot Air from Di	ying and Mixing D	rums in HM	A Plant\	10-	-25			
· ·	•				25-	-50			
					50-	100	· ·		
					>1	00			
	. •	•				[	TO	TAL = 100	
							10	IAL - 100	
		· ·							
· · · · · · · · · · · · · · · · · · ·								·	
ON A SEPARATE PAGE, ATTACH A DIA COMMENTS:	GRAM SHOWIN	G THE RELATIONSH	IP OF THE CO	NTROL DEVI	CE TO ITS EMI	SSION SOI			
	•				•		NC De	partmer	nt of
			· .				NC De Environr Re	nental O	luali
							JAN	1 3 0 20	20
							Wins	ton-Sale	m
					•			ton-Sale	
	÷.			•	•			ton-Sale onal Offic	

Attach Additional Sheets As Necessary

REVIGED



BAGHOUSE GF	ROUP - FOR AP	PROVAL
Ronny L. Funderburk	10:15 am	1/ 7 /2003
(1/4440/JLD IS1	1	

As previously described, the following sources are subject to a NESHAP standard:

- PGEN1
- PGEN2
- PGEN3
- GEN1 (J50V2)
- GEN1A (J45)
- GEN2 (S190dt)
- GEN3 (PS1300 Maxtrack)
- GEN5 (PS1300 Maxtrack)
- GEN7 (PS100 Maxtrack)
- GEN4 (TF80)

NC Department of Environmental Quality Received

# FEB 0 3 2020

Winston-Salem Regional Office

Since the above sources were included in the TAP modeling analysis, which demonstrates no unacceptable risk to the public, TAP permit limitations are not required for those sources. As such, Carolina Sunrock is requesting the TAP limits in Table 4-6 be included in the permit, based on the modeled emission rates in Table 4-5 (in g/s) and scaled to the appropriate averaging period.

			Requested <b>F</b>	Permit Limits	, 	•
Model ID	FORM (lb/hr)	MERCURY (lb/day)	NICKEL (lb/day)	ARSENIC (lb/yr)	BENZENE (lb/yr)	CADMIUM (lb/yr)
CD1	7.75E-01	1.56E-02	3.79E-01	1.23E+00	8.54E+02	9.02E-01
IES4	2.83E-04	8.64E-05	8.64E-05	4.20E-02	2.15E-02	3.15E-02
IES5	2.59E-04	7.92E-05	7.92E-05	3.85E-02	1.97E-02	2.89E-02
HMASIL01	4.20E-03				1.71E+00	-
HMASILO2	4.20E-03	-	-		1.71E+00	-
HMASILO3	4.20E-03		-	<b>-</b> '	1.71E+00	-
HMASILO4	4.20E-03	-	-	-	1.71E+00	-
HMASILO5	4.20E-03	-	-	. •	1.71E+00	-
CD2	0.00E+00	-	4.62E-03	5.77E-01	0.00E+00	4.38E-03
HMAL01	1.83E-04	-			9.48E-01	-
HMAL02	1.83E-04	-	-	-	9.48E-01	-
HMAL03	1.83E-04	-	-	· – .	9.48E-01	-
HMAL04	1.83E-04	-	-		9.48E-01	<del>-</del> ·
HMAL05	1.83E-04	-		-	9.48E-01	-

 Table 4-6. Requested Permit Limits

#### n na nana a na s Tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna tanàna

# 4.4. METEOROLOGICAL DATA

4-7

The AERMOD modeling results were based on sequential hourly surface observations from Danville, NC (DAN) and upper air data also from Greensboro, NC (GSO). These stations are

Table 4-5 presents the emission rates modeled for each of the triggered TAPs. These rates represent values that are in excess of the calculated potential rates in order to provide the facility with operational flexibility.

inder 1999 State - State Basic, State	TRANK CONTRACT	Table 4-5.	Modeled Em	ission Rates		- -
		Mo	deled Emiss	ion Rates (g	/s)	
Model ID	FORM	MERCURY	NICKEL	ARSENIC	BENZENE	CADMIUM
PGEN1	1.005E-01	0.000E+00	0.000E+00	0.000E+00	3.169E-03	0.000E+00
PGEN2	1.005E-01	0.000E+00	0.000E+00	0.000E+00	3.169E-03	0.000E+00
PGEN3	8.379E-02	0.000E+00	0.000E+00	0.000E+00	2.641E-03	0.000E+00
CD1	9.765E-02	8.190E-05	1.991E-03	1.764E-05	1.229E-02	1.298E-05
IES4	3.564E-05	4.536E-07	4.536E-07	6.048E-07	3.095E-07	4.536E-07
IES5	3.267E-05	4.158E-07	4.158E-07	5.544E-07	2.837E-07	4.158E-07
HMASIL01	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO2	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO3	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASILO4	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
HMASIL05	5.292E-04	0.000E+00	0.000E+00	0.000E+00	2.457E-05	0.000E+00
CD2	0.000E+00	2.423E-05	2.423E-05	8.297E-06	0.000E+00	6.298E-08
GEN1	3.643E-04	9.261E-07	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN1A	3.643E-04	9.261E-07	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN2	1.301E-04	3.308E-07	3.308E-07	4.410E-07	1.029E-04	3.308E-07
GEN3	4.579E-04	1.164E-06	1.164E-06	1.552E-06	3.621E-04	1.164E-06
GEN5	4.683E-04	1.191E-06	1.191E-06	1.588E-06	3.703E-04	1.191E-06
GEN7	3.643E-04	9.261E-07	9.261E-07	1.235E-06	2.880E-04	9.261E-07
GEN4	1.301E-04	3.308E-07	3.308E-07	4.410E-07	1.029E-04	3.308E-07
HMAL01	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMAL02	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMAL03	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMAL04	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00
HMAL05	2.306E-05	0.000E+00	0.000E+00	0.000E+00	1.363E-05	0.000E+00

NC Department of Environmental Quality Received

FEB 0 3 2020 Winston-Salem Regional Office

Carolina Sunrock US, Inc. Air Quality Permit Application

From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Tuesday, February 18, 2020 11:06 AM
То:	Wright, Dylan A
Subject:	[External] Prospect Hill Quarry Air Permit

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to <u>report.spam@nc.gov</u>

Hi Dylan,

It is ok to remove the portable rap crushers from the application for this facility.

Thanks

Scott

### **Scott Martino**



From:	Scott Martino <smartino@thesunrockgroup.com></smartino@thesunrockgroup.com>
Sent:	Tuesday, February 25, 2020 9:30 AM
То:	Wright, Dylan A
Cc:	Murphy, Davis
Subject:	[External] RE: Weigh Batcher Capacity Question

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to report.spam@nc.gov

Hi Guys,

Hope you both are well. What Leo has is correct below is the cut out from the A2 form he has. Let me know if you need anything else.

Thanks Scott

Tru	uck Mix Concrete Batch Plant (120 cubic y	/ards per hour	capacity) Consisting of the
RM-1	Cement Storage Silo (200-ton capacity)	RMC-CD2	Bagfilter (1,433 square feet of filt
RM-2	Flyash Storage Silo (150-ton Capacity)	RMC-CD2	Bagfilter (1,433 square feet of filt
RM-3	Truck Loadout point	RMC-CD2	Bagfilter (1,433 square feet of filt
RM-4	Cement/Flyash Weigh Batcher (25-ton max Capacity)	RMC-CD2	Bagfilter (1,433 square feet of filt
RM-5	Aggregate Weigh Batcher (50-ton max Capacity)	NA	NA

From: Wright, Dylan A [mailto:dylan.wright@ncdenr.gov]
Sent: Tuesday, February 25, 2020 9:22 AM
To: Scott Martino <smartino@thesunrockgroup.com>
Cc: Murphy, Davis <davis.murphy@ncdenr.gov>
Subject: Weigh Batcher Capacity Question

Hey Scott,

In the Prospect Hill Quarry application the two concrete weigh batcher's capacities were listed as below:

DMC	Cement/Flyash
RMC- WB1	Weigh Batcher (5-ton
VVDI	max capacity)
RMC-	Aggregate Weigh
WB2	Batcher
VVDZ	(20-ton max capacity)

After discussing this with Leo, he told me that you two had discussed this regarding the North Burlington facility and determined that the correct capacities are listed below:

	Cement/Flyash
RMC-WB1	Weigh Batcher (25-
	ton max capacity)
	Aggregate Weigh
RMC-WB2	Batcher
RIVIC-VV DZ	( <b>50</b> -ton max
	capacity)

Can you confirm that this is correct?

