

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

B147735730

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: 07/19/2016
STAFF: Kurt Childs	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: 2016 PCE 4, FCE summary. FG QUARRY, FG RAW MAT, FG RAW MILL SYS, FG MERCURY.		
RESOLVED COMPLAINTS:		

Partial Compliance Evaluation (PCE) and 2016 FCE Summary: Site inspection and records review of FG QUARRY, FG RAW MAT, FG RAW MILL SYS, and FG MERCURY

Introduction

This activity report covers the fourth and final PCE for the 2016 Full Compliance Evaluation of the Lafarge Holcim Alpena Cement Plant. Emission groups covered by this PCE are; FG Quarry – Quarry operations including fugitive dust, EUPRIMARYCRUSH – the primary rock crusher, EU SECONDCRUSH – the second rock crusher, conveyors and storage piles; FG RAW MAT – raw material (limestone, sand , bauxite, Bell shale, gypsum) and alternate raw materials (slag, iron, fly ash and CKD) handling and storage ; FG RAW MILL SYS – EU RAW MILL 14 and EU RAW MILL 15 grinding, mixing and storage of raw materials; and FG MERCURY – testing, recordkeeping and reporting requirements for emission units in FG MERCURY including FG RAW MILL SYS, FG KG5, FG KG6, FG CLINK COOL, EU FUEL PULV 20, EU FUEL PULV 21, EU FUEL PULV 22, EU FUEL PULV 23.

This PCE was conducted on July 19, 2016 with Mr. Brian Joyce of Lafarge. At the time of the inspection Relative Accuracy testing of the EU RAW MILL 15 THC CEMS and PM emissions testing of the KG5 Clinker Coolers (92 and 93 fans) was taking place. EU RAW MILL 14 was not running. Access within the Raw Mill building was not possible due to an order from the Mine Safety and Health Administration (MSHA) due to dust exposure levels within the building. The FG RAW MILL stacks are visible from outside the building and raw mill CEMS data and throughput are available in the control room.

FG RAW MAT

FG RAW MAT is spread out across the plant location with materials from the quarry transported by covered conveyor to the Raw Mill, the flyash dome, which is loaded by rail, located adjacent to the Raw Mill, and alternate raw materials transported by enclosed conveyor from the ARM building. We observed the dust collectors on the fly ash handling system and there were no visible emissions. FG RAW MAT also includes a dust collector on the discharge conveyor transfer. This dust collector was operating and there were no visible emissions.

I. FG RAW MAT EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping/ Testing
1. VE	Zero ²		EU ARM STOR BLDG (Storage building 18-921)	0%	0% from Monthly Method 22 observations
2. VE	10% opacity	Six-minute average	This limit applies to each of the following: Storage bins, Conveying system,	0%	NA

			Transfer points, Bulk loading or unloading		
3. PM-10	0.02 grain per actual cubic foot of exhaust gas ²		EU ARM FLY ASH (This limit applies to each of the following: Fly ash rail car unloading 17-018, Fly ash receiver bin 17-040, Fly ash dome 17-100, Fly ash day bin 17-200, Fly ash gravity conveyors 17-315 and 17-415)	No visible emissions. Compliance demonstrated by maintenance and implementation of an approved MAP.	NA

II. FG RAW MAT Material Limits

1. Prohibited use of Ammonia Treated fly ash. This is an obsolete condition that has been removed in PTI 171-15.

III. FG RAW MAT Process/Operational Limits

1. All dust collectors appeared to be operating properly.
2. An approved MAP is on file at the AQD District Office.
3. O&M plan updates for iron source mods. This is an obsolete condition that has been removed in PTI 171-15.

IV. FG RAW MAT Design Parameters

There are no Design parameters.

V. FG RAW MAT Testing

1. Opacity tests are required once every five years pursuant to 40 CFR 63.1349(b)(2). The AQD does not have a record of opacity testing on these sources but VE readings are taken by staff during daily inspections and PCMACT opacity monitoring is conducted.

VI. FG RAW MAT Monitoring/Recordkeeping

1. Preventative maintenance records were requested on July 28, 2016 and provided on August 17, 2016 (copies attached). They include a list of the PM activities undertaken from 8/2015 to 4/2016 for each of the Flexible Groups included in this PCE. Examples of individual work orders with specific PM procedures were also included. The records indicate the control equipment is being properly maintained.

2 and 3. Records of visible emissions monitoring were also provided. Visible emissions monitoring occurs on a daily basis and includes each dust collector stack Vent.

