CLASS II ADMINISTRATIVE UPDATE APPLICATION FOR MATERIAL HANDLING AND STORAGE MODIFICATIONS AT THE MARTINSBURG, WEST VIRGINIA PORTLAND CEMENT PLANT

Submitted by:
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Martinsburg Plant
1826 S. Queen Street
Martinsburg, WV 25401

Submitted to:
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street
Charleston, WV 25304

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1.0 INTRODUCTION AND APPLICATION CLASSIFICATION

1.1 Introduction

This Class II Administrative Update Application (Application) is being submitted to the West Virginia Department of Environmental Protection (WVDEP) Division of Air Quality (DAQ) by the Essroc Cement Corporation (Essroc) Martinsburg Portland cement Plant (Plant). This Application is being submitted in order to obtain permission for four modifications associated with new and/or modified material handling and storage emission sources. This Application is also being submitted to formally incorporate new federal regulatory requirements and to decommission various sources that are no longer in operation.

The Application is organized in the following sections:

Section 2: *Project Description*

Section 3: *NSR Applicability Analysis*

Additionally, this Application contains the following Appendices:

Appendix A: *NSR Permit and Title V Permit Revision Application Forms and Attachments*

Appendix B: *Electronic Copy of the Application*

1.2 Application Classification

This Application is proposed to be classified as a Class II Administrative Update Application. The modifications being proposed as part of this Application result in a net increase in emissions as shown by Attachment N, Table N-1. Per 45 CSR 13 any proposed change that results in a net increase in emissions of criteria air pollutants that is greater than **both** 6 lbs/hr and 10 tons/year **or** 144 lbs/day is required to submit a Modification Permit Application. If the proposed changes result in a net increase of emissions, which are less than these modification thresholds, then a Class II Administrative Update Application is only required to be submitted. As shown in Attachment N, Table N-1, the various modifications will have net emission increases for all criteria pollutants which are greater than 10 tons/yr but less than 6 lbs/hr for particulate matter; therefore, this Application qualifies to be classified as a Class II Administrative Update.

Essroc is proposing to install and/or modify four material handling and storage areas at the Plant, incorporate new federal regulatory requirements, and decommission various sources that are no longer necessary. Provided below is a project description for each of the proposed changes.

A map of the Plant showing the proposed location of all new and/or modified sources is provided in Attachment E. Emission calculations for all four proposed modifications and the decommissioned sources are provided in Attachment N.

Tarped Outdoor Clinker Storage

In 2012, the Plant received permission for the temporary use of tarped outdoor clinker storage piles where the old wet kilns were previously located. The Plant would now like to request the tarped outdoor clinker storage piles and their associated sources be added to the Title V as permanent sources.

New Sources:
EP27.06 – Transfer to Outdoor Clinker Storage Piles
EP27.07 – Outdoor Clinker Storage Piles – Tarped
EP27.08 – Outdoor Clinker Storage Piles Reclaim

Finish Mill Limestone

As part of this Application the Plant is decommissioning all sources associated with the old Primary and Secondary Crushers. These sources were retained in the new Plant's operation to provide crushed limestone to the finish mills for certain cement products. With the decommissioning of these sources, the Plant is requesting the following sources be added in order to allow limestone to be provided to the finish mills.

A new limestone storage pile is proposed to be located near the Primary Crusher (CD37.03) that will store up to 3,000 tons of hi-cal limestone at any one time. The new limestone storage pile will handle a maximum annual throughput of 66,138 stons (60,000 mtons) of limestone each year. This limestone will be processed through the Primary Crusher with equal amounts of clinker, which will be trucked to the Primary Crusher from the Craneway Storage Building, as needed. The transfer and crushing of the limestone/clinker mixture will be accounted for by existing sources EP37.02.01 and EP37.02.02, which are controlled by water spray, and CD37.03 and CD37.04, which are controlled by baghouses. There will be no proposed change to these existing sources. Once processed through the Primary Crusher this limestone/clinker mixture will be diverted at Transfer Tower 1 via the existing source EP37.05 (split to surge pile). EP37.05 is already permitted to accommodate up to 412,593 stons/year of material, so it will be modified as part of this Application. From EP37.05 the limestone/clinker will be transferred to a new outdoor limestone/clinker quarry storage pile, which will have water sprays to reduce fugitive dust emissions. The limestone/clinker mixture will be trucked from the quarry to a new limestone/clinker storage pile to be located adjacent to the Craneway Storage Building. The limestone/clinker storage pile will be located in a three-sided alcove connected to the Craneway Storage Building to reduce fugitive dust emissions. The limestone/clinker mixture will then be

transferred to the Craneway Storage Building, as needed. All handling of the limestone/clinker material within the Craneway Storage Building is already accounted for by existing emission sources EP26.07.01 and EP26.07.02,

New Sources:
EP37.06 – Limestone Crusher Feed Pile (For Finish Mills)
EP37.07 – Limestone Crusher Feed Pile Reclaim
EP37.08 – Limestone/Clinker Storage Pile (Quarry)
EP37.09 – Limestone/Clinker Reclaim from Quarry Storage Pile
EP37.10 – Truck Dump to Craneway Storage Pile
EP37.11 – Limestone/Clinker Storage Pile (Outside Craneway)
EP37.12 – Limestone/Clinker Transfer to Craneway Storage Building
EP37.13 – Clinker Transfer from Craneway to Truck
EP25.16 - Hauling Clinker to Primary Crusher (Paved)
EP25.17 - Hauling Clinker to Primary Crusher (Unpaved)
EP25.18 - Hauling Limestone/Clinker from Quarry to Craneway (Unpaved)
EP25.19 - Hauling Limestone/Clinker from Quarry to Craneway (Paved)

Additives Storage Building

The Plant is proposing to construct a new tensioned fabric Additives Storage Building next to the Additives Unloading Bin. The structure would be approximately 100 feet by 200 feet with two sides and a roof and would contain four storage areas for iron ore, sand, bottom ash, and other additive materials. The structure will be permitted to handle 314,156 stons/year (285,000 mtons/year) of additives material.

No increase is proposed in the quantity of additives hauled in to the Plant from offsite and dumped to the Additives Unloading Bin. Instead some additives materials will be diverted and stored in the new building first and then dumped to the Additives Unloading Bin, as needed.

New Sources:
EP39.14 – Additives dump to pile within Additives Storage Building
EP39.15 – Additives Storage Building (4 piles)
EP39.16 – Reclaim from Additives piles

Alternate Fuel Feeding System

Construction Permit R14-026K, issued by the WV DEP on December 19, 2014, permitted the addition of an alternate fuel feeding system at the Plant. This system was permitted to handle a maximum of 38,351 stons/year (35,000 mtons/year) of alternate fuel. However, upon review of the engineering design it was determined that the system can actually handle up to 7.0 mtons/hour. Therefore, the Plant is requesting to modify the alternate fuel sources to now have a maximum annual throughput of 67,593 stons/year (61,320 mtons/year), which is equivalent to 7 mtons/hour times 8,760 hours/year.

Modified Sources:
EP25.15 – Alt Fuel Trucks (paved)
CD41.04 – Alt Fuel Feeding System D/C

CD41.05 – Alt Fuel Dosing System D/C

Although the throughput will be modified for all three sources, only EP25.15 will reflect an emissions increase. There will be no change to sources CD41.04 (Alt Fuel Feeding System) and CD41.05 (– Alt Fuel Dosing System) and these baghouse controlled sources were previously permitted at 8,760 hours of operation with all emissions being directed back into the kiln system and controlled by the Main Kiln Baghouse.

Incorporation of New NESHAP/NSPS Requirements

On February 12, 2013, the U.S. EPA published in the Federal Register the final NESHAP for the Portland cement manufacturing industry (i.e., PC MACT Final Rule) under 40 CFR 63 Subpart LLL, with Final Technical Amendments to the PC MACT Final Rule published July 27, 2015 and corrections to the Final Technical Amendments published on September 11, 2015. The PC MACT Final Rule defines new emission limits, monitoring, testing, reporting, and recordkeeping requirements for applicable PC MACT affected sources. This Application incorporates the applicable new PC MACT Final Rule requirements.

The new emission limits, monitoring, reporting, and recordkeeping requirements for all applicable PC MACT affected source types are detailed in Attachment S-1 to this Application, which provides draft permit language for their incorporation into the PSD Construction Permit and Title V Operating Permit.

Per 40 CFR 63.1351, the compliance date for the Plant for all PC MACT Final Rule requirements, except for the open clinker pile requirements, was September 9, 2015. The compliance date for the Plant associated with the requirements for open clinker storage piles was February 12, 2014. On May 12, 2015, the Plant submitted a one-year extension request to WV DEP for demonstrating compliance with the PC MACT Final Rule emission limits of hydrochloric acid (HCl) and mercury (Hg) through CEM monitoring. WV DEP replied on July 1, 2015 granting the one-year extension request. As a result of this extension request, the Plant must now demonstrate compliance with the PC MACT Final Rule HCl and Hg emission limits and CEMS monitoring by September 9, 2016.

Per 40 CFR 63.6(i)(4)(i)(A), "*The owner or operator of an affected source who has requested an extension of compliance under this paragraph and who is otherwise required to obtain a title V permit shall apply for such permit or apply to have the source's title V permit revised to incorporate the conditions of the extension of compliance*." Therefore, this Application also includes this extension request. In WV DEP's July 1, 2015 letter, the only additional condition of the extension of compliance was a request that the Plant submit semi-annual process reports to convey the status and timing for meeting the extended compliance date.

40 CFR 60 Subpart F

On February 12, 2013, the U.S. EPA also published in the Federal Register the final NSPS for the Portland cement plants under 40 CFR 60 Subpart F. Previously 40 CFR 63 Subpart LLL had exempted any affected source subject to Subpart LLL from also being subject to NSPS Subpart

F. However, this provision was removed from NESHAP Subpart LLL on February 12, 2013. Therefore, all affected sources subject to NESHAP Subpart LLL are now also subject to all applicable requirements under NSPS Subpart F. However, for existing affected sources all requirements are identical or more stringent within NESHAP Subpart LLL. Therefore, only NESHAP Subpart LLL requirements are listed in Attachment S-1, and NSPS Subpart F should be removed from the permit shield of the Title V Operating Permit.

Decommissioning of old Primary and Secondary Crusher

The Plant is requesting to formally decommission all sources associated with the old Primary and Secondary Crusher, which are listed in the table below. These sources were deconstructed and permanently removed from the Plant in October 2013.

Source Type	EP ID	CD Description	EU ID	EU Description
Group 1 – Quarry and Crushing				
Fugitive	EP0X.03.04		EP0X.03.04	Truck to crusher pile
Fugitive	EP0X.03.05		EP0X.03.05	Truck or loader to crusher dump
Baghouse	CD01.01	Primary Crusher D\C	EP01.01	Primary crusher
			EP01.02	Crusher to belt conveyor 1013
Fugitive	EP01.03		EP01.03	Belt conveyor 1013 to 40 T bin
Fugitive	EP01.04		EP01.04	40 T bin to feeder
Fugitive	EP01.05.01		EP01.05.01	Feeder to belt conveyor 1011
Fugitive	EP01.05.02		EP01.05.02	Belt conveyor 1011 to belt conveyor 1007
Baghouse	CD02.01	Secondary Crusher D\C	EP01.06.01	Belt conveyor 1007 to screen 1009
			EP01.06.02	Screen 1009
			EP01.06.03	Screen 1009 to belt conveyor 1009-B
			EP01.06.04	Screen 1009 to feeder 1009-A
			EP02.01.01	Feeder 1009-A to hammermill 1006
			EP02.01.02	Hammermill 1006
			EP02.01.03	Hammermill 1006 to belt conveyor 1005
Fugitive	EP02.01.04		EP02.01.04	Belt conveyor 1005 to belt conveyor 1004
Baghouse	CD02.01	Secondary Crusher D\C	EP02.01.05	Belt conveyor 1004 to screen 1003
			EP02.01.06	Screen1003
Fugitive	EP02.01.07		EP02.01.07	Screen 1003 to belt conveyor 1002
Baghouse	CD02.01	Secondary Crusher D\C	EP02.01.08	Belt conveyor 1002 to hammermill 1006
			EP02.01.09	Screen 1003 to belt conveyor 1001
			EP02.01.10	Belt conveyor 1009-B to belt conveyor 1001
Fugitive	EP02.02		EP.02.02	Belt conveyor 1001 to belt conveyor 1000

Source Type	EP ID	CD Description	EU ID	EU Description
Fugitive	EP02.03.01		EP02.03.01	Belt conveyor 1000 to belt conveyor 999
Fugitive	EP02.03.02		EP02.03.02	Belt conveyor 999 to shuttle conveyor 998
Fugitive	EP03.02		EP03.02	Shuttle conveyor 998 to raw bins
Group 2 – Raw Material Preparation				
Fugitive	EP04.01.01		EP04.01.01	Raw bins to feeders East Tunnel
Fugitive	EP04.01.02		EP04.01.02	Feeders to belt conveyor East 917
Baghouse	CD04.03	Limestone Conveying to #1 Stone Belt D\C	EP04.03.01	Belt conveyor 917 to elevator East 915
			EP04.03.02	Elevator 915 to screens East 914/913
			EP04.03.03	Screens East 914/913
			EP04.03.04	Screens East 914/913 to #1 stone system belt
			EP04.04.01	Shuttle conveyor 998 to new chute
			EP04.04.02	New chute to #1 stone system belt
Fugitive	EP04.04.03		EP04.04.03	#1 stone system belt to limestone pile in craneway
Group 8 - Miscellaneous				
Fugitive	EP0X.04		EP0X.04	Crusher feed pile
Fugitive	EP25.02		EP25.02	Quarry haul roads (old crusher)

<u>Decommissioning of Reburn Hopper and Big Clinker Silo D/C</u>

The Plant is requesting to formally decommission EP 42.09 (Reburn Hopper) and CD43.18 (Big Clinker Silo D/C). The reburn hopper was permitted after-the-fact in June 2011, but never operated and was determined to be unnecessary. It was deconstructed and permanently removed from the Plant in October 2015.

CD43.18 is a small (2,600 dscfm) baghouse that was added as a supplemental baghouse to the two existing larger baghouses on the Big Clinker Silo. However, the CD 43.18 was determined to be unnecessary and is no longer in use. CD43.18 will be deconstructed and permanently removed from the Plant.

Source Type	EP ID	CD Description	EU ID	EU Description
Group 3 – Pyroprocessing				
Fugitive	EP42.09		EP42.09	Reburn hopper System
Group 4 – Clinker Handling and Storage				
Baghouse	CD43.18	Big Clinker Silo D/C	EP43.18	Big Clinker Silo

3.0 NSR APPLICABILITY ANALYSIS

The Plant is currently classified as a "major stationary source" with respect to New Source Review (NSR). A NSR Applicability Analysis was prepared to determine the net change in emissions associated with the proposed modifications and decommissioning of existing sources. This analysis also compares the net change from proposed changes against all applicable contemporaneous changes within the last five-years to determine if the proposed changes would result in a significant "net emission increase" of any regulated NSR pollutant. The NSR Applicability Analysis results are presented in Table 3.1.

WV DEP 45 CSR 14-2.46.h addresses net emission increases and states that "*An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant*." Therefore each contemporaneous change is evaluated based on when it began operation.

The Plant underwent a Major Modification (i.e., construction of new preheater/Precalciner kiln and associated sources) that began operation on August 31, 2009. Therefore, the five-year contemporaneous period for all emission increases and decreases associated with this Major Modification ended on August 31, 2014.

The NSR Applicability Analysis shown in Table 3.1, defines and summarizes the Plant changes which have occurred during the five-year contemporaneous period. These Plant changes include the Reburn Hopper, which was permitted under PSD Permit R14-026G, the Rail Transloader (PSD Permit R-14-026H), the 2013 Baghouse Modifications (PSD Permit R14-026I), the 2014 Baghouse Modifications (Permit R14-026J), and the Alternate Fuel Feeding System (Permit R14-026K).

The Plant changes permitted under PSD Permit R14-026G through R14-026J were permitted during the contemporaneous period for the Major Modification. The Major Modification resulted in a large net decrease of emissions of PM, PM_{10}, $PM_{2.5}$, and SO_2. These four contemporaneous Plant changes were netted against the emission decrease for these pollutants associated with the Major Modification. Therefore, since the Major Modification is no longer reflected in the NSR Applicability Analysis, the emissions of PM, PM_{10}, $PM_{2.5}$, and SO_2 from these four contemporaneous Plant changes were reset to zero.

Table 3.1 also lists the proposed modifications and source decommissioning discussed in Section 2.0 of this Application. The potential emissions associated with the proposed modifications were determined and netted against the 2-year annual actual average emissions for all sources identified as being decommissioned to determine the total net change for the proposed changes associated with this Application. This net change is then summed with all contemporaneous changes and compared to the PSD Significance Net Emission Thresholds to demonstrate that this Application will not exceed any PSD emission threshold limits. The potential emissions for the proposed modifications and the 2-year annual actual average emissions for all decommissioning sources are quantified in Attachment N of this Application.

TABLE 3.1
NSR APPLICABILITY ANALYSIS
SUMMARY OF PLANT CHANGES - ESSROC CEMENT CORPORATION - MARTINSBURG PLANT
(November 2015)

DESCRIPTION OF PLANT CHANGES[1]	APPLICABLE NSR REGULATED POLLUTANTS - NET EMISSION CHANGES (TONS/YR)								
	$PM_{2.5}$	PM_{10}	PM	SO_2	NO_X	CO	VOC	LEAD	FLUORIDES
1. REBURN HOPPER (R14-026G)[2]	0	0	0	0	0	0	0	0	0
2. RAIL TRANSLOADER (R14-026H)[3]	0	0	0	0	4.49	0.97	0.357	0	0
3. 2013 BAGHOUSE MODIFICATIONS (R14-026I)[4]	0	0	0	0	0	0	0	0	0
4. 2014 BAGHOUSE MODIFICATIONS (R14-026J)[5]	0	0	0	0	0	0	0	0	0
5. ALTERNATE FUEL FEEDING SYSTEM (R14-026K)[6]	0.01	0.03	0.16	0	0	0	0	0	0
6. 2015 MATERIAL HANDLING (TBD)	0.72	5.71	19.67	0	0	0	0	0	0
TOTAL NET EMISSION CHANGES (TONS/YR)	**0.73**	**5.74**	**19.83**	**0.00**	**4.49**	**0.97**	**0.36**	**0.00**	**0.00**
PSD SIGNIFICANCE THRESHOLDS (TONS/YR)	**10**	**15**	**25**	**40**	**40**	**100**	**40**	**0.6**	**3**
EXCEEDS PSD SIGNIFICANCE THRESHOLDS (YES OR NO)	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

NOTES:

1. PLANT CHANGES 1-4 WERE NETTED AGAINST THE PM, PM10, PM2.5, AND SO2 EMISSION DECREASE ASSOCIATED WITH THE PLANT MODIFICATION WHEN THEY WERE PERMITTED. THE PLANT MODIFICATION BEGAN OPERATION ON AUGUST 31, 2009, THEREFORE ITS CONTEMPORANEOUS PERIOD ENDS ON AUGUST 30, 2014 AND IS NO LONGER APPLICABLE. SINCE PLANT CHANGES 1-4 PM, PM10, PM2.5, AND SO2 EMISSIONS WERE PREVIOUSLY NETTED AGAINST AN EMISSION DECREASE THEIR PM, PM10, PM2.5, AND SO2 EMISSIONS HAVE BEEN SET TO ZERO FOR COMPARISON AGSINT FUTURE CHANGES IN THIS NSR APPLICABILITY ANALYSIS.