Thanks,

Dylan

Dylan Wright Environmental Engineer II Division of Air Quality, Winston-Salem Regional Office

336.776.9800 (Main) 336.776.9646 (Direct) 336.776.9797 (Fax) 450 West Hanes Mill Road, Suite 300 Winston-Salem, NC 27105 <u>dylan.wright@ncdenr.gov</u>



*Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties* 

-Revised by DAW Corrected HMA Plant SO2 potentials and Concrete plant PM potentials

Carolina Sunrock Prospect Hill Quarry & Distribution Center

											Potential Emissions w/
								Controlled Pote	attal Contesion		Synthetic Minor Limits****
		1	Un Charles Charles	controlled Po	tential Emiss	lons 7		Controlleu Pola	ntiat Eurossion		Launes
Source Name		HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Hot Mix Asphalt Plant*	PM	100000000000000000000000000000000000000	16.10	386.36	141,022	70.51	11.42	77.43	28,263	14.13	14.13
	PM10		8.09	194.11	70,850	35.43	6.93	47.87 47.87	17,474	8.74 8.74	<u> </u>
	PM2.5		8.09 151.45	194.11 3,634.77	70,850	35.43 663.34	<u>6.93</u> 21,54	47.87	55,571	27.79	27.79
	SO2		131.45	334,11	121,952	60.98	13.92	94.53	34,502	17.25	17.25
	CO		33.18	796.20	290,614	145.31	33.18	218.88	79,893	39.95	39.95
	VOC		12.03	288.65	105,356	52.68	12.03	79.13	28,883	14.44	14,44
	Acetaldehyde	H/T	3.25E-01	7.80E+00	2.85E+03	1.42E+00 2.85E-02	3.25E-01 6.50E-03	7.80E+00 1.56E-01	7.80E+02 1.56E+01	3.90E-01 7.80E-03	1.56E-01 3.90E-03
	Acrolein Antimony unlisted compounds	н/т н	6.50E-03 4.50E-05	1.56E-01 1.08E-03	5.69E+01 3.94E-01	1.97E-04	4,50E-05	1.08E-03	1.08E-01	5.40E-05	2.70E-05
	Arsenic unlisted compounds Arsenic unlisted cmpds (comp. of ASC)	H/T	1.40E-04	3.36E-03	1.23E+00	6.13E-04	1,40E-04	3.36E-03	3.36E-01	1.68E-04	8.40E-05
	Benzene	H/T	9.90E-02	2.38E+00	8.67E+02	4.34E-01	9.90E-02	2.38E+00	2.38E+02	1.19E-01	5.94E-02
	Benzo(a)pyrene	T ,	4,41E-06	1.06E-04	3.86E-02	1.93E-05	4.41E-06	1.06E-04	1.06E-02	5.29E-06	2.65E-06 0.00E+00
· · ·	Beryllium metal (unreacted)	H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00 4.49E-04	0.00E+00 1.03E-04	0.00E+00 2.46E-03	0.00E+00 2.46E-01	0.00E+00 1.23E-04	6,15E-05
• · · · ·	Cadmium metal (elemental unreacted)	H/T H/T	1.03E-04 6.23E-04	2.46E-03 1.49E-02	8.98E-01 5.45E+00	<u>4.49E-04</u> 2.73E-03	6.23E-04	2.46E-03 1.49E-02	2.46E-01 1.49E+00	7,47E-04	3.74E-04
	Carbon disulfide Chromium unlisted cmpds (add w/chrom acid to get CRC)	H/I	1.26E-03	3.03E-02	1.11E+01	5.53E-03	1.26E-03	3.03E-02	3.03E+00	1.52E-03	7.58E-04
	Chromic acid (VI) (component of solCR6 and CRC)	H/T	1.13E-04	2.70E-02	9.86E-01	4.93E-04	1,13E-04	2.70E-03	2.70E-01	1.35E-04	6.75E-05
	Cobalt unlisted compounds	Н	6.50E-06	1,56E-04	5.69E-02	2.85E-05	6.50E-06	1.56E-04	1.56E-02	7.80E-06	3.90E-06
	Cumene	Н	1.14E-03	2.74E-02	1.00E+01	5.01E-03	1.14E-03	2.74E-02	2.74E+00	1.37E-03	6.86E-04 3.84E-02
		Н	6.41E-02	1.54E+00 5.24E-05	5.61E+02 1.91E-02	2.81E-01 9.56E-06	6.41E-02 2.18E-06	1.54 <u>E+00</u> 5.24E-05	1.54E+02 5.24E-03	7.69E-02 2.62E-06	1.31E-06
	Ethyl chloride (chloroethane)	Н Н/Т	2.18E-06 7.97E-01	5.24E-05 1.91E+01	6.98E+03	9.56E-06 3.49E+00	7.97E-01	1.91E+01	1.91E+03	9,56E-01	4.78E-01
1	Formaldehyde Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	T	3.25E-10	7.80E-09	2.85E-06	1.42E-09	3.25E-10	7.80E-09	7.80E-07	3.90E-10	1.95E-10
	Hexane, n-	H/T	2.39E-01	5.74E+00	2.10E+03	1.05E+00	2.39E-01	5.74E+00	5.74E+02	2.87E-01	1.44E-01
	Hydrogen Chloride (hydrochloric acid)	H/T	5.25E-02	1.26E+00	4.60E+02	2,30E-01	5,25E-02	1.26E+00	1.26E+02	6.30E-02	3.15E-02
· · · · · · · · · · · · · · · · · · ·	Hydrogen Sulfide	T ·	1.37E-02	3.28E-01	1.20E+02	5.99E-02	1.37E-02	3.28E-01	3.28E+01	. 1.64E-02	8.21E-03 2.25E-03
	Lead unlisted compounds	H .	3.75E-03	9,00E-02	3.29E+01 1.69E+01	1.64E-02 8.43E-03	3.75E-03 1.93E-03	9.00E-02 4.62E-02	9.00E+00 4.62E+00	4.50E-03 2.31E-03	1.16E-03
