

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B147733491

FACILITY: LAFARGE MIDWEST INC.		SRN / ID: B1477
LOCATION: 1435 Ford Ave., ALPENA		DISTRICT: Cadillac
CITY: ALPENA		COUNTY: ALPENA
CONTACT: Travis Weide , Area Environmental & Public Affairs Manager		ACTIVITY DATE: 01/28/2016
STAFF: Kurt Childs	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: 2016 PCE Site inspection and records review FG KG6, FG CLINK COOL.		
RESOLVED COMPLAINTS:		

Partial Compliance Evaluation (PCE): Site inspection and records review of FG KG6, FG CLINK COOL

Introduction

The Lafarge North America Alpena plant (Lafarge) is on schedule for a Full Compliance Evaluation (FCE) this year. Due to the size and complexity of this source the FCE is completed by conducting a series of PCEs throughout the fiscal year to form a complete compliance picture of the facility. For most of the period covered by this PCE applicable requirements were specified in ROP MI-ROP-B1477-2012, PTI 106-08A and 89-13A were in effect. The requirements from the PTI's were incorporated into MI-ROP-B1477-2012A on 12/22/2015.

On January 28, 2016 AQD staff Kurt Childs, Gloria Torello and Jeremy Howe met with Travis Weide of Lafarge to conduct a PCE of the Alpena plant and discuss ongoing permitting issues. Prior the inspection AQD staff made observations from off-site. The weather was overcast, around 32 degrees with winds from the southwest. We observed the FG KG6 stack and attached water vapor plume as well as several other water vapor plumes from around the plant. No visible emissions were noted, though the overcast sky conditions were not ideal for a contrasting background. We also observed the quarry and the main raw material stockpile. A light layer of snow covered most of the ground; vehicles were traveling in the quarry. There were no visible emissions observed from the stockpile, quarry or vehicle traffic. During our observations we did notice a distinct and definite woody odor that Ms. Torello identified as typical of the DPI plant in Alpena.

At the plant we met with Travis Weide, this inspection/meeting was scheduled ahead of time because of the meeting and attendance of Mr. Howe, AQD Technical Program Staff, who is attending site inspections with Field Staff this fiscal year as part of his work performance objectives. I provided Mr. Weide with a copy of the Environmental Inspections brochure and we discussed the purpose of the inspection. This PCE was focused on the portions of the source identified in Lafarge's ROP MI-ROP-B1477-2012a as FG KG6 and FG CLINK COOL. FG KG6 includes cement kilns 22 and 23 and associated pollution control equipment. FG CLINK COOL includes 5 clinker coolers associated with kilns 19,20,21,22 and 23, material handling equipment, and pollution control equipment. At the time of the inspection Kiln 20 of FG KG5 was shut down for a scheduled maintenance outage.

FG KG6

We began the inspection looking at FG KG6. Kilns 22 and 23 both have emissions controlled by separate SNCR injection systems, baghouses, and a single wet Flue Gas Desulfurization (FGD) scrubber. The SNCR systems inject ammonia directly into the kilns from two storage tanks equipped with a vapor balance system. The baghouses are two large identical units constructed of concrete and containing multiple sections. The baghouses have been reconfigured to flow in the opposite direction from how they were originally designed due the addition of the wet FGD and the need to duct the exhaust from the baghouses over to the Wet FGD and its stack. The old KG6 stack is no longer in use. During our inspection we observed the top and bottom of the baghouses including the previous location of the CEMS monitors in the ducts to the old stack (the opacity monitor was located in this stack, not in the ducts and is no longer in service). We also observed the new locations of the NOx, CO, and flow monitors in the new ductwork from each baghouse to the wet FGD. This location is on the roof of the FG KG6 building near the top of the baghouses. The separate baghouse exhaust ducts join together in this area then continue in one duct to the wet FGD. Each of these ducts contains a guillotine style gate

valve that can isolate the individual baghouse.

