REGULATION 13 APPLICATION FOR RAVENSWOOD HMA PLANT #61 JACKSON COUNTY, WEST VIRGINIA

Prepared for:

Southern West Virginia Asphalt, Inc.
2950 Charles Avenue
Dunbar, West Virginia 25064

Prepared by:

Potesta & Associates, Inc.
7012 MacCorkle Avenue, SE
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Project No. 0101-17-0480

January 2018

POTESTA

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Attachments Not Applicable to this Application: Attachments H, M*, Q, R, and S.
* Information on the inertial separator and baghouse included in Attachment L.

SECTION I - III

GENERAL APPLICANT INFORMATION

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Southern West Virginia Asphalt, Inc.

2. Federal Employer ID No. ***(FEIN):***
55-0714092

3. Name of facility *(if different from above):*
Ravenswood HMA Plant #61

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
2950 Charles Avenue
Dunbar, West Virginia 25064

5B. Facility's present physical address:
Dale, Indiana

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

➪ If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

➪ If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: Oldcastle Materials

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

➪ If **YES,** please explain: Applicant is leasing the site.

➪ If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Hot Mix Asphalt Plant

10. North American Industry Classification System **(NAICS)** code for the facility:
324121

11A. DAQ Plant ID No. (for existing facilities only):
Not applicable

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
Not applicable

All of the required forms and additional information cn be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- ➪ For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- ➪ For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

From I-77 North, take Exit 146 and take ramp right toward WV-2 South/US-33 West. Go 0.2 mile and turn left onto US-33/WV-2. Go 2.4 miles and turn right onto US-33/WV-68/Washington Street. Go 1.1 miles and turn left onto Sycamore Street. Go one block and, at Race street, turn left, then take an immediate right back onto Sycamore Street. Go straight across railroad tracks and turn into the Martin Marietta Materials Ravenswood Yard on the right.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
105 Sycamore Street	Ravenswood	Jackson
12.E. UTM Northing (KM): 4,311.490	12F. UTM Easting (KM): 433.620	12G. UTM Zone: 17S

13. Briefly describe the proposed change(s) at the facility:
New facility.

14A. Provide the date of anticipated installation or change: 04/01/2018 ➪ If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen:	14B. Date of anticipated Start-Up if a permit is granted: 05/01/2018

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 6 Weeks Per Year 45
*The FRAP system will operate no more than 504 hours per year at this facility.

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

➪ Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

➪ Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

➪ For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☒ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☒ Hot Mix Asphalt Plant	☒ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	
☐ General Emission Unit, specify	☒ Engine	

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☒ Baghouse **Included in HMA EUDS**	☐ Flare
☐ Adsorption Systems	☐ Condenser	☒ Mechanical Collector **Included in HMA EUDS**
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

- Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

- If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below: Not required.

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, *the undersigned hereby certify* that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Bob Brookover *(Please use blue ink)* DATE: 1-15-18 *(Please use blue ink)*

35B. Printed name of signee: Bob Brookover		35C. Title: Vice President
35D. E-mail: bbrookover@wvpaving.com	36E. Phone: 304-768-9733	36F. FAX: 304-720-6492
36A. Printed name of contact person (if different from above): Same		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☐ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

ATTACHMENT A

BUSINESS CERTIFICATE

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
SOUTHERN WEST VIRGINIA ASPHALT INC
651 EWART AVE
BECKLEY, WV 25801-3416

BUSINESS REGISTRATION ACCOUNT NUMBER: **1041-9335**

This certificate is issued on: 07/19/2011

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

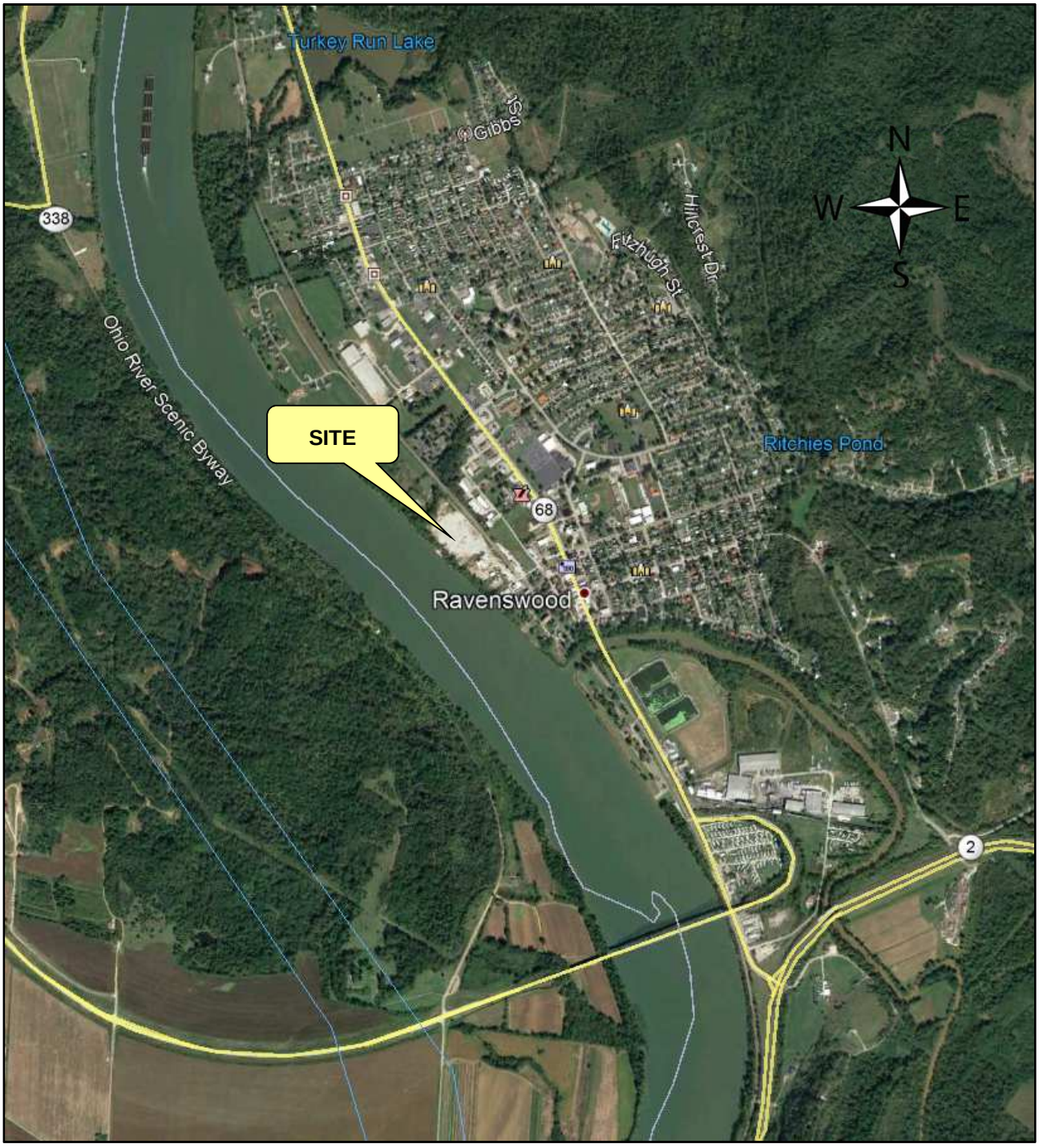
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4
L0738230912

ATTACHMENT B

AREA MAP



Potesta & Associates, Inc 7012 MacCorkle Avenue, SE Charleston, WV 25304 Phone: (304) 342-1400 Fax: (304) 343-9031 E-mail: potesta@potesta.com	**Attachment B** **Area Map**	Southern West Virginia Asphalt, Inc. Ravenswood HMA Plant #61, Jackson County, West Virginia Project No. 0101-17-0480

ATTACHMENT C

INSTALLATION AND START UP SCHEDULE

ATTACHMENT C

SCHEDULE OF INSTALLATION

The company proposes to begin installation of the plant around April 1, 2018. This is a portable plant, so it will take approximately one month to install the equipment and operations are scheduled to begin May 1, 2018.

ATTACHMENT D

REGULATORY DISCUSSION

ATTACHMENT D

REGULATORY DISCUSSION

The facility is subject to the following regulations:

A. 45CSR3 – "To Prevent and Control Particulate Air Pollution from the Operation of Hot Mix Asphalt Plants".

B. 45CSR13 – "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation".

C. 45CSR16 – "Standards of Performance for Stationary Sources," which incorporates by reference 40CFR60 Subpart I, "Standards of Performance for Hot Mix Asphalt Facilities", and 40CFR60 Subpart OOO, "Standards of Performance for Non-Metallic Mineral Processing Plants".

D. 45CSR22 – "Air Quality Management Fee Program".

E. 45CSR30 – "Requirements for Operating Permits" (Deferred Source). The facility potential to emit does not exceed 100 tons per year (tpy) of a regulated air pollutant or 10 tpy of a single HAP or 25 tpy of aggregated HAPs.

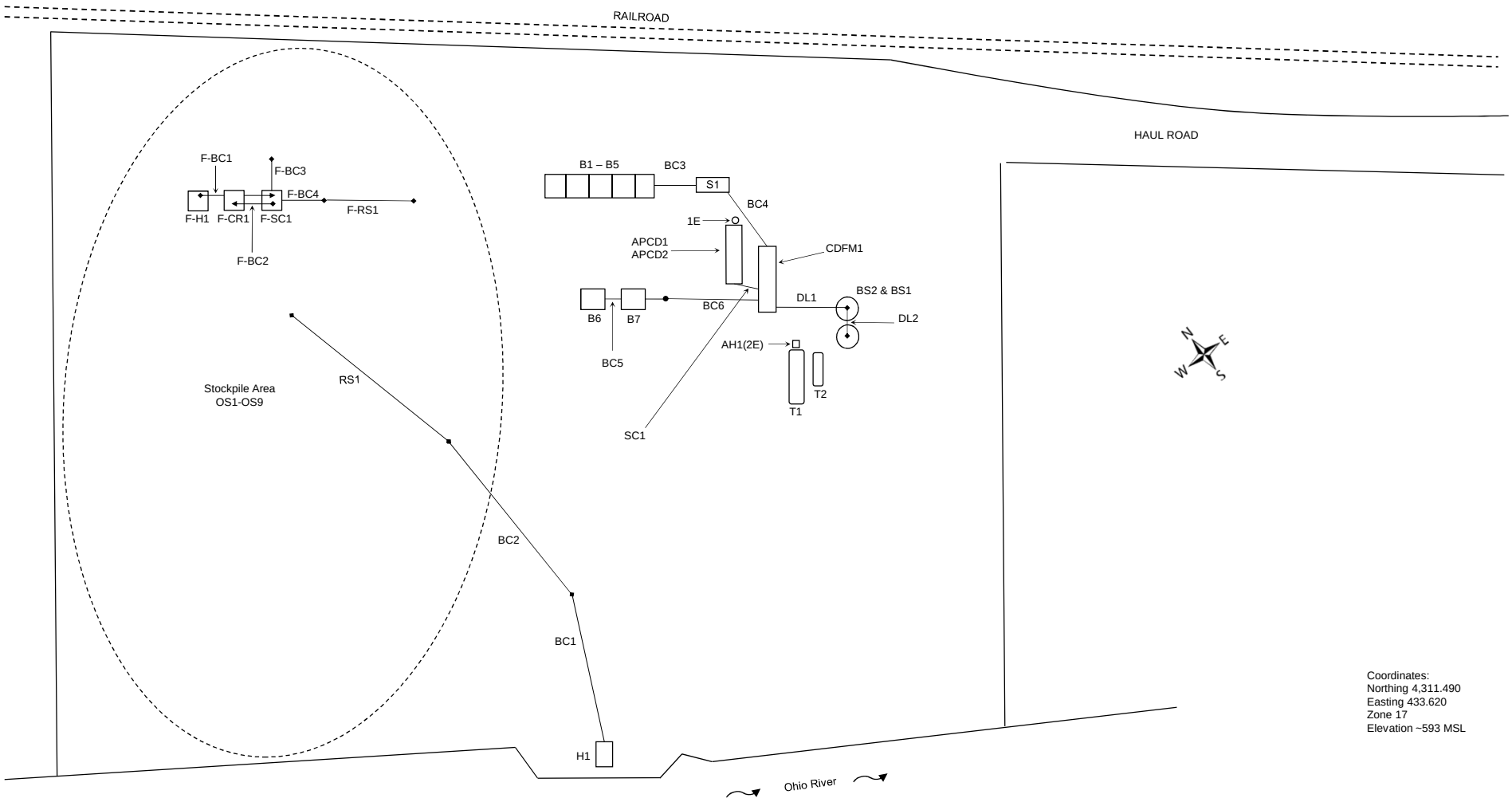
Notes:

FRAP System Engine: F-ENG1 is mounted on the ASTEC ProSizer 3100 portable screen/crusher and powers that equipment. The ProSizer is portable/transportable, as indicated by its wheels, and is hauled by a semi-tractor from one HMA plant to another throughout the year to process recycled asphalt pavement. The ProSizer will operate at this location for no more than 500 hours per year. The ProSizer engine F-ENG1 is a non-road RICE because it is portable or transportable, and will not be located at a single location at a facility for 12 consecutive months or longer. Therefore F-ENG1 is not subject to 40CFR63, Subpart ZZZZ, 40CFR60, Subpart IIII or 45CSR13. Nevertheless, information on this engine, including its potential emissions, has been provided in this application at the request of the Division of Air Quality (DAQ).