	Manganese unlisted compounds	T H/T	1.93E-03 6.50E-04	4.62E-02 1.56E-02	5.69E+01	2.85E-03	6.50E-04	1.56E-02	1.56E+00	7.80E-04	3.90E-04
	Mercury, vapor	H.	2,49E-04	5.98E-03	2.18E+00	1.09E-03	2.49E-04	5.98E-03	5.98E-01	2.99E-04	1.49E-04
	Methyl chloride	н	1.56E-04	3.74E-03	1.37E+00	6.83E-04	1.56E-04	3.74E-03	3.74E-01	1.87E-04	9.36E-05
	Methyl chloroform	H/T	1.20E-02	2.88E-01	1.05E+02	5.26E-02	1.20E-02	2.88E-01	2.88E+01	1.44E-02	7.20E-03
	Methyl ethyl ketone	н/т	6.70E-03	1.61E-01	5.87E+01	2.93E-02	6.70E-03	1.61E-01 1.97E-04	1.61E+01 1.97E-02	8.04E-03 9.87E-06	4.02E-03 4.94E-06
	Methylene chloride	H/T	8.23E-06 1.65E-01	1.97E-04 3.95E+00	7.21E-02 1.44E+03	3.60E-05 7.21E-01	8.23E-06 1.65E-01	3.95E+00	3.95E+02	1.98E-01	9.88E-02
	Napthalene Nickel metal	H H/T	1.63E-01 1.58E-02	3.78E-01	1.38E+02	6.90E-02	1.58E-02	3.78E-01	3.78E+01	1.89E-02	9.45E-03
	Perchloroethylene (tetrachloroethylene)	H/T	8.01E-02	1.92E-03	7.01E-01	3,51E-04	8.01E-05	1.92E-03	1.92E-01	9.61E-05	4.80E-05
	Phenol	H/T	1.01E-03	2.41E-02	8.81E+00	4.41E-03	1.01E-03	2.41E-02	2.41E+00	1.21E-03	6.03E-04
	Phosphorus Metal, Yellow or White	Н	7.00E-03	1.68E-01	6.13E+01	3.07E-02	7.00E-03	1.68E-01	1.68E+01	8.40E-03	4.20E-03
1 · · · · · · · · · · · · · · · · · · ·	Polycyclic Organic Matter	H	2.20E-01	5.28E+00	1.93E+03	9.64E-01 1.42E-01	2.20E-01 3.25E-02	5.28E+00 7.80E-01	5.28E+02 7.80E+01	2.64E-01 3.90E-02	1.32E-01 1,95E-02
· · · ·	Propionaldehyde	H H	3.25E-02 4.00E-02	7.80E-01 9.60E-01	2.85E+02 3.50E+02	1.42E-01 1.75E-01	4.00E-02	9.60E-01	9.60E+01	4.80E-02	2.40E-02
	Quinone Selenium compounds	H	8,75E-05	2.10E-03	7.67E-01	3.83E-04	8.75E-05	2.10E-03	2.10E-01	1.05E-04	5.25E-05
	Styrene	H/T	2.40E-04	5.77E-03	2,11E+00	1.05E-03	2.40E-04	5,77E-03	5.77E-01	2.89E-04	1.44E-04
	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	H/T	5.25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	1.26E-07	6.30E-11	3.15E-11
	Toluene	H/T	7.29E-01	1.75E+01	6.39E+03	3.19E+00	7.29E-01	1.75E+01	1.75E+03 0.00E+00	8.75E-01 0.00E+00	4.37E-01 0.00E+00
	Trichloroethylene	H/T	0.00E+00 1.35E-05	0.00E+00 3.24E-04	0.00E+00 1.18E-01	0.00E+00 5.92E-05	0.00E+00 1.35E-05	0.00E+00 3.24E-04	3.24E-02	1.62E-05	8.11E-06
	Trichlorofluoromethane (CFC 111) Trimethylpentane, 2,2,4-	T H	1.35E-05 1.00E-02	3.24E-04 2.41E-01	8.78E+01	4.39E-02	1.00E-02	2,41E-04	2.41E+01	1.20E-02	6.02E-03
· ·	Trimethylpentane, 2,2,4- Xylene	H/T	6.04E-02	1.45E+00	5.29E+02	2.64E-01	6.04E-02	1.45E+00	1.45E+02	7.24E-02	3.62E-02
Concrete Batch Plant	PM		5.10E+00	1.22E+02	9.08E+05	4.54E+02	5.10E+00	1.22E+02	4.46E+04	22,32	22.32
	PM10		5.27E-02	1.27E+00	4.62E+02	2.31E-01	2.44E+00	5.85E+01	2.13E+04	10.67	10.67
	PM2.5		5.27E-02	1.27E+00	4.62E+02	2.31E-01	2.44E+00	5.85E+01	2.13E+04 5.77E-01	10.67 2.88E-04	10.67 2.88E-04
1	Arsenic unlisted cmpds (comp. of ASC)	н/т н/т	6.59E-05	1.58E-03 1.09E-04	2.18E+01 8.77E-02	1.09E-02 4.38E-05	6.59E-05 4.53E-06	1.58E-03 1.09E-04	3.97E-01	2.88E-04 1.99E-05	1.99E-05
	Beryllium metal (unreacted)	H/T H/T	4.53E-06 5.00E-07	1.20E-04	6.74E-02	4.38E-05 3.37E-05	4.53E-08 5.00E-07	1.09E-04	4.38E-03	2.19E-06	2.19E-06
	Cadmium metal (elemental unreacted) Chromic acid (VI) (component of solCR6 and CRC)	H	1.58E-04	3.80E-03	3.73E+00	1.86E-03	1.58E-04	3.80E-03	1.39E+00	6.93E-04	6.93E-04
	Lead unlisted compounds	н	5.96E-05	1.43E-03	1.16E+01	5.78E-03	5.96E-05	1.43E-03	5.22E-01	2.61E-04	2.61E-04
	Manganese unlisted compounds	H/T	7.49E-04	1.80E-02	6.72E+01	3.36E-02	7.49E-04	1.80E-02	6.56E+00	3.28E-03	3.28E-03
	Nickel metal	H/T	1.92E-04	4.62E-03	8.05E+00	4.02E-03	1.92E-04	4.62E-03	1.68E+00	8.42E-04 2.06E-03	8.42E-04 2.06E-03
	Phosphorus Metal, Yellow or White	H	4.71E-04	1.13E-02	1.51E+01	7.54E-03	4.71E-04 4.68E-06	1.13E-02 1.12E-04	4.13E+00 4.10E-02	2.06E-03 2.05E-05	2.05E-05
	Selenium compounds	H	4.68E-06	1.12E-04	8.26E-01	4.13E-04	4,00E-00	1.126-04	4,100-02	1 1,000-00	2,000 00