2. THE REBURN HOPPER BEGAN OPERATION ON 8/1/2011, THE CONTEMPORANEOUS PERIOD ENDS ON 7/31/2016.

3. THE RAIL TRANSLOADER BEGAN OPERATION ON 6/1/2013, THE CONTEMPORANEOUS PERIOD ENDS ON 5/31/2018.

4. THE 2013 BAGHOUSE MODIFICATIONS BEGAN OPERATION IN OCT. 2013, THE CONTEMPORANEOUS PERIOD ENDS OCT. 2018.

5. THE 2014 BAGHOUSE MODIFICATIONS BEGAN OPERATION IN SEPT. 2014, THE CONTEMPORANEOUS PERIOD ENDS SEPT. 2019.

6. AS OF NOVEMBER 2015, THE ALTERNATE FUEL FEEDING SYSTEM HAS NOT YET BEGUN OPERATION SO THE CONTEMPORANEOUS PERIOD CANNOT BE DEFINED.

APPENDIX A – NSR PERMIT AND TITLE V REVISION APPLICATION FORMS AND ATTACHMENTS

Application for NSR Permit and Title V Revision
Attachment A – Business Certificate
Attachment B – Map
Attachment C – Installation and Start-Up Schedule
Attachment D – Regulatory Discussion
Attachment E –Plot Plan
Attachment F – Detailed Process Flow Diagrams
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 – Emission Unit Data Sheets
    Attachment L – General EUDS
Attachment M – Air Pollution Control Device Sheet - Baghouse
Attachment N – Supporting Emission Calculations
Attachment O – Monitoring/Recordkeeping/Reporting/Testing Plans
Attachment P – Public Notice
Attachment Q – Business Confidential Claims
Attachment R – Authority Forms
    Attachment R – Authority of Corporation
Attachment S – Title V Permit Revision Information

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

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

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

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

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

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

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

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

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

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Essroc Cement Corporation

2. Federal Employer ID No. ***(FEIN):***
5 4 1 2 3 9 0 5 6

3. Name of facility *(if different from above):*
Martinsburg Plant

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

5A. Applicant's mailing address:
1826 South Queen Street
Martinsburg, WV 25401

5B. Facility's present physical address:
1826 South Queen Street
Martinsburg, WV 25401

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: **Riverton Investment Corporation**

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

– If **YES,** please explain: **Own**

– 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.): **Portland Cement Manufacturing**

10. North American Industry Classification System **(NAICS)** code for the facility:
3241

11A. DAQ Plant ID No. (for existing facilities only):
0 0 3 – 0 0 0 0 6

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R30-00300006-2012 (MM04)

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**.

Take Queen Street exit off Route 45 at Martinsburg; go south on Queen Street to plant.

A Map is included in Appendix A – Attachment B

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
N/A	**Martinsburg**	**Berkeley**
12.E. UTM Northing (KM): **4369.00**	12F. UTM Easting (KM): **243.50**	12G. UTM Zone: **18**

13. Briefly describe the proposed change(s) at the facility:
Install and/or modify four material handling and storage areas at the Plant and decommission sources no longer in operation.

14A. Provide the date of anticipated installation or change: **See Attachment C of Appendix A** – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: As soon as 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 _____ *(Please use blue ink)* DATE: 11/9/2015 *(Please use blue ink)*

35B. Printed name of signee: **Munzer Ghosh**		35C. Title: **Vice President of Manufacturing**
35D. E-mail: **munzer.ghosh@essroc.com**	36E. Phone: **304-260-1887**	36F. FAX: **304-267-6571**
36A. Printed name of contact person (if different from above): **Brad Blase**		36B. Title: **Plant Environmental Manager**
36C. E-mail: **brad.blase@essroc.com**	36D. Phone: **304-260-1827**	36E. FAX: **304-267-2617**

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.

Provided in this section is a copy of Essroc Cement Corporation's Business Registration.

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
CAPITOL CEMENT CORPORATION
1826 S QUEEN ST
MARTINSBURG, WV 25401-9596

BUSINESS REGISTRATION ACCOUNT NUMBER: **1032-7447**

This certificate is issued on: **07/13/2011**

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

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

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

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

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

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

eIL006 v.4
L1119845504

ATTACHMENT B
MAP

Provided in this section is a map depicting the approximate location of the Plant.

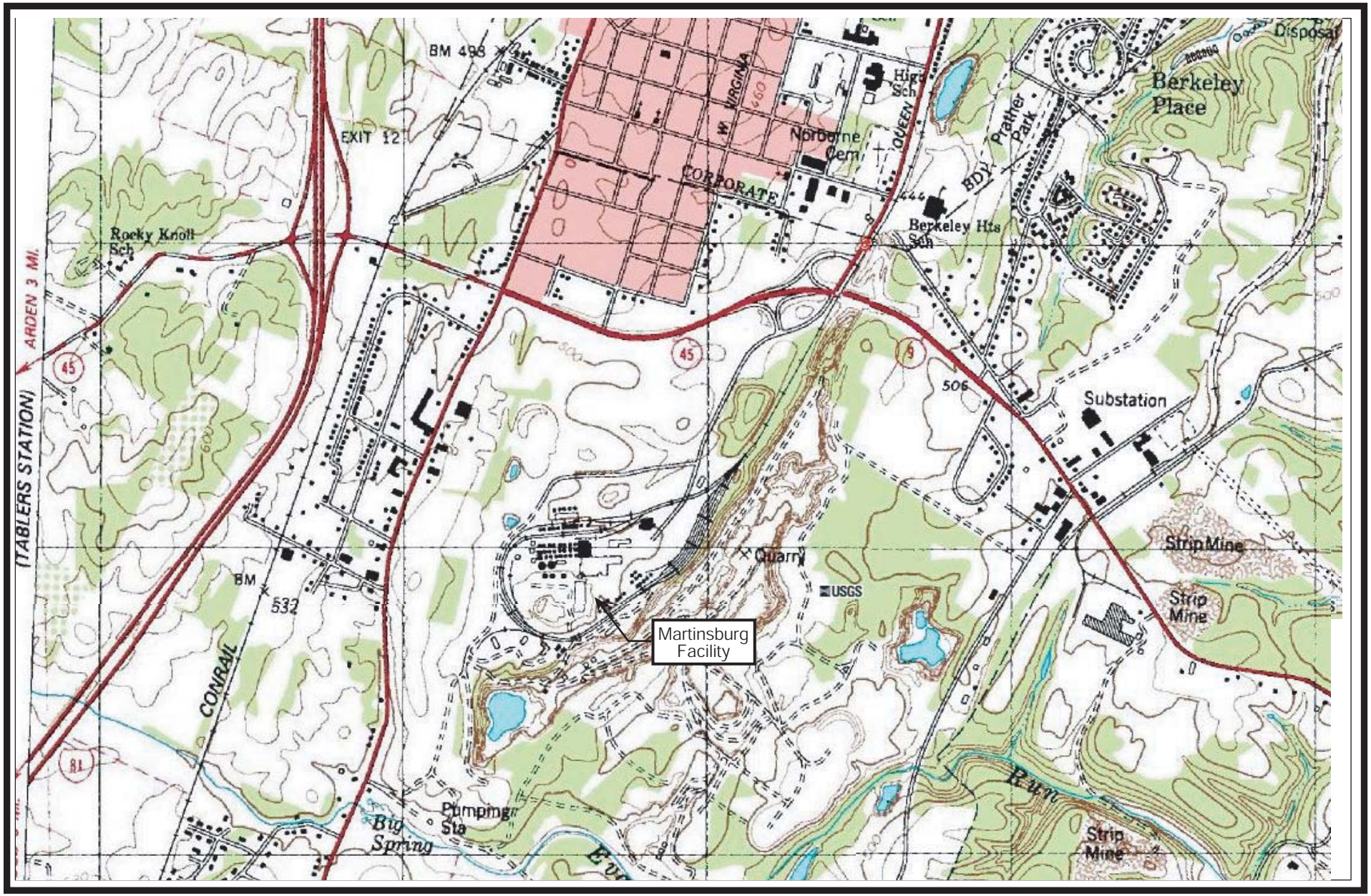


Figure B-1
Capitol Cement Corporation -
Martinsburg Plant Area Map

It is anticipated that construction of the proposed four modifications will begin upon receipt of a construction permit.

This section discusses the applicable Federal and WV DEP emission standards and regulations applicable to the Plant.

D.1 APPLICABLE FEDERAL EMISSIONS STANDARDS

New Source Performance Standards (NSPS) codified in 40 CFR 60 and NESHAP standards codified in 40 CFR 63 will apply to certain operations being permitted as part of this Application update.

D.1.1 NSPS SUBPART OOO

New non-metallic mineral processing facilities (i.e., raw material handling and storage) are subject to PM and opacity standards established under NSPS Subpart OOO – Nonmetallic Mineral Processing Facilities on August 1, 1985. Proposed changes to NSPS Subpart OOO were published in the Federal Register on April 22, 2008 and became final on April 28, 2009.

NSPS Subpart OOO requires that fugitive opacity emissions be maintained at 15 percent or less from crushers or 10 percent or less from other affected facilities. Stack opacity must be maintained at 7 percent or less and PM emissions cannot exceed 0.05 grams per dry standard cubic meter (g/dscm).

For this update the affected NSPS Subpart OOO air emission sources are those associated with the additives handling and storage.

D.1.2 NESHAP SUBPART LLL (PC MACT)/ NSPS SUBPART F

The Plant is a major source of Hazardous Air Pollutants (HAPs). The Portland Cement MACT (40 CFR 63 Subpart LLL) is the MACT regulation applicable to the Plant.

On February 12, 2013, the U.S. EPA published in the Federal Register the final NESHAP for the Portland cement manufacturing industry (i.e., PC MACT Final Rule) under 40 CFR 63 Subpart LLL, with Final Technical Amendments to the PC MACT Final Rule published July 27, 2015 and corrections to the Final Technical Amendments published on September 11, 2015. The PC MACT Final Rule defines new emission limits, monitoring, testing, reporting, and recordkeeping requirements for applicable PC MACT affected sources. This Application incorporates the applicable new PC MACT Final Rule requirements.

The tarped clinker storage and handling sources and finish mill limestone storage and handling sources will be affected sources under Subpart LLL and are subject to a 10 percent opacity limitation on a six minute block average, with the exception of the storage piles. EP37.06, the limestone crusher feed pile, is not an affected source under Subpart LLL. EP27.07, EP37.08, and EP37.11 are all subject to the open clinker storage pile requirements under Subpart LLL. The Plant will utilize water sprays and partial enclosures, which are most appropriate for site

conditions, to control fugitive dust emissions from the open clinker storage piles. The alternate fuel feeding system sources will continue to be subject to Subpart LLL.

D.2 WEST VIRGINIA STATE REGULATIONS

The air quality regulations for the state of West Virginia are codified in Title 45 of the Code of State Rules (45 CSR). Title 45 is divided into series, each covering a specific aspect of the state's air pollution regulatory program. Series that contain requirements specific to the source included in this Application are discussed in the following paragraphs. West Virginia regulations that are applicable to the entire Plant are not discussed in this Application.

D.2.1 SERIES 7

45 CSR 7, *To Prevent & Control Particulate Matter Air Pollution from Manufacturing Processes & Associated Operations,* defines PM emissions standards for manufacturing processes and associated operations. The regulation requires the Plant to comply with PM emissions as defined in the regulation from point and fugitive sources, as well as to employ good operating practices to prevent/reduce fugitive emissions. Specifically, the Plant is subject to 45-5-3.4, 45-5-6.1, and 45-5-6.2. NESHAP Subpart LLL requirements, for applicable sources, are more stringent; therefore, compliance with the Federal requirements ensures compliance with the state standards.

D.2.2 SERIES 8

45 CSR 8, *Ambient Air Quality Standards for Sulfur Oxides and Particulate Matter,* establishes ambient air quality standards for SO_2 and PM, equivalent to the primary and secondary National Ambient Air Quality Standards (NAAQS) established by the U.S. EPA.

D.2.6 SERIES 13

45 CSR 13, *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation,* regulates the procedures for stationary source reporting, and the criteria for obtaining a permit to construct and operate a new stationary source which is not a major stationary source, to modify a non-major stationary source, to make modifications which are not major modifications to an existing major stationary source, to relocate non-major stationary sources within the state of West Virginia, and to set forth procedures to allow facilities to commence construction in advance of permit issuance. Such construction, modification, relocation, and operation without a required permit are a violation of this rule. This rule also establishes the requirements for obtaining an administrative update to an existing permit, a temporary permit, or a general permit registration, and for filing notifications and maintaining records of changes not otherwise subject to the permit requirements of this rule. Since the Application is considered a Class II Administrative Update, it is subject to this regulation. Essroc Cement Corporation is meeting the requirements of this regulation by submitting this Application.

D.2.7 SERIES 14

45 CSR 14, *Permits For Construction & Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration*, regulates the construction or relocation of any major stationary source or major modification in any area classified as attaining National or West Virginia Ambient Air Quality Standards or unclassifiable. Since the Application is a Class II Administrative Update to a 45 CSR 14 Permit, it is subject to this regulation. Essroc Cement Corporation is meeting the requirements of this regulation by submitting this Application.

D.2.8 SERIES 17

45 CSR 17, *To Prevent & Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage & Other Sources of Fugitive Particulate Matter*, requires the prevention and control of PM from materials handling, preparation, storage, and other fugitive particulate sources beyond the property boundary through the appropriate use of preventative measures, which include but are not limited to water or chemicals, enclosure/covering of sources, and installation of hoods/fans/fabric filters. As part of this Application, Essroc Cement Corporation will install fabric filters and/or enclosures, or take other preventative measures to reduce/prevent emissions from fugitive sources.

ATTACHMENT E
PLOT PLAN

Provided in this section is a Plot Plan depicting the location of the new and modified sources associated with proposed four modifications addressed in this Class II Administrative Update.

SPECTRUM Environmental Sciences, Inc.

N W E S

Figure E-1

Essroc Cement Corporation

ATTACHMENT F
DETAILED PROCESS FLOW DIAGRAMS

Detailed process flow diagrams depicting all sources that are being added or modified as part of this Application are provided in this section. A list of all process flow diagrams is provided below for reference.

Detailed Process Flow Diagrams:

Diagram F-1 Tarped Outdoor Clinker Storage and Handling
Diagram F-2 Finish Mill Limestone Storage, and Handling
Diagram F-3 Additives Delivery, Storage, and Handling
Diagram F-4 Alternate Fuels Feeding System

