

PC MACT Operations and Maintenance Plan FG RAW MILL SYS

Sources: Emission Units: RAW MILL 14, RAW MILL 15

1.0 Source Description

The FG RAW MILL SYS System is used to grind and combine raw materials prior to feeding them into the pyroprocessing systems. Its three main system components are:

- A raw material roller press system that prepares individual raw materials and delivers them to the raw mill. The system includes Area 215 silos, the hammermills, and conveyors used to deliver material to the raw mill.
- Raw mill number 14 that prepares raw materials for combination. The system includes a limestone bin, an iron ore bin, a roll press, and conveyor systems.
- Raw mill number 15 that prepares raw materials for combination. The system includes a limestone bin, a roll press, and conveyor systems.

2.0 System Emission Points and Air Pollution Control Equipment

During FG RAW MILL SYS operations, particulate matter is emitted at several emission points. The system includes hammermills, roller presses, and a number of fabric filters to control particulate matter emissions. The following table summarizes system emission points and applicable air pollution control devices (APCDs), as well as the visual inspection interval (see Section 6.0):

Emission Point #	Description	Air Pollution Control Device	Equipment #	VE Inspection Interval
17-325	Dust collector, raw material transfer	Fabric filter	17-325	Monthly
17-425	Dust collector, raw material transfer	Fabric filter	17-425	Monthly
20-273	Dust collector, 2 stone, 1 shale bins	Fabric filter	20-273	Monthly
20-271	Dust collector, raw grind 14 transfer pts	Fabric filter	20-271	Daily
21-271	Dust collector, raw grind 15 transfer pts	Fabric filter	21-271	Daily
20-268	Raw mill 14 aux baghouse	Fabric filter	20-268	Daily
20-269	Raw mill 14 baghouse	Fabric filter	20-269	Daily
20-270	Main baghouse for twin cyclones 20-080	Fabric filter	20-270	Daily
20-275	Dust collector, air slide conveyor, raw grind 14	Fabric filter	20-275	Monthly
21-268	Raw mill 15 aux baghouse	Fabric filter	21-268	Daily
21-269	Raw mill 15 baghouse	Fabric filter	21-269	Daily
21-270	Main baghouse for twin cyclones 21-080	Fabric filter	21-270	Daily
21-275	Dust collector, air slide conveyor, raw grind 15	Fabric filter	21-275	Monthly

3.0 Applicable Emission Limit

The emission limits applicable to the FG RAW MILL SYS is the following:

- Visible emissions must not exceed 10 percent opacity.

4.0 Operator Procedures for Minimizing Visible Emissions from the FG RAW MILL SYS during Normal FG RAW MILL SYS Operation

FG RAW MILL SYS operations are performed in accordance with the Lafarge Standard Operating Procedure (SOP) documents for raw material to roller press, and Raw Mills 14 and 15. Applicable SOPs include the following:

- Roll Press Circuit Operation
- Fly Ash, Iron Ore Handling – Normal Operation
- Production Stone Stock Out Circuit – Normal Operation

These procedures are kept in the plant’s Environmental department system. The SOPs discuss how the plant shall be operated, and are used for job-specific training. The tasks necessary to ensure proper operation of the FG RAW MILL SYS with minimum emissions are also included within the SOPs.

5.0 Preventive Maintenance

Preventative maintenance work orders are maintained on the Plant’s Windows-based electronic maintenance management system, MAXIMO. Maintenance Department technicians perform preventative maintenance (PM) tasks on the FG RAW MAT SYS equipment, including:

Equipment #	Equipment Name
Raw Material to Roller Press, Iron Ore	
20-273	Dust collector, 2 Stone, 1 shale bin
20-011	Bin
20-020	Apron feeder
20-021	Weigh feeder
20-031	Conveyor
20-033	Airlock screw conveyor
20-060	Hammer mill
21-271	Raw grind No. 15 conveyor transfer points
20-011	Bin
21-120	Apron feeder
21-021	Weigh feeder
21-031	Conveyor
21-033	Airlock screw conveyor
21-060	Hammer mill

Equipment #	Equipment Name
Area 215 Silos, Bins, and Grinding Line 1 Feed, Raw Mill No. 14	
20-010	Limestone bin number 1
20-022	Limestone weigh feeder
20-023	Clean-up conveyor
20-011	Iron ore bin
20-112	Air slide
20-114	Air slide
20-115	Air slide
20-117	Air slide
20-268	Raw mill aux baghouse
20-269	Raw mill baghouse
20-270	Main baghouse for twin cyclones 20-080
20-271	Dust collector, roll press 20-040 and transfer points
20-040	Roll press
20-080	Twin cyclones
20-490	FK Pump hopper systems
20-275	Dust collector, air slide conveyor, raw grind 14
Raw Mill No. 15	
21-010	Limestone bin number 2
21-022	Limestone weigh feeder
21-023	Clean-up drag conveyor
21-112	Air slide
21-114	Air slide
21-115	Air slide
21-117	Air slide
21-268	Raw mill aux baghouse
21-269	Raw mill baghouse
21-270	Main baghouse for twin cyclones 21-080
21-271	Dust collector, roll press 21-040 and transfer points
21-040	Roll press
21-080	Twin cyclones
21-490	FK Pump hopper systems
21-275	Dust collector, air slide conveyor, raw grind 15

The FG RAW MILL SYS PM schedule is maintained on MAXIMO. The PM schedules and the PM task lists for equipment in the FG RAW MILL SYS are based upon past experience with similar equipment and upon the manufacturer's documentation.

