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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R14-0026L
Plant ID No.:	003-00006
Applicant:	Essroc Cement Corporation
Facility Name:	Martinsburg Facility
Location:	Berkeley County
NAICS Code:	327310
Application Type:	Class II Administrative Update
Received Date:	November 12, 2015
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	$3,500.00
Date Received:	January 12, 2016
Complete Date:	January 12, 2016
Due Date:	March 11, 2016
Applicant Ad Date:	11-21-15
Newspaper:	*The Journal*
UTM's:	Easting: 243.50 Northing: 4369.00 Zone: 18
Description:	Class II Administrative Update to install/modify four material handling storage areas, and decommission various sources that are no longer necessary. Additionally, the new permit will incorporate new federal regulatory requirements (40 CFR 63 Subpart LLL and 40 CFR 60 Subpart F).

DESCRIPTION OF PROCESS

The applicant is proposing to install/modify four material handling storage areas, and decommission various sources that are no longer necessary. The four storage areas being installed/modified are as follows:

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 permit 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)

Additive 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.

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 application. These sources were permanently removed from the Plant in October 2013.

SITE INSPECTION

A site inspection of the facility was not deemed necessary for this permitting action. The writer is familiar with the facility having visited it several times in the past. Additionally, the facility was the subject of a full onsite inspection which was conducted by Joe Kreger of DAQ's compliance and enforcement section on July 24, 2014. At the time of that inspection, the facility was found to be in compliance. However, several subsequent partial inspections have found opacity violations at the Big Clinker Silo.

To get to the facility from Martinsburg, take I-81 south to exit 12. Then turn left on Apple Harvest Drive (State Route 45). Go approximately 0.9 miles and take the Queen Street exit off State Route 45. At the end of the exit turn right (south) on Queen Street. Go approximately 1/4 mile to the plant entrance.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions from the wind erosion of stock piles are based on the Air Pollution Engineering Manual (equation 5, page 136). Transfer point emissions were based on AP-42 Section 13.2.4.3. Paved haulroad calculations were performed using AP-42 Section 13.2.1 while upaved calculations were performed using Section 13.2.2. A 50% control efficiency was used on unpaved calculations to account for the watering of the roads. A 75% control efficiency was used on paved calculations to account for watering and sweeping of roads.

Emissions from the new sources will be as follows:

Tarped Outdoor Clinker Storage

Source	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP27.06	0.15	0.65	0.07	0.31	0.01	0.05
EP27.07	0.17	0.76	0.09	0.38	0.09	0.38
EP27.08	0.15	0.65	0.07	0.31	0.01	0.05
Total	**0.47**	**2.06**	**0.23**	**1.00**	**0.11**	**0.48**

Finish Mill Limestone

Source	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP37.06	0.03	0.13	0.01	0.06	0.01	0.06
EP37.07	0.03	0.12	0.01	0.06	0.01	0.01
EP37.08	0.02	0.08	0.01	0.04	0.01	0.04
EP37.09	0.06	0.25	0.03	0.12	0.01	0.02

EP37.10	0.05	0.22	0.02	0.10	0.01	0.02
EP37.11	0.01	0.04	0.01	0.02	0.01	0.02
EP37.12	0.05	0.22	0.02	0.10	0.01	0.02
EP37.13	0.18	0.77	0.08	0.37	0.01	0.06
EP25.16	0.04	0.18	0.01	0.04	0.01	0.01
EP25.17	1.41	6.17	0.42	1.82	0.04	0.18
EP25.18	2.82	12.33	0.83	3.64	0.08	0.36
EP25.19	0.09	0.41	0.02	0.08	0.01	0.02
Total	**4.79**	**20.92**	**1.47**	**6.45**	**0.22**	**0.82**

Additive Storage Building

Source	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP39.14	0.02	0.07	0.01	0.03	0.01	0.01
EP39.15	0.04	0.15	0.02	0.08	0.02	0.08
EP39.16	0.02	0.07	0.01	0.03	0.01	0.01
Total	**0.08**	**0.29**	**0.04**	**0.14**	**0.04**	**0.10**

Alternate Fuel Feeding System

Source	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP25.15	0.03	0.12	0.01	0.02	0.01	0.01
EP41.04[1]	--	--	--	--	--	--
EP41.05[1]	--	--	--	--	--	--
Total	**0.03**	**0.12**	**0.01**	**0.02**	**0.01**	**0.01**

[1]Sources vent to existing baghouse and the applicant has requested no change in the baghouse and no increase in emissions.