#### Carolina Sunrock Prospect Hill Quarry & Distribution Center

											Potential
											Emissions w/ Synthetic Minor
			U	icontrolled Pa	itential Emiss	lons		<b>Controlled</b> Pot	ential Emission		Limits****
		HAP/									
Source Name		TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Asphalt Cement Heater**	2-Methylnaphthalene		2.81E-08	6.74E-07	2.46E-04	1.23E-07	2.81E-08	6.74E-07	2.46E-04	1.23E-07	1.23E-07
-	3-Methylchloranthrene		2.11E-09	5.05E-08	1.84E-05	9.22E-09	2.11E-09	5.05E-08	1.84E-05	9.22E-09	9.22E-09
· · · · · ·	7,12-Dimethylbenz(a)anathracene		1.87E-08	4.49E-07	1.64E-04	8.20E-08	1.87E-08	4.49E-07	1.64E-04	8.20E-08	8.20E-08
		H .	1.81E-07	4.34E-06	1.58E-03	7.92E-07	1.81E-07	4.34E-06	1.58E-03	7.92E-07	7.92E-07
		Н	2.17E-09	5.20E-08	1.90E-05	9.50E-09	2.17E-09	5.20E-08	1.90E-05	9.50E-09	9.50E-09
	Acetaldehyde	H/T	1.78E-08	4.27E-07	1.56E-04	7.79E-08	1.78E-08	4.27E-07	1.56E-04	7.79E-08	7.79E-08
· · · · ·	Acrolein	H/T	2.11E-08	5.05E-07	1.84E-04	9.22E-08	2.11E-08	5.05E-07	1.84E-04	9.22E-08	9.22E-08
	Ammonia	Τ	3.74E-03	8.98E-02	3.28E+01	1.64E-02	3.74E-03	8.98E-02	3.28E+01	1.64E-02	1.64E-02
	Anthracene	Н	1.05E-08	2.51E-07	9.16E-05	4.58E-08	1.05E-08	2.51E-07	9.16E-05	4.58E-08	4.58E-08
	Benz(a)anthracene	H	3.44E-08	8.25E-07	3.01E-04	1.51E-07	3.44E-08	8.25E-07	3.01E-04	1.51E-07	1.51E-07
	Benzene	H/T	2.46E-06	5.89E-05	2.15E-02	1.08E-05	2.46E-06	5,89E-05	2.15E-02	1.08E-05	1.08E-05 6.15E-09
	Benzo(a)pyrene	H/T H	1.40E-09 1.27E-08	3.37E-08 3.04E-07	1.23E-05 1.11E-04	6.15E-09 5.56E-08	1.40E-09 1.27E-08	3,37E-08 3,04E-07	1.23E-05 1.11E-04	6.15E-09 5.56E-08	5.56E-08
4	Benzo(b)fluoranthene	H H	1.27E-08 1.94E-08	3.04E-07 4.65E-07	1.70E-04	5.56E-08 8.48E-08	1.27E-08 1.94E-08	4.65E-07	1.70E-04	5.56E-08 8.48E-08	8.48E-08
-	Benzo(g,h,i)perylene Benzo(k)fluoranthene	H H	2,11E-09	4.05E-07 5,05E-08	1.70E-04 1.84E-05	9.22E-09	2.11E-09	4.65E-07 5.05E-08	1.70E-04 1.84E-05	9.22E-09	9.22E-09
		п	2.46E-03	5.89E-02	2.15E+01	9.22E-09 1.08E-02	2.11E-09 2.46E-03	5.89E-02	2.15E+01	9.22E-09 1.08E-02	1.08E-02
· ·	Butane Chrysene	н	2.40E-03 2.04E-08	4.90E-02	1.79E-04	8.94E-02	2.40E-03	4.90E-02	1.79E-04	8.94E-02	8.94E-02
	Dibenzo(a,h)anthracene	H	1.43E-08	4.90E-07 3.44E-07	1.79E-04	6.27E-08	1.43E-08	3.44E-07	1.25E-04	6.27E-08	6.27E-08
	Dichlorobenzene	H/T	1.40E-06	3.37E-05	1.23E-04	6.15E-06	1,40E-06	3,37E-05	1.23E-04	6.15E-06	6.15E-06
	Ethane	101	3.63E-03	8.70E-02	3.18E+01	1.59E-02	3.63E-03	8.70E-02	3.18E+01	1.59E-02	1.59E-02
	Ethylbenzene	н	5.45E-07	1.31E-05	4.78E-03	2.39E-06	5.45E-07	1.31E-05	4.78E-03	2.39E-06	2.39E-06
	Fluoranthene	Н	4.15E-08	9.96E-07	3.63E-04	1.82E-07	4.15E-08	9.96E-07	3.63E-04	1.82E-07	1.82E-07
	Fluorene	Н	3.83E-08	9.20E-07	3.36E-04	1.68E-07	3.83E-08	9.20E-07	3.36E-04	1.68E-07	1.68E-07
	Formaldehyde	H/T	2.83E-04	6.79E-03	2.48E+00	1.24E-03	2.83E-04	6.79E-03	2,48E+00	1.24E-03	1.24E-03
	Hexane	H/T	2.11E-03	5.05E-02	1.84E+01	9.22E-03	2.11E-03	5.05E-02	1.84E+01	9.22E-03	9.22E-03
	Indeno(1,2,3-cd)pyrene	Н	1.83E-08	4.40E-07	1,61E-04	8.03E-08	1.83E-08	4.40E-07	1.61E-04	8.03E-08	8.03E-08
	Naphthalene	Н	9.69E-06	2.32E-04	8.48E-02	4.24E-05	9.69E-06	2.32E-04	8.48E-02	4.24E-05	4.24E-05
	OCDD .		2.66E-11	6.38E-10	2.33E-07	1.16E-10	2.66E-11	6.38E-10	2.33E-07	1.16E-10	1.16E-10
	Pentane		3.04E-03	7.30E-02	2.66E+01	1.33E-02	3.04E-03	7.30E-02	2.66E+01	1.33E-02	1.33E-02
	Phenanathrene	H	9.00E-08	2.16E-06	7.88E-04	3.94E-07	9.00E-08	2,16E-06	7.88E-04	3.94E-07	3.94E-07
	Propane		1.87E-03	4.49E-02	1.64E+01	8.20E-03	1.87E-03	4,49E-02	1.64E+01	8.20E-03	8.20E-03
	Pyrene	Н	3.64E-08	8.74E-07	3.19E-04	1.60E-07	3.64E-08	8.74E-07	3.19E-04	1.60E-07	1.60E-07
	Toluene	H/T	5.31E-05	1.28E-03	4.66E-01	2.33E-04	5.31E-05	1.28E-03	4.66E-01	2.33E-04	2.33E-04
	1,1,1-Trichloroethane		2.02E-06	4.85E-05	1.77E-02	8.86E-06	2.02E-06	4.85E-05	1.77E-02	8.86E-06	8.86E-06
	Xylene	H/T	9.34E-07	_2.24E-05	8.18E-03	4.09E-06	9.34E-07	2.24E-05	8,18E-03	4.09E-06	4.09E-06
	Arsenic	H/T	4.80E-06	1.15E-04	4.20E-02	2.10E-05	4.80E-06	1.15E-04	4.20E-02	2.10E-05	2.10E-05 2.25E-05
	Barium	U/T	5.15E-06	1,24E-04	4.51E-02 3.15E-02	2.25E-05	5.15E-06 3.60E-06	1.24E-04 8.64E-05	4.51E-02 3.15E-02	2.25E-05 1.58E-05	2.25E-05 1.58E-05
	Beryllium Cadmium	H/T H/T	3.60E-06 3.60E-06	8.64E-05 8.64E-05	3.15E-02 3.15E-02	1.58E-05 1.58E-05	3.60E-06 3.60E-06	8.64E-05 8.64E-05	3.15E-02 3.15E-02	1.58E-05 1.58E-05	1.58E-05
		H/T H/T	3,60E-06 3,60E-06	8.64E-05 8.64E-05	3:15E-02 3:15E-02	1.58E-05 1.58E-05	3.60E-06 3.60E-06	8.64E-05 8.64E-05	3.15E-02 3.15E-02	1.58E-05	1.58E-05
	Chromium (as chromic acid) Cobalt	11/1	9,82E-08	2.36E-05	3:15E-02 8.61E-04	4.30E-05	9.82E-08	2.36E-06	3,15E-02 8,61E-04	4.30E-07	4.30E-07
	Copper		7.20E-06	1.73E-04	6.31E-04	4.30E-07 3.15E-05	9.82E-08 7.20E-06	1.73E-04	6.31E-04	4.30E-07 3.15E-05	3.15E-05
	Lead	н	1.08E-05	2.59E-04	9.46E-02	4.73E-05	1.08E-05	2.59E-04	9.46E-02	4.73E-05	4.73E-05
		H/T	7.20E-06	1.73E-04	6.31E-02	3.15E-05	7.20E-06	1.73E-04	6.31E-02	3.15E-05	3.15E-05
	Mercury	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Molybdenum	<u>~~ ^</u>	1.29E-06	3.09E-05	1.13E-02	5.64E-06	1.29E-06	3.09E-05	1.13E-02	5.64E-06	5.64E-06
	Nickel	H/T	3.60E-06	8.64E-05	3.15E-02	1.58E-05	3.60E-06	8.64E-05	3.15E-02	1.58E-05	1.58E-05
	Selenium	Н	1.80E-05	4.32E-04	1.58E-01	7.88E-05	1.80E-05	4.32E-04	1.58E-01	7.88E-05	7.88E-05
•	Vanadium	·	2.69E-06	6.46E-05	2.36E-02	1.18E-05	2.69E-06	6.46E-05	2.36E-02	1.18E-05	1.18E-05
	Zinc		3.39E-05	8.14E-04	2.97E-01	1,49E-04	3.39E-05	8.14E-04	2.97E-01	1.49E-04	1.49E-04
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#### Carolina Sunrock Prospect Hill Quarry & Distribution Center

