

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

B147744371

FACILITY: Holcim (US) Inc. d/b/a Lafarge Alpena Plant		SRN / ID: B1477
LOCATION: 1435 Ford Avenue, ALPENA		DISTRICT: Cadillac
CITY: ALPENA		COUNTY: ALPENA
CONTACT: Travis Weide , Area Environmental & Public Affairs Manager		ACTIVITY DATE: 05/07/2018
STAFF: Kurt Childs	COMPLIANCE STATUS:	
SUBJECT: PCE2. FG FUEL HAND, FG KG5, FG KG6, FG CLINK COOL.		SOURCE CLASS: MAJOR
RESOLVED COMPLAINTS:		

**2018 FCE Partial Compliance Evaluation (PCE) No.2: Site inspection and records review of FG FUEL HAND, FG KG5, FG KG6, and FG CLINK COOL**

**MI-ROP-B1477-2012c**

**Introduction**

This activity report covers the second PCE for the 2018 Full Compliance Evaluation of the Holcim (US) d/b/a Lafarge Alpena (Lafarge) Cement Plant. Emission groups covered by this PCE are; FG FUEL HAND – fuel storage (piles) transportation, processing and firing; FG KG5 – Kilns 19,20,21 and associated air pollution control devices; FG KG6 – Kilns 22 and 23 and associated air pollution control devices; FG CLINK COOL – Clinker coolers for each kiln and the associated air pollution control devices.

On May 7, 2018 AQD staff Kurt Childs and Jeremy Howe met with Travis Weide and Brian Joyce of Lafarge to conduct the PCE of the Alpena plant and discuss ongoing monitoring and stack testing issues. This was an unannounced inspection. Prior the inspection AQD staff made observations from off-site. The weather was clear, around 60 degrees with winds from the east southeast at 5 – 10mph. We observed the Kiln stacks and several other stacks from around the plant. Each of the five kilns was operating. There was an attached water vapor plume from the KG6 wet FGD stack that was rising but no visible emissions were noted from any of the kiln stacks. We also observed other areas of the plant such as the raw mill, finish mill, fuel mills and clinker coolers. We did not observe any visible emissions aside from some fugitives being raised by plant traffic.

**FG FUEL HAND:**

The fuel handling system receives, stores, transports, and pulverizes the fuel used to fire the kilns. Fuels are delivered and stockpiled outdoors from where the fuel is transported by heavy equipment to the indirect firing system which includes the fuel pulverizers. Dust suppression is used on the fuel piles and the fuel pulverizers are equipped with dust collectors.

**Emission Limits:**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
1. Visible Emissions (VE)	20% opacity	Six-minute average	FG FUEL HAND	No opacity from any of the stacks/vents.	NA

2. PM-10	1.8 pounds per hour <sup>2</sup>	Test Protocol <sup>a</sup>	EU FUEL PULV 19, EU FUEL PULV 20, EU FUEL PULV 21	NA	See testing section.
3. PM-10	8.0 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month	EU FUEL PULV 19, EU FUEL PULV 20, EU FUEL PULV 21	NA	3.1 tpy or less (see attached records)
4. PM-10	2.9 pounds per hour <sup>2</sup>	Test Protocol <sup>a</sup>	EU FUEL PULV 22, EU FUEL PULV 23	NA	See testing section.
5. PM-10	12.8 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month	EU FUEL PULV 22, EU FUEL PULV 23	NA	9.1 tpy or less (see attached records)
6. PM	0.15 pound per 1000 pounds of exhaust gases, calculated on a dry basis <sup>2</sup>	Test Protocol <sup>a</sup>	EU FUEL PULV 19, EU FUEL PULV 20, EU FUEL PULV 21, EU FUEL PULV 22, EU FUEL PULV 23	NA	See testing section.

**II. Material Use Limits**

NA

**III. Process/Operational Limits**

1. At the time of the inspection the dust collectors appeared to be operating properly. Each of the kilns was operating yet no visible emissions were observed from the FG FUEL HAND control equipment.

**IV. Design Parameters**

1. Minimize emissions from fuel pile, coal blending. Water is used as a dust suppressant. The fuel pile sprinkler system is in place no visible emissions were observed.