VII. FG RAW MAT Reporting

1. – 4. Standard ROP reporting requirements and test plan reporting. No testing during the review period. ROP reporting was reviewed as it was received.

5. No change in supplier of fly ash or iron ore tailings has occurred.

6. No notification of a change in land use for property classified as industrial or as a public roadway has been received.

VIII. FG RAW MAT Stack/Vent Restrictions

Compliance with stack/vent parameters was not evaluated during this PCE. Vents appear to meet the specified parameters and no changes have been made.

IX. FG RAW MAT Other

There are no "Other" requirements.

FG RAW MILL SYS

FG RAW MILL SYS includes two mills EURAW MILL 14 and EU RAW MILL 15. They are identical raw material mixing and grinding mills with 14 located in the west half of the building and 15 located in the east half with the exception that the stacks SV20-270 and SV21-270 (location of the THC CEMS) cross over so the stack for 14 exits on the east side and the stack for 15 exits on the west side. Each process includes a ball mill, cyclones, separators, air slides, screws, elevators, pumps, storage silos, roller press, hammer mill, gas furnace/raw material dryer, storage bins, static separator, and conveyor belts. Dust collectors serve the screws, hammer mill, furnace, ball mill, and air slides.

I. FG RAW MILL SYS EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping/ Testing
1. VE	10% opacity ²	Six-minute average	FG RAW MILL SYS	No visible emissions were observed.	0% from daily Method 22 VE observations
2. PM-10	0.66 pounds per hour ²		EU RAW MILL 14 (from the stack on dust collector 20-269); EU RAW MILL 15 (from the stack on dust collector 21-269)		MAP
3. PM-10	2.9 tons per year ²	12-month rolling time period as determined at the end of each calendar month	EU RAW MILL 14 (from the stack on dust collector 20-269);		MAP

			EU RAW MILL 15 (from the stack on dust collector 21-269)		
4. PM	0.15 pounds per 1,000 pounds of exhaust gases calculated on a dry gas basis ²	Test Protocol	EU RAW MILL 14 (from the stack on dust collector 20-269); EU RAW MILL 15 (from the stack on dust collector 21-269)		0.002 pounds per 1,000 pounds of exhaust gases 0.005 pounds per 1,000 pounds of exhaust gases From 2015 stack test.
5. PM	0.03 pound per 1,000 pounds of exhaust gases ²	Test Protocol	FG RAW MILL SYS		See above.
6. PM	27.51 pounds per hour ²	Test Protocol	FG RAW MILL SYS		EU RAW MILL 14 = 0.51 pph EU RAW MILL 15 = 1.24 pph 2015 stack test
7. PM	120.2 tons per year ²	12-month rolling time period as determined at the end of each calendar month	FG RAW MILL SYS		Approximately 7 tons per year See attached spreadsheet
8. SO ₂	0.0147 pound per ton of raw material processed ²	Test Protocol	FG RAW MILL SYS		0.0001 lbs./tc per Raw Mill and 15 spreadshee
9. THC	24 ppmv on a dry basis, corrected to 19 percent oxygen. ^{3, a, b}	During normal operation. Based on a 30 day rolling average	FG RAW MILL SYS	1hr. avg. = 4 ppmv 4hr. avg. = 4 ppmv 12hr. avg. = 5 ppmv	THC CEMS
10. THC	24 ppmv on a dry basis ^{3, a, b}	During startup and shutdown. Based on a 7 day rolling average	FG RAW MILL SYS	NA	NA

II. FG RAW MILL SYS Material Limits

1. The Raw and alternate raw material usage is limited to 5,600,000 tons per year. The throughput for 2014 based on the 2015 MAERS submittal was 3,753,902 tons.

III. FG RAW MILL SYS Process/Operational Limits

1. An approved MAP is on file at the AQD District Office.
2. All dust collectors appeared to be operating properly.
3. Natural gas is the only fuel used in the FG RAW MILL SYS furnaces.
4. THC CEMS are installed and operating. At the time of the inspection the CEMS RATA for EU RAW MILL 15

was taking place and the EU RAW MILL 14 RATA had been completed the previous week.

IV. FG RAW MILL SYS Design Parameters

There are no Design parameters.

V. FG RAW MILL SYS Testing

1. PC MACT (63.1349(b)(2)) Method 9 Opacity test is required once every five years and applies to the main baghouses on EU RAW MILL 14 and EURAW MILL 15 (20-270, 21-270). The AQD does not have a record of opacity testing on these sources but VE readings are taken by staff during daily inspections and PCMACT opacity monitoring is conducted.