Total Facility Wide Increase

Source	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Outdoor Clinker Storage	0.47	2.05	0.23	0.99	0.11	0.47
Finish Mill Limestone	4.78	20.92	1.47	6.45	0.19	0.81
Additives Storage Building	0.07	0.30	0.03	0.15	0.02	0.09
Alternate Fuel Feeding Sys.	0.03	0.12	0.01	0.02	0.01	0.01
Total	**5.35**	**23.39**	**1.74**	**7.61**	**0.33**	**1.38**

As can be seen from the table above, all emission increases are less than applicable PSD major modification thresholds.

Existing annual permitted emissions from the sources that will be decommissioned are as follows:

PM	PM_{10}	$PM_{2.5}$
35.25	24.12	7.77

Therefore, the annual change in **permitted emissions** will be as follows:

PM	PM_{10}	$PM_{2.5}$
-11.86	-16.51	-6.39

REGULATORY APPLICABILITY

The modification is subject to the following state and federal rules:

STATE RULES

45CSR7 TO PREVENT & CONTROL PARTICULATE MATTER AIR POLLUTION FROM MANUFACTURING PROCESS & ASSOCIATED OPERATIONS

The haul roads proposed in this application are subject to the fugitive particulate matter provisions of §45-7-5.2. Essroc will meet these requirements by paving, sweeping and watering the haulroads.

45CSR13 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

The addition of the new storage piles and haul roads has the potential to increase emissions above what is permitted in R14-0026K. Therefore, Essroc is required to change their permit under 45CSR13. However, since the increase in emissions will be less than 6 pounds per hour and 10 tons per year, they are eligible for a Class II Administrative Update.

As required under §45-13-8.3 ("Notice Level A"), Essroc placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on November 21, 2015 in the *Journal.* and the affidavit of publication for this legal advertisement was submitted on December 22, 2015.

45CSR14 PERMITS FOR CONSTRUCTION AND MAJOR MODIFICATION OF MAJOR STATIONARY SOURCES OF AIR POLLUTION FOR THE PREVENTION OF SIGNIFICANT DETERIORATION

The Martinsburg facility is an existing major source as defined in 45CSR14. However, a "major modification" is defined under section 2.40 of 45CSR14 as a:

> . . . physical change in or change in the method of operation of a major stationary source which results in: a significant emissions increase (as defined in subsection 2.75) of any regulated NSR pollutant (as defined in subsection 2.66); and a significant net emissions increase (as defined in subsections 2.46) of that pollutant from the major stationary source. [. . .]

Section 3.4 of 45CSR14 provides guidance on the process of determining if proposed changes are a major modification. §45-14-3.4(a) states that:

> . . . consistent with the definition of major modification contained in subsection 2.40, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases -- a significant emissions increase (as defined in subsection 2.75), and a significant net emissions increase (as defined in subsections 2.46 and 2.74). The proposed project is not a major modification if it does not cause a significant emissions increase. [. . .]

Therefore, for the proposed changes to meet the definition of a major modification, the changes themselves must result in a significant emissions increase. The methodology for calculating the emissions increase under the first step is given under Sections 3.4(b), 3.4(c), 3.4(d) and 3.4(f). The substantive language of each is given below:

[§45-14-3.4(b)]
The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to subdivisions 3.4.c through 3.4.f.

[§45-14-3.4(c)]
Actual-to-projected-actual applicability test for projects that only involve existing emissions units. -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in subsection 2.63) and the baseline actual emissions (as defined in subdivisions 2.8.a and 2.8.b), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

[§45-14-3.4(d)]
Actual-to-potential test for projects that only involve construction of a new emissions unit(s). – A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in subsection 2.58) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in subdivision 2.8.c) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

[§45-14-3.4(f)]
Hybrid test for projects that involve multiple types of emissions units. -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in subdivisions 3.4.c through 3.4.d as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

It is important to note that when any emissions decrease is claimed, the second step of the test is triggered - a determination if the project results in a "significant net emissions increase." This determination is defined under the definition of "net emissions increase" [§45-14-2.46] and must include "any other increases and decreases in actual emissions at the major source that are contemporaneous with the particular change and are otherwise creditable." A change is contemporaneous if it "occurs not more than five (5) years prior to the date on which construction on the particular change commences nor later than the date on which the increase from the particular change occurs."

