November 22, 2017

Ms. Beverly D. McKeone
WV Department of Environmental Protection
Division of Air Quality
601 - 57th Street
Charleston, WV 25304

RE: ***The Marshall County Coal Company – Marshall County, West Virginia,***
The Marshall County Preparation Plant – Class II Administrative Update Request

Dear Ms. McKeone:

The Marshall County Coal Company (MCCC) operates a coal preparation plant located in Marshall County near Moundsville, West Virginia (referred to as the Marshall County Preparation Plant). The Marshall County Preparation Plant is currently operating in accordance with West Virginia Department of Environmental Protection (WVDEP) Division of Air Quality (DAQ) state operating permit R13-2177G, issued on June 1, 2017.

Over the past two (2) years, MCCC has submitted applications and received permits for the construction of Phase I and II of a beltline system that allows the plant to receive coal combustion product (CCP) from a nearby power plant via barge. The CCP is conveyed and ultimately stored at the plant's existing refuse disposal area. Due to unexpected high moisture content of the CCP, the plant intends to apply a material solidifier (i.e., Crown MS 790) to make the CCP easier to work with and store at the refuse disposal area. In order to apply Crown MS 790 in a manner that will minimize generation of fugitive dust, MCCC intends to install the following air emission sources:

- Three (3) 100 ton cement "pigs" with built in, passive dust collection;
- One (1) 50 ton transfer silo with bin vent filter;
- Two (2) 150 ton day bins with bin vent filter;
- Two (2) screw conveyors; and
- A 480 horsepower (hp) non-emergency diesel engine.

As illustrated in the process flow diagram (PFD) provided in Attachment F, MCCC will receive Crown MS 790 via trucks that will load the product pneumatically into the three (3) cement pigs. The material will be transferred between the pigs, the 50 ton transfer silo, and the two (2) 150 ton day bins via an enclosed pneumatic system. Two (2) screw conveyors will transfer the Crown MS 790 from the two (2) day bins directly onto the head of existing CCP-C1. In order to ensure minimization of fugitive dust during the application process, MCCC will install two (2) 9,000 cubic feet per minute (cfm) pulse-jet dust collectors to control dust at the existing transfer points between CCP-C1 and CCP-C2 and between CCP-C2 and CCP-C3.

The potential emissions calculations included in Attachment N show that the emission increases associated with the proposed project will be below six (6) pounds per hour and 10 tons per year. Accordingly, the proposed project qualifies as a Class II Administrative Update.

***

MCCC appreciates your consideration in this matter. Should you have any questions on the specifics of this request, please do not hesitate to contact either Mike Burr of Trinity Consultants at (614) 433-0733 or Jimmy Earp of Murray Energy Corporation at 740-338-3309.

Sincerely,

MARSHALL COUNTY COAL COMPANY

Robert D. Moore

Attachments

TABLE OF CONTENTS

APPLICATION FORMS

The enclosed application forms are being submitted as required by DAQ for a Class II Administrative Update.

MCCC will contact DAQ to initiate payment of the applicable permit application fees via credit card. The fee will include the permit application fee of $300 provided in 45CSR13-4.4 and the additional NSPS review fee of $1,000 for the applicability of NSPS IIII in accordance with 45CSR22-3.4.b.

GENERAL APPLICATION FORM

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):*
The Marshall County Coal Company

2. Federal Employer ID No. ***(FEIN):***
13-2566594

3. Name of facility *(if different from above):*
The Marshall County Preparation Plant

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

5A. Applicant's mailing address:
46226 National Road W
St. Clairsville, OH 43950

5B. Facility's present physical address:
West Virginia State Rt. 2,
Moundsville, WV 26041

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:

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:
The land occupied by the Marshall County Preparation Plant is owned by MCCC.

➪ 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.):
Underground Coal Mine and associated Preparation Plant

10. North American Industry Classification System **(NAICS)** code for the facility:
212112

11A. DAQ Plant ID No. (for existing facilities only):
051-00020

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2177G

All of the required forms and additional information can 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**.

I-70 East to 7 South. Take Moundsville 12th St. exit. Turn right onto Rt. 2 South. Facility is located ~10 miles south adjacent to Rt. 2.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
N/A	Moundsville	Marshall
12.E. UTM Northing (KM):	**12F. UTM Easting (KM):**	**12G. UTM Zone:**
4409252.53	515905.16	17

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

MCCC plans to install equipment to apply MS790 to coal combustion product received from a nearby power plant.

14A. Provide the date of anticipated installation or change: 1 / 1 / 2018 If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / / N/A	14B. Date of anticipated Start-Up if a permit is granted: Upon permit issuance

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). See attached.

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:

24 Hours Per Day 7 Days Per Week 52 Weeks Per Year

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. N/A

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.** See attached.

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). MCCC will contact DEP to initiate payment via credit card

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

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). See attached.

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

23. Provide a **Process Description** as **Attachment G.** See attached.
    - 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. See Attached

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

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

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

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 Silos, Conveyors, Diesel Engine	☐	

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

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

☐ Absorption Systems	■ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ 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. See attached.

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.** See attached.

➢ 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. See attached.

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:

■ 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.** NA - signed by responsible official.

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 _____ DATE: 11/22/2017

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Robert D. Moore		35C. Title: Vice President
35D. E-mail: rmoore@coalsource.com	36E. Phone: (740) 338-3100	36F. FAX: (740) 338-3416
36A. Printed name of contact person (if different from above): James Earp		36B. Title: Permit Engineer
36C. E-mail: jamesearp@coalsource.com	36D. Phone: (740) 338-3100	36E. FAX: (740) 338-3416

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:
THE MARSHALL COUNTY COAL COMPANY
57 GOSHORN WOODS RD
CAMERON, WV 26033-2305

BUSINESS REGISTRATION ACCOUNT NUMBER: **2291-2432**

This certificate is issued on: **02/20/2014**

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

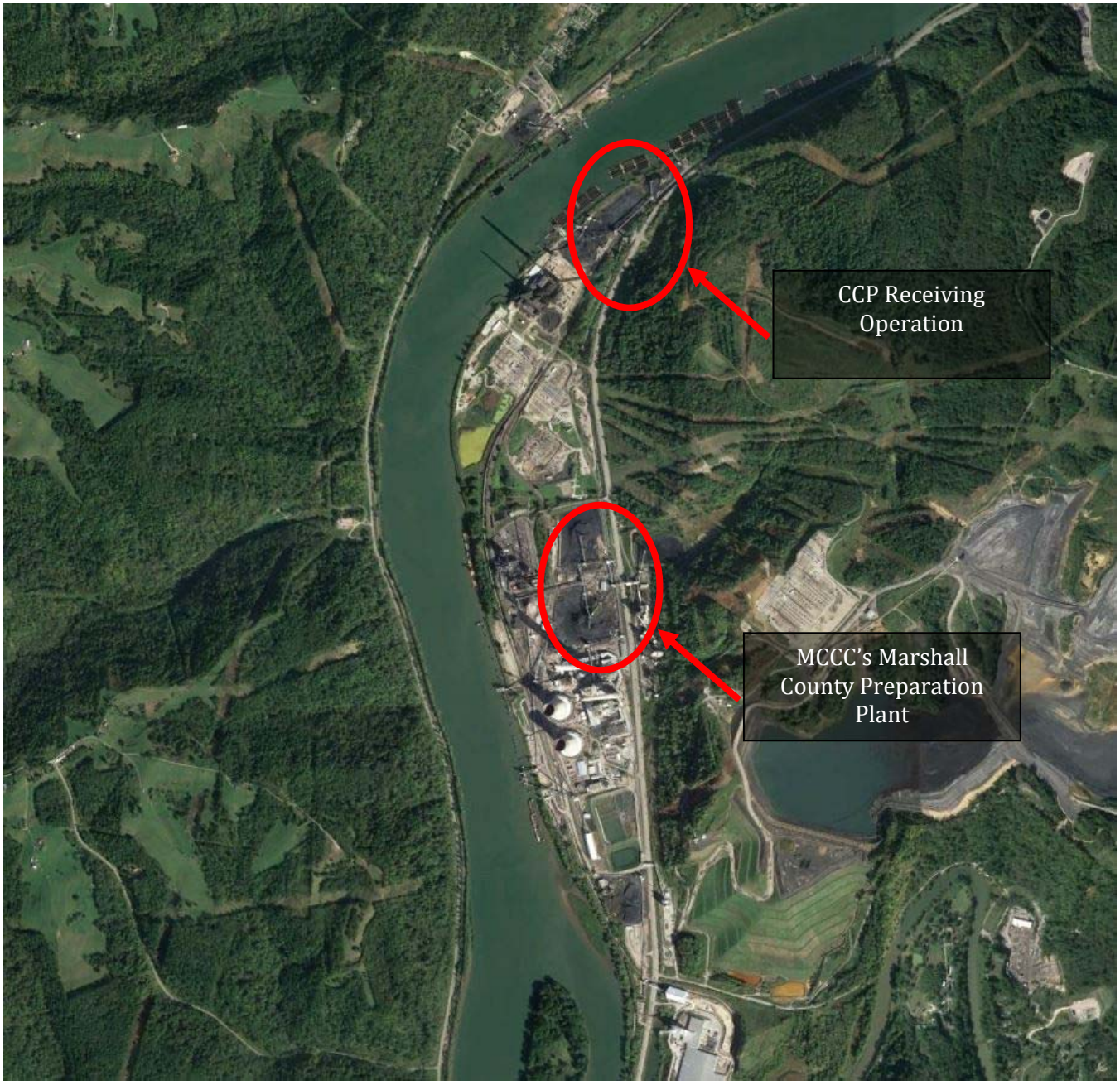
This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

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
L1468855360

Figure B-1. Marshall County Preparation Plant Aerial View of Surrounding Area



ATTACHMENT C: INSTALLATION AND STARTUP SCHEDULE

Any activities associated with changes proposed in this application will not commence until the revised R13 permit has been issued.

ATTACHMENT D: REGULATORY DISCUSSION

This section documents the applicability determinations made for federal and state air quality regulations. Federal and WVDEP state regulations that are potentially applicable to the proposed equipment are listed in Tables D-1 and D-2. Notes are provided for each applicability determination briefly summarizing why each regulation is considered applicable.