Hot Oil Heater AH1: The DAQ "Policy on Regulations 2 and 10 Record Keeping and Reporting Requirements", exempts fuel burning units less than 10 million BTUs from the provisions of 45CSR2 and 45CSR10 as detailed in §45-2-11 and §45-10-9, and from the reporting and record keeping guidance found within the policy.

ATTACHMENT E

PLOT PLAN



Coordinates:
Northing 4,311.490
Easting 433.620
Zone 17
Elevation ~593 MSL

POTESTA
Engineers and Environmental Consultants

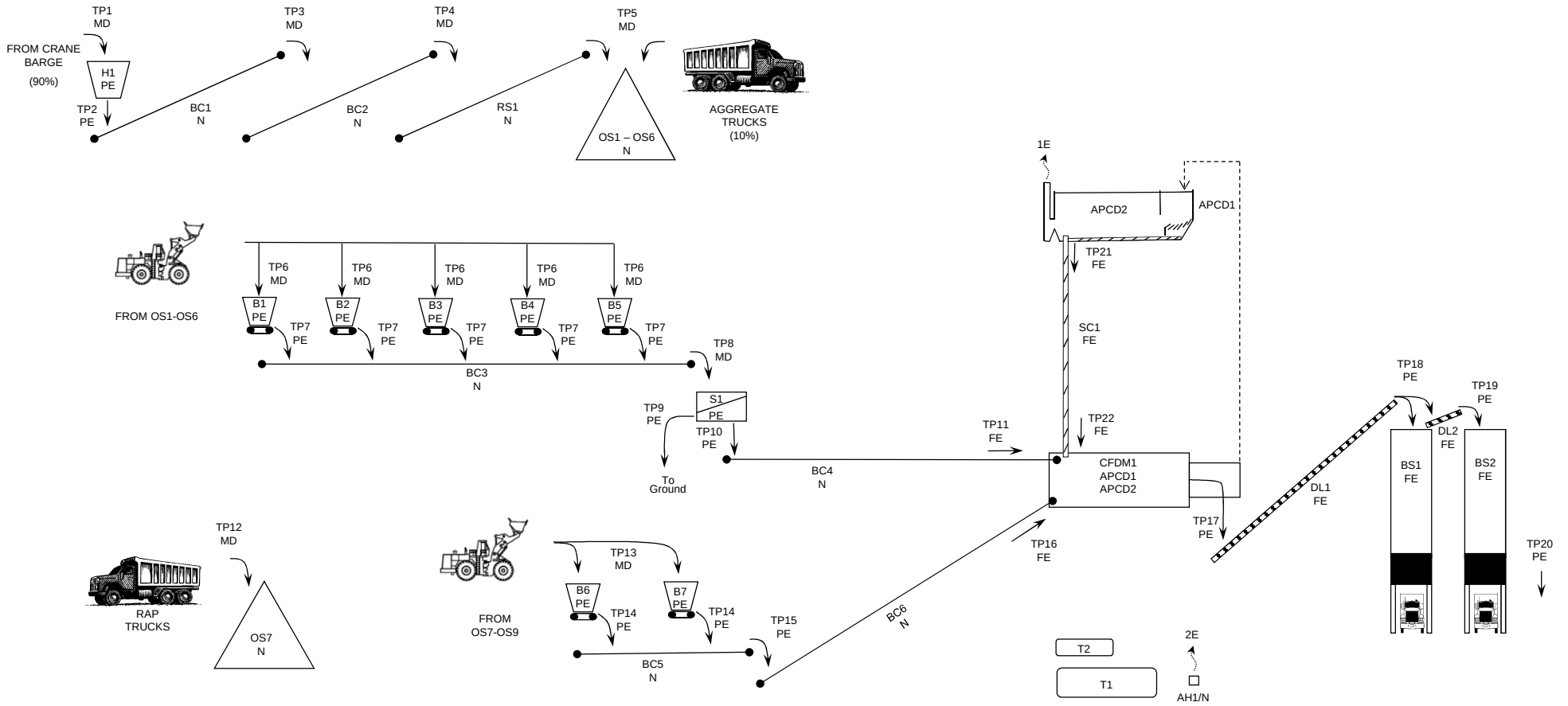
7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

PLOT PLAN
SOUTHERN WEST VIRGINIA ASPHALT, INC.
RAVENSWOOD HMA PLANT #61
JANUARY 2018 **NOT TO SCALE**

Project No. 0101-17-0480
Prepared by LKB

ATTACHMENT F

DETAILED PROCESS FLOW DIAGRAM

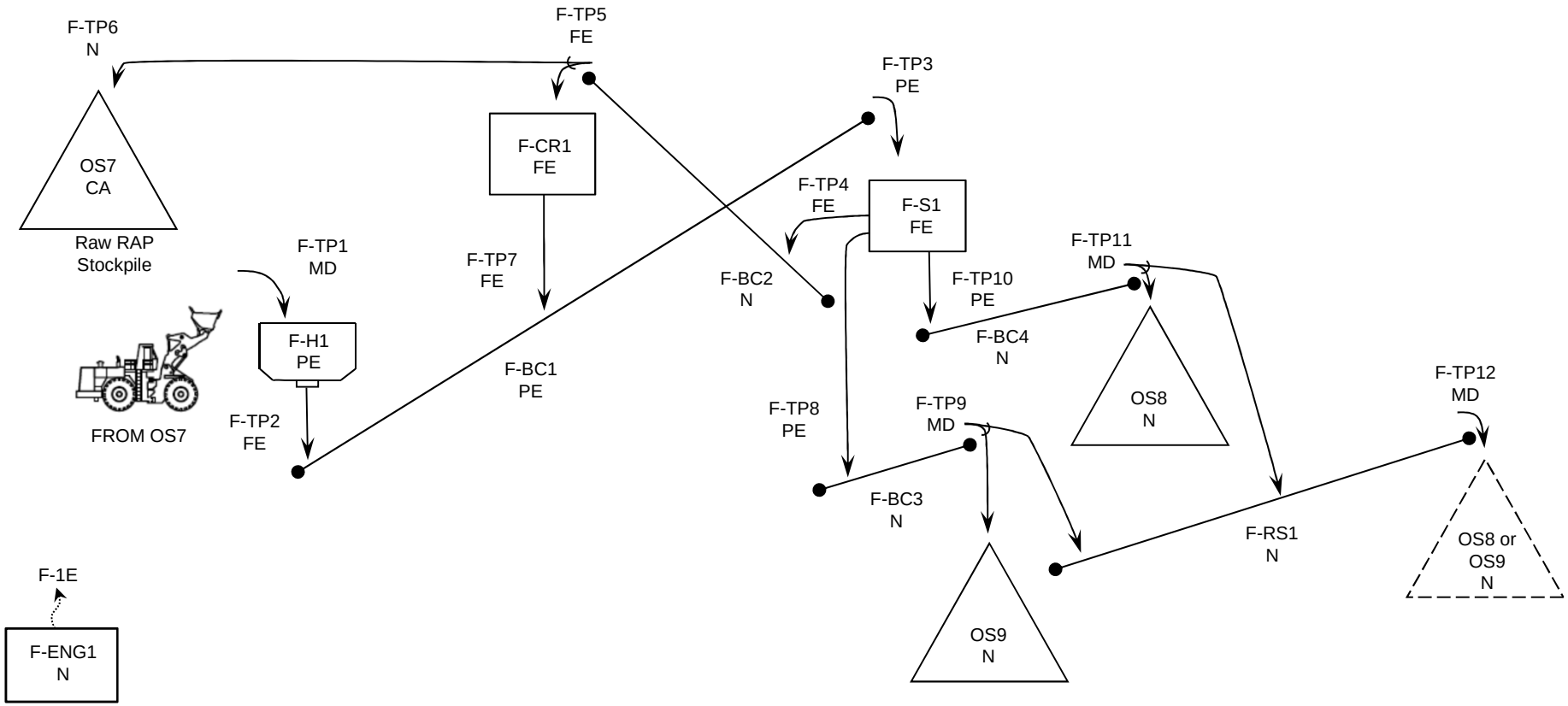


POTESTA
Engineers and Environmental Consultants

7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

PROCESS FLOW DIAGRAM 1
SOUTHERN WEST VIRGINIA ASPHALT, INC.
HMA PLANT #61 - RAVENSWOOD WV
JANUARY 2018

Project No. 0101-17-0480
Prepared by LKB



Notes: F-RS1 will be fed by F-BC3 or F-BC4 at any given time, not both at the same time.

POTESTA
Engineers and Environmental Consultants

7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

PROCESS FLOW DIAGRAM 2
SOUTHERN WEST VIRGINIA ASPHALT, INC.
HMA PLANT #61 - RAVENSWOOD
January 2018

Project No. 0101-17-0480
Prepared by: LKB

ATTACHMENT G

PROCESS DESCRIPTION

ATTACHMENT G

PROCESS DESCRIPTION

Aggregates (sand, slag sand, and limestone) are delivered to the site by barge (90 %) or by truck (10 %). Materials shipped by barge are unloaded by a crane barge that deposits material into a hopper H1/PE (TP1/MD). Material drops from the hopper onto a conveyor belt, BC1/N (TP2/PE). BC1/N transfers material to conveyor belt BC2/N (TP3/MD), which then transfers material to a radial stacker RS1/N (TP4/MD). The radial stacker transfers material to open stockpiles OS1/N through OS6/N (TP5/MD). Materials shipped by truck are directly transferred to OS1/N through OS6/N (TP5/MD). Recycled asphalt pavement (RAP) is trucked to the site and directly transferred to stockpile OS7/CA (TP12/CA).

Aggregates from OS1/N through OS6/N are transferred by a front-end loader to cold feed bins B1/PE through B5/PE (TP6/MD). From the bins, material is transferred by belt feeders to a collector conveyor belt BC3/N (TP7/PE). The collector conveyor belt feeds an in-line dual screen scalping screen S1/PE (TP8/MD). Oversized material drops to the ground (TP9/PE) and properly sized material drops onto conveyor belt BC4/N (TP10/PE) which feeds the counterflow drum mixer CFDM1/APCD1 & APCD2 (TP11/FE). Only one screen is used at a time on the scalping screen. When the upper screen is not in use, a section of the screen is lifted to allow material to freely pass to the lower screen.

RAP from OS7/CA can be transferred by front-end loader directly to one of two RAP bins B6/PE or B7/PE (TP13/MD). The RAP drops from bin B6/PE or B7/PE onto conveyor belt BC5/N (TP14/PE) and then onto conveyor belt BC6/N (TP15/PE), which feeds the counterflow drum mixer CFDM1/APCD1 & APCD2 (TP16/FE).

Liquid asphaltic cement from T1 is piped to CFDM1/APCD1 & APCD2, where the various materials are mixed to form hot mix asphalt (HMA). The CFDM1 burner is fired with natural gas.

Once mixed, the HMA leaves the drum and drops onto drag link conveyor DL1/FE (TP17/PE). HMA leaving the drag link conveyor DL1/FE drops into asphalt silo BS1/FE or onto drag link conveyor DL2/FE (TP18/PE). From drag link conveyor DL2/FE, asphalt drops into asphalt silo BS2/FE (TP19/PE). The HMA is transferred to trucks via the truck load-outs at the base of each of the silos (TP20/PE) and is shipped offsite.

Emissions from CFDM1 are vented to the inertial separator APCD1 and baghouse APCD2 and are vented to the atmosphere through emissions point 1E. Collected particulate matter is returned to CFDM1/APCD1 & APCD2 via auger SC1/FE (TP21/FE and TP22/FE), where it becomes part of the product.

Asphaltic cement is trucked to the site and stored in heated tank T1, which is heated via a natural gas-fired asphalt heater AH1/N (2E). Number 2 fuel oil for use in the endloader and portable FRAP engine is trucked to the site and stored in tank T2. Natural gas is piped to the facility.

FRAP System

RAP from OS7/CA can also be transferred by front-end loader to the hopper F-H1/PE (F-TP1/CA) on the portable fractionated RAP system. The hopper feeds belt conveyor F-BC1/PE (F-TP2/FE), which transports the RAP to the double-deck screen F-S1/FE (F-TP3/PE). Oversized material is fed to belt conveyor F-BC2/N (F-TP4/FE), which transports the material to the horizontal shaft impactor F-CR1/FE (F-TP5/FE). The material drops from the crusher onto belt conveyor F-BC1/PE (F-TP7/FE), which transports it back to the screen. The crusher can also be arranged so that oversized material from the screen bypasses the crusher and returns to the RAP stockpile OS7/CA (F-TP6/N).