		261.835				THE OF STREET					
											Potential
											Emissions w/
											Synthetic Minor Limits****
			Un	controlled Po	tential Emiss	ions	ingen og skalende som en som en som en som en som en som en som en som en som en som en som en som en som en s En som en som en som en som en som en som en som en som en som en som en som en som en som en som en som en som	Controlled Pote	ntial Emission		Limits
		HAP/			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1000000000000			
Source Name	Pollutant	TAP	(lb/hr)	(Ibs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Liquid Asphalt Tank							1				
Heater***	РМ	•	1.57E-02	3.77E-01	1.38E+02	6.88E-02	1.57E-02	3.77E-01 2.34E-01	1,38E+02 8,54E+01	6.88E-02 4.27E-02	6.88E-02 4.27E-02
	PM10		9.75E-03	2.34E-01 2.34E-01	8.54E+01 8.54E+01	4.27E-02 4.27E-02	9.75E-03 9.75E-03	2.34E-01 2.34E-01	8.54E+01 8.54E+01	4.27E-02 4.27E-02	4.27E-02
1	PM2.5		9.75E-03 5.58E-01	2.34E-01 1.34E+01	4.89E+03	2,44E+00	5.58E-01	1.34E+01	4.89E+03	2,44E+00	2,44E+00
	SO2 NOx		1.57E-01	3,77E+00	1.38E+03	6,88E-01	1.57E-01	3.77E+00	1.38E+03	6.88E-01	6.88E-01
1	VOCs		5.90E-03	1.42E-01	5.17E+01	2.58E-02	5.90E-03	1.42E-01	5.17E+01	2.58E-02	2.58E-02
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	CO		9.01E-02	2,16E+00	7.89E+02	3.94E-01	9.01E-02	2.16E+00	7.89E+02	3.94E-01	3.94E-01
	2-Methylnaphthalene		2.57E-08	6.18E-07	2.25E-04	1.13E-07	2.57E-08	6.18E-07	2.25E-04	1.13E-07	1.13E-07
	3-Methylchloranthrene		1.93E-09	4.63E-08	1.69E-05	8.45E-09	1.93E-09	4.63E-08	1,69E-05 1,50E-04	8.45E-09 7.51E-08	8.45E-09 7.51E-08
	7,12-Dimethylbenz(a)anathracene		1.72E-08	4.12E-07	1.50E-04 1.45E-03	7.51E-08 7.26E-07	1.72E-08 1.66E-07	4.12E-07 3.98E-06	1.45E-03	7.26E-07	7.26E-07
	Acenaphthene	н н	1.66E-07 1.99E-09	3.98E-06 4.77E-08	1.45E-03 1.74E-05	8.71E-09	1.99E-09	4.77E-08	1.74E-05	8,71E-09	8.71E-09
•	Acetaldehyde	H/T	1.63E-08	3.91E-07	1.43E-04	7.14E-08	1.63E-08	3.91E-07	1.43E-04	7.14E-08	7.14E-08
	Acrolein	H/T	1.93E-08	4,63E-07	1.69E-04	8.45E-08	1.93E-08	4.63E-07	1.69E-04	8.45E-08	8.45E-08
	Ammonia	T ·	3.43E-03	8.23E-02	3.01E+01	1.50E-02	3.43E-03	8.23E-02	3.01E+01	1.50E-02	1.50E-02
	Anthracene	Н	9.59E-09	2.30E-07	8.40E-05	4.20E-08	9.59E-09	2.30E-07	8.40E-05	4.20E-08	4.20E-08
	Benz(a)anthracene	Н	3:15E-08	7.56E-07	2.76E-04	1.38E-07	3.15E-08	7.56E-07	2.76E-04	1.38E-07	1.38E-07
	Benzene	H/T	2.25E-06	5.40E-05	1.97E-02	9.86E-06	2.25E-06	5.40E-05 3.09E-08	1.97E-02 1.13E-05	9.86E-06 5.64E-09	9.86E-06 5.64E-09
	Benzo(a)pyrene	H/T	1.29E-09	3.09E-08	1.13E-05 1.02E-04	5.64E-09 5.09E-08	1.29E-09 1.16E-08	2.79E-07	1.02E-04	5.09E-08	5.09E-08
	Benzo(b)fluoranthene	H	1.16E-08 1.78E-08	2,79E-07 4,26E-07	1.56E-04	7.78E-08	1.78E-08	4.26E-07	1.56E-04	7.78E-08	7.78E-08
	Benzo(g,h,i)perylene Benzo(k)fluoranthene	H .	1.93E-08	4.63E-08	1.69E-05	8.45E-09	1.93E-09	4.63E-08	1.69E-05	8.45E-09	8.45E-09
	Butane		2.25E-03	5.40E-02	1.97E+01	9.86E-03	2.25E-03	5.40E-02	1.97E+01	9.86E-03	9.86E-03
	Chrysene	н	1.87E-08	4.49E-07	1.64E-04	8.19E-08	1.87E-08	4.49E-07	1.64E-04	8.19E-08	8.19E-08
	Dibenzo(a,h)anthracene	Н	1.31E-08	3.15E-07	1.15E-04	5.75E-08	1.31E-08	3.15E-07	1.15E-04	5.75E-08	5.75E-08
	Dichlorobenzene	H/T	1.29E-06	3.09E-05	1.13E-02	5.64E-06	1.29E-06	3.09E-05	1.13E-02	5.64E-06 1.46E-02	5.64E-06 1,46E-02
	Ethane		3.32E-03	7.98E-02	2.91E+01_	1.46E-02 2.19E-06	3.32E-03 5.00E-07	7.98E-02 1.20E-05	2.91E+01 4.38E-03	2.19E-06	2.19E-06
	Ethylbenzene	H H	5.00E-07 3.80E-08	1.20E-05 9.13E-07	4.38E-03 3.33E-04	1.67E-00	3.80E-07	9.13E-07	3.33E-04	1.67E-07	1.67E-07
	Fluorente	H H	3.51E-08	8.43E-07	3,08E-04	1.54E-07	3.51E-08	8,43E-07	3.08E-04	1.54E-07	1.54E-07
	Formaldehyde	H/T	2,59E-04	6.22E-03	2.27E+00	1.14E-03	2,59E-04	6.22E-03	2.27E+00	1.14E-03	1.14E-03
	Hexane	H/T	1.93E-03	4.63E-02	1.69E+01	8.45E-03	1.93E-03	4.63E-02	1.69E+01	8.45E-03	8.45E-03
	Indeno(1,2,3-cd)pyrene	Н	1.68E-08	4.04E-07	1.47E-04	7.36E-08	1.68E-08	4.04E-07	1.47E-04	7.36E-08	7.36E-08
	Naphthalene	н	8.88E-06	2.13E-04	7.78E-02	3.89E-05	8.88E-06	2.13E-04	7.78E-02	3.89E-05	3.89E-05 1.07E-10
	OCDD		2.44E-11	5.85E-10	2.13E-07	1.07E-10 1.22E-02	2.44E-11 2.79E-03	5.85E-10 6.69E-02	2.13E-07 2.44E+01	1.07E-10 1.22E-02	1.07E-10
	Pentane	н	2.79E-03 8.25E-08	6.69E-02 1.98E-06	2.44E+01 7.23E-04	3.61E-07	8.25E-08	1.98E-06	7.23E-04	3.61E-07	3.61E-07
	Phenanathrene	н	8.25E-08 1.72E-03	4.12E-02	1.50E+01	7.51E-03	1.72E-03	4.12E-02	1,50E+01	7.51E-03	7.51E-03
	Propane Pyrene	н	3.34E-08	8.01E-07	2.93E-04	1.46E-07	3.34E-08	8.01E-07	2.93E-04	1.46E-07	1.46E-07
	Toluene	нл	4.87E-05	1.17E-03	4.27E-01	2.13E-04	4.87E-05	1.17E-03	4.27E-01	2.13E-04	2.13E-04
	1,1,1-Trichloroethane		1.85E-06	4.45E-05	1.62E-02	8.12E-06	1.85E-06	4.45E-05	1.62E-02	8.12E-06	8.12E-06
	Xylene	н/т	8.56E-07	2.06E-05	7.50E-03	3.75E-06	8.56E-07	2.06E-05	7.50E-03	3.75E-06	3.75E-06 1.93E-05
	Arsenic	н/т	4.40E-06	1.06E-04	3.85E-02	1.93E-05	4.40E-06	1.06E-04 1.13E-04	3.85E-02 4.13E-02	1.93E-05 2.07E-05	2.07E-05
,	Barium		4.72E-06	1.13E-04 7.92E-05	4.13E-02 2.89E-02	2.07E-05 1.45E-05	4.72E-06 3.30E-06	7.92E-05	2.89E-02	1.45E-05	1,45E-05
	Beryllium	Н/Т Н/Т	3.30E-06 3.30E-06	7.92E-05	2.89E-02 2.89E-02	1.45E-05	3.30E-06	7.92E-05	2.89E-02	1.45E-05	· 1,45E-05
	Cadmium Chromium (as chromic acid)	H/T	3.30E-06	7.92E-05	2.89E-02	1.45E-05	3.30E-06	7.92E-05	2.89E-02	1.45E-05	1.45E-05
	Cobalt		9.01E-08	2.16E-06	7.89E-04	3.94E-07	9.01E-08	2.16E-06	7.89E-04	3.94E-07	3.94E-07
	Copper		6.60E-06	1.58E-04	5.78E-02	2.89E-05	6.60E-06	1.58E-04	5.78E-02	2.89E-05	2.89E-05
	Lead	Н	9.90E-06	2.38E-04	8.67E-02	4.34E-05	9.90E-06	2.38E-04	8.67E-02	4.34E-05	4.34E-05
	Manganese	H/T	6.60E-06	1.58E-04	5.78E-02	2.89E-05	6.60E-06	1.58E-04	5.78E-02	2.89E-05	2.89E-05
	Mercury	н/т	. 3.30E-06	7.92E-05	2.89E-02	1.45E-05	3.30E-06	7.92E-05 2.83E-05	2.89E-02 1.03E-02	1.45E-05 5.17E-06	1.45E-05 5.17E-06
	Molybdenum	110	1.18E-06	2.83E-05 7.92E-05	1.03E-02 2.89E-02	5.17E-06 1.45E-05	1.18E-06 3.30E-06	7.92E-05	2.89E-02	1.45E-05	1,45E-05
]	Nickel	H/T H	3.30E-06 1.65E-05	3.96E-04	1.45E-01	7.23E-05	1.65E-05	3.96E-04	1.45E-01	7.23E-05	7.23E-05
	Selenium Vanadium		2,47E-06	5.90E-04	2.16E-02	1.08E-05	2.47E-06	5.92E-05	2.16E-02	1.08E-05	1.08E-05
	Zinc		3.11E-05	7.46E-04	2.72E-01	1.36E-04	3.11E-05	7.46E-04	2.72E-01	1.36E-04	1.36E-04
		-									

