November 5, 2015

Mr. William F. Durham
Director, West Virginia Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, West Virginia 25304

Dear Mr. Durham:

Subject: Application for R13 Permit Revision
Greer Limestone (Plant ID: 061-00003)
CEC Project 144-197

Greer Limestone is submitting this application for an R13 permit modification to reflect several pieces of equipment that have been replaced with like-kind equipment. Additionally, a comprehensive inventory of on-site equipment identified several emission sources which are not included in current permits that the facility wishes to incorporate into this permit revision. No new processes or equipment (other than the noted replacements) are being added to the facility, and maximum production capacity has not changed.

Hours of operation throughout the application reflect nominal operating conditions at the facility; however, potential to emit (PTE) is calculated based on maximum hourly and/or annual production throughputs. Greer requests that permit compliance be demonstrated using throughput tonnages rather than hours of operation, as the former is a more representative determinant of process emissions.
Should you have any questions, please do not hesitate to contact us at 412-429-2324.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Jennifer L. Garlock
Assistant Project Manager

Dennis D. Ritter
Principal

Attachment

144-197-L-R13 Permit Revision/P

Table of Contents

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):*
Greer Industries, Inc. d.b.a. Greer Limestone Company

2. Federal Employer ID No. ***(FEIN):***
34-073-7241

3. Name of facility *(if different from above):*
Greer Limestone

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

5A. Applicant's mailing address:
8477 Veteran's Memorial Highway
Masontown, West Virginia 26542

5B. Facility's present physical address:
5630 Earl L. Core Road
Morgantown, West Virginia 26508

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: NA

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: Owner
- 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.): Limestone Processing

10. North American Industry Classification System **(NAICS)** code for the facility:
212312

11A. DAQ Plant ID No. (for existing facilities only):
061-00003

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-1303D

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**.

Facility is located on WV Route 7, approximately 3.5 miles northwest of Masontown, WV.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
NA	Masontown	Monongalia
12.E. UTM Northing (KM): 4,381.173	12F. UTM Easting (KM): 598.895	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
Replace existing radial stackers and screens, include as-built changes, include existing equipment not permitted, and re-calculate the potential to emit.

14A. Provide the date of anticipated installation or change: – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: Radial stackers (6) were replaced in 2012-2015; surge bin replaced in 2014.	14B. Date of anticipated Start-Up if a permit is granted:

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

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

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

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

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

Section II. Additional attachments and supporting documents.

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

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

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

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

23. Provide a **Process Description** as **Attachment G.**
– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

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

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

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

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

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

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

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

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

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

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

☐ Absorption Systems	☒ Baghouse	☐ 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.

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

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

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

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

☐ **YES** ☒ **NO**

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

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

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

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

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

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

Certification of Truth, Accuracy, and Completeness

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

Compliance Certification

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

SIGNATURE J Robert Gwynne *(Please use blue ink)* DATE: 10/22/15 *(Please use blue ink)*

35B. Printed name of signee: J. Robert Gwynne		35C. Title: Vice President/General Counsel
35D. E-mail: gwynne@greerindustries.com	36E. Phone: (304) 296-1751	36F. FAX: (304) 594-2158
36A. Printed name of contact person (if different from above): Scott R. Kisner		36B. Title: Environmental Compliance Manager
36C. E-mail: skisner@greerlime.com	36D. Phone: (304) 567-2141	36E. FAX: (304) 567-3007

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 REGISTRATION CERTIFICATE

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
GREER INDUSTRIES INC
ROUTE 7 10 MILES EAST
MORGANTOWN, WV 26505

BUSINESS REGISTRATION ACCOUNT NUMBER: **1027-2435**

This certificate is issued on: **06/24/2010**

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with W.Va. Code § 11-12.

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.

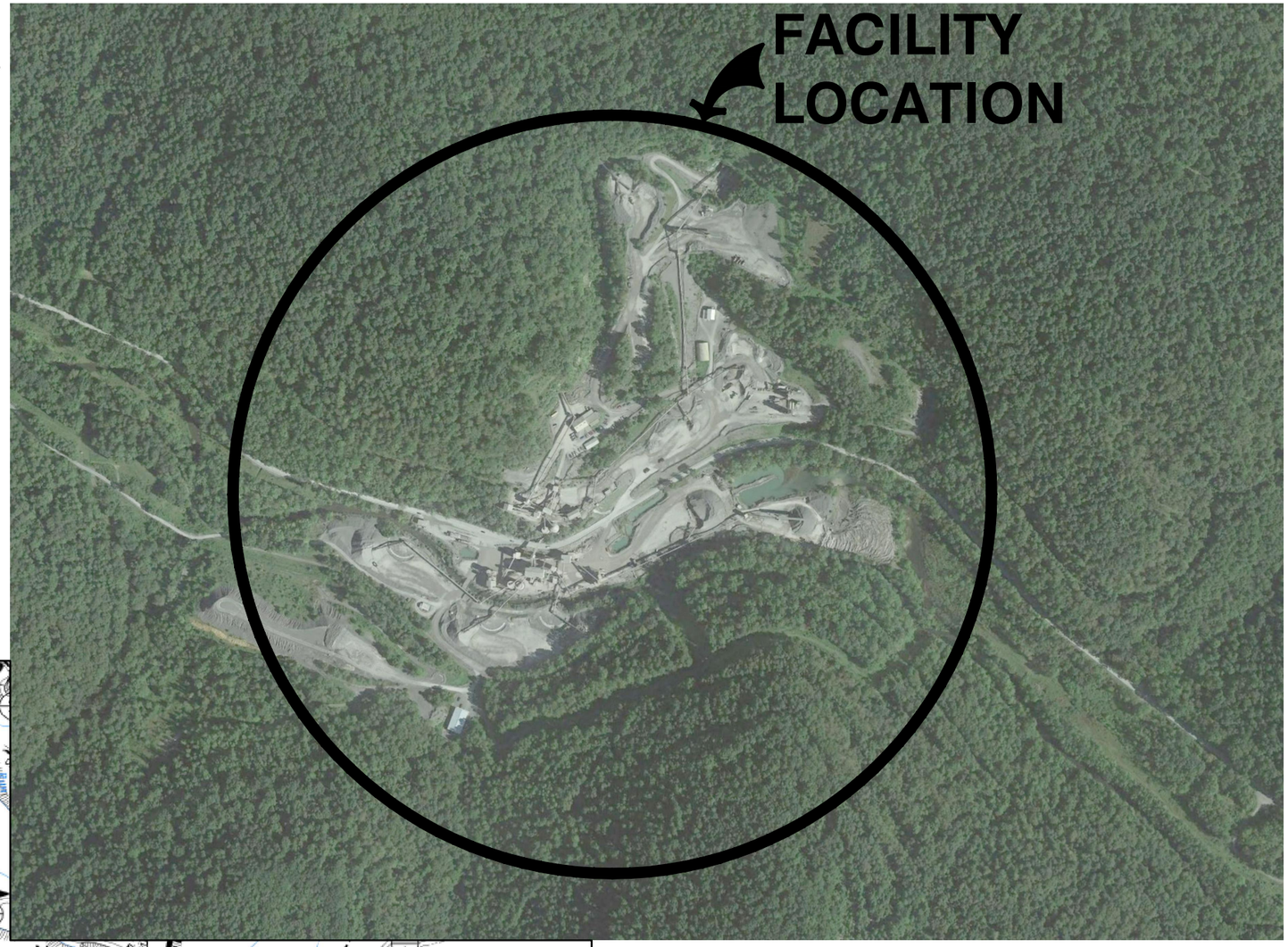
atL006 v.1
L0502708992

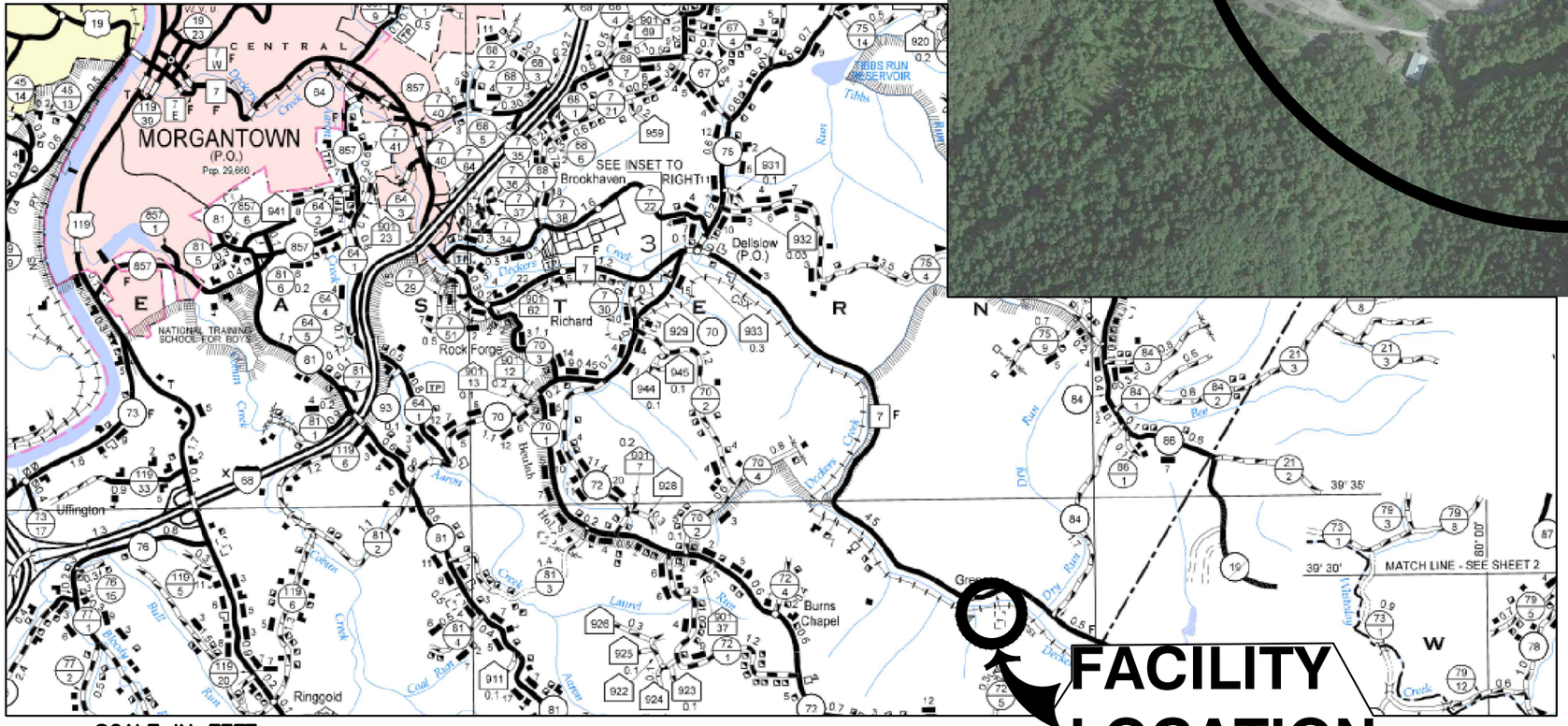
ATTACHMENT B

AREA MAP

SCALE IN FEET

0 600' 1,200'





SCALE IN FEET

0 1 MILE 2 MILES

* HAND SIGNATURE ON FILE

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333 Baldwin Road · Pittsburgh, PA 15205
412-429-2324 · 800-365-2324
www.cecinc.com

GREER INDUSTRIES
GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY,
WEST VIRGINIA

AREA MAP

APPROVED BY:	* DDR	ATTACHMENT:	B
PROJECT NO:	144-197		
DRAWN BY:	JRK	CHECKED BY:	JLG
DATE:	NOVEMBER 2015	DWG SCALE:	AS SHOWN

P:\2014\144-197\-CADD\Dwg\ENO1\144197XR-ENO1-AREA MAP.dwg[LAYOUT1 (2)] LS:(11/2/2015 - jkile) - LP: 11/2/2015 4:14 PM

ATTACHMENT C

INSTALLATION AND STARTUP SCHEDULE

ATTACHMENT C

INSTALLATION AND STARTUP SCHEDULE

Greer Industries, Inc. d.b.a. Greer Limestone Company's (Greer) Masontown Facility (Masontown) has replaced surge bin SB-037 (#1 Mill) with an equivalently sized new bin (2014), and has also replaced the following existing 24" radial stackers with Thor (or equivalent) 36" radial stackers:

- ST-130 – No. 2 Mill (April 2013),
- ST-131 – No. 2 Mill (July 2012),
- ST-132 – No. 2 Mill (April 2012),
- ST-439 – Crusher Run (April 2015), and
- ST-440 – Crusher Run (July 2014).

The facility proposes the following additional changes:

- Replace Screen No. 2 (SC-153, No. 2 Mill) with a new Allis Chalmers 8'x20' screen,
- Existing Screen No. 2 (currently SC-153) will be refurbished and used to replace Screen No. 1 (SC-152, No. 2 Mill),
- Deister Screen SC-231 (Sand Plant) will be replaced with a refurbished pre-2009 screen.

These proposed changes will occur in January/February 2016, or when the permit is issued, whichever is later.

ATTACHMENT D

REGULATORY DISCUSSION

ATTACHMENT D

REGULATORY DISCUSSION

The proposed facility is required to comply with the requirements contained in the applicable state and federal regulations, as follows:

- 45 CSR 7

  The purpose of this Rule is to prevent and control particulate matter (PM) emissions from manufacturing and associated operations. The Rule sets limits for opacity of visible emissions, PM emission limits from source operations and control equipment, and requires control of fugitive PM to the lowest level reasonably achievable, using process equipment design, control equipment design, or operation and maintenance procedures. It requires all sources of PM emissions to obtain permits and meet reporting and testing requirements.

- 45 CSR 13

  45 CSR 13 requires permits for new, modified, and relocated minor sources of air pollutants. The Rule outlines the procedures for obtaining and modifying permits, and requires compliance with all permit conditions.

- 40 CFR 60 Subpart OOO

  40 CFR 60 Subpart OOO contains the revised New Source Performance Standard (NSPS) for Nonmetallic Mineral Processing Plants. The facility is subject to this NSPS because it qualifies as a fixed nonmetallic mineral processing plant and portions of the facility commenced construction after August 31, 1983. Requirements include limits on opacity from crushers, screeners, conveyors, and other affected sources; a PM emission limit on baghouses; performance testing; and recordkeeping. The baghouses currently at this facility were all manufactured prior to April 22, 2008 and are therefore subject to the pre-2008 PM emission limit of 0.022 grains per dry standard cubic foot, and are not subject to the additional monitoring requirements for baghouses in the revised NSPS.

  The baghouse associated with the replacement Screen No. 2 (SC-153 in No. 2 Mill) will be subject to the post-2008 revised PM emission limit of 0.014 grains per dry standard cubic foot and the additional monitoring requirements in the revised standard.

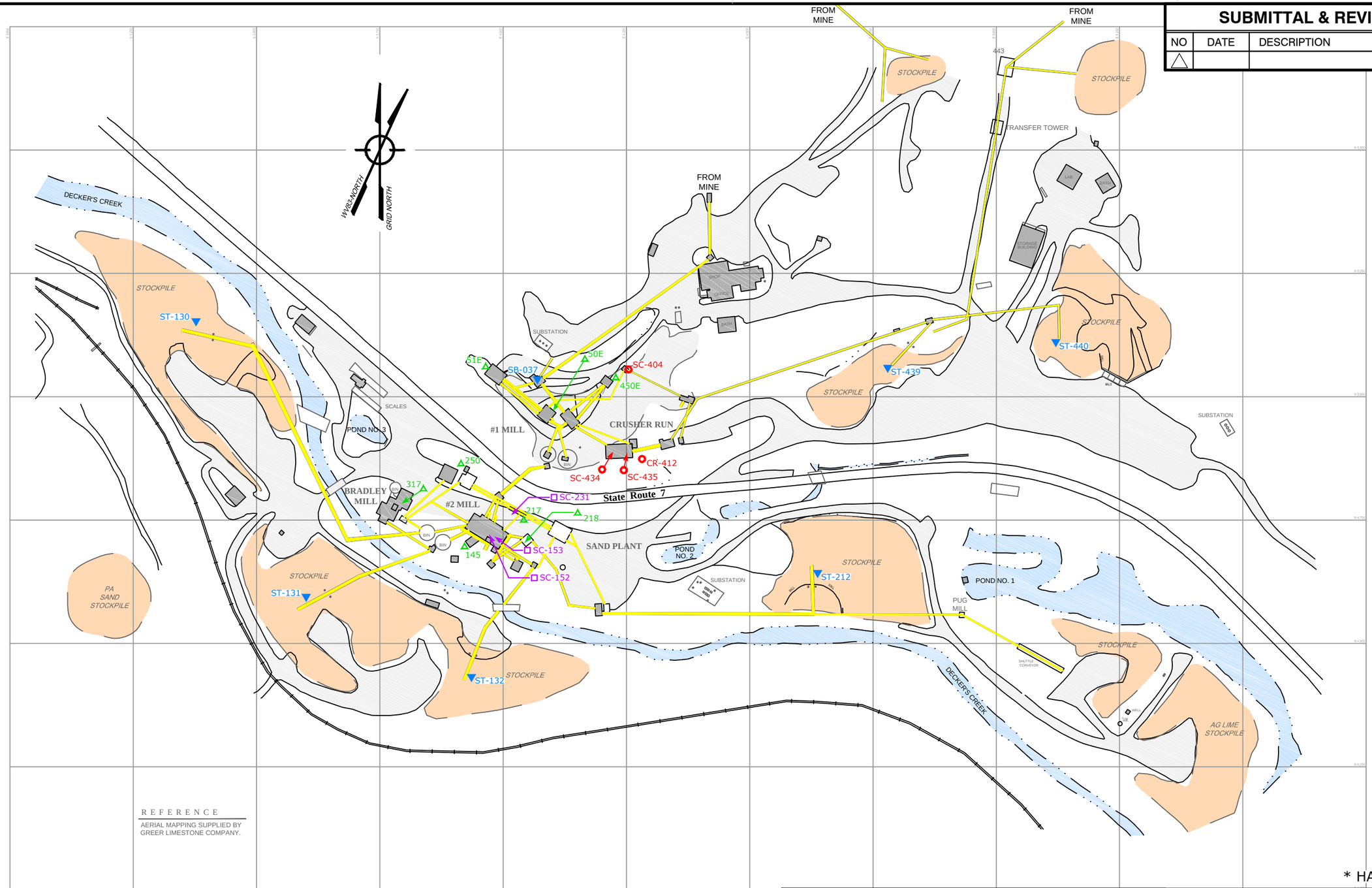
  45 CSR 16 formally incorporates this federal regulation into the West Virginia regulations.

ATTACHMENT E

FACILITY PLOT PLAN

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
△		



LEGEND

▼507	REPLACED EQUIPMENT
○001	EMISSION POINT
△145	CONTROL EQUIPMENT
□SC-231	PROPOSED EQUIPMENT CHANGE
SB	STORAGE BIN
CR	CRUSHER
ST	STACKER
SC	SCREEN
AS	AIR SEPARATER
AC	AIR CONVEYOR
PM	PUG MILL
	WATER
	STOCKPILE
	FACILITY ROADS
	CONVEYOR

REFERENCE

AERIAL MAPPING SUPPLIED BY GREER LIMESTONE COMPANY.