The smaller fractions from the screen are discharged to belt conveyors F-BC3/N (F-TP8/PE) and F-BC4/N (F-TP10/PE). F-BC3/N and F-BC4/N can transfer material directly to the sized RAP stockpiles OS9/N (F-TP9/MD) and OS8/N (F-TP11/MD) or to radial stacker F-RS1/N (F-TP9/MD or F-TP11/MD). The radial stacker is only fed by one of the belt conveyors F-BC3/N or F-BC4/N at any given time. Material from F-RS1/N is transferred to OS8/N or OS9/N (F-TP12/MD). From stockpiles OS8/N and OS9/N, materials are transferred via end loader to one of the stationary RAP bins B6/PE or B7/PE (TP13/MD).

ATTACHMENT I

EMISSION UNITS TABLE

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
H1	H1	Aggregate Hopper	2018	300 tph	New	PE
OS1	OS1	Aggregate Stockpile	2018	300 tph	New	N
OS2	OS2	Aggregate Stockpile	2018	300 tph	New	N
OS3	OS3	Aggregate Stockpile	2018	300 tph	New	N
OS4	OS4	Aggregate Stockpile	2018	300 tph	New	N
OS5	OS5	Aggregate Stockpile	2018	300 tph	New	N
OS6	OS6	Aggregate Stockpile	2018	300 tph	New	N
OS7	OS7	RAP Stockpile	2018	300 tph	New	N
OS8	OS8	RAP Stockpile	2018	300 tph	New	N
OS9	OS9	RAP Stockpile	2018	300 tph	New	N
BC1	BC1	Conveyor Belt	2018	300 tph	New	N
BC2	BC2	Conveyor Belt	2018	300 tph	New	N
RS1	RS1	Radial Stacker	2018	300 tph	New	N
B1	B1	Cold Feed Bin	2018	300 tph	New	PE
B2	B2	Cold Feed Bin	2018	300 tph	New	PE
B3	B3	Cold Feed Bin	2018	300 tph	New	PE
B4	B4	Cold Feed Bin	2018	300 tph	New	PE
B5	B5	Cold Feed Bin	2018	300 tph	New	PE
BC3	BC3	Collector Conveyor Belt	2018	300 tph	New	N
S1	S1	Scalping Screen	2018	300 tph	New	PE
BC4	BC4	Conveyor Belt	2018	300 tph	New	N
CFDM1	1E	Counterflow Drum Mixer	2018	300 tph	New	APCD1 & APCD2
B6	B6	RAP Bin	2018	300 tph	New	PE

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Note: PF = Process Fugitive Emissions, OD = Open Dust Emissions

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
B7	B7	RAP Bin	2018	300 tph	New	PE
BC5	BC5	Conveyor Belt	2018	300 tph	New	N
BC6	BC6	Conveyor Belt	2018	300 tph	New	N
DL1	DL1	Drag Link Conveyor	2018	300 tph	New	FE
DL2	DL2	Drag Link Conveyor	2018	300 tph	New	FE
BS1	BS1	HMA Storage Silo	2018	200 tons	New	FE
BS2	BS2	HMA Storage Silo	2018	200 tons	New	FE
T1	T1	Asphaltic Cement Tank	2018	30,000 gal.	New	N
T2	T2	Diesel Fuel Tank	2018	1,000 gal.	New	N
AH1	2E	Asphalt Heater	2018	NA	New	N
F-H1	F-H1	Portable FRAP Feed Hopper	2018	200 tph	Portable equipment that will be brought to this site for the first time in 2018.	PE
F-BC1	F-BC1	Portable FRAP Belt Conveyor	2018	300 tph		PE
F-S1	F-S1	Portable FRAP Screen	2018	200 tph		FE
F-BC2	F-BC2	Portable FRAP Belt Conveyor	2018	75 tph		N
F-CR1	F-CR1	Portable FRAP Crusher	2018	75 tph		FE
F-BC3	F-BC3	Portable FRAP Belt Conveyor	2018	200 tph		N
F-BC4	F-BC4	Portable FRAP Belt Conveyor	2018	200 tph		N
F-RS1	F-RS1	Portable FRAP Radial Stacker	2018	200 tph		N
F-ENG1*	F-1E	FRAP Engine	2018	9.28 gal/hr		N

* This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore no subject to 45CSR13. This information is being provided by request of DAQ.

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Note: PF = Process Fugitive Emissions, OD = Open Dust Emissions

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEET

Attachment J – Emission Points Data Summary Sheet

Table 1: Emissions Data															
Emission Point ID No. *(Must match Emission Units Table-& Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m[4])
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
IE	UVS	CFDM1	Counter Flow Drum Mixer	APCD1 APDC2	Inertial Separator Baghouse	NA	NA	PM PM10 PM2.5 SOx NOx CO VOC HCl HAPS-VOC* HAPS-Metal*	3,582.0 823.86 197.01 17.40 16.50 39.00 9.60 0.06 3.11 0.373	1,194.0 274.62 65.67 5.80 5.50 13.00 3.20 0.02 1.04 0.0126	17.91 4.12 4.12 17.40 16.50 39.00 9.60 0.06 3.11 0.373	5.97 1.37 1.37 5.80 5.50 13.00 3.20 0.02 1.04 0.0126	Solid Solid Solid Vapor Vapor Vapor Vapor Mist Vapor Solid	EE	NA
2E	UVS	AH1	Hot Oil Heater	NA	NA	NA	NA	PM PM10 PM2.5 SOx NOx CO VOC HAPS*	0.01 0.01 0.01 0.001 0.14 0.11 0.01 0.00255	0.04 0.04 0.04 0.003 0.51 0.43 0.03 0.00963	0.01 0.01 0.01 0.001 0.14 0.11 0.01 0.00255	0.04 0.04 0.04 0.003 0.51 0.43 0.03 0.00963	Solid Solid Solid Vapor Vapor Vapor Vapor Vapor	EE	NA
S1	NA	SI	Scalping Screen	PE	Partial Enclosure	NA	NA	PM PM10 PM2.5	7.50 2.61 0.54	2.5 0.87 0.18	3.75 1.31 0.27	1.25 0.44 0.09	Solid Solid Solid	EE	NA
TP1 to TP16, TP21, T22	NA	TP1 to TP16, TP21, TP22	Transfer Points	Various	Various	NA	NA	PM PM10 PM2.5	10.14 4.83 0.72	3.38 1.61 0.24	7.24 3.45 0.52	2.44 1.16 0.17	Solid Solid Solid	EE	NA
TP17 to TP19	NA	TP17 to TP19	Silo Filling	Various	Various	NA	NA	PM PM10 PM2.5 VOC CO HAPS*	0.54 0.12 0.03 10.98 1.05 0.143	0.18 0.03 0.01 3.66 0.36 0.048	0.27 0.06 0.02 10.98 1.05 0.143	0.09 0.02 0.01 3.66 0.36 0.048	Solid Solid Solid Vapor Vapor Vapor	EE	NA

* See Attachment N for speciation of VOCs and HAPs

** This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore not subject to 45CSR13. This information is being provided by request of DAQ.

Table 1: Emissions Data (continued)

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
TP20	NA	TP41	HMA Loadout	Various	Various	NA	NA	PM PM10 PM2.5 VOC CO HAPS*	0.16 0.04 0.04 1.17 0.40 0.019	0.05 0.01 0.01 0.39 0.13 0.006	0.08 0.02 0.01 1.17 0.40 0.019	0.03 0.01 0.01 0.39 0.13 0.006	Solid Solid Solid Vapor Vapor Vapor	EE	NA
F-1E**	UVS	F-ENG1	Non-road Engine	NA	NA	NA	NA	PM PM10 PM2.5 SOx NOx CO VOC HAPS*	0.40 0.40 0.40 0.37 5.65 1.22 0.46 0.0049	0.10 0.10 0.10 0.09 1.41 0.31 0.12 0.001	0.40 0.40 0.40 0.37 5.65 1.22 0.46 0.0049	0.10 0.10 0.10 0.09 1.41 0.31 0.12 0.001	Solid Solid Solid Vapor Vapor Vapor Vapor Vapor	EE	NA
F-S1	NA	F-S1	FRAP Screen	FE	Full Enclosure	NA	NA	PM PM10 PM2.5	5.00 1.74 0.36	0.63 0.22 0.05	1.00 0.35 0.07	0.13 0.04 0.01	Solid Solid Solid	EE	NA
F-CR1	NA	CR1	FRAP Crusher	FE	Full Enclosure	NA	NA	PM PM10 PM2.5	0.15 0.08 0.02	0.02 0.01 0.01	0.08 0.04 0.01	0.01 0.01 0.01	Solid Solid Solid	EE	NA
F-TP1 to F-TP12	NA	F-TP1 to F-TP12	Portable RAP System	Various	Various	NA	NA	PM PM10 PM2.5	4.00 1.90 0.29	0.48 0.23 0.03	2.64 1.26 0.19	0.35 0.17 0.03	Solid Solid Solid	EE	NA

* See Attachment N for speciation of HAPs

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS2, VOCs, H2S, Inorganics, Lead, Organics, O3, NO, NO2, SO2, SO3, all applicable Greenhouse Gases (including CO2 and methane), etc. DO NOT LIST H2, H2O, N2, O2, and Noble Gases.

4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

6 Indicate the method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO2, use units of ppmv (See 45CSR10).

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^oF)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
1E	NAv	220-365	52,264	NAv	~590 ft.	NAv	4,311.490	433.620
2E	NAv	NAv	NAv	NAv	~590 ft.	NAv	4,311.490	433.620
F-1E	NAv	NAv	NAv	NAv	~590 ft.	NAv	4,311.490	433.620

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

ATTACHMENT K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Attachment K – Fugitive Emissions Data Summary Sheet

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☒ Yes ☐ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☒ Yes ☐ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☐ Yes ☒ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered “NO” to all of the items above, it is not necessary to complete the following table, “Fugitive Emissions Summary.”

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM PM10 PM2.5	NA	NA	NA	NA	EE
Unpaved Haul Roads	PM PM10 PM2.5	252.26 74.40 7.50	60.90 17.96 1.81	63.06 18.60 1.88	15.23 4.49 0.46	EE
Storage Pile Emissions	PM PM10 PM2.5	0.024 0.011 0.010	0.100 0.048 0.010	0.024 0.011 0.010	0.100 0.048 0.010	EE
Loading/Unloading Operations	NA					
Wastewater Treatment Evaporation & Operations	NA					
Equipment Leaks	NA					
General Clean-up VOC Emissions	NA					
Other	NA					

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT L

EMISSION UNIT DATA SHEETS

HMA PLANT PRODUCTION AFFECTED SOURCE SHEET

General HMA Plant Information	Source Identification Number[1]	CFDM1
	Manufacturer & Model Number	Dillman D-PUCF9050
	Date of Manufacture	6/28/2016
	Plant Type[2]	CFDM
	Max Production Rate (ton/hour)	300
	Max Yearly Production (tons/year)	200,000
	Annual Operation (hours/year)	7,560
Batch Plant Information	Tons per Batch	NA
	Batches per Hour	NA
Drum Mixer Information	Drum Length (ft)	50
	Drum Diameter (ft)	7.5
Burner, Fuel & Combustion Data	Burner Manufacturer & Model Number	ASTEC WJ-75-O
	Design Heat Input (mmBTU/hour)	75
	Excess Air (%)	20
	Fuel Type[3]	PNG
	Maximum Fuel Usage[4]	73,000 SCF/hr
	Fuel Heating Value[5]	1,028 Btu/SCF
	Maximum Sulfur Content (%)	20 gr/100 SCF
	Maximum Ash Content (%)	NA

1. Enter the appropriate Source Identification Number for each rotary dryer or drum mixer. Batch plant rotary dryer should be designated BPRD-1, parallel flow drum mixer designated PFDM-1, and counterflow drum mixer designated CDFM-1, etc.

2. Enter the Plant Type designation using the following codes:

Batch	Batch Plant	PFDM	Parallel Flow Drum Mix Plant
CFDM	Counterflow Drum Mix Plant	CNMX	Continuous Mix Plant
COMB	Combination Batch/Drum Mix Plant		

3. Enter the Fuel Type(s) using the following code:

PNG	Pipeline Quality Natural Gas	#2FO	Number 2 Fuel Oil
UO	Used or Recycled Oil		

4. Enter the maximum fuel use in standard cubic feet per hour (natural gas) or gallons per hour (fuel oil). List appropriate units.

5. Enter the Fuel heating value in Btu per standard cubic foot (natural gas) or Btu per gallon (fuel Oil). List appropriate units.