DIAGRAM F-1
TARPED OUTDOOR CLINKER STORAGE AND HANDLING

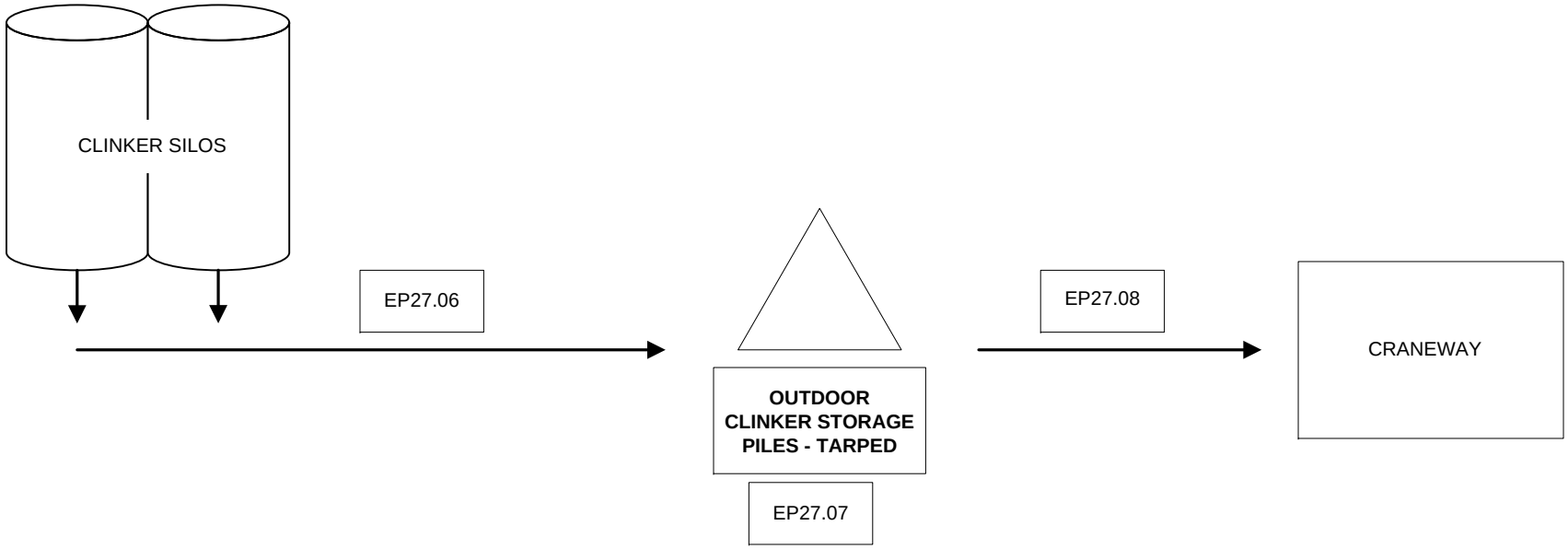


DIAGRAM F-2
FINISH MILL LIMESTONE STORAGE AND HANDLING

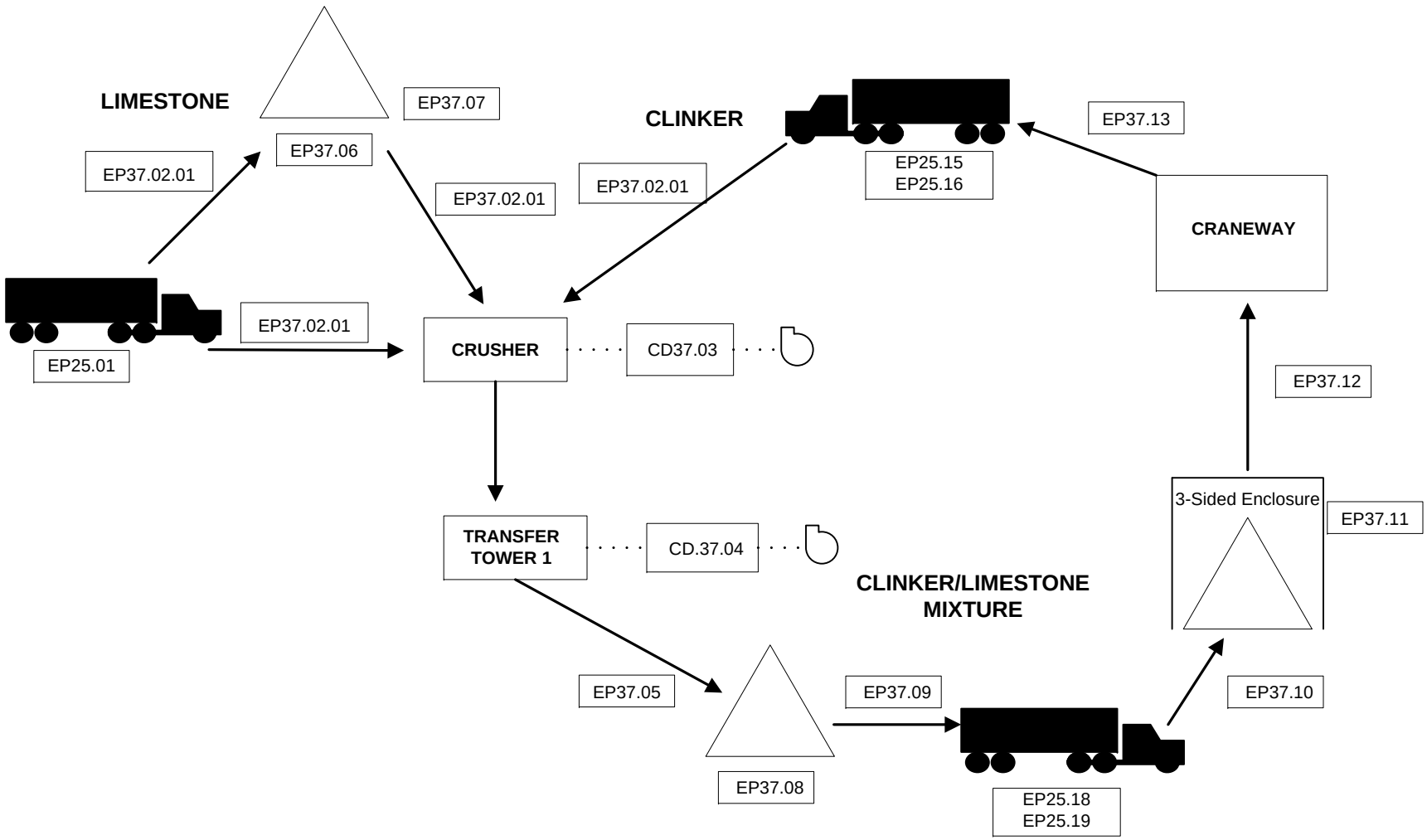
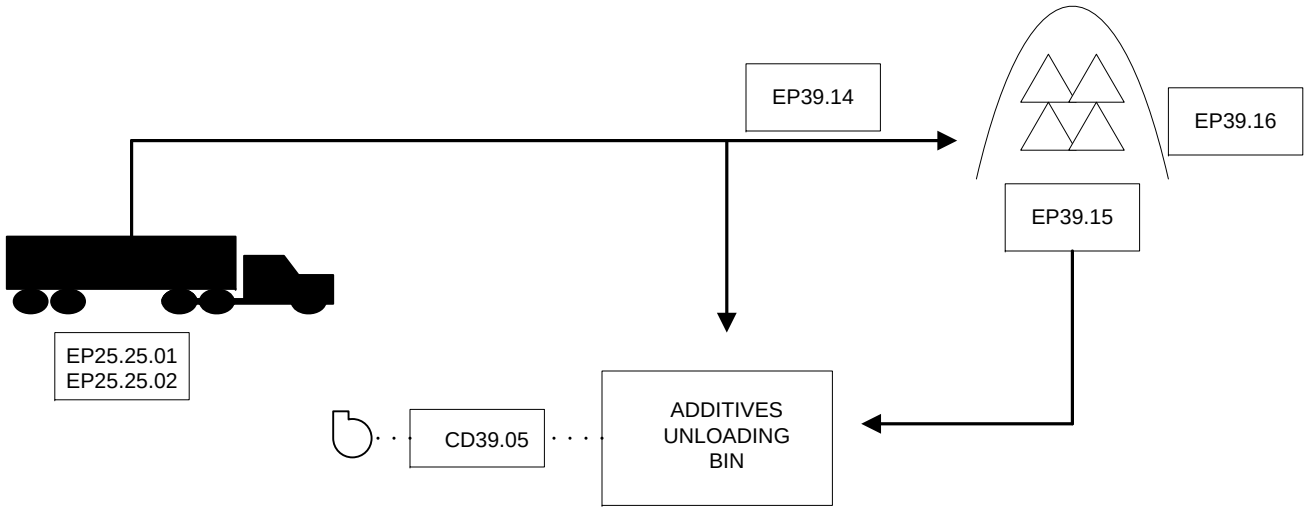
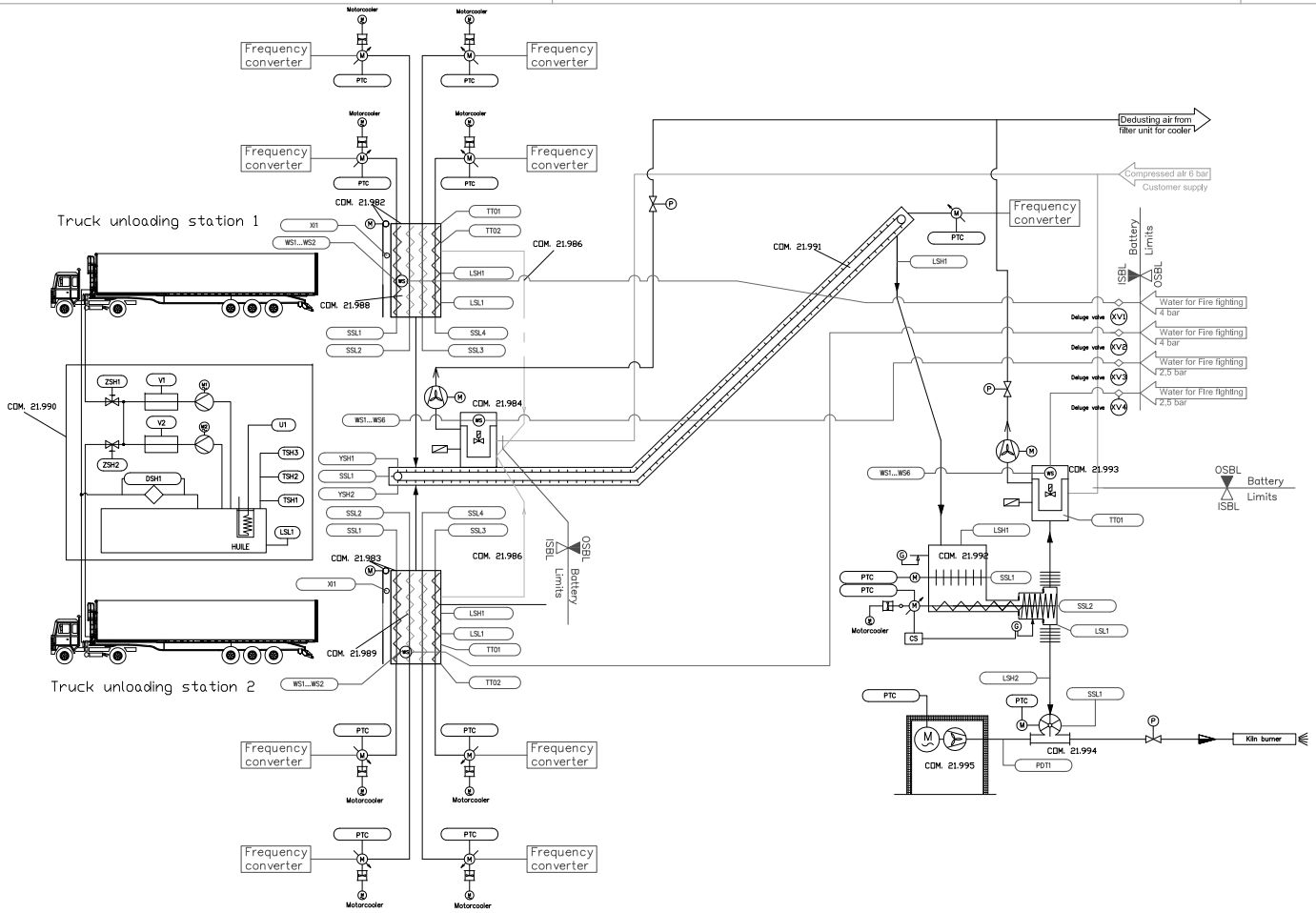


DIAGRAM F-3
ADDITIVES DELIVERY, STORAGE, AND HANDLING





KEY	
ISBL	InSide Battery Limit – Entsorga scope of work
OSBL	OutSide Battery Limit – ESSROC scope of work

ESSROC QUESTIONS	
QUESTION	ANSWER
The dust duct should automatic have a valve to close ducts when AF system is OFF	Added pneumatic shut–off gates. Interlocking has to be clarified
Are there a shut off valves between docking stations and dust collector?	No.
Please tell us what triggers water spray in docking station and bag filter. Do we have any sensor to detect fire?	Added Temperature sensor and water sprinkler
Where is a water control system with five control valves on this drawing?	Added four control valve (XV1..XV4), because we have only 4 equipments requiring extinguishment: – n°2 docking stations; – n°2 bag filters.
What is PTC?	Motor Limit Temperature sensor
Contract asks for a shut–off valve on a pneumatic line.	Added ball–valve

NOTE:

Dimensions in mm; elevations in foot;

TOLERANCES: ±1cm FOR CIVIL WORKS
±1mm FOR MECHANICAL WORKS

DO NOT TAKE DIMENSIONS IN SCALE ON DRAWING.
ALL MODIFICATIONS SHALL BE AUTHORIZED BY ENTSORGA ITALIA S.p.A.

DO NOT USE THIS DRAWING FOR CONSTRUCTION UNLESS EXPLICITY INDICATED IN THE REVISIONS BOX

ANY COMMENTS ON THIS DOCUMENT SHALL BE MADE IN WRITING TO ENTSORGA WITHIN SEVEN DAYS OF RECEIPT. THE RECIPIENT ACKNOWLEDGES AND ACCEPTS THAT IF NO COMMENTS ARE SUBMITTED WITHIN THIS TIMESCALE THE DOCUMENT SHALL BE DEEMED ACCEPTED

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Recipients must obtain the written authority of the said company before wholly or partly duplicating the contents or disclosing same to others. – All rights reserved.

REV.	DATE	Drawn	Checked	Approved	Description
B	19/08/14	WF	AR	PPCM	FOR COMMENTS
A	14/08/14	WF	AR	PPCM	FOR COMMENTS
0	05/08/14	MD	WF	PPCM	FIRST EMISSION

ENTSORGA
sistemi per l'ambiente
Str. Prov. per Castelnuovo S., 7
15057 Tortona (AL)
Tel. 0131.811383
Fax 0131.873281
email info@entsorga.it

PROJECT: Martinsburg feeding system – ESSROC –

DRAWING TITLE: P&ID

REQUISITION	DATE:	SCALE:	DRG. N°
–	05/08/2014	NN	P413 D103/B

ATTACHMENT G
PROCESS DESCRIPTION

A process description for all proposed changes requested as part of this Class II Administrative Update is provided in Section 2 of the Application.

ATTACHMENT H
MATERIAL SAFETY DATA SHEETS (MSDS)

A Material Safety Data Sheet (MSDS) for the various materials handled at the Plant associated with the proposed modifications of this Application are provided in this section. This includes a MSDS for Iron Ore, Bottom Ash, Limestone, Sand, and Portland Cement Clinker.

A Material Safety Data Sheet (MSDS) for the refuse based fuel (RBF) proposed to be fed to the kiln system using the Alternate Fuel Feeding System is not yet available.

IRON
BMI
(company)

HORSEHEAD CORP.

MSDS FOR IRON GRANULES - PALMERTON PLANT

SECTION I (General Information)

ISSUE DATE: 08/24/92
REVISION DATE: 01/26/05

NAME: IRON GRANULES

MANUFACTURER: HORSEHEAD CORP. ("HC")

EMERGENCY: 610-826-8604
CHEMTREC: 800-424-9300

P.O. Box 121
Little Gap Highway
Aquashicola, PA 18012
610-826-8784

TRADE NAME AND SYNONYMS: Iron-Rich Material, IRM, Aggregate

CHEMICAL FAMILY: Iron Residue **CAS NO.:** Mixture

FORMULA: N/A

DOT HAZARD CLASS: NAIF* **UN NO.:** NAIF* **NA NO.:** NAIF*

SARA SECTION 313: This product is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act and 40 CFR § 372.45.

SECTION II - INGREDIENTS

MATERIAL	CAS NO	%
IRON (compounds)	7439-89-6**	39 - 45
SILICON DIOXIDE	7631-86-9	5 - 10
CALCIUM OXIDE	1305-78-8	14 - 18
MAGNESIUM OXIDE	1309-48-4	7 - 10
MANGANESE (compounds)	7439-96-5**	3 - 4
ALUMINUM (compounds)	7429-90-5**	1 - 2

* NAIF - No applicable information found.

** CAS No. for uncombined element; material contains various stable compounds of this element.

MSDS FOR IRON GRANULES

SECTION III PHYSICAL DATA

BOILING POINT: N/A

MELTING POINT: N/A

BULK SPECIFIC GRAVITY: 3.0

EVAPORATION RATE (=1): N/A

VAPOR DENSITY (AIR = 1): N/A

SOLUBILITY IN WATER: Insoluble

PERCENT VOLATILE BY VOLUME (%): N/A

VAPOR PRESSURE AT 20NC: N/A

APPEARANCE AND ODOR: Hard, gray, granular material with no odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): N/A

FLAMMABLE LIMITS: LEL: N/A
UEL: N/A

NFPA FIRE RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

EXTINGUISHING MEDIA: Non-flammable

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA

		OSHA-PEL		ACGIH-TLV	
		TWA	STEL	TWA	STEL
MATERIAL	FORM	mg/M^3	mg/M^3	mg/M^3	mg/M^3
IRON		--	--	--	--
ALUMINUM (DUST)		15	--	10	--
SILICON DIOXIDE		10	--	10	--
CALCIUM OXIDE		5	--	2	--
MAGNESIUM OXIDE		10	--	10	--
MANGANESE (COMPOUNDS)		--	--	5	--
NUISANCE DUST		15	--	10	--

ROUTES OF ENTRY: Inhalation.

MSDS FOR IRON GRANULES

EFFECTS OF OVEREXPOSURE: Like other particulate matter, this material may cause mechanical irritation to the skin and eyes.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: None known.

EMERGENCY AND FIRST AID PROCEDURES: No procedures required.

CARCINOGENIC ASSESSMENT:

NTP? No **IARC MONOGRAPH?** No **OSHA?** No

SECTION VI - REACTIVITY DATA

STABILITY: ( ) Unstable
(X) Stable

CONDITIONS TO AVOID: Can be corrosive to iron and steel in the presence of moisture.

INCOMPATIBILITY (MATERIALS TO AVOID): NAIF

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: ( ) May occur
(X) Will not occur

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED: Ordinary housekeeping procedures.

WASTE DISPOSAL METHOD: In accordance with federal, state, and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Use NIOSH/MSHA approved type respirator for particulate matter.

VENTILATION: Local exhaust or other ventilation that will reduce dust concentrations to less than permissible exposure limits for particulate matter.

PROTECTIVE EQUIPMENT: None required.

MSDS FOR IRON GRANULES

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING: None.

OTHER PRECAUTIONS: Practice good personal hygiene when working in areas where this material is used.

DISCLAIMER: As the conditions or methods of use are beyond the control of HC, HC does not assume any responsibility and expressly disclaims any liability for any use of the material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without any warranty, express or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof.

PBCo LLC

MATERIAL SAFETY DATA SHEET

for

Ash Type 390

This document has been prepared to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200.
Revision Date: November, 2009

SECTION I GENERAL INFORMATION

PBCo LLC
2205 Kenmore Ave., Suite 102
Buffalo, NY 14207

Emergency Information (716) 874-2829
General Information (716) 874-2829

SECTION II PRODUCT COMPOSITION AND MAJOR CONSTITUENTS

Components	Formula/CAS	Typical Percentage	OSHA PEL (mg/m^3)	ACGIH TVL (mg/m^3)
Silica, Amorphous	SiO_2/ 7631-86-9	52.0 – 68.0%	6	10
Silica, Crystalline	SiO_2 + 2 148-086-97	3.0 – 7.0%	0.1	0.1
Aluminum Oxide	Al_2O_3/ 1344-28-1	21.1 - 28.6%	15	10
Iron Oxide	Fe_2O_3 1309-37-1	2.9 – 9.6%	10	5
Calcium Oxide	CaO 1305-78-8	0.8 – 6.0%	5	2
Magnesium Oxide	MgO 1309-98-4	0.4 - 1.4%	10	10
Titanium Oxide	TiO_2 13463-67-7	1.0 - 1.9%	10	10

SECTION III PHYSICAL & CHEMICAL CHARACTERISTICS

Appearance & Odor	Fine to coarse gray powder with no apparent odor		
Boiling Point	N/A	**Evaporation Rate**	N/A
Vapor Pressure	N/A	**Melting Point**	>2500° F
Vapor Density	N/A	**Solubility in Water**	Insoluble
Specific Gravity	2.0 – 3.0		

SECTION IV FIRE & EXPLOSION DATA

Flash Point	Non-flammable & non-explosive
Extinguishing Method	N/A
Unusual Fire &Explosion Hazards	N/A

SECTION V REACTIVE DATA

Stability	Stable	**Hazardous Decomposition or By-Products**	None
Incompatibility	None	**Conditions to Avoid**	None

DRAFT

SECTION VI HEALTH HAZARDS

Exposure Routes	Inhalation, Skin Contact, Eye Contact
Acute Health Hazards	Possible irritation of eyes, skin & respiratory system.
Chronic Health Hazards	Prolonged or repeated exposure to excessive levels of crystalline silica may cause silicosis, a fibrosis of the lungs.
Signs & Symptoms of Exposure	Irritation of eyes, skin & mucous membranes of the respiratory system.
Note	Respirable crystalline silica has been classified by the International Agency for Research on Center (IARC) as a probable human carcinogen.

Emergency & First Aid Procedures

Skin	Brush away ash particles. Flush effected area, preferably using soap & water.
Eyes	Do not rub. Flush effected area with water for at least 15 minutes.
Ingestion	Rinse mouth with water. Seek medical attention if necessary.
Inhalation	Remove person to fresh air. Clear nasal passages. If effected person is not breathing, contact emergency medical services and begin standard life support techniques.