* HAND SIGNATURE ON FILE

REFERENCE

1. EXISTING AERIAL BASE MAPPING PROVIDED TO CEC BY GREER LIMESTONE COMPANY BY DRAWING "13-0376 FACILITY PLAN.DWG" DATED 08/06/2015.

SCALE IN FEET

0 200' 400'

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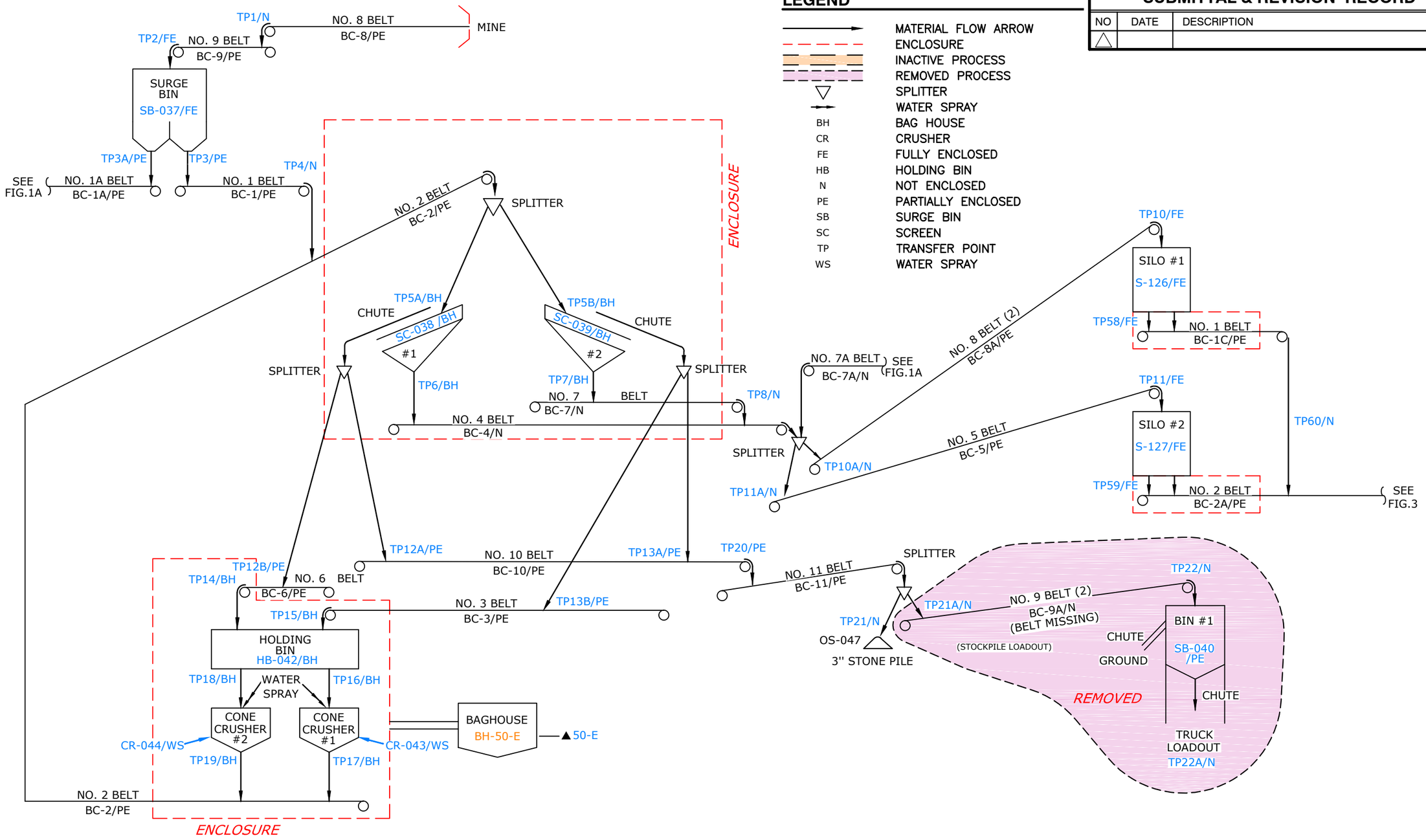
GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

EXISTING FACILITY PLAN

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	ATTACHMENT:	E
DATE:	NOVEMBER 2015	DWG SCALE:	1" = 200'	PROJECT NO:	144-197		

ATTACHMENT F

DETAILED PROCESS FLOW DIAGRAMS



LEGEND

	MATERIAL FLOW ARROW
	ENCLOSURE
	INACTIVE PROCESS
	REMOVED PROCESS
	SPLITTER
	WATER SPRAY
BH	BAG HOUSE
CR	CRUSHER
FE	FULLY ENCLOSED
HB	HOLDING BIN
N	NOT ENCLOSED
PE	PARTIALLY ENCLOSED
SB	SURGE BIN
SC	SCREEN
TP	TRANSFER POINT
WS	WATER SPRAY

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
△		

REFERENCE

1. BASE FILE PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) BY POTESTA & ASSOCIATES, INC. ON NOVEMBER 11, 2014 FILE NAME "13-0376 SCHEMATIC FLOW DIAGRAMS 2014-09-16.DWG"

* HAND SIGNATURE ON FILE

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GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

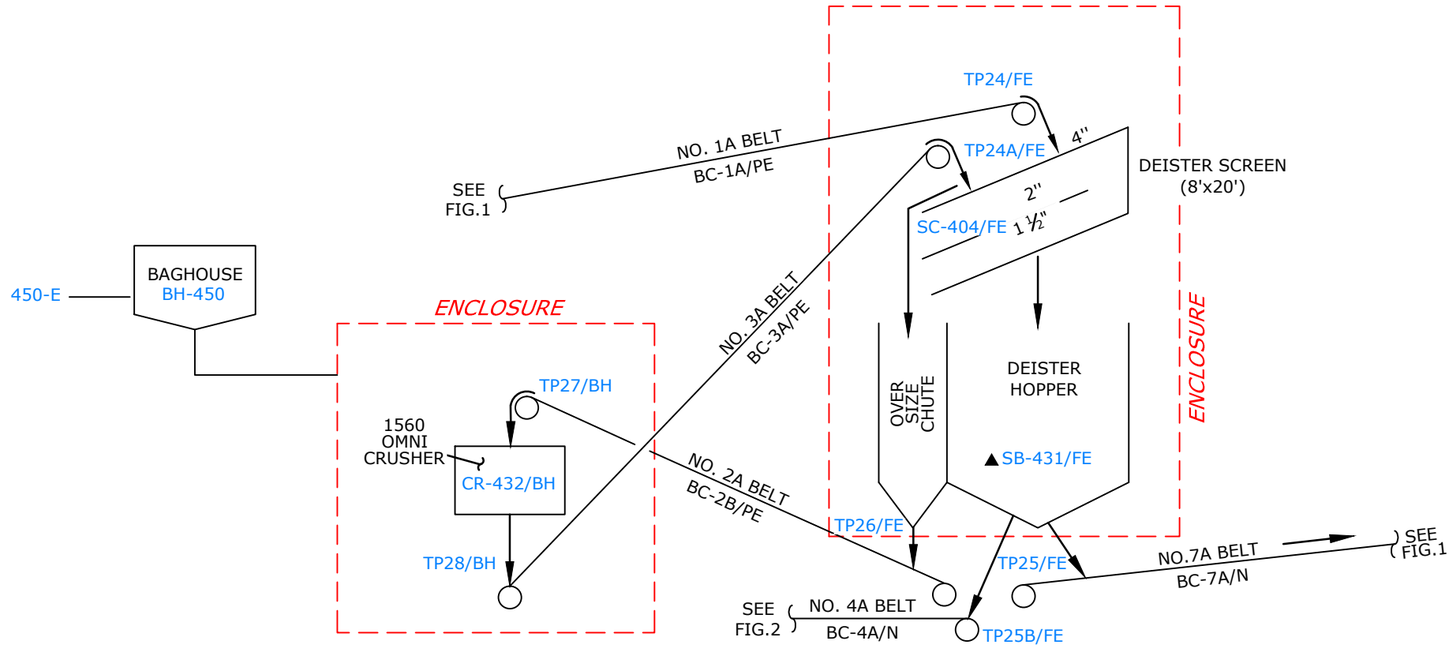
NO. 1 MILL EMISSION GROUP
SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:	1
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197		

SUBMITTAL & REVISION RECORD		
NO	DATE	DESCRIPTION
△		

LEGEND

→	MATERIAL FLOW ARROW
- - -	ENCLOSURE
	INACTIVE PROCESS
	REMOVED PROCESS
▽	SPLITTER
→·	WATER SPRAY
BH	BAG HOUSE
CR	CRUSHER
FE	FULLY ENCLOSED
HB	HOLDING BIN
N	NOT ENCLOSED
PE	PARTIALLY ENCLOSED
SB	SURGE BIN
SC	SCREEN
TP	TRANSFER POINT
WS	WATER SPRAY



REFERENCE

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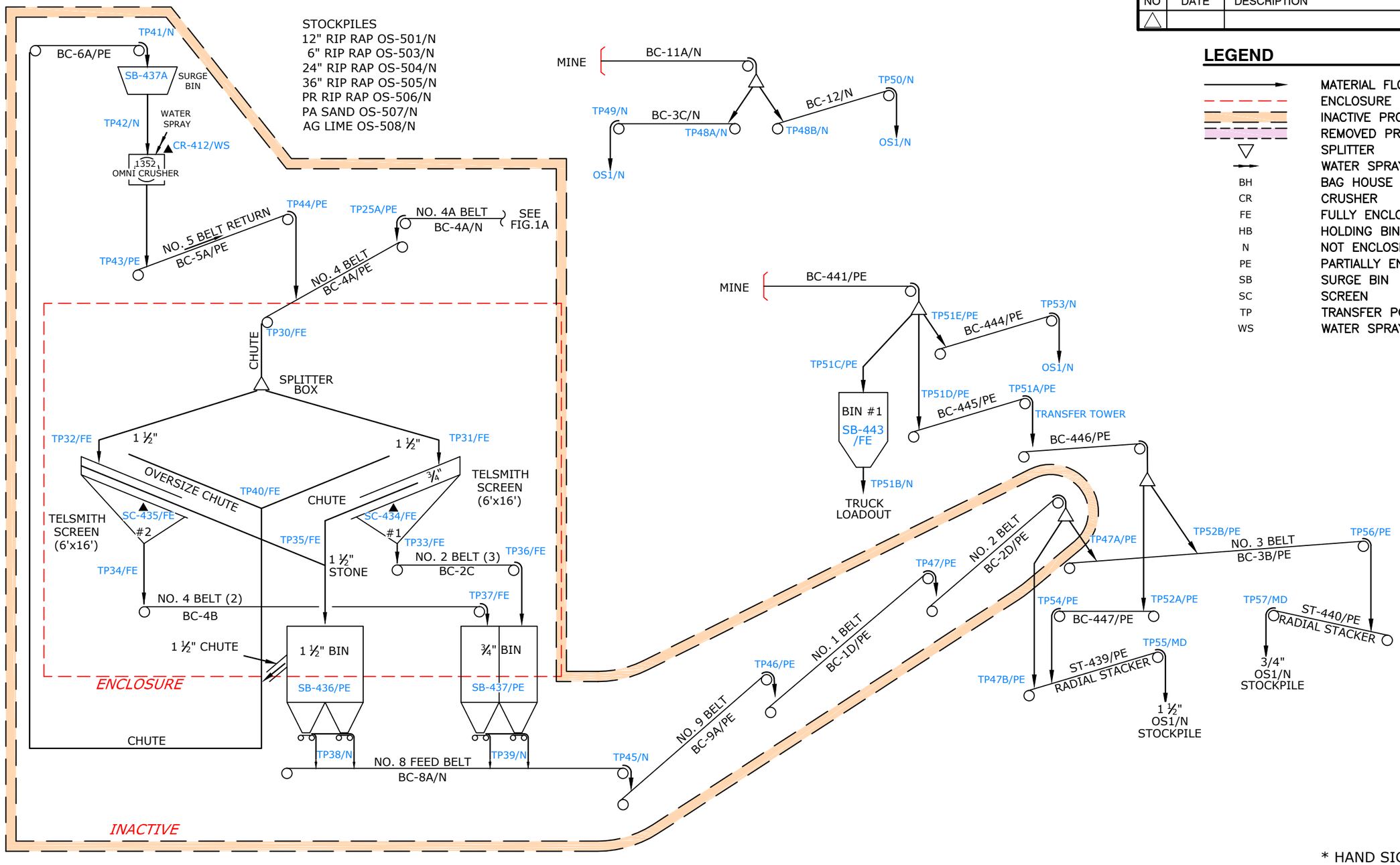
GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

NO. 1 MILL EMISSION GROUP (CONT.)
SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:	1A
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197		

P:\2014\144-197\-CADD\Dwg\EN01\144197XR-EN01-SP01-FLOW DIAGRAMS.dwg[FIGURE 1A] LS:(11/2/2015 - JKile) - LP: 11/2/2015 4:16 PM



SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
△		

LEGEND

→	MATERIAL FLOW ARROW
- - -	ENCLOSURE
═══	INACTIVE PROCESS
═══	REMOVED PROCESS
▽	SPLITTER
→→	WATER SPRAY
BH	BAG HOUSE
CR	CRUSHER
FE	FULLY ENCLOSED
HB	HOLDING BIN
N	NOT ENCLOSED
PE	PARTIALLY ENCLOSED
SB	SURGE BIN
SC	SCREEN
TP	TRANSFER POINT
WS	WATER SPRAY

REFERENCE

1. BASE FILE PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) BY POTESTA & ASSOCIATES, INC. ON NOVEMBER 11, 2014 FILE NAME "13-0376 SCHEMATIC FLOW DIAGRAMS 2014-09-16.DWG"

* HAND SIGNATURE ON FILE

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GREER INDUSTRIES
GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

OLD CRUSHER RUN PROCESS SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:	2
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197		

LEGEND

→	MATERIAL FLOW ARROW
- - -	ENCLOSURE
▭	INACTIVE PROCESS
▭	REMOVED PROCESS
▽	SPLITTER
→|	WATER SPRAY
BH	BAG HOUSE
CR	CRUSHER
FE	FULLY ENCLOSED
HB	HOLDING BIN
N	NOT ENCLOSED
PE	PARTIALLY ENCLOSED
SB	SURGE BIN
SC	SCREEN
TP	TRANSFER POINT
WS	WATER SPRAY

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
△		

ENCLOSURE

SEE FIG.1 — NO. 2 BELT BC-2A/PE — SPLITTER — TP62A/N — TP62B/N

NO. 3 BELT BC-3D/PE — TP64/BH — TP63/BH

NO. 4 BELT BC-4C/PE

SCREEN NO.1 SC-152/BH — TP65/BH 4'S — TP67/BH 57'S — TP69/BH 8'S

SCREEN NO.2 SC-153/BH — TP66/BH 4'S — TP68/BH 57'S — TP70/BH 8'S

SCREEN NO.3 SC-154/BH — TP84/BH — OVERSIZE — TP85/BH — TP86/BH 57'S — TP87/BH 8'S

NO. 13 BELT BC-13/BH — TP83/BH

OVERSIZE

NO. 12 BELT BC-12A/PE

TP90/PE — NO. 9 BELT BC-9B/PE — TP91/PE — NO. 7 BELT BC-7A/PE

TP74/BH — NO. 6 BELT BC-6B/BH — NO. 8 BELT BC-8B/BH — TP75/PE

NO. 5 BELT BC-5B/BH — TP73/BH

57/67 GATE — 57/67 GATE

FROM AIR SEPARATOR BY SCREW CONVEYOR

WATER SPRAY — TP98/WS — TP99/MC — TP97/PE — TP96/PE — NO. 1A BELT BC-1F/PE

OS1 (STOCKPILE) — ST-130/N OS1 THOR RADIAL STACKER

4'S SILO SB-129 /FE — 57'S SILO SB-128 /FE — BC-C18/PE — SEE FIG.4

SEE FIG.5 — TP106/PE — TP107/PE — BC-BM-1/N

TP92/PE — NO. 1B BELT BC-1G/PE

DUCT

SB-134 4'S BIN 1 — SB-135 4'S BIN 2 — SB-136 SAND BIN 3 — SB-137 57'S/67'S BIN 4 — SB-138 SAND BIN 5 — SB-139 57'S/67'S BIN 6 — SB-140 SAND BIN 7 — SB-141 57'S/67'S BIN 8 — SB-142 FLOAT BIN 9 — SB-143 8'S BIN 10 — OVER SIZE

TP76A/N — NO. 14 BELT BC-14/PE — TP76/BH — TP79/BH — NO. 1D BELT BC-1H/PE

TP77/BH — TP78/BH — NO.15 BELT BC-15/BH — NO. 10 BELT BC-10/BH — TP80/PE/WS — WATER SPRAY

TP116/PE — NO. 4 BELT BC-C4/PE — SEE FIG.4

TP101/PE — WATER SPRAY — TP102/WS — TP103/MC

TP100/PE — NO. 2 BELT BC-2D/PE

ST-132/PE OS1 THOR RADIAL STACKER — OS1-8'S (STOCKPILE)

NO. 11 BELT BC-11A/PE — TP82/N

WATER SPRAY — TP94/WS — TP95/MC — TP93A/PE — NO. 2B BELT BC-2E/PE — TP93/PE

OS1 (STOCKPILE) — ST-131/N OS1 THOR RADIAL STACKER

NO. 1C BELT BC-1E — TP76B/N — SCRAP PILE — SAND PLANT

DUCT — TP104/N — CRUSHER CR-133/WS — TP128/PE

DUCT — BAGHOUSE BH-145

NO. 16 BELT BC-16/PE — SEE FIG.4 — NO. 17 BELT BC-17/PE

TP81/BH

ENCLOSURE

TRUCK LOADOUT TP105/MD

REFERENCE

1. BASE FILE PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) BY POTESTA & ASSOCIATES, INC. ON NOVEMBER 11, 2014 FILE NAME "13-0376 SCHEMATIC FLOW DIAGRAMS 2014-09-16.DWG"