During our inspection of this portion of the plant we also observed several other dust collectors. FG KG6 of the ROP identifies the baghouse for Kiln 22 with the plant ID no. 26-256 and the baghouse for Kiln 23 as 26-262. According to FG KG6 there are two other dust collectors associated with each kiln 26-254 and 26-255 for Kiln 22 and 26-260 and 26-261 for Kiln 23. We tried to identify the dust collectors we observed and locate those identified in the ROP but could not. Mr. Weide stated that Lafarge has a spreadsheet of all the plant dust collectors identifying them by number and process and that he could provide a copy. Following the inspection I requested a copy of the spreadsheet. It identifies 26-254 and 26-260 as kiln feed vents for each kiln and 26-255 and 26-261 as vents to the main baghouse for each kiln. No visible emissions were observed from any of the dust collectors we observed.

At the time of the inspection alternative fuels (plastics, shingles, wood) were not being burned. We did not observe any visible emissions from the FG KG6 main baghouses or other dust collectors. Ms. Torello did notice a hopper that was leaking dust. Mr. Weide identified it as a storage hopper in the material handling system transporting raw materials from raw grind to the kiln feed tank. He immediately contacted maintenance to notify them of the leak and request repairs. Following the inspection Mr. Weide provided information regarding the investigation and repair of this leak which took place that same day.

I. FG KG6 Emissions Limits ROP MI-ROP-B1477-2012a (12/22/2015)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
1. VE	20% opacity	Six-minute average	FG KG6	0% observed.	NA/Not tested
2. PM	0.25 pound per 1000 pounds of exhaust	Test Protocol ^a	FG KG6 (The limit applies to each individual kiln.)	NA	Tested July 14, 2015 Compliant
3. SO ₂	9,685 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 22	756 ppm one minute average	Total KG6 emissions for 2015: 886.631 Tons
4. NOx	3,930 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 22	379 ppm One minute average	1,259.37 Tons
5. NOx	12.7 pounds per ton of clinker	May 1 through September 30 of each year	EU KILN 22	379 ppm one minute average	Around 5 lb/ton throughout the year based on CEMS data and Clinker production.
6. NOx	5.47 pounds per ton clinker	30-day rolling average, as determined at the end of each kiln operating day ^b	EU KILN 22	379 ppm One minute average	Around 5 lb/ton throughout the year (5.19 lb/ton highest daily value) based on CEMS data and Clinker

MACES- Activity Report

7. CO	537 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 22		production. 116.43 Tons
8. SO ₂	9,728 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 23	1959 ppm One minute average	Total KG6 emissions for 2015: 886.631 Tons
9. SO ₂	3.68 pounds per ton of clinker (Demonstration Phase Limit)	12-month rolling time period, as determined at the end of each calendar month and includes the previous eleven (11) months ^b	FG KG6	1959 ppm One minute average	Available records are 30 day rolling averages which are all below the limit.
10. NOx	3,947 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 23	420 ppm One minute average	1,479.71 Tons
11. NOx	12.7 pounds per ton of clinker	May 1 through September 30 of each year	EU KILN 23	420 ppm One minute average	Around 5 lb/ton throughout the year based on CEMS data and Clinker production.
12. NOx	5.69 pounds per ton clinker	30-day rolling average, as determined at the end of each kiln operating day ^b	EU KILN 22	420 ppm One minute average	Around 5 lb/ton throughout the year (5.11 lb/ton highest value) based on CEMS data and Clinker production.
13. CO	539 tons per year	12-month rolling time period as determined at the end of each calendar month	EU KILN 23		198.01 Tons
14. HCl and Chlorine gas combined emissions expressed as HCl equivalents	170 ppmv, corrected to 7% oxygen on a dry gas basis	Test Protocol ^a	FG KG6 (The limit applies to each individual kiln.)	NA	Tested 8/13/2015 Compliant
15. HCl and Chlorine gas combined	162 pounds per hour	Test Protocol ^a	FG KG6 (The limit applies to each	NA	Tested 8/13/2015 Compliant

emissions expressed as HCl equivalents			individual kiln.)	
---	--	--	--------------------------	--

II. FG KG6 Material Use Limits

The use of alternative fuels, plastics, clean wood, and shingles is limited to 70,822 TPY, 42,719 TPY, and 28,432 TPY respectively. None were being used as fuel at the time of the inspection according to Mr. Weide. Following the inspection I requested records of alternative fuel use for 2015. Mr. Weide has responded to additional requests for these records but as of the date of this report they have not been received.