SECTION VII PECAUTIONS FOR SAFE HANDLING

In Case of Spill	Remove spilled material with shovel or vacuum. Do not use compressed air. Coal ash is not considered a hazardous waste under EPA's Resource Conservation and Recovery Act (RCRA).
Waste Disposal	Cover or contain the material to prevent airborne dust and dispose of in a landfill according to federal, state and local regulations for non-hazardous waste.
Storage & Handling Precautions	Avoid conditions which result in dusting and in uncontrolled runoff of rainwater from storage areas.

SECTION VIII CONTROL MEASURES

Respiratory Protection	NIOSH-approved respirator if exposures approach TLV/PEL.
Protective Gloves	Work or chemical gloves should be used to reduce skin irritation of dust when workers must directly handle the material.
Eye Protection	Goggles or safety glasses should be worn. Eye station should be readily accessible.
Other Protective Equipment	Protective clothing should be worn as necessary for individuals with sensitive skin to prevent direct skin contact.
Work/Hygienic Practices	Wash hands and face after handling ash and before consuming food or beverages.

DRAFT

Essroc
Italcementi Group

3251 Bath Pike
Nazareth, PA 18064

MATERIAL SAFETY DATA SHEET

Section 1 - IDENTIFICATION

Product Name: Limestone

CAS Reg. No.: 1317-65-3

Trade Names: Limestone

MSDS Information: This MSDS supersedes prior MSDS's for the products noted above.

Informational Phone Numbers: (800) 437-7762 Customer Service - Nazareth, PA
(800) 336-0366 Customer Service - Speed, IN
(800) 624-8986 Customer Service - Martinsburg, WV
(800) 386-2111 Customer Service - Mississauga, ONT

Emergency Contact Information: (800)-424-9300 Chemtrec

MSDS Prepared by: Essroc MSDS Development Committee - (610) 837-6725 – May 26, 2010

Section 2 - COMPONENTS

Hazardous Ingredients:

Component	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV	Other Information
Limestone	1317-65-3	15 mg total dust/m^3 5 mg respirable dust/m^3	10 mg/m^3	IDLH: Not Determined LD_{50}: No Data
Crystalline Silica (1 - 10%)	14808-60-7	For mineral dusts containing crystalline silica: (10 mg respirable dust/m^3)/(%SiO_2 +2) (30 mg total dust/m^3) /(%SiO_2 + 2)	0.025 mg/m^3 respirable	IDLH: 50 mg/m^3 (twa) LD_{50}: ipr rat LD Lo 400 mg/kg
Notes:				

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Limestone is an odorless, grey, white, and tan rock that can be present in particles ranging in size from powder to boulders. A single short-term exposure to limestone presents little or no hazard.

POTENTIAL HEALTH EFFECTS

Relevant Routes of Exposure: Eye contact, skin contact, inhalation and ingestion.

Effects resulting from eye contact: Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Such exposures require immediate first aid (see Section 4) and medical attention to prevent significant damage to the eye.

Effects resulting from skin contact: Exposure to limestone dust may cause dry skin, abrasions, discomfort, and irritation.

Effects resulting from inhalation: Inhalation of dust may cause nose, throat, or lung irritation depending on the extent of the exposure. Limestone contains free crystalline silica. Prolonged exposure to airborne free crystalline silica may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (also see "Carcinogenic potential" below.)

Effects resulting from ingestion: Although ingestion of small quantities of limestone is not known to be harmful, ill effects are possible especially if larger quantities are consumed. Limestone should not be eaten.

Carcinogenic potential: Limestone is not listed as a carcinogen by the National Toxicology Program (NTP), International Agency for Research (IARC) or the Occupational Safety and Health Administration (OSHA). However, Limestone contains crystalline silica which is classified by IARC and NTP as a known human carcinogen.

Medical conditions which may be aggravated by exposure: Pre-existing upper respiratory and lung diseases may be aggravated by inhalation of limestone dust.

Section 4 - FIRST AID

Eyes: Immediate flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes including under lids, to remove all particles. Seek medical attention for abrasions.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment for rash or irritation.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. ("Inhalation" of gross amounts of Limestone requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and seek medical attention immediately.

Section 5 - FIRE AND EXPLOSION DATA

Limestone is not combustible.

Flash Point:	Not applicable	Upper Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Lower Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Extinguishing media:	Not applicable
Hazardous combustion products:	Not applicable	Unusual fire and explosion hazards:	None
Special fire fighting procedures:	Contact with powerful oxidizing agents may cause fire and/or explosions.		

Section 6 - ACCIDENTAL RELEASE MEASURES

Place spilled material into a container. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section 8.

Dispose of waste material according to local, state, and federal regulations.

Section 7 - HANDLING AND STORAGE

Dust containing respirable crystalline silica may be generated during processing, handling, and storage. The exposure controls and personal protective equipment indentified in Section 8 should be used as appropriate.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Skin protection: Wash dust exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Launder clothing that has become dusty before reuse.

Respiratory protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation.

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye protection: When engaged in activities where limestone dust could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working in dusty conditions.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Angular grey, white, or tan particles ranging in size from powder to boulders.	Odor:	No distinct odor
Physical state:	Solid	pH (in water):	Neutral
Solubility in water:	Not soluble	Vapor pressure:	Not applicable
Vapor density:	Not applicable	Boiling point:	Not applicable
Melting point:	Not applicable	Specific gravity (H_2O=1.0):	2.6 – 2.8
Evaporation Rate:	Not applicable	Coefficient of oil to water distribution:	Not applicable

Section 10 - STABILITY AND REACTIVITY

Stability: Stable

Conditions to avoid: Avoid contact with incompatible materials.

Incompatibility: Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

Hazardous decomposition: Will not spontaneously occur. Limestone decomposes at 825°C producing calcium oxide.

Hazardous polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Route of Entry.....Section 3
Effects of acute exposure to product.....Section 3
Effects of chronic exposure to product.....Section 3
Exposure Limits.....Section 2
Irritancy of product.....Section 3
Sensitization to product .....Section 3
Carcinogenicity.....Section 3
Reproductive Toxicity.....Not Applicable
Teratogenicity.....Not Applicable
Mutagenicity.....Not Applicable
Toxicologically synergistic products.....Section 3, Section 16

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

Relevant physical and chemical properties: See sections 9 and 10.

Section 13 - DISPOSAL

Dispose of waste material according to local, state, and federal regulations.

Section 14 - TRANSPORTATION DATA

Hazardous materials description/proper shipping name: Limestone is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class: Not applicable.

Identification number: Not applicable

Required label text: Not applicable.

Hazardous substances/reportable quantities (RQ): Not applicable

Section 15 - OTHER REGULATORY INFORMATION

Status under USDOL-OSHA & MSHA Hazard Communication Standards (29CFR 1910.1200 & 30CFR Part 47): Limestone is considered a "hazardous chemical" under these regulations, and should be part of any hazard communication program.

Status under CERCLA/Superfund, 40 CFR 117 and 302: Not Listed

Hazard Category under SARA TITLE III, Sections 311- 312: Limestone qualifies as a "hazardous substance" with delayed health effects.

Status under SARA Title III, Section 313: Not subject to the reporting requirements under Section 313.

Toxic Substance Control Act (TSCA): Exempt.

Status under Canadian Environmental Protection Act: Not listed.

Status under WHMIS: Limestone containing crystalline silica is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A – Materials causing other toxic effects) and, depending on use, is subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

SECTION 16 - OTHER INFORMATION

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
ASTM	American Society of Testing Materials
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
DOT	Department of Transportation
IARC	International Agency for Research
IDLH	Immediately dangerous to life and health (NIOSH).
m^3	cubic meter
mg	Milligram
mm	millimeter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RQ	Reportable Quantities
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
URT	Upper Respiratory Tract
WHMIS	Workplace Hazardous Material Information System

Other important information:

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ESSROC, except that the product shall conform to contracted specifications. The information provided herein was believed by Essroc to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach or warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

MATERIAL SAFETY DATA SHEET

MSDS No: 011-U

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/ UNDERTAKING

UNIMIN CORPORATION
258 Elm Street
New Canaan, CT 06840

Emergency Telephone Number
(203) 966-8880

Telephone Number for Information
(203) 966-8880

PRODUCT NAME: Crystalline Silica in the form of Quartz – various grades

SYNONYMS: Quartz, Crystalline Silica, Silicon Dioxide

Date Prepared: May 2009

SECTION 2: HAZARDS IDENTIFICATION

This product is a chemically inert, non-combustible mineral.

EMERGENCY OVERVIEW
WARNING!

Lung injury and cancer hazard. Do not breathe dust. May cause delayed lung injury. Long term exposure can cause silicosis. Silicosis is a respiratory disease, which can result in delayed, disabling and sometimes fatal lung injury. IARC and NTP have determined that crystalline silica inhaled from occupational sources can cause cancer in humans. Risk of injury is dependent on the duration and level of exposure. A single exposure will not result in serious adverse effects. **See "Health Hazards" in Section 11 for detailed information.** See exposure limit presentation in Section 8 for further information.

Avoid creating dust when handling, using or storing. Use only with adequate ventilation to keep exposure below recommended exposure limits.

EU Classification of Substance/Preparation: Harmful (Xn) R48/20

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CAS# / EINECS #	Component	Percentage	EU Classification (67/548/EEC)
14808-60-7 / 238-878-4	Crystalline Silica in the form of Quartz	87 - 99.9%	Xn R48/20

Refer to section 16 for further information on EU Classification.

See Section 8 for occupational exposure limit information

SECTION 4: FIRST AID MEASURES

Gross Inhalation: Remove victim to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult have qualified personnel administer oxygen. Get prompt medical attention.

Skin Contact: No first aid should be needed since dermal contact with this product does not affect the skin. Wash exposed skin with soap and water before breaks and at the end of the shift.

Eye Contact: Flush the eyes immediately with large amounts of running water, lifting the upper and lower lids occasionally. If irritation persists or for imbedded foreign body, get immediate medical attention.

Ingestion: If large amounts are swallowed, get immediate medical attention.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing Media: This product will not burn but is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.

Special Fire Fighting Procedures: None required with respect to this product. Firefighters should always wear self-contained breathing apparatus for fires indoors or in confined areas.

Unusual Fire and Explosion Hazards: None.

Hazardous Combustion Products: None.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Wear appropriate protective equipment. If uncontaminated, collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. If contaminated: a) use appropriate method for the nature of contamination, and b) consider possible toxic or fire hazards associated with the contaminating substances. Collect for appropriate disposal.

SECTION 7: HANDLING AND STORAGE

Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Silica may be in the air without a visible dust cloud. Use normal precautions against bag breakage or spills of bulk material. Avoid creation of respirable dust. Do not use as a dry abrasive blasting agent. ANSI/AIHA Z9.4:1997 recommends that silica sand be prohibited as an abrasive blasting agent for use in fixed location abrasive-blast enclosures. Use good housekeeping in storage and use areas to prevent accumulation of dust in work area.

To reduce the risk of developing silicosis, lung cancer and other adverse health effects, the ACGIH recommends that the industrial hygienist use every means available to keep exposures below the recommended TLV. NIOSH recommends reducing airborne exposure levels as low as possible below NIOSH's recommended exposure limit, substituting less hazardous materials when feasible, using appropriate respiratory protection when source controls cannot keep exposures below the recommended limit and making medical examinations available to exposed workers.

Use adequate ventilation and dust collection. To minimize exposure, wear a respirator approved for silica dust when using, handling, storing or disposing of this product or bag. Refer to the most recent standards of ANSI (Z88.2), OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic. Maintain, clean and fit test respirators in accordance with OSHA regulations. Maintain and test ventilation and dust collection equipment. Launder clothing that has become dusty. Empty containers (bags, bulk containers, storage tanks, etc.) retain silica residue and must be handled in accordance with the provisions of this Material Safety Data Sheet. **WARN and TRAIN** employees in accordance with state and federal regulations.

WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS AND USERS IN CASE OF RESALE) BY POSTING, AND OTHER MEANS, OF THE HAZARDS AND OSHA AND ANY OTHER APPLICABLE REGULATORY PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT OSHA PRECAUTIONS.

See also American Society for Testing and Materials (ASTM) Standard Practice E1132-99a, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica".

Additional information on silica hazards and precautionary measures can be found at the following websites:

NIOSH Joint Campaign on Silicosis Prevention http://www.cdc.gov/niosh/topics/silica/#campaign
OSHA Crystalline Silica Website http://www.osha.gov/SLTC/silicacrystalline/index.html
MSHA Silicosis Prevention Website http://www.msha.gov/S&HINFO/SILICO/SILICO.HTM
NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica Website http://www.cdc.gov/niosh/docs/2002-129/02-129a.html

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

Definitions:
MSHA means Mine Safety and Health Administration.
NIOSH means National Institute for Occupational Safety and Health.
OSHA means Occupational Safety and Health Administration.
PEL means OSHA Permissible Exposure Limit.
REL means the NIOSH Recommended Exposure Limit.
TLV means American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value.
TWA means time-weighted average.

OSHA PEL and MSHA Exposure Limit for Crystalline Silica, Quartz $\frac{10\ mg/m^3}{\%\ Silica + 2}$
(Respirable measured as an 8-hour TWA)

TLV- 0.025 mg/m^3 8-hour TWA (respirable fraction)

In 2006 the ACGIH lowered the TLV for Silica, Crystalline: α-Quartz and Cristobalite to 0.025 mg/m3 stating in the *Documentation of the TLV* "Because the time between exposure and signs of fibrosis is characteristically very long, as much as 30 to 40 years, the margin of safety for exposure to crystalline silica at the proposed TLV-TWA is not known precisely. Given the observed association between silicosis and lung cancer, it is recommended that air concentrations be maintained as far below the proposed TLV as prudent practices permit. The recommended TLV-TWA of 0.025 mg/m3, respirable particulate mass, is intended to prevent pulmonary fibrosis that may be a risk factor for lung cancer. An A2, Suspected Human Carcinogen, notation is based on the demonstrated association between lung cancer and the presence of silicosis." The documentation further states "A lack of toxicological and industrial hygiene data does not permit the recommendation of a TLV-STEL. However, it should be noted that high exposures of short duration to freshly fragmented crystalline particles do produce an acute and rapidly progressive form of silicosis. The reader is encouraged to review the section on *Excursion Limits* in the "Introduction to the Chemical Substances" of the current TLVs® and BEIs® book for guidance and control of excursions above the TLV-TWA, even when the 8-hour TWA is within the recommended limits"

NIOSH has issued its REL of 50 micrograms respirable free silica per cubic meter of air (0.05 mg/m^3) as determined by a full shift sample up to 10-hour working day, 40 hours per week. NIOSH has recommended that OSHA and MSHA adopt the NIOSH REL as the OSHA PEL and the MSHA Exposure Limit. The 1974 NIOSH Criteria for a Recommended Standard for Occupational Exposure to Crystalline Silica should be consulted for more detailed information. Additionally, NIOSH, In a publication entitled NIOSH Hazard Review Health Effects of Occupational Exposure to Respirable Silica (April 2002), NIOSH stated "...that workers have a significant risk of developing chronic silicosis when they are exposed to respirable crystalline silica over a working lifetime at the current Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL), the Mine Safety and Health Administration (MSHA) PEL, or the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL). ...Current sampling and analytical methods used to evaluate occupational exposure to respirable crystalline silica do not meet the accuracy criterion needed to quantify exposures at concentrations below the NIOSH REL of 0.05 mg/m^3 as a time-weighted average (TWA) for up to a 10-hr workday during a 40-hr workweek. Until improved sampling and analytical methods are developed for respirable crystalline silica, NIOSH will continue to recommend an exposure limit of 0.05 mg/m^3 to reduce the risk of developing silicosis, lung cancer, and other adverse health effects. NIOSH also recommends minimizing the risk of illness that remains for workers exposed at the REL by substituting less hazardous materials for crystalline silica when feasible, by using appropriate respiratory protection when source controls cannot keep exposures below the NIOSH REL, and by making medical examinations available to exposed workers."

Crystalline silica exists in several forms, the most common of which are quartz (i.e. this product), trydimite and cristobalite, with quartz being the most common form found in nature. If quartz is heated to more than 870°C, it can change form to trydimite and if quartz is heated to more than 1450°C, it can change form to cristobalite. The OSHA PELs and MSHA Exposure Limits for trydimite and cristobalite are one-half of the PEL for quartz.

Ventilation: Use local exhaust as required to maintain exposures as far as possible below applicable occupational exposure limits. See also ACGIH "Industrial Ventilation - A Manual for Recommended Practice" (current edition). Control of exposure to dust must be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local exhaust ventilation and substitution of less toxic materials).

Respiratory Protection: When effective engineering controls are not feasible, or while they are being implemented, appropriate respiratory protection must be used. Use appropriate respiratory protection for respirable particulates based on consideration of airborne workplace concentrations and duration of exposure arising from intended end use. Refer to the most recent standards of ANSI (Z88.2), OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic.

Gloves: Protective gloves recommended.

Eye Protection: Safety glasses or goggles recommended.

Other Protective Equipment/Clothing: As appropriate for the work environment. Dusty clothing should be laundered before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: White powder, odorless.

pH: Not applicable
Boiling Point: 4046°F / 2230°C
Melting Point: 2930°F / 1610°C
Solubility in Water: Negligible
Percent Volatile: 0%
Autoignition Temp: Will not burn

Specific Gravity (water=1): 2.65
Vapor Pressure: Not applicable
Vapor Density: Not applicable
Evaporation Rate: Not applicable
Flash Point (Method Used): Fully oxidized, will not burn
Flammable Limits: LEL: Not applicable
UEL: Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid: None

Incompatibility: Powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, etc.

Hazardous Decomposition Products: Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

Hazardous Polymerization: Will not occur.
Conditions to Avoid: None

SECTION 11: TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:

Inhalation: Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may have the following serious chronic health effects:

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop mycobacterial infections (tuberculous and non-tuberculous) and fungal infections. Inhalation of air with a very high concentration of respirable silica dust can cause the most serious forms of silicosis in a matter of

months or a few years. Some epidemiologic studies have concluded that there is significant risk of developing silicosis even at airborne exposure levels that are equal to the recommended NIOSH REL, the ACGIH TLV, the OSHA PEL, and the MSHA Exposure Limit.

Cancer Status: The International Agency for Research on Cancer has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1 - carcinogenic to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (published in June 1997) in conjunction with the use of these materials. The National Toxicology Program classifies respirable crystalline silica as "known to be a human carcinogen". Refer to the Eleventh Report on Carcinogens (2005). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Other Data with Possible Relevance to Human Health:

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by fibrosis of the lungs, skin and other internal organs) rheumatoid arthritis, systemic lupus, erythematosus, sarcoidosis, chronic bronchitis, chronic obstructive pulmonary disease (COPD), emphysema, chronic kidney disease and end-stage renal disease.