* HAND SIGNATURE ON FILE

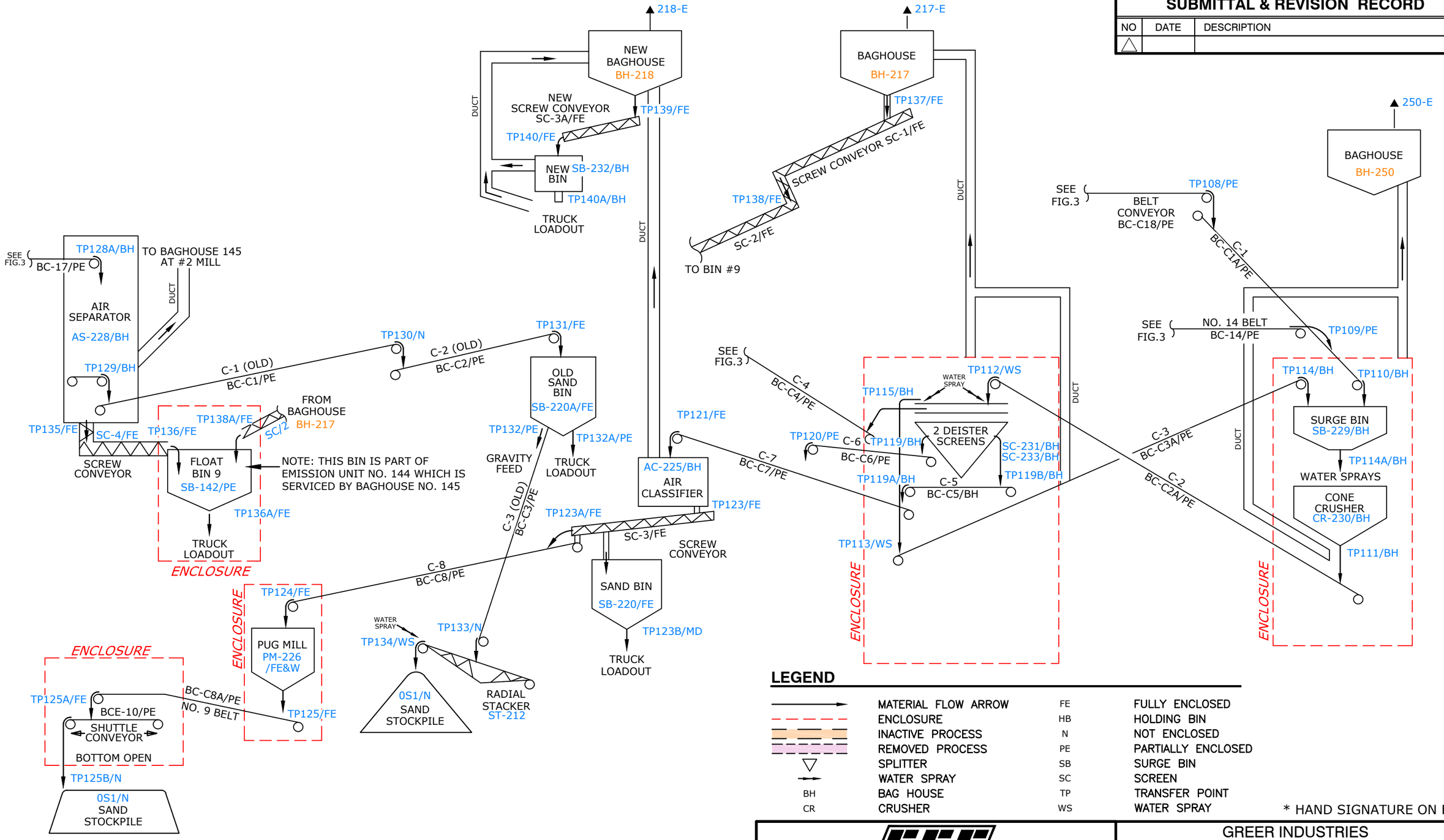
Civil & Environmental Consultants, Inc.
333 Baldwin Road · Pittsburgh, PA 15205
412-429-2324 · 800-365-2324
www.cecinc.com

GREER INDUSTRIES
GREER LIMESTONE COMPANY
MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

NO. 2 MILL EMISSION GROUP
SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:	3
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197		

P:\2014\144-197\-CADD\Dwg\EN01\144197XR-EN01-SP01-FLOW DIAGRAMS.dwg[FIGURE 3] LS:(11/2/2015 4:16 PM - jkile) - LP: 11/2/2015 4:16 PM



LEGEND

	MATERIAL FLOW ARROW	FE	FULLY ENCLOSED
	ENCLOSURE	HB	HOLDING BIN
	INACTIVE PROCESS	N	NOT ENCLOSED
	REMOVED PROCESS	PE	PARTIALLY ENCLOSED
	SPLITTER	SB	SURGE BIN
	WATER SPRAY	SC	SCREEN
BH	BAG HOUSE	TP	TRANSFER POINT
CR	CRUSHER	WS	WATER SPRAY

REFERENCE

1. BASE FILE PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) BY POTESTA & ASSOCIATES, INC. ON NOVEMBER 11, 2014 FILE NAME "13-0376 SCHEMATIC FLOW DIAGRAMS 2014-09-16.DWG"

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
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MASONTOWN, PRESTON COUNTY, WEST VIRGINIA

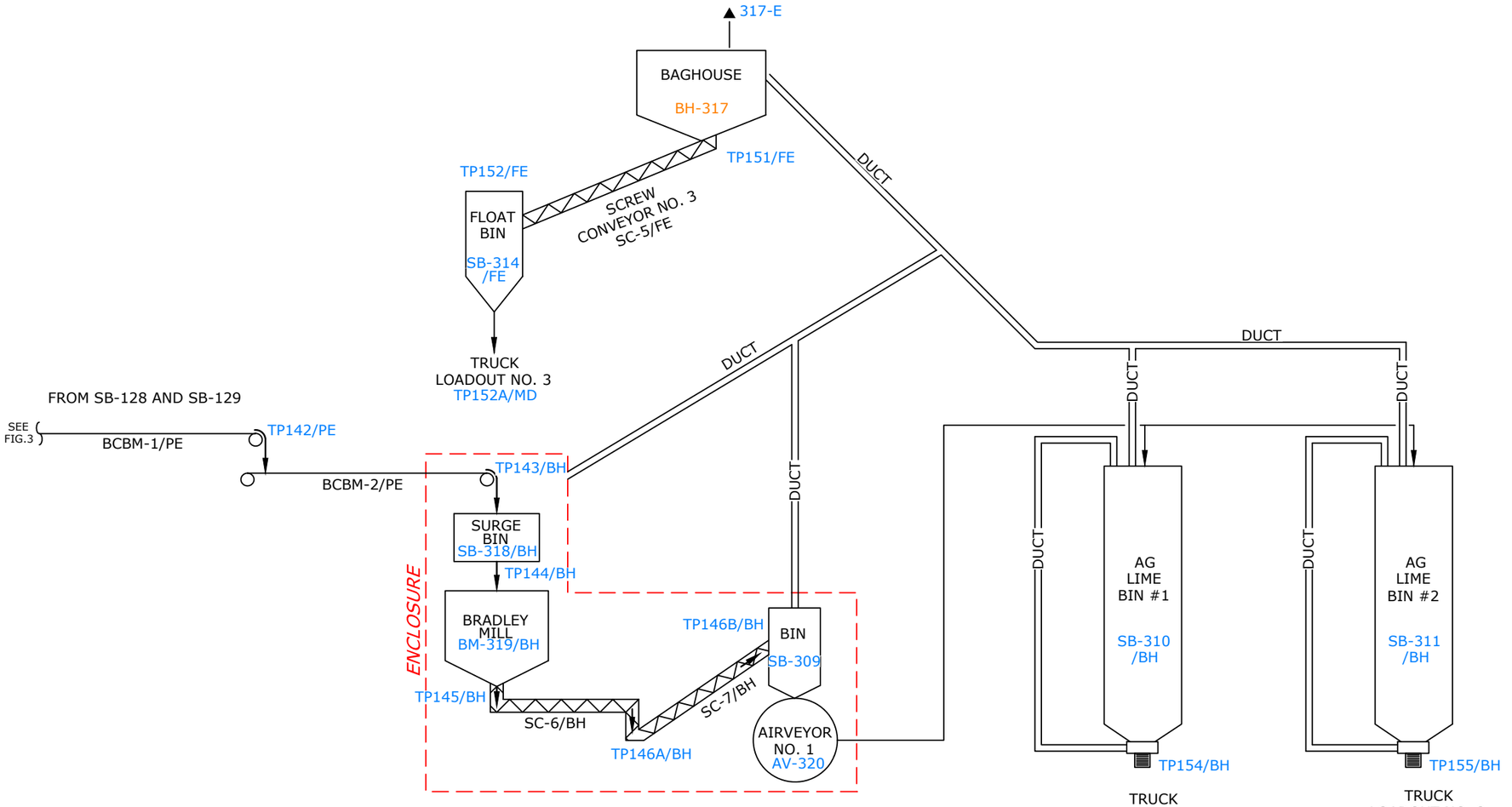
SAND PLANT EMISSION GROUP
SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:	4
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197		

SUBMITTAL & REVISION RECORD		
NO	DATE	DESCRIPTION
△		

LEGEND

→	MATERIAL FLOW ARROW
- - - -	ENCLOSURE
	INACTIVE PROCESS
	REMOVED PROCESS
▽	SPLITTER
→→	WATER SPRAY
BH	BAG HOUSE
CR	CRUSHER
FE	FULLY ENCLOSED
HB	HOLDING BIN
N	NOT ENCLOSED
PE	PARTIALLY ENCLOSED
SB	SURGE BIN
SC	SCREEN
TP	TRANSFER POINT
WS	WATER SPRAY



* HAND SIGNATURE ON FILE

REFERENCE

1. BASE FILE PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) BY POTESTA & ASSOCIATES, INC. ON NOVEMBER 11, 2014 FILE NAME "13-0376 SCHEMATIC FLOW DIAGRAMS 2014-09-16.DWG"

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333 Baldwin Road · Pittsburgh, PA 15205
412-429-2324 · 800-365-2324
www.cecinc.com

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BRADLEY MILL EMISSION GROUP
SCHEMATIC FLOW DIAGRAM

DRAWN BY:	JRK	CHECKED BY:	JLG	APPROVED BY:	* DDR	FIGURE NO.:
DATE:	NOVEMBER 2015	DWG SCALE:	NOT TO SCALE	PROJECT NO:	144-197	5

ATTACHMENT G

PROCESS DESCRIPTION

ATTACHMENT G

PROCESS DESCRIPTION

This Attachment describes the flow of materials through the facility. For permitting purposes the facility has been divided into five (5) processes: No. 1 Mill System, the Crusher Run System, No. 2 Mill System, the Sand System, and the Bradley Mill System. Each process area in the facility has a corresponding process flow diagram in Attachment F, as referenced in the section heading.

Equipment that has been or will be replaced is noted in the text; see Attachment C for the actual or proposed installation dates. This application also includes the existing equipment at the facility including grandfathered equipment and as-built equipment.

No. 1 Mill System (Attachment F Figures 1 and 1A)

Material exits the mine on No. 8 Belt (BC-8) and is transferred (TP1/N) to BC-9 then to Surge Bin SB-037 (TP2/FE), which was replaced with an equivalent bin in 2014. Material from SB-037 can be transferred to either BC-1A or BC-1 (TP3/PE). BC-1 transfers (TP4/N) to BC-2 to Screen No.1 (SC-038) and Screen No. 2 (SC-039) which are in a fully enclosed structure. Oversize material from SC-038 goes to BC-6 or BC-10. Oversize material from SC-039 goes to BC-3 or BC-10. BC-3 (TP15/BH) and BC-6 (TP14/BH) feed holding bin HB-042 which feeds Cone Crushers No. 1 (CR-043, TP16/BH) and No. 2. (CR-044, TP18/BH). CR-043 and CR-044 are controlled by water sprays. Crushed material from CR-043 (TP17/BH) and CR-044 (TP19/BH) transfers to BC-2 and back to the screens. BC-10 transfers (TP20/PE) to BC-11 to ground (TP21/N). Pass through material from SC-038 transfers (TP6/BH) to BC-4. Pass through material from SC-039 transfers (TP7/BH) to BC-7 then to BC-4 (TP-8/N). BC-4 transfers to BC-8A (TP10A/N) to Silo No. 1 (S-126, TP10/FE) and to BC-5 (TP11A/N) to Silo No. 2 (S-127) (TP11/FE). Silo No. 1 transfers to BC-1C (TP58/FE) then BC-2A (TP60/N); Silo No. 2 transfers to BC-2A (TP59/FE). Belt BC-2A feeds material to the No. 2 Mill System.

Material from SB-037 transferred to BC-1A is sent to the Deister Screen SC-404 (TP24/FE). Screen oversize transfers to BC-2B (TP26/FE) then to the Omni Crusher CR-432 (TP-27/BH). Crushed material transfers (TP-28/BH) to BC-3A and is returned to SC-404. Screen pass through enters the Deister Hopper SB-431 and transfers to conveyor BC-4A (TP25B/FE) or BC-7A (TP25/FE). Material from BC-7A is routed to BC-8A (TP10A/N) and BC-5 (TP11A/N). Material from BC-4A is sent to the Crusher Run System.

Crusher Run System (Attachment F Figure 2)

Material from BC-4A enters a chute (TP30/PE) and is split by splitter box to Telesmith Screen No. 1 (SC-434) (TP31/FE) and Telesmith Screen No. 2 (SC-435) (TP32/FE). Oversize from the screens transfers (TP40/N) to BC-6A to surge bin SB-437A (TP41/N) to Omni Crusher CR-412 (TP42/WS). Crushed material transfers (TP43/N) to BC-5A and back to the splitter box

(TP44/N). First deck pass through from each screen transfers (TP35/FE) via a chute to 11/2" Bin SB-436. Second deck pass through from the SC-434 transfers (TP33/FE) to BC-2C to ¾" Bin SB-437 (TP36/FE). Second deck pass through from the SC-435 transfers (TP34/FE) to BC-4B to SB-437 (TP37/FE). Material from SB-436 and SB-437 leave each bin by belt feeder (TP38/N, TP39/N) to BC-8A to BC-9A (TP45/N) to BC-1D (TP46/PE) to BC-2D (TP47/PE) and then to either radial stacker ST-439 (replaced April 2015) or BC-3B (TP54/N). ST-439 has two (2) belts with an internal transfer (TP54B/N) and then transfers to stockpile OS1/N (TP55/WS). BC-3B transfers (TP56/N) to radial stacker ST-440 (replaced July 2014) which has two (2) belts with an internal transfer (TP56A/N) and then transfers to stockpile OS1/N (TP57/WS).

Material is also crushed underground in the mine. Material leaves the mine via one portal on BC-11A to BC-3C (TP48A/N) and BC-12 (TP48B/N) to stockpile OS1/N (TP49/N, TP50/N). From a second portal crushed material leaves the mine on BC-441 and transfers to Loadout Bin SB-443 (TP51C/PE), BC-444 (TP51E/PE), or BC-445 (TP51D/PE). Material from SB-443 is transferred to truck (TP51B/N). Material from BC-444 is transferred to stockpile OS1/N (TP53/N). Material from BC-445 is transferred via a transfer tower to BC-446 (TP51A/PE), then to BC-3B (TP52B/PE) or BC-447 (TP52A/PE). BC-447 transfers (TP54A/PE) to ST-439 to stockpile OS1/N (TP55/MD).

No. 2 Mill System (Attachment F Figure 3)

From the No. 1 Mill System, BC-2A splits to BC-4C (TP62B/N) then Screen No. 1 (SC-152, to be replaced) (TP63/BH), and BC-3D (TP62A/N) to Screen No. 2 (SC-153, to be replaced) (TP64/BH). 4's from Screen No. 1 and No. 2 transfer (TP65/BH, TP66/BH) to BC-6B, then to Bin 1 (SB-134), Bin 2 (SB-135), or BC-9B (TP74/BH). Bin 1 and Bin 2 transfer to truck; BC-9B transfers (TP90/PE) to the 4's Silo SB-129. From the 4's Silo material can be sent to the Bradley Mill (BC-BM-1), the Sand Plant (BC-C18), or BC-1F. BC-1F transfers (TP97/WS) to radial stacker ST-130 (replaced April 2013). ST-130 has two (2) belts with an internal transfer (TP98/MC) then transfers (TP99/MC) to stockpile OS1/N. 57's from Screen No. 1 and No. 2 transfer (TP67/BH, TP68/BH) to BC-8B, or to Bin 4 (SB-137) and Bin 6 (SB-139). BC-8B transfers (TP75/PE) to BC-7A to the 57's Silo SB-128 (TP91/PE). From the 57's Silo material can be sent to the Bradley Mill (BC-BM-1), the Sand Plant (BC-C18), or BC-1G. BC-1G transfers (TP93/PE) to BC-2E to radial stacker ST-131 (TP93A/WS), which was replaced in July 2012. ST-131 has two (2) belts with an internal transfer (TP94/MC) which then transfers (TP95/MC) to stockpile OS1/N. 8's from Screen No. 1 and No. 2 transfer (TP69/BH, TP70/BH) to BC-5B, then to Bin 10 (SB-143). The pass through from Screen No. 1 and No. 2 is transferred to Sand Bins 3 and 5. Bins 1-10 transfer to truck. The 4's, 8's, and 57's bins transfer to BC-14 (TP76/BH) or BC-10 (TP77/BH). BC-14 transfers (TP76A/N) to BC-1E to a scrap pile (TP76B/N) or to the Sand Plant. BC-10 transfers (TP80/PE/WS) to crusher CR-133 to BC-11A (TP81/BH) to BC-12A (TP82/N) to BC-13 (TP83/BH) and transfers (TP84/BH) to Screen No. 3 (SC-154). 57's from Screen No. 3 transfer (TP86/BH) to Bin 8 (SB-141). 8's from Screen No. 3 transfer (TP87/BH) to BC-5B then to Bin 10 (SB-143). Pass through from Screen No. 3 transfers (TP87/BH) to Bin 7 (SB-140). 8's from Bin 10 transfer (TP79/BH) to BC-1H to BC-2D (TP100/WS). BC-2D transfers (TP101/WS) to radial stacker ST-132 (replaced in April 2012). ST-132 has two (2) belts with an internal transfer (TP102/MC) which then transfers

(TP103/MC) to stockpile OS1/N. Sand from Bins 3, 5, and 7 transfer to BC-15 (TP78/BH), to BC16 (TP104/N), then to BC-17 which feeds to the Air Separator of the sand plant.

Sand Plant System (Attachment F Figure 4)

Material from the No. 2 Mill System enters the Sand Plant in three (3) ways: from Silos SB-128 and SB-129 on BC-C18, from BC-14, and from BC-17. BC-C18 transfers to BC-C1A (TP108/PE) to Surge Bin SB-229 (TP110/BH). BC-14 transfers (TP109/PE) to BC-C1A. SB-229 feeds Cone Crusher CR-230 (TP114A/BH) to BC-C2A (TP111/BH) to two (2) Deister Screens SC-231 (to be replaced) and SC-233 (TP112/WS). The enclosure containing SB-229 and CR-230 is controlled by a baghouse (BH-250). Oversize from the screens is sent (TP113/WS) back to SB-229 via BC-C3A (TP114/BH). Second deck material is transferred (TP115/BH) to BC-C4 to BC-2D (TP116/PE) of the No. 2 Mill System. Pass through material from SC-231 is transferred to BC-C6 (TP119/BH) to BC-C7 (TP120/PE). Pass through material from SC-233 is transferred to BC-C5 (TP119B/BH) to BC-C7 (TP119A/BH). BC-C7 transfers (TP121/FE) to the Air Classifier AC-225. The Air Classifier transfers (TP123/FE) to screw conveyor SC-3 to the Sand Bin (SB-220) to truck (TP123B/MD) or to BC-C8 (TP123A/FE) to Pug Mill (PM-226) (TP124/FE) to BC-C8A (TP125/FE) to covered shuttle conveyor BCE-10 (TP125A/FE) to stockpile OS1/N (TP125B/MD).