AIR POLLUTION CONTROL DEVICE AFFECTED SOURCE SHEET

HMA PLANT AIR POLLUTION CONTROL DEVICE DATA SHEET		PRIMARY COLLECTION (INERTIAL SEPARATOR)	SECONDARY COLLECTION (BAGHOUSE)
General Information	APCD Identification Number[1]	APCD1	APCD2
	Manufacturer & Model Number	No separate model number	ASTEC PEBH-52
Physical Parameters	Number of Cylinders		
	Number of Compartments	1 compartment, 7 baffles	1 compartment, 1,152 bags
	Cylinder Diameter (ft)		
	Cylinder Length (ft)		
	Cone Length (ft)		
	Gas Inlet Area (ft)		NAv
	Gas Outlet Area (ft)		NAv
	Bag Cleaning Mechanism[2]		Pulse jet
	Total Cloth (fabric) Area (ft^2)		13,949
	Draft Fan HP		200
	Outlet Stack Area (ft^2)		10.6145
Operational Parameters	Minimum Design ΔP (in H20)		2
	Maximum Design ΔP (in H20)		6
	Inlet Gas Flow Rate (ACFM)		52,264
	Inlet Gas Temperature (°F)		220-365
	Inlet Gas Pressure (PSIA)		Varies, typically ~4 in. WC
	Inlet Gas Velocity (ft/sec)		Up to 50.0
	PM Inlet Rate (grains/ACF)		48.7 (based on maximum air flow)
	PM Outlet Rate (grains/ACF)		0.04*
	Operating Air/Cloth Ratio (ft/min)		5.5

1. Enter the appropriate Air Pollution Control Device Identification Number for the primary and secondary collectors. The primary collector should be designated APCD-1 and the secondary collector designated APCD-2. If the secondary collector incorporates a knockdown or settling chamber and combines the functions of a primary and secondary collector, enter NONE for the primary collector APCD identification number and designate the secondary collector APCD-1.

2. Enter method used to clean bags: shaker, pulse jet, reverse jet or other.

* Emission limit from 40CFR60, Subpart I.

HMA PLANT PARTICULATE MATTER CAPTURE SYSTEM AFFECTED SOURCE SHEET

Pursuant to Section 2.3.5 of General Permit G-20B and 45CSR3, the registrant shall not cause, allow or permit a hot mix asphalt plant to operate that is not equipped with a particulate matter capture system. Such systems and devices shall be designed, operated and maintained in such a manner as to prevent the emission of particulate matter from any point other than a stack outlet.

A particulate matter capture system shall be used to confine, collect and transport particulate matter from dryers, hot elevators, screens, drum mixers, pugmills, weigh hoppers, hot bins and related components to air pollution control devices. Particulate matter capture systems shall include but not be limited to hoods, bins, ductwork, enclosures, air pollution control devices and fans.

Provide a written description of the hot mix asphalt plant's particulate matter capture system below:

The particulate matter capture system is comprised of an inertial separator, baghouse; exhaust fans, motors, and ducting. The particulates pass from the dryer through the ductwork and into the inertial separator located at the front end of the baghouse where the larger particles are pulled out of the air stream to the bottom of the baghouse. The airflow continues into the baghouse where the remaining fines are captured by the bags and released by pulse jet air to the bottom of the baghouse. The fines and large particles are returned to the drum mixer through an auger system and become part of the final product.

HMA PLANT MATERIAL STORAGE & HANDLING
AFFECTED SOURCE SHEET

Source Identification Number[1]	H1	OS1	OS2	OS3	OS4	OS5
Material Stored[2]	Aggregates	Slag sand	Limestone Sand	#8 Limestone	#8 Limestone	#67 Limestone
Maximum Yearly Throughput (tons/year)[3]	200,000	30,000	4,000	50,000	50,000	100,000
Typical Moisture Content (%)[4]	3-7	7	7	3	3	3
Average % of Material Passing Through 200 Mesh Sieve[5]	1-6	6	6	1	1	1
Maximum Stockpile Base Area (ft^2)[6]		479	479	958	958	958
Maximum Stockpile Height (ft)[7]		25	25	50	50	50
Maximum Storage Capacity (tons)[8]	200	5,000	5,000	20,000	20,000	20,000
Dust Control Method Applied to Storage[9]	PE	N	N	N	N	N
Method of Material Load-in to Bin or Stockpile[10]	CS	MC/TD	MC/TD	MC/TD	MC/TD	MC/TD
Dust Control Method Applied During Load-in[11]	MD	MD	MD	MD	MD	MD
Method of Material Load-out from Bin or Stockpile[10]	SS	FE	FE	FE	FE	FE
Dust Control Method Applied During Load-out[11]	PE	MD	MD	MD	MD	MD

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes four open stockpiles and one storage silo, the Source Identification Numbers should be OS-1, OS-2, OS-3, and OS-4; and BS-1, respectively.
   - OS Open Stockpile
   - BS Bin or Storage Silo (full enclosure)
   - SF Stockpiles with wind fences
   - E3 Enclosure (three-sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other (please specify)
2. Describe the type of material stored or stockpiled.
3. Enter the maximum yearly storage throughput for each storage activity.
4. Enter the average percent moisture content of the stored material.
5. Enter the average percent of material that will pass through a 200 mesh sieve.
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.).
9. Enter the dust control method applied to storage activity using the following codes:
   - CA Crusting Agent
   - FE Full Enclosure
   - OT Other _____ (please specify)
   - WS Water Spray
   - NO None
10. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
    - FE Front Endloader
    - ST Stacking Tube
    - CS Clamshell
    - OT Other _____ (please specify)
    - SS Stationary Conveyor/Stacker
    - MC Mobile Conveyor/Stacker
    - TD Truck Dump
11. Enter the dust control method applied during load-in or load-out using the following codes:
    - CA Crusting Agent
    - FE Full Enclosure
    - ST Stacking Tube
    - WS Water Spray
    - MD Minimize Drop Height
    - NO None

HMA PLANT MATERIAL STORAGE & HANDLING
AFFECTED SOURCE SHEET

Source Identification Number[1]	OS6	OS7	OS8	OS9	B1	B2
Material Stored[2]	467's Limestone	RAP	RAP	RAP	Aggregates	Aggregates
Maximum Yearly Throughput (tons/year)[3]	50,000	50,000	50,000 combined		200,000 combined	
Typical Moisture Content (%)[4]	3	3	3	3	3-7	3-7
Average % of Material Passing Through 200 Mesh Sieve[5]	1	1	1	1	1-6	1-6
Maximum Stockpile Base Area (ft^2)[6]	958	4,790	4,790	4,790		
Maximum Stockpile Height (ft)[7]	50	25	25	25		
Maximum Storage Capacity (tons)[8]	20,000	50,000	50,000	50,000	20	20
Dust Control Method Applied to Storage[9]	N	N	N	N	PE	PE
Method of Material Load-in to Bin or Stockpile[10]	MC/TD	TD	MC	MC	FE	FE
Dust Control Method Applied During Load-in[11]	MD	MD	MD	MD	MD	MD
Method of Material Load-out from Bin or Stockpile[10]	FE	FE	FE	FE	OT-BF	OT-BF
Dust Control Method Applied During Load-out[11]	MD	MD	MD	MD	PE	PE

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes four open stockpiles and one storage silo, the Source Identification Numbers should be OS-1, OS-2, OS-3, and OS-4; and BS-1, respectively.
   - OS Open Stockpile
   - BS Bin or Storage Silo (full enclosure)
   - SF Stockpiles with wind fences
   - E3 Enclosure (three-sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other _____ (please specify)
2. Describe the type of material stored or stockpiled.
3. Enter the maximum yearly storage throughput for each storage activity.
4. Enter the average percent moisture content of the stored material.
5. Enter the average percent of material that will pass through a 200 mesh sieve.
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.).
9. Enter the dust control method applied to storage activity using the following codes:
   - CA Crusting Agent
   - FE Full Enclosure
   - OT Other _____ (please specify)
   - WS Water Spray
   - NO None
10. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
    - FE Front Endloader
    - ST Stacking Tube
    - CS Clamshell
    - OT Other BF-Belt Feeder (please specify)
    - SS Stationary Conveyor/Stacker
    - MC Mobile Conveyor/Stacker
    - TD Truck Dump
11. Enter the dust control method applied during load-in or load-out using the following codes:
    - CA Crusting Agent
    - FE Full Enclosure
    - ST Stacking Tube
    - OT Other _____ (please specify)
    - WS Water Spray
    - MD Minimize Drop Height
    - NO None

HMA PLANT MATERIAL STORAGE & HANDLING
AFFECTED SOURCE SHEET

Source Identification Number[1]	B3	B4	B5	B6	B7	BS1
Material Stored[2]	Aggregates	Aggregates	Aggregates	RAP	RAP	HMA
Maximum Yearly Throughput (tons/year)[3]	200,000 combined	200,000 combined	200,000 combined	50,000 combined	50,000 combined	200,000 combined
Typical Moisture Content (%)[4]	3-7	3-7	3-7	3	3	
Average % of Material Passing Through 200 Mesh Sieve[5]	1-6	1-6	1-6	1	1	
Maximum Stockpile Base Area (ft^2)[6]						
Maximum Stockpile Height (ft)[7]						
Maximum Storage Capacity (tons)[8]	20	20	20	20	20	200
Dust Control Method Applied to Storage[9]	PE	PE	PE	PE	PE	FE
Method of Material Load-in to Bin or Stockpile[10]	FE	FE	FE	FE	FE	SS
Dust Control Method Applied During Load-in[11]	MD	MD	MD	MD	MD	PE
Method of Material Load-out from Bin or Stockpile[10]	OT-BF	OT-BF	OT-BF	OT-BF	OT-BF	OT-CH
Dust Control Method Applied During Load-out[11]	PE	PE	PE	PE	PE	PE

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes four open stockpiles and one storage silo, the Source Identification Numbers should be OS-1, OS-2, OS-3, and OS-4; and BS-1, respectively.
   OS Open Stockpile E3 Enclosure (three-sided enclosure)
   BS Bin or Storage Silo (full enclosure) SB Storage Building (full enclosure)
   SF Stockpiles with wind fences OT Other _____ (please specify)
2. Describe the type of material stored or stockpiled.
3. Enter the maximum yearly storage throughput for each storage activity.
4. Enter the average percent moisture content of the stored material.
5. Enter the average percent of material that will pass through a 200 mesh sieve.
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.).
9. Enter the dust control method applied to storage activity using the following codes:
   CA Crusting Agent WS Water Spray
   FE Full Enclosure NO None
   OT Other _____ (please specify)
10. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   FE Front Endloader SS Stationary Conveyor/Stacker
   ST Stacking Tube MC Mobile Conveyor/Stacker
   CS Clamshell TD Truck Dump
   OT Other BF-Belt Feeder (please specify)
11. Enter the dust control method applied during load-in or load-out using the following codes:
   CA Crusting Agent WS Water Spray
   FE Full Enclosure MD Minimize Drop Height
   ST Stacking Tube NO None
   OT Other _____ (please specify)

HMA PLANT MATERIAL STORAGE & HANDLING
AFFECTED SOURCE SHEET

Source Identification Number[1]	BS2		F-H1			
Material Stored[2]	HMA		RAP			
Maximum Yearly Throughput (tons/year)[3]	200,000 combined		50,000			
Typical Moisture Content (%)[4]			3			
Average % of Material Passing Through 200 Mesh Sieve[5]			1			
Maximum Stockpile Base Area (ft^2)[6]						
Maximum Stockpile Height (ft)[7]						
Maximum Storage Capacity (tons)[8]	200		25			
Dust Control Method Applied to Storage[9]	FE		PE			
Method of Material Load-in to Bin or Stockpile[10]	SS		FE			
Dust Control Method Applied During Load-in[11]	PE		MD			
Method of Material Load-out from Bin or Stockpile[10]	OT-CH		SS			
Dust Control Method Applied During Load-out[11]	PE		FE			

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes four open stockpiles and one storage silo, the Source Identification Numbers should be OS-1, OS-2, OS-3, and OS-4; and BS-1, respectively.
   OS Open Stockpile E3 Enclosure (three-sided enclosure)
   BS Bin or Storage Silo (full enclosure) SB Storage Building (full enclosure)
   SF Stockpiles with wind fences OT Other _____ (please specify)
2. Describe the type of material stored or stockpiled.
3. Enter the maximum yearly storage throughput for each storage activity.
4. Enter the average percent moisture content of the stored material.
5. Enter the average percent of material that will pass through a 200 mesh sieve.
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.).
9. Enter the dust control method applied to storage activity using the following codes:
   CA Crusting Agent WS Water Spray
   FE Full Enclosure NO None
   OT Other _____ (please specify)
10. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   FE Front Endloader SS Stationary Conveyor/Stacker
   ST Stacking Tube MC Mobile Conveyor/Stacker
   CS Clamshell TD Truck Dump
   OT Other CH-Chute (please specify)
11. Enter the dust control method applied during load-in or load-out using the following codes:
   CA Crusting Agent WS Water Spray
   FE Full Enclosure MD Minimize Drop Height
   ST Stacking Tube NO None
   OT Other _____ (please specify)

HMA PLANT FUGITIVE DUST CONTROL SYSTEM
AFFECTED SOURCE SHEET

Fugitive Dust Control System Data	Fugitive Dust Control Method [1]	WT
	Design Water Flow Rate (gpm) [2]	7.1
	Chemical Additive [3]	N/A
	Water/Additive Mix Ratio [4]	N/A
	Amount (gal/yd) [5]	~0.3
	Frequency of Application [6]	As needed to control
	Haulroad Surface [7]	Gravel
	Work/Storage Area Surface [8]	Gravel
	Haulroad Length [9]	Varies – see Attachment N
	Number of Vehicles per day [10]	Varies – see Attachment N
	Number of Wheels per Vehicle [11]	Varies – see Attachment N
	Weight of Vehicle (tons) [12]	Varies – see Attachment N

1.Enter the fugitive dust control method(s) using the following codes:
WT Water Truck WS Fixed Water Sprays
UW Underbody Truck Wash RS Rumble Strips
OT Other _____ (please specify)
2. Enter the design water flow rate for the water truck or fixed water sprays in gallons per minute.
3. Enter manufacturer and type, specification or grade of chemical additive.
4. Enter the water/chemical additive mix ratio.
5. Enter the amount of water or water/chemical additive mix to be applied to haulroads, storage and work areas in gallons per square yard.
6. Enter the frequency of application of water/chemical additive mix to haulroads, storage and work areas during periods of dry weather.
7. Enter the type of haulroad, work and storage area surface (asphalt pavement, concrete, dirt, coarse gravel, reddog, etc.).
8. Enter the approximate length of haulroad(s) in miles or feet. List appropriate units.
9. Enter the maximum daily vehicle traffic (trucks per day).
10. Enter the maximum number of wheels per vehicle.
11. Enter the mean vehicle weight in tons.
12. Complete a separate HMA Plant Fugitive Dust Control System Data sheet for each fugitive dust control system.