**V. Testing/Sampling**

Once every five years, verification of PM10 emission rates. 2017 test results:

EU	PM10 Limit (lbs./hr.)	2017 test result	PM Limit (lbs./1000lb dry)	2017 test result
EU FUEL PULV 19	1.8	0.8	0.15	0.01
EU FUEL PULV 20	1.8	0.3	0.15	0.01
EU FUEL PULV 21	1.8	0.8	0.15	0.03
	2.9	0.8	0.15	0.01

EU FUEL PULV 22				
EU FUEL PULV 23	2.9	0.4	0.15	0.00

A VN was sent following the first round of testing as EU FUEL PULV 20 failed to meet the limit. Retesting was scheduled and completed with the results indicating compliance as noted above.

**VI. Monitoring/Recordkeeping**

Monthly and 12-month rolling time period PM10 emission calculation records using the most recent stack test results demonstrate PM10 emissions are below the 12.8 ton per year limit in Section I (see attached records).

Monitor and record the pressure drop across each dust collector associated with FG FUEL HAND SYS, on a daily basis. Records are maintained by the DAHS and are available. The attached DP trend for each of the fuel pulverizer baghouses indicates the DP averaged around 1 kPa except for an extended period for each dust collector that DP was 0. Lafarge Alpena verified that these periods coincided with Kiln downtime for maintenance and provided the attached Kiln Shutdown Planning schedule.

At the time of the inspection the differential pressure readings observed were as follows:

EU	Observed DP (kPa)
EU FUEL PULV 19	0.73
EU FUEL PULV 20	0.57
EU FUEL PULV 21	0.28
EU FUEL PULV 22	1.1
EU FUEL PULV 23	1.03

**VII. Reporting**

NA

**VIII. Stack/Vent Restrictions**

Stack & Vent ID	Maximum Exhaust Dimensions Diameter (inches)	Minimum Height Above Ground (feet)
1. SV613-01 (36-K19) EU FUEL PULV 19	30 <sup>2</sup>	60 <sup>2</sup>
2. SV623-01 (36-K20) EU FUEL PULV 20	30 <sup>2</sup>	60 <sup>2</sup>

Stack & Vent ID	Maximum Exhaust Dimensions	Minimum Height Above Ground
	Diameter (inches)	(feet)
3. SV633-01 (36-K21) EU FUEL PULV 21	30 <sup>2</sup>	60 <sup>2</sup>
4. SV6A3-01 (36-K22) EU FUEL PULV 22	40 <sup>2</sup>	60 <sup>2</sup>
5. SV6B3-01 (36-K23) EU FUEL PULV 23	40 <sup>2</sup>	60 <sup>2</sup>

During this inspection the fuel pulverizer stacks were not evaluated for compliance with the diameter and height requirements but there have not been any changes to their configuration since they were permitted.

**IX. Other**

NA

**FG KG5**

Kilns 19, 20 and 21 each controlled by a main baghouse, SNCR, and DAA. All three Kilns were operating at the time of the inspection and no visible emissions were evident from the main stacks. We observed each of the kilns and baghouses as well as the SNCR system and DAA system. Kiln and control system operation are monitored in the control room and many operating parameters are available including the CEMS readouts.

New CEMS shelters have been installed for the new CEMS at each kiln. We observed the contents of one of the shelters, the CEMS are operating in parallel with the old CEMS which are still being used for compliance. The new CEMS have not been certified yet but are scheduled to be relative accuracy tested later this year.

**I. Emission Limits**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
VE	20% opacity <sup>2</sup>	Six-minute average	FG KG5  (The limit applies to each individual kiln.)	19. 0% 20. 0% 21. 0%	19. 4.3% 20. 3.0% 21. 3.2%
PM	0.25 pound per 1,000 pounds of exhaust gas calculated on a dry gas basis <sup>2</sup>	Test Protocol <sup>a</sup>	FG KG5  (The limit applies to each individual kiln.)	NA	See test section.

SO <sub>2</sub>	4.07 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each kiln operating day	EU KILN 19	63 ppm 12 hr. avg.	2017 Quarterly EER; no excess emissions
NO <sub>x</sub>	4.72 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each operating day	EU KILN 19	247 ppm 12 hr. avg.	2017 Quarterly EER; no excess emissions
CO	284 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month.	EU KILN 19	Not observed.	2017 Quarterly EER; no excess emissions
SO <sub>2</sub>	4.09 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each operating day	EU KILN 20	154 ppm, 12 hr. avg.	2017 Quarterly EER; no excess emissions
NO <sub>x</sub>	4.91 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each operating day	EU KILN 20	285 ppm, 12 hr. avg.	2017 Quarterly EER; no excess emissions
CO	280 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month.	EU KILN 20	Not observed.	2017 Quarterly EER; no excess emissions
SO <sub>2</sub>	3.93 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each operating day	EU KILN 21	44 ppm, 12 hr. avg.	2017 Quarterly EER; no excess emissions
NO <sub>x</sub>	4.48 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each operating day	EU KILN 21	258 ppm, 12 hr avg.	2017 Quarterly EER; no excess emissions
CO	279 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month.	EU KILN 21	Not observed.	2017 Quarterly EER; no excess emissions