Material from BC-17 is sent to the Air Separator (AS-228) (TP128A/BH) and is transferred to BC-C1 (TP129/BH) or to screw conveyor SC-4 (TP135/FE). SC-4 transfers (TP136/FE) to Float Bin 9 of No. 2 Mill System to truck (TP136A/FE). BC-C1 transfers to BC-C2 (TP130/N) to Sand Bin SB-220A for loadout to truck (TP132A/PE) or transfer (TP132/PE) to BC-C3 to radial stacker ST-212 (TP133/N). ST-212 transfers (TP134/WS) to stockpile OS1/N.

Collected material in Baghouse BH-217 (controlling the Deister screen enclosure) is sent (TP137/FE) to screw conveyor SC-1 to screw conveyor SC-2 (TP138/FE) to Float Bin 9 (TP138A/FE) for truck loadout (TP136A/FE). Material from Baghouse BH-218 (controlling the Air Classifier) is sent by screw conveyor SC-3A (TP139/FE, TP140/FE) to Bin SB-232 for loadout to truck (TP140A/BH).

Bradley Mill System (Attachment F Figure 5)

Material from the No. 2 Mill System enters the Sand Plant from Silos SB-128 and SB-129 on BCBM-1 to BCBM-2 (TP142/PE) to Surge Bin SB-318 (TP143/BH). SB-318 feeds (TP144/BH) the Bradley Mill (BM-319) to screw conveyor SC-6 (TP145/BH) to SC-7 (TP146A/BH) to Bin SB-309 (TP146B/BH). SB-309 feeds Airveyor No. 1 (AV-320) which transfers through a piping system to Ag Lime Bin No. 1 (SB-310) and Ag Lime Bin No. 2 (SB-311). Each Ag Lime Bin loads out to truck (TP154/BH and TP155/BH). Material collected in Baghouse BH-317 is transferred (TP151/FE) to screw conveyor SC-5 to Float bin SB-314 (TP152/FE) to truck (TP152A/MD).

ATTACHMENT I

EMISSION UNITS TABLE

Attachment I

Emission Units Table

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

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
No. 1 Mill System						
BC-8	BC-8	No. 8 Belt	Pre 1988	1,350 tph	No Change (G)	PE
BC-9	BC-9	No. 9 Belt	Pre 1988	1,350 tph	No Change (G)	PE
SB-037	SB-037	Surge Bin	2014	1,350 tons	Replacement	FE
BC-1	BC-1	No. 1 Belt	Pre 1988	750 tph	No Change (G)	PE
BC-2	BC-2	No. 2 Belt	Pre 1988	1,500 tph	No Change (G)	PE
SC-038	SC-038	No. 1 Screen	Pre 1988	750 tph	No Change (G)	FE
SC-039	SC-039	No. 2 Screen	Pre 1988	750 tph	No Change (G)	FE
BC-7	BC-7	No. 7 Belt	Pre 1988	750 tph	No Change (G)	N
BC-4	BC-4	No. 4 Belt	Pre 1988	750 tph	No Change (G)	N
BC-3	BC-3	No. 3 Belt	Pre 1988	750 tph	No Change (G)	PE
BC-6	BC-6	No. 6 Belt	Pre 1988	750 tph	No Change (G)	PE
HB-042	50-E	Holding Bin	Pre 1988	750 tph	No Change (G)	FE/BH-50
CR-043	50-E	Cone Crusher No. 1	Pre 1988	290 tph	No Change (G)	WS/BH-50
CR-044	50-E	Cone Crusher No. 2	Pre 1988	460 tph	No Change (G)	WS/BH-50
BC-10	BC-10	No. 10 Belt	Pre 1988	750 tph	No Change (G)	PE
BC-11	BC-11	No. 11 Belt	Pre 1988	750 tph	No Change (G)	PE
BC-9A	BC-9A	No. 9 Belt	Pre 1988	900 tph	Removed	N
SB-040	SB-040	Bin No. 1	Pre 1988	900 tph	Removed	PE
BC-1B	BC-1B	No. 1B Belt	Pre 1988	900 tph	Removed	N
NA	NA	Washer	Pre 1988	900 tph	Removed	N
BC-8A	BC-8A	No. 8 Belt	Pre 1988	1,350 tph	Existing not in permit	PE
S-126	S-126	Silo No. 1	Pre 1988	1,350 tph	No Change (G)	FE
BC-5	BC-5	No. 5 Belt	Pre 1988	1,350 tph	No Change (G)	PE

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
No. 1 Mill System						
S-127	S-127	Silo No. 2	Pre 1988	1,350 tph	No Change (G)	FE
BC-1C	BC-1C	No. 1 Belt	Pre 1988	1,350 tph	No Change (G)	PE
BC-2A	BC-2A	No. 2 Belt	Pre 1988	1,350 tph	No Change (G)	PE
BH-50	50-E	Dust Collector	Pre 1988	4,400 ACFM	No Change	NA
BC-1A	BC-1A	No. 1A Belt	Pre 1988	600 tph	No Change (G)	PE
SC-404	SC-404	Deister Screen	Pre 1988	600 tph	No Change (G)	FE
SB-431	SB-431	Deister Hopper	Pre 1988	600 tph	No Change (G)	FE
BC-7A	BC-7A	No. 7A Belt	Pre 1988	600 tph	No Change (G)	N
BC-4A	BC-4A	No. 4A Belt	Pre 1988	330 tph	No Change (G)	N
BC-2B	BC-2B	No. 2A Belt	Pre 1988	600 tph	No Change (G)	PE
CR-432	450-E	Omni Crusher	Pre 1988	600 tph	No Change (G)	BH-450
BC-3A	BC-3A	No. 3A Belt	Pre 1988	600 tph	No Change (G)	PE
BH-450	450-E	Dust Collector	Pre 1988	9,600 ACFM	No Change	NA

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

Note: N = no control; PE = partial enclosure; FE = full enclosure; WS = water spray; BH = baghouse

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
Old and New Crusher Run System						
SC-434	SC-434	Telesmith Screen No. 1	Pre 1988	330 tph	No Change (G)	FE
SC-435	SC-435	Telesmith Screen No. 2	Pre 1988	330 tph	No Change (G)	FE
BC-2C	BC-2C	No. 2 Belt	Pre 1988	330 tph	No Change (G)	FE
BC-4B	BC-4B	No. 4 Belt	Pre 1988	330 tph	No Change (G)	FE
SB-436	SB-436	1 ½ Bin	Pre 1988	330 tph	No Change (G)	PE
SB-437	SB-437	¾ Bin	Pre 1988	330 tph	No Change (G)	PE
BC-8A	BC-8A	No. 8 Feed Belt	Pre 1988	660 tph	No Change (G)	N
BC-9A	BC-9A	No. 9 Belt	Pre 1988	660 tph	No Change (G)	PE
BC-1D	BC-1D	No. 1 Belt	Pre 1988	660 tph	No Change (G)	PE
BC-2D	BC-2D	No. 2 Belt	Pre 1988	660 tph	No Change (G)	PE
BC-4A	BC-4A	No. 4 Belt	Pre 1988	660 tph	No Change (G)	PE
BC-6A	BC-6A	Belt Conveyor	Pre 1988	330 tph	No Change (G)	PE
CR-412	CR-412	Omni Crusher	Pre 1988	330 tph	No Change (G)	WS
BC-5A	BC-5A	No. 5 Belt Return	Pre 1988	330 tph	No Change (G)	PE
SB-437A	SB-437A	Surge Bin	Pre 1988	330 tph	Existing Not in Permit	PE
ST-439	ST-439	1 ½" Radial Stacker	April 2015	580 tph	Replacement	PE
BC-3B	BC-3B	No. 3 Belt	Pre 1988	580 tph	No Change (G)	PE
ST-440	ST-440	¾" Radial Stacker	July 2014	580 tph	Replacement	PE
BC-11A	BC-11A	Belt Conveyor	Pre 1988	400 tph	No Change (G)	N
BC-3C	BC-3C	Belt Conveyor	Pre 1988	50 tph	No Change (G)	N
BC-12	BC-12	Belt Conveyor	Pre 1988	50 tph	No Change (G)	N
BC-441	BC-441	Belt Conveyor (S-441)	2004	250 tph	No Change	PE
SB-443	SB-443	Truck Loadout Bin	2004	250 tons	No Change	FE
BC-444	BC-444	Belt Conveyor (S-444)	2004	250 tph	No Change	PE
BC-445	BC-445	Belt Conveyor (S-445)	2004	250 tph	No Change	PE

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
Old and New Crusher Run System						
BC-446	BC-446	Belt Conveyor (S-446)	2004	250 tph	No Change	PE
BC-447	BC-447	Belt Conveyor	2004	580 tph	Existing Not in Permit	PE
SB-442	SB-442	50 ton Sand Dump Hopper			Removed	

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

Note: N = no control; PE = partial enclosure; FE = full enclosure; WS = water spray; BH = baghouse

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
No. 2 Mill System						
BC-3D	BC-3D	No. 3 Belt	1988	1,350 tph	No Change	PE
BC-4C	BC-4C	No. 4 Belt	1988	1,350 tph	No Change	PE
BH-145	145-E	Dust Collector	1988	30,000 ACFM	No Change	NA
SC-152	145-E	No. 1 Screen	2016	1,350 tph	Replacement	BH-145
SC-153	145-E	No. 2 Screen	2016	1,350 tph	Replacement	BH-145
SC-154	145-E	No. 3 Screen	1988	400 tph	No Change	BH-145
BC-5B	145-E	No. 5 Belt	1988	400 tph	No Change	BH-145
BC-6B	145-E	No. 6 Belt	1988	400 tph	No Change	BH-145
BC-9B	BC-9B	No. 9 Belt	1988	400 tph	No Change	PE
SB-128	SB-128	4's Silo	1988	400 tph	No Change	FE
BC-1F	BC-1F	No. 1A Belt	1988	400 tph	No Change	PE
ST-130	ST-130	4's Thor Radial Stacker	2013	400 tph	Replacement	WS
BC-8B	145-E	No. 8 Belt	1988	400 tph	No Change	BH-145
BC-7A	BC-7A	No. 7 Belt	1988	400 tph	No Change	PE
SB-129	SB-129	57's Silo	1988	400 tph	No Change	FE
BC-1G	BC-1G	No. 1B Belt	1988	400 tph	No Change	PE
BC-2E	BC-2E	No. 2B Belt	1988	400 tph	No Change	PE
ST-131	ST-131	57's Thor Radial Stacker	2013	400 tph	Replacement	WS
BC-1H	BC-1H	No. 1D Belt	1988	400 tph	No Change	PE
BC-2D	BC-2D	No. 2 Belt	1988	550 tph	No Change	PE
ST-132	ST-132	8's Thor Radial Stacker	2013	550 tph	Replacement	PE
BC-14	BC-14	No. 14 Belt	1988	400 tph	No Change	PE
BC-1E	BC-1E	No. 1C Belt	1988	400 tph	No Change	PE
BC-10	145-E	No. 10 Belt	1988	400 tph	Existing Not in Permit	BH-145

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
No. 2 Mill System						
CR-133	145-E	Crusher	1988	400 tph	No Change	WS/BH-145
BC-11A	BC-11A	No. 11 Belt	1988	400 tph	No Change	PE
BC-12A	BC-12A	No. 12 Belt	1988	400 tph	No Change	PE
BC-13	145-E	No. 13 Belt	1988	400 tph	No Change	BH-145
BC-15	145-E	No. 15 Belt	1988	200 tph	No Change	BH-145
BC-16	BC-16	No. 16 Belt	1988	200 tph	No Change	PE
SB-134	145-E	4's bin 1	1988	400 tph	No Change	BH-145
SB-135	145-E	4's bin 2	1988	400 tph	No Change	BH-145
SB-136	145-E	Sand bin 3	1988	400 tph	No Change	BH-145
SB-137	145-E	57's/67's bin 4	1988	400 tph	No Change	BH-145
SB-138	145-E	Sand bin 5	1988	400 tph	No Change	BH-145
SB-139	145-E	57's/67's bin 6	1988	400 tph	No Change	BH-145
SB-140	145-E	Sand bin 7	1988	400 tph	No Change	BH-145
SB-141	145-E	57's/67's bin 8	1988	400 tph	No Change	BH-145
SB-143	145-E	8's bin 10	1988	400 tph	No Change	BH-145
BC-17	BC-17	No. 17 Belt	1988	200 tph	Existing not in permit	PE
SB-142	145-E	Float Bin 9	1988	400 tph	No Change	BH-145

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

Note: N = no control; PE = partial enclosure; FE = full enclosure; WS = water spray; BH = baghouse

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
Sand Plant						
AS-228	145-E	Air Separator	Pre-1988	200 tph	No Change	BH-145
SC-4	SC-4	Screw Conveyor	1988	200 tph	Existing Not in Permit	FE
BC-C2	BC-C2	C-2 Belt (old)	1988	200 tph	No Change	PE
SB-220A	SB-220A	Old Sand Bin	1988	200 tph	Existing Not in Permit	FE
BC-C3	BC-C3	C-3 Belt (old)	1988	200 tph	No Change	PE
ST-212	ST-212	Radial Stacker	1998	200 tph	No Change	WS
BC-C18	BC-C18	C18 Belt	1988	150 tph	No Change	PE
BC-C1	BC-C1	C-1 Belt (old)	1988	200 tph	No Change	PE
BC-C1A	BC-C1A	C-1 Belt	1988	550 tph	No Change	PE
SB-229	250-E	Surge Bin	1995	150 tph	No Change	BH-250
CR-230	250-E	Cone Crusher	1995	150 tph	No Change	BH-250
BC-C2A	BC-C2A	C-2 Belt	1988	150 tph	No Change	PE
SC-231	217-E	Deister Screen	2016	75 tph	Replacement	BH-217
SC-233	217-E	Deister Screen	1995	75 tph	No Change	BH-217
BC-C3A	BC-C3A	C-3 Belt	1988	150 tph	No Change	PE
BC-C4	BC-C4	C-4 Belt	1988	150 tph	No Change	PE
BC-C7	BC-C7	C-7 Belt	1988	300 tph	No Change	PE
BC-C6	BC-C6	C-6 Belt	1988	150 tph	Existing Not in Permit	PE
AC-225	218-E	Air Classifier	1997	300 tph	No Change	BH-218
SC-3	SC-3	Screw Conveyor	1988	150 tph	No Change	FE
SB-220	SB-220	New Sand Bin	1997	150 tph	No Change	FE
BC-C8	BC-C8	C-8 Belt	1988	150 tph	No Change	PE
PM-226	PM-226	Pug Mill	1997	150 tph	No Change	FE/WS

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
Sand Plant						
BC-C8A	BC-C8A	No. 9 Belt	1988	150 tph	Existing Not in Permit	PE
BCE-10	BCE-10	Shuttle Conveyor (S-215)	1995	150 tph	No Change	PE
BH-217	217-E	Dust Collector	2002	37,000 ACFM	No Change	NA
SC-1	SC-1	Screw Conveyor	1988	150 tph	Existing Not in Permit	FE
SC-2	SC-2	Screw Conveyor	1988	150 tph	No Change	FE
BC-C5	BC-C5	C-5 Belt	1995	150 tph	Existing Not in Permit	BH
BH-218	218-E	Dust Collector	1997	4,400 ACFM	No Change	NA
SC-3A	SC-3A	Screw Conveyor	1988	150 tph	Existing Not in Permit	FE
SB-232	218-E	Storage Bin	1997	150 tph	No Change	BH-218
BH-250	250-E	Dust Collector	2002	7,300 ACFM	No Change	NA
SB-227	SB-227	Storage Bin			Removed	
C-11	C-11	C-11 belt			Removed	

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

Note: N = no control; PE = partial enclosure; FE = full enclosure; WS = water spray; BH = baghouse

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)

Black-Existing; Red-Modified or existing not in permit; Grey-Removed; (G) - Grandfathered

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]
Bradley Mill						
BCBM-1	BCBM-1	Belt Conveyor	1991	50 tph	Existing Not in Permit	PE
BCBM-2	BCBM-2	Belt Conveyor	1991	50 tph	Existing Not in Permit	PE
SB-318	317-E	Surge Bin	1991	50 tph	No Change	BH-317
BM-319	317-E	Bradley Mill	1991	50 tph	No Change	BH-317
SC-6	SC-6	Screw Conveyor	1991	50 tph	Rename SC-2 as SC-6	FE
SC-7	SC-7	Screw Conveyor	1991	50 tph	Rename SC-3 as SC-7	FE
SB-309	317-E	Bin	1991	50 tph	No Change	BH-317
AV-320	317-E	Airveyor No. 1	1991	50 tph	No Change	BH-317
SB310	317-E	Ag Lime Bin No. 1	1991	50 tph	No Change	BH-317
SB311	317-E	Ag Lime Bin No. 2	1991	50 tph	No Change	BH-317
SC-5	SC-5	Screw Conveyor No. 3	1991	50 tph	Rename SC-1 as SC-5	FE
BH-317	317-E	Dust Collector	1991	8,500 ACFM	No Change	NA
SB-314	SB-314	Float Bin	1991	50 tph	No Change	FE
Facility-Wide						
OS1	OS1	Stockpile (multiple piles of various stone sizes)	Pre 1988	3.24 MM tons	Combine stockpiles	N

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

Note: N = no control; PE = partial enclosure; FE = full enclosure; WS = water spray; BH = baghouse

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEETS

Attachment J – Emission Points Data Summary Sheet

Table 1: Emissions Data No. 1 Mill System and Crusher Run System

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			
TP1 to 60, nonconsecutive	NA	TP1 to 60	Transfer Points	Various	Various	NA	NA	PM PM10 PM2.5	156.30 74.43 11.16	156.77 74.65 11.20	72.06 34.31 5.15	72.58 34.56 5.18	Solid Solid Solid	EE	NA
CR-412	NA	CR-412	Omni Crusher	WS	Water Spray	NA	NA	PM PM10 PM2.5	1.78 0.89 0.09	1.70 0.85 0.09	0.53 0.27 0.03	0.51 0.26 0.03	Solid Solid Solid	EE	NA
50-E	Vert	CR-043 CR-044 HB-042	Cone Crushers	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	0.83 0.40 0.06	3.63 1.73 0.26	Solid Solid Solid	EE	NA
450-E	Vert	CR-432	Omni Crusher	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	0.83 0.40 0.06	3.63 1.73 0.26	Solid Solid Solid	EE	NA
SC-404	NA	SC-404	Deister Screen	FE	Full Enclosure	NA	NA	PM PM10 PM2.5	15.00 5.22 0.80	14.34 4.99 0.76	3.00 1.04 0.16	2.87 1.00 0.15	Solid Solid Solid	EE	NA
SC-434 SC-435	NA	SC-434 SC-435	Telesmith Screens	FE	Full Enclosure	NA	NA	PM PM10 PM2.5	16.50 5.74 0.87	15.78 5.49 0.84	3.30 1.15 0.17	3.16 1.10 0.17	Solid Solid Solid	EE	NA