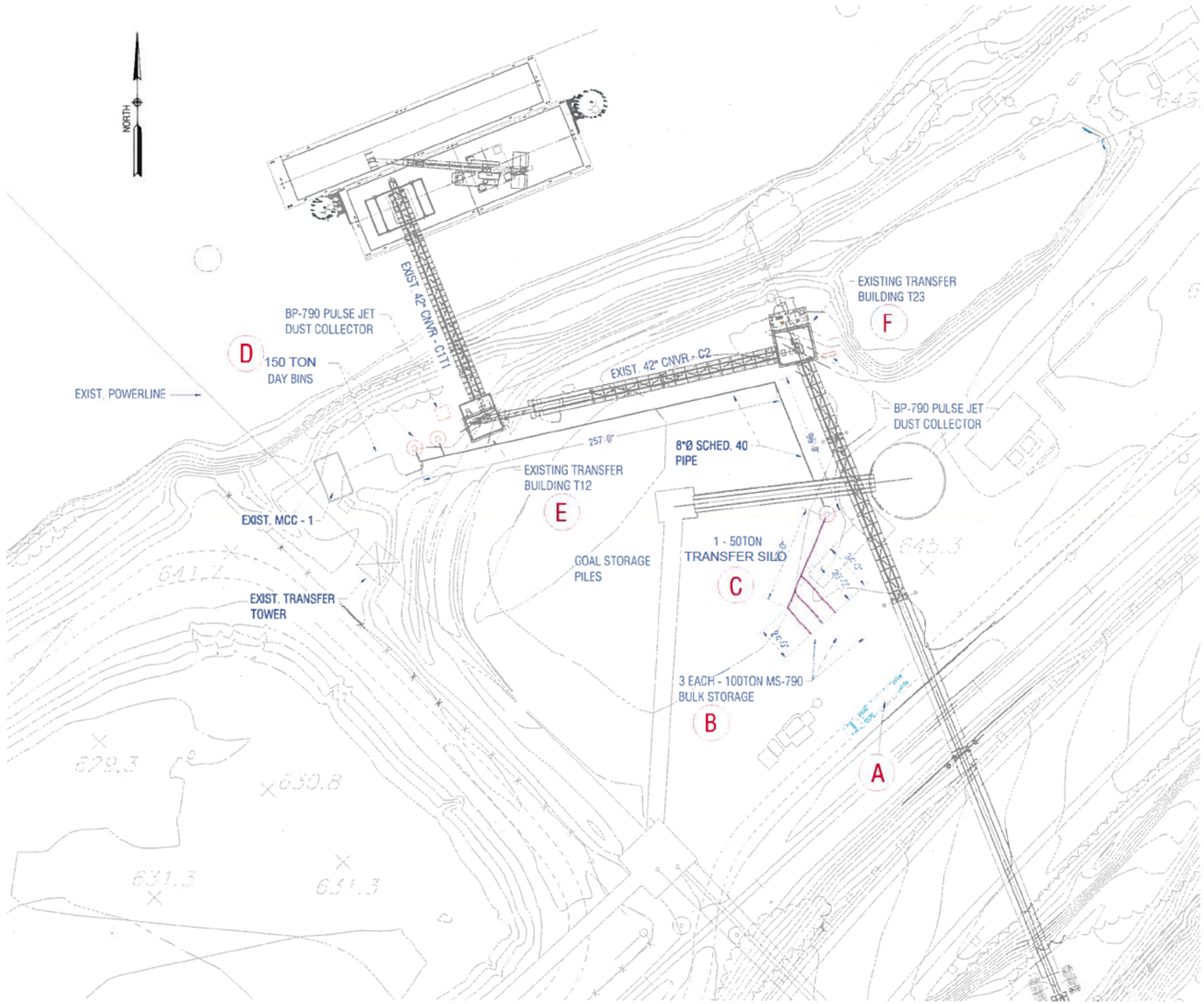
Table D-1. Federal Applicability

Regulation	Applicability
40 CFR 60, Subpart A – "General Provisions"	These general requirements are applicable to stationary sources that are subject to a source-specific NSPS that references 40 CFR 60, Subpart A.
40 CFR 60, Subpart Y – "Standards of Performance for Coal Preparation and Processing Plants"	Affected facilities under NSPS Y include coal processing and conveying equipment (including breakers and crushers), and coal storage systems, transfer and loading systems. Given that the proposed equipment will not be processing, conveying, or storing material that meets the definition of "coal" in 40CFR60.251(d), the proposed project will not be subject to NSPS Y.
40 CFR 60, Subpart IIII – "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"	The diesel engine that will power the new equipment is subject to the requirements in 40 CFR 60 Subpart IIII. MCCC will comply with the following NSPS IIII requirements for 2007 model year and later non-emergency CI ICE with a displacement of less than 30 liters per cylinder: • Purchase an engine certified to meet the referenced emission limits [40 CFR 60.4211(c)]. This includes compliance with Tier 3 standards pursuant to 40 CFR 89.112; • Installing and configuring the engine according to the manufacturer's specifications [40 CFR 60.4211(c)]; • Operating and maintaining the engine according to the manufacturer's emission-related written instructions, changing only those emission-related settings that are permitted by the manufacturer [40 CFR 60.4211(a)(1)-(2)]; and • Using diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel [40 CFR 60.4207(b)], including a fuel sulfur content limitation of 15 ppm.
40 CFR 70 – "State Operating Programs"	As shown in Attachment N, the post-project facility-wide potential emissions (excluding haulroads) will be less than the major source thresholds. Accordingly, The Marshall County Preparation Plant will remain a minor source not required to obtain a Title V operating permit.

Table D-2. State Rule Applicability

Rule	Applicability
45CSR4 – "To Prevent and Control The Discharge of Air Pollutants into the Open Air which Causes or Contributes to An Objectionable Odor or Odors."	Generally Applicable.
45CSR5 – "To Prevent and Control Air Pollution from the Operation of Coal Preparation Plants, Coal Handling Operations, and Coal Refuse Disposal Areas."	The new equipment associated with the project will not be handling coal. Accordingly, the new units are not subject to 45CSR5.
45CSR10 – "To Prevent and Control Air Pollution from the Emission of Sulfur Oxides"	The proposed diesel engine does not produce power or heat by indirect heat transfer, and is therefore not defined as a "Fuel Burning Unit" under 45CSR10-2.8. Accordingly, 45CSR10 does not apply.
45CSR13 – "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation"	Generally applicable. MCCC is applying for a Class II administrative update for the proposed changes described herein.
45CSR16 – "Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60"	As noted in Table D-1, the proposed diesel engine will be subject to NSPS IIII.
45CSR17 – "To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage, and Other Sources of Fugitive Particulate Matter."	The proposed equipment will be subject to 45CSR17-3.1 which specifies that: *No person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.* MCCC will comply with this requirement through the installation and operation of the dust collection equipment described in this application.
45CSR22 – "Air Quality Management Fee Program"	Generally applicable.
45CSR30 – "Requirements for Operating Permits"	As shown in Attachment N, the post-project facility-wide potential emissions (excluding haulroads) will be less than the major source thresholds. Accordingly, The Marshall County Preparation Plant will remain a minor source not required to obtain a Title V operating permit.

ATTACHMENT E: PLOT PLAN



REV	BY	DATE	DESCRIPTION
A	DGD	11/13/17	ISSUED FOR REVIEW

CUSTOMER: MURRAY ENERGY FGD

PROJECT: MS-790

CROWN PRODUCTS & SERVICES, INC

DRAWN BY: DGD | DATE: 11/13/17 | SCALE: 1" = 40'-0"

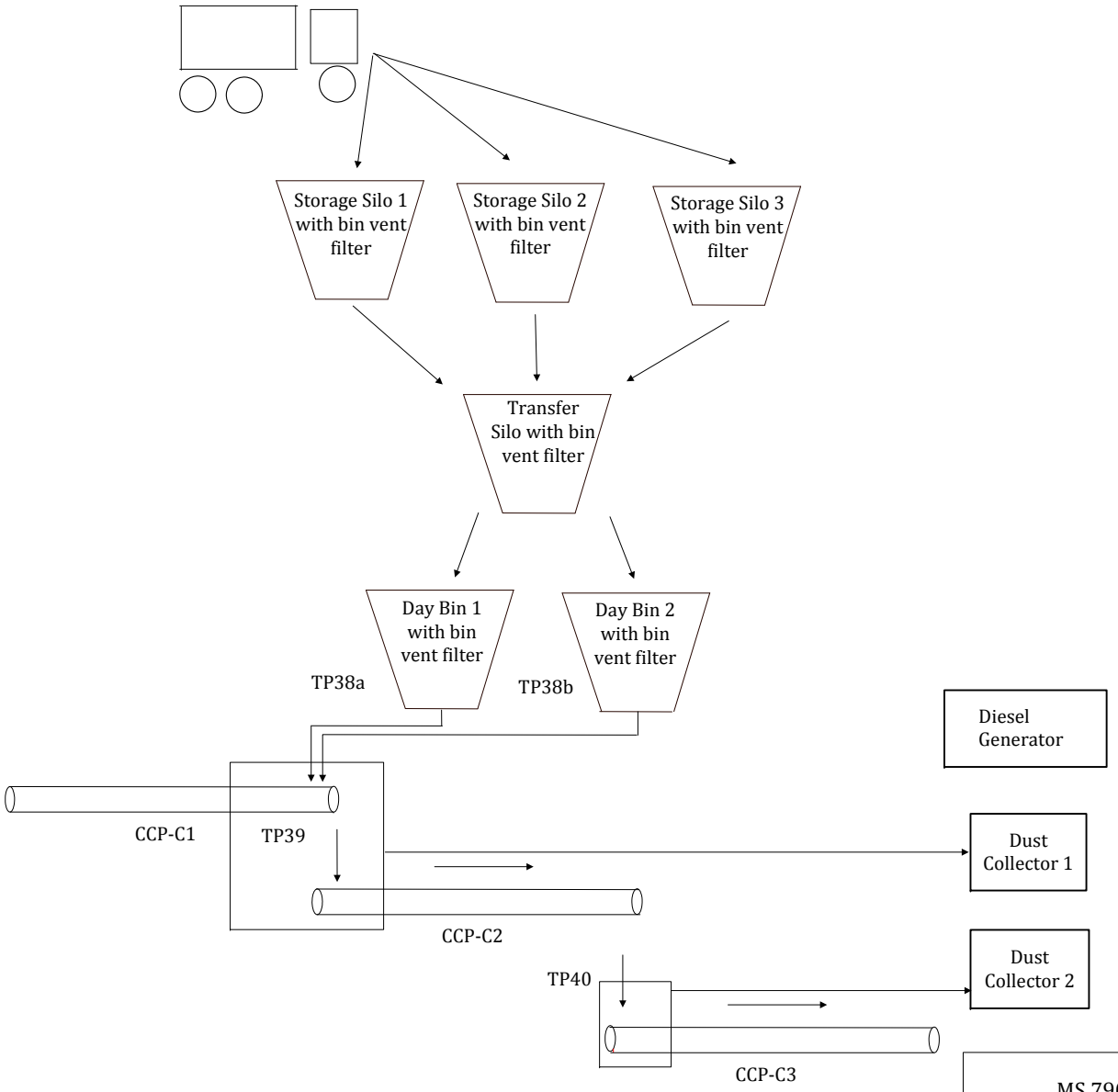
CHECKED BY: | DATE:

REVISION: A

DRAWING NUMBER: 1701-AQ

ATTACHMENT F: PROCESS FLOW DIAGRAM

Attachment F. MS 790 Project Process Flow Diagram



MS 790 Project Process Flow Diagram

Trinity Consultants

173601.0169
November 2017

The Marshall County Coal Company
The Marshall County Preparation Plant

ATTACHMENT G: PROCESS DESCRIPTION

The Marshall County Preparation Plant is an active bituminous coal underground mine. The coal is procured from an existing mine portal and is conveyed to two raw coal storage silos. From the raw coal storage pile, coal is conveyed to a screening tower, where the raw coal is screened and separated into two distinct material streams: the refuse stream is crushed, conveyed to refuse storage bins, and ultimately transported to refuse storage piles, and the "plant feed" coal is conveyed to a silo and ultimately transported to the preparation plant. Two types of material exit the preparation plant. The first type of material is refuse. The refuse is conveyed to a refuse storage bin and ultimately transferred to the refuse storage piles. The second type of material is clean coal, which is raw coal that has been screened, sized, and washed in the preparation plant. Clean coal is conveyed to the clean coal storage bin and ultimately transferred to the barge loadout area.

With this application, MCCC is requesting authorization to construct equipment to receive, store, and apply Crown MS 790 to coal combustion product (CCP) that is received from a nearby power plant.

ATTACHMENT H: MATERIAL SAFETY DATA SHEETS

SAFETY DATA SHEET

Material Solidifier - 790

MS-790

1. IDENTIFICATION

Product Identifier	Material Solidfier - 790 (MS-790)
Synonyms:	Lightweight Aggregate, Pozzolon
Intended use of the product:	Product is used as an additive for cement and a supplementary cementitious material for concrete and concrete products. It is also used in soil stabilization and other products that are widely used in construction.
Contact:	Crown Products and Services 319 S Gillette Ave, Ste 303 Gillette, WY 82716 307-696-8175
Contact Information:	CHEMTREC EMERGENCY TELEPHONE NUMBER (24 hrs): (800)424-9300 COMPANY CONTACT (business hours): (678)368-4300 (8 AM-4 PM EST)

2. HAZARD IDENTIFICATION

According to OSHA 29 CFR 1910.1200 HCS

Classification of the Substance or Mixture

Classification (GHS-US):

Skin Corrosion/Irritation	Category 1	H314
Serious Eye Damage/Eye Irritation	Category 1	H318
STOT SE	Category 3	H335
Carcinogenicity	Category 1A	H350
STOT RE	Category 1	H372

Labeling Elements

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US):
H314 - Causes severe skin burns and eye damage.
H318 – Causes serious eye damage.
H335 – May cause respiratory irritation.
H350 – May cause cancer.
H372 – Causes damage to lung through prolonged or repeated exposure inhalation.

Precautionary Statements (GHS-US) :

Prevention	P201 - Obtain special instructions before use. P202- Do not handle until all safety precautions have been read and understood P260 - Do not breathe dust/fume/gas/mist/vapors/spray. P264- Wash thoroughly after handling. P270- Do not eat, drink or smoke when using this product. P271- Use only outdoors or in a well-ventilated area. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
Response	P301+P330+P331- If swallowed: Rinse mouth. Do not induce vomiting. P303+361+353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse with water/shower. P304+P340- If inhaled: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P308+P313- If exposed or concerned: Get medical attention/advice. P310-Immediately call a poison center or doctor P363- Wash contaminated clothing before reuse.
Storage	P403+P233- Store in a well-ventilated place. Keep container tightly closed
Disposal	P501- Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards Not Otherwise Classified: None

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition Information

Name	Product Identifier (Cas#)	% (w/w)	Classification
Ferrous Metal	65996-69-2	90-100	Not Classified
Calcium oxide	1305-78-8	0-30	Skin Irr. 1C (H314) Eye Irr. 1 (H318) STOT SE 3 (H335)
Silica, amorphous	7631-86-9	25-50	Not Classified
Magnesium oxide	1309-48-4	0.1-20	Skin Irr. 3 (H316) Eye Irr. 2 (H320) STOT SE 3 (H335)
Quartz	14808-60-7	0.1-15	Carc. 1A (H350) STOT RE 1 (H372)
Gypsum	13397-24-5	0-10	Not Classified
Aluminum oxide	1344-28-1	2-15	Not Classified

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. FIRST AID MEASURES

Route	Measures
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the individual is not

	breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Call a poison center or physician.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth with water and afterwards drink plenty of water. Get immediate medical attention.
Eye Contact	In case of contact get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 30 minutes. Chemical burns must be treated promptly by a physician.
Skin Contact	Wash off with plenty of water. Remove contaminated clothing and shoes. Launder contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention
Absorption	As with skin contact, remove contaminated clothing and flush with copious amounts of water. Flush affected area for at least 15 minutes to minimize potential for further absorption. Seek medical attention if significant portions of skin have been exposed.