**II. Material Use Limits**

Material	Limit	Time Period/ Operating Scenario	Records
1. Plastics	65,375 tons per year <sup>2, a</sup>	12-month rolling time period	None
2. Clean wood	39,432 tons per year <sup>2, b</sup>	12-month rolling time period	None

Material	Limit	Time Period/ Operating Scenario	Records
3. Shingles	26,240.5 tons per year <sup>2,c</sup>	12-month rolling time period	8527 tons all kilns (MAERS)

4. – 6. Plastic, wood, shingle fuel use 25%,10%, 10% respectively.

7. Plastic fuel quality requirements, non-chlorinated, non-halogenated (<2.0%). Resin codes 1,2,4,5,6,7 only.

8. Wood fuel quality. Clean leaf, bark, grass wood.

9. Shingle fuel quality. Shredded/chipped asphalt roof shingle only.

The use of alternative fuels, plastics, clean wood, and shingles is limited to 65,375 TPY, 39,432 TPY, and 26,240.5 TPY of each respectively. None were delivered in 2017, on-site or being used as fuel at the time of the inspection according to Mr. Weide. The 2017 MAERS submittal indicates 8527 tons of shingles were used in 2017.

**III. Process/Operational Limits**

1. SNCR, DAA, baghouses and dust collectors are installed, maintained, and operated in a satisfactory manner.

Control	Kiln 19	Kiln 20	Kiln 21
SNCR feed rate (gpm)	5	1	1.5
DAA feed rate (pph)	89	89	89
Baghouse DP 0.01 kPa to 2.49 kPa	1.1	1.1	1.14

All pollution control equipment appeared to be installed and operating properly. Each kiln is equipped with SO<sub>2</sub>, NO<sub>x</sub> and CO CEMS and a COM which are calibrated, maintained and operated in accordance with the applicable performance specifications. Air emissions are controlled by a large baghouse on each kiln for particulate control as well as Selective Non-Catalytic Reduction (SNCR) and Dry Absorbent Addition (DAA) systems for the control of NO<sub>x</sub> and SO<sub>2</sub> respectively. The baghouses consist of 12 sections, bags are replaced in 2 of the sections each shutdown on a rotating basis. Baghouse differential pressure and stack opacity are continuously monitored. The SNCR system uses the same infrastructure as FG KG6 and ammonia flow rate to the kiln is continuously monitored. The DAA system utilizes cement kiln dust (CKD) as the absorbent and the amount of CKD used per hour is monitored. During the inspection the observed operating ranges were representative of proper normal operation.

4. Alternate fuels procurement plan.

Certificate of analysis, each delivery. No deliveries in 2017.

Monthly sampling and analysis of each supplier’s deliveries. NA, 2017.

**IV. Design Parameters**

1. Baghouse DP reading from Control Room: see table in Section III.

2. SNCR, DAA operating parameter monitors operated satisfactorily. Yes, see Section III.

3. SNCR NH3STGTANK equipped with vacuum breaker and relief valve set at 25 psi ± 5 psi. Mr. Weide has stated this is true.

**V. Testing**

1. Annual COMS Audit.

2. 5 yr. PM testing. Last test 2016.

EU	LIMIT	TEST RESULT
EU KILN 19	0.25 pound per 1,000 pounds of exhaust gas	0.02
EU KILN 20	0.25 pound per 1,000 pounds of exhaust gas	0.02
EU KILN 21	0.25 pound per 1,000 pounds of exhaust gas	0.01

Required PM, HCL/chlorine gas, and Mercury (6/25/2014) testing were conducted in 2015. Results of the PM testing indicated the PM emissions were well below the lb./1,000 lb. limit. Mercury testing was completed, and the results are used in the calculations for compliance with the limit in FG MERCURY. With the exception of EU KILN 19 HCLe lb./hr. the test results for HCL were determined to be unacceptable to the AQD because the emission rate could not be determined due to missing data. A violation notice for this compliance issue was sent to Lafarge on August 5, 2016 by the AQD Technical Programs Unit (TPU). HCL and Mercury testing will take place again in 2018 for compliance with CISWI standards.