Provide a written description of the hot mix asphalt plant's fugitive dust control system below:

A water truck will be used to control fugitive emissions from the vehicle traffic in the storage area and on the haulroad.

HMA PLANT ASPHALT HEATER AFFECTED SOURCE SHEET

Source Identification Number[1]	Maximum Fuel Use[2]	Fuel Type[3]	Hours of Operation (hrs/yr)[4]
AH1	1,350 scf/h	PNG	7,560*

* Hours of operation for asphalt heater are higher than the hours of operation for the asphalt plant to allow asphaltic cement to stay warm 24 hours a day during the operational season.

1. Enter the appropriate Source Identification Number for each asphaltic cement tank heater located at the hot mix asphalt plant. Asphaltic cement tank heaters should be designated AH-1, AH-2, etc.
2. Enter the maximum fuel use in standard cubic foot per hour (natural gas) or gallons per hour (fuel oil). List appropriate units.
3. Enter the Fuel Type using the following codes:
   PNG Pipeline Quality Natural Gas #2FO Number 2 Fuel Oil UO Used Oil
4. Enter the maximum hours of operation each year.4400

HMA PLANT STORAGE TANK AFFECTED SOURCE SHEET

Source Identification Number[1]	Content[2]	Length[3] (ft)	Dia[4] (ft)	Volume[5] (gallons)	Throughput[6] (gal/yr)	Orientation[7]	Liquid Height[8] (ft)
T1	Asphaltic Cement	43	11.7	30,000	2,800,000	HORZ	6
T2	Diesel Fuel	12	4	1,000	20,400	HORZ	2

1.Enter the appropriate Source Identification Number for each storage tank located at the hot mix asphalt plant.
  Storage tanks should be designated T-1, T-2, T-3, etc.
2.Enter storage tank content (#2 fuel oil, asphaltic cement, water, etc.)
3.Enter storage tank length in feet.
4.Enter storage tank diameter in feet.
5. Enter storage tank volume in gallons. Storage tank volume may be calculated using the following mathematical relationship:
   (length of tank) X (area conversion) X (tank diameter)^2 X (liquid volume conversion) or,
   (L_{tank} ft) X (3.14/4) X (d^2_{tank} ft^2) X (7.48 gallons/ft^3)
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following codes:
   VERT Vertical Tank HORZ Horizontal Tank
8. Enter storage tank average liquid height in feet.
9. Storage tank emissions may be calculated using TANKS emission calculation program.

CRUSHING AND SCREENING AFFECTED SOURCE SHEET

Source Identification Number[1]		S1	F-S1	F-CR1		
Type of Crusher or Screen[2]		DD	DD	OT-HSI		
Make, Model No., Serial No.[3]		ASTEC PSS-2412-60	ASTEC PEP Vari-Vibe	KPI-JCI 3136		
Date of Construction, Reconstruction, or Modification (Month/Year)[4]		2016	2013	2013		
Maximum Throughput[5]	tons/hour	300	200	75		
	tons/year	200,000	50,000	18,750		
Material sized from/to:[6]		2" x 0"	-1/2"	+4"/-4"		
Average Moisture Content (%)[7]		3-7	3	3		
Control Device ID Number[8]		NA	NA	NA		
Baghouse Stack Parameters[9]	height (ft)					
	diameter (ft)					
	volume (ACFM)					
	exit temp (°F)					
	UTM Coordinates					
Maximum Operating Schedule[10]	hours/day	24	12	12		
	days/year	315	42	42		
	hours/year	7,560	504	504		

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.
2. Describe types of crushers and screens using the following codes:

HM	Hammermill	SS	Stationary Screen	DR	Double Roll Crusher
SD	Single Deck Screen	BM	Ball Mill	DD	Double-Deck Screen
RB	Rotary Breaker	TD	Triple Deck Screen	JC	Jaw Crusher
GC	Gyratory Crusher	OT	Other HSI-Horizontal Shaft Impactor		

3. Enter the make, model number, and serial number of the crusher/screen.
4. Enter the date that each crusher and screen was constructed, reconstructed, or modified.
5. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.
6. Describe the nominal material size reduction (e.g. +2"/ -⅜").
7. Enter the average percent moisture content of the material processed.
8. Enter the appropriate Control Device Identification Number for each crusher and screen. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.
9. Enter the appropriate stack parameters if a baghouse control device is used.
10. Enter the maximum operating schedule for each crusher and screen in hours per day, days per year and hours per year.

* The values provided are based on design capacity, however actual throughputs are closer to 100 tph for the screen and 37.5 tph for the crusher. The screen throughput assumes an annual maximum of 50% oversized material running through the RAP crusher circuit.

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Construction, Reconstruction, or Modification (Month/Year)[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC1	2018	Aggregates	2" x 0"	300	200,000	3-7	N
BC2	2018	Aggregates	2" x 0"	300	200,000	3-7	N
RS1	2018	Aggregates	2" x 0"	300	200,000	3-7	N
BC3	2018	Aggregates	2" x 0"	300	200,000	3-7	N
BC4	2018	Aggregates	2" x 0"	300	200,000	3-7	N
BC5	2018	RAP	-4" x 0"	300	50,000	3	N
BC6	2018	RAP	-4" x 0"	300	50,000	3	N
SC1	2018	Baghouse Dust	-1"	20	20,000	1	FE
DL1	2018	HMA	NA	300	200,000	NA	FE
DL2	2018	HMA	NA	300	200,000	NA	FE
F-BC1	2018	RAP	+4"	200	50,000	3	PE
F-BC2	2018	RAP	+4"	75	18,750	3	N
F-BC3	2018	RAP	-4" x +1/2"	200	50,000	3	N
F-BC4	2018	RAP	-1/2" x 0	200	50,000	3	N
F-RS1	2018	RAP	-4" x 0"	200	50,000	3	N

1. Enter the appropriate Source Identification Number for each conveyor using the following codes. For example, multiple belt conveyors should be designated BC-1, BC-2, BC-3 etc. Transfer points are considered emission points, not sources, and should not be included in the *Conveying Affected Source Sheet*. Transfer Point Identification Numbers shall be assigned in the *Emission Calculation Sheet*.
   BC Belt Conveyor BE Bucket Elevator DL Drag-link Conveyor
   PS Pneumatic System SC Screw Conveyor VC Vibrating Conveyor
   OT Other
2. Enter the date that each crusher and screen was constructed, reconstructed, or modified.
3. Enter the type of material being handled - Raw Coal (RC) Sized Coal (SC) Clean Coal (CC) Refuse (R) Other (O)
4. Enter the nominal size of the material being conveyed (e.g. clean coal - ¾" x 0). If more than one material is handled by the listed conveyor, list each material and enter the appropriate data for each material.
5. Enter the maximum material transfer rate for each conveyor in tons per hour and tons per year.
6. Enter the average percent moisture content of the conveyed material.
7. Enter the control device for the conveyor. PE - Partial Enclosure (example 3/4 hoop), FE - Full Enclosure, N – None,

ENGINE DATA SHEET

Source Identification Number[1]		F-ENG1*					
Engine Manufacturer and Model		John Deer 6068HFC93A					
Manufacturer's Rated bhp/rpm		173 hp @ 2,400 rpm					
Source Status[2]		N/A*					
Date Installed/Modified/Removed (Month/Year)[3]		Engine will be brought to this site for the first time around May 2018					
Engine Manufactured/Reconstruction Date[4]		05/17/2013					
Is this a Certified Stationary Compression Ignition Engine according to 40CFR60 Subpart IIII? (Yes or No)[5]		N/A – Engine is a nonroad engine*					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No)[6]		N/A					
Engine, Fuel and Combustion Data	Engine Type[7]	Compression Ignition					
	APCD Type[8]	N					
	Fuel Type[9]	#2 FO					
	H_2S (gr/100 scf)	NA					
	Operating bhp/rpm	172 hp @ 2,400 rpm					
	BSFC (Btu/bhp-hr)	Not available					
	Fuel throughput (ft^3/hr)	9.28 gal/hr					
	Fuel throughput ($MMft^3$/yr)	4,678 gal/yr					
	Operation (hrs/yr)	504 hrs/yr (at this site)					
Reference[10]	Potential Emissions[11]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
AP	NO_X	5.65	1.42				
AP	CO	1.22	0.31				
AP	VOC	0.46	0.12				
AP	SO_2	0.37	0.09				
AP	PM_{10}	0.40	0.10				
AP	Formaldehyde	0.0015	0.0004				

* This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore not subject to 45CSR13. This information is being provided by request of DAQ.

1. Enter the appropriate Source Identification Number for each reciprocating internal combustion compressor/generator engine located at the facility. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Emergency Generator engines should be designated EG-1, EG-2, EG-3 etc. If more than three (3) engines exist, please use additional sheets.

2. Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Removal of Source

3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.

4. Enter the date that the engine was manufactured, modified or reconstructed.

5. Is the engine a certified stationary compression ignition internal combustion engine according to 40CFR60 Subpart IIII. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4210 as appropriate.

   Provide a manufacturer's data sheet for all engines being registered.

6. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart JJJJ. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4243a(2)(i) through (iii), as appropriate.

   Provide a manufacturer's data sheet for all engines being registered.

7. Enter the Engine Type designation(s) using the following codes:

LB2S	Lean Burn Two Stroke	RB4S	Rich Burn Four Stroke
LB4S	Lean Burn Four Stroke		

8. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	SCR	Lean Burn & Selective Catalytic Reduction

9. Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas
2FO	#2 Fuel Oil	LPG	Liquid Propane Gas

10. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other _____	(please list)

11. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

EMISSIONS SUMMARY

	Point Source [1]				Fugitive [2]			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
Emission Type	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PM	3,609.90	1,201.38	51.29	10.41	252.28	61.00	63.08	15.33
PM_{10}	835.59	277.74	15.13	4.73	74.41	18.01	18.61	4.54
$PM_{2.5}$	199.39	66.35	2.48	0.80	7.51	1.82	1.89	0.47
VOC	22.22	7.28	22.22	7.28	Not Applicable			
SO_2	17.77	5.89	17.77	5.89				
NO_x	22.29	7.43	22.29	7.43				
CO	41.78	14.23	41.78	14.23				
HCl	0.06	0.02	0.06	0.02				
Acetaldehyde	0.391	0.130	0.391	0.130				
Benzene	0.126	0.042	0.126	0.042				
Ethylbenzene	0.077	0.022	0.077	0.022				
Toluene	0.881	0.293	0.881	0.293				
Xylene	0.094	0.031	0.094	0.031				
Formaldehyde	1.009	0.336	1.009	0.336				
PAH HAPs	0.26	0.09	0.26	0.09				
Total VOC HAPs[3]	3.28	1.10	3.28	1.10				
Metal HAPs	0.04	0.01	0.04	0.01				
Total HAPs	3.32	1.12	3.32	1.12				

	Facility Total			
	Uncontrolled		Controlled	
Emission Type	lb/hr	tons/yr	lb/hr	tons/yr
PM	3,862.18	1,262.38	114.37	25.74
PM_{10}	910.00	295.75	33.74	9.27
$PM_{2.5}$	206.90	68.17	4.37	1.27
VOC	22.22	7.28	22.22	7.28
SO_2	17.77	5.89	17.77	5.89
NO_x	22.29	7.43	22.29	7.43
CO	41.78	14.23	41.78	14.23
HCl	0.06	0.02	0.06	0.02
Acetaldehyde	0.39	0.13	0.39	0.13
Benzene	0.13	0.04	0.13	0.04
Ethylbenzene	0.08	0.02	0.08	0.02
Toluene	0.88	0.29	0.88	0.29
Xylene	0.09	0.03	0.09	0.03
Formaldehyde	1.01	0.34	1.01	0.34
PAH HAPs	0.26	0.09	0.26	0.09
Total VOC HAPs3	3.28	1.10	3.28	1.10
Metal HAPs	0.04	0.01	0.04	0.01
Total HAPs	3.32	1.12	3.32	1.12

[1] Point source emissions include transfer points, screening and crushing, drum mixer, asphalt heaters, and engines.