Most Important Symptoms
May cause serious eye damage. May cause skin irritation. May cause irritation of respiratory tract. Carcinogen; breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease. Inhalation of dusts may cause respiratory irritation or burns.

Indication of any immediate medical attention and special treatment needed
Note to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. FIRE-FIGHTING MEASURES

Flammable properties
This product is not flammable or combustible

Extinguishing Media
Use an extinguishing agent suitable for the surrounding fire.

Specific Hazards / Products of Combustion
No specific fire or explosion hazard.

Special Precautions and Protective Equipment for Firefighters
Do not use water jet. Use of heavy stream of water may spread fire. Move containers from fire area if this can be done without risk. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

See Section 9 for fire properties of this chemical including flash point, autoignition temperature, and explosive limits

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust from the spilled material. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for additional information.

Environmental Precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if reportable thresholds have entered the environment, including waterways, soil or air. Materials can enter waterways through drainage systems.

Containment and Clean-Up Methods
For a dry material spill, use a HEPA (high efficiency particle air) vacuum to collect material and place in a sealable container for disposal. Avoid dust formation. For a wet spill, absorb or cover with dry earth, sand or other non-combustible material and transfer to containers for disposal. Neutralize the spill area. Use materials that can withstand the potentially corrosive nature of this product. Do not get water inside containers.

7. HANDLING AND STORAGE

Handling Precautions
Avoid contact with eyes, skin, or clothing. This product contains quartz, which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Keep in the original container or an approved alternative made from a compatible material and keep the container tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage
Keep container tightly closed in a dry and well-ventilated place. Avoid contact with water and moisture. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits
US. ACGIH Threshold Limit Values
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Magnesium oxide: TWA 10 mg/m3 Inhalable fraction.
(CAS#1309-48-4)
Quartz: 0.025 mg/m3 TWA (respirable fraction)
(CAS# 14808-60-7)
Gypsum: TWA 10 mg/m3 Inhalable fraction.
(CAS#13397-24-5)

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Components Type Value Form
Calcium oxide: PEL 5 mg/m3
(CAS#1305-78-8)
Magnesium oxide: PEL 15 mg/m3 Total particulate.
(CAS#1309-48-4)
Silica, amorphous: PEL 6 mg/m3 TWA (<1% Crystalline silica)
Quartz: 0.1 mg/m3 TWA (respirable dust)
(CAS# 14808-60-7)
Gypsum: PEL 5 mg/m3 Respirable fraction 15 mg/m3 Total dust.
(CAS#13397-24-5)
Aluminum oxide: 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction)
(CAS# 1344-28-1)

US. OSHA Table Z-3 (29 CFR 1910.1000)
Components Type Value Form
Silica, amorphous: PEL 20 mppcf TWA; (80)/ (% SiO2) mg/m3 TWA
(CAS#7631-86-9)
Quartz: TWA 0.3 mg/m3 Total dust, 0.1 mg/m3 Respirable, 2.4 mppcf Respirable.
(CAS#14808-60-7)

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Magnesium oxide: TWA 10 mg/m3 Fume.
(CAS#1309-48-4)
Quartz: TWA 0.025 mg/m3 Respirable particles.
(CAS#14808-60-7)
Gypsum: TWA 10 mg/m3
(CAS#13397-24-5)

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Magnesium oxide: STEL 10 mg/m3 Respirable dust and/or fume, TWA 3 mg/m3 Respirable dust and/or fume, 10 mg/m3 Inhalable fume.
(CAS1309-48-4)
Quartz: TWA 0.025 mg/m3 Respirable fraction.
(CAS#14808-60-7)
Gypsum: STEL 20 mg/m3 Total dust, TWA 10 mg/m3 Inhalable
(CAS#13397-24-5)

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Gypsum: TWA 10 mg/m3 Inhalable fraction.
(CAS#13397-24-5)
Magnesium oxide: TWA 10 mg/m3 Inhalable fraction.
(CAS#1309-48-4)
Quartz: TWA 0.1 mg/m3 Respirable.
(CAS#14808-60-7)

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Magnesium oxide: TWA 10 mg/m3 Fume.
(CAS#1309-48-4)
Quartz: TWA 0.1 mg/m3 Respirable dust.
(CAS#14808-60-7)
Gypsum: TWA 5 mg/m3 Respirable dust, 10 mg/m3 Total dust.
(CAS#13397-24-5)

Mexico. Occupational Exposure Limit Values
Components Type Value Form
Calcium oxide: TWA 2 mg/m3
(CAS#1305-78-8)
Gypsum: TWA 10 mg/m3
(CAS#13397-24-5)
Magnesium oxide: TWA 10 mg/m3 Fume.

(CAS#1309-48-4)
Quartz: TWA 0.1 mg/m3
(CAS#14808-60-7)

Engineering Controls

Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Personal Protective Equipment

Exposure	Equipment
Eye / Face	To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields. Wearing contact lenses is not recommended.
Skin	Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact glove manufacturer for specific information.
Respiratory	Wear respirator with dust filter. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known or any other circumstances where air-purifying respirators may not provide adequate protection.
General Hygiene considerations	Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. When using, do not eat, drink or smoke. Wash hands after handling. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	Comments
Appearance	Gray/black or brown/tan powder	
Physical State	Solid	
Odor	Odorless	
Odor Threshold	Not available	
pH	8-10 in water	
Melting / Freeze Point	Not available	
Boiling Point And Range	> 1000 °C (1832.00 °F)	
Flash Point	Not available	
Evaporation Rate	Not available	
Flammability	Not available	
Flammability Limits	Not available	
Vapor Pressure	Not available	
Vapor Density	Not available	
Specific Gravity	2.3	

Property	Value	Comments
Solubility	Negligible.	
Partition Coefficient	Not available	
Autoignition Temperature	Not available	
Decomposition Temperature	Not available	
Viscosity	Not available	
Percent Volatiles	Not available	

10. STABILITY AND REACTIVITY

Reactivity
Not expected to occur.

Stability
The product is stable under normal conditions of use, storage and transport.

Reactions / Polymerization
Not expected to occur.

Conditions to Avoid
Contact with incompatible materials. Exposure to moisture may affect product quality.

Incompatible Materials
Strong acids, strong bases, strong oxidizers.

Hazardous Decomposition Products
Oxides of iron. Metal oxides. Oxides of calcium. Silicon oxides. Oxides of aluminum. Oxides of magnesium.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity (Inhalation LC50)
Calcium oxide (CAS#1305-78-8): > 160 mg/m3 4 hr (Similar substance)
Magnesium oxide (CAS#1309-48-4): No data available.
Quartz (CAS#14808-60-7): No data available.
Silica, amorphous (CAS# 7631-86-9): No data available.
Gypsum (CAS# 13397-24-5): LC50 > 3.26 mg/L air (inhalation, dust, 4 h)
Aluminum Oxide (CAS# 1344-28-1): > 2.3 mg/l (rat, 4h)
Ferrous metal (CAS# 65996-69-2): LC50 > 5.235 mg/L (rat, 4h, dust)

Acute Toxicity (Oral LC50)
Calcium oxide (CAS#1305-78-8): LD50> 2000 mg/kg (rat)
Magnesium oxide (CAS#1309-48-4): LD50 3870 mg/kg (rat)
Quartz (CAS#14808-60-7): LD50 500 mg/kg (rat)
Silica, amorphous (CAS# 7631-86-9): > 5000 mg/kg (rat)
Gypsum (CAS# 13397-24-5): LD50 > 2000 mg/kg bw (rat)
Aluminum Oxide (CAS# 1344-28-1): > 15900 mg/kg (rat)
Ferrous metal (CAS# 65996-69-2): > 2000 mg/kg (rat)

Acute Toxicity (Dermal LC50)
Calcium oxide (CAS#1305-78-8): LD50 > 5000 mg/kg (rabbit)(similar substance)
Magnesium oxide (CAS#1309-48-4): No data available.
Quartz (CAS#14808-60-7): No data available.
Silica, amorphous (CAS# 7631-86-9):): > 5000 mg/kg (rat)
Gypsum (CAS# 13397-24-5): No data available
Ferrous Metal (CAS# 65996-69-2): > 4000 mg/kg (rat)

Skin Corrosion/Irritation:
Causes skin irritation. May cause serious burns in the presence of moisture.

Serious Eye Damage/ Irritation:
Causes serious eye damage. May cause burns in the presence of moisture.

Respiratory or Skin Sensitization:
May cause respiratory irritation.

Germ Cell Mutagenicity:
No data available.

Carcinogenicity:
May cause cancer.

ACGIH Carcinogens
Magnesium oxide (CAS 1309-48-4): A4 Not classifiable as a human carcinogen.
Quartz (CAS 14808-60-7): A2 Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity
Quartz (CAS 14808-60-7): 1 Carcinogenic to humans.
Silica, amorphous (7631-86-9): 3 Not classifiable as to carcinogenicity to humans.

US NTP Report on Carcinogens: Known carcinogen
Quartz (CAS 14808-60-7): Known To Be Human Carcinogen.

US OSHA Specifically Regulated Substances: Cancer hazard
No data available.

Teratogenicity: No data available

Specific Target Organ Toxicity (Repeated Exposure): Quartz (CAS #14808-60-7): Category 1, route of exposure: inhalation, target organs: respiratory tract and organs.

Specific Target Organ Toxicity (Single Exposure): Calcium oxide, Magnesium oxide; Category 3, route of exposure: inhalation and skin contact, target organs: Respiratory tract irritation, skin irritation.

Aspiration Hazard: No data available.

Potential Health Effects: Causes serious eye damage. May cause respiratory irritation. Causes skin irritation. Ingestion is likely to be harmful or have adverse effects.

Chronic effects: Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs. Some studies show excess numbers of cases of scleroderma, connective tissue disorders, lupus, rheumatoid arthritis, chronic kidney diseases and end-stage kidney disease in workers exposed to respirable crystalline silica. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. Danger of serious damage to health by prolonged exposure.

Crystalline silica is considered a hazard by inhalation. IARC has classified crystalline silica as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Excessive exposure to crystalline silica can cause silicosis, a non-cancerous lung disease. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Causes damage to organs through prolonged or repeated exposure.

12. ECOLOGICAL INFORMATION

Toxicity:

Data for component: Ferrous Metal (CAS# 65996-69-2)	
Aquatic Toxicity-Acute	Leuciscus idus 96 hr LC50 > 1000 mg/L Daphnia magna 48 hr EC50 > 1000 mg/L Scenedesmus subspicatus 72 hr IC50 > 100 g/L
Aquatic Toxicity-Chronic	Daphnia magna 21 days NOEC = 1563 mg/L
Data for Component: Gypsum (CAS#13397-24-5)	
Aquatic Toxicity-Acute	LC50 > 1970 mg/l (Exposure time: 96h - Species: Fathead minnow (Pimephales promelas))
Data for Component: Calcium oxide (CAS#1305-78-8)	
Aquatic Toxicity-Acute	Cyprinus carpio 96 hr LC50 = 1070 mg/L
Aquatic Toxicity-Chronic	Tilapia nilotica 46 days NOEC = 100 mg/L
Data for Component: Quartz (CAS#14808-60-7)	
Aquatic Toxicity – Acute	Daphnia magna 24 hr LL50 > 10000 mg/L; Danio rerio 96 hr LL0 = 10000 mg/L Desmodesmus subspicatus 72 hr EC50 > 14 mg/L (similar substance)
Aquatic Toxicity – Chronic	- No data available.
Data for Component: Magnesium Oxide (CAS# 1309-48-4)	
Aquatic Toxicity-Acute	Daphnia magna 48 hr Mortality = 129.9 mg/L
Aquatic Toxicity-Chronic	No data available.
Data for Component: Silica, amorphous (CAS# 7631-86-9)	
Aquatic Toxicity-Acute	Brachydanio rerio 96 h LC50 = 5000 mg/L Ceriodaphnia dubia 48 h EC50 = 7600 mg/L Selenastrum capricornutum 72 h EC50 = 440 mg/L
Aquatic Toxicity-Chronic	No data available.
Data for Component: Aluminum Oxide (CAS# 1344-28-1)	
Aquatic Toxicity-Acute	No data available.
Aquatic Toxicity-Chronic	No data available.