However, since no decreases are needed with this proposed project, the determination of a significant net emissions increase" is not needed.

Pollutant	Emission Increase (tpy)	Significance Threshold (tpy)	Significant ?
PM	23.39	25	No
PM_{10}	7.61	15	No
$PM_{2.5}$	1.38	10	No

Additionally, it should be noted that the writer is aware that Essroc has recently submitted another permit application to add an alternate crushing system comprised of three (3) mobile crushers. However, it is clear that due to the circumstances surrounding that application, the two projects should not combined for the purposes of determining whether the major source threshold has been met. The alternate crushing system application was submitted after this application and only came about due to an unexpected malfunction. On January 5, 2016, major damage was sustained to the Plants' Primary Crusher (CD37.03) main rotor, causing all quarry limestone crushing operations to cease.

FEDERAL RULES

40 CFR 60 Subpart OOO — Standards of Performance for Nonmetallic Mineral Processing Plants.

The additives handling and storage facilities addressed in this Class II Administrative Update are subject to Subpart OOO. Subpart OOO requires that fugitive opacity be maintained at 15% or less from crushers and 10% or less from other affected facilities. Stack opacity must be maintained at 7% or less and PM emissions cannot exceed 0.05 gram per dscm.

40 CFR 60 Subpart F — Standards of Performance for Portland Cement Plants

On February 12, 2013, the USEPA published in the Federal Register the final NSPS for Portland Cement Plants. Previously, 40 CFR 63 Subpart LLL had exempted any affected sources subject to Subpart LLL from also being subject to NSPS Subpart F. However, this provision was removed from Subpart LLL on February 12, 2013. However, for existing affected sources all requirements within Subpart LLL are identical or more stringent to the requirements in Subpart F.

40 CFR 63 Subpart LLL — National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry

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.

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.

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, 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.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

No non-criteria regulated pollutants are expected to be emitted due to this modification.

AIR QUALITY IMPACT ANALYSIS

Because the modification to this existing major stationary source is not "major" as defined in 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

In addition to the monitoring already required by R14-0026K, the permittee will be required to maintain the following records:

* Amount of clinker transferred to the outdoor clinker storage piles.

* The amount of limestone delivered to pile EP37.06.

CHANGES TO PERMIT R14-0026K

The following changes will be made to R14-0026K:

* Condition A.2 was revised to reflect the new, lower, facility wide particulate limits.
* Condition A.5 was revised to delete all decommissioned Group 1 sources and add the new sources.
* The Group 1 emission limit in Condition A.5 was revised.
* Condition A.7 was revised to delete all decommissioned Group 2 sources and add the new sources.
* The Group 2 emission limit in Condition A.7 was revised.
* The opacity requirement was removed from condition A.15 since it is no longer required by the MACT.
* New PC MACT required limits were added to condition A.15.
* EP42.09 was removed from Condition A.16
* The Group 3 emission limit in Condition A.16 was revised to reflect the removal of EP42.09.
* The decommissioned Big Clinker Silo dust collector was removed from Condition A.18.
* Emission limits in Condition A.18 were decreased to reflect the removal of the dust collector.
* Condition A.22 was revised to add the outdoor clinker storage pile and the associated emissions.
* Condition A.30 was revised to delete all decommissioned Group 8 sources and add the new sources.
* The Group 8 emission limit in Condition A.30 was revised.
* Old Condition B.12 was removed since the PC MACT no longer requires it.
* New Condition B.12 was added to require monitoring the clinker usage.
* New Condition B.19 was added to require monitoring the amount of limestone delivered to EP37.06.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R14-0026L for the modification of a portland cement manufacturing facility in Martinsburg, Berkeley County, be granted to Essroc Cement Corporation.

Steven R. Pursley, PE
Engineer

3-16-16
March 16, 2016