*For baghouse emissions we are requesting the pre-2008 OOO limit of 0.022 grains/scf

Table 1: Emissions Data No. 2 Mill System

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			
TP62 to 128, nonconsecutive	NA	TP62 to 128	Transfer Points	Various	Various	NA	NA	PM PM10 PM2.5	71.64 34.11 5.12	73.78 35.13 5.27	26.90 12.81 1.92	27.83 12.81 1.99	Solid Solid Solid	EE	NA
145-E	Vert	SC-152 SC-153 SC-154 CR-133 AS-228	Screens Crusher Air Separator	BH**	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	3.60 1.71 0.26	15.77 7.51 1.13	Solid Solid Solid	EE	NA

**For Baghouse 145 emissions, Subpart OOO limit of 0.014 grains/scf is applicable due to SC-152 and SC-153 being updated in 2016

Table 1: Emissions Data Sand Plant System

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			
TP108 to 140, nonconsecutive	NA	TP108 to 140	Transfer Points	Various	Various	NA	NA	PM PM10 PM2.5	26.03 12.40 1.86	35.46 16.89 2.53	6.13 2.92 0.44	8.44 4.02 0.60	Solid Solid Solid	EE	NA
250-E	Vert	CR-230	Cone Crusher	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	1.38 0.66 0.10	6.03 2.87 0.43	Solid Solid Solid	EE	NA
217-E	Vert	SC-231 SC-233	Deister Screens	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	6.98 3.32 0.50	30.56 14.55 2.18	Solid Solid Solid	EE	NA
218-E	Vert	AC-225	Air Classifier	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	0.83 0.40 0.06	3.63 1.73 0.26	Solid Solid Solid	EE	NA

*For baghouse emissions we are requesting the pre-2008 OOO limit of 0.022 grains/scf

Table 1: Emissions Data Bradley Mill System

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			
317-E	Vert	TP143 to TP155, nonconsecutive BM-319 AV-320	Transfer Points Bradley Mill	BH*	Baghouse	NA	NA	PM PM10 PM2.5	N/A	N/A	1.60 0.76 0.11	7.02 3.34 0.50	Solid Solid Solid	EE	NA
TP142, TP151, TP152 TP152A	NA	TP142 TP151 TP152 TP152A	Transfer Points	NA	NA	NA	NA	PM PM10 PM2.5	2.09 1.00 0.15	2.97 1.41 0.21	0.24 0.11 0.02	0.32 0.15 0.02	Solid Solid Solid	EE	NA

*For baghouse emissions we are requesting the pre-2008 OOO limit of 0.022 grains/scf

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

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

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

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

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

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

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

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

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^{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
50-E	1.0	Ambient	4,400	93	1525	17	4381.05223	598.93236
450-E	1.5	Ambient	4,400	42	1534	15	4381.09202	598.94991
145-E	1.5	Ambient	30,000	283	1447	50	4380.95982	598.91844
217-E	3.0	Ambient	37,000	87	1448	40	4380.98680	598.94366
218-E	2.7	Ambient	4,400	13	1449	48	4380.97681	598.94870
250-E	1.7	Ambient	7,300	54	1449	26	4381.00042	598.90129
317-E	2.33	Ambient	8,500	33	1446	50	4380.96070	598.86427

[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	N/A					
Unpaved Haul Roads	PM PM10 PM2.5	394.31 116.18 11.72	377.05 111.10 11.21	118.29 34.86 3.52	113.12 33.33 3.36	EE
Storage Pile Emissions	PM PM10 PM2.5	8.03 3.82 0.57	35.15 16.74 2.51	8.03 3.82 0.57	35.15 16.74 2.51	EE
Loading/Unloading Operations	Truck loadout included as transfer points on Attachment J					
Wastewater Treatment Evaporation & Operations	N/A					
Equipment Leaks	N/A					
General Clean-up VOC Emissions	N/A					
Other	N/A					

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

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

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

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

ATTACHMENT L

EMISSION UNIT DATA SHEETS

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	0.80	0.36
s =	Silt content of road surface material (%)	10	10
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	Trucking		28		1.0	54	103,275	WS	70
2	Endloaders		95		0.02	135	258,188	WS	70
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	0.80	0.36
s =	Silt content of road surface material (%)	10	10
S =	Mean vehicle speed (mph)	N/A	N/A
W =	Mean vehicle weight (tons)	varies	varies
w =	Mean number of wheels per vehicle	N/A	N/A
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	362.88	347.00	108.86	104.1	106.92	102.24	32.08	30.67
2	31.43	30.05	9.43	9.02	9.26	8.86	2.78	2.66
3								
4								
5								
6								
7								
8								
TOTALS	394.31	377.05	118.29	113.12	116.18	111.10	34.86	33.33

FUGITIVE EMISSIONS FROM PAVED HAULROADS – NOT APPLICABLE

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
Emission Unit Data Sheet
(NONMETALLIC MINERALS PROCESSING)

Control Device ID No. (must match List Form):

Equipment Information

1. Plant Type:
   - ☐ Hot-mix asphalt facility that reduces the size of nonmetallic minerals embedded in recycled asphalt pavement
   - ☐ Plant without crushers or grinding mills and containing a stand-alone screening operation
   - ☒ Sand and gravel plant ☐ Common clay plant
   - ☒ Crushed stone plant ☐ Pumice plant
   - ☐ Other, specify

2. Plant Style: ☒ Fixed Plant ☐ Portable Plant

3. Plant Capacity: tons/hr

4. Underground mine: ☒ Yes ☐ No

5. Storage: ☒ Open ☒ Enclosed

6.

Emission Facility Type	Equipment Type Used	ID Number of Emission Unit	Manufacturer	Model Number/ Serial Number	Date of Manufacture
Conveyors	BC - Belt Conveyor	See Attachment I			
Crusher	various	See Attachment I			
Secondary Crushers					
Tertiary Crushers					
Grinder					
Hoppers					
Rock Drills					
Screens	various	See Attachment I			
Enclosed Storage	various	See Attachment I			
Other					
Other					
Other					

Emission Facility Type	Operation Rate Design Ton/hr	Operation Rate Design Ton/hr	Annual Production Tons/year	Number of Units	Air Pollution Control Device Used
Conveyors	various			85	PE/FE/BH
Crusher	various			8	FE/BH/WS
Secondary Crushers					
Tertiary Crushers					
Grinder					
Hoppers					
Rock Drills					
Screens	various			10	FE/BH
Enclosed Storage	various			22	PE/FE/BH
Other					
Other					
Other					

7. Provide a diagram and/or schematic that shows the proposed process of the operation or plant. The diagram and/or schematic is to show all sources, components and facets of the operation or plant in an understandable line sequence of the operation. The diagram should include all the equipment involved in the operation; such as conveyors, transfer points, stockpiles, crushers, facilities, vents, screens, truck dump bins, truck, barge and railcar loading and unloading, etc. Appropriate sizing and specifications of equipment should be included in the diagram. The diagram shall logical follow the entire process load-in to load-out.

8. Roads

	Paved Miles of Road	Unpaved Miles of Road	Watered		Other Control (Specify)
			Miles	Frequency	
Plant Yard	N/A	2.1	2.1	2-4 times per day	Calcium chloride applied every three months during dry season
Access Roads	N/A	All roads onsite are considered both plant roads and access roads.			

9. Vehicle Type

Vehicle Type	Mean Vehicle Speed in mph	Mean Vehicle Weight in Tons		Number of Wheels	Distance Traveled per Round Trip	
		Empty	Full		Paved Feet or Miles	Unpaved Feet or Miles
Raw Aggregate		15	40		--	1.0 mi
Loaders		90	100		--	0.02 mi
Product Trucks		15	40		--	1.0 mi
Other						
Other						
Other						
Other						

10. Describe all proposed materials storage facilities associated with the **Emission Units** listed.

Various holding bins, surge bins, storage bins, and stock piles store materials throughout the facility, as detailed in the following section of this Attachment (Storage Activity).

Storage Activity - #1 Mill and Crusher Run

ID of Emission Unit	SB-037	HB-042	S-126	S-127	SB-431
Type Storage	B - Bin or Storage	B - Bin or Storage	B - Bin or Storage	B - Bin or Storage	B - Bin or Storage
Material Stored	Aggregates	Aggregates	Aggregates	Aggregates	Aggregates
Typical Moisture Content (%)	2	2	2	2	2
Avg % of material passing through 200 mesh sieve	NA	NA	NA	NA	NA
Maximum Total Yearly Throughput in storage (tons)	2,581,875 tpy	2,581,875 tpy	2,581,875 tpy	2,581,875 tpy	1,147,500 tpy
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None	N - None	N - None	N - None
Method of material load-in to bin or stockpile	SS - Stationary Conv	SS - Stationary Conv	SS - Stationary Conv	SS - Stationary Conv	SS - Stationary Conv
Dust control method applied during load-in	FE - Full Enclosures	EB - Enclosed and E	FE - Full Enclosures	FE - Full Enclosures	FE - Full Enclosures
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl
Dust control method applied during load-out	N - None	WS - Water Sprays	FE - Full Enclosures	FE - Full Enclosures	FE - Full Enclosures

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Storage Activity – #1 Mill and Crusher Run

ID of Emission Unit	SB-443	SB-436	SB-437	SB-437A	
Type Storage	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	E - Enclosure (wall b	
Material Stored	Aggregates	Aggregates	Aggregates	Aggregates	
Typical Moisture Content (%)	2	2	2	2	
Avg % of material passing through 200 mesh sieve	NA	NA	NA	NA	
Maximum Total Yearly Throughput in storage (tons)	669,375 tpy	631,125 tpy	631,125 tpy	631,125 tpy	
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None	N - None	N - None	
Method of material load-in to bin or stockpile	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	
Dust control method applied during load-in	FE - Full Enclosures	FE - Full Enclosures	FE - Full Enclosures	N - None	
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	
Dust control method applied during load-out	N - None	N - None	N - None	WS - Water Sprays	

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Storage Activity – #2 Mill

ID of Emission Unit	SB-128	SB-129	SB-134, SB-135	SB-136, SB-138, SB-140	SB-137, SB-139, SB-141
Type Storage	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage Si
Material Stored	57s	4s	4s	Sand	57s/67s
Typical Moisture Content (%)	2	2	2	2	2
Avg % of material passing through 200 mesh sieve	NA	NA	NA	NA	NA
Maximum Total Yearly Throughput in storage (tons)	957,403 tpy	898,049 tpy	898,049 tpy	898,049 tpy	898,049 tpy
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None	N - None	N - None	N - None
Method of material load-in to bin or stockpile	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con
Dust control method applied during load-in	FE - Full Enclosures	FE - Full Enclosures	EB - Enclosed and E	EB - Enclosed and E	EB - Enclosed and E
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl
Dust control method applied during load-out	N - None	N - None	N - None	N - None	N - None

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Storage Activity – #2 Mill

ID of Emission Unit	SB-142	SB-143			
Type Storage	B - Bin or Storage S	B - Bin or Storage S			
Material Stored	Float/Agg.	8s			
Typical Moisture Content (%)	2	2			
Avg % of material passing through 200 mesh sieve	NA	NA			
Maximum Total Yearly Throughput in storage (tons)	898,049 tpy	898,049 tpy			
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None			
Method of material load-in to bin or stockpile	SS - Stationary Con	SS - Stationary Con			
Dust control method applied during load-in	EB - Enclosed and E	EB - Enclosed and E			
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl			
Dust control method applied during load-out	N - None	N - None			

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Storage Activity – Sand Plant

ID of Emission Unit	SB-220A	SB-229	SB-220	SB-232	
Type Storage	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	
Material Stored	Sand	Aggregates	Sand	Aggregates	
Typical Moisture Content (%)	2	2	2	2	
Avg % of material passing through 200 mesh sieve	NA	NA	NA	NA	
Maximum Total Yearly Throughput in storage (tons)	573,750 tpy	430,313 tpy	430,313 tpy	430,313 tpy	
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None	N - None	N - None	
Method of material load-in to bin or stockpile	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	
Dust control method applied during load-in	FE - Full Enclosures	EB - Enclosed and E	FE - Full Enclosures	EB - Enclosed and E	
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl	TC - Telescoping Ch	FC - Fixed Height Cl	
Dust control method applied during load-out	N - None	WS - Water Sprays	MD - Minimization of	EB - Enclosed and E	

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Storage Activity – Bradley Mill

ID of Emission Unit	SB-318	SB-309	SB-310	SB-311	SB-314
Type Storage	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage S	B - Bin or Storage Si
Material Stored	Aggregates	Aggregates	Ag Lime	Ag Lime	Aggregates
Typical Moisture Content (%)	2	2	2	2	2
Avg % of material passing through 200 mesh sieve	NA	NA	NA	NA	NA
Maximum Total Yearly Throughput in storage (tons)	143,438 tpy	143,438 tpy	143,438 tpy	143,438 tpy	143,438 tpy
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage	N - None	N - None	N - None	N - None	N - None
Method of material load-in to bin or stockpile	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con	SS - Stationary Con
Dust control method applied during load-in	EB - Enclosed and E	EB - Enclosed and E	EB - Enclosed and E	EB - Enclosed and E	FE - Full Enclosures
Method of material load-out to bin or stockpile	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	FC - Fixed Height Cl	TC - Telescoping Ch
Dust control method applied during load-out	EB - Enclosed and E	EB - Enclosed and E	EB - Enclosed and E	EB - Enclosed and E	MD - Minimization of

Storagepiles	**Estimated Annual Tons**	**Turnover Rate (Ton/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method** (Loader, Conveyor) **IN/OUT**
Coarse: over 1”						
Fine: 1” to ¼“						
¼” and less						
MFG. Sand						
Other, specify						

Conveying and Transfer

Describe the conveying system including transfer points associated with proposed Emission Units (crushers, etc…).

See Process Flow Diagrams in Attachment F and Process Description in Attachment G.

Describe any methods of emission control to be used with these proposed conveying systems:

Partial enclosures (PE) on conveyors, full enclosure (FE) within buildings, baghouses (BH), water sprays (WS), and minimized drop distances (MD) are utilized throughout the facility, as discussed in the Process Description and noted on the Process Flow Diagrams.

ID of Emission Unit	Type Conveyor or Transfer Point	Material Handled [Note nominal size of material transferred (e.g. ¾" × 0)]	Material Conveying or Transfer Rate		Dust Control Measures Applied	Approximate Material Moisture Content (%)
			Max. TPH	Maximum TPY		
See attached						

Crushing and Screening - #1 Mill

ID of Emission Unit	SC-038	SC-039	CR-043	CR-044	SC-404	CR-432
Type Crusher or Screen	DD - Double-Dec	DD - Double-Dec	BM - Dall Mill	BM - Dall Mill	DD - Double-Dec	BM - Dall Mill
Material Sized	1.5" to 3"	1.5" to 3"	1.5" to 3"	1.5" to 3"	1.5"	1.5"
Material Sized Throughput:						
Tons/hr	750	750	290	460	600	600
Tons/yr	1,649,850	1,649,850	731,850	918,000	1,147,500	1,147,500
Material sized from/to	3" to 1.5"	3" to 1.5"	3" to 1.5"	3" to 1.5"	1.5" to 3/4"	1.5" to 3/4"
Typical moisture content as crushed or screened (%)	5	5	5	5	5	5
Dust control methods applied	FE - Full Enclosu	FE - Full Enclosu	WS - Water Spra	WS - Water Spra	FE - Full Enclosu	EB - Enclosed an
Stack Parameters:						
Height (ft)	N/A	N/A	17	17	N/A	15
Diameter (ft)			1.0	1.0		1.5
Volume (ACFM)			4,400	4,400		4,400
Temp (°F)			ambient	ambient		ambient
Maximum operating schedule:						
Hour/day	10	10	10	10	10	10
Day/year	255	255	255	255	255	255
Hour/year	2,550	2,550	2,550	2,550	2,550	2,550
Approximate Percentage of Operation from:						
Jan – Mar	25	25	25	25	25	25
April – June	25	25	25	25	25	25
July – Sept	25	25	25	25	25	25
Oct – Dec	25	25	25	25	25	25
Maximum Particulate Emissions:						
LB/HR	3.75	3.75	See 50-E	See 50-E	3.00	See 450-E
Ton/Year	4.12	4.12			2.87	

Crushing and Screening – Crusher Run

ID of Emission Unit	CR-412	SC-434	SC-435			
Type Crusher or Screen	BM - Dall Mill	DD - Double-Dec	DD - Double-Dec			
Material Sized	3/4" to 2"	3/4" to 2"	3/4" to 2"			
Material Sized Throughput:						
Tons/hr	330	330	330			
Tons/yr	631,125	631,125	631,125			
Material sized from/to	2" to 3/4"	2" to 3/4"	2" to 3/4"			
Typical moisture content as crushed or screened (%)	5	5	5			
Dust control methods applied	WS - Water Spray	FE - Full Enclosu	FE - Full Enclosu			
Stack Parameters:						
Height (ft)	N/A	N/A	N/A			
Diameter (ft)						
Volume (ACFM)						
Temp (°F)						
Maximum operating schedule:						
Hour/day	10	10	10			
Day/year	255	255	255			
Hour/year	2,550	2,550	2,550			
Approximate Percentage of Operation from:						
Jan – Mar	25	25	25			
April – June	25	25	25			
July – Sept	25	25	25			
Oct – Dec	25	25	25			
Maximum Particulate Emissions:						
LB/HR	0.53	1.65	1.65			
Ton/Year	0.51	1.58	1.58			

Crushing and Screening - #2 Mill

ID of Emission Unit	CR-133	SC-152	SC-153	SC-154		
Type Crusher or Screen	BM - Dall Mill	DD - Double-Dec	DD - Double-Dec	DD - Double-Dec		
Material Sized	various	various	various	various		
Material Sized Throughput:						
Tons/hr	400	1,350	1,350	400		
Tons/yr	765,000	2,581,875	2,581,875	765,000		
Material sized from/to	various	various	various	various		
Typical moisture content as crushed or screened (%)	10	2	2	2		
Dust control methods applied	WS - Water Spra	EB - Enclosed an	EB - Enclosed an	EB - Enclosed an		
Stack Parameters:						
Height (ft)	50	50	50	50		
Diameter (ft)	1.5	1.5	1.5	1.5		
Volume (ACFM)	30,000	30,000	30,000	30,000		
Temp (°F)	ambient	ambient	ambient	ambient		
Maximum operating schedule:						
Hour/day	10	10	10	10		
Day/year	255	255	255	255		
Hour/year	2,550	2,550	2,550	2,550		
Approximate Percentage of Operation from:						
Jan – Mar	25	25	25	25		
April – June	25	25	25	25		
July – Sept	25	25	25	25		
Oct – Dec	25	25	25	25		
Maximum Particulate Emissions:						
LB/HR	See 145-E	See 145-E	See 145-E	See 145-E		
Ton/Year						