For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768, 1997, and see also NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica, April 2002 (see Section 7 for NIOSH Hazard Review Website).

Skin Contact: No adverse effects expected.

Eye Contact: Contact may cause mechanical irritation and possible injury.

Ingestion: No adverse effects expected for normal, incidental ingestion.

Chronic Health Effects: See "Inhalation" subsection above with respect to silicosis, cancer status and other data with possible relevance to human health.

Medical Conditions Aggravated by Exposure: Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable quartz dust.

Signs and Symptoms of Exposure: Exposure to dust may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. However, there may be no immediate signs or symptoms of exposure to hazardous concentrations of respirable crystalline silica (quartz). See "Inhalation" subsection above for symptoms of silicosis. The absence of symptoms is not necessarily indicative of safe conditions.

Acute Toxicity Values: Silica: LD50 oral rat >22,500 mg/kg.

SECTION 12: ECOLOGICAL INFORMATION

Silica: LC50 carp >10,000 mg/L/72 hr. This product is not expected to present an environmental hazard.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Silica is not classified as a hazardous waste under US EPA RCRA regulations. If uncontaminated, dispose as an inert, non-metallic mineral. If contaminated, dispose in accordance with all applicable local, state/provincial and federal regulations in light of the contamination present. Local regulations may be more stringent than regional and

national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

SECTION 14: TRANSPORT INFORMATION

U.S. DOT HAZARD CLASSIFICATION

Proper Shipping Name: Not Regulated
Technical Name: N/A
UN Number: N/A
Hazard Class/Packing Group: N/A
Labels Required: None
DOT Packaging Requirements: N/A
Exceptions: N/A

SECTION 15: REGULATORY INFORMATION

SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Chronic Health

SARA 313 This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under the SARA Section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

California Proposition 65: This product contains crystalline silica (respirable) which is known to the State of California to cause cancer.

Toxic Substances Control Act: All of the components of this product are listed on the EPA TSCA Inventory or exempt from premanufacture notification requirements.

European Inventory of Commercial Chemical Substances: All of the components of this product are listed on the EINECS Inventory or exempt from notification requirements. (The EINECS number for Quartz: 238-878-4)

European Community Labeling: Harmful Xn
Contains crystalline silica, quartz (238-878-4)
R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation.
S22 Do not breathe dust
S38 In case of insufficient ventilation, wear suitable respiratory equipment.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Canadian WHMIS Classification: Class D, Division 2, Subdivision A (Very Toxic Material causing other Toxic Effects)

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

Japan METI: All of the components of this product are existing chemical substances as defined in the Chemical Substance Control Law.

Australian Inventory of Chemical Substances: All of the components of this product are listed on the AICS inventory or exempt from notification requirements.

Australian National Occupational Health & Safety Commission Status: Hazardous according to the criteria of Australian National Occupational Health & Safety Commission -Harmful (Xn) R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation.

Korea: All of the components of this product are listed on the ECL inventory or exempt from notification requirements.

Philippines: All of the components of this product are listed on the PICCS inventory or exempt from notification requirements.

16: OTHER INFORMATION

EU Classes and Risk Phrases for Reference (See Sections 2 and 3)
Xn Harmful
R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation.
S22 Do not breathe dust
S38 In case of insufficient ventilation, wear suitable respiratory equipment.

NFPA Hazard Rating:	Health: 1	Fire: 0	Reactivity: 0
HMIS Hazard Rating:	Health: *	Fire: 0	Reactivity: 0

* Warning - Chronic health effect possible - inhalation of silica dust may cause lung injury/disease (silicosis). Take appropriate measures to avoid breathing dust. See Section 3.

References:

Registry for Toxic Effects of Chemical Substances (RTECS), 2006
Patty's Industrial Hygiene and Toxicology
NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica, April 2002
NTP Eleventh Report on Carcinogens, 2005
IARC Monograph Volume 68, Silica, Some Silicates and Organic Fibres, 1997
Hazardous Substances Data Bank (HSDB), 2006
Documentation of the TLV – Silica, Crystalline: α-Quartz and Cristobalite, American Conference of Governmental Industrial Hygienists, 2006

Revision Summary: Switched Sections 2 and 3. Updated websites in Section 7.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data the Unimin Corporation believes reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside the control of Unimin Corporation, no warranties, expressed or implied, are made and no liability is assumed in connection with any use of this information. Any use of these data and information must be determined by the user to be in accordance with federal, state and local laws and regulations.

3251 Bath Pike
Nazareth, PA 18064

MATERIAL SAFETY DATA SHEET

Section 1 - IDENTIFICATION

Product Name: Portland Cement Clinker

CAS Reg. No.:

Chemical Name and Synonyms: Cement Clinker, Clinker

Trade Names: Portland Cement Clinker, Clinker, Cement Clinker
Designated types may include: I, II, III

MSDS Information: Portland Cement Clinker is a sintered material produced by heating a mixture of limestone and other minerals to high temperatures. It is ground with other materials to produce Portland or blended cements. This MSDS covers a number of products with similar applications and occupational exposure hazards. Because these products are made using naturally occurring materials specific constituents will vary. The term "cement clinker", used in the text of this MSDS, refers to the above named products collectively. This MSDS supersedes prior MSDS's for the products noted above.

Chemical Family: Calcium silicate compounds and calcium compounds containing iron and aluminum.

Informational Phone Numbers: (800) 437-7762 Customer Service - Nazareth, PA
(800) 336-0366 Customer Service - Speed, IN
(800) 624-8986 Customer Service - Martinsburg, WV
(800) 386-2111 Customer Service - Mississauga, ONT

Emergency Contact Information: (800)-424-9300 Chemtrec

MSDS Prepared by: Essroc MSDS Development Committee - (610) 837-6725 – May 18, 2010

Section 2 - COMPONENTS

Hazardous Ingredients:

Component	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV	Other Information
Portland Cement	65997-15-1	15 mg total dust/m^3 5 mg respirable dust/m^3	1.0 mg/m^3 respirable	IDLH: 5000 mg/m^3 LD_{50}: No Data
Crystalline Silica (0-0.3%)	14808-60-7	For mineral dusts containing crystalline silica: (10 mg respirable dust/m^3)/(%SiO_2 +2) (30 mg total dust/m^3) /(%SiO_2 + 2)	0.025 mg/m^3 respirable	IDLH: 50 mg/m^3 (twa) LD_{50}: ipr rat LD Lo 400 mg/kg
Notes:				

Trace Elements: Cement clinker is made from materials mined from the earth and processed using energy provided by fuels. Trace amounts of naturally occurring potentially harmful chemicals might be detected during chemical analysis. Trace constituents may include calcium oxide (also known as free lime or quick lime), free magnesium oxide, potassium and sodium sulfate compounds, chromium compounds, and nickel compounds.

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Cement clinker is a solid grey to black nodular, rock-like solid with a sandy / granular texture. Some dust will be present in the product. Cement clinker and clinker dust pose little immediate hazard. A single short-term exposure to the dry clinker or clinker dust is not likely to cause serious harm. However, exposure of sufficient duration to wet cement clinker can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical

(caustic) burns, including third degree burns. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry cement clinker dust.

POTENTIAL HEALTH EFFECTS

Relevant Routes of Exposure: Eye contact, skin contact, inhalation and ingestion.

Effects resulting from eye contact: Exposure to airborne dust may cause immediate or delayed irritation or inflammation.

Eye contact by larger amounts of dry powder or splashes of wet cement clinker dust may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see Section 4) and medical attention to prevent significant damage to the eye.

Effects resulting from skin contact: Discomfort or pain cannot be relied upon to alert a person to hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement clinker dust. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Exposure to dry clinker dust may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry cement clinker contacting wet skin or exposure to moist or wet cement clinker may cause more severe skin effects including thickening, cracking, or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Some individuals may exhibit an allergic response upon exposure to cement clinker, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may first experience this effect after years of contact with clinker or cement products.

Effects resulting from inhalation: Cement clinker may contain free crystalline silica. Prolonged exposure to airborne free crystalline silica may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (also see “Carcinogenic potential” below.)

Inhalation may also aggravate other lung conditions. Exposure to cement clinker may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

Effects resulting from ingestion: Although ingestion of small quantities of cement clinker is not known to be harmful, ill effects are possible especially if larger quantities are consumed. Cement clinker should not be eaten.

Carcinogenic potential: Cement clinker is not listed as a carcinogen by the National Toxicology Program (NTP) or the International Agency for Research (IARC). However, cement clinker contains trace amounts crystalline silica and hexavalent chromium which are listed as carcinogens by these organizations.

Medical conditions which may be aggravated by inhalation or dermal exposure:

Pre-existing upper respiratory and lung diseases.

Unusual (hyper) sensitivity to hexavalent chromium (chromium^{+6}) salts.

Section 4 - FIRST AID

Eyes: Immediate flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet cement, cement mixtures, liquids from fresh cement products, or prolonged wet skin exposure to dry cement.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. (“Inhalation” of gross amounts of cement clinker dust requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Section 5 - FIRE AND EXPLOSION DATA

Cement clinker is not combustible.

Flash Point:	Not applicable	Upper Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Lower Explosive Limit:	Not applicable
Auto ignition temperature:	Not applicable	Extinguishing media:	Not applicable
Hazardous combustion products:	Not applicable	Unusual fire and explosion hazards:	None
Special fire fighting procedures:	Cement clinker poses no fire-related hazards. Self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.		

Section 6 - ACCIDENTAL RELEASE MEASURES

Place spilled material into a container. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section 8.

Scrape up wet material and place in appropriate container. Allow the material to “dry” before disposal. Do not attempt to wash cement clinker down drains.

Dispose of waste material according to local, state, and federal regulations.

Section 7 - HANDLING AND STORAGE

Keep cement clinker dry until used. Normal temperatures and pressures do not affect the material. Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures or fluids.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Skin protection: Prevention is essential to avoid potentially severe skin injury. Avoid contact with wet cement. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to wet cement or clinker might occur, wear impervious clothing and gloves to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure.

Do not rely on barrier creams. Barrier creams should not be used in place of gloves.

Periodically wash areas contacted by dry cement clinker or by wet cement or fluids with a pH neutral soap. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet cement, it should be removed and replaced with clean dry clothing.

Respiratory protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation.

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye protection: When engaged in activities where cement dust or wet cement could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with cement clinker or fresh cement products.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Grey to black nodules with some dust.	Odor:	No distinct odor
Physical state:	Solid	pH (in water):	12 to 13
Solubility in water:	Slightly soluble (0.1 to 1.0%)	Vapor pressure:	Not applicable
Vapor density:	Not applicable	Boiling point:	Not applicable (>1000° C)
Melting point:	Not applicable	Specific gravity (H_2O=1.0):	2.80 - 3.15
Evaporation Rate:	Not applicable		

Section 10 - STABILITY AND REACTIVITY

Stability: Stable

Conditions to avoid: Unintentional contact with water.

Incompatibility: Wet cement clinker is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.

Hazardous decomposition: Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.

Hazardous polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Route of Entry.....Section 3
Effects of acute exposure to product.....Section 3
Effects of chronic exposure to product.....Section 3
Exposure Limits.....Section 2
Irritancy of product.....Section 3
Sensitization to product .....Section 3
Carcinogenicity.....Section 3
Reproductive Toxicity.....Not Applicable
Teratogenicity.....Not Applicable
Mutagenicity.....Not Applicable
Toxicologically synergistic products.....Section 3, Section 16

For a description of available, more detailed toxicological information, call one of the informational phone numbers listed at the end of Section 1.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

Relevant physical and chemical properties: See sections 9 and 10.

Section 13 - DISPOSAL

Dispose of waste material according to local, state, and federal regulations. (Since cement clinker is stable, uncontaminated material may be saved for future use.)

Section 14 - TRANSPORTATION DATA

Cement clinker is not classified as a hazardous material under U.S. Department of Transportation (DOT) regulations or Canadian TDG regulations.

Section 15 - OTHER REGULATORY INFORMATION

Status under USDOL-OSHA & MSHA Hazard Communication Standards (29CFR 1910.1200 & 30CFR Part 47): Cement clinker is considered a “hazardous chemical” under these regulations, and should be part of any hazard communication program.

Status under CERCLA/Superfund, 40 CFR 117 and 302: Not Listed

Hazard Category under SARA TITLE III, Sections 311- 312: Cement clinker qualifies as a “hazardous substance” with delayed health effects.

Status under SARA Title III, Section 313: This product contains NONE of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 in concentrations above deminimis levels.

Toxic Substance Control Act (TSCA): Some substances in cement clinker are on the TSCA inventory list.

Status under Canadian Environmental Protection Act: Not listed.

Status under WHMIS: Cement clinker is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A – Materials causing other toxic effects and Class E - Corrosive material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

SECTION 16 - OTHER INFORMATION

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
ASTM	American Society of Testing Materials
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
DOT	Department of Transportation
IARC	International Agency for Research
IDLH	Immediately dangerous to life and health (NIOSH).
m^3	cubic meter
mg	Milligram
mm	millimeter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RQ	Reportable Quantities
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
URT	Upper Respiratory Tract
WHMIS	Workplace Hazardous Material Information System

Other important information:

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of cement clinker as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with cement clinker to produce cement products. Users should review other relevant material safety data sheets when preparing mixtures using this product.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ESSROC CEMENT CORP., except that the product shall conform to contracted specifications. The information provided herein was believed by Essroc Cement Corp. to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach or warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise

Attachment I

Emission Units Table

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

Emission Point ID[2]	Emission Unit ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
EP27.06	EP27.06	Transfer to Outdoor Clinker Storage Pile	2015	55,115 TPY	New	N/A
EP27.07	EP27.07	Outdoor Clinker Storage Pile - Tarped	2015	55,115 TPY	New	N/A
EP27.08	EP27.08	Outdoor Clinker Storage Pile Reclaim	2015	55,115 TPY	New	N/A
EP37.06	EP37.06	Limestone Crusher Feed Pile (for Finish Mills)	2015	66,138 TPY	New	N/A
EP37.07	EP37.07	Limestone Crusher Feed Pile Reclaim	2015	66,138 TPY	New	N/A
EP37.08	EP37.08	Limestone/Crusher Storage Pile (Quarry)	2015	132,276 TPY	New	N/A
EP37.09	EP37.09	Limestone/Clinker Reclaim from Quarry Storage Pile	2015	132,276 TPY	New	N/A
EP37.10	EP37.10	Truck Dump to Craneway Storage Pile	2015	132,276 TPY	New	N/A
EP37.11	EP37.11	Limestone/Clinker Storage Pile (Outside Craneway)	2015	132,276 TPY	New	N/A
EP37.12	EP37.12	Limestone/Clinker Transfer to Craneway Storage Building	2015	132,276 TPY	New	N/A
EP37.13	EP37.13	Clinker Transfer from Craneway to Truck	2015	66,138 TPY	New	N/A
EP25.16	EP25.16	Hauling Clinker to Primary Crusher (Paved)	2015	66,138 TPY	New	N/A

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Emission Units Table

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Emission Point ID[2]	Emission Unit ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
EP25.17	EP25.17	Hauling Clinker to Primary Crusher (Unpaved)	2015	66,138 TPY	New	N/A
EP25.18	EP25.18	Hauling Limestone/Clinker from Quarry to Craneway (Unpaved)	2015	132,276 TPY	New	N/A
EP25.19	EP25.19	Hauling Limestone/Clinker from Quarry to Craneway (Paved)	2015	132,276 TPY	New	N/A
EP39.14	EP39.14	Additives Dump to Pile within Additives Storage Building	2015	314,156 TPY	New	N/A
EP39.15	EP39.15	Additives Storage Building (4 piles)	2015	314,156 TPY	New	N/A
EP39.16	EP39.16	Reclaim from Additives Piles	2015	314,156 TPY	New	N/A
EP25.15	EP25.15	Alternate Fuel Trucks (Paved)	2015	67,593 TPY	Modification	N/A
CD41.04	EP41.04	Alternate Fuel Feeding System	2015	67,593 TPY	Modification	CD41.04
CD41.05	EP41.04	Alternate Fuel Dosing System	2015	67,593 TPY	Modification	CD41.05
EP0X.03.04	EP0X03.04	Truck to Crusher Pile	N/A	150,879 TPY	Removal	N/A
EP0X.03.05	EP0X.03.05	Truck or loader to crusher dump	N/A	150,879 TPY	Removal	N/A
CD01.01	EP01.01	Primary Crusher	2013	150,879 TPY	Removal	CD01.01

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Emission Units Table

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

Emission Point ID[2]	Emission Unit ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
	EP01.02	Crusher to belt conveyor 1013	2013	150,879 TPY	Removal	
EP01.03	EP01.03	Belt conveyor 1013 to 40 T bin	2103	150,879 TPY	Removal	N/A
EP01.04	EP01.04	40 T bin to feeder	2103	150,879 TPY	Removal	N/A
EP01.05.01	EP01.05.01	Feeder to belt conveyor 1011	2013	150,879 TPY	Removal	N/A
EP01.05.02	EP01.05.02	Belt conveyor 1011 to belt conveyor 1007	2013	150,879 TPY	Removal	N/A
CD02.01	EP01.06.01	Belt conveyor 1007 to screen 1009	2013	150,879 TPY	Removal	CD02.01
	EP01.06.02	Screen 1009	2013	150,879 TPY	Removal	
	EP01.06.03	Screen 1009 to belt conveyor 1009-B	2013	75,439 TPY	Removal	
	EP01.06.04	Screen 1009 to feeder 1009-A	2013	75,439 TPY	Removal	
	EP02.01.01	Feeder 1009-A to hammermill 1006	2013	75,439 TPY	Removal	
	EP02.01.02	Hammermill 1006	2013	113,159 TPY	Removal	
	EP02.01.03	Hammermill 1006 to belt conveyor 1005	2013	113,159 TPY	Removal	
EP02.01.04	EP02.01.04	Belt conveyor 1005 to belt conveyor 1004	2013	113,159 TPY	Removal	N/A
CD02.01	EP02.01.05	Belt conveyor 1004 to screen	2013	113,159 TPY	Removal	CD02.01

Attachment I

Emission Units Table

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

Emission Point ID[2]	Emission Unit ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
		1003				
	EP02.01.06	Screen 1003	2013	113,159 TPY	Removal	
EP02.01.07	EP02.01.07	Screen 1003 to belt conveyor 1002	2013	37,720 TPY	Removal	N/A
CD02.01	EP02.01.08	Belt conveyor 1002 to hammermill 1006	2013	37,720 TPY	Removal	CD02.01
	EP02.01.09	Screen 1003 to belt conveyor 1001	2013	75,439 TPY	Removal	
	EP02.01.10	Belt conveyor 1009-B to belt conveyor 1001	2013	75,439 TPY	Removal	
EP.02.02	EP.02.02	Belt conveyor 1001 to belt conveyor 1000	2013	150,879 TPY	Removal	N/A
EP02.03.01	EP02.03.01	Belt conveyor 1000 to belt conveyor 999	2013	150,879 TPY	Removal	N/A
EP02.03.02	EP02.03.02	Belt conveyor 999 to shuttle conveyor 998	2013	150,879 TPY	Removal	N/A
EP03.02	EP03.02	Shuttle conveyor 998 to raw bins	2013	150,879 TPY	Removal	N/A
EP04.01.01	EP04.01.01	Raw bins to feeders East Tunnel	2013	150,879 TPY	Removal	N/A
EP04.01.02	EP04.01.02	Feeders to belt conveyor East 917	2013	150,879 TPY	Removal	N/A
CD04.03	EP04.03.01	Belt conveyor 917 to elevator East 915	2013	150,879 TPY	Removal	CD04.03
	EP04.03.02	Elevator 915 to screens East	2013	150,879 TPY	Removal	

Attachment I

Emission Units Table

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

Emission Point ID[2]	Emission Unit ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
		914/913				
	EP04.03.03	Screens East 914/913	2013	150,879 TPY	Removal	
	EP04.03.04	Screens East 914/913 to #1 stone system belt	2013	150,879 TPY	Removal	
	EP04.04.01	Shuttle conveyor 998 to new chute	2013	150,879 TPY	Removal	
	EP04.04.02	New chute to #1 stone system belt	2013	150,879 TPY	Removal	
EP04.04.03	EP04.04.03	#1 stone system belt to limestone pile in craneway	2013	150,879 TPY	Removal	N/A
EP0X.04	EP0X.04	Crusher feed pile	2013	1 acre	Removal	N/A
EP25.02	EP25.02	Quarry haul roads (old crusher)	2013	150,879 TPY	Removal	N/A
EP42.09	EP42.09	Reburn hopper system	2015	1,102 TPY	Removal	N/A
CD43.18	EP43.18	Big Clinker Silo	2015	2,212,890 TPY	Removal	CD43.18

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

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data														
Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
Emissions Calculations for all Point Sources are included in the Future Allowable Emission Inventory found in Attachment N.															