#### Carolina Sunrock Prospect Hill Quarry & Distribution Center

			Uncontrolled Potential Emissions				Controlled Potential Emissions				Potential Emissions w/ Synthetic Minor Limits****
Source Name		HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Quarry	PM		2.40E-02	5.77E-01	1.91E+05	95.31	2.40E-02	5.77E-01	1.91E+05	95:31	51.63
~~~~,	PM10		9.36E-03	2.25E-01	7.58E+04	37.89	9.36E-03	2.25E-01	7.58E+04	37.89	20.53
1	PM2.5		4.17E-03	1.00E-01	3.07E+04	15.35	4,17E-03	1.00E-01	3.07E+04	15.35	8.32
Quarry Equipment			1		2.2.2.01						
Generators	PM		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3,15E-01	1.71E-01
	PM10		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1.73E+00	6.30E+02	3.15E-01	1.71E-01
	PM2.5		7.19E-02	1.73E+00	6.30E+02	3.15E-01	7.19E-02	1,73E+00	6.30E+02	3.15E-01	1.71E-01
:	SO <sub>2</sub>		2.66E-02	6.38E-01	2.33E+02	1.16E-01	2.66E-02	6.38E-01	2.33E+02	0.12	6.31E-02
	NOx		1.44E+00	3.45E+01	1.26E+04	6.30E+00	1.44E+00	3.45E+01	1.26E+04	6.30	3.41E+00
	CO		1.32E+01	3.17E+02	1.16E+05	5:78E+01	1.32E+01	3.17E+02	1.16E+05	57.84	3,13E+01
	VOC		6.83E-01	1.64E+01	5.99E+03	2.99E+00	6.83E-01	1.64E+01	5.99E+03	2.99	1,62E+00
	Acetaldehyde		1.18E-02	2.82E-01	1,03E+02	5,15E-02	1,18E-02	2.82E-01	1.03E+02	5.15E-02	2.79E-02
	Acrolein		1.42E-03	3.40E-02	1.24E+01	6,21E-03	1.42E-03	3.40E-02	1.24E+01	6.21E-03	3.36E-03
	Arsenic		6.13E-05	1.47E-03	5.37E-01	2.69E-04	6.13E-05	1.47E-03	5.37E-01	2.69E-04	1.45E-04
	Benzene	-	1.43E-02	3.43E-01	1.25E+02	6.26E-02	1.43E-02	3.43E-01	1.25E+02	6.26E-02	3.39E-02
	Benzo(a)pyrene		2.88E-06	6.92E-05	2.52E-02	1.26E-05	2.88E-06	6.92E-05	2,52E-02	1.26E-05	6.84E-06
	Beryllium		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	1,3-Butadiene		5.99E-04	1.44E-02	5,25E+00	2,63E-03	5.99E-04	1.44E-02	5.25E+00	2.63E-03	1.42E-03
	Cadmium		4.60E-05	1,10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Chromium (as chromic acid)		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Formaldehyde		1.81E-02	4.34E-01	1.58E+02	7.92E-02	1.81E-02	4.34E-01	1.58E+02	7.92E-02	4.29E-02
	Lead		1.38E-04	3.31E-03	1.21E+00	6.04E-04	1,38E-04	3.31E-03	1.21E+00	6.04E-04	3.27E-04
	Manganese unlisted compounds		9.20E-05	2.21E-03	8.06E-01	4.03E-04	9.20E-05	2.21E-03	8.06E-01	4.03E-04	2.18E-04
	Mercury vapor		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Napthalene		1.30E-03	3.12E-02	1.14E+01	5.69E-03	1.30E-03	3.12E-02	1.14E+01	5.69E-03	3.08E-03
	Nickel metal		4.60E-05	1.10E-03	4.03E-01	2.01E-04	4.60E-05	1.10E-03	4.03E-01	2.01E-04	1.09E-04
	Selenium compounds		2.30E-04	5.52E-03	2.01E+00	1.01E-03	2.30E-04	5.52E-03	2.01E+00	1.01E-03	5.46E-04
	Toluene		6.27E-03	1.50E-01	5.49E+01	2.75E-02	6.27E-03	1.50E-01	5.49E+01	2,75E-02	1.49E-02
	Xylene		4.37E-03	1.05E-01	3.83E+01	1.91E-02	4.37E-03	1.05E-01	3.83E+01	1.91E-02	1.04E-02

Carolina Sunrock

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#### Carolina Sunrock Prospect Hill Quarry & Distribution Center

			Un	controlled Po	tential Emiss	lons		Controlled Pote	ntial Emission		Potential Emissions w/ Synthetic Minor Limits****
Source Name		HAP/ TAP	(lb/hr)	(Ibs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
Quarry NG/Propane Large		10000000000000000000000000000000000000									<i></i>
Generators	PM PM10		1.98E+00 1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67E+00 8.67E+00	1.98E+00 1.98E+00	4.75E+01 4.75E+01	1.73E+04 1.73E+04	8.67 8.67	6.12
	PM2.5	· · · ·	1.98E+00	4.75E+01	1.73E+04	8.67E+00	1.98E+00	4.75E+01	1.73E+04	8.67	6.12
	SO2		2.41E-02 8.11E+00	5.78E-01 1.95E+02	2.11E+02 7.11E+04	1.05E-01 3.55E+01	2.41E-02 8.11E+00	5.78E-01 1.95E+02	2.11E+02 7.11E+04	0.11 35.53	0.07 23.91
1	NOx VOC		9.02E+00	2.17E+02	7.90E+04	3.95E+01	9.02E+00	2.17E+02	7.90E+04	39.51	27.89
	CO		9.02E+00	2.17E+02	7.90E+04	3.95E+01	9.02E+00	2.17E+02 6.50E+00	7.90E+04	39.51	27.89
	CH4 N2O		2.71E-01 5.42E-02	6.50E+00 1.30E+00	2.37E+03 4.75E+02	1.19E+00 2.37E-01	2.71E-01 5.42E-02	6.50E+00 1.30E+00	2.37E+03 4.75E+02	1.19E+00 2.37E-01	8.37E-01 1.67E-01
	CO2		5.55E+03	1.33E+05	4.86E+07	2.43E+04	5.55E+03	1.33E+05	4.86E+07	2,43E+04	1.72E+04
	CO2e Acenaphthene	НАР	5.57E+03 5.12E-05	1.34E+05 1.23E-03	4.88E+07 4.48E-01	2.44E+04 2.24E-04	5.57E+03 5.12E-05	1.34E+05 1.23E-03	4.88E+07 4.48E-01	2.44E+04 2.24E-04	1.72E+04 1.58E-04
	Acenaphtylene	НАР	2.26E-04	5.44E-03	1.98E+00	9.92E-04	2.26E-04	5.44E-03	1.98E+00	9.92E-04	7.00E-04
		HAP/TAP	3.83E-01	9.20E+00	3.36E+03	1.68E+00 9.22E-01	3.83E-01 2.11E-01	9.20E+00 5.05E+00	3.36E+03 1.84E+03	1.68E+00 9.22E-01	1,19E+00 6.51E-01
		HAP/TAP HAP	2.11E-01 0.00E+00	5.05E+00 0.00E+00	1.84E+03 0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(a)anthracene	HAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		HAP/TAP HAP/TAP	1.80E-02 0.00E+00	4.33E-01 0.00E+00	1.58E+02 0.00E+00	7.89E-02 0.00E+00	1.80E-02 0.00E+00	4.33E-01 0.00E+00	1.58E+02 0.00E+00	7.89E-02 0.00E+00	5.57E-02 0.00E+00