2, 3, and 5. PM, SO₂, and Mercury emissions test on Main Baghouses are required once every five years and were last performed in 2011 and are scheduled to be re-tested in July 2017. The 2011 test results indicated compliance as follows:

Test	Limit	Raw Mill 14	Raw Mill 15
SO ₂	0.0147 lb./ton raw feed	0.00010 lb./ton raw feed	0.00011 lb./ton raw feed
PM	120.2 ton/yr.	2.96	6.24
Hg	NA	1.08E-05	3.51E-06

VI. FG RAW MILL SYS Monitoring/Recordkeeping

1 and 2. Records of visible emissions monitoring were also provided. Visible emissions monitoring has taken place on a daily basis for each of the dust collector stack/vents in FG RAW MILL SYS.

3. and 4. PM₁₀, PM, Monthly and 12-month rolling average emission records are available in the main baghouse (20-270, 21-270) spreadsheet. A copy is attached.

5. Monthly records of SO₂ emissions in pounds per ton of raw material processed are also included in the main baghouse spreadsheet and indicate SO₂ emissions averaging 0.0001 lb./ton material processed are well below the 0.0147 lb./ton limit.

6. and 7. THC emissions are continuously monitored by the THC CEMS. THC emissions from EU RAW MILL 15 were observed during the inspection and indicated compliance with the 24 ppmv limit though on a short term basis not 30 day average.

8. Preventative maintenance records were requested on July 28, 2016 and provided on August 17, 2016 (copies attached). They include a list of the PM activities undertaken from 8/2015 to 4/2016 for each of the Flexible Groups included in this PCE. Examples of individual work orders with specific PM procedures were also included. The records indicate the control equipment is being properly maintained.

9. Raw material throughputs are monitored, at the time of the inspection the throughput as measured at the EU RAW MILL 15 roller mill were 260 tons per hour instantaneous and 249.1 tons per hour on a 4 hr. average

VII. FG RAW MILL SYS Reporting

1. – 4. Standard ROP reporting requirements and test plan reporting. No testing during the review period. ROP reporting was reviewed as it was received.

5. and 6. THC CEMS quality assurance and excess emission reporting are submitted quarterly and have been reviewed as they have been received with no significant problems noted.

7. PC MACT Semi-annual Summary reports including failures to comply with the O&M Plan have been submitted and reviewed as they were received. The reports were complete, timely and certified. No excess emissions, malfunctions, exceedances, or O&M problems reported.

VIII. FG RAW MILL SYS Stack/Vent Restrictions

The EU RAW MILL 14 and 15 Stack restrictions are not for the main baghouse stacks but for the mill collector and appear to meet the specified parameters.

IX. FG RAW MILL SYS Other

1. and 2. Require compliance with PC MACT emission limits and all PC MACT requirements.

FG QUARRY

FG Quarry is the source and processes involved in producing the primary raw materials for the cement manufacturing process. The quarry is located adjacent to the cement plant and is mined by drilling, blasting and hauling. FG QUARRY is a source of fugitive dust emissions and is also the location of the primary and secondary crushers which are equipped with water spray bars, foam dust suppressant systems, and a baghouse on the secondary crusher. At the time of the inspection quarry operations were preparing for blasting. As a result the rock drill and the EU PRIMARYCRUSH were not operating though I did observe EU PRIMARYCRUSH operate briefly later in the day.

Mr. Joyce and I observed the blasting operation from outside the quarry until it was clear to re-enter the quarry. The blasting operation dislodges a large area of the face of the quarry and raises a large plume of dust. It appeared that a good portion of the dust is retained in the quarry due to its depth.

Upon re-entering the quarry we observed operation of EUSECONDCRUSH which was processing material stockpiled by EUPRIMARYCRUSH. There were no visible emissions from the baghouse vent. We looked but could not locate a differential pressure gauge on the baghouse. We later confirmed that there is no direct reading gauge on the baghouse but the differential pressure is monitored electronically with a signal being sent to the plant computer system that is monitored in the control room. Some intermittent opacity was observed from the secondary crusher drop point to the belt conveyor. EU SECONDCRUSH is equipped with a system for injecting dust suppressant. The system was designed to use a foam suppressant but is currently being tested with a surfactant/water mixture. Activation of the suppressant system is manually initiated based on observations of dust from the stone towers. Suppressant was not being applied while we were observing operation of EUSECONDCRUSH.