Persistence and Degradation: Material Solidification MS 790 product may cause long-term adverse effects in the environment. **Bioaccumulative Potential**: No data available.

Mobility in Soil: No data available.
Other Adverse Effects: No data available.
Other Information: No data available.

13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Untreated waste should not be released to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff, and contact with soil, waterways, drains and sewers.

14. TRANSPORT INFORMATION

US DOT

UN Identification Number	Not regulated
Proper Shipping Name	Not available
Hazard Class and Packing Group	Not available
Shipping Label	Not available
Placard / Bulk Package	Not available
Emergency Response Guidebook Guide Number	Not available

IATA Cargo

UN Identification Number	Not regulated
Shipping Name / Description	Not available
Hazard Class and Packing Group	Not available
ICAO Label	Not available
Packing Instructions Cargo	Not available
Max Quantity Per Package Cargo	Not available

IATA Passenger

UN Identification Number	Not regulated
Shipping Name / Description	Not available
Hazard Class and Packing Group	Not available
ICAO Label	Not available
Packing Instructions Passenger	Not available
Max Quantity Per Package	Not available

IMDG

UN Identification Number	Not regulated
Shipping Name / Description	Not available
Hazard Class and Packing Group	Not available
IMDG Label	Not available
EmS Number	Not available
Marine Pollutant	Not available

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

U.S. Federal, State, and Local Regulatory Information

U.S. Toxic Substances Control Act
All components are on the U.S. EPA TSCA Inventory List.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Annual Export Notification required.

CERCLA/ SARA Section 313- Supplier Notification
Aluminum oxide (CAS#1344-28-1) : 1.0 % de minimis concentration (fibrous forms)

Clean Air Act Section 602: Class I Substances — Not listed
Clean Air Act Section 602: Class II Substances — Not listed
DEA List I Chemicals: (Precursor Chemicals) — Not listed
DEA List II Chemicals: (Essential Chemicals) — Not listed

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Immediate Hazard (Acute)- Yes
Delayed Hazard (Chronic) - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CRF 355, Appendix A)-No
Drug Enforcement Administration (DEA) (21 CFR1308.11-15)-Not controlled

State regulations WARNING: This product contains chemical(s) known to the State of California to cause cancer.
US - California Hazardous Substances (Director's):
Calcium oxide (CAS 1305-78-8)
Magnesium oxide (CAS 1309-48-4)
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT):
Quartz (CAS 14808-60-7)
US - California Proposition 65 - CRT: Listed date/Carcinogenic substance
Quartz (CAS 14808-60-7) Listed: October 1, 1988 Carcinogenic.
US - Massachusetts RTK - Substance: Listed substance
Calcium oxide (CAS 1305-78-8)
Gypsum (CAS 13397-24-5)
Magnesium oxide (CAS 1309-48-4)
Quartz (CAS 14808-60-7)
Silica, amorphous (CAS 7631-86-9)
Aluminum oxide (CAS 1344-28-1)

US - New Jersey RTK - Substances: Listed substance
Calcium oxide (CAS 1305-78-8)
Gypsum (CAS 13397-24-5)
Magnesium oxide (CAS 1309-48-4)
Quartz (CAS 14808-60-7)
Silica, amorphous (CAS 7631-86-9)
Aluminum oxide (CAS 1344-28-1)

US - Pennsylvania RTK - Hazardous Substances: Listed substance
Calcium oxide (CAS 1305-78-8)
Gypsum (CAS 13397-24-5)
Magnesium oxide (CAS 1309-48-4)
Quartz (CAS 14808-60-7))
Silica, amorphous (CAS 7631-86-9)
Aluminum oxide (CAS 1344-28-1)

Canadian Regulatory Information
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status
Controlled

WHMIS classification
D2A - Other Toxic Effects-VERY TOXIC
E – Corrosive

WHMIS labeling

Inventory status	Country(s) or region Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

**A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)*

16. OTHER INFORMATION

Further information A HMIS® Health rating including an * indicates a chronic hazard
HMIS® ratings
Health: 3*
Flammability: 0
Physical hazard: 1

NFPA ratings
Health: 3
Flammability: 0
Instability: 0

Version:
2015.05.29
Issue Date:
5/29/2015

SAFETY DATA SHEET
Material Solidification

MS 790 product

Prior Issue Date:
3/11/2011

Description of Revisions
Revise to meet Globally Harmonized System for chemical hazard communication requirements pursuant to OSHA regulatory revisions 77 FR 17884, March 26, 2012.

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Abbreviations
ACGIH — American Conference of Governmental Industrial Hygienists
CAS#— Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

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** End of Safety Data Sheet **

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]
MS790-PIG1	MS790-PIG1	MS 790 PIG 1	2018	100 tons	New	BV
MS790-PIG2	MS790-PIG2	MS 790 PIG 2	2018	100 tons	New	BV
MS790-PIG3	MS790-PIG3	MS7 90 PIG 3	2018	100 tons	New	BV
MS790-TS1	MS790-TS1	MS 790 Transfer Silo	2018	50 tons	New	BV
MS790-DB1	MS790-DB1	MS 790 Day Bin 1	2018	150 tons	New	BV
MS790-DB2	MS790-DB2	MS 790 Day Bin 2	2018	150 tons	New	BV
MS790-SC1	TP-38a	MS 790 Screw Conveyor 1	2018	128 tph	New	DC
MS790-SC2	TP-38b	MS7 90 Screw Conveyor 2	2018	128 tph	New	DC
DGEN	DGEN	Diesel Generator	2018	480 hp	New	N/A
MS790-HR	MS790-HR	MS 790 Haul Roads	2018	N/A	New	WT

[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.

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			
MS790-PIG1	Vertical Stack	MS790-PIG1		DC	Dust Collector	N/A	N/A	PM	0.96	4.22	9.6E-4	4.2E-3		EE	
								PM_{10}	0.96	4.22	9.6E-4	4.2E-3		EE	
								$PM_{2.5}$	0.96	4.22	9.6E-4	4.2E-3		EE	
MS790-PIG2	Vertical Stack	MS790-PIG2		DC	Dust Collector	N/A	N/A	PM	0.96	4.22	9.6E-4	4.2E-3		EE	
								PM_{10}	0.96	4.22	9.6E-4	4.2E-3		EE	
								$PM_{2.5}$	0.96	4.22	9.6E-4	4.2E-3		EE	
MS790-PIG3	Vertical Stack	MS790-PIG3		DC	Dust Collector	N/A	N/A	PM	0.96	4.22	9.6E-4	4.2E-3		EE	
								PM_{10}	0.96	4.22	9.6E-4	4.2E-3		EE	
								$PM_{2.5}$	0.96	4.22	9.6E-4	4.2E-3		EE	
MS790-TS1	Vertical Stack	MS790-TS1		BV	Bin Vent Filter	N/A	N/A	PM	1.93	8.45	1.9E-3	8.5E-3		EE	
								PM_{10}	1.93	8.45	1.9E-3	8.5E-3		EE	
								$PM_{2.5}$	1.93	8.45	1.9E-3	8.5E-3		EE	
MS790-DB1	Vertical Stack	MS790-DB1		BV	Bin Vent Filter	N/A	N/A	PM	1.93	8.45	1.9E-3	8.5E-3		EE	
								PM_{10}	1.93	8.45	1.9E-3	8.5E-3		EE	
								$PM_{2.5}$	1.93	8.45	1.9E-3	8.5E-3		EE	
MS790-DB2	Vertical Stack	MS790-DB2		BV	Bin Vent Filter	N/A	N/A	PM	1.93	8.45	1.9E-3	8.5E-3		EE	
								PM_{10}	1.93	8.45	1.9E-3	8.5E-3		EE	
								$PM_{2.5}$	1.93	8.45	1.9E-3	8.5E-3		EE	
TP-38a	Vertical Stack	MS790-SC1		DC	Dust Collector	N/A	N/A	PM	667.5	730.1	0.67	0.73		EE	
								PM_{10}	315.7	345.3	0.32	0.35		EE	
								$PM_{2.5}$	47.8	52.3	0.05	0.05		EE	
TP-38b	Vertical Stack	MS790-SC2		DC	Dust Collector	N/A	N/A	PM	667.5	730.1	0.67	0.73		EE	
								PM_{10}	315.7	345.3	0.32	0.35		EE	
								$PM_{2.5}$	47.8	52.3	0.05	0.05		EE	
MS790-HR	Fugitive	MS790-HR		WT	Water Truck	N/A	N/A	PM	3.51	6.82	11.69	22.74		EE	
								PM_{10}	1.00	1.94	3.33	6.48		EE	
								$PM_{2.5}$	0.10	0.19	0.33	0.65		EE	

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			
DGEN	Vertical Stack	DGEN		N/A		N/A	N/A	NO_x	N/A	N/A	3.95	9.47		EE	
								SO_2	N/A	N/A	5.2E-03	0.01		EE	
								CO	N/A	N/A	3.45	8.29		EE	
								$PM/PM_{10}/PM_{2.5}$	N/A	N/A	0.22	0.53		EE	
								VOC	N/A	N/A	3.95	9.47		EE	
								Total HAP	N/A	N/A	0.01	0.03		EE	
								CO_2e	N/A	N/A	N/A	1,319		EE	

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 (ie., 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, 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.

[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 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/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

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. (^{o}F)	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

[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						
Unpaved Haul Roads	PM	11.69	22.74	3.51	6.82	EE
	PM_{10}	3.33	6.48	1.00	1.94	EE
	$PM_{2.5}$	0.33	0.65	0.10	0.19	EE
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks						
General Clean-up VOC Emissions						
Other						

[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: EMISSIONS UNIT DATA SHEET

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source:

CCP-SC1, CCP-SC2

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

Refer to attached application narrative, process flow diagram (Attachment F), and process description (Attachment G).

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

N/A

4. Name(s) and maximum amount of proposed material(s) produced per hour:

N/A

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

N/A

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: ***N/A***

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

N/A

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: *N/A* × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	*N/A*	lb/hr	*N/A*	grains/ACF
b.	SO_2	*N/A*	lb/hr	*N/A*	grains/ACF
c.	CO	*N/A*	lb/hr	*N/A*	grains/ACF
d.	PM_{10}	*0.63*	lb/hr	*N/A*	grains/ACF
e.	Hydrocarbons	*N/A*	lb/hr	*N/A*	grains/ACF
f.	VOCs	*N/A*	lb/hr	*N/A*	grains/ACF
g.	Pb	*N/A*	lb/hr	*N/A*	grains/ACF
h.	Specify other(s)				
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O.	*See Attachment O.*
REPORTING	TESTING
See Attachment O.	*See Attachment O.*

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source: *Caterpillar C-15 480 horsepower diesel generator*
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour: ***N/A***
4. Name(s) and maximum amount of proposed material(s) produced per hour: ***N/A***
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants: ***N/A***

Refer to attached application narrative, process flow diagram (Attachment F) and process description (Attachment G).