[2] Fugitive emissions include vehicular traffic and open stockpiles.

[3] Total VOC Haps include PAH HAPs

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

MATERIALS HANDLING

Defining transfer point empirical expression variables, where:

$e = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$

e =	?	lb/ton
k for PM =	0.74	dimensionless
k for PM_{10}	0.35	dimensionless
k for $PM_{2.5}$	0.053	dimensionless
U =	7	mean wind speed, mph
$M_{Aggregates/RAP}$ =	3	material moisture content, %
$M_{Baghouse\ Dust}$ =	1	material moisture content, %

Calculating transfer point emission factor for PM:

$e_{Aggregates/RAP\ PM}$ =	0.0021	lb/ton
$e_{Baghouse\ Dust\ PM}$ =	0.0097	lb/ton

Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

	PM	PM10	PM2.5
	0.74	0.35	0.053
Conversion Factor		2.1	14

HMA production rate: 300 tph 200,000 tpy

Rounding = 2

ID	Description	Transfer Capacities		Control Device		Emissions			
						Uncontrolled		Controlled	
		tons/hour	tons/year	Type	Eff. (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
TP1	Barge to HI	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP2	HI to BC1	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP3	BC1 to BC2	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP4	BC2 to RS1	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP5	RS1 or Truck to OS1-OS6	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP6	OS1-OS6 to B1-B5	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP7	B1-B5 to BC3	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP8	BC3 to S1	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP9	S1 to Ground	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP10	S1 to BC4	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP11	BC4 to CFDM1	300	200,000	FE	80	0.63	0.21	0.13	0.04
TP12	Truck to OS7	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP13	OS7 to B6 or B7	300	200,000	MD	0	0.63	0.21	0.63	0.21
TP14	B6 or B7 to BC5	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP15	BC5 to BC6	300	200,000	PE	50	0.63	0.21	0.32	0.11
TP16	BC6 to CFDM1	300	200,000	FE	80	0.63	0.21	0.13	0.04
TP17-TP20	See HMA Loading								
TP21*	APCD2 to SC1	3	2,000	FE	80	0.03	0.01	0.01	0.01
TP22*	SC1 to CFDM1	3	2,000	FE	80	0.03	0.01	0.01	0.01
				PM Emissions		10.14	3.38	7.24	2.44
				PM10 Emissions		4.83	1.61	3.45	1.16
				PM2.5 Emissions		0.72	0.24	0.52	0.17

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

MATERIALS HANDLING

Notes:
* Assumes a maximum rate of 1% baghouse dust re-introduction.
Some mixes do not contain RAP; therefore, the maximum aggregate processing rate was retained for emissions calculations.
Emission factor calculation and mean wind speed were taken from WVDEP General Permit G40-C Emissions Calculation
Control efficiencies taken from WVDEP General Permit G40-C, Instruction and Forms, May 6, 2011.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

CRUSHING AND SCREENING

Emission Factors

	PM	PM10
Primary Crushing	0.002	0.001
Secondary & Tertiary Crushing	0.0054	0.002
Screening	0.025	0.009

Emission factors taken from DAQ G40-C Emissions Worksheet.

PM2.5 equal to PM/14:

Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

PM	PM10	PM2.5
0.74	0.35	0.053
Conversion Factor	2.1	14

Crusher Emissions

Crusher Identificatio	Crusher Type	ID	Throughput		Control Type	Control Efficiency (%)	Pollutant	Uncontrolled		Controlled	
			(ton/hr)	(tons/yr)				(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
N/A							PM	0.00	0.00	0.00	0.00
							PM10	0.00	0.00	0.00	0.00
							PM2.5	0.00	0.00	0.00	0.00
N/A							PM	0.00	0.00	0.00	0.00
							PM10	0.00	0.00	0.00	0.00
							PM2.5	0.00	0.00	0.00	0.00

Screen Emissions

Screen Identification	Screen Type	ID	Throughput		Control Type	Control Efficiency (%)	Pollutant	Uncontrolled		Controlled	
			(ton/hr)	(tons/yr)				(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Aggregates Screen	Scalping Screen	S1	300	200,000	PE	50	PM	7.50	2.5	3.75	1.25
							PM10	2.61	0.87	1.31	0.44
							PM2.5	0.54	0.18	0.27	0.09
N/A							PM	0.00	0.00	0.00	0.00
							PM10	0.00	0.00	0.00	0.00
							PM2.5	0.00	0.00	0.00	0.00

Totals for Crushing and Screening

Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
PM	7.50	2.50	3.75	1.25
PM10	2.61	0.87	1.31	0.44
PM2.5	0.54	0.18	0.27	0.09

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

FRAP MATERIALS HANDLING

Defining transfer point empirical expression variables, where:

$e = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$

e =	?	lb/ton
k for PM =	0.74	dimensionless
U =	7	mean wind speed, mph
M =	3.0	material moisture content, %

Calculating transfer point emission factor for PM:

e_{PM} = 0.0021 lb/ton

Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

	PM	PM10	PM2.5
	0.74	0.35	0.053
Conversion Factor		2.1	14

FRAP System Design rate:	200	tph	50,000	tpy
FRAP Crusher Design rate:	75	tph	18,750	tpy

Rounding = 2

ID	Description	Transfer Capacities		Control Device		Emissions			
						Uncontrolled		Controlled	
		tons/hour	tons/year	Type	Effic (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
F-TP1	OS7 to F-HI	200	50,000	MD	0	0.42	0.05	0.42	0.05
F-TP2	F-HI to F-BC1	200	50,000	FE	80	0.42	0.05	0.08	0.01
F-TP3	F-BC1 to F-S1	200	50,000	PE	50	0.42	0.05	0.21	0.03
F-TP4	F-S1 to F-BC2	75	18,750	FE	80	0.16	0.02	0.03	0.01
F-TP5	F-BC2 to F-CR1	75	18,750	FE	80	0.16	0.02	0.03	0.01
F-TP6	F-BC2 to OS7	75	18,750	N	0	0.16	0.02	0.16	0.02
F-TP7	F-CR1 to F-BC1	75	18,750	FE	80	0.16	0.02	0.03	0.01
F-TP8	F-SI to F-BC3	200	50,000	PE	50	0.42	0.05	0.21	0.03
F-TP9	F-BC3 to OS9 or F-RS1	200	50,000	MD	0	0.42	0.05	0.42	0.05
F-TP10	F-S1 to F-BC4	200	50,000	PE	50	0.42	0.05	0.21	0.03
F-TP11	F-BC4 to OS8 or F-RS1	200	50,000	MD	0	0.42	0.05	0.42	0.05
F-TP12	F-RS1 to OS8 or OS9	200	50,000	MD	0	0.42	0.05	0.42	0.05
				PM Emissions		4.00	0.48	2.64	0.35
				PM_{10} Emissions		1.90	0.23	1.26	0.17
				$PM_{2.5}$ Emissions		0.29	0.03	0.19	0.03

Notes:
Emission factor calculation and mean wind speed were taken from WVDEP General Permit G40-C Emissions Calculation Spreadsheet, May 6, 2011.
Control efficiencies taken from WVDEP General Permit G40-c, Instruction and Forms, May 6, 2011, except for crusting agents.
The rate used in the emissions calculations is the design capacity. The actual process rate is closer to 100 tph, which is the value used to estimate hours of operation at this facility.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

FRAP CRUSHING AND SCREENING

Emission Factors

	PM	PM10
Primary Crushing	0.002	0.001
Secondary & Tertiary Crushing	0.0054	0.002
Screening	0.025	0.009

Emission factors taken from 199.39

PM2.5 equal to PM/14:

Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

PM	PM10	PM2.5
0.74	0.35	0.053
Conversion Factor	2.1	14

Crusher Emissions

Crusher Identification	Crusher Type	ID	Throughput		Control Type	Control Efficiency (%)	Pollutant	Uncontrolled		Controlled	
			(ton/hr)	(tons/yr)				(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
FRAP Crusher	HIS	F-CR1	75	18,750	PE	50	PM	0.15	0.02	0.08	0.01
							PM10	0.08	0.01	0.04	0.01
							PM2.5	0.02	0.01	0.01	0.01
N/A						0	PM	0.00	0.00	0.00	0.00
							PM10	0.00	0.00	0.00	0.00
							PM2.5	0.00	0.00	0.00	0.00

Screen Emissions

Crusher Identification	Crusher Type	ID	Throughput		Control Type	Control Efficiency (%)	Pollutant	Uncontrolled		Controlled	
			(ton/hr)	(tons/yr)				(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
FRAP Screen	Dual Deck HF	F-S1	200	50,000	FE	80	PM	5.00	0.63	1.00	0.13
							PM10	1.74	0.22	0.35	0.04
							PM2.5	0.36	0.05	0.07	0.01
N/A							PM	0.00	0.000	0.00	0.00
							PM10	0.00	0.000	0.00	0.00
							PM2.5	0.00	0.00	0.00	0.00

Totals for Crushing and Screening

Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
PM	5.15	0.65	1.08	0.14
PM10	1.82	0.23	0.39	0.05
PM2.5	0.38	0.06	0.08	0.02

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

COUNTER FLOW DRUM MIXER

Production Rate: 300 tons/hr
200,000 tons/year Rounding to 2

Criteria Pollutants

Emission Type	Emission Factor [1] (lb/ton of HMA)	Uncontrolled Emissions[4] lb/hr	Uncontrolled Emissions[4] tons/yr	Control Efficiency %	Controlled Emissions lb/hr	Controlled Emissions tons/yr
PM	0.0597	3,582.00	1,194.00	99.5	17.91	5.97
PM_{10}	0.0137	823.86	274.62	99.5	4.12	1.37
$PM_{2.5}$	0.0033	197.01	65.67	99.5	0.99	0.33
VOC	0.032	9.60	3.20	0	9.60	3.20
SO_2	0.058	17.40	5.80	0	17.40	5.80
NO_x	0.055	16.50	5.50	0	16.50	5.50
CO	0.13	39.00	13.00	0	39.00	13.00
HCl	0.00021	0.06	0.02	0	0.06	0.02

Calculate PM/PM10 Emission Factor - 40CFR60, Subpart I Allowable Limit.[5]

0.04	grains[2]	X	52,264	cf BH flow[3]	X	60	minutes	X
1	dscf		1	minute		1	hour	
1	lb	X	1	hour	=	0.0597	lb	
7000	grains		300	tons of HMA throughput		1	ton	
PM10 is	23%	of PM		PM2.5 is	5.5%	of PM		

Hazardous Air Pollutants - Controlled and Uncontrolled Emissions will be the same.

Emission Type	Emission Factor [6] (lb/ton of HMA)	Emissions lb/hr	Emissions tons/yr
Non-PAH HAPs			
Acetaldehyde	0.0013	0.39	0.13
Benzene	0.00039	0.12	0.04
Ethylbenzene	0.00024	0.07	0.02
Formaldehyde	0.0031	0.93	0.31
Toluene	0.0029	0.87	0.29
Xylene	0.0002	0.06	0.02
Non-PAH HAPs Total[7]	0.0095	2.85	0.95
PAH HAPs Total [7]	0.00088	0.26	0.09
	Total VOC HAPs	3.11	1.04

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

COUNTER FLOW DRUM MIXER

Metals Emissions

Emission Type	Emission Factor [8] lb/ton HMA	Emissions lb/hr	Emissions tons/yr
Antimony	1.80E-07	0.0001	0.0001
Arsenic	5.60E-07	0.0002	0.0001
Barium	5.80E-06	0.0017	0.0006
Cadmium	4.10E-07	0.0001	0.0000
Cobalt	2.60E-08	0.0001	0.0001
Copper	3.10E-06	0.0009	0.0003
Chromium	5.50E-06	0.0017	0.0006
Hexavalent Chromium	4.50E-07	0.0002	0.0001
Lead	1.50E-05	0.0045	0.0015
Manganese	7.70E-06	0.0023	0.0008
Mercury	2.60E-06	0.0008	0.0003
Nickel	6.30E-05	0.0189	0.0063
Phosphorus	2.80E-05	0.0084	0.0028
Silver	4.80E-07	0.0001	0.0000
Selenium	3.50E-07	0.0001	0.0000
Thallium	4.10E-09	0.0001	0.0001
Zinc	6.10E-05	0.0183	0.0061
	HAP Metals	0.0373	0.0126
	Total Metals	0.0585	0.0198

Rounding to 4

	lb/hr	tons/yr
VOC HAPs	3.11	1.04
Metal HAPs	0.0373	0.0126
Total HAPs	**3.15**	**1.05**

Notes:

1. AP42 Emission factors for CO, NOx, and SO2 Table 11.1-7; for VOC Table11.1-8 (maximum VOC emission factor used). Controlled emission factor for PM calculated above.
2. Emission limit from 40CFR60 Subpart I. The calculated EF falls within the range shown in AP42 Table 11.1-1P.
3. Manufacturers information.
4. Uncontrolled emissions for PM/PM10/PM2.5 are back calculated from the controlled emissions
5. Table EF for PM10 and PM2.5 are calculated based on Table 11.1-4 Particle Size Distribution.
6. Emission factors taken from AP-42 Table11.1-10. Highest value between natural gas, No.2 fuel, and waste oil fired dryers shown.
7. Includes HAPs not shown in the table. Highest value between natural gas, No.2 fuel, and waste oil fired dryers shown.
8. AP42 Table 11.1-12.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

SILO FILLING

Emission Factor (EF) Calculations for silo filling from AP42 Table 11.1-14 (March, 2004).