**VI. Monitoring/Recordkeeping**

EU	OPACITY
EU KILN 19	4.3
EU KILN 20	3.0
EU KILN 21	3.2

6. Calculate CO emissions in tons per 12-month rolling time-period basis each month.

8. Calculate SO2 and NOx emissions in pound per ton clinker including SSM on a 30-day rolling average as required by ROP.

9. Calculate and keep records of CO, PM, PM10, PM2.5, and SO2 emission rates from each emission unit of FG KG5, in tons per year on a calendar year basis. (when burning alternative fuels)

10. PM and PM10 emissions in TPY on a calendar year (2017) basis. Expired January 21, 2018.

11. Alt fuel supplier certificates of analysis. No deliveries

**12. Alt fuel usage, monthly and 12-mos rolling. Limited use of old stock in 2017 8527 tons.**

**13. Alt fuel usage percentage of each fuel used on a heat input basis (25, 10, 10). Minimal use in 2017.**

**Kiln feed rate and clinker production are monitored and recorded by the plant's data acquisition system. SO<sub>2</sub>, NO<sub>x</sub> 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.**

**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. No alternative fuels were being fired at the time of the inspection. There were no alternative fuels on site at the time of the inspection.**

## **VI. Reporting**

**The following reports are required for FG KG5:**

**1. ROP annual and Semi-annual reports.**

**Annual, Semi-annual 1 and Semi-annual 2 reports are generally received on time with the exception of the 2017 Annual and Semi-annual 2 reports. A VN was sent and the reports were provided.**

**2. CEMS EER and QA quarterly.**

**PC MACT Operations and Maintenance Plant semi-annual summary report have been received and reviewed at that time. There were no concerns with the quarterly CEMS reports during 2017.**

**3. Annual report of CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> 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 2017 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. Test notifications for 2017 were provided in accordance with the ROP timelines. The Alternate Fuels Procurement Plan and MAPs have been submitted and approved. No alternate fuel supplier certification records were required in 2017.**

**Semi-annual CAM excursion/exceedance and monitor downtime reports have been submitted and were reviewed at the time they were received.**

**FG KG5 has a MAP for the SNCR, DAA and Main Baghouse that was updated and approved on 1/20/2016.**

## **VIII. Stack/Vent Restrictions**

**FG KG5 includes one stack for each kiln (SV25-289, SV25-290, and SV25-291) Stack parameters for each are a maximum diameter of 156 inches and minimum height of 220 feet. Actual dimensions were not verified during this PCE but the stacks dimensions have not been altered.**



**IX. Other**

**1. COM Monitoring Plan.**

**2. SO<sub>2</sub>, NO<sub>x</sub>, CO Monitoring/QAQC plan.**

Lafarge has approved versions of the required Monitoring Plan/QAQC Plan, MAP, and CAM. At the time of the PCE there is no State or Federal plan in place to implement the provisions of 40 CFR Part 60, Subpart DDDD (CISWI).

**FG KG 6**

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 of this portion of the plant we also observed several other dust collectors. 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 and none were stored on-site at that time. A shipment of shingles is expected in the near future and shingles will make up part of the fuel load in the future.

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
1. VE	20% opacity <sup>2</sup>	Six-minute average	FG KG6	0%	NA
2. PM	0.25 pound per 1000 pounds of exhaust <sup>3</sup>	Test Protocol <sup>a</sup>	FG KG6	NA	0.1647 lbs./1000
3. NO <sub>x</sub>	5.47 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each kiln operating day	EU KILN 22	286 ppm 12-hr. avg.	2017 Quarterly EER; no excess emissions
4. CO	537 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month	EU KILN 22	NA	2017 Quarterly EER; no excess emissions

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
5. SO <sub>2</sub>	1.98 pounds per ton of clinker <sup>2c</sup>	30-day rolling average, as determined at the end of each kiln operating day	FG KG6 (Applies when both kilns operate simultaneously or either kiln operates individually.)	Kiln 22, 472 ppm 12 hr.-avg.  Kiln, 23, 747 ppm 12 hr. avg.	2017 Quarterly EER; no excess emissions
6. NOx	5.69 pounds per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each kiln operating day	EU KILN 2	338 ppm 12-hr. avg.	2017 Quarterly EER; no excess emissions
7. CO	539 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month	EU KILN 23	Not observed.	2017 Quarterly EER; no excess emissions

**II. Material Use Limits**

Material	Limit	Time Period/ Operating Scenario	Equipment	Observed/Recorded
Plastics	70,822 tons per year	12-month rolling time period	FG KG6	None
Clean wood	42,719 tons per year	12-month rolling time period	FG KG6	None
Shingles	28,432 tons per year	12-month rolling time period	FG KG6	8527 tons all kilns (MAERS)

4. – 6. Plastic, wood, shingle fuel use 25%,10%, 10% respectively.