When conducting PM activities, maintenance technicians use checklists from the MAXIMO database that list PM tasks, steps, and instructions. The technician completes the PM checklist and returns the form to the Maintenance Planner, who verifies completion of the checklist and logs the completed checklist into MAXIMO. Electronic verification of the completed checklist is maintained in the MAXIMO database for a minimum of five years following completion of the PM.

6.0 Monitoring Requirements

The FG RAW MILL SYS fabric filter's emissions are monitored for opacity using the Methods described below.

6.1 *Periodic Method 22 Visible Emissions Monitoring Requirements*

Parts of the FG RAW MILL SYS, including conveyors, air slides, bins, and dust collector fabric filters, will be tested for visible emissions once each month using USEPA Method 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares. Totally enclosed transfer points are exempt from this requirement. However, partially enclosed transfer points should be monitored by using this method on whatever building or enclosure surrounds the transfer location. The Method 22 tests will be conducted by trained observers while the FG RAW MILL SYS is in operation. The Shift Coordinator will schedule the Method 22 testing. Copies of the Method 22 procedures, Field Data Worksheets, and equipment needed to conduct the tests (stopwatch, etc.) will be maintained in the Environmental Department.

As noted in the Method 22 procedures, observers will take care to perform the test from the proper location relative to the source and the sun, as well as to avoid degraded visibility of emissions caused by improper background contrast, ambient lighting, and observer position relative to lighting and wind.

During the Method 22 test, the observer should determine the presence or absence of visible emissions at points above or beyond the fabric filter exhaust vents or transfer point. The duration of the Method 22 tests will be 10 minutes. Upon completion of the test, the observer will record the results on the Method 22 Field Data Worksheet, and submit the worksheet to the Production Coordinator, who will forward the results to the Environmental Department. The Environmental Department will maintain the Method 22 records for a period of 5 years.

If visible emissions are noted during a daily Method 22 test, a Method 9 test consisting of five 6-minute averages of opacity readings for that stack must be conducted within 1 hour. The observer will also initiate proper corrective actions within one hour by submitting a maintenance work order request to the MAXIMO maintenance control system.

Note: If monthly Method 22 tests indicate no visible emissions for six consecutive monthly tests, the test frequency may be reduced to once every six months. If no visible emissions are detected on the next six-month test, the test frequency may be reduced to once per year. Any time visible emissions are detected by these Method 22 tests, monthly testing must be resumed [40 CFR 63.1350(a)(4)(ii) & (iii)].

6.2 *Periodic Method 9 Opacity Tests*

Whenever visible emissions are observed during a Method 22 test of the FG RAW MILL SYS, an opacity test using the procedures described in USEPA Method 9 – Visual Determination of the Opacity of Emissions from Stationary Sources must be performed to determine if the applicable opacity limit is being exceeded. If visible emissions were observed during a 10-minute Method 22 test, the Method 9 test must be conducted within 1 hour.

The Environmental Manager (or a designated representative) will ensure that trained and certified Method 9 observers are available each day the Method 22 testing is conducted on the FG RAW MILL SYS. Copies of the Method 9 procedures, Field Data Worksheets, and equipment needed to conduct the tests will be maintained in the Environmental Department.

As noted in the Method 9 procedures, observers will take care to perform the test from the proper location relative to the source and the sun, as well as to avoid degraded visibility of emissions caused by improper background contrast, ambient lighting, and observer position relative to lighting and wind.

During the Method 9 test, the observer should determine the opacity of visible emissions plume at points above or beyond the fabric filter exhaust vents and stacks. The Method 9 test must include five 6-minute averages of opacity. Upon completion of the test, the observer will record the results on the Method 9 Field Data Worksheet, and submit the worksheet to the Environmental Department. The Environmental Department will maintain the Method 9 records for a period of 5 years.

The observer will notify the Environmental Manager (or a designated representative) and initiate corrective action immediately if the Method 9 test indicates the opacity limit has been exceeded.

7.0 *Periodic Review and Update of this Operations and Maintenance Plan*

The Environmental Manager (or a designated representative) will review this FG RAW MILL SYS Operations and Maintenance Plan once per year for adequacy and currency. Documentation of the annual review or update will be retained in Environmental Department files for five years.

8.0 Operations and Maintenance Plan Revision History

<u>Revision</u>	<u>Date</u>	<u>Purpose</u>
1.0	February 2004	Initial plan generation
2.0	June 2008	Production Increase
3.0	October 2011	ROP Renewal