Crushing and Screening – Sand Plant

ID of Emission Unit	CR-230	SC-231	SC-233	AC-225	AS-228	
Type Crusher or Screen	BM - Dall Mill	DD - Double-Dec	DD - Double-Dec	Air Classifier	Air Separator	
Material Sized	4s, 57s	Aggregates	Aggregates	Sand	Sand	
Material Sized Throughput:						
Tons/hr	150	75	75	300	200	
Tons/yr	430,313	215,156	215,156	860,625	573,750	
Material sized from/to	various	various	various	Sand	Sand	
Typical moisture content as crushed or screened (%)	10	10	10	2	2	
Dust control methods applied	WS - Water Spra	WS - Water Spra	WS - Water Spra	EB - Enclosed an	EB - Enclosed an	
Stack Parameters:						
Height (ft)	26	40	40	48	50	
Diameter (ft)	1.7	3.0	3.0	2.7	1.5	
Volume (ACFM)	7,300	37,000	37,000	4,400	30,000	
Temp (°F)	ambient	ambient	ambient	ambient	ambient	
Maximum operating schedule:						
Hour/day	10	10	10	10	10	
Day/year	255	255	255	255	255	
Hour/year	2,550	2,550	2,550	2,550	2,550	
Approximate Percentage of Operation from:						
Jan – Mar	25	25	25	25	25	
April – June	25	25	25	25	25	
July – Sept	25	25	25	25	25	
Oct – Dec	25	25	25	25	25	
Maximum Particulate Emissions:						
LB/HR	See 250-E	See 217-E	See 217-E	See 218-E	See 145-E	
Ton/Year						

Crushing and Screening – Bradley Mill

ID of Emission Unit	BM-319					
Type Crusher or Screen	BM - Dall Mill					
Material Sized	Aggregates					
Material Sized Throughput:						
Tons/hr	50					
Tons/yr	143,438					
Material sized from/to	Ag lime					
Typical moisture content as crushed or screened (%)	2					
Dust control methods applied	EB - Enclosed an					
Stack Parameters:						
Height (ft)	50					
Diameter (ft)	2.33					
Volume (ACFM)	8,500					
Temp (°F)	ambient					
Maximum operating schedule:						
Hour/day	10					
Day/year	255					
Hour/year	2,550					
Approximate Percentage of Operation from:						
Jan – Mar	25					
April – June	25					
July – Sept	25					
Oct – Dec	25					
Maximum Particulate Emissions:						
LB/HR	See 317-E					
Ton/Year						

List emission sources with request information:

ID of Emission Unit	Type of Emission Unit and Use	Operating Schedule		Max. Amount of Stone Input to Emission (lb/hr)	Crushed or Screened From/To (size)	Date of Emission Unit was Manufacture
		Actual (hrs/yr)	Design (hrs/yr)			
See above						

List emission sources with request information:

ID of Emission Unit	Maximum expected emissions from Emission Unit without Air Pollution Control Equipment				
	PM_{10} (lbs/hr)	SO_2 (lbs/hr)	CO (lbs/hr)	NO_x (lbs/hr)	VOC (lbs/hr)
See Attachment J					

ID of Emission Unit	Maximum expected emissions from Emission Unit without Air Pollution Control Equipment				
	PM_{10} (tons/yr)	SO_2 (tons/yr)	CO (tons/yr)	NO_x (tons/yr)	VOC (tons/yr)
See Attachment J					

Please fill out a separate Air Pollution Control Device Sheet for each Emission Unit equipped with an air pollution control system.

What type of stone will be quarried at this site?

Limestone

How will it be quarried?

- ☐ Sawing
- ☐ Blasting
- ☒ Other, Specify: Underground mine

If blasting is checked, complete the following:

- ☐ Frequency of blasting:
- ☐ What method of air pollution control will be employed during drilling and blasting?

Location	ID of Emission Unit	Type Conveyor or Transfer Point	Description	Material Handled [Note nominal size of material transferred (e.g. 3/4" x 0)]	Material Conveying or Transfer Rate		Dust Control Measures Applied	Approximate Material Moisture Content (%)
					Max tph	Max tpy		
#1 Mill	BC-1	BC	From SB-037 to BC-2	various	750	1,649,850	PE	2
#1 Mill	BC-10	BC	From SC-038 and SC-039 to BC-11	various	750	1,434,375	PE	2
#1 Mill	BC-11	BC	From BC-10 to stockpile	various	750	1,434,375	PE	2
#1 Mill	BC-1A	BC	From SB-037 to SC-404 (Deister screen)	various	600	1,147,500	PE	2
#1 Mill	BC-1C	BC	From S-126 to BC-2A to #2 Mill	various	1,350	2,581,875	PE	2
#1 Mill	BC-2	BC	From Cone Crushers (043, 044) to screens 038, 039	various	1,500	3,299,700	PE	2
#1 Mill	BC-2A	BC	From S-126 and S-127 to #2 Mill	various	1,350	2,581,875	PE	2
#1 Mill	BC-2B	BC	From Deister screen (SC-404) oversize chute to omni-crusher (CR-432)	various	600	1,147,500	PE	2
#1 Mill	BC-3	BC	From SC-039 to HB-042 and crushers	various	750	1,434,375	PE	2
#1 Mill	BC-3A	BC	From CR-432 to SC-404	various	600	1,147,500	PE	2
#1 Mill	BC-4	BC	From SC-038 to splitter, S-126 and S-127	various	750	1,649,850	FE/BH	2
#1 Mill	BC-4A	BC	From Deister hopper (SB-431) to enclosure with telesmith screens	various	330	631,125	N	2
#1 Mill	BC-5	BC	From BC-4 to S-127	various	1,350	2,581,875	PE	2
#1 Mill	BC-6	BC	From SC-038 to HB-042	various	750	1,434,375	PE	2
#1 Mill	BC-7	BC	From SC-039 to BC-4 and then splitter	various	750	1,434,375	FE/BH	2
#1 Mill	BC-7A	BC	From Deister hopper to silos S-126, S-127	various	600	1,147,500	N	2
#1 Mill	BC-8	BC	From mine to BC-9	various	1,350	2,581,875	PE	2
#1 Mill	BC-9	BC	From BC-8 to SB-037	various	1,350	2,581,875	PE	2
#1 Mill	BC-8A	BC	From screens/splitter to S-126	various	1,350	2,581,875	PE	2
Crusher Run	BC-441	BC	From mine to SB-443, BC-444, or BC-445	various	250	669,375	PE	2
Crusher Run	BC-444	BC	From BC-441 to stockpile	various	250	669,375	PE	2
Crusher Run	BC-446	BC	From BC-445 to splitter	various	250	669,375	PE	2
Crusher Run	BC-445	BC	From BC-441 to BC-446	various	250	669,375	PE	2
Crusher Run	BC-1D	BC	From BC-9A to BC-2D	various	660	1,262,250	PE	2
Crusher Run	BC-2C	BC	From SC-434 to SB-437	3/4"	330	631,125	FE	2
Crusher Run	BC-2D	BC	From BC-1D to either BC-3B (3/4") or ST-439 (1 1/2")	various	660	1,262,250	PE	2
Crusher Run	BC-3B	BC	From BC-446 to ST-440 and stockpile	3/4"	580	1,300,500	PE	2
Crusher Run	BC-4A	BC	From SB-431/No. 4A belt to chute into telsmith screens	various	660	1,262,250	PE	2
Crusher Run	BC-4B	BC	From SC-435 to SB-437	3/4"	330	631,125	FE	2
Crusher Run	BC-5A	BC	From CR-412 to BC-4A and then screens	various	330	631,125	PE	2
Crusher Run	BC-6A	BC	Oversize from screens to SB-437A	various	330	631,125	PE	2
Crusher Run	BC-8A	BC	From bins SB-436 and SB-437 to BC-9A	various	660	1,262,250	N	2
Crusher Run	BC-9A	BC	From BC-8A to BC-1D	various	660	1,262,250	PE	2
Crusher Run	BC-447	BC	From BC-446 to ST-439	1 1/2"	580	1,300,500	PE	2
Crusher Run	BC-11A	BC	From mine to either BC-3C or BC-12	various	100	286,875	N	2
Crusher Run	BC-12	BC	From BC-11A to stockpile	various	50	143,438	N	2
Crusher Run	BC-3C	BC	From BC-11A to stockpile	various	50	143,438	N	2
Crusher Run	ST-439	ST	From BC-447 to stockpile	1 1/2"	580	1,300,500	PE	2
Crusher Run	ST-440	ST	From BC-3B to stockpile	3/4"	580	1,300,500	PE	2

Location	ID of Emission Unit	Type Conveyor or Transfer Point	Description	Material Handled [Note nominal size of material transferred (e.g. 3/4" x 0)]	Material Conveying or Transfer Rate		Dust Control Measures Applied	Approximate Material Moisture Content (%)
					Max tph	Max tpy		
#2 Mill	BC-11A	BC	From CR-133 to BC-12A and back to SC-154	various	400	765,000	PE	2
#2 Mill	BC-12A	BC	From BC-11A to BC-13	various	400	765,000	PE	2
#2 Mill	BC-13	BC	From BC-12A to SC-154	various	400	765,000	BH	2
#2 Mill	BC-14	BC	From storage bins to BC-1E and stockpile	various	400	765,000	PE	2
#2 Mill	BC-16	BC	From BC-15 to BC-17	various	200	523,862	PE	2
#2 Mill	BC-1E	BC	From BC-14 to stockpile	various	400	765,000	PE	2
#2 Mill	BC-1F	BC	From SB-129 to ST-130	4s	400	898,049	PE	2
#2 Mill	BC-1G	BC	From SB-128 to BC-2E and ST-131	57s	400	957,403	PE	2
#2 Mill	BC-1H	BC	From SB-143 (8s bin) to BC-2D to ST-132	8s	400	765,000	PE/WS	2
#2 Mill	BC-2E	BC	From BC-1G to ST-131	57s	400	957,403	PE/WS	2
#2 Mill	BC-3D	BC	From BC-2A to SC-153 (Screen 2)	various	1,350	2,581,875	BH	2
#2 Mill	BC-4C	BC	From BC-2A to SC-152 (Screen 1)	various	1,350	2,581,875	BH	2
#2 Mill	BC-5B	BC	From all three screens to SB-143	8s	400	765,000	BH	2
#2 Mill	BC-6B	BC	From all three screens to BC-9B	4s	400	898,049	BH	2
#2 Mill	BC-7A	BC	From BC-8B to SB-128	57s	400	957,403	PE	2
#2 Mill	BC-8B	BC	From all three screens to BC-7A	57s	400	957,403	BH	2
#2 Mill	BC-9B	BC	From BC-6B to SB-129	4s	400	898,049	PE	2
#2 Mill	BC-2D	BC	From BC-1H and BC-C4 to ST-132	8s	550	1,051,875	PE	2
#2 Mill	BC-10	BC	From storage bins to CR-133	various	400	765,000	BH	2
#2 Mill	BC-15	BC	From storage bins to BC-16	various	200	523,862	BH	2
#2 Mill	BC-17	BC	From BC-16 to AS-228 in Sand Plant	various	200	523,862	PE	2
#2 Mill	ST-130	ST	From 4's silo/BC-1F to stockpile	4s	400	898,049	WS	2
#2 Mill	ST-131	ST	From 57s silo/BC-2E to stockpile	57s	400	957,403	WS	2
#2 Mill	ST-132	ST	From BC-2D to stockpile	8s	550	1,051,875	WS	2
Sand Plant	BC-C1	BC	From AS-228 to BC-C2	Sand	200	573,750	PE	2
Sand Plant	BC-C1A	BC	From BC-C18 to SB-229	various	550	1,195,313	PE	2
Sand Plant	BC-C2	BC	From BC-C1 to SB-220A	various	200	573,750	PE	2
Sand Plant	BC-C2A	BC	From CR-230 to Deister screens	various	150	430,313	BH/PE/WS	2
Sand Plant	BC-C3	BC	From SB-220A to ST-212/stockpile	Sand	200	573,750	PE	2
Sand Plant	BC-C3A	BC	From Deister screens to SB-229	various	150	430,313	PE/BH	2
Sand Plant	BC-C4	BC	From Deister screens to BC-2D (#2 Mill)	various	150	286,875	PE	2
Sand Plant	BC-C5	BC	From Deister screens to BC-C7	various	150	430,313	BH	2
Sand Plant	BC-C7	BC	From BC-C5 and BC-C6 to AC-225	various	300	860,625	PE	2
Sand Plant	BC-C8	BC	From SC-3 to Pug Mill (PM-226)	various	150	430,313	PE	2
Sand Plant	BCE-10	BC	From BC-C8A to stockpile	Sand	150	430,313	PE	2
Sand Plant	BC-C18	BC	From SB-128 and SB-129 to BC-C1A	4s & 57s	150	430,313	PE	2
Sand Plant	BC-C6	BC	From Deister screens to BC-C7	various	150	430,313	PE	2
Sand Plant	BC-C8A	BC	From PM-226 to BCE-10 (shuttle conveyor)	various	150	430,313	PE	2
Sand Plant	SC-2	Screw	From SC-1 (from BH-217) to SB-142 (in #2 Mill)	various	150	430,313	FE	2
Sand Plant	SC-3	Screw	From AC-225 to either SB-220 or BC-C8	various	150	430,313	FE	2
Sand Plant	SC-4	Screw	From AS-228 to SB-142 (in #2 Mill)	various	200	573,750	FE	2
Sand Plant	SC-1	Screw	From BH-217 to SC-2	various	150	430,313	FE	2
Sand Plant	SC-3A	Screw	From BH-218 to SB-232	various	150	430,313	FE	2
Sand Plant	ST-212	ST	From BC-C3 to stockpile	Sand	200	573,750	WS	2

Location	ID of Emission Unit	Type Conveyor or Transfer Point	Description	Material Handled [Note nominal size of material transferred (e.g. 3/4" x 0)]	Material Conveying or Transfer Rate		Dust Control Measures Applied	Approximate Material Moisture Content (%)
					Max tph	Max tpy		
Bradley	BCBM-1	BC	From SB128 and SB-129 to BCBM-2	4s & 57s	50	143,438	PE	2
Bradley	BCBM-2	BC	From BCBM-1 to Sb-318	4s & 57s	50	143,438	PE	2
Bradley	SC-5 (old SC-1)	Screw	From BH-317 to SB-314	various	50	143,438	FE	2
Bradley	SC-6 (old SC-2)	Screw	From BM-319 to SC-7	various	50	143,438	BH	2
Bradley	SC-7 (old SC-3)	Screw	From SC-6 to SB-309	various	50	143,438	BH	2

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEETS

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 145-E (BH-145)

Equipment Information and Filter Characteristics

1. Manufacturer: Pinnacle Model No. APC Model 6P-384-10-RA	2. Total number of compartments: 1 3. Number of compartment online for normal operation: 1
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 Gortex	7. Bag Dimension: Diameter 6 in. Length 10 ft. 8. Total cloth area: 6,032 ft^2 9. Number of bags: 384 10. Operating air to cloth ratio: 5 to 1 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: 15 Max. per yr: 3,825	15. Collection efficiency: Rating: 98 % Guaranteed minimum: %

Gas Stream Characteristics

16. Gas flow rate into the collector: 30,000 ACFM at ambient °F and 14.7 PSIA ACFM: Design: 30,000 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA	
17. Water Vapor Content of Effluent Stream: NA lb. Water/lb. Dry Air	
18. Gas Stream Temperature: ambient °F	19. Fan Requirements: 10.6 hp OR ft^3/min
20. Stabilized static pressure loss across baghouse. Pressure Drop: High 5 in. H_2O Low 2 in. H_2O	
21. Particulate Loading: Inlet: grain/scf Outlet: 0.014 grain/scf	

22. Type of Pollutant(s) to be collected (if particulate give specific type):
Limestone dust at 70 PCF

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**
PM			3.60	0.014
PM10/PM2.5			1.71 / 0.26	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 145-E (BH-145)

Equipment Information and Filter Characteristics

1. Manufacturer: Pinnacle
   Model No. APC Model 6P-384-10-RA
2. Total number of compartments: 1
3. Number of compartment online for normal operation: 1
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 Gortex
7. Bag Dimension:
   Diameter 6 in.
   Length 10 ft.
8. Total cloth area: 6,032 ft^2
9. Number of bags: 384
10. Operating air to cloth ratio: 5 to 1 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: 15 Max. per yr: 3,825
15. Collection efficiency: Rating: 98 % Guaranteed minimum: ____ %

Gas Stream Characteristics

16. Gas flow rate into the collector: 30,000 ACFM at ambient °F and 14.7 PSIA
    ACFM: Design: 30,000 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA
17. Water Vapor Content of Effluent Stream: NA lb. Water/lb. Dry Air
18. Gas Stream Temperature: ambient °F
19. Fan Requirements: 10.6 hp
    OR ____ ft^3/min
20. Stabilized static pressure loss across baghouse. Pressure Drop: High 5 in. H_2O Low 2 in. H_2O
21. Particulate Loading: Inlet: ____ grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			5.66	0.022
PM10/PM2.5			2.69 / 0.40	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 217-E (BH-217)

Equipment Information and Filter Characteristics

1. Manufacturer: Mikropulsaire
   Model No.

2. Total number of compartments: 1

3. Number of compartment online for normal operation: 1

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 Gortex

7. Bag Dimension:
   Diameter 4.5 in.
   Length 5 ft.

8. Total cloth area: 1,885 ft^2

9. Number of bags: 320

10. Operating air to cloth ratio: 19.6 to 1 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: 15
    Max. per yr: 3,825

15. Collection efficiency: Rating: 98 %
    Guaranteed minimum: %

Gas Stream Characteristics

16. Gas flow rate into the collector: 37,000 ACFM at ambient °F and 14.7 PSIA
    ACFM: Design: 37,000 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA

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

18. Gas Stream Temperature: ambient °F

19. Fan Requirements: 10.6 hp
    OR
    ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop:
    High 5 in. H_2O
    Low 2 in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			6.98	0.022
PM10/PM2.5			3.32 / 0.50	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 218-E (BH-218)

Equipment Information and Filter Characteristics

1. Manufacturer: General Electric
   Model No. Pulse Jet Model GE-266
2. Total number of compartments: 1
3. Number of compartment online for normal operation: 1
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 6 in.
   - Length 12 ft.
8. Total cloth area: 5,014 ft^2
9. Number of bags: 266
10. Operating air to cloth ratio: 1.9 to 1 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: 15 Max. per yr: 3,825
15. Collection efficiency: Rating: 98 % Guaranteed minimum: ____ %

Gas Stream Characteristics

16. Gas flow rate into the collector: 9,600 ACFM at ambient °F and 14.7 PSIA
    ACFM: Design: 9,600 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA
17. Water Vapor Content of Effluent Stream: NA lb. Water/lb. Dry Air
18. Gas Stream Temperature: ambient °F
19. Fan Requirements: 27.2 hp OR ____ ft^3/min
20. Stabilized static pressure loss across baghouse. Pressure Drop: High 7 in. H_2O Low 3 in. H_2O
21. Particulate Loading: Inlet: ____ grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			0.83	0.022
PM10/PM2.5			0.40 / 0.06	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 250-E (BH-250)