7. Plastic fuel quality requirements, non-chlorinated, non-halogenated (<2.0%). Resin codes 1,2,4,5,6,7 only.

8. Wood fuel quality. Clean leaf, bark, grass wood.

9. Shingle fuel quality. Shredded/chipped asphalt roof shingle only.

The use of alternative fuels, plastics, clean wood, and shingles is limited to 70,822 TPY, 42,719 TPY, and 28,432 TPY of each respectively. None were delivered in 2017, on-site or being used as fuel at the time of the inspection according to Mr. Weide. The 2017 MAERS submittal indicates 8527 tons of shingles were used in 2017.

**III. Process/Operational Limits**

Operating Parameter	Reading

Booster fan inlet pressure (0 - -5 hPa)	-3.5
Scrubber Dp (0.15 – 2.5 hPa)	1.8
Stack outlet temp (40 – 60 deg. C)	53.2
Scrubber outlet flow (>100 kscfm)	29.4
PH (4.0 – 7.0)	5.2
Spray pump pressure (> 15 kPa)	4 pumps: 74, 80, 81, 83.5

1. SNCR, Wet FGD, baghouses and dust collectors are installed, maintained, and operated in a satisfactory manner.

All pollution control equipment appeared to be installed and operating properly. Each kiln is equipped with SO<sub>2</sub>, NO<sub>x</sub> 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

Monitoring devices installed?

DP on all baghouses?

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. Testing

1. Annual PM testing. Last test date: 2017

Result: 0.1647 lbs/1000 lbs exhaust. Limit: 0.25 lbs/1000 lbs exhaust.

Required PM, HCL, and Mercury (6/25/2014) testing have been completed. Additional compliance testing for CISWI is scheduled for later this year (2018).

#### VI. FG KG6 Monitoring/Recordkeeping

2. monitor and record the SO<sub>2</sub> (combined stack), NO<sub>x</sub>, and CO emissions from EU KILN 22 and EU KILN 23 on a continuous basis. The WGS is equipped with CEMS and the pollutants are monitored (see above).

3. Calculate CO emissions in tons per 12-month rolling time-period basis each month.

4. Calculate SO<sub>2</sub> and NO<sub>x</sub> emissions in pound per ton clinker including SSM on a 30-day rolling average as required by ROP.

5. Calculate and keep records of CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> emission rates from each emission unit of FG KG5, in tons per year on a calendar year basis. (when burning alternative fuels)

8. Alt fuel supplier certificates of analysis.

9. Alt fuel usage, monthly and 12-mos rolling.

**10. Alt fuel usage percentage of each fuel used on a heat input basis (25, 10, 10).**

Kiln feed rate and clinker production are monitored and recorded by the plant's data acquisition system. SO<sub>2</sub>, NO<sub>x</sub> and CO are monitored using CEMS with readouts of one minute to 24-hour averages available in the control room (see Emission Limits section above). Records of past emissions are also maintained.

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. There were no alternative fuels on site at the time of the inspection.

**VII. Reporting**

The following reports are required for FG KG6:

**1. ROP annual and Semi-annual reports.**

Annual, Semi-annual 1 and Semi-annual 2 reports are generally received on time with the exception of the 2017 Annual and Semi-annual 2 reports. A VN was sent and the reports were provided.

**2. CEMS EER and QA quarterly.**

The required quarterly CEMS reports have been received.

**3. Annual report of CO, PM, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> 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 2017 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. Test notifications for 2017 were provided in accordance with the ROP timelines. The Alternate Fuels Procurement Plan and MAPs have been submitted and approved. No alternate fuel supplier certification records were required in 2017.**

Semi-annual CAM excursion/exceedance and monitor downtime reports have been submitted and were reviewed at the time they were received.