III. FG KG6 Process/Operational Limits

All pollution control equipment appeared to be installed and operating properly. Each kiln is equipped with SO2, NOx and CO CEMS which are calibrated, maintained and operated in accordance with the applicable performance specifications. The Wet FGD operating parameters are monitored as required by the ROP and MAP. During the inspection the observed operating ranges were representative of proper normal operation.

IV. Design Parameters

The KG6 main baghouses were equipped with differential pressure monitoring. The Wet FGD was equipped with method of measuring liquid flow rate (spray pump pressure).

V. FG KG6 Testing

Required PM, HCL, and Mercury (6/25/2014) testing have been completed. VE was not evaluated during the PM test. This has been addressed in previous activity reports and correspondence. AQD is working with Lafarge on a method of compliance.

VI. FG KG6 Monitoring/Recordkeeping

Kiln feed rate and clinker production are monitored and recorded by the plant's data acquisition system. SO2, NOx and CO are monitored using CEMS with readouts of one minute averages available in the control room (see Emission Limits section above). Records of past emissions are also maintained and reported in the Consent Decree Semi-Annual Report available, see attachment.

SNCR, Baghouse, and Wet FGD control device operating parameters are monitored in accordance with the MAP and readings are available in the control room.

Alternative fuels are used in accordance with an approved Alternative Fuels Procurement Plan. As previously stated, no alternative fuels were being fired at the time of the inspection. The only alternative fuels on site at the time of the inspection were shingles.

VII.FG KG6 Reporting

The following reports are required for FG KG6:

1. ROP annual and Semi-annual reports.

The last Semi-annual 1 and Semi-annual 2 reports were received as was the Annual report for 2014.

2. CEMS EER and QA quarterly.

The required quarterly CEMS reports have been received.

3. Annual report of CO, PM, PM10, PM2.5 and SO2 emissions if actual emissions exceed the baseline actual emissions by a significant amount or pre construction projected emissions (PSD compliance for alternative fuels increase). Alternative fuels were not a significant source of fuel in 2015 for Lafarge. Annual emissions are below the Projected Actual Emissions, no report is expected.

4. Notifications: Testing notifications, Alternative fuel supplier, Alternate fuels procurement plan, MAP.

The Alternate Fuels Procurement Plan and MAPs have been submitted and approved. Alternate fuel supplier certification records have been requested but not received.

On November 12, 2015 AQD sent Lafarge Alpena a Violation Notice regarding failure to submit test plans and reports according to required timelines. Resolution of these violations is ongoing.

VIII. Stack/Vent Restrictions

FG KG6 has one stack (SV26-292A) that is shared between the two kiln processes. As previously described, exhaust from each baghouse is combined into one duct which leads to the Wet FGD which is exhausted out SV26-292A. Stack parameters for SV26-292A are a maximum diameter of 100 inches and minimum height of 250 feet. Actual dimensions were not verified during this PCE but the stack appears to be within these specifications.

IX. FG KG6 Other

Lafarge has approved versions of the required Monitoring Plan/QAQC Plan, MAP, and CAM (currently under revision). At the time of the PCE there is no State or Federal plan implement the provisions of 40 CFR Part 60, Subpart DDDD. Special Condition 6 in this section of the ROP is a duplicate of Special Condition 1 and Special Condition 7 is a duplicate of Special Condition 2. SC 6 and 7 should be removed in future PTI's (Application 171-15 is pending) and ROP modifications.