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

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

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

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

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

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

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

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow [1] (dscfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
CD41.04	TBD	20-40°C	706 (cfm)	N/A	N/A	N/A	4369.170	243.889
CD41.05	TBD	20-40°C	1,413 (cfm)	N/A	N/A	N/A	4369.176	243.897
NOTE: Release parameter data not provided for emission points being decommissioned as part of this minor modification.								

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

ATTACHMENT K
FUGITIVE EMISSIONS DATA SUMMARY SHEET

Provided in this section is the Fugitive Emission Data Summary Sheet Form. The "Other" category at the bottom of Page 2 of the form is used to account for the fugitive emissions from all other fugitive transfer points not accounted for in the storage pile or haul road categories. Page 2 of the form also requests both maximum potential uncontrolled emissions and maximum potential controlled emissions from each fugitive group. When calculating emissions for the majority of the fugitive sources at the Plant, control efficiencies are used to account for building enclosures, belt conveyor coverings, water sprays, or other control measures. These control measures are permanent parts of the Plant operations and in most cases the fugitive sources cannot be operated without the control measure being in place; therefore, only controlled emissions are listed in the fugitive emissions summary.

In addition, variability of emissions over short time spans makes hourly mathematical quantification of fugitive emissions unrepresentative of true operating conditions. Emission factors used in the calculation of emissions from various fugitive sources in this Application are in terms of throughput. There is potentially a large amount of variability in the throughput (and therefore the emissions) over an averaging time as short as one hour; therefore, only fugitive emissions in tons/year are provided.

Please refer to Attachment N for explanations of all emission estimation methods used.

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

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

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

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

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM PM_{10} $PM_{2.5}$	N/A	N/A	N/A	0.71 0.14 0.03	EE
Unpaved Haul Roads	PM PM_{10} $PM_{2.5}$	N/A	N/A	N/A	18.50 5.46 0.55	EE
Storage Pile Emissions	PM PM_{10} $PM_{2.5}$	N/A	N/A	N/A	1.16 0.58 0.58	EE
Loading/Unloading Operations	N/A	N/A	N/A	N/A	N/A	N/A
Wastewater Treatment Evaporation & Operations	N/A	N/A	N/A	N/A	N/A	N/A
Equipment Leaks	N/A	Does not apply	N/A	Does not apply	N/A	N/A
General Clean-up VOC Emissions	N/A	N/A	N/A	N/A	N/A	N/A
Other	PM PM_{10} $PM_{2.5}$	N/A	N/A	N/A	3.03 1.43 0.22	EE

[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).

Provided in this section are the applicable Attachment L – Emission Unit Data Sheet (EUDS) Forms for all sources associated with the four proposed modifications. The following forms are included:

Attachment L – Haul Roads
The Haul Road EUDS form provided on the WV DEP website, references AP-42 Section 13.2.1 and AP-42 Section 13.2.2; however, the form does not contain the current AP-42 equations from the sections which were published in November 2006 and January 2011, respectively. Therefore, a blank copy of this form is included, which references Table N-5 and Table N-6 from Attachment N, which depict the unpaved and paved haul road emissions from the sources associated with the four proposed modifications using the current AP-42 guidance.

Attachment L – Storage Piles
Per Attachment K, Table 1 of the Nonmetallic Minerals Processing EUDS form was completed for all material storage pile sources associated with the four proposed modifications.

Attachment L – Nonmetallic Mineral Processing
The Nonmetallic Minerals Processing EUDS form was completed for the quarry operation sources associated with the four proposed modifications.

Attachment L – General
Two General EUDS forms are included in this section: one form for all affected sources subject to 40 CFR 60 Subpart OOO and one form for all affected sources subject to 40 CFR 63 Subpart LLL.

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	
p =	Number of days per year with precipitation >0.01 in.	140	

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	See Attachment N Table N-5								
2									
3									
4									
5									
6									
7									
8									

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

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

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)		
S =	Mean vehicle speed (mph)		
W =	Mean vehicle weight (tons)		
w =	Mean number of wheels per vehicle		
p =	Number of days per year with precipitation >0.01 in.		

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								
2								
3								
4								
5								
6								
7								
8								
TOTALS								

FUGITIVE EMISSIONS FROM PAVED HAULROADS

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

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

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	See Attachment N Table N-6						
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): Multiple - See Table 2 of the 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 Portland Cement Plant

2. Plant Style: ☒ Fixed Plant ☐ Portable Plant

3. Plant Capacity: See Table 2 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		See Table 2			
Crusher					
Secondary Crushers					
Tertiary Crushers					
Grinder					
Hoppers					
Rock Drills					
Screens					
Enclosed Storage					
Other					
Other					
Other					

Emission Facility Type	Operation Rate		Annual Production	Number of Units	Air Pollution Control Device Used
	Design Ton/hr	Design Ton/hr	Tons/year		
Conveyors	See Table 2				
Crusher					
Secondary Crushers					
Tertiary Crushers					
Grinder					
Hoppers					
Rock Drills					
Screens					
Enclosed Storage					
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	See Attachment N				
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	See Attachment N					
Loaders						
Product Trucks						
Other						
Other						
Other						
Other						

10. Describe all proposed materials storage facilities associated with the **Emission Units** listed.
See Attachment N and Attachment F

Storage Activity

ID of Emission Unit	See Table 1				
Type Storage					
Material Stored					
Typical Moisture Content (%)					
Avg % of material passing through 200 mesh sieve					
Maximum Total Yearly Throughput in storage (tons)					
Maximum Stockpile Base Area (ft^2)					
Maximum Stockpile height (ft)					
Dust control method applied to storage					
Method of material load-in to bin or stockpile					
Dust control method applied during load-in					
Method of material load-out to bin or stockpile					
Dust control method applied during load-out					

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…).

Conveying systems include but are not limited to: belt conveyors, bucket elevators, screw conveyors, etc. For additional information, please refer to the process flow diagrams in Attachment F.

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

Controls include, but are not limited to, the following:

- Inherent moisture
- Dust collection
- Enclosures
- Process Controls
- Water Sprays

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 Table 2						

Crushing and Screening

ID of Emission Unit	N/A					
Type Crusher or Screen						
Material Sized						
Material Sized Throughput:						
Tons/hr						
Tons/yr						
Material sized from/to						
Typical moisture content as crushed or screened (%)						
Dust control methods applied						
Stack Parameters:						
Height (ft)	N/A					
Diameter (ft)						
Volume (ACFM)						
Temp (°F)						
Maximum operating schedule:						
Hour/day	N/A					
Day/year						
Hour/year						
Approximate Percentage of Operation from:						
Jan – Mar	N/A					
April – June						
July – Sept						
Oct – Dec						
Maximum Particulate Emissions:						
LB/HR	N/A					
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 Attachment N and I						

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 N					

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 N					

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, shale, overburden, and CKD (reclamation)

How will it be quarried?

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

If blasting is checked, complete the following:

- ☒ Frequency of blasting: As needed (approximately once per week)
- ☒ What method of air pollution control will be employed during drilling and blasting?

Emissions are below grade and controlled as needed with dust control.

Table 1 - Storage Activity

ID of Emission Unit	EP27.07	EP37.06	EP37.08	EP37.11	EP39.15
Type of Storage	Tarped outdoor	Outdoor	Outdoor	3-Sided Enclosure	Fabric storage building
Material Stored	Clinker	Limestone	Limestone, Clinker	Limestone, Clinker	Sand, Iron Ore, Bottom Ash, Other Additives
Typical Moisture Content (%)	0.5	1.5	0.75	0.75	5
Avg % of material passing through 200 mesh sieve	N/A	N/A	N/A	N/A	N/A
Maximum Total Yearly Throughput in storage (tons)	55,115 stons/year	66,138 stons/year	132,276 stons/year	132,276 stons/year	314,155 stons/year
Maximum Stockpile Base Area (ft^2)	164,657	10,890	10,890	10,890	20,000
Dust control method applied to storage	Tarping	In Quarry	In Quarry, Water Spray	3-Sided Enclosure	Tensioned Fabric Building
Method of material load-in to bin or stockpile	Front End Loader	Truck dump	Conveyor or Front End Loader	Truck dump	Truck dump
Dust control method applied during load-in	Fogging wet suppression	None	None	None	None
Method of material load-out to bin or stockpile	Front End Loader	Front End Loader	Front End Loader	Front End Loader	Front End Loader
Dust control method during loadout	Fogging wet suppression	None	None	None	None

Storagepiles	**Estimated Annual Tons (sTons/Year)**	**Turnover Rate (sTon/Month)**	**Wetted as Piled**	**Number of Sides Enclosed**	**Other Dust Control**	**Loading Method IN/OUT**
EP27.07	55,115	4,596	Yes	N/A	Tarping	See above
EP37.06	66,138	5,512	N/A	N/A	N/A	See above
EP37.08	132,276	11,023	N/A	N/A	Water Spray	See above
EP37.11	132,276	11,023	N/A	3 - Partial	3-Sided Enclosure	See above
EP39.15	314,155	26,180	N/A	2 – Partial	Building Enclosure	See above

TABLE 2

ID of Emission Point	ID of Emission Unit	Crusher Screen, Conveyor, or Transfer Point	Material Handled [Note nominal size of material transferred (e.g. ¾“ x 0)]	Material Conveying or Transfer Rate		Dust Control Methods Applied	Approximate Material Moisture Content (%)
				Maximum TPH	Maximum TPY		
EP27.06	EP27.06	Transfer Point	Clinker	N/A	55,115	Water/foam sprays	0.5
EP27.08	EP27.08	Transfer Point	Clinker	N/A	55,115	Water/foam sprays	0.5
EP37.07	EP37.07	Transfer Point	Limestone	N/A	66,138	Within quarry	1.5
EP37.09	EP37.09	Transfer Point	Limestone, Clinker	N/A	132,276	Within quarry	0.75
EP37.10	EP37.10	Transfer Point	Limestone, Clinker	N/A	132,276	Partial enclosure	0.75
EP37.12	EP37.12	Transfer Point	Limestone, Clinker	N/A	132,276	Partial enclosure	0.75
EP39.14	EP39.14	Transfer Point	Sand, Iron Ore, Bottom Ash	N/A	314,156	Partial enclosure	5
EP39.16	EP39.16	Transfer Point	Sand, Iron Ore, Bottom Ash	N/A	314,156	Partial enclosure	5

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

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

Identification Number (as assigned on *Equipment List Form*): See Item 1

1. Name or type and model of proposed affected source: New: EP39.14, EP39.15, EP39.16
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour: Not Applicable
4. Name(s) and maximum amount of proposed material(s) produced per hour: Not Applicable
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants: Not Applicable

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

6. Combustion Data (if applicable):

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

Not Applicable

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

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

@ °F and psia.

(d) Percent excess air:

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

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

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

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

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

@ See Attachment N °F and psia

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

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

(2) Complete the Emission Points Data Sheet.

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

MONITORING	RECORDKEEPING
Sources will comply with all applicable 40 CFR 60 Subpart OOO Monitoring Requirements.	Sources will comply with all applicable 40 CFR 60 Subpart OOO Recordkeeping Requirements.
REPORTING	TESTING
Sources will comply with all applicable 40 CFR 60 Subpart OOO Reporting Requirements.	Sources will comply with all applicable 40 CFR 60 Subpart OOO Testing Requirements.

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

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

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

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

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

Per Plant's Operation and Maintenance Plan.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

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

Identification Number (as assigned on *Equipment List Form*): See Item 1

1. Name or type and model of proposed affected source: New: EP27.06, EP27.07, EP27.08, EP37.07, EP37.08, EP37.09, EP37.10, EP37.11, EP37.12, EP37.13 Modified: CD41.04, CD41.05
2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.
3. Name(s) and maximum amount of proposed process material(s) charged per hour: Not Applicable
4. Name(s) and maximum amount of proposed material(s) produced per hour: Not Applicable
5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants: Not Applicable

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

6. Combustion Data (if applicable):

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

Not Applicable

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

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

@ °F and psia.

(d) Percent excess air:

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

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

(g) Proposed maximum design heat input: $\times 10^6$ BTU/hr.

7. Projected operating schedule:

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

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

@ See Attachment N °F and psia

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

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

(2) Complete the Emission Points Data Sheet.

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

MONITORING	RECORDKEEPING
Sources will comply with all applicable 40 CFR 63 Subpart LLL Monitoring Requirements.	Sources will comply with all applicable 40 CFR 63 Subpart LLL Recordkeeping Requirements.
REPORTING	TESTING
Sources will comply with all applicable 40 CFR 63 Subpart LLL Reporting Requirements.	Sources will comply with all applicable 40 CFR 63 Subpart LLL Testing Requirements.

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

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

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

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

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

Per Plant's Operation and Maintenance Plan.

ATTACHMENT M
AIR POLLUTION CONTROL DEVICE SHEET

Provided in this section is the applicable Attachment M – Air Pollution Control Device Sheet for the two baghouses associated with the Alternate Fuels Feeding System throughput increase. In order to assist the WV DEP in their review of the specifications for the baghouses, Essroc Cement Corporation is providing the information requested on the Attachment M Baghouse Form in spreadsheet format.

All available information for the baghouses has been provided in the attached spreadsheet.

All baghouses will control emissions of TSP, PM_{10}, and $PM_{2.5}$. Emission estimates for each pollutant for each of the baghouses is provided in Attachment N. Diagrams depicting the capture system for each baghouse are provided in Attachment F. All monitoring, recordkeeping, reporting, and testing will be conducted as required by 40 CFR 63 Subpart LLL.

Attachment M
Air Pollution Control Device Sheet
(BAGHOUSE)

Control Device ID No. (must match Emission Units Table): See Table M-1

Equipment Information and Filter Characteristics

1. Manufacturer: Model No.	2. Total number of compartments: 3. Number of compartment online for normal operation:
4. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
5. Baghouse Configuration: (check one) ☐ Open Pressure ☐ Closed Pressure ☐ Closed Suction ☐ Electrostatically Enhanced Fabric ☐ Other, Specify	
6. Filter Fabric Bag Material: ☐ Nomex nylon ☐ Wool ☐ Polyester ☐ Polypropylene ☐ Acrylics ☐ Ceramics ☐ Fiber Glass ☐ Cotton Weight oz./sq.yd ☐ Teflon Thickness in ☐ Others, specify	7. Bag Dimension: Diameter in. Length ft. 8. Total cloth area: ft^2 9. Number of bags: 10. Operating air to cloth ratio: 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: Max. per yr:	15. Collection efficiency: Rating: % Guaranteed minimum: %

Gas Stream Characteristics

16. Gas flow rate into the collector: ACFM at °F and PSIA ACFM: Design: PSIA Maximum: PSIA Average Expected: PSIA	
17. Water Vapor Content of Effluent Stream: lb. Water/lb. Dry Air	
18. Gas Stream Temperature: °F	19. Fan Requirements: hp OR ft^3/min
20. Stabilized static pressure loss across baghouse. Pressure Drop: High in. H_2O Low in. H_2O	
21. Particulate Loading: Inlet: 20 grain/scf Outlet: 0.01 grain/scf	

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

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**

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:

28. Describe any filter seeding being performed:

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

30. Describe the collection material disposal system:

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

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:
REPORTING:	TESTING:

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.

