

# PC MACT Operations and Maintenance Plan FG CLINKER SYS

Sources: EU: CLINK STR BLD, CLINK AD/PROP

## 1.0 Source Description

FG CLINKER SYS System stores clinker and adds to the clinker gypsum, limestone and CKD as needed based upon the desired final mix. Via conveyor systems the clinker is sent to FG FINISH MILLS. FG CLINKER SYS is made up of EU CLINK STR BLD and EU CLINK AD/PROP. EU CLINK STR BLD, the clinker storage building stores clinker and transfers it to the clinker silos or FG FINISH MILLS via conveyor systems. EU CLINK AD/PROP, the clinker additive and proportioning system consists of one silo to store gypsum, one silo to store limestone, two silos to store clinker and a storage tank for CKD. EU CLINK AD/PROP also includes the gypsum rail car unloading system. The clinker is transferred to FG FINISH MILLS via conveyor systems. FG CLINKER SYS has two main system components

### Clinker Handling and Storage

- A clinker handling and storage system that moves clinker from the clinker cooler to the clinker silo and the hot clinker bin in preparation for further processing or handling.
- The clinker additive and proportioning system that mixes clinker with additives (gypsum, limestone, and CKD) to achieve desired product properties.

## 2.0 System Emission Points and Air Pollution Control Equipment

In the FG CLINKER SYS System operations, particulate matter is emitted at several emission points. The system includes 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
40-100	Dust collector, reclaim tunnel	Dust Collector	40-100	Monthly
40-110	Dust collector, top tower	Dust Collector	40-110	Monthly
40-120	Dust collector, no description	Dust Collector	40-120	Monthly
309DC9	Dust collector, no description	Dust Collector	309DC9	Monthly
309DC10	Dust collector, no description	Dust Collector	309DC10	Monthly
41-356	Dust collector, clinker crush (41-420) vent	Fabric Filter	41-356	Monthly
41-427	Dust collector, 2KK Silo vents top	Fabric Filter	41-427	Monthly
41-498	Dust collector, silo vent bottom bin #2, 41-474	Fabric Filter	41-498	Monthly
41-500	Dust collector, silo vent top bin #2, 41-475	Fabric Filter	41-500	Monthly

41-502	Dust collector, silo vent top bin #1, 41-474	Fabric Filter	41-502	Monthly
41-504	Dust collector, silo vent top bin #1, 41-475	Fabric Filter	41-504	Monthly
41-485	Dust collector, transfer tower	Fabric Filter	41-485	Monthly
41-439	Dust collector, belt conv. 41-205 pups	Fabric Filter	41-439	Monthly
41-447	Dust collector, crew conv. Pups, gypsum stone	Fabric Filter	41-447	Monthly
41-450	Dust collector, silo vent bottom, gypsum silo scale	Fabric Filter	41-450	Monthly

### Applicable Emission Limit

The emission limits applicable to the FG CLINKER SYS System are the following:

- For other equipment in the kiln systems (40 CFR 63.1348):
  1. Visible emissions must not exceed 10 percent opacity.

### 3.0 Operator Procedures for Minimizing Visible Emissions from FG CLINKER SYS during Normal FG CLINKER SYS System Operations

FG CLINKER SYS System operations are performed in accordance with the Lafarge Standard Operating Procedure (SOP) documents for the handling, storage and addition of additives.

Applicable SOPs include the following:

- KG5 evac to offspec
- KG5 evac to storage barn
- KG6 evac to clinker silos
- KG6 evac to offspec
- KG6 evac to storage barn
- KG5 evac to clinker silos
- Reclaim clinker to clinker silos

These procedures are kept in the 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 Kiln System with minimum emissions are also included within the SOPs.

### 4.0 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 FG CLINKER SYS System equipment, including:

<b>Equipment #</b>	<b>Equipment Name</b>
	<b>Clinker Handling, Storage and Additives</b>
26-825	Dust collector, KG6 Drag conveyor pickups
40-100	Dust collector, reclaim tunnel
40-110	Dust collector, top tower
40-120	Dust collector
309DC9	Dust collector
309DC10	Dust collector
41-356	Dust collector, clinker crush (41-420) vent
41-420	Clinker crush
41-427	Dust collector, 244 Silo vents top
41-498	Dust collector, silo vent bottom bin #2, 41-474
41-500	Dust collector, silo vent top bin #2, 41-475
41-502	Dust collector, silo vent top bin #1, 41-474
41-504	Dust collector, silo vent top bin #1, 41-475
41-474	Silo
41-475	Silo
41-485	Dust collector, transfer tower
	<b>Gypsum/CKD</b>
41-439	Dust collector, belt conv. 41-205 pups
41-205	Belt conveyor
41-437	Crusher
41-447	Dust collector, crew conv. Pups, gypsum stone
41-449	Reversible screw conveyor
41-450	Dust collector, silo vent bottom, gypsum silo scale
41-452	Screw conveyor

The FG CLINKER SYS System PM schedule is maintained on MAXIMO. The PM schedules and the PM task lists for equipment in the FG CLINKER SYS Systems 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.

## 5.0 Monitoring Requirements

### 5.1 *Periodic Method 22 Visible Emissions Monitoring Requirements*

Parts of the FG CLINKER SYS Systems, including feed conveyors, bucket elevators, feed silos, 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 Kiln Systems are in operation. The Shift Coordinator (or a designated representative) 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)].

## **5.2                    *Periodic Method 9 Opacity Tests***

Whenever visible emissions are observed during a Method 22 test of the FG CLINKER SYS System emissions sources, 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 CLINKER SYS Systems. 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.

## **6.0                    *Periodic Review and Update of this Operations and Maintenance Plan***

The Environmental Manager (or a designated representative) will review this FG CLINKER SYS System 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.

## 7.0 Operations and Maintenance Plan Revision History

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