	Benzo(b)fluoranthene	HAP	6.80E-06	1.63E-04	5.96E-02	2.98E-05	6.80E-06	1.63E-04	5.96E-02	2.98E-05	2.10E-05
		HAP HAP	0.00E+00 1.70E-05	0.00E+00 4.07E-04	0.00E+00 1.49E-01	0.00E+00 7.43E-05	0.00E+00 1.70E-05	0.00E+00 4.07E-04	0.00E+00 1.49E-01	0.00E+00 7.43E-05	0.00E+00 5.24E-05
	Biphenyl	HAP	8.68E-03	2.08E-01	7.61E+01	3.80E-02	8.68E-03	2.08E-01	7.61E+01	3.80E-02	2.68E-02
		HAP/TAP HAP/TAP	1.50E-03 1.25E-03	3.61E-02 2.99E-02	1.32E+01 1.09E+01	6.58E-03 5.45E-03	1.50E-03 1.25E-03	3.61E-02 2.99E-02	1.32E+01 1.09E+01	6.58E-03 5.45E-03	4.65E-03 3.85E-03
	Chloroform	HAP/TAP	1.25E-03 1.17E-03	2.99E-02 2.80E-02	1.09E+01 1.02E+01	5.11E-03	1.17E-03	2.99E-02 2.80E-02	1.02E+01	5.11E-03	3.61E-03
	Chrysene	HAP	2.84E-05	6.81E-04	2.49E-01	1.24E-04	2.84E-05	6.81E-04	2.49E-01	1.24E-04	8.78E-05
	Ethylbenzene Ethylene Dibromide	HAP HAP/TAP	1.63E-03 1.81E-03	3.90E-02 4.35E-02	1.42E+01 1.59E+01	7.12E-03 7.95E-03	1.63E-03 1.81E-03	3.90E-02 4.35E-02	1.42E+01 1.59E+01	7.12E-03 7.95E-03	5.03E-03 5.61E-03
	Fluoranthene	HAP	4.55E-05	1.09E-03	3.98E-01	1.99E-04	4.55E-05	1.09E-03	3.98E-01	1.99E-04	1.41E-04
1	Fluorene Formaldehyde	HAP HAP/TAP	2.32E-04 2.16E+00	5.57E-03 5.19E+01	2.03E+00 1.89E+04	1.02E-03 9.47E+00	2.32E-04 2.16E+00	5.57E-03 5,19E+01	2.03E+00 1.89E+04	1.02E-03 9.47E+00	7.18E-04 6.69E+00
	Indeno(1,2,3-c,d)pyrene	HAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0,00E+00
	Methanol	HAP	1.02E-01	2.46E+00 1.97E-02	8.97E+02 7.18E+00	4.48E-01 3.59E-03	1.02E-01 8.19E-04	2.46E+00 1.97E-02	8.97E+02 7.18E+00	4.48E-01 3.59E-03	3.17E-01 2.53E-03
	Methylene Chloriden-Hexane	HAP/TAP HAP/TAP	8.19E-04 4.55E-02	1.97E-02 1.09E+00	3.98E+02	1.99E-01	4.55E-02	1.09E+00	3.98E+02	1.99E-01	1.41E-01
	Naphthalene	HAP	3.05E-03	7.31E-02	2.67E+01	1.33E-02	3.05E-03	7.31E-02	2.67E+01 3.73E+00	1.33E-02 1.87E-03	9.42E-03 1.32E-03
	Phenanthrene Phenol	HAP HAP/TAP	4.26E-04 9.83E-04	1,02E-02 2,36E-02	3.73E+00 8.61E+00	1.87E-03 4.31E-03	4.26E-04 9.83E-04	1.02E-02 2.36E-02	8.61E+00	4.31E-03	3.04E-03
	Pyrene	HAP	5.57E-05	1.34E-03	4.88E-01	2.44E-04	5.57E-05	1.34E-03	4.88E-01	2,44E-04	1.72E-04
	Styrene Toluene	HAP/TAP HAP/TAP	9.67E-04 1.67E-02	2.32E-02 4.01E-01	8.47E+00 1.46E+02	4.23E-03 7.32E-02	9.67E-04 1.67E-02	2.32E-02 4.01E-01	8.47E+00 1.46E+02	4.23E-03 7.32E-02	2.99E-03 5.17E-02
3	Vinyl Chloride	HAP/TAP	6.10E-04	1.46E-02	5.35E+00	2.67E-03	6.10E-04	1.46E-02	5.35E+00	2.67E-03	1.89E-03
Total	Xylene PM	HAP/TAP	7.54E-03 23.28	1.81E-01	6.60E+01 1,258,192	3.30E-02 629.10	7.54E-03 18.61	1.81E-01 249.89	6.60E+01 281,625	3.30E-02	2.33E-02 94.43
10(4)	PM10		10.21	245.05	165,146	. 82.57	11.43	156.00	132,642	66 32	46.26
	PM2.5		10.21 152.06	244.92 3,649.37	120,068	60.03 666.01	11.43 22.15	155.87 166.85	87,563 60,902	43.78 30.45	34.05 30.37
84 	SO2 NOx		23.63	567.10	206,991	103.50	23.63	327.51	119,541	59,77	45.26
	СО		55,49	1,331.82	486,113	243.06	55.49	754.50	275,392	137.70 56.95	99.56 43.95
	VOC Acetaldehyde	H/T	21.73 7.08E-01	521.56 1.70E+01	190,370 6.21E+03	95.19 3.10E+00	21.73 7.08E-01	312.05 1.70E+01	113,897 4.14E+03	2.07E+00	43.95 1.34E+00
	Acrolein	H/T	6.50E-03	1.56E-01	5.69E+01	2.85E-02	6.50E-03	1.56E-01	1.56E+01	7.80E-03	3.90E-03
	Antimony unlisted compounds Arsenic unlisted cmpds (comp. of ASC)	H H/T	4.50E-05 2.06E-04	1.08E-03 4.94E-03	3.94E-01 2.30E+01	1.97E-04 1.15E-02	4.50E-05 2.06E-04	1.08E-03 4.94E-03	1.08E-01 9.13E-01	5.40E-05 4.56E-04	2,70E-05 3.72E-04
	Benzene	H/T	- 1.31E-01	3.15E+00	1.15E+03	5.75E-01	1.31E-01	3.15E+00	5.21E+02	2.60E-01	1.49E-01
1 · · ·	Benzo(a)pyrene Beryllium metal (unreacted)	T H/T	4.41E-06 4.53E-06	1.06E-04 1.09E-04	3.86E-02 8.77E-02	1.93E-05 4.38E-05	4.41E-06 4.53E-06	1.06E-04 1.09E-04	1.06E-02 3.97E-02	5.29E-06 1.99E-05	2.65E-06 1.99E-05
	Cadmium metal (elemental unreacted)	H/T	1.03E-04	2.47E-03	9.65E-01	4.83E-04	1.03E-04	2.47E-03	2.50E-01	1.25E-04	6.37E-05
	Carbon disulfide Chromium unlisted cmpds (add w/chrom acid to get CRC)	H/T H	6.23E-04 1.26E-03	1.49E-02 3.03E-02	5,45E+00 1,11E+01	2.73E-03 5.53E-03	6.23E-04 1.26E-03	1.49E-02 3.03E-02	1.49E+00 3.03E+00	7.47E-04 1.52E-03	3.74E-04 7.58E-04
· .	Chromium unlisted cmpds (add w/chrom acid to get CRC) Chromic acid (VI) (component of solCR6 and CRC)	H/T	2.71E-04	6.50E-02	4.71E+00	2.36E-03	2.71E-04	6.50E-03	1.66E+00	8.28E-04	7.61E-04
	Cobalt unlisted compounds	Н	6.50E-06	1.56E-04	5.69E-02	2.85E-05	6.50E-06	1.56E-04 2.74E-02	1.56E-02 2.74E+00	7.80E-06 1.37E-03	3.90E-06 6.86E-04
	Cumene Ethyl benzene	H H	1.14E-03 6.41E-02	2.74E-02 1.54E+00	1.00E+01 5.61E+02	5.01E-03 2.81E-01	1.14E-03 6.41E-02	2.74E-02 1,54E+00	2.74E+00 1.54E+02	7.69E-02	3.84E-02
	Ethyl chloride (chloroethane)	н	2.18E-06	5.24E-05	1.91E-02	9.56E-06	2.18E-06	5.24E-05	5.24E-03	2.62E-06	1.31E-06
