

PC MACT Operations and Maintenance Plan
FG CLINK COOL Systems
Sources: EU: CLINK COOL 19, CLINK COOL 20, CLINK COOL 21,
CLINK COOL 22, and CLINK COOL 23

1.0 Source Description

FG CLINK COOL Systems are used to cool the clinker, reclaim hot air for return to the kilns and move clinker to FG CLINKER SYS. The FG CLINK COOL systems each have three main system components:

Clinker Coolers

- A clinker cooler system that receives hot clinker from the kilns and cools it with air.
- 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.
- A clinker cooler dust collection system that removes dust from air leaving the clinker cooler before it reaches the atmosphere, including a clinker breaker, cooling fans, the clinker cooler baghouse, and the clinker cooler stack.

2.0 System Emission Points and Air Pollution Control Equipment

During FG CLINK COOL System operations, particulate matter is emitted at various emission points. The system includes a number of fabric filters to control particulate matter emissions at the clinker cooler, conveyor, and the dust collection system. The following table summarizes system emission points and applicable air pollution control devices (APCDs):

Emission Point #	Description	Air Pollution Control Device	Equipment #	VE Inspection Interval
25-267	Dust collector, clinker cooler 20 conveyor, Kiln 20	Fabric Filter #27	25-267	Monthly
25-268	Dust collector, clinker cooler 21 conveyor, Kiln 21	Fabric Filter #28	25-268	Monthly
25-506	Dust collector, drag conveyor pickups	Fabric Filter #46	25-506	Monthly
25-507	Dust collector, KG5 Clinker cooler process	Fabric Filter #47	25-507	Monthly
25-825	Dust collector, conveyor pickups, KG5 clinker	Fabric Filter	25-825	Monthly
26-252	Dust collector, K22 cooler	Fabric Filter #52	26-252	Monthly
26-258	Dust collector, K23 cooler	Fabric Filter #58	26-258	Monthly
26-840	Dust collector, reclaim tunnel, KG6 cc process	Fabric Filter	26-840	Monthly
26-251	Dust collector, clinker clr conveyor 26-205, Kiln 22	Fabric Filter #51	26-251	Monthly

Emission Point #	Description	Air Pollution Control Device	Equipment #	VE Inspection Interval
26-257	Dust collector, drag conveyor, pups 26-206	Fabric Filter #57	26-257	Monthly
26-825	Dust collector, KG6 Drag conveyor pickups	Fabric Filter	26-825	Monthly

Applicable Emission Limit

The emission limits applicable to the FG CLINK COOL Systems (40 CFR 63.1345) are the following:

1. Particulate emissions must not exceed 0.050 kg/Mg dry feed.
2. Visible emissions must not exceed 10 percent opacity (40 CFR 63.1348).

3.0 Operator Procedures for Minimizing Visible Emissions from FG CLINK COOL Systems during Normal FG CLINK COOL System Operations

FG CLINK COOL System operations are performed in accordance with the Lafarge Standard Operating Procedure (SOP) documents for the Dust Return, and Kiln Groups 5 and 6. 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 CLINK COOL Systems equipment, including:

Equipment #	Equipment Name
	Kiln Group 5 Clinker Cooler to Common Stack
25-267	Dust collector, clinker cooler 20 conveyor, Kiln 20

Equipment #	Equipment Name
25-201	Clinker cooler 20 conveyor, Kiln 20
25-180	Clinker breaker, cc for Kiln 20
25-268	Dust collector, clinker cooler 21 conveyor, Kiln 21
25-203	Clinker cooler 21 conveyor, Kiln 21
25-181	Clinker breaker, cc for Kiln 21
25-506	Dust collector, drag conveyor pickups
25-202	Drag conveyor
25-204	Drag conveyor
25-207	Drag conveyor
25-179	Clinker breaker, cc for Kiln 19
25-507	Dust collector, KG5 Clinker cooler process
25-729	Damper, cooler 19
25-159	Clinker cooler, Kiln 19
25-730	Damper, cooler 20
25-160	Clinker cooler, Kiln 20
25-731	Damper, cooler 21
25-161	Clinker cooler, Kiln 21
25-825	Dust collector, conveyor pickups, KG5 clinker
	Kiln Group 6 Clinker Coolers 22 and 23 to Stacks
26-252	Dust collector, K22 cooler
26-162	K22 clinker cooler
26-182	Clinker breaker
26-301	Screw conveyor
26-302	Screw conveyor
26-303	Screw conveyor
26-304	Screw conveyor
26-305	Screw conveyor
26-306	Screw conveyor
26-258	Dust collector, K23 cooler
26-163	K23 clinker cooler
26-183	Clinker breaker
26-307	Screw conveyor
26-308	Screw conveyor
26-309	Screw conveyor
26-310	Screw conveyor
26-311	Screw conveyor
26-312	Screw conveyor
26-840	Dust collector, reclaim tunnel, KG6 cc process
	Clinker Cooler Dust collection
26-251	Dust collector, clinker clr conveyor 26-205, Kiln 22
26-313	Screw conveyor
26-205	Clinker cooler conveyor
26-257	Dust collector, drag conveyor, pups 26-206
26-314	Screw conveyor
26-206	Drag conveyor
26-825	Dust collector, KG6 Drag conveyor pickups

The FG CLINK COOL Systems PM schedule is maintained on MAXIMO. The PM schedules and the PM task lists for equipment in the FG CLINK COOL 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 *Opacity Monitoring Requirements*

The FG CLINK COOL System fabric filter's emissions are monitored for opacity using the Methods described in the next two subsections. All coolers utilize continuous opacity monitors (COMs) in accordance with 40 CFR 63.1350(c). The COMs are installed, maintained, calibrated, and operated as required by 40 CFR 63, Subpart A and 40 CFR 60 Appendix B PS-1. Opacity is maintained such that the 6-minute average opacity does not exceed 10 percent for the coolers.

5.2 *Periodic Method 22 Visible Emissions Monitoring Requirements*

Parts of the FG CLINK COOL 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 FG CLINK COOL 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)].

5.3 Periodic Method 9 Opacity Tests

Whenever visible emissions are observed during a Method 22 test of the FG CLINK COOL 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 CLINK COOL 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 CLINK COOL Systems 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

<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