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Diesel, Maximum Heat Input Capacity: 3.36 MMBtu/hr, Operating Hours: 4,800 hr/yr

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur

Max 0.0015% (15 ppm) sulfur

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Non-Emergency Diesel Engine, 3.36 MMBtu/hr

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: *3.50* × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day 13	Days/Week 7	Weeks/Year 52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	*3.95*	lb/hr	*N/A*	grains/ACF
b.	SO_2	*5.2E-03*	lb/hr	*N/A*	grains/ACF
c.	CO	*3.45*	lb/hr	*N/A*	grains/ACF
d.	PM_{10}	*0.22*	lb/hr	*Varies*	grains/ACF
e.	Hydrocarbons	*N/A*	lb/hr	*N/A*	grains/ACF
f.	VOCs	*3.95*	lb/hr	*N/A*	grains/ACF
g.	Pb	*N/A*	lb/hr	*N/A*	grains/ACF
h.	Specify other(s)				
	Formaldehyde	*3.96E-03*	lb/hr	*N/A*	grains/ACF
	Total HAP	*0.01*	lb/hr	*N/A*	grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
MCCC will comply with NSPS IIII.	*MCCC will comply with NSPS IIII.*
REPORTING	**TESTING**
MCCC will comply with NSPS IIII.	*MCCC will comply with NSPS IIII.*

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

Attachment L
FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

		PM	PM-10
k =	Particle size multiplier	4.9	1.5
s =	Silt content of road surface material (%)	8.4	8.4
p =	Number of days per year with precipitation >0.01 in.	157	157

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	MS790 Truck from Entrance to Pig	4	18	10	0.40	6	23,333	WT	70%
2									
3									
4									
5									
6									
7									
8									

Source: *AP-42 Fifth Edition – 13.2.2 Unpaved Roads*

$E = k \times 5.9 \times (s \div 12) \times (S \div 30) \times (W \div 3)^{0.7} \times (w \div 4)^{0.5} \times ((365 - p) \div 365) =$ lb/Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	Particle size multiplier	4.9	1.5
s =	Silt content of road surface material (%)	8.4	8.4
S =	Mean vehicle speed (mph)	10	10
W =	Mean vehicle weight (tons)	18	18
w =	Mean number of wheels per vehicle	4	4
p =	Number of days per year with precipitation >0.01 in.	157	157

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	11.69	22.74	3.51	6.82	3.33	6.48	1.00	1.94
2								
3								
4								
5								
6								
7								
8								
TOTALS								

FUGITIVE EMISSIONS FROM PAVED HAULROADS

INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	
s =	Surface material silt content (%)	
L =	Surface dust loading (lb/mile)	

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1							
2							
3							
4							
5							
6							
7							
8							

Source: *AP-42 Fifth Edition – 11.2.6 Industrial Paved Roads*

$E = 0.077 \times I \times (4 \div n) \times (s \div 10) \times (L \div 1000) \times (W \div 3)^{0.7}$ = lb/Vehicle Mile Traveled (VMT)

Where:

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	
s =	Surface meterial silt content (%)	
L =	Surface dust loading (lb/mile)	
W =	Average vehicle weight (tons)	

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF PAVED HAULROAD EMISSIONS

Item No.	Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY
1				
2				
3				
4				
5				
6				
7				
8				
TOTALS				

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source:

MS790-PIG1, MS790-PIG2, MS790-PIG3, MS790-TS1, MS790-DB1, MS790-DB2

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

Refer to attached application narrative, process flow diagram (Attachment F) and process description (Attachment G).

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

MS790-PIG1 - Crown Product, 450 cfm, 2.50E-04 gr/cf (filter exit loading)
MS790-PIG2 - Crown Product, 450 cfm, 2.50E-04 gr/cf (filter exit loading)
MS790-PIG3 - Crown Product, 450 cfm, 2.50E-04 gr/cf (filter exit loading)
MS790-TS1 - Crown Product, 900 cfm, 2.50E-04 gr/cf (filter exit loading)
MS790-DB1 - Crown Product, 900 cfm, 2.50E-04 gr/cf (filter exit loading)
MS790-DB2 - Crown Product, 900 cfm, 2.50E-04 gr/cf (filter exit loading)

4. Name(s) and maximum amount of proposed material(s) produced per hour:

N/A

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

N/A

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: ***N/A***

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

N/A

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: *N/A* × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ °F and psia

a.	NO_X	*N/A*	lb/hr	*N/A*	grains/ACF
b.	SO_2	*N/A*	lb/hr	*N/A*	grains/ACF
c.	CO	*N/A*	lb/hr	*N/A*	grains/ACF
d.	PM_{10}	*MS 790 Pigs (each): 9.6E-4* *MS 790 TS: 1.9E-3* *MS 790 Days Bins (each): 1.9E-3*	lb/hr	*2.5E-4*	grains/ACF
e.	Hydrocarbons	*N/A*	lb/hr	*N/A*	grains/ACF
f.	VOCs	*N/A*	lb/hr	*N/A*	grains/ACF
g.	Pb	*N/A*	lb/hr	*N/A*	grains/ACF
h.	Specify other(s)				
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF
			lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O.	*See Attachment O.*
REPORTING	TESTING
See Attachment O.	*See Attachment O.*

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

ATTACHMENT M: AIR POLLUTION CONTROL DEVICE FORMS

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table):

Equipment Information and Filter Characteristics

1. Manufacturer: C&W
   Model No. BP-1500
2. Total number of compartments: 1
3. Number of compartmen online for normal operation:
4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.
5. Baghouse Configuration: (check one)
   - ☐ Open Pressure
   - ☐ Closed Pressure
   - ■ Closed Suction
   - ☐ Electrostatically Enhanced Fabric
   - ☐ Other, Specify
6. Filter Fabric Bag Material:
   - ☐ Nomex nylon
   - ☐ Wool
   - ■ Polyester
   - ☐ Polypropylene
   - ☐ Acrylics
   - ☐ Ceramics
   - ☐ Fiber Glass
   - ☐ Cotton Weight oz./sq.yd
   - ☐ Teflon Thickness in
   - ☐ Others, specify
7. Bag Dimension:
   Diameter 139 in.
   Length 10 ft.
8. Total cloth area: 1507 ft^2
9. Number of bags: 96
10. Operating air to cloth ratio: 5.97 ft/min
11. Baghouse Operation: ■ Continuous ☐ Automatic ☐ Intermittent
12. Method used to clean bags:
    - ☐ Mechanical Shaker
    - ☐ Pneumatic Shaker
    - ☐ Bag Collapse
    - ☐ Manual Cleaning
    - ☐ Sonic Cleaning
    - ☐ Reverse Air Flow
    - ■ Pulse Jet
    - ☐ Reverse Jet
    - ☐ Reverse Air Jet
    - ☐ Other:
13. Cleaning initiated by:
    - ■ Timer
    - ☐ Expected pressure drop range in. of water
    - ☐ Frequency if timer actuated
    - ☐ Other
14. Operation Hours: Max. per day: Max. per yr:
15. Collection efficiency: Rating: % Guaranteed minimum: 99.9 %

Gas Stream Characteristics

16. Gas flow rate into the collector: 9,000 ACFM at °F and PSIA
    ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA
17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air
18. Gas Stream Temperature: °F
19. Fan Requirements: 20 hp
    OR ft^3/min
20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O
    Low in. H_2O
21. Particulate Loading: Inlet: grain/scf Outlet: grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

Particulate (Crown MS 790 Product)

23. Is there any SO_3 in the emission stream? ■ No ☐ Yes SO_3 content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
See attached emissions calculations				

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☐ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ■ Visual opacity readings, Frequency: Weekly
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:

N/A

28. Describe any filter seeding being performed:

N/A

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

N/A

30. Describe the collection material disposal system:

N/A

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:	Recordkeeping
See Attachment O	See Attachment O
REPORTING:	TESTING:
See Attachment O	See Attachment O

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

See attached spec sheets

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

See attached spec sheet

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

N/A

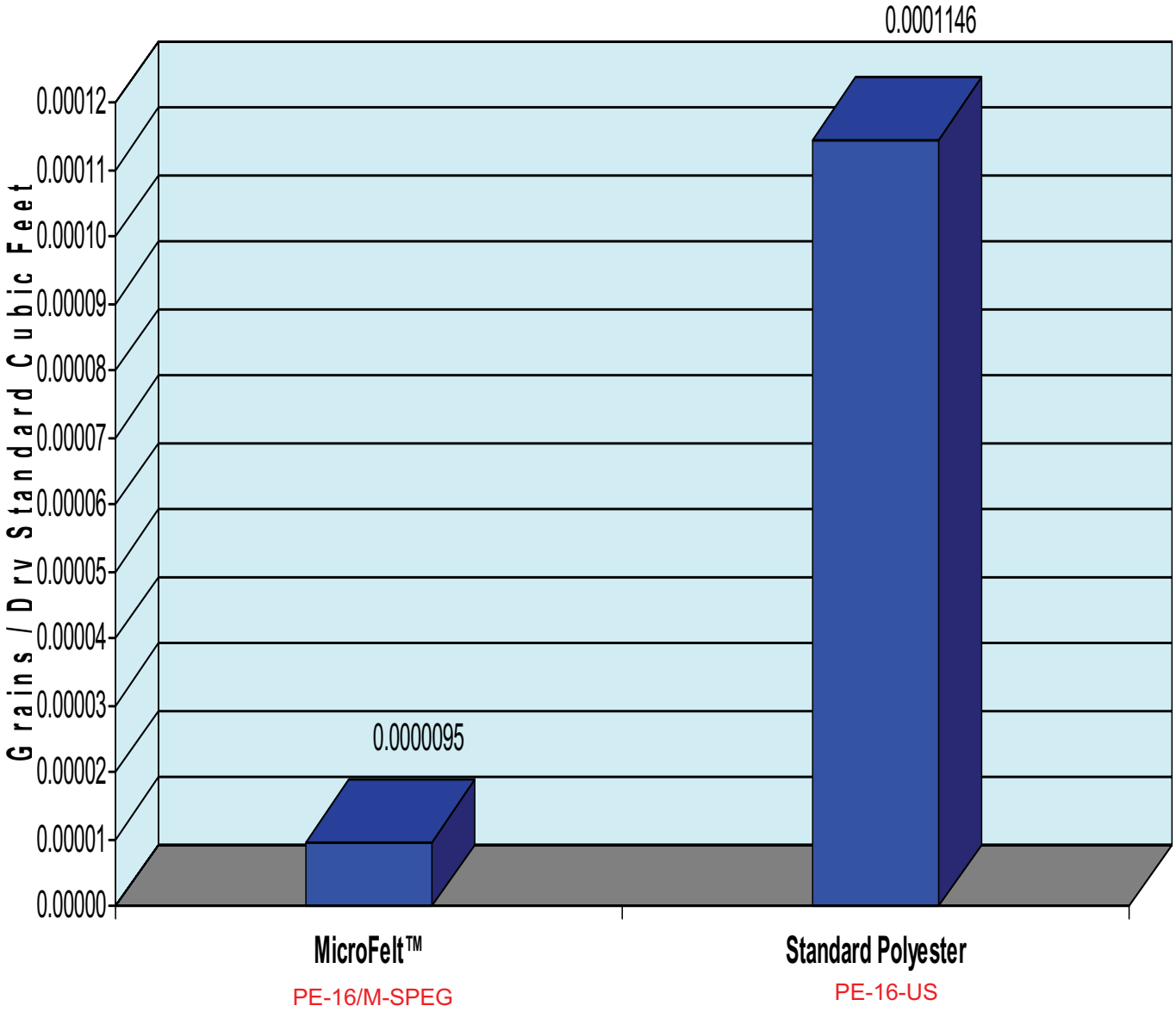
VERIFICATION TESTING OF BAGHOUSE FILTRATION PRODUCTS

SOUTHERN FELT SUMMARY OF RESULTS AT 6.6/1 A/C

RUN ID.	**ETS Test #**
FABRIC DESIGNATION	**Southern Felt Style #**
MANUFACTURER	**Southern Felt**
DUST FEED	**Pural NF (Aluminum Oxide) minimum 40% of the dust concentration less than 2.5 micron**
VERIFICATION OF TEST RESULTS	**ASTM D6830-02**
Mean Outlet Particle Conc. PM 2.5 (gr/dscf)	**Outlet emissions in grains/dry standard cubic feet for 2.5 micron dust**
Mean Outlet Particle Conc. Total mass (gr/dscf)	**Outlet emissions in grains/dry standard cubic feet for all size dust particles**
Initial Residual Pressure Drop (in. w.g.)	**Differential pressure at the start of the test period after the first pulse**
Change in Residual Pressure Drop (in. w.g.)	**The difference in differential pressure at the start and end of the test period**
Average Residual Pressure Drop (in. w.g.)	**Average differential pressure for the 6 hour test period. Average is based on 60 minute blocks**
Mass Gain of Filter Sample (g)	**Difference in weight gain in grams from the start and the end of the test period**
Average Filtration Cycle Time (s)	**# seconds between pulses to maintain 4" differential pressure**
Number of Pulses	**Total # of pulses for the 6 hour test period set to clean at 4" differential pressure**
RESIDUAL PRESSURE DROP At Start of:	**Differential pressure recorded 3 seconds after the pulse cleaning cycle**
Conditioning Period (in. w.g.)	**10,000 rapid pulses at 3 second intervals to simulate long term operation**
Recovery Period (in. w.g.)	**30 normal pulse cycles set to clean at 4" differential pressure**
Performance Test Period (in. w.g.)	**6 hour test period with the pulse cycle set to clean at 4" differential pressure**
REMOVAL EFFICIENCY (%)	
Dust Conc (gr/dscf)	**Inlet dust loading in grains/dry standard cubic feet**
PM 2.5	**% of filtration efficiency on 2.5 micron dust**
Total Mass	**% of filtration efficiency for all size dust particles**
	Dust particle size distribution for test was 77.35% less than 2.5 micron