	Formaldehyde Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	H/T T	2.98E+00 3.25E-10	7.15E+01 7.80E-09	2.61E+04 2.85E-06	1.30E+01 1.42E-09	2.98E+00 3.25E-10	7.15E+01 7.80E-09	2.10E+04 7.80E-07	1.05E+01 3.90E-10	7.21E+00 1.95E-10
	Hexane, n-	H/T	2.39E-01	5.74E+00	2.10E+03	1.05E+00	2.39E-01	5.74E+00	5.74E+02	2.87E-01	1.44E-01
	Hydrogen Chloride (hydrochloric acid) Hydrogen Sulfide	H/T T	5.25E-02 1.37E-02	1.26E+00 3.28E-01	4.60E+02 1.20E+02	2.30E-01 5.99E-02	5.25E-02 1.37E-02	1.26E+00 3.28E-01	1.26E+02 3.28E+01	6.30E-02 1.64E-02	3.15E-02 8.21E-03
	Lead unlisted compounds	н Н	3.81E-03	9.14E-02	4.44E+01	2.22E-02	3.81E-03	9.14E-02	9.52E+00	4.76E-03	2.51E-03
	Manganese unlisted compounds	T	2.77E-03	6.64E-02	8.49E+01	4.24E-02 2.85E-03	2.77E-03 6.50E-04	6.64E-02 1.56E-02	1.20E+01 1.56E+00	5.99E-03 7.80E-04	4.65E-03 3.90E-04
	Mercury, vapor Methyl bromide	H/T H	6.50E-04 2.49E-04	1.56E-02 5.98E-03	5.69E+00 2.18E+00	2.85E-03 1.09E-03	6.50E-04 2.49E-04	5.98E-03	5.98E-01	2.99E-04	1.49E-04
	Methyl chloride	Н	1.56E-04	3.74E-03	1.37E+00	6.83E-04	1.56E-04	3.74E-03	3.74E-01	1.87E-04	9.36E-05
	Methyl chloroform Methyl ethyl ketone	H/T H/T	1.20E-02 6.70E-03	2.88E-01 1.61E-01	1.05E+02 5.87E+01	5.26E-02 2.93E-02	1.20E-02 6.70E-03	2.88E-01 1.61E-01	2.88E+01 1.61E+01	1.44E-02 8.04E-03	7.20E-03 4.02E-03
	Methylene chloride	H/T	8.27E-04	1.99E-02	7.25E+00	3.62E-03	8.27E-04	1.99E-02	7.20E+00	3.60E-03	2.54E-03
	Napthalene Nickel metal	H H/T	1.65E-01 1.59E-02	3.95E+00 3.83E-01	1.44E+03 1.46E+02	7.21E-01 7.30E-02	1.65E-01 1.59E-02	3.95E+00 3.83E-01	3.95E+02 3.95E+01	1.98E-01 1.97E-02	9.88E-02 1.03E-02
L	Nickel metal	117/1	1.39E-02	3.03E-01	1.905702	1.306-02	1.396-02	5,051-01	5.556101	1.5712-04	1.001-02

Carolina Sunrock

File:Sunrock Facility Wide & TAP summary 2020-01-22.xlsx Sheet:Emissions Summary

#### **Carolina Sunrock** Prospect Hill Quarry & Distribution Center

			Uncontrolled Potential Emissions				Controlled Potential Emissions				Potential Emissions w/ Synthetic Minor Limits****
Source Name	Pollutant	HAP/ TAP	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(lb/hr)	(lbs/day)	(lbs/yr)	(tons/yr)	(tons/yr)
	Perchloroethylene (tetrachloroethylene)	H/T	8.01E-05	1.92E-03	7.01E-01	3.51E-04	8.01E-05	1.92E-03	1.92E-01	9.61E-05	4.80E-05
	Phenol	H/T	1.99E-03	4.77E-02	1.74E+01	8.71E-03	1.99E-03	4.77E-02	1.10E+01	5.51E-03	3.64E-03
	Phosphorus Metal, Yellow or White	Н	7.47E-03	1.79E-01	7.64E+01	3.82E-02	7.47E-03	1.79E-01	2.09E+01	1.05E-02	6.26E-03
	Polycyclic Organic Matter	Н	2.20E-01	5.28E+00	1.93E+03	9.64E-01	2.20E-01	5.28E+00	5.28E+02	2.64E-01	1.32E-01
	Propionaldehyde	H ·	3.25E-02	7.80E-01	2.85E+02	1.42E-01	3.25E-02	7.80E-01	7.80E+01	3.90E-02	1.95E-02
	Quinone	Н	4:00E-02	9.60E-01	3.50E+02	1.75E-01	4,00E-02	9.60E-01	9.60E+01	4.80E-02	2.40E-02
	Selénium compounds	H	3.22E-04	7.73E-03	3.61E+00	1.80E-03	3.22E-04	7.73E-03	2.27E+00	1.13E-03	6.19E-04
	Styrene	H/T	1.21E-03	2.90E-02	1.06E+01	5.29E-03	1.21E-03	2.90E-02	9.04E+00	4.52E-03	3.13E-03
	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	H/T	5.25E-11	1.26E-09	4.60E-07	2.30E-10	5.25E-11	1.26E-09	1.26E-07	6.30E-11	3.15E-11
	Toluene	H/T	7.52E-01	1.81E+01	6.59E+03	3.29E+00	7.52E-01	1.81E+01 .	1.95E+03	9.76E-01	5.04E-01
	Trichloroethylene	H/T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Trichlorofluoromethane (CFC 111)	Τ·	1,35E-05	3.24E-04	1.18E-01	5.92E-05	1.35E-05	3.24E-04	3.24E-02	1.62E-05	8.11E-06
	Trimethylpentane, 2,2,4-	Н	1.00E-02	2.41E-01	8.78E+01	4.39E-02	1,00E-02	2.41E-01	2.41E+01	1.20E-02	6.02E-03
	Xylene	H/T,	6.04E-02	1.45E+00	5.29E+02	2.64E-01	6.04E-02	1.45E+00	1.45E+02	7.24E-02	3.62E-02
	Highest Single HAP (formaldehyde)		2.98E+00	7.15E+01	2.61E+04	1.30E+01	2.98E+00	7.15E+01	2.10E+04	10.51	7.21
	Total HAP		5.51E+00	1.32E+02	4.84E+04	2.42E+01	5.51E+00	1.32E+02	2.99E+04	14.96	9.78

\* Potential Controlled emissions from the hot mix asphalt plant, quarry, quarry generators, and large NG/Propane generators are based on the synthetic minor limit and not based on 8760 hr/yr of operation.
\*\* Criteria pollutant emissions from the asphalt cement heater are included in the Hot Mix Asphalt Plant Emissions since the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants was used (which incorporates criteria pollutant emissions for an asphalt cement heater).
\*\*\* Criteria and HAP/TAP pollutant emissions for the liquid asphalt tank heater are not included in the NCDEQ Emission Calculation Spreadsheet for Hot Mix Asphalt plants, therefore,

these emissions are calculated separately. \*\*\*\* Potential Emissions with Synthetic Minor Limits are explained and discussed in Section 2.3 of the application. HMA plant emissions are based on a maximum production limit of 600,000 tpy.