EU PRIMRYCRUSH is also equipped with the foam dust suppressant system as well as water spray bars. The primary fugitive dust problem is related to the accumulation of rock fines in the primary crusher stockpile. As the larger, heavier rocks descend the pile into the conveyor pit the rock fines are left behind on the top of the pile. When new crushed rock is dropped onto this fine material dust is raised. According to Lafarge staff, the foaming system and water sprays do not help as this material can rapidly dry out under the right weather conditions. During the inspection we observed an example of this when the primary crusher did operate briefly. This condition may be why the visible emission readings from the stockpile are taken at the footprint of the pile and not at the conveyor drop point.

I. FG QUARRY 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	EU QUARRY FUG	NA, no normal quarry traffic due to blasting	
2. VE See Jerry Avery's letter of 5/31/05. 886-93, 15 were	15% opacity	Six-minute average	At the footprint of the Primary Crusher stock pile	Minimal VE at footprint of pile during limited operation.	

	superseded by Avery's letter.				
3.	VE 165-03, I.1. Quarry 786-89A, 15	5% opacity	Six-minute average	Secondary crusher belt conveyors (11-061, 11-063, 11-064, 11-065, 11-066, 11-067, 11-069, 11-070, 11-071, 11-035), Secondary crusher stock piles Upper Bench and Lower Bench	Estimated to be compliant based on 6 minute average.
4.	VE NSPS 000	10% opacity	Six-minute average	Primary Crusher, Transfer points on belt conveyors	NA due to limited operation
5.	VE 165-03, I.3. Quarry; NSPS 60, 000	7% opacity ²	Six-minute average	Secondary crusher (11-002)	No VE from crusher baghouse stack.
6.	VE 165-03, I.2. Quarry	Zero ^{2b}	Six-minute average	Secondary crusher building, including vents on secondary crusher building	No VE observed from building.
7.	PM 165-03, I.4. Quarry; NSPS 000	0.022 gr/dscf ²		Secondary crusher (11-002)	NA

II. FG QUARRY Material Limits

1. Raw material production is limited to 6,600,000 tons per year. This is demonstrated by records of the amount of material processed by EU SECONDCRUSH. These records are maintained and used in the annual air emissions report (MAERS). The 2015 MAERS report indicates the throughput was 3,173,839 tons in 2014.

III. FG QUARRY Process/Operational Limits

1. Water sprays and foam suppressants were not in use at the time of the inspection, the baghouse did appear to be operating properly. There were no significant fugitive dust issues.
- 2 and 4. An approved O&M/MAP is on file at the AQD District Office. The plan indicates the proper range of operation for differential pressure on the baghouse is 0.01 kPa to 2.49 kPa.
3. An approved fugitive dust plan is on file at the AQD District Office that covers the quarry and addresses visible emissions from the stock piles, conveyors and transfer points.

IV. FG QUARRY Design Parameters

1. The secondary crusher baghouse is not equipped with a "gauge" to measure differential pressure but this parameter is measured electronically and monitored remotely.

V. FG QUARRY Testing

There are no testing requirements.

VI. FG QUARRY Monitoring/Recordkeeping

1. Preventative maintenance records were requested on July 28, 2016 and provided on August 17, 2016 (copies attached). They include a list of the PM activities undertaken from 8/2015 to 4/2016 for each of the Flexible Groups included in this PCE. Examples of individual work orders with specific PM procedures were also included. The records indicate the control equipment is being properly maintained.
2. Records of raw material throughput are also maintained. Records (also used in MAERS reporting) indicate compliance with the material use limit.
3. The secondary crusher baghouse differential pressure is monitored and recorded continuously on the plant data acquisition system.
4. Monthly records of dust suppressant usage were requested at the time of the inspection and were provided on August 15, 2016 (attached). The records show the usage of "Nalco Dustfoam" on the primary crusher and "Martin Engineering" surfactant dust suppressant on the secondary crusher in 2015. There are no requirements or minimum limits on the amount of suppressant used.

VII. FG QUARRY Reporting

1. - 4. Standard ROP reporting requirements and test plan reporting. No testing during the review period. ROP reporting was reviewed as it was received.

VIII. FG QUARRY Stack/Vent Restrictions

There are no stack/vent restrictions.

IX. FG QUARRY Other

1. Standard requirement to comply with 40 CFR, Part 60, Subpart OOO.

FG MERCURY

This flexible group exists to set and support a single Mercury emission limit for all of the emission units at this source that have potential mercury emissions. The emission units included are associated with the production or utilization of exhaust gasses from the Kilns and the heating of raw materials in the Raw Mills. These include; the kilns, clinker coolers, coal mills (fuel pulverizers), and Raw Mill processes downstream from the furnaces.