Polyester MicroFelt™

PM 2.5 Efficiency Testing
ASTM D6830-02



NOTE: TEST DUST PARTICLE SIZE DISTRIBUTION: 77% LESS THAN 2.5 MICRON

TESTING OF BAGHOUSE FILTRATION PRODUCTS

SOUTHERN FELT SUMMARY OF RESULTS AT 6.6/1 A/C

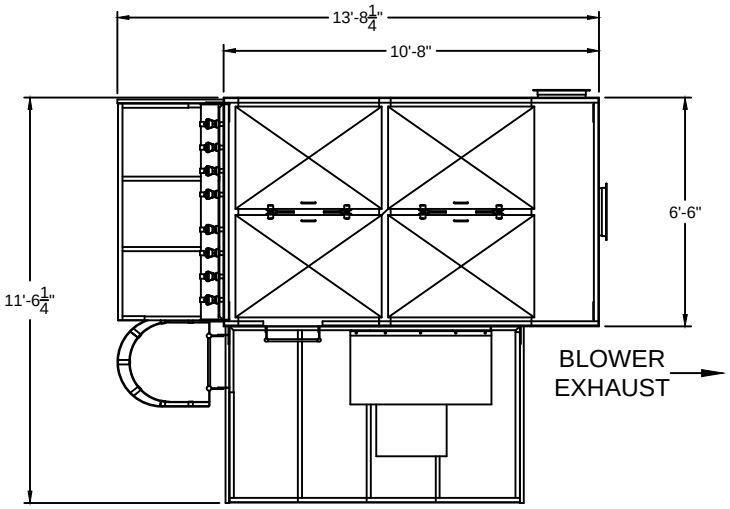
ETS CONTRACT NUMBER: 04-159 DATE: 11/01/04

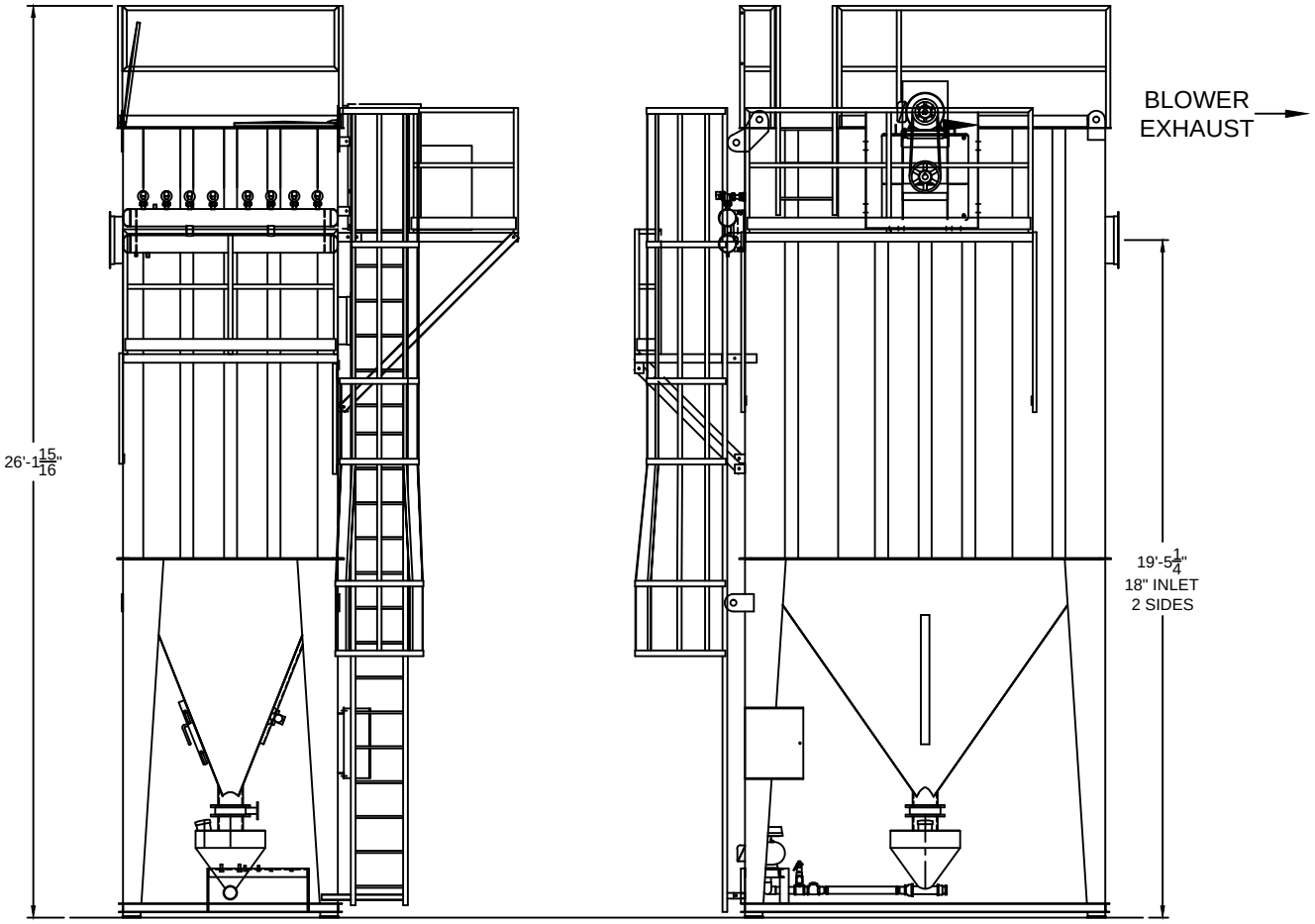
* $\frac{\text{(Dust Concentration * 0.7735) - PM 2.5 Outlet Concentration}}{\text{Dust Concentration * 0.7735}}$ * 100

** $\frac{\text{Dust Concentration - Total Mass Outlet Concentration}}{\text{Dust Concentration}}$ * 100

RUN ID.		**934-1-1**	**159-B1**
FABRIC DESIGNATION		**PE-16-US**	**PE-16/M-SPEG**
MANUFACTURER		**Southern Felt**	**Southern Felt**
DUST FEED		**Pural NF**	**Pural NF**
VERIFICATION TEST RESULTS		ASTM D6830-02	
Mean Outlet Particle Conc. PM 2.5 (gr/dscf)		0.0001146	0.0000095
Mean Outlet Particle Conc. Total mass (gr/dscf)		0.0001153	0.0000170
Initial Residual Pressure Drop (in. w.g.)		1.48	1.49
Change in Residual Pressure Drop (in. w.g.)		0.42	0.23
Average Residual Pressure Drop (in. w.g.)		1.74	1.63
Mass Gain of Filter Sample (g)		1.43	0.70
Average Filtration Cycle Time (s)		48	97
Number of Pulses		448	223
RESIDUAL PRESSURE DROP			
At Start of:			
Conditioning Period (in. w.g.)		0.05	0.10
Recovery Period (in. w.g.)		1.39	1.43
Performance Test Period (in. w.g.)		1.48	1.49
REMOVAL EFFICIENCY (%)			
Dust Conc (gr/dscf)		8.17	7.87
PM 2.5	*	99.99818659	99.99984
Total Mass	**	99.9985893	99.99978

ACAD/DRAW/NEWEST/GA/KR-1500
NOTE: THIS PRINT NOT FOR CONSTRUCTION. FOR GENERAL REF. ONLY





BP-1500-96120 PULSE JET COLLECTOR

C & W MFG. & SALES CO.
6933 SHELMOR RD.
ALVARADO, TX. 76009 (817) 790-5000

Pulse Jet

Bag Pulse Jet - Series Dust Collectors

C&W
Manufacturing and Sales
1 (800) 880-3878

C&W Manufacturing and Sales Co.
1-800-880-DUST
www.cwmfg.com

C&W Manufacturing and Sales
1 (800) 880-3878

BP-Series Central Dust Collectors

General Information

C&W's BP Series offers the ultimate dust control. Advanced Bag Pulse Jet technology combined with our superior filter bags and C&W dependability create a superior dust control system. The BP Series highlights tool-less media exchange, high cleaning capacity, and top loading of filter media. Engineered by dust control specialists, the BP Series provides supreme performance and user-friendliness.

Benefits	Features:
Easy to Maintain	Tool-less Exchange of Filter Media
	Top Entry for Clean Side Filter Exchange
Efficiency	99.9% Filtration Efficiency*
	High Level Entry for Contaminated Air
	Snap-in Bags / Cages with Venturi
Performance	Magnehelic Gauge
	Laser Aligned Cleaning System
	Hopper Vibrator
Reliable, Easy to Operate	Electrical Control Panel
	Solid State Adjustable Timers w/ LED Display
Long-Lasting, Durable	10 Gauge, Corrugated Steel Construction
Safety, OSHA-Compliant	Ladders, Platforms, and Handrails

Options

- Manual or Automatic Recycle Systems
- Custom Shrouds and Snorkels
- Silo Anti-Overfill System
- Screw Conveyor with "V" Hopper
- On Demand Smart Systems
- Available in Mobile Units
- Additional Services:
  - Turn-Key Installations
  - Customized Layouts
  - Start-up and Maintenance Training
  - Professional Consultation

Automatic Recycle System

Specs

Specifications	BP-790	BP-1100	BP-1300	BP-1500	BP-1800	BP-2000
Filtration Area (sq. ft.)	790	1100	1256	1507	1810	2072
# of Bags	50	70	80	96	96	132
Bag Length	120"	120"	120"	120"	144"	120"
Overall Height	23'	24' 7"	25'1"	26'2"	28'2"	23'5"
Overall Width	10'5"	10'10"	11'5"	11'7"	11'11"	19'5"
Overall Length	8'6"	12'2"	12'2"	14'	13'11"	10'3"
Blower HP	10	15	15	20	25	25
Air to Cloth Ratio (ACFM/ft.2)	6.3	5.91	6.37	5.97	6.08	6.12
Blower CFM	5000	6500	8000	9000	11000	12500
# of Compartments	1	1	1	1	1	1
Cleaning Mechanism	Pulse Jet w/ Timer	Pulse Jet w/ Timer	Pulse Jet w/ Timer	Pulse Jet w/ Timer	Pulse Jet w/ Timer	Pulse Jet w/ Timer
Min. Design Efficiency*	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

*At Standard Test Conditions

C&W Manufacturing and Sales Co.
P.O. Box 908 ▪ Crowley, TX 76036
1-800-880-DUST ▪ www.cwmfg.com

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table):

Equipment Information and Filter Characteristics

1. Manufacturer: Automated Ingredient Systems, LLC
   Model No. 9BV40-3.75SQ

2. Total number of compartments: 1

3. Number of compartment online for normal operation: N/A

4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.

5. Baghouse Configuration: (check one)
   ☐ Open Pressure ☒ Closed Pressure ☐ Closed Suction
   ☐ Electrostatically Enhanced Fabric
   ☐ Other, Specify

6. Filter Fabric Bag Material:
   ☐ Nomex nylon ☐ Wool
   ☒ Polyester ☐ Polypropylene
   ☐ Acrylics ☐ Ceramics
   ☐ Fiber Glass
   ☐ Cotton Weight oz./sq.yd
   ☐ Teflon Thickness in
   ☐ Others, specify

7. Bag Dimension:
   Diameter 8.75 in.
   Length 4.00 ft.

8. Total cloth area: 432 ft^2

9. Number of bags: 9

10. Operating air to cloth ratio: 4.05 ft/min

11. Baghouse Operation: ☒ Continuous ☐ Automatic ☐ Intermittent

12. Method used to clean bags:
   ☐ Mechanical Shaker ☐ Sonic Cleaning ☐ Reverse Air Jet
   ☐ Pneumatic Shaker ☐ Reverse Air Flow ☐ Other:
   ☐ Bag Collapse ☒ Pulse Jet
   ☐ Manual Cleaning ☐ Reverse Jet

13. Cleaning initiated by:
   ☒ Timer ☐ Frequency if timer actuated
   ☐ Expected pressure drop range in. of water ☐ Other

14. Operation Hours: Max. per day: 24
   Max. per yr: 8760

15. Collection efficiency: Rating: %
   Guaranteed minimum: 99.99 %

Gas Stream Characteristics

16. Gas flow rate into the collector: 2,590 ACFM at °F and N/A PSIA
   ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA

17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air

18. Gas Stream Temperature: N/A °F

19. Fan Requirements: N/A hp
   OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High 12 in. H_2O
   Low in. H_2O

21. Particulate Loading: Inlet: 2..5 grain/scf Outlet: 2.5E-04 grain/scf

22. Type of Pollutant(s) to be collected (if particulate give specific type):

Particulate (Crown MS 790 Product)

23. Is there any SO_3 in the emission stream? ■ No ☐ Yes SO_3 content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

	IN		OUT	
Pollutant	**lb/hr**	**grains/acf**	**lb/hr**	**grains/acf**
PM10		2.5		2.5E-4

25. Complete the table:

	Particle Size Distribution at Inlet to Collector	**Fraction Efficiency of Collector**
Particulate Size Range (microns)	**Weight % for Size Range**	**Weight % for Size Range**
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

26. How is filter monitored for indications of deterioration (e.g., broken bags)?
- ☐ Continuous Opacity
- ☐ Pressure Drop
- ☐ Alarms-Audible to Process Operator
- ■ Visual opacity readings, Frequency: Weekly
- ☐ Other, specify:

27. Describe any recording device and frequency of log entries:

N/A

28. Describe any filter seeding being performed:

N/A

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

N/A

30. Describe the collection material disposal system:

N/A

31. Have you included ***Baghouse Control Device*** in the Emissions Points Data Summary Sheet? Yes

32. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:	RECORDKEEPING:
See Attachment O	See Attachment O
REPORTING:	TESTING:
See Attachment O	See Attachment O

MONITORING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.
RECORDKEEPING:	Please describe the proposed recordkeeping that will accompany the monitoring.
REPORTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.
TESTING:	Please describe any proposed emissions testing for this process equipment on air pollution control device.