FG CLINK COOL

Following inspection of the FG KG6 control equipment and kilns we inspected the clinker coolers for all 5 kilns which are addressed in FG CLINK COOL. The clinker coolers receive clinker directly from the kilns and use forced air to cool the material. Each of the clinker coolers serving KG6 has two dust collectors one for the cooler emissions and one for clinker handling (conveyors). There is also one dust collector serving the off-spec clinker handling elevator which handles clinker from both coolers. The clinker cooler dust collector stacks are equipped with PM Continuous Parameter Monitoring System (CPMS) monitors to detect PM emissions. During the inspection we observed the coolers and dust collectors, handling conveyors and dust collectors, and the off spec clinker handling elevator and dust collector. We did not observe any visible emissions; the PM CPMS were installed and operating. These units include a display that reads out in micrograms/cubic meter but have not been certified for this type of use (PM CEMS). They are currently used as PM CPMS which relay a milliamp reading to the plant computer system as monitored in the control room. This reading has been correlated to PM emissions testing conducted in 2015 to set a limit not to exceed. Readings observed during the inspection are reported in the table below. FG CLINK COOL also is equipped with opacity monitors.

The FG KG5 coolers (3) are controlled by one large dust collector (plant id no. 25-507) that has two stacks (emissions from half the baghouse sections go to one stack and emissions from the other sections go to the second). Each of these stacks is equipped with a PM CPMS referred to as Fan 92 and Fan 93. The CPMS readings at the time of the inspection were within the limits established during PM testing. The baghouse was installed and operating and there were no visible emissions at the time of the inspection.

Emission Limits

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
1. VE	10% opacity	Six-minute average	FG CLINK COOL (The limit applies to each individual clinker cooler)	0% observed. Fan 92 and 93 Cooler Stacks COMS = 1.7% and 3.7%	NA

MACES- Activity Report

				Kiln 22 Cooler COMS = 3.9%	
				Kiln 23 Cooler COMS = 4.6%	
2. PM	0.10 pound per ton of feed (dry basis) to the kiln		FG CLINK COOL (The limit applies to each individual clinker cooler)	Fan 92 and 93 = 4.139mA and 4.058mA CC 22 = 4.093mA CC 23 = 4.158mA	Less than 0.03 lb/ton feed each. Per most recent stack tests. CC 22 = 4.18mA CC 23 = 4.22mA
3. PM	0.04 pound per 1,000 pounds of exhaust gases calculated on a dry gas basis	Test Protocol ^a	EU CLINK COOL 19 EU CLINK COOL 20 EU CLINK COOL 21 (The limit applies to each individual clinker cooler)	Fan 92 and 93 = 4.139mA and 4.058mA	Tested 9/3/2015 compliant
4. PM	24.8 pounds per hour	Test Protocol ^a	EU CLINK COOL 19 EU CLINK COOL 20 EU CLINK COOL 21 (The limit applies to each individual clinker cooler)	Fan 92 and 93 = 4.139mA and 4.058mA	Tested 9/3/2014 compliant
5. PM	109.0 tons per year		EU CLINK COOL 19 EU CLINK COOL 20 EU CLINK COOL 21 (The limit applies to each individual clinker cooler)	Fan 92 and 93 = 4.139mA and 4.058mA	CC19, 20, 21 = 11 tpy
6. PM	0.04 pound per ton clinker (From ROP, old	During normal operation. Based on a 30 day rolling average	FG CLINK COOL (The limit applies to each individual clinker cooler.)	Fan 92 and 93 = 4.139mA and 4.058mA CC 22 = 4.093mA	CC 19, 20, 21 = 0.01 lb/ton clinker per stack test. CC 22 =

	PCMACT limit. New PCMACT limit is 0.07 lb/ton)			CC 23 = 4.158mA	0.016 Lb/ton clinker per stack test CC 23 = 0.05 lb/ton clinker per 2015 stack test. CC 22 = 4.18mA CC 23 = 4.22mA
7. PM	0.004 gr/dscf ⁴	During startup and shutdown. Based on a 7 day rolling average	FG CLINK COOL (The limit applies to each individual clinker cooler)	Fan 92 and 93 = 4.139mA and 4.058mA CC 22 = 4.093mA CC 23 = 4.158mA	Tested 9/3/2015 compliant CC 22 = 4.18mA CC 23 = 4.22mA

II. Material Limits

There are no applicable material limits.