FG KG6 has a MAP for the SNCR, and Main Baghouse as well as a separate MAP for the WGS that were updated and approved on 1/20/2016.

**VIII. Stack/Vent Restrictions**

FG KG6 has one stack (SV26-292A) that is shared between the two kiln processes. 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 and no alterations have taken place since installation.

**IX. Other****1. SO<sub>2</sub>, NO<sub>x</sub>, CO Monitoring/QAQC plan.**

Lafarge has approved versions of the required Monitoring Plan/QAQC Plan, MAP, and CAM. At the time of the PCE there is no State or Federal plan in place to implement the provisions of 40 CFR Part 60, Subpart DDDD (CISWI).

**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.

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.

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping / Testing
PM	109.0 tons per year <sup>2</sup>	12-month rolling time period as determined at the end of each calendar month	FG CLINK COOL	NA	14.78 tons (MAERS)
PM	0.07 pound per ton clinker <sup>2</sup>	30-day rolling average, as determined at the end of each kiln operating day	FG CLINK COOL Applies individually	NA	See test section V.

**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.

**CPMS System Operation**

<b>PROCESS/CONTROL DEVICE</b>	<b>CPMS READING (ma) Observed During Inspection</b>
92 FAN	4.274
93 FAN	4.092
EU CLINK COOL 22	4.060
EU CLINK COOL 23	4.114

**IV. Design/Equipment Parameters**

NA

**V. Testing**

Lafarge Alpena conducted PM emissions testing on the Clinker Coolers in July 2017. After several revisions of the test report, the test results have been reviewed and approved by AQD. The emissions data and PM CPMS operating parameters cited are from that testing.

**1. Annual PM testing. Last test date: 2017**

<b>PROCESS/CONTROL DEVICE</b>	<b>Test Result (lb./ton clinker)</b>	<b>CPMS Limit from 2017 Test (ma)</b>
92 FAN	0.032	4.47
93 FAN	0.023	4.14
EU CLINK COOL 22	0.013	4.35
EU CLINK COOL 23	0.025	4.32

**VI. Monitoring/Recordkeeping**

The requirement for COMS was removed in the re-permitting under PTI 171-15 since the CPMS monitoring systems were installed. The CPMS monitors have been correlated to PM emission rates during stack testing. The CPMS were operating at the time of the inspection and readings (in milli amps) were available on the control room screen (see table in Section III). The PM CPMS were satisfying the requirement for continuous PM compliance monitoring. The observed 12 hr. average readings for Clinker Coolers 22 and 23 were above the tested limits (see tables in sections III and V). The attached record of 2018 CPMS reading trends also indicates the Clinker Cooler 22 and 23 as well as the 93 fan operating ranges appear to have been in the range of the limits established during the 2017 stack test. Additional review of this data will occur upon receipt of the 2018 Semi-annual PC MACT report.

7. calculate the PM emissions in tons per year on a monthly and 12-month rolling time period basis as determined at the end of each calendar month. 14.78 tons per year, see Section I.

**VII. Reporting**

The following reports are required for FG CLINK COOL:

1. ROP annual and Semi-annual reports.

Annual, Semi-annual 1 and Semi-annual 2 reports are generally received on time with the exception of the 2017 Annual and Semi-annual 2 reports. A VN was sent and the reports were provided.

2. PCMACT Annual and Semi-annual reports.

These are COMS (FG RAW MILL SYS) and PM CPMS (FG CLINK COOL) monitor reports. 2017 Semi-2 received 2/26/18, CPMS readings exceeded CPMS operating parameters established during 7/2017 stack test. Retested in October 2017, new operating parameters established. See Activity Report B147743470 for additional details.

VIII, 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.

IX. Other Requirements

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

PCE Summary:

This PCE addresses compliance with MI-ROP-B1477-2012c for Flexible Groups FG FUEL HAND, FG KG5, (Kilns 19, 20, and 21) FG KG6 (Kilns 22 and 23) and for FG CLINK COOL, the clinker coolers for FG KG5 and FG KG6. A site inspection was conducted as well as a records review to determine compliance with these requirements. Reporting was reviewed as it was received. As a result of this PCE it appears that the emission units, control devices, and monitoring equipment for FG FUEL HAND, FG KG5, FG KG6, and FG CLINK COOL are operating in compliance with the ROP requirements. Furthermore, the 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 2018 to form a complete assessment of compliance for this Source.

NAME



DATE

5-29-18

SUPERVISOR

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