33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

N/A

34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

99.99

35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

N/A

Automated Ingredient Systems, LLC

240 Main ● Grandview, Missouri 64030

Phone: 816-331-1600 ● Fax: 816-331-1181

Email Address: info@ais-kc.com ● Website: www.ais-kc.com

"A Missouri Certified Woman-Owned Business Enterprise"

Air Permit Work Sheet for AIS Dust Collector

Dust Collector Model No.	**9BV40-3.75SQ**			
Type of Collector	SILO			
Cleaning Mechanism	**pulse jet *w/* adjustable timer**			
Fan Included	n			
Fan Power	na	hp		
Collector Flow Rate-max rating	2,590	**acfm**		
Filter Material	Spun Bond polyester			
Filter Efficiency	99.99			
Filter Media Max Pressure Drop	12	**in h_20**		
Total Area of Filter Media	432	sqft		
Nominal Filter Diameter	8.75	in		
Nominal Filter Length	4.00	ft		
Quantity of Filters	9			
Number of Compartments	1			
Number of Filters per Compartment	9			
Filtering Velocity	4.05	**acfm / ft2 of cloth**		
Application Flow Rate	1,750	**acfm**		
Type of Particulate Controlled	LIME &CEMENT DUST			
Name of Source(s) or Equipment being Controlled	SILO			
	inlet		outlet	
Particulate Grain Loading	2.5E+OO	**grains / scf**	2.50E-04	**grains / scf**

Outlet Area	2.00	ft'
Outlet Velocity	14.58	ft/s

ATTACHMENT N – POTENTIAL-TO-EMIT CALCULATIONS

Table N-1. Project Potential Emissions Summary

PRE-PROJECT POTENTIAL EMISSIONS

Emission Source Description	Potential Emissions (tpy)								
	PM Filterable	PM10 Filterable	PM2.5 Filterable	NO_X	SO_2	CO	VOC	Total HAP	CO2e
Transfers	93.14	44.05	6.67	-	-	-	-	-	-
Crushers/Screening	9.38	4.69	4.69	-	-	-	-	-	-
Plant Exhaust Fans	19.10	9.55	9.55	-	-	-	-	-	-
Roads	632.15	180.19	18.02	-	-	-	-	-	-
Piles	12.35	6.18	6.18	-	-	-	-	-	-
TOTAL	766.13	244.66	45.11	-	-	-	-	-	-
TOTAL (without roadways)	133.97	64.47	27.09	-	-	-	-	-	-

PROJECT INCREASES

Emission Source Description	Project Increases (lb/hr)								
	PM Filterable	PM_{10} Filterable	$PM_{2.5}$ Filterable	NO_X	SO_2	CO	VOC	Total HAP	CO2e
Transfers	1.31	0.62	0.09	-	-	-	-	-	-
Crushers/Screening	--	--	--	-	-	-	-	-	-
Plant Exhaust Fans	--	--	--						
Roads	3.51	1.00	0.10						
Piles	--	--	--	-	-	-	-	-	-
Diesel Generator	0.22	0.22	0.22	3.95	0.01	3.45	3.95	0.01	-
Storage Silos	0.003	0.003	0.003						
Transfer Silo	0.002	0.002	0.002	-	-	-	-	-	-
Day Bins	0.004	0.004	0.004	-	-	-	-	-	-
TOTAL	5.05	1.85	0.42	3.95	0.01	3.45	3.95	0.01	-

Emission Source Description	Project Increases (tpy)								
	PM Filterable	PM_{10} Filterable	$PM_{2.5}$ Filterable	NO_X	SO_2	CO	VOC	Total HAP	CO2e
Transfers	1.45	0.69	0.10	-	-	-	-	-	-
Crushers/Screening	--	--	--	-	-	-	-	-	-
Plant Exhaust Fans	--	--	--						
Roads	6.82	1.94	0.19						
Piles	--	--	--	-	-	-	-	-	-
Diesel Generator	0.53	0.53	0.53	9.47	0.01	8.29	9.47	0.03	1319.38
Storage Silos	0.01	0.01	0.01						
Transfer Silo	0.01	0.01	0.01	-	-	-	-	-	-
Day Bins	0.02	0.02	0.02	-	-	-	-	-	-
TOTAL	8.85	3.20	0.87	9.47	0.01	8.29	9.47	0.03	1319.38

Table N-2. MS 790 Pig Loading Emissions

DIMENSIONAL ANALYSIS

Time Conversion	60	min/hr	
Number of Pigs	3		
Mass Conversion	2,000	lbs/ton	*NIST SP1038*
Mass Conversion	7,000	gr/lb	*NIST SP1038*

STORAGE SILO PROCESS INFORMATION

Pneumatic Conveyance Air Flow Rate	450	cfm	*Manufacturer Specifications*
Filter Exit Loading	2.50E-04	gr/cf	*Manufacturer Specifications*

STORAGE SILO LOADING POTENTIAL EMISSIONS

	Potential $PM/PM_{10}/PM_{2.5}$ Emissions[a]	
	lb/hr[b]	tpy[c]
MS 790 Pig 1	9.64E-04	4.22E-03
MS 790 Pig 2	9.64E-04	4.22E-03
MS 790 Pig 3	9.64E-04	4.22E-03
Total	2.89E-03	1.27E-02

[a] *Conservatively assumes all PM is $PM_{10}/PM_{2.5}$*

[b] *PM Emissions (lb/hr) = Filter exit loading (gr/dscf) * Pneumatic Loading Flow Rate [acfm] / 7,000 (gr/lb) * 60 (min/hr)*

[b] *PM Emissions (tpy) = PM Emissions (lb/hr) * 8,760 (hrs/yr) / 2,000 (tpy)*

Table N-3. MS 790 Transfer Silo Loading Emissions

DIMENSIONAL ANALYSIS

Time Conversion	60	min/hr	
Number of Transfer Silos	1		
Mass Conversion	2,000	lbs/ton	*NIST SP1038*
Mass Conversion	7,000	gr/lb	*NIST SP1038*

TRANSFER SILO PROCESS INFORMATION

Pneumatic Conveyance Air Flow Rate	900	cfm	*Manufacturer Specifications*
Filter Exit Loading	2.50E-04	gr/cf	*Manufacturer Specifications*

TRANSFER SILO LOADING PROCESS INFORMATION

	Potential $PM/PM_{10}/PM_{2.5}$ Emissions[a]	
	lb/hr[b]	tpy[c]
MS 790 Transfer Silo	1.93E-03	8.45E-03

[a] *Conservatively assumes all PM is $PM_{10}/PM_{2.5}$*

[b] *PM Emissions (lb/hr) = Filter exit loading (gr/dscf) * Pneumatic Loading Flow Rate [acfm] / 7,000 (gr/lb) * 60 (min/hr)*

[b] *PM Emissions (tpy) = PM Emissions (lb/hr) * 8,760 (hrs/yr) / 2,000 (tpy)*

Table N-4. MS 790 Day Bin Loading Emissions

DIMENSIONAL ANALYSIS

Time Conversion	60	min/hr	
Number of Day Bins	3		
Mass Conversion	2,000	lbs/ton	*NIST SP1038*
Mass Conversion	7,000	gr/lb	*NIST SP1038*

DAY BIN PROCESS INFORMATION

Pneumatic Conveyance Air Flow Rate	900	cfm	*Manufacturer Specifications*
Filter Exit Loading	2.50E-04	gr/cf	*Manufacturer Specifications*

DAY BIN LOADING POTENTIAL EMISSIONS

	Potential $PM/PM_{10}/PM_{2.5}$ Emissions[a]	
	lb/hr[b]	tpy[c]
MS 790 Day Bin 1	1.93E-03	8.45E-03
MS 790 Day Bin 2	1.93E-03	8.45E-03
Total	3.86E-03	1.69E-02

[a] *Conservatively assumes all PM is $PM_{10}/PM_{2.5}$*

[b] *PM Emissions (lb/hr) = Filter exit loading (gr/dscf) * Pneumatic Loading Flow Rate [acfm] / 7,000 (gr/lb) * 60 (min/hr)*

[b] *PM Emissions (tpy) = PM Emissions (lb/hr) * 8,760 (hrs/yr) / 2,000 (tpy)*

Table N-5. Transfer Point Project Emission Increases

EMISSIONS CALCULATIONS

Flow Diagram ID	Emission Source Description	Transfer Capacity (tph)	Transfer Capacity (tpy)	PM Emission Factor[a] (lb/ton)	Contr. Effic.[b] (%)	Moist. Content (%)	Potential to Emit PM (lb/hr) Controlled	Potential to Emit PM (lb/hr) Uncontrolled	Potential to Emit PM (tpy) Controlled	Potential to Emit PM (tpy) Uncontrolled
Coal Combustion Product										
TP37	Crane to unloading hopper	1,600	3,500,000	4.27E-05	50	43.0	0.034	0.068	0.037	0.075
TP38	Unloading hopper to CCP conveyor 1	1,600	3,500,000	4.27E-05	50	43.0	0.034	0.068	0.037	0.075
TP-38a	MS 790 Screw Conveyor 1 from Day Bin 1 to Existing CCP-C1	128	280,000	5.22E+00	99.9	0.01	0.668	667.547	0.730	730.130
TP-38b	MS 790 Screw Conveyor 2 from Day Bin 2 to Existing CCP-C1	128	280,000	5.22E+00	99.9	0.01	0.668	667.547	0.730	730.130
TP39	CCP conveyor 1 to CCP conveyor 2	1,600	3,500,000	4.27E-05	99.9	43.0	0.000	0.068	0.000	0.075
TP40	CCP conveyor 2 to CCP conveyor 3	1,600	3,780,000	4.27E-05	99.9	43.0	0.000	0.068	8.07E-05	0.081
TP41	CCP conveyor 3 to CCP conveyor 4	1,600	3,780,000	4.27E-05	80	43.0	0.014	0.068	0.016	0.081
TP42	CCP conveyor 4 to truck bin	1,600	3,780,000	4.27E-05	80	43.0	0.014	0.068	0.016	0.081
TP43	Truck bin to trucks	1,600	3,780,000	4.27E-05	50	43.0	0.034	0.068	0.040	0.081
TP44	Trucks to refuse disposal area	1,600	3,780,000	4.27E-05	0	43.0	0.068	0.068	0.081	0.081
TP75	CCP conveyor 5 to CCP conveyor 6	1,600	3,780,000	4.27E-05	80	43.0	0.014	0.068	0.016	0.081
TP76	CCP conveyor 6 to CCP conveyor 7	1,600	3,780,000	4.27E-05	80	43.0	0.014	0.068	0.016	0.081
TP77	CCP conveyor 7 to Truck Bin 2 (CCP-B2)	1,600	3,780,000	4.27E-05	80	43.0	0.014	0.068	0.016	0.081
TP78	Truck Bin 2 (CCP-B2) to truck	1,600	3,780,000	4.27E-05	50	43.0	0.034	0.068	0.040	0.081
TP79	Trucks to refuse disposal area 2	1,600	3,780,000	4.27E-05	0	43.0	0.068	0.068	0.081	0.081
				Total PM Project Increases			1.31	1,335.09	1.45	1,460.32
				Total PM_{10} Project Increases[c]			0.62	631.46	0.69	690.69
				Total $PM_{2.5}$ Project Increases[d]			0.09	95.62	0.10	104.59

EMISSION FACTORS AND ASSUMPTIONS

a. Transfer Points (batch and continuous drop operation) — AP42, Section 13.2.4.3, Aggregate Handling and Storage Piles

Particulate (lb/ton) = $k*(0.0032)*(U/5)^{1.3} / (M/2)^{1.4}$

where: k = particle size multiplier (0.74 for TSP; 0.35 for PM10; 0.053 for PM2.5)
U = mean wind speed (@ 7.5 mph for all sources)
M = material moisture content (%)

b. Control efficiency for full and partial enclosure taken from application instructions for G10-D available from WVDEP. Dust collector control efficiency 99.9% in accordance with Manufacturer Specifications.