III. Process/Operational Restrictions

FG CLINK COOL is equipped with the required dust collectors which were equipped with PM CPMS and appeared to be operating properly. An MAP for FG CLINK COOL was most recently approved on 1/20/2016. A visible emission monitoring plan is referred to in SC III.4 but the UAR (60.13) does not match this requirement and does not require such a plan. Lafarge does have a COMS QA/QC plan of which they provided the attached copy.

IV. Design/Equipment Parameters

COMS are installed; calibrated, maintained and operated however, an ROP modification (2015000128 submitted 7/24/2015) is requesting the removal of Opacity limit and COMS requirements. Current PC MACT requirements do not include an opacity limit for Clinker Coolers and PM emissions are monitored using a PM CPMS. The 10 % opacity limit does not apply to any clinker cooler subject to a PM limit that uses a CPMS. Due to the PC MACT requirements for continuous monitoring FG CLINK COOL is no longer CAM subject.

V. Testing

Lafarge Alpena has conducted PM emissions testing on the Clinker Coolers in 2015. CC's 19, 20, 21(Fan 92 and 93 – two stacks on one baghouse) were tested July 21, 2015 and failed to meet emission limits. They were re-tested on September 3, 2015 and met emission limits according to Lafarge. CC22 was tested in July 2015 and failed; it was retested in October 2015. Those test results have been reviewed and approved by AQD. The emissions data and PM CPMS operating parameters cited in the above table are from that testing. CC23 was tested in August 2015 and passed. The emissions data and PM CPMS operating parameters cited in the above table are from that testing.

VI. Monitoring/Recordkeeping

The COMS were operating at the time of the inspection and opacity readings were available on the control room screen (copy attached). The COMS also served as CAM for the CC baghouses and were operating within the previously specified 0% to 10% range. The PM CPMS were satisfying the requirement for continuous PM compliance monitoring. The observed readings were below the ranges established during recent stack testing and pending approval.

VII. Reporting

The following reports are required for FG CLINK COOL:

1. ROP Annual and Semi-annual reports.

The last Semi-annual 1 and Semi-annual 2 reports were received as was the Annual report for 2014.

2. PCMACT Annual and Semi-annual reports.

These are COM and PM CPMS monitor reports. 2014 Semi-2 received 1/30/15, no 2015 Semi-1 report in file. A copy of the report was requested 2/03/2015; Mr. Weide provided a copy of the report dated 7/30/2015. I will update our files with this copy.

3. COMS Annual EER.

Obsolete requirement, no longer required.

4. USEPA Consent Decree Semi-annual Reports.

Both Semi-annual reports were received for 2015.

VII. Stack/Vent Restrictions


During the inspection we observed each of the CC stacks and they appear to meet the permitted limits. CC 19, 20, and 21 vent through one baghouse with two stacks (SV25-507 and SV25-507A) each stack is limited 84 inches in diameter and must be taller than 50 feet. CC22 and CC23 each have their own baghouse and the stacks are square and must have maximum cross-sectional area of 215 square inches and a minimum height of 27.5 feet. The Stack/Vent IDs in row 2. of the ROP Stack/Vent ROP table are incorrect and should be changed to "EU CLINK COOL 22" and "EU CLINK COOL 23" in 171-15 and the subsequent ROP modification.

IX. Other Requirements

This section simply requires the Permittee to comply with the PC MACT and CAM.

PCE Summary:

This PCE addresses compliance with MI-ROP-B1477-2012a for Flexible Groups FG KG6 (Kilns 22 and 23) and for FG CLINK COOL, the clinker coolers for FG KG5 (Kilns 19, 20, 21) and FG KG6. A site inspection was conducted as well as a records review to determine compliance with these requirements. As a result of this PCE it appears that the emission units, control devices, and monitoring equipment for FG KG6 and FG CLINK COOL are operating in compliance with the ROP requirements. Furthermore, records and reporting necessary to demonstrate compliance have been maintained and submitted as required. Additional PCE activities for the remaining ROP Flexible Groups will be conducted during 2016 to form a complete assessment of compliance for this Source.

NAME  DATE 3/24/16 SUPERVISOR 