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

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

TABLE M-1
AIR POLLUTION CONTROL DEVICE INFORMATION

Baghouse Descriptions	**Alternate Fuel Feeding System D/C**	**Alternate Fuel Dosing System D/C**
Baghouse Permit ID	CD 41.04	CD41.05
Baghouse Engineering ID	N/A	N/A
Manufacturer	Infastaub	Infastaub
Model #	AJN 152	AJN 302-SL
Stack Height (ft - from ground level)	N/A	N/A
Ground Level Elevation (Height above sea level)	N/A	N/A
Stack Exhaust Flowrate (CFM)	706	1413
Stack Exhaust Flowrate (m3/h)	1200	2400
Gas Stream Temperature (F) (Exhaust air)	20-40°C	20-40°C
Inner Diameter of exhaust stack (ft)	N/A	N/A
Stack exit Velocity (fps)	N/A	N/A
Total # of compartments	1	1
# of compartments online for normal operation	1	1
Baghouse Configuration (Open Pressure, Closed Pressure, Closed Suction, Electrostatically Enhanced Fabric, Other - specify)	TBD	TBD
Filter Fabric Bag Material (i.e. nomex nylon, polyester, acrylics, other-specify)	Polyester	Polyester
Bag Dimension - Diameter (in)	450 mm	450 mm
Bag Dimension - Length (ft)	830 mm	1650 mm
Total Cloth Area (ft^2)	1.33 m3/m2xmin	1.33 m3/m2xmin
Number of Bags	20	20
Operating air to cloth ratio (ft/min)	TBD	TBD
Baghouse Operation (Continuous, Automatic or Intermittent)	Continuous	Continuous
Method Used to Clean Bags (i.e. pulse jet, reverse air jet, reverse air flow, mechanical shaker, pneumatic shaker, sonic cleaning, etc.)	pulse jet	pulse jet
Cleaning Initiated By (timer, frequency if timer actuated, expected pressure drop range, other)	Timer	Timer
If cleaning initiated by pressure drop - provide pressure drop # (inches of water)	N/A	N/A
Operation Hours		
Maximum hours of operation per day	24	24
Maximum hours of operation per year	8760	8760
Collection Efficiency Rating (%)	99.95%	99.95%
Gas Flowrate into Collector - Provide the following:		
ACFM	20 m3/min	40 m3/min
Temperature (F)	20-40°C	20-40°C
PSIA	TBD	TBD
PSIA Design	50 mbar	50 mbar
PSIA Maximum	50 mbar	50 mbar
PSIA Average Expected	TBD	TBD
Water Vapor Content of Effluent Stream (lb Water/Lb Dry Air)	N/A	N/A
Fan Requirements (hp or ft^3/min)	1,5 kW	2,2 kW
Stabilized static pressure loss across baghouse.		
Pressure Drop - High (inches H20)	12 mbar	12 mbar
Pressure Drop - Low (inches H_20)	8 mbar	8 mbar
Particulate Loading		
Inlet (grain/scf)	20	20
Outlet (grain/scf)	0.01	0.01
How is filter monitored for indications of deterioration (e.g. broken bags)? Is it continuous opacity, pressure drop, alarms, monthly visual opacity readings, or other.	N/A	N/A
Any recording devices?	N/A	N/A
Any filter seeding being performed? Please describe.	N/A	N/A
Describe the collection material disposal system.	N/A	N/A
Are there any operating ranges or maintenance procedures required by Manufacturer to maintain warranty?	see manual	see manual

Potential Emissions Inventory

Enclosed in this section are the supporting emission calculations required for the Application in the form of the Potential Emission Inventory for the proposed changes described in Section 2.0 and the 2-Year Annual Average Emissions for all decommissioned sources. Provided below is a listing of all tables that are included in this application.

The following tables are included:
Table N-1 Emissions Summary of all Proposed Changes

Table N2-1 Potential Emission Calculations for Tarped Outdoor Clinker Storage
Table N2-2 Potential Emission Calculations for Finish Mill Limestone
Table N2-3 Potential Emission Calculations for Additives Storage Building
Table N2-4 Potential Emission Calculations for the Alternate Fuel Feeding System

Table N-3 Storage Pile Wind Erosion Emission Calculations
Table N-4 Fugitive Material Transfer Emission Calculations
Table N-5 Unpaved Haul Road Emission Calculations
Table N-6 Paved Haul Road Emission Calculations
Table N-7 Decommissioned Sources 2-Year Annual Average Emissions Summary
Table N-8 Changes to Permitted Potential Group Emission Limits

Table N-1 - Emissions Summary of all Proposed Changes

Project	Annual Potential Emissions (TPY)			Annual Potential Emissions (lbs/hr)		
	PM	PM10	PM2.5	PM	PM10	PM2.5
Tarped Outdoor Clinker Storage	2.05	0.99	0.47	0.47	0.23	0.11
Finish Mill Limestone	20.92	6.45	0.81	4.78	1.47	0.19
Additives Storage Building	0.30	0.15	0.09	0.07	0.03	0.02
Alternate Fuel Feeding System	0.12	0.02	0.01	0.03	0.01	0.00
Total Potential Increase	**23.39**	**7.61**	**1.38**	**5.34**	**1.74**	**0.31**

Decommissioned Sources	2-Year Average Actual Emissions (TPY)		
	PM	PM10	PM2.5
Old Primary and Secondary Crusher Sources	3.10	1.37	0.47
Reburn Hopper	0	0	0
Clinker Silo Baghouse	0.62	0.53	0.19
Total Actual Average Emissions	**3.72**	**1.90**	**0.66**

Net Emission Increase (TPY)	**19.67**	**5.71**	**0.72**

Table N2-1
Emissions Calculations for the Tarped Outdoor Clinker Storage

Emission Point ID	Emission Unit ID	EU Description	Originally Permitted Throughput (stons/year)	Additional Throughput to be permitted (stons)	Additional Throughput to be permitted (mtons)	Emission Factors TSP	Emission Factors PM10	Emission Factors PM2.5	Emission Factors Units	Control Efficiency (%)	PM Emissions (lb/hr)	PM10 Emissions (lb/hr)	PM2.5 Emissions (lb/hr)	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)	Notes
GROUP 6 - CEMENT PRODUCTION																	
EP27.06	EP27.06	Transfer to Outdoor Clinker Storage Pile	N/A	55115	50000	0.023427091	0.01108038	0.00167789	lb/ton	0%	0.15	0.07	0.01	0.65	0.31	0.05	Water/Foam Sprays used to increase material moisure content
EP27.07	EP27.07	Outdoor Clinker Storage Pile - Tarped	N/A	55115	50000	See Piles table for calculations details					0.17	0.09	0.09	0.76	0.38	0.38	
EP27.08	EP27.08	Outdoor Clinker Storage Pile Reclaim	N/A	55115	50000	0.023427091	0.01108038	0.00167789	lb/ton	0%	0.15	0.07	0.01	0.65	0.31	0.05	Water/Foam Sprays used to increase material moisure content
									TOTAL EMISSIONS		**0.47**	**0.23**	**0.11**	**2.05**	**0.99**	**0.47**	

Table N2-2
Emissions Calculations for the Finish Mill Limestone

Emission Point ID	Emission Unit ID	EU Description	Originally Permitted Throughput (stons/year)	Additional Throughput to be permitted (stons)	Additional Throughput to be permitted (mtons)	Emission Factors TSP	Emission Factors PM10	Emission Factors PM2.5	Emission Factors Units	Control Efficiency (%)	PM Emissions (lb/hr)	PM10 Emissions (lb/hr)	PM2.5 Emissions (lb/hr)	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)	Notes
GROUP 1 - QUARRYING AND CRUSHING																	
EP37.06	EP37.06	Limestone Crusher Feed Pile (For Finish Mills)	N/A	66,138	60,000	See Piles table for calculations details					0.03	0.01	0.01	0.13	0.06	0.06	25% control for within quarry
EP37.07	EP37.07	Limestone Crusher Feed Pile Reclaim	N/A	66,138	60,000	0.0050	0.0024	0.0004	lb/ton	25%	0.03	0.01	0.00	0.12	0.06	0.01	25% control for within quarry
EP37.08	EP37.08	Limestone/Clinker Storage Pile (Quarry)	N/A	132,276	120,000	See Piles table for calculations details					0.02	0.01	0.01	0.08	0.04	0.04	50% control for water spray and pile located within quarry
EP37.09	EP37.09	Limestone/Clinker Reclaim from Quarry Storage Pile	N/A	132,276	120,000	0.0050	0.0024	0.0004	lb/ton	25%	0.06	0.03	0.00	0.25	0.12	0.02	25% control for within quarry
EP37.10	EP37.10	Truck Dump to Craneway Storage Pile	N/A	132,276	120,000	0.0133	0.0063	0.0010	lb/ton	75%	0.05	0.02	0.00	0.22	0.10	0.02	75% control for three-sided enclosure
EP37.11	EP37.11	Limestone/Clinker Storage Pile (Outside Craneway)	N/A	132,276	120,000	See Piles table for calculations details					0.01	0.00	0.00	0.04	0.02	0.02	75% control for three-sided enclosure
EP37.12	EP37.12	Limestone/Clinker Transfer to Craneway Storage Building	N/A	132,276	120,000	0.0133	0.0063	0.0010	lb/ton	75%	0.05	0.02	0.00	0.22	0.10	0.02	75% control for three-sided enclosure
EP37.13	EP37.13	Clinker Transfer from Craneway to Truck	N/A	66,138	60,000	0.0234	0.0111	0.0017	lb/ton		0.18	0.08	0.01	0.77	0.37	0.06	
GROUP 8 - MISCELLANEOUS																	
EP25.16	EP25.16	Hauling Clinker to Primary Crusher (Paved)	N/A	66,138	60,000	See Paved Roads table for calculations details					0.04	0.01	0.00	0.18	0.04	0.01	
EP25.17	EP25.17	Hauling Clinker to Primary Crusher (Unpaved)	N/A	66,138	60,000	See Unpaved Roads table for calculations details					1.41	0.42	0.04	6.17	1.82	0.18	
EP25.18	EP25.18	Hauling Limestone/Clinker from Quarry to Craneway (Unpaved)	N/A	132,276	120,000	See Unpaved Roads table for calculations details					2.82	0.83	0.08	12.33	3.64	0.36	
EP25.19	EP25.19	Hauling Limestone/Clinker from Quarry to Craneway (Paved)	N/A	132,276	120,000	See Paved Roads table for calculations details					0.09	0.02	0.00	0.41	0.08	0.02	
									TOTAL EMISSIONS		**4.78**	**1.47**	**0.19**	**20.92**	**6.45**	**0.81**	

Table N2-3
Emissions Calculations for Additives Storage Building

Emission Point ID	Emission Unit ID	EU Description	Originally Permitted Throughput (stons/year)	Additional Throughput to be permitted (stons)	Additional Throughput to be permitted (mtons)	Emission Factors TSP	Emission Factors PM10	Emission Factors PM2.5	Emission Factors Units	Control Efficiency (%)	PM Emissions (lb/hr)	PM10 Emissions (lb/hr)	PM2.5 Emissions (lb/hr)	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)	Notes
GROUP 2 - Raw Material Preparation																	
EP39.14	EP39.14	Additives dump to pile within Additives Storage Building	N/A	314,156	285,000	0.000932649	0.00044112	6.6798E-05	lb/ton	50%	0.02	0.01	0.00	0.07	0.03	0.01	Iron Ore Efs conservatively used, 50% control for two-side structure
EP39.15	EP39.15	Additives Storage Building (4 piles)	N/A			See Piles table for calculations details					0.04	0.02	0.02	0.15	0.08	0.08	
EP39.16	EP39.16	Reclaim from additives piles	N/A	314,156	285,000	0.000932649	0.00044112	6.6798E-05	lb/ton	50%	0.02	0.01	0.00	0.07	0.03	0.01	Iron Ore Efs conservatively used, 50% control for two-side structure
									TOTAL EMISSIONS		**0.07**	**0.03**	**0.02**	**0.30**	**0.15**	**0.09**	

Table N2-4
Emissions Calculations for the Alternate Fuel Feeding System

Emission Point ID	Emission Unit ID	EU Description	Originally Permitted Throughput (stons/year)	Additional Throughput to be permitted (stons)	Additional Throughput to be permitted (mtons)	Emission Factors TSP	Emission Factors PM10	Emission Factors PM2.5	Emission Factors Units	Control Efficiency (%)	Emissions for Additional Throughput Permitted: PM Emissions (lb/hr)	PM10 Emissions (lb/hr)	PM2.5 Emissions (lb/hr)	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)	Notes
GROUP 8																	
EP25.15	EP25.15	Alternate Fuel Trucks (paved)	38,581	29,013	26,320	See Paved Roads table for calculations details					0.03	0.01	0.00	0.12	0.02	0.01	Increasing to MHDR of 7 mtons/hr x 8760 = 61,320 mt/year or 67,593 stons
GROUP 3																	
CD41.04	EP41.04	Alternate Fuel Feeding System	38,581	29,013	26,320	Baghouse vents to CD42.04 - no change to baghouse size or emissions											Increasing to MHDR of 7 mtons/hr x 8760 = 61,320 mt/year or 67,593 stons
CD41.05	EP41.05	Alternate Fuel Dosing System	38,581	29,013	26,320	Baghouse vents to CD42.04 - no change to baghouse size or emissions											
									TOTAL EMISSIONS		**0.03**	**0.01**	**0.00**	**0.12**	**0.02**	**0.01**	

Emissions are for additional throughput being permitted only.

Table N-3

Storage Pile Wind Erosion Emission Calculations

ID	Description	Material	Future Size (acres)	Future Size (ft^2)	Average Silt Content (%)	No. of days with >= 0.01 in of precip.	Time Wind Speed > 12 mph (%)	Enclosure Control (%)	TSP Emission Factor (lb/acre/day)	PM10/TSP Ratio	Potential Emissions Due to Wind Loss: PM (tpy)	PM10 (tpy)	PM2.5 (tpy)	Notes
EP27.07	Outdoor Clinker Storage Pile - Tarped	Clinker	3.78	164657	3.9	140	13	70	3.67	0.5	0.7590	0.3795	0.3795	Assume 70% control for Tarping
EP37.06	Limestone Crusher Feed Pile (For Finish Mills)	Limestone	0.25	10890	3.9	140	13	25	3.67	0.5	0.1255	0.0628	0.0628	Assume 25% control for in quarry
EP37.08	Limestone/Clinker Storage Pile (Quarry)	Limestone/Clinker	0.25	10890	3.9	140	13	50	3.67	0.5	0.0837	0.0418	0.0418	50% control for water spray and pile located within quarry
EP37.11	Limestone/Clinker Storage Pile (Outside Craneway)	Limestone/Clinker	0.25	10890	3.9	140	13	75	3.67	0.5	0.0418	0.0209	0.0209	75% control for three-sided enclosure
EP39.14	Additives Storage Building (4 piles)	Sand, Iron Ore, Bottom Ash, Other Additives	0.46	20000	3.9	140	13	50	3.67	0.5	0.1537	0.0768	0.0768	Within 2-Sided Tensioned Fabric Storage Building - 50% Control, Will contain sand, iron ore, bottom ash, and other inert materials. Silt content of 3.9 conservatively used
Total											**1.16**	**0.58**	**0.58**	

NOTE: PM2.5 assumed to equal PM10.

Air Pollution Engineering Manual, p. 136-137

$$EF = 1.7 \times \frac{s}{1.5} \times \frac{365 - d}{235} \times \frac{w}{15}$$

Where

EF =	Emission Factor
s =	Average silt Content (%)
d =	No. of days with >= 0.01 inch of precipitation.
w =	% of Time Wind Speed > 12 mph

1 acre = 43560 FT^2

Table N-4

Fugitive Material Transfer Emission Calculations

FUGITIVE MATERIAL TRANSFERS

Source: Vol. 1, 5th Ed., AP-42, Section 13.2.4.3

$$E = k \cdot (0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

WHERE:

k =	0.74	PM - (AP42, Section 13.2.4, for Particle Size < 30 mm)
	0.35	PM10 - (AP42, Section 13.2.4, for Particle Size < 10 mm)
	0.053	PM2.5 - (AP42, Section 13.2.4, for Particle Size < 2.5 mm)
Wind Speed (mph): U =	6.55	Average wind speed (mph) for Martinsburg, WV (1991-1995).
M =		Material Moisture Content (found below)

Type of Material	Moisture (%)*	PM Emission Factor (lb/ton)	PM10 Emission Factor (lb/ton)	PM2.5 Emission Factor (lb/ton)
Clinker (inside)	0.05	0.58846	0.27833	0.04215
Clinker (with water spray)	0.5	0.02343	0.01108	0.00168
Sand	7	0.00058	0.00028	0.00004
Additives (Bottom Ash, Iron Ore, Sand)	5	0.00093	0.00044	0.00007
Inert Material	5	0.00093	0.00044	0.00007
Limestone	1.5	0.00503	0.00238	0.00036
Limestone/ Clinker Mixture	0.75	0.01328	0.00628	0.00095

*As provided by Capitol Cement Corporation - Martinsburg Plant

Table N-5
Unpaved Haul Road Emission Calculations

Per AP-42 Section 13.2.2 (Final, 11/06)

Unpaved Roads:	$E = k(s/12)^a(W/3)^b)*[(365-p)/365]$		
PM10 "k" factor	1.5	lb/VMT	AP-42 Table 13.2.2-2 (Final,12/06)
PM "k" factor	4.9	lb/VMT	AP-42 Table 13.2.2-2 (Final,12/06)
PM2.5 "k" factor	0.15	lb/VMT	AP-42 Table 13.2.2-2 (Final,12/06)
Silt content, s	10	%	AP-42 Table 13.2.2-1
Number of Rain Days, p	140		AP-42 Figure 13.2.2-1
a (PM2.5/PM10, TSP)	0.9	0.7	AP-42 Table 13.2.2-2 (Final,12/06)
b (PM2.5/PM10, TSP)	0.45	0.45	AP-42 Table 13.2.2-2 (Final,12/06)

											Emission Factors			Potential Emissions (tpy)		
EPA ID	**Description**	**Empty Weight (tons)**	**Max Load (tons)**	**Mean Vehicle Weight (tons)**	**Material Net (tons)**	**Throughput (tpy)**	**Average Distance RT (mi)**	**Average Trips per Year**	**Mileage per Year**	**Control (%)**	**PM (lb/VMT)**	**PM10 (lb/VMT)**	**PM2.5 (lb/VMT)**	**PM**	**PM10**	**PM2.5**
EP25.17	Hauling Clinker to Primary Crusher (Unpaved)	20	45	32.5	25.0	66,138	1.2	2,646	3,175	50	7.77	2.29	0.23	6.17	1.82	0.18
EP25.18	Hauling Limestone/Clinker from Quarry to Craneway (Unpaved)	20	45	32.5	25.0	132,276	1.2	5,291	6,349	50	7.77	2.29	0.23	12.33	3.64	0.36

Note 1: 50% control taken for watering of roads

Table N-6

Paved Haul Road Emission Calculations

Per AP-42 Section 13.2.1 (Final, 01/11)

Paved Roads: E = [k * (sL)^0.91 * (W)^1.02] * (1 - P/4N)

PM10 "k" factor	0.0022	lb/VMT	
PM "k" factor	0.011	lb/VMT	
PM2.5 "k" factor	0.00054	lb/VMT	
Silt Loading, sL	2.5	g/m2	Conservative estimate based on <500 truck per day and application of antiskid abrasive in winter months (6 months max).
W = average vehicle weight, tons			
P = number of days with >= 0.01 in precipitation	10		
N = number of days in the averaging period (365)			

											Emission Factors			Potential Emissions (tpy)		
EPA ID	**Description**	**Empty Weight (tons)**	**Load (tons)**	**Mean Vehicle Weight (tons)**	**Material Net (tons)**	**Throughput (tpy)**	**Average Distance RT (mi)**	**Average Trips per Year**	**Mileage per Year**	**Control Eff. (%)**	**PM (lb/VMT)**	**PM10 (lb/VMT)**	**PM2.5 (lb/VMT)**	**PM**	**PM10**	**PM2.5**
EP25.15	Alternate Fuel Trucks (paved)	18	36	26.5	18	29,013	0.82	1,612	1,322	75	0.71	0.14	0.03	0.12	0.02	0.01
EP25.16	Hauling Clinker to Primary Crusher (Paved)	20	45	32.5	25	60,000	0.70	2,400	1,680	75	0.88	0.18	0.04	0.18	0.04	0.01
EP25.19	Hauling Limestone/Clinker from Quarry to Craneway (Paved)	20	45	32.5	25	132,276	0.70	5,291	3,704	75	0.88	0.18	0.04	0.41	0.08	0.02