Equipment Information and Filter Characteristics

1. Manufacturer: Pinnacle
   Model No. APC Model 634

2. Total number of compartments: 1

3. Number of compartment online for normal operation: 1

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 Gortex

7. Bag Dimension:
   Diameter 13 in.
   Length 3.33 ft.

8. Total cloth area: 272 ft^2

9. Number of bags: 24

10. Operating air to cloth ratio: 16.2 to 1 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: 15
   Max. per yr: 3,825

15. Collection efficiency: Rating: 98 %
   Guaranteed minimum: %

Gas Stream Characteristics

16. Gas flow rate into the collector: 4,400 ACFM at ambient °F and 14.7 PSIA
   ACFM: Design: 4,400 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA

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

18. Gas Stream Temperature: ambient °F

19. Fan Requirements: 10.6 hp
   OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High 5 in. H_2O
   Low 2 in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			1.38	0.022
PM10/PM2.5			0.66 / 0.10	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 317-E (BH-317)

Equipment Information and Filter Characteristics

1. Manufacturer: Brooks
   Model No. Pulsking M100S

2. Total number of compartments: 1

3. Number of compartment online for normal operation: 1

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 Gortex

7. Bag Dimension:
   Diameter 6 in.
   Length 12 ft.

8. Total cloth area: 1,885 ft^2

9. Number of bags: 100

10. Operating air to cloth ratio: 4.5 to 1 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: 15
   Max. per yr: 3,825

15. Collection efficiency: Rating: 98 %
   Guaranteed minimum: Not stated %

Gas Stream Characteristics

16. Gas flow rate into the collector: 8,500 ACFM at ambient °F and 14.7 PSIA
   ACFM: Design: 8,500 PSIA Maximum: 14.7 PSIA Average Expected: 14.7 PSIA

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

18. Gas Stream Temperature: ambient °F

19. Fan Requirements: 10.6 hp
   OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High 5 in. H_2O
   Low 2 in. H_2O

21. Particulate Loading: Inlet: grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			1.60	0.022
PM10/PM2.5			0.76 / 0.11	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): 450-E (BH-450)

Equipment Information and Filter Characteristics

1. Manufacturer: Pinnacle
   Model No. 334 Cartridge Dust Collector

2. Total number of compartments: 1

3. Number of compartment online for normal operation: 1

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 Gortex

7. Bag Dimension:
   Diameter 13 in.
   Length 40 ft.

8. Total cloth area: 1,080 ft^2

9. Number of bags: 12 cartridges

10. Operating air to cloth ratio: 4.1 to 1 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: 15
   Max. per yr: 3,825

15. Collection efficiency: Rating: 98 %
   Guaranteed minimum: %

Gas Stream Characteristics

16. Gas flow rate into the collector: 4,400 ACFM at 70°F and 14.7 PSIA
   ACFM: Design: 4,400 PSIA Maximum: 4,400 PSIA Average Expected: 4,400 PSIA

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

18. Gas Stream Temperature: 70 °F

19. Fan Requirements: 10.6 hp
   OR ft^3/min

20. Stabilized static pressure loss across baghouse. Pressure Drop: High 5 in. H_2O
   Low 2 in. H_2O

21. Particulate Loading: Inlet: 2 grain/scf Outlet: 0.022 grain/scf

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

Limestone dust at 70 PCF

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**
PM			0.83	0.022
PM10/PM2.5			0.40 / 0.06	

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:
- ☐ Other, specify:

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

The operator checks the baghouse at the beginning of each shift of operation to verify that it is operating and that there are no visible emissions. Pressure drop is checked as part of regularly scheduled preventative maintenance activities.

28. Describe any filter seeding being performed:

NA

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

NA

30. Describe the collection material disposal system:

Dust collector is equipped with a pyramidal hopper with a 55 degree valley angle. The hopper is equipped with a flanged dust discharge opening 12" x 12" and a manual slide gate. The dust removed from this unit is collected in a portable container and utilized. Some of the dust is sold as a product and excess dust is re-deposited inside the mine.

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:
None proposed.	None proposed.
REPORTING:	TESTING:
None proposed.	None proposed.

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.

98%

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

99%

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

The unit receives periodic inspection and preventive maintenance per manufacturer specifications. The unit operates outdoors and functions year round depending on quarry crushing operations.

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

Proposed Facility Emissions

Total Facility	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	1,462.91	3,678.98	262.03	342.51
PM10	522.76	1,300.02	101.55	140.75
PM2.5	73.22	191.82	13.53	19.48

Point Sources

Total Point Source	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	1,060.58	3,266.78	135.70	194.24
PM10	402.75	1,172.18	62.86	90.69
PM2.5	60.93	178.10	9.43	13.60

No. 1 Mill	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	229.78	232.64	88.05	94.64
PM10	100.68	101.74	40.17	43.26
PM2.5	15.06	15.22	6.03	6.49

No. 2 Mill	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	149.94	148.65	30.50	43.60
PM10	61.48	61.31	14.52	20.76
PM2.5	9.27	9.24	2.18	3.11

Sand Plant	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	678.77	2,882.51	15.31	48.66
PM10	239.59	1,007.73	7.29	23.17
PM2.5	36.45	153.43	1.09	3.48

Bradley Mill	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	2.09	2.97	1.84	7.34
PM10	1.00	1.41	0.88	3.50
PM2.5	0.15	0.21	0.13	0.52

Proposed Facility Emissions

Fugitive Sources

Total Fugitive Source	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	402.34	412.20	126.32	148.27
PM10	120.00	127.84	38.68	50.07
PM2.5	12.29	13.72	4.09	5.87

Stockpiles	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	8.03	35.15	8.03	35.15
PM10	3.82	16.74	3.82	16.74
PM2.5	0.57	2.51	0.57	2.51

Haulroads	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	394.31	377.05	118.29	113.12
PM10	116.18	111.10	34.86	33.33
PM2.5	11.72	11.21	3.52	3.36

Dust Collectors

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Controlled Hourly Emissions (lb/hr)	Controlled Annual Emissions (tpy)
50-E	No. 1 Mill Cone Crusher Baghouse	BH-50	4,400	2,313	PM	0.022	0.83	3.63
					PM10		0.40	1.73
					PM2.5		0.06	0.26

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
450-E	Omni Crusher Baghouse	BH-450	4,400	2,313	PM	0.022	0.83	3.63
					PM10		0.40	1.73
					PM2.5		0.06	0.26

Regulated Pollutant	No. 1 Mill Baghouse Total	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
PM		1.66	7.27
PM10		0.79	3.46
PM2.5		0.12	0.52

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
145-E	No. 2 Mill Baghouse	BH-145	30,000	15,768	PM	0.014	3.60	15.77
					PM10		1.71	7.51
					PM2.5		0.26	1.13

Regulated Pollutant	No. 2 Mill Baghouse Total	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
PM		3.60	15.77
PM10		1.71	7.51
PM2.5		0.26	1.13

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
217-E	Sand Plant Deister Screen Baghouse	BH-217	37,000	19,447	PM	0.022	6.98	30.56
					PM10		3.32	14.55
					PM2.5		0.50	2.18

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
218-E	Sand Plant Air Classifier Baghouse	BH-218	4,400	2,313	PM	0.022	0.83	3.63
					PM10		0.40	1.73
					PM2.5		0.06	0.26

Dust Collectors

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
250-E	Sand Plant Cone Crusher Baghouse	BH-250	7,300	3,837	PM	0.022	1.38	6.03
					PM10		0.66	2.87
					PM2.5		0.10	0.43

Regulated Pollutant	Sand Plant Baghouse Total	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
PM		9.18	40.22
PM10		4.37	19.15
PM2.5		0.66	2.87

Emission Point ID Number	Equipment Description	Control Device ID Number	Air Flow (ACFM)	Annual Air Flow (ACF x 10^6)	Regulated Pollutant	Emission Limit[3] (grains/ACF)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
317-E	Bradley Mill Baghouse	BH-317	8,500	4,468	PM	0.022	1.60	7.02
					PM10		0.76	3.34
					PM2.5		0.11	0.50

1. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

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

Regulated Pollutant	Bradley Mill Baghouse Total	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
PM		1.60	7.02
PM10		0.76	3.34
PM2.5		0.11	0.50

Transfer Points No. 1 Mill and Crusher Run System

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Transfer Points

Transfer Point ID Number	Material Throughput (tph)	Material Throughput (tpy)	Control Device	Control Efficiency (%)	PM Uncontrolled (lb/hr)	PM Uncontrolled (tpy)	PM Controlled (lb/hr)	PM Controlled (tpy)
TP1	1,350	2,581,875	N	0	5.00	4.78	5	4.78
TP2	1,350	2,581,875	FE	80	5.00	4.78	1	0.96
TP3	750	1,649,850	N	0	2.78	3.05	2.78	3.05
TP3A	600	1,147,500	PE	50	2.22	2.12	1.11	1.06
TP4	750	1,649,850	N	0	2.78	3.05	2.78	3.05
TP5A	750	1,649,850	FE	80	2.78	3.05	0.56	0.61
TP5B	750	1,649,850	FE	80	2.78	3.05	0.56	0.61
TP6	750	1,649,850	FE	80	2.78	3	0.56	0.61
TP7	750	1,434,375	FE	80	2.78	2.65	0.56	0.53
TP8	750	1,434,375	N	0	2.78	2.65	2.78	2.65
TP10	1,350	2,581,875	FE	80	5.00	4.78	1	0.96
TP10A	1,350	2,581,875	N	0	5.00	4.78	5	4.78
TP11	1,350	2,581,875	FE	80	5.00	4.78	1	0.96
TP11A	1,350	2,581,875	N	0	5.00	4.78	5	4.78
TP12A	750	1,434,375	PE	50	2.78	2.65	1.39	1.33
TP12B	750	1,434,375	PE	50	2.78	2.65	1.39	1.33
TP13A	750	1,434,375	PE	50	2.78	2.65	1.39	1.33
TP13B	750	1,434,375	PE	50	2.78	2.65	1.39	1.33
TP14	750	1,434,375	BH	99	2.78	2.65	See BH-50	
TP15	750	1,434,375	BH	99	2.78	3	See BH-50	
TP16	290	731,850	FE/WS	94	1.07	1.35	See BH-50	
TP17	290	731,850	BH	99	1.07	1.35	See BH-50	
TP18	460	918,000	FE/WS	94	1.70	2	See BH-50	
TP19	460	918,000	BH	99	1.70	2	See BH-50	
TP20	750	1,434,375	PE	50	2.78	3	1.39	1.33
TP21	750	1,434,375	N	0	2.78	3	2.78	2.65
TP24	600	1,147,500	FE	80	2.22	2	0.44	0.42
TP24A	600	1,147,500	FE	80	2.22	2	0.44	0.42
TP25	600	1,147,500	FE	80	2.22	2	0.44	0.42
TP25B	330	631,125	FE	80	1.22	1	0.24	0.23
TP26	600	1,147,500	FE	80	2.22	2	0.44	0.42
TP27	600	1,147,500	BH	99	2.22	2	See BH-450	
TP28	600	1,147,500	BH	99	2.22	2	See BH-450	
TP30	660	1,262,250	FE	80	2.44	2	0.49	0.47
TP31	330	631,125	FE	80	1.22	1	0.24	0.23
TP32	330	631,125	FE	80	1.22	1	0.24	0.23
TP33	330	631,125	FE	80	1.22	1	0.24	0.23
TP34	330	631,125	FE	80	1.22	1	0.24	0.23
TP35	330	631,125	FE	80	1.22	1	0.24	0.23
TP36	330	631,125	FE	80	1.22	1	0.24	0.23
TP37	330	631,125	FE	80	1.22	1	0.24	0.23
TP38	330	631,125	N	0	1.22	1	1.22	1.17
TP39	330	631,125	N	0	1.22	1	1.22	1.17
TP41	330	631,125	N	0	1.22	1	1.22	1.17
TP42	330	631,125	WS	70	1.22	1	0.37	0.35
TP43	330	631,125	PE	50	1.22	1	0.61	0.59
TP44	330	631,125	PE	50	1.22	1	0.61	0.59
TP45	660	1,262,250	N	0	2.44	2	2.44	2.34
TP46	660	1,262,250	PE	50	2.44	2	1.22	1.17
TP47	660	1,262,250	PE	50	2.44	2	1.22	1.17
TP47A	660	1,262,250	PE	50	2.44	2	1.22	1.17
TP47B	660	1,262,250	PE	50	2.44	2	1.22	1.17

Transfer Points No. 1 Mill and Crusher Run System

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Transfer Points

TP48A	50	143437.5	N	0	0.19	0.27	0.19	0.27
TP48B	50	143437.5	N	0	0.19	0.27	0.19	0.27
TP49	50	143437.5	N	0	0.19	0.27	0.19	0.27
TP50	50	143437.5	N	0	0.19	0.27	0.19	0.27
TP51A	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP51B	250	669,375	N	0	0.93	1.24	0.93	1.24
TP51C	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP51D	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP51E	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP52A	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP52B	250	669,375	PE	50	0.93	1.24	0.47	0.62
TP53	250	669,375	N	0	0.93	1.24	0.93	1.24
TP54	580	1,300,500	PE	50	2.15	2.41	1.08	1.21
TP55	580	1,300,500	MD	70	2.15	2.41	0.65	0.72
TP56	580	1,300,500	PE	50	2.15	2.41	1.08	1.21
TP57	580	1,300,500	MD	70	2.15	2.41	0.65	0.72
TP58	1,350	2,581,875	FE	80	5.00	4.78	1	0.96
TP59	1,350	2,581,875	FE	80	5.00	4.78	1	0.96
TP60	1,350	2,581,875	N	0	5.00	4.78	5	4.78
				Total PM	156.30	156.77	72.06	72.58
				Total PM10	74.43	74.65	34.31	34.56
				Total PM2.5	11.16	11.20	5.15	5.18

Notes:

1. PM conversion to PM10 and PM2.5:

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

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

2. Rates/throughputs set to zero are not in the worst case material flow.

3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Crushing and Screening No. 1 Mill

Emission Factors	PM (lb/ton)	PM10 (lb/ton)	Source
Primary Crushing	0.002	0.001	DAQ G40-B Emissions Worksheet
Secondary & Tertiary Crushing	0.0054	0.0024	DAQ G40-B Emissions Worksheet
Screening	0.025	0.0087	DAQ G40-B Emissions Worksheet

Totals for Crushing and Screening

	Uncontrolled		Controlled	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
PM	73.48	75.87	14.33	14.79
PM10	26.25	27.09	5.07	5.23
PM2.5	3.89	4.02	0.76	0.79

Crusher Emissions

Crusher Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Cone Crusher	CR-043	290	731,850	FE+WS	94	0.58	0.73	See BH-50	
Cone Crusher	CR-044	460	918000	FE+WS	94	0.92	0.92	See BH-50	
Omni Crusher 1560	CR-432	600	1,147,500	BH	99	1.20	1.15	See BH-450	
Omni Crusher 1352	CR-412	330	631,125	WS	70	1.78	1.70	0.53	0.51
					PM	4.48	4.50	0.53	0.51
					PM10	2.24	2.25	0.27	0.26
					PM2.5	0.24	0.24	0.03	0.03

Screen Emissions

Screen Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Screen	SC-038	750	1,649,850	FE	80	18.75	20.62	3.75	4.12
Screen	SC-039	750	1,649,850	FE	80	18.75	20.62	3.75	4.12
Deister Screen	SC-404	600	1,147,500	FE	80	15.00	14.34	3.00	2.87
Telesmith Screen	SC-434	330	631,125	FE	80	8.25	7.89	1.65	1.58
Telesmith Screen	SC-435	330	631,125	FE	80	8.25	7.89	1.65	1.58
					PM	69.00	71.37	13.80	14.28
					PM10	24.01	24.84	4.80	4.97
					PM2.5	3.66	3.78	0.73	0.76

Notes:
1. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

PM	PM10	PM2.5
0.74	0.35	0.053

2. Rates/throughputs set to zero are not in the worst case material flow.
3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Transfer Points No. 2 Mill

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Transfer Points

Transfer Point ID Number	Material Throughput (tph)	Material Throughput (tpy)	Control Device	Control Efficiency (%)	PM Uncontrolled (lb/hr)	PM Uncontrolled (tpy)	PM Controlled (lb/hr)	PM Controlled (tpy)
TP62A	1,350	2,581,875	N	0	5.00	4.78	5	4.78
TP62B	1,350	2,581,875	N	0	5.00	4.78	5	4.78
TP63	1,350	2,581,875	BH	99	5.00	4.78	See BH-145	
TP64	1,350	2,581,875	BH	99	5.00	4.78	See BH-145	
TP65	200	449,025	BH	99	0.74	0.83	See BH-145	
TP66	200	449,025	BH	99	0.74	0.83	See BH-145	
TP67	133	319,134	BH	99	0.49	0.59	See BH-145	
TP68	133	319,134	BH	99	0.49	0.59	See BH-145	
TP69	133	255,000	BH	99	0.49	0.47	See BH-145	
TP70	133	255,000	BH	99	0.49	0.47	See BH-145	
TP73	400	765,000	BH	99	1.48	1.42	See BH-145	
TP74	400	898,049	BH	99	1.48	1.66	See BH-145	
TP75	400	957,403	PE	50	1.48	1.77	0.74	0.89
TP76	400	765,000	BH	99	1.48	1.42	See BH-145	
TP76A	400	765,000	N	0	1.48	1.42	1.48	1.42
TP76B	400	765,000	N	0	1.48	1.42	1.48	1.42
TP77	400	765,000	BH	99	1.48	1.42	See BH-145	
TP78	200	523,862	BH	99	0.74	0.97	See BH-145	
TP79	400	765,000	BH	99	1.48	1.42	See BH-145	
TP80	400	765,000	PE/WS	85	1.48	1.42	See BH-145	
TP81	400	765,000	BH	99	1.48	1.42	See BH-145	
TP82	400	765,000	N	0	1.48	1.42	1.48	1.42
TP83	400	765,000	BH	99	1.48	1.42	See BH-145	
TP84	400	765,000	BH	99	1.48	1.42	See BH-145	
TP85	133	190,866	BH	99	0.49	0.35	See BH-145	
TP86	133	319,134	BH	99	0.49	0.59	See BH-145	
TP87	133	255,000	BH	99	0.49	0.47	See BH-145	
TP90	400	898,049	PE	50	1.48	1.66	0.74	0.83
TP91	400	957,403	PE	50	1.48	1.77	0.74	0.89
TP92	400	957,403	PE	50	1.48	1.77	0.74	0.89
TP93	400	957,403	PE	50	1.48	1.77	0.74	0.89
TP93A	400	957,403	PE	50	1.48	1.77	0.74	0.89
TP94	400	957,403	WS	70	1.48	1.77	0.44	0.53
TP95	400	957,403	MD	70	1.48	1.77	0.44	0.53
TP96	400	898,049	PE	50	1.48	1.66	0.74	0.83
TP97	400	898,049	PE	50	1.48	1.66	0.74	0.83
TP98	400	898,049	WS	70	1.48	1.66	0.44	0.50
TP99	400	898,049	MD	70	1.48	1.66	0.44	0.50
TP100	550	1,051,875	PE	50	2.04	1.95	1.02	0.98
TP101	550	1,051,875	PE	50	2.04	1.95	1.02	0.98
TP102	550	1,051,875	WS	70	2.04	1.95	0.61	0.59
TP103	550	1,051,875	MD	70	2.04	1.95	0.61	0.59