V = -0.5 asphalt volatility
T = 325 degrees Fahrenheit HMA mix temperature

PM Emission Factor: $EF = 0.000332 + 0.00105\ (-V)\ e^{((0.0251)(T+460)-20.43)}$

PM EF = 0.000586 lb/ton

PM_{10} Emission Factor is 23% of PM Table 11.1-4 Particle Size Distribution

PM_{10} EF = 0.000135 lb/ton

$PM_{2.5}$ Emission Factor is 5.5% of PM Table 11.1-4 Particle Size Distribution

PM_{10} EF = 0.000032 lb/ton

VOC Emission Factor: $VOC\ EF = TOC\ EF = 0.0504\ (-V)\ e^{((0.0251)(T+460)-20.43)}$
(VOC EF = TOC EF from AP42 Table 11.1-16, footnote a.)

VOC EF = 0.012187 lb/ton

CO Emission Factor: $CO\ EF = 0.00488\ (-V)\ e^{((0.0251)(T+460)-20.43)}$

CO EF = 0.001180 lb/ton

AP42 Table 11.1-16 referenced for HAP emission factors and calculated according to footnote a.

Rounding to 3
Number of transfers: 3 or 2

Emission Type	ID	Transfer Capacities		EF	Control Device		Emissions			
							Uncontrolled		Controlled	
		tons/hour	tons/year	lb/ton	Type	Eff. (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	TP17-TP19	300	200,000	0.000586	PE	50	0.54	0.18	0.27	0.09
PM_{10}	TP17-TP19	300	200,000	0.000135	PE	50	0.12	0.03	0.06	0.02
$PM_{2.5}$	TP17-TP19	300	200,000	0.000032	PE	50	0.03	0.01	0.02	0.01
VOC	TP17-TP19	300	200,000	0.012187	N	0	10.98	3.66	10.98	3.66
CO	TP17-TP19	300	200,000	0.001180	N	0	1.05	0.36	1.05	0.36
Hazardous Air Pollutants (HAPs)										
Benzene	TP17-TP19	300	200,000	0.000004	N	0	0.004	0.001	0.004	0.001
Ethylbenzene	TP17-TP19	300	200,000	0.000005	N	0	0.004	0.001	0.004	0.001
Toluene	TP17-TP19	300	200,000	0.000008	N	0	0.007	0.002	0.007	0.002
Xylene	TP17-TP19	300	200,000	0.000031	N	0	0.028	0.009	0.028	0.009
Formaldehyde	TP17-TP19	300	200,000	0.000084	N	0	0.076	0.025	0.076	0.025
Total HAPs	TP17-TP19	300	200,000	0.000158	N	0	0.143	0.048	0.143	0.048

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

SILO LOADOUT

Emission Factor (EF) Calculations for loadout from AP11.1-14 (March, 2004).

V = -0.5 asphalt volatility
T = 325 degrees Fahrenheit HMA mix temperature

PM Emission Factor: $EF = 0.000181 + 0.00141\ (-V)\ e^{((0.0251)(T+460)-20.43)}$

PM EF = 0.000522 lb/ton

PM_{10} Emission Factor is 23% of PM Table 11.1-4 Particle Size Distribution

PM_{10} EF = 0.000120 lb/ton

PM2.5 Emission Factor is 5.5% of PM Table 11.1-4 Particle Size Distribution

$PM_{2.5}$ EF = 0.000029 lb/ton

VOC Emission Factor: $VOC\ EF = 0.94 * TOC\ EF = 0.94 * (\ 0.0172\ (-V)\ e^{((0.0251)(T+460)-20.43)})$

TOC EF = 0.00416 lb/ton
VOC EF = 0.00391 lb/ton

CO Emission Factor: $C0\ EF = 0.00558\ (-V)\ e^{((0.0251)(T+460)-20.43)}$

CO EF = 0.00135 lb/ton

AP42 Table 11.1-16 referenced for HAP emission factors and calculated according to footnote a.

Number of 1 Rounding to 3 or 2

Emission Type	ID	Transfer Capacities		EF	Control Device		Emissions			
							Uncontrolled		Controlled	
		tons/hour	tons/year	lb/T	Type	Eff. (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	TP20	300	200,000	0.000522	PE	50	0.16	0.05	0.08	0.03
PM_{10}	TP20	300	200,000	0.000120	PE	50	0.04	0.01	0.02	0.01
$PM_{2.5}$	TP20	300	200,000	0.000029	PE	50	0.01	0.01	0.01	0.01
VOC	TP20	300	200,000	0.003909	N	0	1.17	0.39	1.17	0.39
CO	TP20	300	200,000	0.001349	N	0	0.40	0.13	0.40	0.13
Hazardous Air Pollutants (HAPs)										
Benzene	TP20	300	200,000	0.000002	N	0	0.001	0.001	0.001	0.001
Ethylbenzene	TP20	300	200,000	0.000012	N	0	0.003	0.001	0.003	0.001
Toluene	TP20	300	200,000	0.000009	N	0	0.003	0.001	0.003	0.001
Xylene	TP20	300	200,000	0.000020	N	0	0.006	0.002	0.006	0.002
Formaldehyde	TP20	300	200,000	0.000004	N	0	0.001	0.000	0.001	0.000
Total HAPs	TP20	300	200,000	0.000062	N	0	0.019	0.006	0.019	0.006

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

TOTALS FOR SILO FILLING AND LOADOUT

Emission				
Pollutant	**Uncontrolled**		**Controlled**	
	(lb/hr)	**(tpy)**	**(lb/hr)**	**(tpy)**
PM	0.70	0.23	0.35	0.12
PM_{10}	0.16	0.04	0.08	0.03
$PM_{2.5}$	0.04	0.02	0.03	0.02
VOC	12.15	4.05	12.15	4.05
CO	1.45	0.49	1.45	0.49
Hazardous Air Pollutants (HAPs)				
Benzene	0.005	0.002	0.005	0.002
Ethylbenzene	0.007	0.002	0.007	0.002
Toluene	0.010	0.003	0.010	0.003
Xylene	0.034	0.011	0.034	0.011
Formaldehyde	0.077	0.025	0.077	0.025
Total HAPs	0.162	0.054	0.162	0.054

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

ASPHALT HEATER AH1

Natural Gas Use			
1,350	scf/hr[1]	0.00135	10^6 scf/hr
10,206,000	scf/yr	10.206	10^6 scf/yr
erating Hours =	7,560	hrs/yr[2]	

Emission Type	EF[(3)] lb/10^6 scf	Emissions	
		lb/hr	tons/year
CO	84	0.11	0.43
NO_X	100	0.14	0.51
$PM_{2.5}$[(4)]	7.6	0.01	0.04
PM_{10}[(4)]	7.6	0.01	0.04
PM	7.6	0.01	0.04
SO_2	0.6	0.001	0.003
VOC	5.5	0.01	0.03
Lead	0.0005	0.000001	0.000003

Notes:
1. Information supplied by client.
2. Hours of operation for asphalt heater are higher than the hours of operation for the asphalt plant to allow asphaltic cement to stay warm during hours when the plant is not operational. Basis is 24 hours a day, 7 days a week for 45 weeks per year.
3. Emission factors from AP-42, Tables 1.4-1 and 1.4-2, Natural Gas Combustion, 7/98.
4. PM10 and PM2.5 are assumed to be equal to PM.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

ASPHALT HEATER AH1

Natural Gas Use =	0.00135 10^6 scf/hr
	10.206 10^6 scf/yr

Hazardous Air Pollutants (HAPS)

CAS No.	Hazardous Air Pollutants	EF[(a)] lb/10^6 scf	Emissions lb/hr	Emissions tons/year
91-57-6	2-Methylnaphthalene	2.40E-05	3.24E-08	1.22E-07
56-49-5	3-Methylchloranthrene	1.80E-06	2.43E-09	9.19E-09
57-97-6	7,12-Dimethylbenz(a)anthracene	1.60E-05	2.16E-08	8.16E-08
83-32-9	Acenaphthene	1.80E-06	2.43E-09	9.19E-09
203-96-8	Acenaphthylene	1.80E-06	2.43E-09	9.19E-09
120-12-7	Anthracene	2.40E-06	3.24E-09	1.22E-08
56-55-3	Benz(a)anthracene	1.80E-06	2.43E-09	9.19E-09
71-43-2	Benzene	2.10E-03	2.84E-06	1.07E-05
50-32-8	Benzo(a)pyrene	1.20E-06	1.62E-09	6.12E-09
205-99-2	Benzo(b)fluoranthene	1.80E-06	2.43E-09	9.19E-09
191-24-2	Benzo(g,h,i)perylene	1.20E-06	1.62E-09	6.12E-09
205-82-3	Benzo(k)fluoranthene	1.80E-06	2.43E-09	9.19E-09
218-01-9	Chrysene	1.80E-06	2.43E-09	9.19E-09
53-70-3	Dibenzo(a,h)anthracene	1.20E-06	1.62E-09	6.12E-09
25321-22-6	Dichlorobenzene	1.20E-03	1.62E-06	6.12E-06
206-44-0	Fluoranthene	3.00E-06	4.05E-09	1.53E-08
86-73-7	Fluorene	2.80E-06	3.78E-09	1.43E-08
50-00-0	Formaldehyde	7.50E-02	1.01E-04	3.83E-04
110-54-3	Hexane	1.80E+00	2.43E-03	9.19E-03
193-39-5	Indeno(1,2,3-cd)pyrene	1.80E-06	2.43E-09	9.19E-09
91-20-3	Naphthalene	6.10E-04	8.24E-07	3.11E-06
85-01-8	Phenanthrene	1.70E-05	2.30E-08	8.68E-08
129-00-0	Pyrene	5.00E-06	6.75E-09	2.55E-08
108-88-3	Toluene	3.40E-03	4.59E-06	1.74E-05
7440-38-2	Arsenic	2.00E-04	2.70E-07	1.02E-06
7440-41-7	Beryllium	1.20E-05	1.62E-08	6.12E-08
7440-43-9	Cadmium	1.10E-03	1.49E-06	5.61E-06
7440-47-3	Chromium	1.40E-03	1.89E-06	7.14E-06
7440-48-4	Cobalt	8.40E-05	1.13E-07	4.29E-07
7439-96-5	Manganese	3.80E-04	5.13E-07	1.94E-06
7439-97-6	Mercury	2.60E-04	3.51E-07	1.33E-06
7440-02-0	Nickel	2.10E-03	2.84E-06	1.07E-05
7782-49-2	Selenium	2.40E-05	3.24E-08	1.22E-07
		VOC HAPs Subtotal	2.54E-03	9.61E-03
		Metal HAPs Subtotal	7.51E-06	2.84E-05
		Total HAPs	2.55E-03	9.63E-03

References:
AP42 Table 1.4-3 and Table 1.4-4.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

ENGINE EMISSIONS

Portable Nonroad FRAP System Engine (F-ENG1)[1]

Fuel Usage	9.28	gallons/hour	CARB Certificate
	4,678	gallons/year	Calculated
Assumed Heating Value of Diesel Fuel:	138,000	Btu/gallon	HHV from 40 CFR 98, Table C-1
Maximum Horsepower:	173	hp	Manufacturer
Maximum Fuel Input:	1.28	MMBtu/hour	Calculated

Hours Per Year[2] = 504

Regulated Pollutant	Emission Factor (lb/MMBtu)	Emission Factor (g/kW-hr)	Hourly Emissions (lbs/hour)	Annual Emissions (tons/year)
NO_X	4.41		5.65	1.42
CO	0.95		1.22	0.31
SO_X	0.29		0.37	0.09
$PM/PM_{10}/PM_{2.5}$	0.31		0.40	0.10
TOC (VOC)	0.36		0.46	0.12

Hazardous Air Pollutants (HAPS)				
Benzene	9.33E-04		0.0012	0.0003
Toluene	4.09E-04		0.0005	0.0001
Xylenes	2.85E-04		0.0004	0.0001
1,3-Butadiene	3.91E-05		0.0001	0.00003
Formaldehyde	1.18E-03		0.0015	0.0004
Acetaldehyde	7.67E-04		0.001	0.0003
Acrolein	9.25E-05		0.0001	0.0001
Naphthalene	8.48E-05		0.0001	0.0001
Total HAPS			0.0049	0.001

Notes:
Emission factors from AP-42 Table 3.3-1(Criteria Pollutants) Table 3.3-2 (HAPS) unless noted.
1. This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore not subject to 45CSR13. This information is being provided by request of DAQ.
2. Hours are based on an expected actual hourly throughput of 100 tph (as opposed to the design capacity of 200 tph), and an annual throughput of 50,000 tpy at this facility.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

VEHICLE ACTIVITY

Materials Transported and Estimated Vehicle Usages

	HMA Trucks	RAP Trucks	Asphaltic Cement Trucks*	Aggregate Trucks**	No. 2 Fuel Oil Trucks	Total/Mean Trucks	Endloaders
TPH	300	200	18	30	19	567	500
TPY	200,000	50,000	12,000	20,000	85	282,085	250,000
Load Weight (tons)	18	18	52	18	18.5	18.52	6
Vehicle Weight (tons)	20	20	12	20	12	N/A	31
Vehicles Per Hour	17	12	1	2	1	33	84
Vehicles Per Year	11,112	2,778	231	1,112	21	15,254	41,667
Mean Vehicle Weight (tons)	29	29	38	29	21.25	29.13	34
Unpaved round-trip (ft)	1,400	2,000	2,300	0	0	2,300	1,320
Paved round-trip (ft)	0	0	0	0	0	0	0

* Based on 6% of total production. Roundup to = 0 Assuming no partial loads.
** Based on 10% of aggregates being transported by truck.