NOTE 1: 75% control taken for watering and sweeping of roads

Table N-7

Decommissioned Sources 2-Year Annual Average Emissions Summary

							2-Year Average Actual					
				Title V Permitted Emissions			2013			2012		
PSD Permit EP ID	CD Description	EU ID	EU Description	Future Potential PM Emissions (tpy)	Future Potential PM10 Emissions (tpy)	Future Potential PM2.5 Emissions (tpy)	Actual PM Emissions (tpy)	Actual PM10 Emissions (tpy)	Actual PM2.5 Emissions (tpy)	Actual PM Emissions (tpy)	Actual PM10 Emissions (tpy)	Actual PM2.5 Emissions (tpy)
GROUP 1 - QUARRY AND CRUSHING												
EP0X.03.04		EP0X.03.04	Truck to crusher pile	0.28	0.13	0.02	0.075484	0.035702	0.005406	0.063074	0.029832	0.004517
EP0X.03.05		EP0X.03.05	Truck or loader to crusher dump	0.28	0.13	0.02	0.075484	0.035702	0.005406	0.063074	0.029832	0.004517
CD01.01	Primary Crusher D\C	EP01.01	Primary crusher	2.25	1.91	0.67	0.03	0.03	0.01	0.05	0.04	0.01
		EP01.02	Crusher to belt conveyor 1013									
EP01.03		EP01.03	Belt conveyor 1013 to 40 T bin	0.19	0.09	0.01	0.050323	0.023801	0.003604	0.042049	0.019888	0.003012
EP01.04		EP01.04	40 T bin to feeder	0.19	0.09	0.01	0.050323	0.023801	0.003604	0.042049	0.019888	0.003012
EP01.05.01		EP01.05.01	Feeder to belt conveyor 1011	0.19	0.09	0.01	0.050323	0.023801	0.003604	0.042049	0.019888	0.003012
EP01.05.02		EP01.05.02	Belt conveyor 1011 to belt conveyor 1007	0.28	0.13	0.02	0.075484	0.035702	0.005406	0.063074	0.029832	0.004517
CD02.01	Secondary Crusher D\C	EP01.06.01	Belt conveyor 1007 to screen 1009	16.40	13.94	4.92	0.24	0.21	0.07	0.36	0.30	0.11
		EP01.06.02	Screen 1009									
		EP01.06.03	Screen 1009 to belt conveyor 1009-B									
		EP01.06.04	Screen 1009 to feeder 1009-A									
		EP02.01.01	Feeder 1009-A to hammermill 1006									
		EP02.01.02	Hammermill 1006									
		EP02.01.03	Hammermill 1006 to belt conveyor 1005									
EP02.01.04		EP02.01.04	Belt conveyor 1005 to belt conveyor 1004	0.21	0.10	0.02	0.056613	0.026776	0.004055	0.047306	0.022374	0.003388
CD02.01	Secondary Crusher D\C	EP02.01.05	Belt conveyor 1004 to screen 1003	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01
		EP02.01.06	Screen 1003									
EP02.01.07		EP02.01.07	Screen 1003 to belt conveyor 1002	0.05	0.02	0.00	0.012581	0.00595	0.000901	0.010512	0.004972	0.000753
CD02.01	Secondary Crusher D\C	EP02.01.08	Belt conveyor 1002 to hammermill 1006	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01	CD.02.01
		EP02.01.09	Screen 1003 to belt conveyor 1001									
		EP02.01.10	Belt conveyor 1009-B to belt conveyor 1001									
EP02.02		EP02.02	Belt conveyor 1001 to belt conveyor 1000	0.19	0.09	0.01	0.050323	0.023801	0.003604	0.042049	0.019888	0.003012
EP02.03.01		EP02.03.01	Belt conveyor 1000 to belt conveyor 999	0.28	0.13	0.02	0.075484	0.035702	0.005406	0.063074	0.029832	0.004517
EP02.03.02		EP02.03.02	Belt conveyor 999 to shuttle conveyor 998	0.28	0.13	0.02	0.075484	0.035702	0.005406	0.063074	0.029832	0.004517
EP03.02		EP03.02	Shuttle conveyor 998 to raw bins	0.19	0.09	0.01	0.050323	0.023801	0.003604	0.042049	0.019888	0.003012
GROUP 2												
EP04.01.01		EP04.01.01	Raw bins to feeders East Tunnel	0.09	0.04	0.01	0.025161	0.011901	0.001802	0.021025	0.009944	0.001506
EP04.01.02		EP04.01.02	Feeders to belt conveyor East 917	0.09	0.04	0.01	0.025161	0.011901	0.001802	0.021025	0.009944	0.001506
CD04.03	Limestone Conveying to #1 Stone Belt D\C	EP04.03.01	Belt conveyor 917 to elevator East 915	3.85	3.27	1.16	0.06	0.05	0.02	0.08	0.07	0.03
		EP04.03.02	Elevator 915 to screens East 914/913									
		EP04.03.03	Screens East 914/913									
		EP04.03.04	Screens East 914/913 to #1 stone system belt									
		EP04.04.01	Shuttle conveyor 998 to new chute									
		EP04.04.02	New chute to #1 stone system belt									
EP04.04.03		EP04.04.03	#1 stone system belt to limestone pile in craneway	0.11	0.05	0.01	0.030194	0.014281	0.002163	0.02523	0.011933	0.001807
GROUP 8												
EP0X.04		EP0X.04	Crusher feed pile	0.50	0.25	0.25	0.502011	0.251005	0.251005	0.502011	0.251005	0.251005
EP25.02		EP25.02	Quarry haul roads (old crusher)	7.99	2.36	0.24	1.176575	0.347279	0.034728	1.769795	0.522374	0.052237
			Total Emissions	**33.93**	**23.12**	**7.45**	**2.79**	**1.25**	**0.44**	**3.41**	**1.50**	**0.50**

Group 1	21.28	17.10	5.78
Group 2	4.15	3.42	1.18
Group 8	8.49	2.61	0.49

							2-Year Average Actual					
				Title V Permitted Emissions			2014			2013		
PSD Permit EP ID	CD Description	EU ID	EU Description	Future Potential PM Emissions (tpy)	Future Potential PM10 Emissions (tpy)	Future Potential PM2.5 Emissions (tpy)	Actual PM Emissions (tpy)	Actual PM10 Emissions (tpy)	Actual PM2.5 Emissions (tpy)	Actual PM Emissions (tpy)	Actual PM10 Emissions (tpy)	Actual PM2.5 Emissions (tpy)
GROUP 3												
EP42.09		EP42.09	Reburn hopper System	0.324331	0.1534	0.023229	0	0	0	0	0	0
GROUP 4												
CD43.18	Big Clinker Silo D/C	EP43.18	Big Clinker Silo	0.99657	0.847084	0.298971	0.621214	0.528032	0.186364	0.625437	0.531622	0.187631

Table N-8
Changes to Permitted Potential Group Emission Limits

Permit/Project		Facility-Wide Total Potential Emission Limits								
		PM2.5	PM10	PM	SO2	NOx	CO	VOC	Fluorides	Lead
PSD Permit R14-026K		227.59	599.14	936.26	4,507.90	4,009.59	4,436.95	156.32	1.02	0.08
	Tarped Outdoor Clinker Storage	0.47	0.99	2.05						
	Finish Mill Limestone	0.81	6.45	20.92						
	Additives Storage Building	0.09	0.15	0.30						
	Alternate Fuel Feeding System	0.01	0.02	0.12						
	Decommissioned Sources	-7.77	-24.12	-35.25						
Updated Emission Limits		221.20	582.63	924.41	4,507.90	4,009.59	4,436.95	156.32	1.02	0.08

Permit/Project		Combined Group Source (Point and Fugitive) TSP and PM10 Emission Limits															
		Group 1		Group 2		Group 3		Group 4		Group 5		Group 6		Group 7		Group 8	
		PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10
PSD Permit R14-026K		53.51	36.63	51.91	35.00	279.29	234.59	14.25	12.10	0.39	0.18	154.82	127.31	68.41	58.18	313.68	95.14
	Tarped Outdoor Clinker Storage											2.05	0.99				
	Finish Mill Limestone	1.84	0.88													19.08	5.58
	Additives Storage Building			0.30	0.15												
	Alternate Fuel Feeding System															0.12	0.02
	Decommissioned Sources	-21.28	-17.10	-4.15	-3.42	-0.32433	-0.1534	-0.9966	-0.847084							-8.49	-2.61
Updated Emission Limits		34.07	20.41	48.06	31.73	278.97	234.44	13.25	11.25	0.39	0.18	156.87	128.30	68.41	58.18	324.39	98.13

ATTACHMENT O
MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

The Martinsburg Plant will comply with all applicable Federal monitoring, recordkeeping, reporting, and testing requirements per 40 CFR 60 and 40 CFR 63.

A copy of the Class II legal advertisement, as well as the publication date, both required as part of the Application process, will be submitted under a separate cover.

Essroc Cement Corporation is not requesting that this Application be confidential.

ATTACHMENT R
AUTHORITY FORM

Provided in this section is an Attachment R – Authority of Corporation Form for the Martinsburg Plant.

Attachment R
AUTHORITY OF CORPORATION
OR OTHER BUSINESS ENTITY (DOMESTIC OR FOREIGN)

TO: The West Virginia Department of Environmental Protection, Division of Air Quality

DATE: March19 , 2014

ATTN.: Director

Corporation's / other business entity's Federal Employer I.D. Number 23-0493660

The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business or other business entity.

Further, the corporation or the business entity certifies as follows:

(1) Munzer Ghosh (is/are) the authorized representative(s) and in that capacity may represent the interest of the corporation or the business entity and may obligate and legally bind the corporation or the business entity.

(2) The corporation or the business entity is authorized to do business in the State of West Virginia.

(3) If the corporation or the business entity changes its authorized representative(s), the corporation or the business entity shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.

President or Other Authorized Officer
(Vice President, Secretary, Treasurer or other official in charge of a principal business function of the corporation or the business entity)

(If not the President, then the corporation or the business entity must submit certified minutes or bylaws stating legal authority of other authorized officer to bind the corporation or the business entity).

Derek Nicholls
Senior Vice President – Technical Director

Essroc Cement Corporation
Name of Corporation or business entity

ATTACHMENT S
TITLE V PERMIT REVISION INFORMATION

Provided in this section is an Attachment S – Title V Permit Revision Information Form for the Martinsburg Plant and an Attachment S-1 documenting draft permit language for all proposed changes to the PSD Construction Permit and Title V Operating Permit.

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR15)	☐ Nonattainment NSR (45CSR19)
☐ Section 111 NSPS (Subpart(s)_OOO_____)	☒ Section 112(d) MACT standards (Subpart(s)_F, LLL_____)
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64) [1]
☐ NO_x Budget Trading Program Non-EGUs (45CSR1)	☐ NO_x Budget Trading Program EGUs (45CSR26)
[1] If this box is checked, please include **Compliance Assurance Monitoring (CAM) Form(s)** for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why **Compliance Assurance Monitoring** is not applicable:	

2. Non Applicability Determinations
List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.
☐ **Permit Shield Requested** *(not applicable to Minor Modifications)*

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

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? ☐ Yes ☒ No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

See Attachment S-1 – Draft Permit Language

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R30-00300006-2012 (MM04)	01/19/2012 (Modified 3/27/15)	
R14-026K	12/19/14	
	/ /	

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	MM/DD/YYYY	
	/ /	
	/ /	

6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
See Attachment N	

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

7. Certification For Use Of Minor Modification Procedures ***(Required Only for Minor Modification Requests)***

Note:	*This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

i. Proposed changes do not violate any applicable requirement;

ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;

iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;

v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;

vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed):	*(Please use blue ink)*	Date:	11 / 9 / 15 *(Please use blue ink)*
Named (typed):	*Munzer Ghosh*	Title:	*Vice President of Manufacturing*

Note: Please check if the following included (if applicable):

☐	Compliance Assurance Monitoring Form(s)
☒	Suggested Title V Draft Permit Language

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

ATTACHMENT S-1 –DRAFT PERMIT LANGUAGE

To facilitate WVDEP's review of this Application and incorporation of the Application changes into the PSD Construction Permit issued for this Application, Essroc is providing the following list of proposed changes which is based on PSD Permit R14-026K. These changes should also be incorporated into the next update to the Title V Operating Permit.

Condition A.2 – Revise the first three rows of the table to reflect the following changes:

Pollutant	Allowable Emissions (tpy)
TSP	924.41
PM10	582.63
PM2.5	221.20

Condition A.5 – Delete all decommissioned Group 1 sources and add the follow new Group 1 fugitive emission sources:

EP ID	EP Description	TSP (tpy)	PM_{10} (tpy)
EP37.06	Limestone Crusher Feed Pile (For Finish Mills)	0.13	0.06
EP37.07	Limestone Crusher Feed Pile Reclaim	0.12	0.06
EP37.08	Limestone/Clinker Storage Pile (Quarry)	0.08	0.04
EP37.09	Limestone/Clinker Reclaim from Quarry Storage Pile	0.25	0.12
EP37.10	Truck Dump to Craneway Storage Pile	0.22	0.10
EP37.11	Limestone/Clinker Storage Pile (Outside Craneway)	0.04	0.02
EP37.12	Limestone/Clinker Transfer to Craneway Storage Building	0.22	0.10
EP37.13	Clinker Transfer from Craneway to Truck	0.77	0.37

Condition A.5 - Revise the Group 1 emission limits "emissions from the combined above sources (both point and fugitive) shall not exceed 34.07 tons per year of TSP nor 20.41 tons per year of PM_{10} based on a 12 month rolling total."

Condition A.7 – Delete all decommissioned Group 2 sources and add the follow new Group 2 fugitive emission sources:

EP ID	EP Description	TSP (tpy)	PM_{10} (tpy)
EP39.14	Additives dump to pile within Additives Storage Building	0.07	0.03
EP39.15	Additives Storage Building (4 piles)	0.15	0.08
EP39.16	Reclaim from additives piles	0.07	0.03

Condition A.7 – Revise the Group 2 emission limits "emissions from the combined above sources (both point and fugitive) shall not exceed 48.06 tons per year of TSP nor 31.73 tons per year of PM_{10} based on a 12 month rolling total."

Condition A.15 – Remove Opacity limit, as this is no longer required per PC MACT.

Condition A.15 – Add the following new PC MACT limits:

Source	Pollutant	Allowable	Compliance Method	Averaging Time
PH/PC Kiln System	PM Filterable	0.07 lb/ton clinker	CPMS[1]	30-day rolling average
PH/PC Kiln System	HCl[3]	3.0 ppmvd corrected to 7% oxygen	CEM	30-day rolling average
PH/PC Kiln System	THC	24.0 ppmvd corrected to 7% oxygen[2]	CEM	30-day rolling average
PH/PC Kiln System	Hg[3]	55.0 lbs/MMton clinker	CEM	30-day rolling average

1 - Filterable Particulate Matter shall be parametrically monitored with a Continuous Parametric Monitoring System (CPMS) per 40 CFR 63.1350(b). The CPMS will be used to establish a site-specific operating limit corresponding to the results of the most recent annual Method 5 or 5I performance test demonstrating compliance with the PM limit. Compliance shall be demonstrated by not exceeding this site-specific operating limit on a 30-kiln operating day CPMS rolling average basis. Any exceedance of the site-specific operating limit requires the Plant to comply with the requirements of 40 CFR 63.1350(b)(ii), including conducting a new PM emissions compliance test within 30 days of the exceedance to verify or re-establish the site-specific operating limit. PM exceedances leading to more than four required emissions compliance tests within a 12-month rolling period will constitute a presumptive violation of the PM limit.
2 – In lieu of complying with the THC emissions limit of 24.0 ppmvd corrected to 7 percent oxygen on a 30-day rolling average; the Plant may elect to comply with an alternative limit of 12.0 ppmvd for total organic HAP (O-HAP). O-HAP shall be parametrically monitored with a THC CEMS per 40 CFR 63.1350(j). The THC CEMS will be used to establish a site-specific operating limit corresponding to the most recent O-HAP performance test demonstrating compliance the O-HAP limit.
3-Per a 1-year extension granted on July 1, 2015 by WV DEP, the Plant must demonstrate compliance with the HCl and Hg emission limits and CEM monitoring requirements by September 9, 2016. Semi-annual reports are required to be submitted documenting the status and timing for meeting the extended compliance date.

Condition A.16 – Delete the decommissioned source EP42.09, Reburn Hopper System.

Condition A.16 - Revise the Group 3 emission limits “emissions from the combined above sources shall not exceed 278.97 tons per year of TSP nor 234.44 tons per year of PM_{10} based on a 12 month rolling total.”

Condition A.18 – Delete decommissioned source SC43.18, Big Clinker Silo D/C.

Condition A.18 - Revise the Group 4 emission limits "emissions from the above point sources shall not exceed 13.25 tons per year of TSP nor 11.25 tons per year of PM_{10} based on a 12 month rolling total."

Condition A.22 – Add the following Group 6 fugitive sources:

EP ID	EP Description	TSP (tpy)	PM_{10} (tpy)
EP27.06	Transfer to Outdoor Clinker Storage Pile	0.65	0.31
EP27.07	Outdoor Clinker Storage Pile - Tarped	0.76	0.38
E{27.08	Outdoor Clinker Storage Pile Reclaim	0.65	0.31

Condition A.22 - Revise the Group 6 emission limits "emissions from the combined above sources (both point and fugitive) shall not exceed 156.87 tons per year of TSP nor 128.30 tons per year of PM_{10} based on a 12 month rolling total."

Condition A.30 – Delete all decommissioned Group 8 sources and add the following new Group 8 fugitive emission sources:

EP ID	EP Description	TSP (tpy)	PM_{10} (tpy)
EP25.16	Hauling Clinker to Primary Crusher (Paved)	0.18	0.04
EP25.17	Hauling Clinker to Primary Crusher (Unpaved)	6.17	1.82
EP25.18	Hauling Limestone/Clinker from Quarry to Craneway (Unpaved)	12.33	3.64
EP25.19	Hauling Limestone/Clinker from Quarry to Craneway (Paved)	0.41	0.08

Condition A.30 – Modify the potential emissions for the following Group 8 fugitive emission source:

EP ID	EP Description	TSP (tpy)	PM_{10} (tpy)
EP25.15	Alternate Fuel Trucks (paved)	0.28	0.05

Condition A.30 – Revise the Group 8 emission limits "emissions from the combined above sources (both point and fugitive) shall not exceed 324.39 tons per year of TSP nor 98.13 tons per year of PM_{10} based on a 12 month rolling total."

Condition B.12 – Delete requirement for opacity monitoring using COMS on the preheater/Precalciner kiln stack, as it is no longer required by PC MACT.

APPENDIX B – ELECTRONIC COPY OF APPLICATION