I. FG MERCURY EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Emissions observed during inspection	Emissions from Source Recordkeeping/ Testing
1. Mercury	218.0 lbs./year ²	12-month rolling time period, as determined at the end of each calendar month	Limit applies to all emission units combined in FG MERCURY	NA	

II. FG MERCURY MATERIAL LIMITS

There are no material limits.

III. FG MERCURY PROCESS/OPERATIONAL RESTRICTIONS

There are no process/Operational restrictions.

IV. FG MERCURY DESIGN/EQUIPMENT PARAMETERS

There are no Design/Equipment parameters.

V. FG MERCURY TESTING

1. Mercury emissions testing of each emission unit in FGMERCURY is required before June 1, 2019. Mercury emissions from the kilns have been tested annually. The clinker coolers and Raw Mills were tested in 2014. (see attached test summary).

2. Mercury concentrations in fuels, Kiln raw feed materials, synthetic gypsum and cement kiln dust used to produce clinker must be sampled every two weeks and compiled for a monthly analysis in accordance with the sampling plan dated 6/09/2014 and approved by the AQD on 7/14/2014. Records of 2016 testing were provided and are attached. These records are used in the required mercury emissions calculations.

VI. FG MERCURY MONITORING/RECORDKEEPING

1. Mercury emission calculations in accordance with the approved mercury monitoring plan are maintained. An example is attached to this report. Initial 12- month rolling averages exceeded the 218 lb./yr. limit based on a 12-mos. Rolling average but have steadily decreased to around 100 lbs./12-mos. Rolling time period.

VII. FG MERCURY REPORTING

1.-3. Standard ROP reporting requirements and test plan reporting. ROP reporting was reviewed as it was received.

4.-6. Standard test reporting conditions. Mercury emission test reporting of the kilns took place during the review period and was reviewed at that time and determined to be compliant.

VIII. FG MERCURY STACK/VENT

1.-10. FG MERCURY stack/vent restrictions are the same as for the individual EU's as identified in other Flex Groups.

IX. FG MERCURY OTHER REQUIREMENTS

1.-2. Standard requirements to comply with CISWI and PCMACT.

PCE Summary

This PCE addresses compliance with MI-ROP-B1477-2012a for Flexible Groups FG QUARRY, FG RAW MAT,

FG RAW MILL SYS and FG MERCURY. 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 QUARRY, FG RAW MAT, FG RAW MILL SYS and FG MERCURY are operating in compliance with most of the ROP requirements with the exception of:

FG RAW MAT AND FG RAW MILL SYS both have PC MACT opacity testing requirements but AQD does not have records of this testing and none has been provided.

2016 Full Compliance Evaluation Summary

A Full Compliance Evaluation (FCE) covering all Flex Groups and Emission Units in Renewable Operating Permit MI-ROP-B1477-2012a was conducted consisting of four separate Partial Compliance Evaluations (PCE) including the one addressed in this report. The first PCE addressed FG KG6 and FG CLINK COOL including an on-site inspection on 1/28/2016. The second PCE addressed FG KG5, FG CLINKER SYS, and FG FUEL HAND including an on-site inspection on 4/27/2016. The third PCE addressed FG FINISH MILLS, FG CEMENT STR LOAD, FG CKD HAND SYS and FG COLDCLEANERS including an on-site inspection on 6/02/2016. The Fourth PCE is addressed in this report including the 7/19/2016 on-site inspection. Additionally, annual stack testing was attended on 7/12/2016 and 7/19/2016.

As a result of the FCE it appears that the emission units, control devices, and monitoring equipment for Lafarge Midwest Inc. - Alpena are operating in compliance with most of the ROP requirements with the exception of the following as previously noted in the PCE reports:

FG KG5

SC VI. 12. And 13. Records of the tons of each alternative fuel used and the percentage of each alternate fuel used were not maintained.

FG FUELHAND

SC V.2. PM-10 testing is required every 5 years was last conducted on 10/03/2010 and is overdue.

SC VI.4. Monthly records of water applied to EU BLD FUEL PILE as dust suppressant have not been maintained/provided.

SC VII.5. Records of daily monitoring of the pressure drop across each dust collector associated with FG FUEL HAND SYS were not maintained/provided.

FG FINISH MILLS, FG CMT STR LOAD, FG CKD HAND SYS, FG RAW MAT AND FG RAW MILL SYS

Each of these Flex Group has PC MACT opacity testing requirements (Method 9) for testing once every 5 years. It does not appear these tests have been conducted or if so, that the records have been maintained.

NAME

DATE

8-23-16

SUPERVISOR