UNPAVED HAULROADS

Emission Factor Equation from AP-42 Section 13.2.2, Unpaved Roads (December 2003):
$e = k\,(s/12)^a\,(W/3)^b\,[(365-p)/365]$

	PM	PM10	PM2.5	
k =	4.9	1.5	0.15	constant, AP-42 Table 13.2.2-2 (dimensionless)
s =	10	10	10	%, surface material silt content
W_{truck} =	29.13	29.13	29.13	tons, mean vehicle weight
$W_{endloader}$ =	34	34	34	tons, mean vehicle weight
a =	0.7	0.9	0.9	constant, AP-42 Table 13.2.2-2 (dimensionless)
b =	0.45	0.45	0.45	constant, AP-42 Table 13.2.2-2 (dimensionless)
p =	157	157	157	no. days/year with at least 0.01in of rain
e_{truck} =	6.84	2.02	0.20	lb/VMT
$e_{endloader}$ =	7.33	2.16	0.22	lb/VMT

Trucks Rounding to 2

Pollutant	No. of Vehicles		Miles Per Trip	Control Device		Emissions			
						Uncontrolled		Controlled	
	Per Hour	Per Year	(mi)	Type	Eff. (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	33	15,254	0.44	WT	75	98.33	22.72	24.58	5.68
PM_{10}	33	15,254	0.44	WT	75	29.04	6.71	7.26	1.68
$PM_{2.5}$	33	15,254	0.44	WT	75	2.88	0.66	0.72	0.17

Endloaders

Pollutant	No. of Vehicles		Miles Per Trip	Control Device		Emissions			
						Uncontrolled		Controlled	
	Per Hour	Per Year	(mi)	Type	Eff. (%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	84	41,667	0.25	WT	75	153.93	38.18	38.48	9.55
PM_{10}	84	41,667	0.25	WT	75	45.36	11.25	11.34	2.81
PM2.5	84	41,667	0.25	WT	75	4.62	1.15	1.16	0.29

Summary of Unpaved Haulroad Emissions

Pollutant	Uncontrolled Emissions		Controlled Emissions	
	(lb/hr)	(TPY)	(lb/hr)	(TPY)
PM	252.26	60.90	63.06	15.23
PM_{10}	74.40	17.96	18.60	4.49
$PM_{2.5}$	7.50	1.81	1.88	0.46

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PAVED HAULROADS

Not Applicable (Not Applicable or Applicable)

Reference: AP-42 Section 13.2.1.

E = [k * (sL)^0.91 * (W)^1.02] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

	PM	PM10	PM2.5	
k =	0.011	0.0022	0.00054	dimensionless, particle size multiplier
s =	8	8	8	surface material silt content (g/m^2)
W =	29.13	29.13	29.13	tons, mean vehicle weight
p =	157	157	157	no. days/year with 0.01 in of rain
N =	365	365	365	days/year
E =	NA	NA	NA	lb/VMT

Total Hauled (tpy) =	NA
Load Weight (tons) =	NA
Trucks Per Year =	NA
Total Hauled (tph) =	NA
Load Weight (tons) =	NA
Vehicles Per Hour:	33
Vehicles Per Year	41,667
Miles Per Round-Trip	0.25

Pollutant	Emission Factor [1] (lb/VMT)	Control Device	Control Efficiency (%)	Uncontrolled PM (lb/hr)	Uncontrolled PM (tpy)	Controlled PM (lb/hr)	Controlled PM (tpy)
PM	NA	WS	75	0	0	0	0
PM10	NA	WS	75	0	0	0	0
PM2.5	NA	WS	75	0	0	0	0

By: LKB
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STOCKPILES

Reference: AP-42 Section 11.2.3, Fugitive Emissions (May, 1983), Equation #2

$E = 1.7 (s/1.5) ((365-p)/235) (f/15)$

$E =$	?	Emissions factor, pound per day per acre, (lb/day/acre)
$s_{aggregates/RAP} =$	1	Silt content of material (%)
$s_{sand} =$	6	Silt content of material (%)
$p =$	157	number of days with at least 0.254 mm (0.01 in.) of precipitation per year
$f =$	15	Time wind speed exceeds 12 mph (%)

$e_{aggregates/RAP} =$	1.003	lb/day/acre for aggregates and RAP	Rounding to	3
$e_{sand} =$	6.019	lb/day/acre for sand		

Stockpile ID	Stockpile Material	Base Area (acres)	Control Device	Control Eff. (%)	Uncontrolled Emissions lb/hr	Uncontrolled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
OS1 and OS2	Sand	0.022	N	0	0.006	0.024	0.006	0.024
OS3-OS6	Aggregates	0.088	N	0	0.004	0.016	0.004	0.016
OS7-OS9	RAP	0.330	N	0	0.014	0.060	0.014	0.060
				Total PM:	0.024	0.100	0.024	0.100
				Total PM_{10}*:	0.011	0.048	0.011	0.048
				Total $PM_{2.5}$*:	0.010	0.010	0.010	0.010

* PM10 = PM/2.1; PM2.5 = PM/14.

TANKS

ID	Material Stored	Capacity gallons	Throughput gallons	VOC Emissions lb/hr	VOC Emissions ton/yr
T1	Asphaltic Cement	35,000	2,800,000	Negligible	Negligible
T2	#2 FO/Diesel	1,000	20,400	Negligible	Negligible
			Total VOC:	Negligible	Negligible

The emissions from the tanks are negligible due to the low volatilization of liquid.

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SUMMARY OF CO2e EMISSIONS

The facility has three (3) combustion sources: Counter Flow Drum Mixer (CFDM1), Asphalt Heater (AH1), and Portable FRAP System Engine (F-ENG1)*. CDFM1 and AH1 burn natural gas. F-ENG1 burns No. 2 fuel. The calculations for the emissions summarized below are shown on worksheets that follow.

Facility Emissions

Emission Unit	CO2e (metric tons)	CO2 (short tons)	Exceed 25,000 metric tons CO2e?	Short tons/metric ton
CFDM1 (NG)	6,374	7,025.81		1.1023
AH1 (NG)	556	613.08		
CFDM1 (2FO)	0	0		
ENG1 (2FO)	48	52.81		
CFDM1 (UO)	0	0		
Worst Case	**604**	**666**	**NO**	

NG = natural gas
2FO = No. 2 fuel oil
UO = Used oil
* This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore not subject to 45CSR13. This information is being provided by request of DAQ.

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CO2e Emissions from Natural Gas - CFDM1 Burner

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Natural Gas	6,367.20	0.12	0.01	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	6,367.20	3.00	3.58	**6,374**

CFDM1 Burner	
600,000	btu/ton of asphalt
200,000	tons /year asphalt
120,000,000,000	btu/year
1,026	btu/scf
116,959,064	scf of natural gas burned per year

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

CO2 = 1 x10-3*mass of fuel*HHV*EF (Eq. C-2a)
CH4 or N2O = 1 x10-3*mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
116,959,064	cubic feet of natural gas burned annually	
1.026E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.06	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

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CO2e Emissions from Natural Gas - AH1

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Natural Gas	555.61	0.01	0.001	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	555.61	0.26	0.31	**556**

AH1	
10,206,000	scf of natural gas burned per year

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

CO2 = 1 x10-3*mass of fuel*HHV*EF (Eq. C-2a)
CH4 or N2O = 1 x10-3*mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
10,206,000	cubic feet of natural gas burned annually	
1.026E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.06	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

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Date: January 8, 2018

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CO2e Emissions from No. 2 Fuel Oil Combustion - CDFM1 Burner

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
No. 2 Fuel	0.00	0.00	0.00	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	0.00	0.00	0.00	**0**

CDFM1 - Burner	
0	gallons No. 2 fuel oil burned per year

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

CO2 = 1 x10-3*mass of fuel*HHV*EF (Eq. C-2a)
CH4 or N2O = 1 x10-3*mass of fuel*HHV*EF (Eq. C-9a)

No. 2 Fuel Oil Combustion

1.00E-03	conversion factor from kilograms to metric tons	
0	gallons of No. 2 fuel oil burned	
0.138	HHV MMBtu/gal	No. 2 fuel oil high heating value (HHV) from Table C-1
73.96	kg CO2/MMBtu	No. 2 fuel oil emission factor from Table C-1
3.00E-03	kg CH4/MMBtu	No. 2 fuel oil emission factor from Table C-2
6.00E-04	kg N2O/MMBtu	No. 2 fuel oil emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

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CO2e Emissions from Diesel Fuel Combustion - F-ENG1*

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
No. 2 Fuel	47.75	0.002	0.0004	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	47.75	0.05	0.12	**48**

Engine	
4,678	gallons No. 2 fuel oil burned per year

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

CO2 = 1 x10-3*mass of fuel*HHV*EF (Eq. C-2a)
CH4 or N2O = 1 x10-3*mass of fuel*HHV*EF (Eq. C-9a)

No. 2 Fuel Oil Combustion

1.00E-03	conversion factor from kilograms to metric tons	
4,678	gallons of No. 2 fuel oil burned	
0.138	HHV MMBtu/gal	No. 2 fuel oil high heating value (HHV) from Table C-1
73.96	kg CO2/MMBtu	No. 2 fuel oil emission factor from Table C-1
3.00E-03	kg CH4/MMBtu	No. 2 fuel oil emission factor from Table C-2
6.00E-04	kg N2O/MMBtu	No. 2 fuel oil emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.
* This engine is a nonroad engine (see Attachment D Regulatory Discussion) and is therefore not subject to 45CSR 13. This information is being provided by request of DAQ.

By: LKB
Date: January 8, 2018

Checked By: PEW
Date: January 10, 2018

CO2e Emissions from Used Oil Combustion - CFDM1 Burner

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Used Oil	0.00	0.00	0.00	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	0.00	0.00	0.00	**0**

CDFM1 Burner	
0	gallons of used oil burned per year

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

CO2 = 1 x10-3*mass of fuel*HHV*EF (Eq. C-2a)
CH4 or N2O = 1 x10-3*mass of fuel*HHV*EF (Eq. C-9a)

Used Oil Combustion

1.00E-03	conversion factor from kilograms to metric tons	
0	gallons of used oil burned annually	
0.138	HHV MMBtu/gal	used oil high heating value (HHV) from Table C-1
74.00	kg CO2/MMBtu	used oil emission factor from Table C-1
3.00E-03	kg CH4/MMBtu	used oil emission factor from Table C-2
6.00E-04	kg N2O/MMBtu	used oil emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

ATTACHMENT O

MONITORING, RECORDKEEPING, REPORTING, TESTING PLANS

ATTACHMENT O

MONITORING/RECORDKEEPING/ REPORTING/TESTING PLANS

Southern West Virginia Asphalt, Inc. plans to follow the monitoring, recordkeeping, reporting, and testing required by the issued permit.

ATTACHMENT P

PUBLIC NOTICE

ATTACHMENT P
CLASS I LEGAL ADVERTISEMENT

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Southern West Virginia Asphalt, Inc. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Regulation 13 Permit Application for a Hot Mix Asphalt plant located on Sycamore Street in Ravenswood, Jackson County, West Virginia. The latitude and longitude coordinates are: 38.949848 N and -81.7660385 E.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: PM of 25.74 tons per year (tpy) including fugitive emissions of 15.33 tpy, PM10 of 9.27 tpy including fugitive emissions of 4.54 tpy, PM2.5 of 1.26 tpy including fugitive emissions of 0.47 tpy, VOC of 7.28 tons, SO_2 of 5.89 tpy, NO_x of 7.43 tpy, CO of 14.23 tpy, and Total HAPs of 1.12 tpy.

The facility will begin operation on or about May 1, 2018. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, Charleston, WV 25304, for 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, Extension 1250, during normal business hours.

Dated this the (PLEASE INSERT DATE) day of January 2018.

By: Southern West Virginia Asphalt, Inc.
Bob Brookover
Vice President
2950 Charles Avenue
Dunbar, West Virginia 25064