Transfer Points No. 2 Mill

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Transfer Points

TP104	200	523,862	N	0	0.74	0.97	0.74	0.97
TP105	25	2,478	MD	70	0.09	0.00	0.03	0.00
TP106	25	71,719	PE	50	0.09	0.13	0.05	0.07
TP107	25	71,719	PE	50	0.09	0.13	0.05	0.07
TP116	150	286,875	PE	50	0.56	0.53	0.28	0.27
TP128	200	523,862	PE	50	0.74	0.97	0.37	0.49
				Total PM	71.64	73.78	26.90	27.83
				Total PM10	34.11	35.13	12.81	13.25
				Total PM2.5	5.12	5.27	1.92	1.99

Notes:
1. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

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

2. Rates/throughputs set to zero are not in the worst case material flow.
3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Crushing and Screening No. 2 Mill

Emission Factors	PM (lb/ton)	PM10 (lb/ton)	Source
Primary Crushing	0.002	0.001	DAQ G40-B Emissions Worksheet
Secondary & Tertiary Crushing	0.0054	0.0024	DAQ G40-B Emissions Worksheet
Screening	0.025	0.0087	DAQ G40-B Emissions Worksheet

Totals for Crushing and Screening

	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
PM	78.30	74.87	See BH-145	
PM10	27.37	26.17		
PM2.5	4.15	3.97		

Crusher Emissions

Crusher Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
	CR-133	400	765,000	BH	99	0.80	0.77	See BH-145	
					PM	0.80	0.77		
					PM10	0.40	0.38		
					PM2.5	0.04	0.04		

Screen Emissions

Screen Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Screen No. 1	SC-152	1,350	2,581,875	BH	99	33.75	32.27	See BH-145	
Screen No. 2	SC-153	1,350	2,581,875	BH	99	33.75	32.27		
Screen No. 3	SC-154	400	765,000	BH	99	10.00	9.56		
					PM	77.50	74.11		
					PM10	26.97	25.79		
					PM2.5	4.11	3.93		

Notes:
1. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

PM	PM10	PM2.5
0.74	0.35	0.053

2. Rates/throughputs set to zero are not in the worst case material flow.
3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Transfer Points Sand Plant

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Transfer Points

Transfer Point ID Number	Material Throughput (tph)	Material Throughput (tpy)	Control Device	Control Efficiency (%)	PM Uncontrolled (lb/hr)	PM Uncontrolled (tpy)	PM Controlled (lb/hr)	PM Controlled (tpy)
TP108	150	430,313	PE	50	0.56	0.80	0.28	0.40
TP109	400	765,000	PE	50	1.48	1.42	0.74	0.71
TP110	550	1,195,313	BH	99	2.04	2.21	See BH-250	
TP111	150	430,313	BH	99	0.56	0.80	See BH-250	
TP112	150	430,313	WS/BH	99.7	0.56	0.80	See BH-217	
TP113	150	430,313	WS/BH	99.7	0.56	0.80	See BH-217	
TP114	150	430,313	BH	99	0.56	0.80	See BH-250	
TP114A	150	430,313	BH	99	0.56	0.80	See BH-250	
TP115	150	286,875	FE	80	0.56	0.53	See BH-217	
TP119	150	430,313	BH	99	0.56	0.80	See BH-217	
TP119A	150	430,313	BH	99	0.56	0.80	See BH-217	
TP119B	150	430,313	FE	80	0.56	0.80	See BH-217	
TP120	150	430,313	PE	50	0.56	0.80	0.28	0.40
TP121	300	860,625	FE	80	1.11	1.59	0.22	0.32
TP123	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP123A	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP123B	150	430,313	MD	70	0.56	0.80	0.17	0.24
TP124	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP125	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP125A	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP125B	150	430,313	N	0	0.56	0.80	0.56	0.80
TP128A	200	523,862	FE	80	0.74	0.97	See BH-145	
TP129	200	573,750	BH	99	0.74	1.06	See BH-145	
TP130	200	573,750	N	0	0.74	1.06	0.74	1.06
TP131	200	573,750	FE	80	0.74	1.06	0.15	0.21
TP132	200	573,750	PE	50	0.74	1.06	0.37	0.53
TP132A	0	0	PE	50	0.00	0.00	0.00	0.00
TP133	200	573,750	N	0	0.74	1.06	0.74	1.06
TP134	200	573,750	WS	70	0.74	1.06	0.22	0.32
TP135	200	573,750	FE	80	0.74	1.06	0.15	0.21
TP136	200	573,750	FE	80	0.74	1.06	0.15	0.21
TP136A	350	1,004,063	FE	80	1.30	1.86	0.26	0.37
TP137	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP138	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP138A	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP139	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP140	150	430,313	FE	80	0.56	0.80	0.11	0.16
TP140A	150	430,313	BH	99	0.56	0.80	See BH-218	
				Total PM	26.03	35.46	6.13	8.44
				Total PM10	12.40	16.89	2.92	4.02
				Total PM2.5	1.86	2.53	0.44	0.60

1. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

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

2. Rates/throughputs set to zero are not in the worst case material flow.
3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Crushing and Screening Sand Plant

Emission Factors	PM (lb/ton)	PM10 (lb/ton)	Source
Primary Crushing	0.002	0.001	DAQ G40-B Emissions Worksheet
Secondary & Tertiary Crushing	0.0054	0.0024	DAQ G40-B Emissions Worksheet
Screening	0.025	0.0087	DAQ G40-B Emissions Worksheet

Totals for Crushing and Screening

	Uncontrolled		Controlled	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
PM	652.74	2,847.05	0.00	0.00
PM10	227.20	990.84	0.00	0.00
PM2.5	34.59	150.89	0.00	0.00

Crusher Emissions

Crusher Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Cone Crusher	CR-230	150	430,313	WS/BH	99.7	0.30	0.43	See BH-250	
					PM	0.30	0.43		
					PM10	0.15	0.22		
					PM2.5	0.02	0.02		

Screen Emissions

Screen Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Deister Screen No. 1	SC-231	75	215,156	BH	99	1.88	2.69	See BH-217	
Deister Screen No. 2	SC-233	75	215,156	BH	99	1.88	2.69		
					PM	3.75	5.38		
					PM10	1.31	1.87		
					PM2.5	0.20	0.29		

Air Classifier Emissions[1]

Equipment Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Air Classifier	AC-225	300	860,625	BH	99	82.97	363.41	See BH-218	
					PM	82.97	363.41		
					PM10	28.87	126.47		
					PM2.5	4.40	19.26		

Air Separator Emissions[1]

Equipment Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Contol Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Air Separator	AS-228	200	573,750	BH	99	565.71	2,477.83	See BH-145	
					PM	565.71	2,477.83		
					PM10	196.87	862.28		
					PM2.5	29.98	131.32		

Notes:
1. Uncontrolled values are back calculated using the baghouse control efficiency.
2. PM conversion to PM10 and PM2.5:
Partlicle size multipliers (k) AP42 Section 13.2.4-4 (11/06):

PM	PM10	PM2.5
0.74	0.35	0.053

3. Rates/throughputs set to zero are not in the worst case material flow.
4. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Transfer Points Bradley Mill

E(lbs/ton) = k*(0.0032)*[(U/5)^1.3]/[(M/2)^1.4]

Where:		PM
k =	particle size multiplier (demensionless)	0.74
U =	Mean Wind Speed (MPH)	7
M =	Material Moisture Content (%)	2
E =	Emission Factor (lbs/ton)	0.0037

Uncontrolled Pneumatic Transfer Emission Factors[3]

PM 0.74 lb/ton

Transfer Points

Transfer Point ID Number	Material Throughput (tph)	Material Throughput (tpy)	Control Device	Control Efficiency (%)	PM Uncontrolled (lb/hr)	PM Uncontrolled (tpy)	PM Controlled (lb/hr)	PM Controlled (tpy)
TP142	50	143,438	PE	50	0.19	0.27	0.1	0.14
TP143	50	143,438	BH	99	0.19	0.27	See BH-317	
TP144	50	143,438	BH	99	0.19	0.27	See BH-317	
TP145	50	143,438	BH	99	0.19	0.27	See BH-317	
TP146A	50	143,438	BH	99	0.19	0.27	See BH-317	
TP146B	50	143,438	BH	99	0.19	0.27	See BH-317	
TP151	50	143,438	FE	80	0.19	0.27	0.04	0.05
TP152	50	143,438	FE	80	0.19	0.27	0.04	0.05
TP152A	50	143,438	MD	70	0.19	0.27	0.06	0.08
TP154	50	143,438	BH	99	0.19	0.27	See BH-317	
TP155	50	143,438	BH	99	0.19	0.27	See BH-317	
				Total PM	2.09	2.97	0.24	0.32
				Total PM10	1.00	1.41	0.11	0.15
				Total PM2.5	0.15	0.21	0.02	0.02

Notes:

1. PM conversion to PM10 and PM2.5:

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

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

2. Rates/throughputs set to zero are not in the worst case material flow.

3. PM emission factor from AP42 Table 11.12-2. PM10 and PM2.5 calculated based on above conversion factors.

4. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Crushing and Screening Bradley Mill

Emission Factors	PM (lb/ton)	PM10 (lb/ton)	Source
Primary Crushing	0.002	0.001	DAQ G40-B Emissions Worksheet
Secondary & Tertiary Crushing	0.0054	0.0024	DAQ G40-B Emissions Worksheet
Screening	0.025	0.0087	DAQ G40-B Emissions Wo

Totals for Crushing and Screening

	Uncontrolled		Controlled	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
PM	0.10	0.14	See BH-317	
PM10	0.05	0.07		
PM2.5	0.01	0.01		

Crusher Emissions

Crusher Identification	ID	Throughput (ton/hr)	Throughput (tons/yr)	Control Type	Control Efficiency (%)	Uncontrolled (lb/hr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (tons/yr)
Bradley Mill	BM-319	50	143,438	BH	99	0.1	0.143438	See BH-317	
					PM	0.10	0.14		
					PM10	0.05	0.07		
					PM2.5	0.005	0.008		

Notes:

1. PM conversion to PM10 and PM2.5:

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

PM	PM10	PM2.5
0.74	0.35	0.053

2. Rates/throughputs set to zero are not in the worst case material flow.
3. Control efficiencies are as follows:

Control Efficiencies		
Type		%
None	N	0
Partial enclosure	PE	50
Full enclosure	FE	80
Baghouse	BH	99
Water spray	WS	70
Minimize drop	MD	70

Facility Stockpiles

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

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

E =	?	Emissions factor, pound per day per acre, (lb/day/acre)
s =	8	Silt content of material (%)
p =	157	number of days with at least 0.254 mm (0.01 in.) of precipitation per year
f =	20	Time wind speed exceeds 12 mph (%)
E =	**10.700**	lb/day/acre

Stockpile ID	Stockpile Material	Base Area (acres)	Control Device	Control Eff. (%)	Uncontrolled Emissions lb/hr	Uncontrolled Emissions tpy	Controlled Emissions lb/hr	Controlled Emissions tpy
OS1	Aggregate	18.0	N	0	8.03	35.15	8.03	35.15
				PM:	8.03	35.15	8.03	35.15
				PM10:	3.82	16.74	3.82	16.74
				PM2.5	0.57	2.51	0.57	2.51

1. PM conversion to PM10 and PM2.5:

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

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

Unpaved Haulroads

PM

Source	Vehicle Trips per Hour	Vehicle Trips per Year	Miles per Trip	Emission Factor [(1)] (lb/VMT)	Uncontrolled (lb/hr)	Uncontrolled (tpy)	Control Device	Control Efficiency (%)	Controlled (lb/hr)	Controlled (tpy)
Trucks In/Out	54	103,275	1.0	6.72	362.88	347.00	Water Truck	70	108.86	104.1
Endloaders	135	258,188	0.02	11.64	31.43	30.05	Water Truck	70	9.43	9.02
				Total	394.31	377.05		Total	118.29	113.12

PM10

Source	Vehicle Trips per Hour	Vehicle Trips per Year	Miles per Trip	Emission Factor [(1)] (lb/VMT)	Uncontrolled (lb/hr)	Uncontrolled (tpy)	Control Device	Control Efficiency (%)	Controlled (lb/hr)	Controlled (tpy)
Trucks In/Out	54	103,275	1.0	1.98	106.92	102.24	Water Truck	70	32.08	30.67
Endloaders	135	258,188	0.02	3.43	9.26	8.86	Water Truck	70	2.78	2.66
				Total	116.18	111.10		Total	34.86	33.33

PM2.5

Source	Vehicle Trips per Hour	Vehicle Trips per Year	Miles per Trip	Emission Factor [(1)] (lb/VMT)	Uncontrolled (lb/hr)	Uncontrolled (tpy)	Control Device	Control Efficiency (%)	Controlled (lb/hr)	Controlled (tpy)
Trucks In/Out	54	103,275	1.0	0.20	10.80	10.33	Water Truck	70	3.24	3.1
Endloaders	135	258,188	0.02	0.34	0.92	0.88	Water Truck	70	0.28	0.26
				Total	11.72	11.21		Total	3.52	3.36

Emission Factors[(1)]

	PM	PM10	PM2.5	
k =	4.9	1.5	0.15	dimensionless, particle size multiplier
s =	10	10	10	%, surface material silt content
W_{truck} =	28	28	28	tons, mean vehicle weight
$W_{endloader}$ =	95	95	95	
a =	0.7	0.9	0.9	constants
b =	0.45	0.45	0.45	constants
p =	157	157	157	no. days/year with 0.1 in of rain
e =	6.72	1.98	0.20	lb/VMT Trucks
e =	11.64	3.43	0.34	lb/VMT Endloaders

	Trucking	Endloaders
Total Hauled (tpy) =	2,581,875	2,581,875
Load Weight (tons) =	25	10
Vehicles Per Year =	103,275	258,188
Total Hauled (tph) =	1,350	1,350
Load Weight (tons) =	25	10
Vehicles Per Hour =	54	135
Empty Vehicle Weight (tons) =	15	90
Loaded Vehicle Weight (tons) =	40	100
Average Vehicle Weight (tons) =	28	95

Notes:

1. Emission Equation AP-42 Section 13.2.2, Unpaved Roads (12/03), where:

   $e = k [(s/12)^a (W/3)^b] [(365-p)/365]$

   e = Emission factor, pounds per vehicle-mile-traveled, (lb/VMT)

   k, a & b = Constants for equation given in AP-42 Table 13.2.2-2 (dimensionless)

   s = Silt content of road surface material (%)

   W = Mean vehicle weight, ton

   p = Number of days with at least 0.01 in. of precipitation per year

2. PM conversion to PM10 and PM2.5:

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

PM	PM10	PM2.5
0.74	0.35	0.053
Conversion Factor	2.1	14.0

Tanks

ID	Material Stored	Capacity gallons	Throughput gallons[1]	VOC Emissions lb/hr	VOC Emissions ton/yr
T1	Gasoline	1,000	2,000	Negligible	Negligible
T2	Diesel	4,000	60,000	Negligible	Negligible
T3	Propane	500	2,000	Negligible	Negligible
			Total VOC:	Negligible	Negligible

Emergency Gen Set (ENG) Cummins Model GGMB

Specifications

Propane Fuel Usage	137	cu. ft./hour	Manufacutrer
HHV:	2,500	Btu/scf	Constant
Maximum Horsepower:	NA	hp	
Maximum Fuel Input:	0.34	MMBtu/hour	Calculated
	0.75	kW/hp	Constant
Engine Power	NA	kW	
	453.59	gram/lb	Constant

Hours Per Year = 500

Regulated Pollutant	Emission Factor (lb/MMBtu)	Hourly Emissions (lbs/hour)	Annual Emissions (tons/year)
NO_X	4.08	1.39	0.35
CO	3.72	1.27	0.32
SO2	0.0006	0.0002	0.0001
$PM/PM_{10}/PM_{2.5}$	0.00991	0.0034	0.0009
VOC	0.12	0.0403	0.0101

Hazardous Air Pollutants (HAPS)			
1,1,2,2-tetrachloroethane	4.00E-05	0.00001	0.00001
1,1,2-trichloroethane	3.18E-05	0.00001	0.00001
1,3-Butadiene	6.63E-04	0.0003	0.0001
1,3-dichloropropene	2.65E-05	0.00001	0.00001
2-methylnaphthalene	3.32E-05	0.00001	0.00001
2,2,4-trimethylpentane	2.50E-04	0.00009	0.00003
Acenaphthene	1.25E-06	0.000001	0.000001
Acetaldehyde	2.79E-03	0.001	0.0003
Acrolein	2.63E-03	0.0009	0.0002
Benzene	1.58E-03	0.0005	0.0001
Carbon Tetrachloride	1.77E-05	0.00001	0.00001
Chlorobenzene	1.29E-05	0.00001	0.00001
Chloroform	1.37E-05	0.00001	0.00001
Ethylbenzene	2.48E-05	0.00001	0.00001
Ethylene dibromide	2.13E-05	0.00001	0.00001
Formaldehyde	2.50E-02	0.0085	0.0021
Naphthalene	9.71E-05	0.00003	0.00001
PAH	1.41E-04	0.00005	0.00001
Styrene	2.36E-05	0.00001	0.00001
Tetrachloroethane	2.48E-06	0.00001	0.00001
Toluene	5.58E-04	0.00019	0.00005
Vinyl chloride	1.49E-05	0.00001	0.00001
Xylenes	1.95E-04	0.00007	0.00002
	Total HAPS	0.0118	0.0030

Notes:
Emission factors from AP-42 Table 3.2-2 or 3.2-3. Air/fuel ratio is unknown-highest EF for each pollutant used.

ATTACHMENT P

PUBLIC NOTICE

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Greer Industries, Inc., d.b.a. Greer Limestone Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a Limestone Crushing/Screening Operation located on Route 7, in Masontown, in Monongalia County, West Virginia. The latitude and longitude coordinates are: 39.572486°N, 79.846977°W.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Particulate matter (PM): 343.27 tons per year
Particulate matter less than 10 microns (PM_{10}): 142.16 tons per year
Particulate matter less than 2.5 microns ($PM_{2.5}$): 19.68 tons per year

The estimated emissions include all point sources, haul roads, and stockpiles.

This application is intended to identify several pieces of equipment which have been replaced or added and does not involve any expansion of existing operations. 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 Fifth day of November, 2015.

By: Greer Industries
J. Robert Gwynne
Vice President/General Counsel
P.O. Box 176
Masontown, WV 26542