c. Total PM_{10} Emissions = Total PM Emissions * (k_{PM10}/k_{PM})

d. Total $PM_{2.5}$ Emissions = Total PM Emissions * ($k_{PM2.5}/k_{PM}$)

Table N-6. Non-Emergency Diesel Engine (Tier 3) Potential Emissions

OPERATING PARAMETERS

Fuel Used	Diesel		
Maximum Power Output	480	hp	
Maximum Power Output	357.94	kW	*= Power Output (hp) x 745.69999 (W/hp) / 1,000 (W/kW)*
Maximum Heat Input Capacity	3.36	MMBtu/hr	*= Power Output (hp) x 7000 (Btu/(hp-hr)) x 1x10 $^{-6}$ MMBtu/Btu*
Maximum Operating Hours	4800	hr/yr	*Proposed operating hours restriction*

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DIMENSIONAL ANALYSIS

Power Conversion	7,000.00	Btu/hp-hr	*Assumed per Footnote 'a' to Table 3.3-1 in AP-42 Section 3.3*
Power Conversion	746	W/hp	*NIST1038*
Mass Conversion	453.59	g/lb	*NIST1038*
Mass Conversion	0.45	kg/lb	*NIST1038*
Mass Conversion	2,000	lb/ton	*NIST1038*
Time Conversion	24	hr/day	

EMISSION FACTOR DEVELOPMENT

Diesel Energy Content	19,300	Btu/lb	*Assumed per Footnote 'c' to Table 3.3-1 in AP-42 Section 3.3*
Fuel Sulfur Limit	15	ppmw	*40 CFR 80.510(b)*
Not to Exceed Multiplier	1.25		*40 CFR 60.4212(c)*

EMISSION FACTORS

Pollutant	*Emission Factor*	*Units*	*Source*
NO_X + NMHC	5.00	g/kW-hr	*Tier 3 Certified, 40 CFR 89.112, for engines with rating 225≤ kW <450; 4.0 (g/kW-hr) x Not to Exceed Multiplier (1.25)*
NO_X	5.00	g/kW-hr	*Conservatively assumes NO_X + NMHC emission factor is all NO_X*
NMHC	5.00	g/kW-hr	*Conservatively assumes NO_X + NMHC emission factor is all NMHC*
CO	4.38	g/kW-hr	*Tier 3 Certified, 40 CFR 89.112, for engines with rating 225≤ kW <450 = 3.5 (g/kW-hr) x Not to Exceed Multiplier (1.25)*
SO_2	0.0052	lb/hr	*= (15 ppm Sulfur x 10 $^{-6}$) x [Maximum Heat Input Capacity (MMBtu/hr) x 10 ^{6} (Btu/MMBtu) / 19,300 (Btu/lb)] x [1 lbmole SO_2 / 1 lbmole S] x [SO_2 M.W. (64.064 lb/lb-mole) / Sulfur M.W. (32.065 lb/lbmole)]*
Filterable PM/PM_{10}	0.25	g/kW-hr	*Tier 3 Certified, 40 CFR 89.112, for engines with rating 225≤ kW <450 = 0.20 (g/kW-hr) x Not to Exceed Multiplier (1.25)*
Condensable PM Factor	0.0077	lb/MMBtu	*AP-42, Section 3.4, Table 3.4-2*
Filterable PM Factor	0.0620	lb/MMBtu	*AP-42, Section 3.4, Table 3.4-2*
Condensable PM	0.0310	g/kW-hr	*Condensable emission factor (g/kW-hr) = (Condensable Particulate Emission Factor (lb/MMBtu) / (Filterable Particulate Emission Factor (lb/MMBtu)) x Filterable Emission Factor (g/kW-hr) where the ratio is taken from section AP-42, Section 3.4,Table 3.4-2 to account for the absence of condensable factor in AP-42 Section 3.3, Table 3.3-1.*
Total PM	0.2810	g/kW-hr	*= Filterable PM/PM_{10} EF (g/kW-hr) + Condensable PM EF (g/kW-hr)*
Formaldehyde	1.18E-03	lb/MMBtu	*AP-42, Section 3.3, Table 3.3-2*
Total HAP	3.87E-03	lb/MMBtu	*AP-42, Section 3.3, Table 3.3-2*
CO_2	73.96	kg/MMBtu	*40 CFR 98, Subpart C, Table C-1 for Distillate Fuel Oil No. 2*
CH_4	3.00E-03	kg/MMBtu	*40 CFR 98, Subpart C, Table C-2 for Petroleum*
N_2O	6.00E-04	kg/MMBtu	*40 CFR 98, Subpart C, Table C-2 for Petroleum*
GWP - CO_2	1		*Table A-1 of 40 CFR 98, Subpart A*
GWP - CH_4	25		*Table A-1 of 40 CFR 98, Subpart A*
GWP - N_2O	298		*Table A-1 of 40 CFR 98, Subpart A*

Table N-6. Non-Emergency Diesel Engine (Tier 3) Potential Emissions

POTENTIAL EMISSIONS

Pollutant	*(lbs/hr)*	*(tons/yr)*
NO_X [a]	3.95	9.47
CO [a]	3.45	8.29
SO_2 [b]	5.2E-03	0.01
Filterable PM/PM_{10} [a]	0.20	0.47
Condensable PM [a]	0.02	0.06
Total PM [a]	0.22	0.53
VOC[a]	3.95	9.47
Formaldehyde[c,d]	3.96E-03	0.01
Total HAP[c,d]	0.01	0.03
CO_2 [e]		1,314.87
CH_4 [e]		0.05
N_2O [e]		0.01
CO_2e [f]		1,319.38

[a] *Hourly Emissions (lbs/hr)= Emission Factor (g/kW-hr) x Maximum Power Output (kW) / 453.59 (g/lb)*
Annual Emission (tpy)= Emission Factor (g/kW-hr) x Maximum Power Output (kW) x Operating hours (hr/yr) / 453.59 (g/lb) / 2,000 (lbs/ton)

[b] *Hourly Emissions (lbs/hr)= SO_2 Emission Factor (lb/hr)*
Annual Emission (tpy)= SO_2 Emission Factor (lb/hr) x Operating hours (hr/yr) / 2,000 (lbs/ton)

[c] *Hourly Emission (lbs/hr) = Emission Factor (lb/MMBtu) x Maximum Heat Input Capacity (MMBtu/hr)*

[d] *Annual Emission (tons/yr) = Emission Factor (lb/MMBtu) x Maximum Heat Input Capacity (MMBtu/hr) x Operating Hours (hrs/yr) / 2,000 (lbs/ton)*

[e] *Annual Emissions (tons/yr) = Emission Factor (kg/MMBtu) x Maximum Heat Input Capacity (MMBtu/hr) x Operating Hours (hrs/yr) / 0.4536 (kg/lb) / 2,000 (lbs/ton)*

[f] *CO_2e Emissions (tons/yr) = Annual CO_2 Emission (tpy) * CO_2 GWP + Annual CH_4 Emissions (tpy) * CH_4 GWP + Annual N_2O Emissions (tpy) * N_2O GWP*

Table N-7. MS 790 Truck Traffic

$E = k\ (s/12)^a (W/3)^b\ (365-P)/365$ *AP-42 Section 13.2.2, Equation 2 (November 2006)*

DIMENSIONAL ANALYSIS

Mass Conversion	2,000	lb/ton	*NIST SP1038*

POTENTIAL VEHICLE PARAMETERS

Path	Roadway Length - Round Trip (miles/vehicle)[a]	Vehicle Traffic (trips/hr)[a]	Vehicle Traffic (trips/year)[b]	Vehicle Weight	Vehicle Capacity (tons)
Round trip length for MS 790 trucks	0.40	6	23,333	18	12

[a] Conservatively assumes three trucks simultaneously load all 3 pigs at twice in a given hour

b Based on the maximum expected annual usage of MS 790 and the listed vehicle capacity

OPERATING PARAMETERS

Potential VMT	2.40	miles/hr	*= Roadway Length (miles/vehicle) * Vehicle Traffic (trips/hr)*
Potential VMT	9,333	miles/year	*= Roadway Length (miles/vehicle) * Vehicle Traffic (trips/year)*
Silt Loading	8.4	%	
Number of Days w/ at least 0.01" of Precipitation (P)	157	days	*Consistent with G10-D application instructions*
Control Efficiency	70%		*Consistent with G10-D application instructions for use of a water truck.*

EMISSION FACTORS

Pollutant

Particle Size Multiplier - PM (k)	4.9	lb/VMT	*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
Particle Size Multiplier - PM10 (k)	1.5	lb/VMT	*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
Particle Size Multiplier - PM2.5 (k)	0.15	lb/VMT	*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
Empirical Constant - PM, a	0.7		*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
Empirical Constant - $PM_{10}/PM_{2.5}$, a	0.9		*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
Empirical Constant - $PM/PM_{10}/PM_{2.5}$, b	0.45		*AP-42 Section 13.2.2, Table 13.2.2-2 (11/06)*
PM Emission Factor	4.87	lb/VMT	$E = k_{PM}\ (s/12)^a\ (W/3)^b$ *x (365-P)/365*
PM10 Emission Factor	1.39	lb/VMT	$E = k_{PM10}\ (s/12)^a\ (W/3)^b$ *x (365-P)/365*
$PM_{2.5}$ Emission Factor	0.14	lb/VMT	$E = k_{PM2.5}\ (s/12)^a\ (W/3)^b$ *x (365-P)/365*

EMISSIONS CALCULATIONS

Pollutant	*Controlled*		*Uncontrolled*	
	lb/hr[a]	*tpy*[b]	*lb/hr*[c]	*tpy*[d]
PM	3.51	6.82	11.69	22.74
PM_{10}	1.00	1.94	3.33	6.48
$PM_{2.5}$	0.10	0.19	0.33	0.65

[a] *Potential controlled Pollutant Emissions (lb/hr) = Potential Unpaved VMT (miles/hr) x Path Pollutant EF (lb/VMT) * (1-Control Efficiency (%))*

[b] *Potential controlled Pollutant Emissions (tpy) = Potential Unpaved VMT (miles/yr) x Path Pollutant EF (lb/VMT) / 2,000 (lbs/ton) * (1-Control Efficiency (%))*

[c] *Potential uncontrolled Pollutant Emissions (lb/hr) = Potential Unpaved VMT (miles/hr) x Path Pollutant EF (lb/VMT)*

[d] *Potential uncontrolled Pollutant Emissions (tpy) = Potential Unpaved VMT (miles/yr) x Path Pollutant EF (lb/VMT) / 2,000 (lbs/ton)*

ATTACHMENT O: MONITORING, RECORDKEEPING, REPORTING AND TESTING PLANS

As noted in the cover letter, the three (3) storage pigs, transfer silo, and the two (2) days bins will be equipped with bin vent filters designed to minimize fugitive dust emissions while loading. Loading of the silos without proper operation of the bin vent filters would be impractical. Further, the emissions calculations provided in Attachment N are based on design flow rates and manufacturer guaranteed grain loading factors for the filters. Accordingly, no ongoing monitoring, recordkeeping, or reporting is necessary for these sources other than operating the equipment in accordance with manufacturer specifications and good air pollution control practices.

For the two (2) new pulse-jet dust collectors, MCCC proposes to perform weekly visible emissions checks consistent with condition 4.2.1 of R13-2177G to ensure ongoing proper operation of the control equipment.

For the new diesel engine, MCCC proposes to operate a non-resettable hours meter to confirm compliance with the proposed operating hours restriction.

ATTACHMENT P: AFFIDAVIT OF PUBLICATION

Attachment P includes a copy of the public notice MCCC will submit to the Dominion Post for publication. A certificate of publication will be provided to DAQ after the notice has been published.

AIR QUALITY PERMIT NOTICE
Notice of Application

NOTICE IS GIVEN that The Marshall County Coal Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for new material handling equipment and a diesel-fired electrical generator at West Virginia State Rt 2, in Moundsville, in Marshall County, West Virginia. The latitude and longitude coordinates are 39.828, -80.813.

The applicant estimates the total increased potential to discharge the following Regulated Air Pollutants will be: Particulate Matter – 8.85 tons per year; Particulate Matter (10 micron diameter or less) – 3.20 tons per year; Particulate Matter (2.5 micron diameter or less) – 0.87 tons per year; Nitrogen Oxides – 9.47 tons per year; Sulfur Dioxide – 0.01 tons per year; Carbon Monoxide – 8.29 tons per year; Volatile Organic Compounds – 9.47 tons per year; and Hazardous Air Pollutants – 0.03 tons per year.

Startup of operation is planned to begin on or about the 1st day of January, 2018. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 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 22nd day of November, 2017.

By: The Marshall County Coal Company
Robert D. Moore
Vice President
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St. Clairsville, OH 43950
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